

Oliver C. Ruppel | Harald Ginzky | Ruda Murray (eds.)

Legal Pathways to Sustainable Soil Management in Africa

Insights from Botswana, Burkina Faso, Cameroon, Kenya, Madagascar, Morocco, Mozambique, Namibia, South Africa, Uganda and Zambia



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Foreword

It is with great honour that I introduce *Legal Pathways to Sustainable Soil Management in Africa*. This publication marks a significant milestone in the collective effort to strengthen soil governance across the continent, offering valuable insights into the legal frameworks of Botswana, Burkina Faso, Cameroon, Kenya, Madagascar, Morocco, Mozambique, Namibia, South Africa, Uganda, and Zambia.

As Africa grapples with the growing challenges of climate change, food insecurity, and land degradation, this work serves as both a guide and a call to action. Soil is the foundation of life. Its health is directly tied to agricultural productivity, biodiversity, water security, and climate resilience. Yet, across Africa, unsustainable land use, deforestation, overgrazing, and the expansion of extractive industries are placing unprecedented pressure on this vital resource. The consequences of soil degradation are severe, leading to declining crop yields, increasing rural poverty, forced migration, and greater vulnerability to extreme weather events. In the face of global food supply challenges and a rapidly worsening climate crisis, the need for robust legal and policy frameworks to safeguard soil has never been more urgent.

Africa has made significant strides in climate diplomacy, as seen in commitments made at COP28 and the continent's growing role in shaping global environmental governance. Initiatives such as the Loss and Damage Fund create new opportunities to finance soil rehabilitation and climate adaptation projects. Moreover, the African Union's Agenda 2063 and the United Nations Sustainable Development Goals (SDGs)—particularly SDG 15, which focuses on life on land—underscore the importance of protecting soil as a critical resource for sustainable development.

A crucial step toward this goal will be the drafting of a *Pan-African Model Law on Sustainable Soil Management*, to be endorsed by the Pan-African Parliament, to serve as a legislative blueprint for African Union member states. The Pan-African Parliament, under Article 17 of the African Union Constitutive Act, is mandated to promote “the full participation of African peoples in the development and economic integration of the continent.” It is also empowered to recommend model legislation to member states in the interest of the people, making it an essential actor in advancing soil protection across Africa.

Recognising the urgent need for legal and institutional responses to soil degradation, a landmark cooperation agreement was signed on 10 October 2019 between the Pan-African Parliament, Stellenbosch University (through its Development and Rule of Law Programme / DROP), and the German Environment Agency (Umweltbundesamt / UBA). This Memorandum of Understanding (MoU) for-

mally brought DROP and UBA into the sphere of academic diplomacy and policy development in Africa, reinforcing collaboration on environmental law and governance.

This publication builds on the foundation laid by the *African Soil Protection Law* (2021), which was the first result of the aforementioned cooperation. It expands the scope to additional countries and deepens the analysis of existing legal structures and governance mechanisms. It highlights both progress and persistent gaps in national soil policies, offering concrete recommendations for strengthening legislation to safeguard Africa's soils. More importantly, it advocates for a harmonised approach across the African Union, calling for the development of a *Pan-African Model Law on Sustainable Soil Management* to guide national governments in addressing soil degradation more effectively.

The increasing recognition of regenerative agriculture and agroecology signals a shift towards nature-based solutions as key strategies for restoring degraded landscapes. Large-scale initiatives such as the Great Green Wall and emerging soil carbon projects further illustrate the need for sustainable soil management as a pillar of Africa's climate resilience. However, without strong regulatory frameworks, monitoring and enforcement mechanisms, these initiatives risk being fragmented and underfunded.

The insights presented in this publication are the result of rigorous research and collaboration among legal experts, policymakers, scientists, and civil society organisations. The analysis also benefited from the close cooperation with the Committee on Rural Economy, Agriculture, Environment, and Natural Resources of the Pan-African Parliament (PAP), as well as with the African Ministerial Conference on the Environment (AMCEN), the United Nations Environment Programme (UNEP), the Food and Agriculture Organization (FAO), and the African Soil Partnership.

The approach integrates legal analysis with practical realities, ensuring that recommendations are both actionable and grounded in the lived experiences of communities across Africa. This is particularly urgent in regions affected by conflict, where instability disrupts land use, agricultural productivity, and soil conservation efforts. The environmental toll of mineral extraction and resource-driven conflicts further exacerbate soil degradation, underscoring the need for stronger governance mechanisms to mitigate long-term damage.

As we move forward, broad stakeholder engagement—including traditional leaders, farmers, environmental advocates, and government institutions—will be essential in shaping policies that reflect Africa's diverse socio-economic and environmental contexts. The path to sustainable soil management is a shared responsibility, requiring coordinated efforts at all levels.

I extend my deepest appreciation and congratulations to the editors, authors, and funding partners (particularly the German Ministry for Development Cooperation / BMZ), who have contributed to this important work. This publication stands as a

testament to our collective resolve to protect Africa's soils, ensuring their productivity and resilience for generations to come.

Professor Sibusiso Moyo

Stellenbosch University, Deputy Vice-Chancellor: Research, Innovation and Postgraduate Studies

Stellenbosch, February 2025

Editor's preface

Healthy soils are crucial for building sustainable societies, ensuring food security, driving economic prosperity, and fostering social justice. They also play a crucial role in mitigating climate change, supporting climate adaptation, and maintaining essential ecosystem services.

This is particularly true for Africa, where agriculture remains the backbone of many economies and livelihoods. However, soil fertility across the continent is in decline, threatening food security and efforts to eradicate hunger and poverty. Reversing this trend is both urgent and complex. Numerous challenges stand in the way, including limited technical, human, and financial resources, outdated soil data, and administrative inefficiencies that hinder effective soil management.

At the heart of the solution lies the law. Strong legal frameworks are essential for shaping soil governance—prohibiting harmful practices, promoting sustainable agriculture, and ensuring the responsible use of land. However, laws must go beyond setting standards; they must also define clear responsibilities for governments, private actors, farmers, and civil society. Effective implementation and enforcement mechanisms are crucial to translating legal provisions into meaningful action.

This book presents a comprehensive analysis of soil legislation across eleven African countries, offering a unique and regionally representative perspective. Covering all five regions of Africa, the studies examine legal provisions at constitutional, legislative, and technical levels while also addressing institutional challenges. The research highlights key drivers of soil degradation, including unsustainable agricultural practices, rapid urbanisation, mining, foreign investments, and insecure land tenure. Additionally, chapters on the African Union's soil policy, the Pan-African Parliament's role, and the intersection of international trade, food security, and soil management provide valuable insights into the broader governance landscape.

We hope this book will raise much-needed public awareness about soil governance. More importantly, we aspire for it to lay the groundwork for drafting a Model Law on Sustainable Soil Management for the entire African continent. This legal framework, set to be developed in 2025, aims to be adopted by the Pan-African Parliament and recommended to national legislatures as a foundation for domestic adaptation and implementation.

Our ultimate vision is that this model law will create lasting momentum—driving legal reforms, strengthening institutions, and ensuring that soils are recognised and protected as the very foundation of life and prosperity, not just in Africa but worldwide.

Finally, we extend our deepest gratitude to the German Ministry for Development Cooperation / BMZ for supporting this project and to all those who contributed to this

Editor's preface

book—the authors, reviewers, participants in civil society discussions, and, in particular, Dr Katharina Schlichting, whose editorial efforts were invaluable.

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Stellenbosch, February 2025

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Executive summary

Harald Ginzky & Oliver C. Ruppel

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1 Introduction

This executive summary provides an overview of key findings and reasoning behind the chapters of this book. As a core outcome of the project on *Model Law for Sustainable Soil Management in Africa* funded by the German Ministry for Development Cooperation (BMZ) and jointly led by Oliver C. Ruppel and Harald Ginzky, this summary first outlines the project's objectives and context before summarising the main results and arguments presented in the book.

The summary also serves as a foundational document for understanding the proposed *Model Law for Sustainable Soil Management in Africa*, which is set to be submitted to the Pan-African Parliament in 2025.

1.1 The Model Law for Sustainable Soil Management in Africa Project

The primary objective of this project, funded by the German Federal Ministry for Economic Cooperation and Development (BMZ), is to develop a comprehensive *Model Law on Sustainable Soil Management*. This model law is intended for adoption by the Pan-African Parliament (PAP) and to be recommended to national legislatures across Africa.

The law is being developed through extensive research and consultation, incorporating insights from in-depth studies conducted in multiple African countries to ensure regional representation. The process also involves collaboration with key international and regional partners, including the Food and Agriculture Organization of the United Nations (FAO), the United Nations Convention to Combat Desertification (UNCCD), the United Nations Environment Programme (UNEP), the African Union (AU), the African Ministerial Conference on the Environment (AMCEN) and the African Soil Partnership (ASP), several national parliaments, as well as representatives of national governments.

The project builds on the outcomes of *Mapping Out Options for a Model Legislation on Sustainable Soil Management in Africa*, which evaluated soil governance frameworks in Cameroon, Kenya, and Zambia. Findings from this earlier initiative, along with stakeholder engagements across Africa, were published in the *African Soil Protection Law* (2021, Nomos-Verlag). Jointly led by the authors of this chapter, the project consists of three key components:

- Country studies and legal proposals: Expanding legal research on soil management across Africa, including updated and new studies in Botswana, Burkina Faso, Cameroon, Kenya, Madagascar, Morocco, Mozambique, Namibia, South Africa, Uganda, and Zambia. Each study provides tailored recommendations for national legal and policy reforms.
- Development of the Model Law: Drafting a framework *Model Law on Soil Protection* with explanatory notes, alongside policy papers addressing critical areas such as urbanisation, agriculture, and mining. These papers outline regulatory options and specific legal measures to strengthen soil governance.
- Stakeholder engagement and policy integration: Conducting iterative consultations with the PAP and international institutions, including UNEP, FAO, UNCCD, the ASP, and the AMCEN, to refine and align the model law with regional and global sustainability goals.

By providing a legal blueprint for sustainable soil management, this initiative aims to strengthen soil governance across Africa, safeguarding the continent's agricultural productivity, environmental resilience, and long-term food security.

1.2 Purpose of this book

This book is the first major outcome of the *Model Law for Sustainable Soil Management in Africa* project. It presents the eleven country studies that form the foundation for developing a model law on sustainable soil management in Africa, alongside insights from extensive stakeholder consultations.

Each country study follows a consistent structure, covering:

- Country overview;
- Key drivers of soil degradation;
- Public law on soil management;
- Legislation addressing the main drivers of soil degradation; and
- Conclusions and recommendations.

Beyond the country studies, the book includes three additional chapters that provide broader policy and legal context:

- A comparative analysis of the AU's soil policy and the regulatory approaches of the European Union.

- An examination of the PAP's role and legal competencies in shaping continental soil governance.
- An exploration of the intersections between international trade regulations, food security, and soil health.

This book serves as an essential resource for understanding both the strengths and gaps in national soil governance frameworks across Africa, as well as the AU's approach to soil policy. It also provides the necessary background for engaging with the forthcoming *Model Law for Sustainable Soil Governance in Africa*.

By the end of 2025, the final proposal for the model law, along with explanatory notes, will be published as a next volume in this series.

2 The importance of soil for Africa

Soil is the foundation of life on Earth, supporting ecosystems, agriculture, economies, and human well-being. In fact, soil is an irreplaceable resource and it holds the planet's capacity to sustain life, making it one of our most vital resources. In Africa, where land and agriculture are central to livelihoods, culture, and economic development, the health of soils is particularly crucial.

Soil is the foundation of food security: Over 95% of global food production depends on soil, making healthy and fertile soil a fundamental requirement for eradicating hunger and ensuring long-term food security. In Africa, where millions depend on agriculture for their livelihoods, degraded soils directly threaten food production, drive up food prices, and increase vulnerability to malnutrition and poverty.

Soil is key to economic prosperity: Healthy soils underpin agricultural productivity, constituting approximately 20% of Africa's per capita gross domestic product (GDP) and employing 60% of the continent's workforce. Sustainable soil management is not just an environmental necessity—it is an economic imperative. Well-managed soils can boost national economies, enhance agricultural exports, and ensure that economic gains benefit local farmers and rural communities.

Soil plays a critical role in fighting climate change: Africa is highly vulnerable to climate change, experiencing rising temperatures and increasing extreme weather events such as droughts, floods, and heat waves. Soils act as one of the world's largest carbon sinks, helping to mitigate climate change by storing carbon and regulating greenhouse gas emissions. However, land degradation, deforestation, and poor agricultural practices reduce this capacity, worsening climate vulnerabilities.

Soil sustains biodiversity and ecosystem services: Soils host an incredible diversity of microorganisms, fungi, and invertebrates that drive essential ecological processes. These organisms support the nutrient cycle, improve plant health, regulate greenhouse gas emissions, and contribute to carbon sequestration. Maintaining healthy soils is

critical for sustaining Africa's rich biodiversity and ensuring the resilience of natural ecosystems.

Healthy soils are essential for human health and well-being: Soil health is directly linked to human health through food production, water filtration, and air quality. Degraded soils reduce crop nutritional value, contribute to water scarcity, and increase exposure to contaminants. Additionally, green spaces, supported by healthy soils, improve urban environments by cooling cities, enhancing mental well-being, and fostering social cohesion. Protecting soil health is not just about preserving nature—it is about safeguarding the well-being of present and future generations.

As Africa faces mounting challenges, including climate change, land degradation, and rapid urbanisation, protecting and restoring soil health must be a priority. Sustainable soil management is not just an environmental issue—it is a cornerstone of food security, economic stability, biodiversity conservation, and human resilience.

3 Soil degradation in Africa: Key drivers and players

The decline of soil health in Africa has far-reaching and severe consequences, not only for food production but also for economic stability, social cohesion, and environmental sustainability. Infertile soils lead to reduced agricultural yields, increasing poverty, exacerbating resource conflicts, and driving migration and instability. Soil degradation is not just an African issue—it has global repercussions, as the continent's ability to sustain its growing population and contribute to global food security is increasingly under threat.

With Africa's population projected to double by 2050, the need for healthy, fertile soils has never been more urgent. However, multiple factors are driving rapid soil degradation across the continent.

3.1 Key drivers of soil degradation in Africa

Agriculture and livestock: Agriculture remains the backbone of Africa's economy, employing most of the workforce and contributing significantly to GDP. However, despite its economic importance, Africa struggles to produce enough food to sustain its growing population. Soil degradation is a major factor behind this challenge. Approximately 65% of arable land, 30% of grazing land, and 20% of forests in Africa are already degraded. To meet food demand by 2050, agricultural productivity must increase by at least 70%. This pressure often leads to the overuse of synthetic fertilisers, which can cause soil acidification and pollution of nearby water bodies. Slash-and-burn agriculture destroys soil organisms and nutrients, while excessive ploughing

leads to erosion. Overgrazing by livestock strips vegetation, compacts the soil, and accelerates land degradation.

Mining and extractive industries: Africa is rich in mineral resources, with Sub-Saharan Africa holding approximately 30% of the world's critical mineral reserves. While mining is a major economic driver, its impact on soil health is often severe. Industrial mining operations clear vast areas of land, leading to deforestation, erosion, and chemical contamination from heavy metals. Conducted within local communities, artisanal and small-scale mining (ASM) often leads to widespread land degradation, soil contamination from mercury and cyanide, and displacement of farmers from arable land.

Industrialisation and pollution: Although industrialisation levels vary across African countries, nations such as South Africa, Morocco, Kenya, and Egypt have developed significant industrial sectors. However, industrial expansion poses a growing risk to soil health. The improper disposal of hazardous industrial waste leads to soil pollution, disrupting decomposition processes, and harming soil quality. Industrial development often encroaches on fertile land, leading to soil sealing and reducing agricultural space.

Foreign investment and land acquisition ("land grabbing"): Foreign direct investment (FDI) in Africa's agricultural sector has the potential to boost productivity, but poorly regulated investments can result in negative environmental and social impacts. Some foreign investors secure vast areas of arable land, depriving local communities of their livelihoods and access to natural resources. Large-scale plantations, often established for export crops, exhaust soil nutrients, leading to long-term degradation.

Urbanisation and infrastructure development: Africa's cities are growing rapidly, with urbanisation rates among the highest in the world. While economic opportunities expand, urbanisation puts immense pressure on soil resources. Expanding cities lead to the loss of fertile land as soils are covered by concrete and asphalt for buildings, roads, and infrastructure (known as "soil sealing"). Many African cities are located on prime agricultural land, reducing available space for food cultivation and increasing reliance on imported food.

Poverty and hunger: Poverty and food insecurity are both causes and consequences of soil degradation. When people struggle to meet basic needs, they may resort to unsustainable practices such as overharvesting, deforestation, or illegal mining, further degrading the land. In desperate situations, communities may allow unsanctioned mining, deforestation, or land transactions that contribute to further degradation.

Weak governance, policy implementation, and enforcement: Many African countries lack strong legal frameworks dedicated to soil protection. Conflicting interests, lack of political will, and weak institutional coordination hinder effective policy implementation. Many governments lack the technical expertise, personnel, and financial resources to enforce environmental regulations and promote sustainable land use.

Insecure land tenure and property rights: Land tenure insecurity is a major obstacle to sustainable soil management in Africa. Approximately 90% of rural land in Africa remains undocumented, leading to disputes and uncertainty over land rights. Without secure land rights, farmers are less likely to invest in soil conservation practices such as agroforestry, crop rotation, or soil regeneration techniques.

Multiple crises and global challenges: Africa's soil crisis is further aggravated by intersecting global crises that limit access to resources and hinder sustainable land management. Economic instability and supply chain disruptions increase the cost of fertilisers, seeds, and sustainable farming inputs. Conflicts, such as the wars in Ukraine and the Middle East, affect global trade, reducing African countries' access to essential agricultural inputs. The COVID-19 pandemic highlighted Africa's vulnerability to global shocks, reducing international development funding, and delaying critical agricultural projects.

3.2 Key players in soil protection and governance

Addressing soil degradation requires coordinated action from multiple stakeholders, including:

- **Governments and policymakers:** National governments must strengthen soil governance frameworks, enforce environmental laws, and invest in sustainable agricultural policies.
- **Competent authorities:** Responsible for the implementation of policies and legal provisions.
- **Regional and continental institutions:** The AU, the PAP, and regional economic communities (RECs) play a crucial role in harmonising policies and promoting best practices.
- **International organisations:** UNEP, the FAO, and the UNCCD, among others, support soil conservation through funding, research, and technical assistance.
- **Farmers and local communities:** Smallholder farmers are the frontline stewards of soil health. Their knowledge, participation, and access to resources are critical to restoring degraded lands.
- **Private sector and foreign investors:** Responsible investment in agriculture and land-use projects can support sustainable soil management, but strong regulatory frameworks are needed to prevent environmental harm.
- **Research institutions and civil society:** Universities, non-governmental organisations (NGOs), and advocacy groups play a key role in driving awareness, conducting research, and influencing policy reforms.

4 Current soil governance in Africa: Strengths, weaknesses, and gaps

This section outlines the strengths, weaknesses, and gaps in Africa's current soil governance. It focuses primarily on national policies and legislation, providing an overview based on eleven country studies. Governance is understood in its broadest sense, encompassing mechanisms that influence societal behaviour. The findings presented here also serve as the foundation for the recommendations on improving soil governance in the subsequent section.

4.1 Strengths of current soil governance

Growing awareness and initiatives: Many African governments recognise the critical role of healthy soils in ensuring food security and sustaining livelihoods. Increasing discussions on national soil strategies reflect this awareness. Additionally, international interest in Africa's natural resources, including soil, has led to substantial external support for sustainable soil management initiatives.

Deep cultural and emotional connections to land: In many African societies, land and soil hold profound cultural, historical, and personal significance. This intrinsic attachment can serve as a powerful motivator for soil conservation and sustainable management practices. When harnessed effectively, this emotional connection can encourage active participation of people, traditional leaders and communities in soil governance.

Community engagement and traditional knowledge: Local communities play an essential role in soil management. Traditional and indigenous knowledge, such as the use of Zai pits and half-moon techniques, has been instrumental in enhancing soil fertility and resilience. Integrating these practices with modern approaches can offer effective, context-specific solutions to soil degradation.

Momentum for building resilience: Many African countries are adopting resilience-building strategies to combat environmental degradation and climate change. Approaches such as conservation agriculture, integrated soil fertility management, agroecology, and regenerative agriculture are gaining traction. These methods help mitigate soil erosion, improve fertility, and ensure long-term agricultural productivity.

Existing legal frameworks: Most African nations have legal frameworks addressing environmental protection, which indirectly support soil conservation and sustainable land management. While these laws provide a foundation for governance, they often lack specificity in addressing soil health comprehensively.

4.2 Weaknesses and gaps in current soil governance

4.2.1 Economic challenges

Insufficient financial resources: Many African countries lack adequate funding to implement effective soil governance. Limited capital, technology, and financial incentives hinder the adoption of sustainable land management practices. Smallholder farmers, often viewed as high-risk by financial institutions, struggle to access credit, further limiting agricultural development.

Unregulated foreign investments: Large-scale foreign land acquisitions frequently lack transparency and fail to protect local tenure rights. Between 2010 and 2020, an estimated 7.3 million hectares of land in sub-Saharan Africa were leased or acquired under conditions that often disregarded local communities' interests and legal protections.

4.2.2 Institutional and political challenges

Fragmented responsibilities and weak institutions: Soil governance responsibilities are often divided among multiple ministries and agencies, leading to uncoordinated efforts. Centralised governance structures struggle with effective local implementation of soil management policies.

Limited public participation and access to justice: Legal frameworks frequently fail to guarantee meaningful public participation in soil governance. The use of colonial languages, such as English, French, and Portuguese, in official environmental policies creates barriers for rural communities, limiting their engagement in decision-making processes.

4.2.3 Legal challenges

Outdated and fragmented legal frameworks: While environmental laws exist in many countries, specific soil governance regulations are often outdated and inconsistent. The absence of a unified legal approach hampers effective soil management.

Conflicting land tenure systems: Legal uncertainty arises from overlapping customary and statutory tenure systems, leading to land disputes and insecure land rights. These conflicts disproportionately affect marginalised groups, often resulting in loss of land and reduced incentives for soil conservation. Foreign investors, supported by international legal expertise, frequently exploit these tenure insecurities.

4.2.4 Operational and knowledge gaps

Weak enforcement and monitoring: Governments often lack the financial and human resources to enforce soil protection regulations. Ministries responsible for soil governance frequently suffer from understaffing, limited technical expertise, and inadequate equipment. Agricultural extension services, essential for supporting sustainable practices, are similarly underfunded and under-resourced.

Limited expertise and outdated soil data: The lack of well-equipped soil laboratories and trained soil scientists in Africa is a significant barrier to effective soil governance. Soil maps are often outdated, and research funding is minimal. In 2020, Africa had only 285 soil laboratories, the lowest among surveyed global regions.

Science-policy gaps: Disconnects between scientific research and policymaking result in misaligned priorities and a lack of access to critical data. Addressing soil pollution, for example, requires a comprehensive, georeferenced soil information database. However, most African countries lack functional systems to provide this essential data.

Limited knowledge and education resources: While awareness of soil health's importance has grown, knowledge gaps persist in many African societies. Challenges such as inadequate agricultural extension services, limited veterinary support, and insufficient training programs hinder farmers' ability to adopt sustainable practices. Although agricultural policies exist, they often fail to integrate effectively with education and social protection initiatives, further limiting their impact.

5 Core recommendations for soil governance based on the country studies

Soil degradation in Africa is driven by multiple factors, including agriculture, mining, industrialisation, and foreign investment. While these activities may contribute to economic growth and poverty alleviation, they also pose significant threats to soil health. Urbanisation, for example, accounts for nearly 30% of Africa's per capita GDP growth, providing access to services and infrastructure that create economic opportunities.

To ensure long-term sustainability, it is crucial to develop and implement policies that promote responsible soil management. By doing so, African nations can maximise economic benefits while preserving soil health, mitigating the impacts of population growth, and fostering prosperity.

The following recommendations outline key strategies for achieving sustainable soil governance.

5.1 Establishing soil-specific policies and laws

A major gap in African soil governance is the absence of dedicated soil legislation. Countries should enact comprehensive soil laws that:

- Protect soil health across key sectors, including agriculture, land management, and mining.
- Introduce a permit system to regulate activities that may harm soil quality.
- Mandate that unavoidable soil degradation is offset through the rehabilitation or restoration of degraded land elsewhere.

Additionally, integrating soil impact assessments into broader environmental assessments will ensure that soil considerations are factored into all development projects. Governments should also develop soil-specific standards to guide sustainable land use and enable enforcement authorities to take decisive action.

As a first step, countries should adopt national soil strategies as a policy framework for soil law development. These strategies can align soil protection with climate policies, including Nationally Determined Contributions (NDCs) and Land Degradation Neutrality (LDN) commitments while promoting sustainable land management approaches such as agroecology.

5.2 Constitutional reforms for soil protection

A strong constitutional foundation is essential for environmental protection. African nations should:

- Recognise the right to a clean and healthy environment, explicitly including sustainable soil management.
- Establish a state obligation to implement soil protection measures.
- Develop soil-specific laws to ensure long-term legal commitments to soil conservation.
- Integrate soil education into national curricula and provide capacity-building programmes for farmers.

This approach acknowledges the interconnectedness of environmental and socio-economic rights, reinforcing the importance of soil management in sustainable development.

5.3 Linking soil management to climate mitigation and adaptation as well as biodiversity protection

The role of healthy soils in climate mitigation and adaptation as well as biodiversity conservation is often underestimated. A dedicated soil law should emphasise these linkages by:

- Requiring administrative decisions to consider soil's role in climate mitigation and adaptation and biodiversity protection.
- Ensuring compliance with international climate and biodiversity commitments.
- Recognising soil as a carbon sink, incorporating soil carbon sequestration into legal frameworks.

5.4 Strengthening international cooperation

Although international agreements such as the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD), the Convention on Biological Diversity (CBD), and the Convention on Wetlands (Ramsar) address aspects of soil management, none comprehensively cover soil protection. African countries should:

- Strengthen regional cooperation under the Revised African Convention on the Conservation of Nature and Natural Resources.
- Leverage non-binding FAO guidelines on soil health, pesticide use, and land tenure as best practices.
- Formally engage with neighbouring states to coordinate transboundary soil management efforts.

5.5 Sustainable soil management and agriculture

Agriculture remains the backbone of African economies, employing up to 90% of the population in some countries. However, poor soil management threatens food security and exacerbates hunger. Key recommendations include:

- Prohibiting unsustainable agricultural practices, such as excessive chemical use and slash-and-burn techniques.
- Enforcing existing pesticide and fertiliser regulations to prevent illegal practices and environmental harm.
- Expanding agricultural extension services to promote conservation farming.
- Providing financial incentives to support ecological fertilisers, including subsidies and certification systems.

- Strengthening seed independence through legal frameworks that protect farmers' rights.
- Implementing land-use planning measures to ensure food crops are prioritised alongside cash crops.

5.6 Soils and mining

Two categories of mining must be distinguished, both of which can have significant negative effects on soils. The first is industrial mining, and the second, often referred to as artisanal mining, is small-scale mining.

To enhance soil management and protection, mining laws must integrate soil aspects into their legal frameworks. While mining is inherently detrimental to natural resources, including soils, the provisions in mining codes must ensure that these negative effects are minimised and that the interests of local communities are recognised and valued. Periodic reviews and updates to mining codes, in line with international best practices, are therefore, essential.

Strict environmental standards, including soil standards, must be implemented. Furthermore, comprehensive regulations are needed regarding waste management, site rehabilitation, and biodiversity protection.

Encouraging responsible artisanal mining through training, financial support, and incentives is also crucial. Additionally, institutional capacity-building is necessary to ensure that government agencies can effectively enforce policies and legislation addressing the adverse effects of mining on soils.

5.7 Soils for climate adaptation in urban areas

Soils are fundamental to climate adaptation in urban areas. They provide the foundation for green infrastructure, support urban vegetation to cool cities, and enable water retention during heavy rainfall. This aspect of sustainable soil management is often overlooked in Africa, where soils are predominantly viewed in the context of food production and food security, which remain key priorities across the continent.

A core challenge in urban areas is to prevent further soil sealing while promoting unsealing efforts where possible. Town planning instruments are critical for:

- Avoiding unnecessary soil sealing.
- Protecting particularly valuable soils.
- Encouraging unsealing initiatives.

Town planning laws should explicitly incorporate these requirements. Additionally, it is recommended to:

- Train experts to conduct soil assessments.

- Establish appropriate administrative procedures for soil conservation.
- Introduce dispute resolution mechanisms, including courts or other forums.
- Ensure public participation in town planning processes to integrate community perspectives.

5.8 Land use planning

Land use planning and zoning can play a crucial role in protecting soils by:

- Preventing unnecessary soil sealing.
- Safeguarding particularly fertile soils.
- Ensuring coordinated and sustainable land use.

Land use planning should be understood as a regulatory process, requiring:

- Clear legal provisions outlining responsibilities.
- Public participation in decision-making.
- Transparency in planning and policy implementation.

For better land management, land use planning should also support the revitalisation of barren lands with a focus on sustainability.

Accurate soil data is essential for effective land use planning. Developing detailed and holistic soil maps would greatly enhance planning processes and enable more informed decision-making.

5.9 Foreign investment

While foreign investment is often seen as a driver of economic development in Africa, it can pose significant challenges to sustainable soil management. Therefore, regulatory mechanisms must be put in place, including:

- Transparency requirements for foreign mining contracts and financial transactions.
- Strict environmental compliance as a prerequisite for investment approval.
- Corporate social responsibility (CSR) obligations.
- Local participation to ensure that communities have a voice in decisions affecting their land.

A Foreign Investment Code could serve as a legal framework for these measures.

Public-private partnerships are also recommended to promote responsible resource management and equitable benefit-sharing.

Additionally, governments should consider:

- Introducing an environmental tax on foreign investors, particularly in sectors such as mining, to encourage responsible environmental practices.

- Limiting large-scale land acquisitions by foreign investors to prevent land grabbing.
- Holding investors accountable for their social and environmental impact.
- Establishing specialised soil courts or tribunals to address environmental disputes related to foreign investments, ensuring local communities have legal recourse.

5.10 Measures to increase awareness

Raising awareness about soil health is essential across various dimensions, including:

- The importance of healthy soils for African societies.
- The availability of sustainable agricultural practices.
- Expanding soil knowledge to improve conservation efforts.

Agricultural extension services are particularly vital for small-scale farmers, who rely heavily on soil health for their livelihoods. Providing access to up-to-date soil quality information will empower farmers to make informed decisions.

Promoting low-cost soil conservation techniques, such as afforestation, reforestation, and agroecological practices, should also be prioritised.

Women, particularly in rural areas, play a crucial role in land and soil management, yet their contributions are often overlooked. Increasing women's participation in soil research, policy development, and decision-making would be instrumental in promoting sustainable soil management.

Enhancing soil education and community engagement can foster a culture of environmental stewardship. Key recommendations include:

- Establishing specialised educational institutions focused on soil conservation and management to equip professionals with the skills to tackle soil degradation.
- Integrating soil conservation education into school curricula to raise awareness among younger generations and cultivate future environmental leaders. By increasing awareness and education, African nations can strengthen public support for soil sustainability and ensure long-term commitment to responsible soil management.

5.11 Clarity of tenure

Clarity of tenure is a prerequisite for sustainable soil management. The lack of exclusive land use rights has contributed to the degradation of communal lands, as insecure land rights discourage long-term investment in sustainable practices. Instead, land users often prioritise short-term profits over ecological preservation.

Land rights in most African countries are governed by both statutory and customary law, but their interplay is often unclear. Achieving clarity of tenure is essential. One mechanism could be recognising customary land rights as private property in land tenure laws, providing greater security for local communities and enabling sustainable soil management practices.

Addressing land rights conflicts requires fair, inclusive consultation processes to ensure the free, prior, and informed consent of local communities. Strengthening women's land rights and ensuring their meaningful participation in decision-making is crucial. Additionally, land demarcation, public awareness campaigns, and improved legal remedies are necessary to prevent conflicts and ensure equitable land rights distribution.

5.12 Institutional rearrangements: Effective implementation and enforcement

Implementation and enforcement are key to achieving tangible improvements. Institutional arrangements can either facilitate or hinder this process. Several dimensions must be regulated by legal provisions to ensure clarity in roles, functions, and responsibilities, which also avoids overlaps, strengthens accountability and reduces corruption risks.

- Clear responsibilities among ministries must be established to prevent overlaps and conflicts.
- The distribution of authority between central and regional/local levels should be defined, with central bodies focusing on strategic aspects and legislation, while regional/local entities handle implementation.
- A national soil authority should be considered to oversee soil information, planning, evaluation, and monitoring, working alongside expert advisory bodies.
- Community representation is essential for effective soil management, necessitating the empowerment of local governance structures to enforce soil protection laws.
- Traditional leaders, though not always formally recognised by law, play a significant role in land management. Their role should be formalised within the legal framework to promote sustainable soil practices and ensure community stability.
- Enhancing monitoring capacity through training, equipping regulatory bodies, and establishing anonymous reporting mechanisms for violations is crucial.
- A national public online platform should be created for transparent access to environmental impact reports, mining permits, and data on emissions, waste, and land degradation.

- Training and capacity-building for enforcement officers at both central and local levels must be prioritised.
- Strengthening corporate accountability through dissuasive sanctions and promoting public participation in monitoring and dispute resolution are key. The use of technologies such as drones and remote monitoring can significantly improve environmental oversight.

5.13 Economic means and mechanisms

Economic incentives are critical to promoting sustainable soil management. Mechanisms should be established to compensate for short-term income losses incurred by small-scale farmers and to encourage businesses to adopt ecologically responsible practices.

- Establishing an environmental protection fund to support projects that preserve natural resources and engage the private sector in sustainability efforts.
- Prioritising industrial decarbonisation to align with global climate goals and attract responsible investments.
- Supporting small and medium-sized enterprises (SMEs) in integrating into industrial value chains to promote regional equity and create sustainable jobs.
- If public funding is insufficient, private sector contributions should be mandated, particularly from companies whose activities negatively impact soil health. Specific financing mechanisms should be defined at the national level.

5.14 Penalties

A robust penalty system is necessary, particularly in the mining sector. Criminal liability for environmental violations remains rare but could serve as a strong deterrent. However, reliance on criminal penalties should be balanced with incentives for environmentally friendly practices. A review of existing penalties is recommended to enhance their effectiveness while promoting positive behaviour.

5.15 Science policy interface and soil data management

Reliable soil data is fundamental for effective governance. Without it, regulations cannot be properly implemented. It is strongly recommended that a national soil information system be established to consolidate fragmented data on soil health and degradation.

- Various ministries, such as those responsible for agriculture, lands, and natural resources, often operate separate soil mapping systems, leading to inefficiencies. A centralised system would improve soil management and policy alignment.
- Integrating customary law approaches and indigenous knowledge into soil policies would enhance their effectiveness, particularly in areas where traditional practices remain prevalent.
- Extension services must ensure that farmers and relevant stakeholders can access and utilise soil data.
- Soil data, including mapping, should be used to develop environmental standards for soil protection, covering contamination, compaction, erosion, and salinisation. These standards should inform competent authorities and land-use planning to safeguard valuable and fertile soils.

6 Soils governance concepts of the African Union

The AU has increasingly recognised environmental challenges, yet soil protection remains inadequately addressed in its treaties and conventions. The revised African Convention on the Conservation of Nature and Natural Resources is the only legally binding AU instrument that explicitly mentions soil protection. This gap underscores the urgent need for a dedicated and comprehensive soil governance framework. While other AU environmental agreements do not specifically target soil issues, they provide valuable mechanisms—such as stakeholder engagement, youth participation, and monitoring systems—that could inform future soil protection strategies.

Recognising the crucial role of sustainable soil management in Africa's development, the AU has launched initiatives such as the Draft Framework for the Soil Initiative for Africa (SIA) and its ten-year Action Plan. However, Africa faces the ongoing challenge of balancing sustainability with economic growth, and the ability to implement concrete measures remains uncertain. The tension between environmental stewardship and development priorities complicates efforts to translate policy into action.

6.1 The binding vs non-binding legal approach

While the AU has demonstrated commitment to soil health through soft law instruments, the absence of legally binding frameworks presents a major challenge. This raises the critical question: should soil protection provisions evolve into enforceable commitments?

Scientific evidence suggests that legally binding agreements typically enjoy high compliance rates, but their impact on real-world behaviour can be limited due to

enforcement challenges. Conversely, non-binding agreements, while more flexible and adaptable, often struggle with adherence and accountability. However, their voluntary nature allows for innovative, locally tailored solutions and can be agreed upon more swiftly at the international level.

This dynamic challenges the conventional preference for binding agreements. To maximise the effectiveness of a non-binding framework, compliance assessment mechanisms must be introduced to ensure that commitments translate into measurable action. Without such mechanisms, even the most ambitious non-binding policies risk becoming mere statements of intent without tangible impact.

6.2 Institutional and implementation challenges

The AU's strength lies in its long-term vision and its ability to collaborate with NGOs and international bodies, which play a critical role in resource mobilisation and knowledge-sharing. However, significant obstacles hinder effective soil governance:

- Funding constraints limit the AU's capacity to implement large-scale soil protection programmes.
- Capacity gaps prevent the effective enforcement of policies at national and local levels.
- Weak monitoring and evaluation systems make it difficult to track progress and refine strategies over time.

Although soil protection is integrated into broader AU priorities such as Agenda 2063, the transition from soft law to binding regulations remains challenging. The lack of supranational authority and the AU's inability to bind member states further complicate implementation.

6.3 Pathway to a stronger legal framework

Healthy soils are fundamental to food security, climate resilience, and sustainable development, yet land degradation continues to threaten Africa's agricultural productivity. While AU treaties broadly address environmental concerns, soil protection is often overshadowed by other priorities. The Draft Framework for the SIA and its ten-year Action Plan represent a shift towards integrated soil management, including regenerative agriculture—moving beyond earlier policies that focused primarily on fertiliser use.

To strengthen the AU's legal framework for soil protection, a dedicated protocol or convention should be developed, drawing from existing soft law instruments while incorporating:

- Clear legal definitions and soil health indicators for effective regulation.

- Specific legal mechanisms to foster sustainable soil management.
- Establishment of appropriate institutions.
- Stakeholder engagement and youth participation to ensure inclusivity.
- Robust monitoring systems to track compliance and impact.

These mechanisms need to be implemented at national level.

6.4 Institutional coordination and partnerships

Effective implementation requires a well-defined institutional framework. The AU Commission (AUC) leads the SIA, setting strategic direction while delegating responsibilities according to the principle of subsidiarity. Additionally, the AU collaborates with a wide network of partners, including CA4SH and TerrAfrica, which operate at both continental and national levels. These partnerships facilitate resource mobilisation and ensure that soil protection strategies align with the needs of African communities.

However, coordinating this broad spectrum of partners presents challenges. Without effective communication and streamlined coordination mechanisms, financial and oversight resources may become stretched. A more targeted approach may be necessary to optimise implementation and maximise impact.

For soil protection to become a cornerstone of Africa's environmental and development agenda, the AU must move beyond policy declarations and establish a more enforceable framework. Strengthening legal commitments, institutional coordination, and monitoring mechanisms will be essential to achieving this goal. By leveraging its existing initiatives and learning from international best practices, the AU has an opportunity to secure the future of Africa's soils—ensuring long-term food security, climate resilience, and economic stability for generations to come.

7 The role of the Pan-African Parliament

The PAP faces significant institutional challenges, including the long-standing struggle for legislative authority, inadequate funding, and limited autonomy over AU resources. These constraints weaken its ability to advocate for the ratification of the Malabo Protocol and other key legal instruments. Granting the PAP legislative powers could enhance its credibility, strengthen democratic governance across Africa, and reinforce its role as a driving force for continental reform.

Comparisons with the European Parliament often highlight the PAP's limitations, but such assessments overlook the distinct political and financial realities of Africa. Rather than striving for an identical model, the PAP must focus on maximising its existing framework. Since its establishment in 2004, it has issued numerous

recommendations and resolutions on critical continental issues, demonstrating its potential influence despite its limited legislative mandate. However, without substantial reforms, the PAP risks remaining an underdeveloped institution. The 2022 updates to its Rules of Procedure introduced some improvements, yet the failure to ratify the Malabo Protocol continues to create governance inconsistencies.

The PAP's long-term success depends on sustained political commitment from AU member states, effective implementation of its evolving mandate, and stronger engagement with African citizens. Two decades after its inception, the question of its value remains pressing. Conceived as a platform to promote African unity and cooperation on governance, development, and regional integration, the PAP holds both symbolic and practical significance. Yet, persistent obstacles—leadership crises, corruption allegations, weak legislative influence, and minimal public visibility—have eroded its credibility. Many perceive it as mirroring the inefficiencies of national parliaments across Africa, further diminishing confidence in its role. These shortcomings, coupled with its significant financial burden—approximately USD 15 million annually from the AU, in addition to member state and South African government contributions—raise concerns about its effectiveness, especially given the socio-economic challenges across the continent.

The PAP now stands at a crossroads. While it has made progress in expanding its responsibilities and fostering dialogue with African citizens and AU institutions, its impact remains limited. One of its most promising avenues for influence lies in model laws, which, if adopted at the national level, can drive meaningful legal reforms. In this context, a *Model Law on Sustainable Soil Management* would be a crucial step towards addressing the pressing issue of soil degradation. Healthy soils are fundamental to food security, climate resilience, and environmental sustainability, yet remain inadequately protected across Africa. By prioritising soil as a critical natural resource, the PAP could help catalyse stronger legal frameworks across member states, ultimately strengthening the continent's agricultural and environmental policies.

8 Food security, soil protection, and international trade

Food security remains a critical priority for nearly all African states. Over the past decades, multiple crises—including poverty, the COVID-19 pandemic, climate change, geopolitical tensions, and military conflicts—have disrupted agricultural trade and undermined efforts to achieve food security. These challenges not only exacerbate hunger but also threaten fundamental human rights, particularly the internationally recognised right to food, which is legally binding on all states and institutions.

Agriculture is inherently dependent on soil health and fertility, yet climate change is increasingly degrading soils and reducing agricultural productivity. This has serious consequences for global food systems. One often overlooked factor is the intersection

of international trade law and soil protection, especially regarding the agricultural commodity trade. Shifts in trade patterns—whether through increased, decreased, or restructured trade flows—can significantly affect agricultural land use, soil degradation, and fertility. Therefore, international trade frameworks must integrate soil protection to ensure long-term food security.

8.1 Reforming the WTO for more sustainable food security

The World Trade Organization (WTO) must adapt to the realities of climate change and food insecurity by embedding sustainable agricultural practices into its policies. A key area for reform is the Agreement on Agriculture (AoA), which currently focuses on market access, subsidies, and export measures but lacks a comprehensive strategy for food security and for climate change. The WTO's legal framework must prioritise the right to food and promote environmentally sustainable agricultural practices.

A major concern is the role of multinational corporations, particularly those dominating the grain trading and food processing sectors. These corporations wield immense market power, which can either support or undermine sustainable food security efforts, with indirect consequences for soil management. Their profit-driven practices often contribute to soil degradation, supply chain vulnerabilities, and inequitable access to food. The WTO must incorporate market regulation measures that balance corporate interests with the needs of vulnerable nations and smallholder farmers, who are essential to long-term food security.

8.2 A holistic approach to trade, soil, and food security

To address these challenges, the WTO must adopt a holistic approach that integrates sustainable development, the right to food, and soil conservation into trade policies. One key recommendation is the introduction of green trade agreements that incentivise sustainable farming, protect the environment, and promote food security amid rising global demand. This requires stronger coordination between the WTO and other international bodies, such as the FAO, to ensure that trade rules address the four dimensions of food security: availability, access, utilisation, and stability.

Moreover, global food systems must be restructured to prioritise soil health. While awareness of soil protection's role in food security is growing, it must translate into concrete action. International cooperation is crucial, as demonstrated by initiatives such as the G7's Global Alliance for Food Security. However, without effective implementation, such discussions will remain symbolic rather than transformative.

8.3 Key trade reforms for sustainable agriculture

Several regulatory issues must be addressed within the WTO framework:

- **Agricultural subsidies:** The WTO should phase out harmful subsidies that distort trade and damage the environment. Instead, green subsidies should be promoted to support sustainable farming practices that enhance productivity while preserving soil health. A revised “Green Box” under the AoA could direct financial support toward environmentally friendly agriculture.
- **Market access and trade policies:** A more balanced global food distribution system is needed, particularly for less-developed countries. Smallholder farmers, who form the backbone of food security, must have a stronger voice in international trade negotiations to ensure that their sustainable farming methods are recognised and supported.
- **Export restrictions and food aid:** Trade policies should prevent artificial shortages and price volatility that disproportionately impact low-income nations. A fairer, more transparent global food system is essential.

8.4 The WTO’s role in securing the future of food and soil

The protection of fertile soils, one of the world’s most valuable natural resources, must be a core consideration in international trade policies. While soil conservation strategies must be tailored to local contexts, a coordinated global effort is necessary to address food security challenges in the context of international trade.

Dr Ngozi Okonjo-Iweala, Director-General of the WTO, has emphasised that trade is key to solving food system challenges. To drive meaningful change, global trade policies must align with environmental sustainability goals. By implementing trade reforms that prioritise soil protection, sustainable agriculture, and the right to food, the WTO can play a decisive role in securing long-term food security while safeguarding vital soil resources.

Ultimately, a sustainable future requires an integrated approach—one that recognises the interconnectedness of trade, soil health, and food security. Through ambitious reforms, the WTO can help create a more resilient, equitable, and sustainable global food system.

9 Outlook

This summary underscores the vital role of soils in securing Africa’s future, highlighting the key drivers of soil degradation and the challenges of establishing effective

governance for sustainable soil management. It also presents recommendations for appropriate legal mechanisms to address these issues.

However, this overview is only a starting point. The chapters of this book provide a more in-depth analysis and detailed recommendations. It is our hope that this summary serves as an entry point, encouraging deeper exploration of soil governance and its crucial role in sustainable development.

Recommendations for improving soil governance can be advanced at three key levels:

- International commitments: The AU could negotiate and adopt an international instrument that incorporates some or all the proposed mechanisms. This could take the form of a legally binding agreement or a non-binding framework, each with its advantages and limitations, as discussed earlier.
- Pan-African legislative framework: The PAP could take the lead by adopting a model law on sustainable soil management, as envisaged in its resolution. This model law would serve as a flexible framework, offering guiding principles and legal tools for national parliaments. Rather than a one-size-fits-all approach, it would allow for adaptation to the specific needs and contexts of each African nation.
- National legislative action: Individual national parliaments across Africa can use these recommendations to initiate or strengthen legislative processes that enhance soil protection and promote sustainable land management in their respective countries.

Urgency is key. Soil degradation is accelerating, threatening food security, deepening poverty, and worsening climate vulnerabilities across Africa. Without swift and decisive action, the challenges will become even more difficult to address.

Africa's soil governance landscape presents both opportunities and significant challenges. While growing awareness, cultural ties to land, community engagement, and existing environmental laws provide a strong foundation, gaps in financial resources, institutional coordination, legal frameworks, enforcement, and access to knowledge remain critical barriers. Overcoming these obstacles will require coordinated policy reforms, increased investment, enhanced community participation, and stronger integration between scientific research and governance structures.

By leveraging the opportunities at hand and acting decisively, Africa can secure a sustainable future for its soils—and, by extension, for its people and ecosystems. The time to act is now.

Country report for Botswana

Emma Chitsove

Abstract

This chapter examines soil management and environmental governance in Botswana. It highlights key issues such as land degradation, overgrazing, and inadequate enforcement of environmental laws, particularly emphasising the limitations of existing legislation such as the Agricultural Resources Conservation Act. The chapter explores the implications of these challenges on sustainable land use and soil health, and how they impact key sectors such as agriculture, ecosystem health, and food security.

An analysis of the existing legal framework reveals several shortcomings, including the lack of specific legislation dedicated to soil protection and the ineffective regulation of dual grazing rights. Specific attention is given to the complexities arising from overlapping institutional mandates and the inadequate implementation of policies related to land use and waste management.

The chapter also presents key findings, such as the need for a dedicated institution to oversee soil resource management and the importance of strengthening public participation in land use planning. It offers recommendations aimed at improving soil conservation practices, enhancing the enforcement of environmental laws, and establishing clearer guidelines for waste management and forestry. It concludes by emphasising the urgent need for comprehensive soil legislation and legal reforms, particularly considering emerging trends including foreign investment in sustainable practices and the growing impact of land degradation on food security.

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Summary

This chapter highlights critical issues related to land use, soil management, and environmental protection in Botswana, emphasising the need for comprehensive legislation and stronger enforcement mechanisms.

Currently, Botswana lacks specific laws dedicated to soil management. While the Constitution allows for property rights to be taken for soil protection, and the Agricultural Resources Conservation Act provides some soil protection measures, these laws are limited. It is strongly recommended that Botswana develop a dedicated policy and legislation to ensure sustainable soil resource management. Additionally, overgrazing and land degradation, particularly due to overstocking, should be addressed by amending the Tribal Land Act to effectively restrict dual grazing rights.

Land use planning in Botswana has been criticised for its technocratic nature, with limited public participation and a top-down approach that prioritises national policies over local concerns. To improve this, greater accessibility to planning processes is necessary, including making plans available in both local languages and English.

The Agricultural Resources Conservation Act currently focuses more on corrective measures than on preventive approaches to land degradation. The Act should be

amended to incorporate preventive measures that protect agricultural resources. Furthermore, the mining sector suffers from a lack of regulations and standards to safeguard soil resources, highlighting the urgent need for regulations aligned with the provisions of the Mines and Minerals Act.

Waste management also presents significant challenges, with ineffective enforcement and widespread illegal dumping. The legal framework needs to be reviewed to clarify the responsibilities of waste generators and public authorities, as well as to introduce appropriate economic incentives.

Although Botswana has limited forest cover, its forests still play an important role in the environment. The Forest Act requires revision to align with sustainable forestry management principles, and the Forest and Range Resources Bill represents a positive step forward in this regard.

The chapter also identifies weaknesses in the enforcement and monitoring of environmental laws. The discontinuation of the Agricultural Resources Board has led to a lack of conservation orders and regulations. Additionally, multiple institutions with overlapping mandates hinder effective soil management. It is recommended that a dedicated institution for soil resource management be established, with access to relevant information and the capacity to build a comprehensive soil database.

Training and capacity-building for enforcement officers, both centrally and locally, are essential to strengthen the enforcement of natural resource laws. Additionally, improving public access to environmental information, including soil data and conservation reports, is necessary to enhance transparency.

Another area of concern is the limitation on public participation in legal proceedings. Botswana's Constitution restricts access to the High Court to individuals whose rights have been infringed, and public interest litigation is not permitted. Expanding public interest litigation and including the right to a healthy environment in the Constitution would address this issue.

The chapter also highlights the need to improve the criminal liability regime, particularly in the mining sector. Criminal prosecutions for environmental violations are rare, and an overreliance on criminal penalties is problematic. It is recommended that penalties be reviewed, and incentives for environmentally friendly practices be introduced.

Land rights in Botswana are governed by both statutory and customary law, but these laws fail to provide a comprehensive framework for sustainable land use practices. The lack of exclusive land use rights has contributed to the degradation of communal lands, particularly due to overgrazing. It is recommended that laws governing tribal land be amended to restrict dual grazing rights and prevent further degradation.

While foreign investment is crucial to Botswana's economy, it often lacks environmental safeguards. Comprehensive legal reform is needed to create a foreign investment code that includes environmental protection obligations. Alternatively, the government could encourage investment in the renewable energy sector through the

Botswana Investment and Trade Centre (BITC), diversifying the economy while promoting sustainable development.

In conclusion, the chapter stresses the importance of enacting comprehensive, enforceable policies to address land degradation, improve soil management, and ensure sustainable land use in Botswana. Developing a robust legal framework, supported by effective enforcement, public participation, and access to environmental information, is essential for the long-term health of the country's land and natural resources.

1 Country information

1.1 Size

Botswana is situated in southern Africa, with about two-thirds of its land within the Tropics. It is bisected by the Tropic of Capricorn. Botswana is a landlocked country with a land area of 581,730 km². It is bordered by Zambia and Zimbabwe to the north-east, Namibia to the north and west, and South Africa to the south and southeast. In the northern part of Botswana, four countries (Zambia, Botswana, Zimbabwe, and Namibia) meet at a single point in the middle of the Zambezi River. The country lies between longitudes 20°C and 30°C degrees east of the Greenwich Meridian and between the latitudes 18°C and 27°C approximately south of the Equator.

1.2 Population

The 2022 Population and Housing Census in Botswana estimates the population at 2,346,179.¹ The overall country population density in 2022 was 4.1 per square kilometre. However, generally cities and towns have the highest population densities compared to predominantly rural districts. Gaborone has the highest density of 1,444.4 persons per square kilometre followed by Francistown with 1,296.8. Selebi-Phikwe, Orapa and Sowa Town have low population densities, with the lowest record of 18.2 persons per square kilometre in the latter. The population of Botswana is still youthful with the mean age estimated at 28.1 years, while the median age is 26. There are more women than men, with 95 men for every 100 women.²

1 See <https://www.statsbots.org.bw/sites/default/files/2022%20Population%20and%20Housing%20Census%20Preliminary%20Results.pdf>, accessed 6 March 2024.

2 See <https://www.statsbots.org.bw/sites/default/files/publications/Population%20%20Housing%20Census%202022-%20Key%20Demographic%20and%20Socio-Economic%20Indicators.pdf>, accessed 6 March 2024.

1.3 Literacy

During the previous census, the literacy rate for the population aged 15-65 years in Botswana was estimated to be 88.7%. The female literacy rate was recorded at 89.8%, while males trailed behind at 87.4%. The highest literacy rate was observed among the 18-19 years age group, with 98.8%, whereas the 60-65 years age group had a lower rate of 50.7%. From a district perspective, Jwaneng had the highest literacy rate at 94.7%, while Ngamiland West recorded the lowest rate at 41.6%.³ These statistics suggest a correlation between school attendance and poverty rates, as districts with low literacy rates also tend to have higher poverty levels.

1.4 Main economic activities

Botswana's economy is driven by mining, agriculture, tourism, services, and manufacturing, with mining as the dominant sector. The country is a leading diamond producer, with key mines at Orapa, Letlhakane, Jwaneng, and Lerala, alongside other minerals such as copper, nickel, and salt. Mining contributed 16.7% of gross domestic product (GDP) in the fourth quarter of 2023.⁴ Tourism thrives on Botswana's rich wildlife, notably in Chobe National Park and the Okavango Delta, a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site. Agriculture, primarily livestock, contributes 1.7% of GDP, with cattle production being central.⁵ Botswana is a major beef exporter to the EU. The manufacturing sector, including diamond and food processing, contributed 6% to GDP and is a focus for economic diversification.

1.5 National debt

Botswana's statutory debt⁶ ceiling is 40% of the annual GDP.⁷ This is equally divided between domestic and foreign debt. By the end of December 2023, the ratio of total

3 See <https://www.statsbots.org.bw/sites/default/files/publications/Botswana%20Multi%20Topic%20Household%20Survey%20REPORT%202015%2016.pdf>, accessed 6 March 2024.

4 See <https://www.statsbots.org.bw/sites/default/files/Gross%20Domestic%20Product%20%20Quarter%204%202023.pdf>, accessed 17 April 2024.

5 See <https://www.statsbots.org.bw/sites/default/files/Gross%20Domestic%20Product%20%20Quarter%204%202023.pdf>, accessed 17 April 2024.

6 Sec 20 of the Stock, Bonds, and Treasury Bills Act 13/2005.

7 As of 2022, the Gross Domestic Product was USD 18.50 billion, see <https://www.bitc.co.bw/invest/key-facts-and-figures/#m>, accessed 20 April 2024.

external debt to GDP stood at 9.5% while the domestic debt was 10.7% of the GDP. This resulted in a combined debt exposure amounting to 20.2% of the GDP.⁸

1.6 Foreign investments

According to the UN Trade and Development (UNCTAD), foreign direct investment (FDI) inflows into Botswana stood at USD 216 million in 2022,⁹ while the total stock of FDI reached USD 5.21 billion, which is about 27.2% of the country's GDP, with the mining sector attracting the most FDI.¹⁰ However, growth of foreign investments has been witnessed in the services industry, particularly insurance and banking. Most of the foreign investment comes from Europe and Southern Africa Customs Union (SACU) members.

1.7 Governance

Botswana follows a multi-party democratic system with national elections every five years. The President is the head of state, and the government is divided into the executive, legislature, and judiciary. It operates under a dual legal system combining Roman-Dutch law and traditional law.

Botswana has a unitary government with two tiers: national and local. Local government, guided by the 2012 Local Government Act, focuses on rural and socio-economic development. City and town councils are led by non-executive mayors, while district councils are headed by chairpersons. Administratively, councils are run by clerks or secretaries, and the District Administration is led by a district commissioner.

Local authorities handle rural development, community services, and local planning, with decision-making power and resource allocation within their jurisdiction. Traditional governance, led by a *Kgosi* (chief), works alongside councils. The *Kgosi* is an *ex officio* member of the district council, and the Department of Tribal Administration oversees tribal governance.

1.8 Competence of legislation

In Botswana, the Parliament holds the highest legislative power. It consists of two bodies: the National Assembly and the *Ntlo Ya Dikgosi* (House of Chiefs). Despite

⁸ GOB (2024).

⁹ UNCTAD (2023: 197).

¹⁰ See <https://www.lloydsbanktrade.com/en/market-potential/botswana/investment>, accessed 20 April 2024.

this, it operates under a unicameral system as only the National Assembly possesses the authority to enact laws that govern the nation.¹¹ The *Ntlo Ya Dikgosi*, on the other hand, serves as an advisory body, providing advice to the National Assembly on matters related to the Constitution, customary law, and land issues. Any bills concerning tribal affairs, customary law, and the administration of customary courts must first pass through the *Ntlo Ya Dikgosi* before they are deliberated in the National Assembly. Additionally, any review or amendment to the country's Constitution requires consultation with the *Ntlo Ya Dikgosi*.

The law-making process is very elaborate and involves numerous stakeholders. When a government ministry or department identifies a need for a new law or an amendment to an existing one, they first consult the Attorney General.¹² If approved, a proposal is prepared and circulated among all ministries, departments, and relevant parties for feedback. After incorporating the feedback, a memorandum is submitted to the Cabinet. If approved, a Presidential directive is issued for drafting the bill. Once the bill is drafted and approved by the concerned ministry, it is attached to a Cabinet memorandum and sent to the Cabinet for approval to be published in the Gazette and introduced in the National Assembly.

Upon Cabinet approval, a Presidential Directive is issued for the bill's publication and introduction in the National Assembly. The bill must be published at least 30 days before its introduction unless it is a bill of urgency. The bill goes through several stages in the National Assembly: First reading (title read out), second reading (general merits and principles debated), Committee stage (clause by clause examination and amendments), and third reading (formality, debate on content, no amendments). After being passed, the bill is sent to the President for approval. It becomes an Act of Parliament once the President signs it.

1.9 Competence of enforcement

The different acts of Parliament bestow enforcement powers to the respective Ministers/ministries depending on the subject matter. Issues relating to environmental protection are under the purview of the Ministry Responsible for Environment while agricultural issues are under the Ministry Responsible for Agriculture. Further enforcement mechanisms are derived from the respective acts. Under most acts creating criminal offences for certain conduct, the Botswana Police Service is the primary law enforcement entity. It works in conjunction with the Directorate on Corruption and Economic Crime (DCEC) and the Directorate of Public Prosecutions (DPP) to investigate

11 Sec 87(1) of the Constitution of Botswana, 1966.

12 There are two bills: Government Bills and Private Member Bills. The former is brought to the House by Ministers, and the latter is brought to the House by Private Members (Members of Parliament who do not have any Ministerial portfolio).

and prosecute criminal offences. Therefore, enforcement of laws is a collective responsibility of several entities.

In the context of soil management in Botswana, the Agricultural Resources Conservation Board established under the Agricultural Resources Conservation Act of 1974, is an important enforcement institution. The Board has several key functions that include issuing Conservation Orders and constructing works for the conservation and improvement of agricultural resources. This Board, in practice, has not been functioning, therefore, enforcement of this Act has been poor.

At the district level, the district councils are empowered to undertake physical planning and development of areas or settlements under their jurisdiction. This positions the councils as important players in the management of natural resources, including soils. In line with this, the Local Government Act of 2013 establishes a law enforcement office in every council to enforce by-laws made by the council and any other laws delegated to be enforced by the council. The number of law enforcement officers is determined by the council. These officers have the power to arrest, search, seize, detain, and impose fines for contravention of a by-law.

1.10 Role of traditional entities

Traditional authorities in Botswana derive their power from customs and laws, with recognition through legislation such as the Constitution, which establishes the *Ntlo Ya Dikgosi* (House of Chiefs). This body, consisting of 33 to 35 members, advises the government on matters related to the powers of traditional leaders, customary law, and tribal issues, though its advice is non-binding.

The *Kgosi*'s role, as outlined in the Bogosi Act of 2008 (Chapter 41:01), includes promoting tribal welfare, leading *kgotla* meetings, overseeing tribal ceremonies, resolving disputes, and preventing offences. Traditional leaders also administer justice through customary courts, although their jurisdiction is limited,¹³ especially regarding conservation-related offences,¹⁴ and must align with statutory law.¹⁵

Traditional authorities are key in managing indigenous knowledge, particularly in land and resource management. Their decisions on grazing, harvesting, and soil fertility are informed by traditional practices, some of which were confirmed by scientific

13 Sec 13 of the Customary Courts Act lists cases where the customary courts lack jurisdiction, and these include rape, robbery, and treason.

14 For instance, offences or disputes under the Wildlife Conservation and National Parks Act and the Agriculture Resources Act, the Magistrates' courts have jurisdiction.

15 Sec 2 of the Customary Law Act [Cap 16:01] and Customary Courts Act [Cap 04:05] defines "customary law", concerning any particular tribe or tribal community, as the customary law of that tribe or tribal community so far as it is not incompatible with the provisions of any written law or contrary to morality, humanity or natural justice.

studies.¹⁶ However, the centralisation of governance has weakened the influence of traditional leaders, diminishing traditional practices as national priorities have taken precedence.

2 Soil degradation

2.1 The state of the environment

The environment in Botswana is influenced by various factors, including population dynamics, economic growth, climate, and geography. The agricultural activities of most of the population, despite the country's small size, contribute to land mismanagement and environmental degradation. Furthermore, Botswana's rapid economic growth, with a significant increase in per capita GDP over the years, has led to adverse effects on the environment such as land sealing for development purposes and industrial pollution.

Being classified as semi-arid and arid, Botswana experiences limited rainfall, with an average of 250 mm in the southwest and around 650 mm in the north. This makes the country vulnerable to severe droughts and flash floods. Additionally, the high evaporation rates of 2,200 mm per year result in low soil moisture content. Furthermore, average temperatures in Botswana have risen by 0.85°C since the 1960s.¹⁷ These changing climatic conditions have significant implications for the country's environmental state.

The ecological condition map of Botswana classifies the country's land into three categories: natural, degraded, and not-natural.¹⁸ According to the current map, 70.6% of Botswana's land remains in a natural state, unchanged significantly from its original condition. The degraded areas account for 22.2% of the country's total land area. Additionally, 7.2% of the land has been irreversibly transformed for urban use and other non-natural purposes. Most of these degraded and lost areas are concentrated in the southeastern parts of Botswana, where human population density is highest.

2.2 Soils profile

Botswana's soil can be categorised into four primary zones: the Hardveld, Sandveld, Lacustrine, and Alluvial. The Hardveld and Sandveld are primarily utilised for agricultural purposes, with the Hardveld being particularly suitable for mixed farming and the Sandveld extensively used for livestock production. Overall, the soils in Botswana

¹⁶ Cassidy et al. (2011: 84).

¹⁷ GOB (2022).

¹⁸ Ibid.: 70.

are not highly favourable for arable production due to their shallowness, crustiness, limited fertility, and inadequate soil moisture caused by low and erratic rainfall. Sandy soils, which cover about two-thirds of the country, are especially infertile. These sandy soils can be found in the red and grey desert soils of the Kalahari Desert.¹⁹

The characteristics of soils in Botswana are said to be as follows: about 50% of the country is dominated by soils with low moisture content; 44% by soils with low Cation Exchange Capacity; 15.4% by soils with low potassium reserves; 11.4% by soils with basic ions; 11.2% by saline soils; 11% by permanently dry soils; 8.1% by vertisols; 6.6% by acid soils; 5.2% by clayey soils; 4.7% by soils prone to erosion; 2.5% by shallow soils; 1.5% by nitric soils; and 0.5% by soils with aluminium toxicity.²⁰

2.3 Drivers of soil degradation

The major drivers of soil degradation in Botswana are agriculture, mining, tourism, land use administration and management, deforestation, and urbanisation.

2.3.1 Agriculture

Agricultural land use is estimated at 45.9% of the country's entire land area,²¹ and the main activities are crop production and livestock rearing. Some areas in the country exceed the permitted average livestock units, leading to land degradation through soil erosion and overgrazing. Overgrazing and overstocking result in trampling and soil compaction, which negatively impact water infiltration capacity. Consequently, there is an increased surface run-off, causing harm to soil in the semi-arid regions. Furthermore, unsustainable agricultural practices such as tilling not only result in low agricultural productivity but also affect soil micro-organisms and other underground biodiversity and lead to soil erosion. The use of fertilisers, pesticides, and herbicides to increase yields contributes to soil and water pollution.

2.3.2 Mining

The mining industry in Botswana occupies an estimated 325,278 hectares of land,²² and its contribution to the country's GDP is substantial, accounting for approximately 80% of export earnings. Some of the issues in the mining sector include human

¹⁹ GOB (2017: 17).

²⁰ GOB (2006).

²¹ GOB (2022: 36).

²² Ibid.: 35.

displacement, loss of fertile soils that support crop production, grazing, and livelihoods, pollution, and the impacts of abandoned mines such as burrow pits, acid mine drainage, and open wells, among others. Furthermore, the growth and diversification of the mining sector contribute to habitat destruction. Activities such as illegal river and sand pit mining and water extraction to supply mining activities may affect hydrological levels, impacting vegetation and other biodiversity. Other impacts include habitat modification for breeding and wildlife migration routes and corridors. Additionally, the expansion and diversification of the mining industry led to the destruction of habitats. The country is losing productive soils through illegal activities such as gravel and topsoil mining. Unregulated activities including river and sand pit mining, as well as water extraction for mining purposes, can disrupt hydrological levels, thereby affecting the vegetation and biodiversity in the area.

2.3.3 Land use and management

In Botswana, land use planning aims to balance social, economic, and resource conservation goals. It is mainly managed by decentralised Land Boards, with land categorised into tribal (71.3%), state (23%), and freehold (5.7%) tenure systems, as per the Tribal Grazing Land Policy of 1975.²³

However, conflicts arise from unsustainable land practices, population growth, and increased livestock and wildlife numbers. These pressures cause encroachment on arable land, conversion of grazing areas, and conflicts between human settlements and wildlife habitats. Large-scale developments and harmful farming practices, such as conventional tilling and excessive pesticide use, also contribute to habitat loss, soil contamination, and land degradation.

Development planning is guided by the National Spatial Plan and National Development Plan (NDP), but their separate implementation and leadership lead to poor integration. This results in a lack of spatial components in economic plans and underfunded proposals in spatial plans, limiting effective land use management.²⁴

2.3.4 Deforestation

Since 1987, Botswana has experienced an annual deforestation rate of 1%.²⁵ This is primarily driven by settlement expansion, encroachment of mining activities, and the expansion of livestock and agricultural practices. One example is the Integrated Support Programme for Arable Agriculture Development (ISPAAD) project, which began

23 Ibid.: 34.

24 Ibid.: 43.

25 Ibid.: 186.

in 2008 and has resulted in the clearance of over 300,000 hectares of land.²⁶ Unfortunately, this increase in deforestation has had detrimental effects on topsoil and biodiversity conservation, both of which are crucial components of the agro-ecosystem environment. Without vegetation cover, soil erosion becomes a major issue. Moreover, even when the cleared lands are converted for agricultural use, the replacement crops, such as soybean and wheat, often fail to stabilise the soil and can even exacerbate the erosion problem.²⁷

2.3.5 Urbanisation – solid and chemical waste

The waste generation in Botswana has significantly increased due to various factors such as population growth, urbanisation, changing consumption patterns, industrialisation, technological advancements, economic growth, and higher incomes. Waste is usually disposed of in either landfills or dumpsites. The country currently has fourteen regulated landfills and 34 large dumpsites.²⁸ While landfills are subject to legal regulations, dumpsites are not, which may lead to environmental and public health problems. Dumpsites only accept general waste and are primarily used in areas where landfill sites are unavailable, such as villages or settlements.

Both landfilling and the use of dumpsites have negative environmental impacts. These include the emission of greenhouse gases, air pollution, and leachate contamination of groundwater and soil, which, in turn, affects the biodiversity below the ground. Due to poor design and construction, there have been incidents of gas and leachate escaping into the environment from waste disposal sites.²⁹

Chemical waste from household cleaning detergents and agrochemicals poses a significant threat to the soils in Botswana. In 2000, an inventory conducted by the Department of Crop Production and Forestry identified over 18,000 metric tons of waste agrochemicals in six stockpile sites. This included 50 metric tons of toxic compounds, 1,400 metric tons of highly contaminated soils, and 16,000 metric tons of lightly contaminated soil.³⁰ Currently, there is limited capability to monitor and control the flow of pesticides both into and within the country, which is crucial in preventing the accumulation of new stocks of obsolete pesticides.

26 Ibid.: 68.

27 See <https://www.worldwildlife.org/threats/soil-erosion-and-degradation#:~:text=The%20agricultural%20plants%20that%20often,the%20cycle%20of%20soil%20loss>, accessed 10 March 2024.

28 GOB (2022: 149).

29 Landfills in Francistown, Pilane, Selebi Phikwe, Jwaneng, Orapa, and Lobatse have been deemed unsuitable due to flaws in their design and construction. Additionally, the closed Gaborone Landfill has negatively impacted nearby soils, with some leachate plumes migrating toward the Notwane River, posing environmental risks. See GOB (2022: 149).

30 Ibid.:159.

3 International frameworks relevant to soil protection

There are numerous international efforts to promote sustainable soil protection. These efforts are translated into guidelines, goals, and treaties. The discussion below examines some of the crucial international policy and treaty frameworks relevant to Botswana.

3.1 Treaties

Botswana has signed and ratified several significant international conventions and protocols that have influenced its environmental policies and practices. These are:

- Vienna Convention for the Protection of the Ozone Layer, 1985;
- Montreal Protocol on Substances that Deplete the Ozone Layer, 1987;
- United Nations Framework Convention on Climate Change, 1992;
- Kyoto Protocol, 1997;
- United Nations Convention to Combat Desertification and Drought, 1994;
- Convention on Wetlands of International Importance, especially in Waterfowl Habitat (Ramsar Convention), 1971;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973;
- United Nations Convention on Biological Diversity, 1992; and
- Waste Management and Pollution Control - Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, 1989.

3.2 Soft law

3.2.1 Revised World Soil Charter 2015

The World Soil Charter (WSC), adopted by FAO members in 1981, highlights the vital role of soil in sustaining life and the need for sustainable soil management. It outlines ten principles, including recognising soil as a key resource, valuing soil diversity, and promoting sustainable practices. The Revised Charter calls for action at all levels, from individuals to governments and international organisations.

It encourages individuals and businesses to manage soil responsibly, ensuring its preservation for future generations. Governments are urged to integrate sustainable soil practices into policies, considering their role in addressing climate change and developing national soil information systems. International organisations are tasked with supporting soil management efforts, disseminating reports, and aiding governments in establishing relevant legislation and systems.

The Charter stresses collective action to ensure sustainable soil management for the benefit of current and future generations.

3.2.2 The 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development is a global plan focused on people's well-being, planetary health, and economic prosperity, aiming to eradicate poverty and achieve peace. It outlines 17 Sustainable Development Goals (SDGs), with key dimensions of people, prosperity, planet, partnership, and peace.

Several SDGs address land and soil issues, crucial for achieving other goals. SDG 15, "Life on Land," focuses on sustainable land use, combating desertification, and restoring degraded land. SDG 2 targets land quality improvement for food security, while SDG 3 connects soil management to health by addressing pollution. SDG 12 emphasises sustainable consumption and the prevention of pollution.

Botswana has integrated the SDGs into its national plans, including Vision 2036 (2017-2036) and the National Development Plan (NDP), through SDG Planning Guidelines to ensure their systematic implementation.³¹

3.2.3 United Nations Convention to Combat Desertification (UNCCD) and the Land Degradation Neutrality Initiative

The United Nations Convention to Combat Desertification (UNCCD), adopted in 1995, is the only international agreement legally binding countries to address drought and desertification, particularly in Africa. It focuses on drylands and aims to promote sustainable development through integrated strategies that improve land productivity, conserve resources, and enhance community living conditions.

The UNCCD introduced the concept of Land Degradation Neutrality (LDN), adopted globally at the Rio+20 conference in 2012. LDN seeks to maintain or improve land resources to sustain ecosystem services and food security. Achieving LDN involves avoiding new degradation, implementing sustainable practices, and restoring degraded lands.

SDG 15 targets LDN, encouraging countries to combat desertification and restore degraded land by 2030. In March 2023, Botswana committed to LDN by submitting voluntary targets and is implementing projects including "Using Sustainable Land Management (SLM) to Improve the Integrity of the Makgadikgadi Ecosystem" and

31 For the extent of localisation of SDGs, see https://www.statsbots.org.bw/sites/default/files/special_documents/Botswana%20Domesticated%20SDG%27s.pdf, accessed 10 May 2024.

“Mainstreaming SLM in Ngamiland District” to improve livelihoods and rangeland management.

3.2.4 FAO Voluntary Guidelines for Sustainable Soil Management (VGSSM)

The Voluntary Guidelines for Sustainable Soil Management (VGSSM) were officially adopted during the 4th Global Soil Partnership³² (GSP). The Plenary Assembly was held in Rome on 23 May 2016, and, subsequently endorsed by the 155th Session of the FAO Council on 5 December 2016. These guidelines offer both technical and policy recommendations to support the achievement of sustainable soil management practices. They complement the World Soil Charter by further elaborating principles and practices for incorporation into policies and decision-making. Some of the principles laid out in the VGSSM include minimising soil erosion, enhancing soil organic matter content, fostering soil nutrient balance and cycles, preventing and minimising soil contamination, and preserving and enhancing soil biodiversity.

3.2.5 Gaborone Declaration on Sustainability in Africa, 2012

The Gaborone Declaration recognises the importance of safeguarding soil resources from excessive exploitation and degradation, and when necessary, restoring and improving them. To achieve these goals, the Declaration outlines several actions that include enhancing knowledge, data, and capacity building; implementing measures to restore ecosystems and alleviate pressures on natural capital; adopting ecosystem restoration measures, as well as actions that mitigate stresses on natural capital; and building social capital and reducing poverty by transitioning agriculture, extractive industries, fisheries, and other natural capital uses to practices that promote sustainable employment, food security, sustainable energy, and the protection of natural capital through protected areas and other mechanisms; and engaging in effective communication and public education to raise awareness about the importance of protecting and enhancing soil resources and promoting sustainable development.

32 The Global Soil Partnership (GSP) was formed by the Food and Agriculture Organisation of the United Nations in December 2012. It is a coalition of willing partners to promote and implement sustainable soil management at all scales, from local to global.

4 Botswana domestic legal framework

4.1 Policy frameworks for soil protection

Botswana's public soil legislation is not comprehensive. Laws are found in different pieces of legislation and are not primarily meant to deal with soil management. There is specific legislation that provides the parameters for environmental impact assessments.

The following policies and strategies are relevant to the management of soil in Botswana: National Policy on Natural Resources Conservation and Development (1990); Botswana National Action Programme to Combat Desertification (October 2006); Tribal Grazing Land Policy (TGLP) (1975); National Biodiversity Strategy and Action Plan (2016); NDP (2017); and Climate Change Policy (2021). Although policies are not legally binding, they hold importance because they assist governments in accomplishing their political, social, and economic objectives. These policies are instrumental in addressing intricate issues such as poverty, inequality, and environmental degradation, while also fostering sustainable development.

4.1.1 Tribal Grazing Land Policy (TGLP) (1975)

The National Policy on Tribal Grazing Land was introduced in 1975 with several objectives. It aimed to decrease overgrazing by moving livestock from communal grazing areas to newly established ranches, providing incentives for ranch development along modern, commercial lines, and promoting income equality. The policy sought to reduce overgrazing in tribal land areas by demarcating and leasing ranches to either individuals or groups. The intention was to alleviate pressure on communal areas by relocating large cattle owners to the demarcated ranches, thus, allowing smallholder farmers to remain in the communal areas.

To achieve improved grazing control and increased productivity, the Land Boards were tasked with dividing tribal grazing areas into three zones: commercial farming areas, communal farming areas, and reserves. Commercial farming areas would grant individuals and groups exclusive leasehold rights in exchange for rental payments to the Land Boards. The lease grants the holder exclusive rights to specific areas of grazing land with boreholes and fencing. Communal lands would retain the existing land tenure system but impose stock limitations. Reserves would be designated for future use by those with few cattle at present, or for purposes such as wildlife conservation, mining, or cultivation.

Criticism has been directed towards this policy due to its reliance on flawed assumptions.³³ Firstly, it was assumed that Botswana had vast unoccupied land that could be converted into ranches. However, during the zoning survey, it was discovered that people were already residing in these areas, leading to the need to compensate these individuals. As a result, they relocated with their livestock to communal grazing areas, causing a net migration towards these areas.

Secondly, the lack of a requirement in the TGLP for ranchers to remove their livestock from communal areas resulted in many ranchers overgrazing their ranches and then returning their animals to communal areas. Since there were no obligations for ranch improvements, numerous ranchers showed no intention of building fences, constructing firebreaks, or adopting Western ranching techniques. This problem has not been solved yet, therefore, overgrazing remains an issue in the communal lands.

4.1.2 National Policy on Natural Resources Conservation and Development (1990)

This is Botswana's first comprehensive effort to address the conservation of natural resources. It recognises the importance of balancing development with minimising environmental and social impacts. Some of the major environmental issues identified include depletion of wood resources, soil pollution, and degradation of rangeland resources. To address these issues, the policy proposes a blended approach, which includes continuing the existing state intervention in resource management, implementing a system of resource allocation based on reasonable rationing and zonation, and promoting the multi-purpose use of resources. The strategy also emphasises the importance of maintaining a strong livestock industry.

However, the policy cautions against relying solely on legislation and highlights the need to persuade and encourage the public to adopt environmentally friendly practices. Efforts to improve the enforcement of the Tribal Land Act and Agricultural Resources Act are also recognised as important. To tackle the depletion of wood resources, the policy suggests making tree replanting and protection mandatory for all communities and promoting the use of wood substitutes. Subsidies may also be introduced to assist poorer sectors of the community in adopting these substitutions.

In terms of anti-pollution initiatives, the policy proposes investigating incentives for recycling and introducing legislation on the use, storage, labelling, and marketing of agricultural chemicals. Public awareness campaigns on pollution prevention and control will also be conducted. Overall, Botswana's policy involves a comprehensive and integrated approach to addressing conservation issues and aims to encourage

33 See <https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/5251/Tribal%20grazing%20in%20botswana%20and%20the%20tragedy%20of%20the%20commons.pdf?sequence=1&isAllowed=y>, accessed 10 May 2024; Hitchcock & Nkwe (1986); Malope & Batisani (2008: 383-397); Mphinyane & Omphile (2016: 20-28).

sustainable practices in resource management and environmental protection. Nonetheless, there is no specific attention to soil management.

4.1.3 Botswana National Action Programme to Combat Desertification (2006)

The National Action Programme (NAP) was developed as a comprehensive tool to guide the implementation of the objectives of the UNCCD. It provides a detailed outline of the strategies and activities that will be undertaken to combat desertification and achieve sustainable land management. The goal of this NAP is to actively combat desertification and mitigate the effects of drought through the involvement and collaboration of various stakeholders, including communities. Its primary objective is to specifically target and address priority areas that have been identified through stakeholder workshops.

The NAP acknowledges that Botswana's soils are vulnerable to erosion and desertification. Therefore, it is of utmost importance to employ good soil management practices to ensure the protection and sustainability of soil resources. Consequently, the NAP identifies activities aimed at controlling and preventing land degradation. These activities include lobbying for the development of legislation to regulate dual grazing rights, facilitating the enforcement of all environmental legislation that aims to minimise land degradation, promoting appropriate cultivation practices, rehabilitating degraded land areas, promoting participatory land use planning, empowering local communities to manage natural resources in their respective areas, promoting efficient management of livestock production, promoting the use of alternative energy sources, particularly in government institutions, and promoting research to develop affordable alternative energy sources.

In March 2023, Botswana submitted its voluntary LDN targets and associated measures as an affirmation of its commitment to achieving LDN by 2030. Firstly, it commits to avoiding any new degradation, ensuring that all non-degraded land remains in its current state by 2030. Secondly, it aims to reduce existing degradation by improving land productivity and carbon stocks by 1% across all land types, as well as reducing forest degradation by 10%. Thirdly, the government plans to restore degraded land, with three restoration programs initiated in selected hotspots using appropriate technologies. Additionally, 5% of degraded grassland will be rehabilitated and an additional 5% of the national territory will be in a healthy state compared to 2015. To achieve LDN, associated measures include the implementation of the National Spatial Plan and the National Drought Management Plan, as well as public education and awareness. The government will also develop innovative funding mechanisms for LDN activities, including Payment for Ecosystem Services.

4.1.4 National Biodiversity Strategy and Action Plan (2016)

The NBSAP in Botswana is a comprehensive planning tool that spans multiple sectors and is specifically designed to safeguard and conserve biodiversity at the national level. Its primary objective is to contribute to the protection and preservation of Botswana's unique and valuable biodiversity. The NBSAP vision was developed based on the principles of sustainable development, integrated conservation and development, equity across generations, and biodiversity as the foundation of life and livelihoods. Its vision is that, by 2025, ecosystems, species and genetic diversity will be valued, protected, and used sustainably and equitably, through the involvement of all sectors of society and the provision of sufficient resources for its sound management. The NBSAP is developed to fulfil Botswana's obligations under the Convention on Biological Diversity (CBD), and specifically to align with the CBD 2011- 2020 Strategy and the Aichi Targets.

Regarding soils, Botswana's target is that by 2025, levels of soil pollution will be maintained below levels that would threaten ecosystem functioning and biodiversity. To fulfil this target, the suggested intervention is to prepare, by 2019, and enforce guidelines stipulating discharge and emission levels. However, the NBSAP falls short in having holistic interventions on sustainable soil management.

4.1.5 National Development Plan (2017-2023)

Botswana has made a sustainable environment a primary focus of its NDP (2017-2023). The plan recognises the importance of balancing economic development with environmental preservation. To achieve this, the government has outlined strategies for environmental protection and natural resource management. One of the key interventions is the strengthening and development of policy frameworks to address environmental health risks and promote prevention and mitigation.³⁴ The aim is to build a healthy environment by addressing the sources and impacts of these risks.

In terms of agricultural conservation, the government commits to working with local farming communities to harness their indigenous knowledge and utilise local resources for the efficient and effective management and conservation of agricultural resources. Furthermore, efforts will be made to rehabilitate degraded agricultural lands in collaboration with local communities, to increase agricultural production and ensure food security. The government also commits to increasing expertise in applied research and innovation to ensure a sustainable environment. Overall, the NDP highlights the importance of sustainable development and outlines a comprehensive approach to protect the environment and manage natural resources in Botswana.

34 GOB (2017).

4.1.6 Botswana Climate Change Policy (2021)

The policy aims to create a national vision that sets a course for climate-friendly development, enhancing the country's ability to withstand climate shocks and reduce our impact on global warming. It is inclusive in its coverage of environmental, social, and economic concerns, encompassing the following adaptation priority areas: agriculture and food security; water; human health; human settlement; forest management; land use/allocation; disaster risk management; biodiversity and ecosystems; infrastructure development; and gender-differentiated vulnerabilities.

As for forest resources, the policy recognises the value of forests and their dual role in adaptation and mitigation to the adverse impacts of climate change.³⁵ To enhance the integrity and sustainability of our forests and minimise the threats posed by human and induced interventions, the policy prioritises various interventions. These include conducting climate research and feasibility studies on forest conservation and ecosystem restoration, as well as utilising modern technologies to effectively control invasive species and prevent wildfires. Additionally, the policy promotes the use of indigenous knowledge and traditional forest management practices that contribute to increased forest cover and land rehabilitation. Furthermore, the policy also focuses on promoting alternative livelihood options and exploring mechanisms such as Reducing Emissions from Deforestation and forest Degradation (REDD+) to reduce pressure on forests.

To enhance the sustainability and resilience of land use, the policy outlines three key strategies for land use and allocation. Firstly, adopting an ecosystem-based land use planning approach will ensure that residential, agricultural, and industrial areas are strategically located away from sensitive ecosystems such as fields and watersheds. By avoiding regions prone to climate change-related disasters, such as floodplains, the potential risks and impacts on land use can be significantly minimised. Secondly, mainstreaming climate change development measures involves creating guidelines that integrate climate considerations into policies on rural development, wildlife management, and land use planning. This integrated approach will enable more effective land allocation and management by considering the long-term impacts of climate change. Lastly, establishing climate-focused decision-making systems will be prioritised. These systems will strive to balance food production, climate-smart agriculture, and developmental needs, ensuring that land allocation is conducted in a manner that preserves a balanced environment. By considering environmental factors alongside production and development requirements, these measures will help maintain ecosystem integrity while supporting sustainable growth.

35 GOB (2021).

4.2 Environmental provisions in the Constitution

Botswana's Constitution does not explicitly address environmental protection or the right to a clean environment; however, Section 8(1) protects against property deprivation while allowing land acquisition for soil conservation, natural resource conservation, or agricultural development.³⁶ The compulsory acquisition of property must be done following a written law³⁷ and accompanied by the prompt payment of adequate compensation.³⁸

Compulsory acquisition and deprivation of property are permitted in other legislations for conservation purposes. For instance, the Waterworks Act allows for the acquisition of existing waterworks,³⁹ while the Wildlife Conservation and National Parks Act permits the President to designate land, including privately owned land, as a national park and extend the boundary of existing parks.⁴⁰ No property deprivations have been undertaken yet to conserve soil resources.

Botswana operates as a dualist state, meaning that international treaties do not automatically become legally binding without being incorporated into domestic law through an Act of Parliament.⁴¹ Consequently, treaties ratified by Botswana do not immediately create enforceable rights and obligations in the courts. However, this does not completely prevent the influence and adoption of international norms and principles into the legal system. Section 24(1) of the Interpretation Act⁴² serves as a tool for courts to consider relevant international treaties, agreements, or conventions when interpreting laws. Customary international law applies in Botswana to the extent that it is not inconsistent with any domestic legislation.⁴³

36 Sec 8(5)(viii) of the Constitution.

37 The acquisition of immovable properties is governed by the Acquisition of Property Act (Cap 32:10).

38 Sec 8(1)(b)(i) of the Constitution. In the case of *Attorney-General v Western Trust (Pty) Ltd* 2006 (2) BLR 1 (HC), the court indicated that 'adequate compensation' was not the market value alone as such ignored the subjective value of the loss suffered by the expropriated. The only fair method of valuation was one based on the principle that the expropriate should be compensated adequately for the land and be restored to the same position in which he would have been had the land not been expropriated. It further indicated that the purpose of the expropriation was irrelevant in determining the value of the expropriated property.

39 Secs 7-8 of the Waterworks Act (Cap 34:03).

40 Sec 5 of the Wildlife Conservation and National Parks (Cap 38:01).

41 *Attorney-General v Dow* 1992 BLR 119, 152 – 154; *Kenneth Good v The Attorney-General* 2005 1 BLR 462.

42 Cap 01:04.

43 *Amadou Oury Bah v Libyan Embassy* 2006 BLR 22 25 (IC).

4.3 Legislation on land property/land ownership and land rights

Secure land rights are key to the conservation of natural resources. Studies have shown that communities are motivated to adopt soil conservation techniques such as terracing and irrigation where they have confidence in the national authorities' commitment to respecting their rights.⁴⁴ This confidence is fostered by secure land rights. This section examines public and traditional/customary law on land rights.

4.3.1 Constitution

Section 8 of the Constitution of Botswana does guarantee the property rights of any owner of property within the country. To this effect, it indicates that 'no property of any description shall be compulsorily taken possession of unless it is required for public purposes and that where such property is taken for public purposes prompt and adequate compensation shall be paid'.⁴⁵ Specific legislation has been enacted to deal with the compulsory acquisition of land under each tenure type.

The Tribal Land Act provides for the compulsory acquisition of tribal land while the Acquisition of Property Act (Cap 32:10) deals with the compulsory acquisition of state land and freehold land. As discussed above, the property right is restricted to conserve soil resources. Section 8 of Botswana's Constitution aims to strike a balance between individual property rights and the state's interests in soil conservation, natural resource conservation, and agricultural development or improvement. It serves as a potent mechanism to counter the risks associated with granting property rights to individuals or communities who do not prioritise the conservation of natural resources.

4.3.2 Botswana Land Policy, 2019

The 2019 Botswana Land Policy (BLP) aims to protect land rights, promote sustainable settlements, and ensure efficient land use. It focuses on access, equity, and transparency in land administration, while adapting to changing land use dynamics. The policy supports planned land allocations for residential, commercial, industrial, and agricultural purposes.

For residential land, all citizens are eligible for allocation, with additional plots available through the private market. Agricultural land allocation is limited to one plot per citizen, with integrated farming allowed on properly fenced plots. Mismanagement

44 See <https://cdn.landesia.org/wp-content/uploads/Landesia-Land-and-Climate-Policy-Brief-June-2020.pdf>, accessed 15 May 2024.

45 Regarding compulsory acquisition, see *Bruwer v President of the Republic of Botswana* 1997 BLR 477.

of commercial agricultural land can lead to repossession. Additionally, leases for all ranches should include a requirement for the lessee to relinquish any rights to use communal grazing land.⁴⁶

The policy also addresses communal land use, emphasising collective grazing and proper management to prevent degradation. To ensure effectiveness, the policy recommends amendments to laws such as the Tribal Land Act and requires the surveying and planning of land before allocation. However, some objectives, such as limiting land ownership and enforcing dual grazing restrictions, require legal backing for proper implementation.

4.3.3 Statutory framework

Initially, all land in Botswana was communal land. However, with the establishment of a Protectorate over the territory in 1885, three distinct tenure systems surfaced: native land, which is presently referred to as tribal land; crown land, now known as state land; and freehold land. There are distinct laws that govern each tenure system.

4.3.3.1 State land

State land previously belonged to the colonial government as crown land. This land is vested in the President through the State Land Act of 1966. State land encompasses various areas such as townships, game reserves and national parks, forest reserves, urban state lands, and land acquired outside of Botswana. The responsibility for managing this land has been delegated by the President to the Minister in charge of the Land portfolio. The allocation of residential plots falls under the jurisdiction of local authorities. When allocating land, a 99-year lease (Fixed Period State Grant) is issued for residential purposes, and a 50-year lease is issued for business, civic, and community purposes. The lease may be renewed upon expiration, and only citizens are eligible to receive residential land allocations.

As the lease period draws to a close, the value of the land diminishes since potential buyers consider the remaining duration of the lease. The length of the lease does not encourage sustainable land utilisation as owners may hesitate to invest in a property that will soon change hands.

46 See https://mokoro.co.uk/wp-content/uploads/land_tenure_policy__practice_botswana.pdf, accessed 2 February 2024.

4.3.3.2 Freehold

Freehold land was created for settlers during the colonial era mainly for agricultural purposes. It is owned in perpetuity by individuals and companies. There are pockets of freehold land in urban centres for residential and commercial use. The law bestows on the owners of this type of land free and undisturbed possession and ownership of the defined piece of land.

The Land Control Act of 1975 provides for the control of transactions in freehold to agricultural lands. Under this Act, agricultural land excludes tribal lands and townships. It stipulates that no dealings in agricultural land, that is, sale, transfer, lease of more than five years, exchange partition, division, or other disposals shall be contracted with a person not being a citizen of Botswana unless the Minister has given their consent to that transaction.⁴⁷ In deciding to grant or refuse consent, the Minister, amongst other things, has to consider the effect that the grant or refusal of consent is likely to have on the economic development of the land concerned or on the maintenance or improvement of standards of good husbandry on the land concerned.⁴⁸ Additionally, the Minister has to act on the principle that consent generally ought to be refused where the transfer would likely lower the standards of good husbandry on that land.⁴⁹

4.3.3.3 Tribal land

Tribal land was formerly referred to as native land. The Tribal Land Act of 2018 provides for the administration of tribal lands. Under this Act, all tribal lands are vested in the Land Boards. Under this Act, the allocation of tribal land can be done under both customary and common law. Customary land rights are granted for the perpetual use of land for residential, agricultural, and water-related purposes, without any charges. The Registrar of Deeds issues a Deed of Customary Land Grant to document these rights. On the other hand, land rights under common law are granted by the Land Board, and the terms and conditions of such allocations are determined by the Board. It is also worth noting that every citizen of Botswana is entitled to be allocated one residential plot of their choice, either on state land or tribal land. The duration of common law leases varies, ranging from as short as one year to longer terms. However, once the lease reaches its expiration date, the land will be returned to the Land Board. In this case, the lessee will not receive any compensation for any improvements or developments made on the property, as they have already benefited from their use of the land.

47 Sec 3 of the Land Control Act [Cap 32:11].

48 Ibid.: Sec 7(a).

49 Ibid.: Sec 7(c)(iii).

A Land Board has the authority to cancel a land grant if the grant holder does not adhere to the conditions or restrictions imposed by the Tribal Land Act or any laws related to town or country planning or good husbandry. If the land remains uncultivated, underused, or undeveloped within the Land Board's prescribed period, or if it is not utilised for its intended purpose, the Land Board may cancel the grant.⁵⁰

The Tribal Land Act of 2018 Act recognises the acquisition of land through inheritance.⁵¹ To ensure proper inheritance of land, individuals must undergo a process of regularisation with the Land Board. This involves confirming the inheritance under oath through the customary court and gaining witness accounts from family members and other interested parties. Only after these steps have been completed will the Land Board grant the necessary regularisation for the inherited land.

The Tribal Land Act of 2018 and the Land Control Act of 1975 emphasise the importance of adhering to laws related to good husbandry. Failure to comply may result in the cancellation of land grants for tribal lands and refusal to grant changes in ownership for freehold land. Good husbandry involves practising sustainable farming methods that prioritise soil and animal health.⁵² However, both laws assume the existence of comprehensive laws related to good husbandry in Botswana, which is not the case.

A significant issue with tribal land allocations is the difficulty in determining ownership and boundaries in older parts of various settlements and areas reserved for farming. This is primarily due to the lack of written records kept by traditional leaders. Consequently, Land Boards are faced with the challenge of identifying vacant or unclaimed land that can be allocated to eligible households and for public use. To address this widespread issue, the government launched a comprehensive land titling and registration project, known as LAPCAS, in 2009. This project aims to identify, demarcate, adjudicate, issue certificates/titles, and register all customary land rights in tribal territories. Additionally, it will assist Land Boards in identifying unclaimed land suitable for allocation.

4.3.4 Traditional law

4.3.4.1 Pre-colonisation

Before colonisation, land in Botswana was managed by clans, tribes, or chiefdoms, with chiefs at the top of the land administration hierarchy. Chiefs allocated land for

50 Sec 43 of the Tribal Land Act of 2018.

51 Ibid.: Sec 38.

52 Manley, Foot & Davis (2019).

residential, arable, or grazing use but could not alienate land to outsiders without tribal consent or repossess land that was properly used.⁵³

Residential land: Chiefs allocated areas to headmen, who distributed land to households. Families built homes within allocated areas, and additional land could be requested if needed. The land was inheritable, transferable within the family, and could not be sold to non-members. If a father lacked land for his sons, headmen or the chief provided additional allocations.

Arable land: Allocated based on ward size, families received generous portions for cultivation, considering future growth. If unsuitable, individuals could seek land elsewhere. Cultivation was restricted to allocated areas, and unclaimed land remained under the chief's control.

Grazing land: Communally held, grazing rights extended to all, with grazing stations (*meraka*) assigned to wards. Wells or dams for cattle watering required permission, and well-diggers gained exclusive grazing rights around their water sources. Wealthier individuals with large herds often enjoyed dual grazing rights in communal and well-developed areas.⁵⁴

Overall, land management was communal and regulated, ensuring equitable access while preserving tribal ownership and use rights.

4.3.4.2 Post-colonisation

The system outlined above remained undisturbed until the passing of the Tribal Land Act of 1968. The Act established Land Boards for each tribal territory and transferred the authority of land management and administration from traditional authorities to the Land Boards.⁵⁵ Various reasons have been put forward to explain this power shift. It is argued that traditional leaders had become increasingly selfish and corrupt and that the government wanted to ensure that customary land was managed by experts on land and land use.⁵⁶ The Tribal Land Act of 1968 was repealed and replaced by the Tribal Land Act of 2018. However, customary law is still relevant in the allocation of tribal lands.

53 Ng'ong'ola (1992: 140-167); Schapera (1994).

54 Emoh & Kalabamu (2023: 52).

55 Secs 3 & 13 of the Tribal Land Act of 1968.

56 Mathuba (1989).

4.3.4.3 Conflicts and means of resolution

Land disputes in Botswana are solved by courts.⁵⁷ The Land Tribunal, established under the Land Tribunal Act 4 of 2014, is a specialised court that has the authority to handle appeals arising from decisions made by Land Boards and Physical Planning Committees of district councils. However, its jurisdiction is limited when it comes to land-related matters. The Land Tribunal cannot resolve disputes over compensation amounts, inheritance, transfer enforcement, or state and freehold land issues, except for planning matters, which are handled by the High Court. The Land Tribunal has the authority to either uphold, reject, or modify decisions made by public bodies. In situations where both parties involved in a dispute agree, the Land Tribunal can refer the dispute to arbitration for resolution.⁵⁸

4.4 Public environmental law

In Botswana, the absence of specific legislation dedicated solely to soil issues, as well as comprehensive legislation on environmental matters, has been observed. Environmental issues are addressed in a silo-styled manner. Nevertheless, various legislations, both primary and subsidiary in nature, address environmental concerns and encompass provisions on soil. Notable examples of which include the Agricultural Resources Conservation Act of 1972, the Waste Management Act of 1998, and the Agrochemicals Act of 1999. Additionally, some by-laws govern the collection of natural resources including soil.

The Natural Resources Protection (Model) By-laws, 1992 govern the collection of natural resources at the district council level. The natural resources that fall under these regulations include firewood, gravel, sand, soil, stones, thatching grass, veld products, and river reeds. Removing any of these resources from the council area is strictly prohibited unless a removal permit has been obtained and the terms and conditions are followed.⁵⁹ To acquire a removal permit, an application must be submitted to the Council Secretary, who also serves as the Secretary of the Land Board. The application should clearly state the type and quantity of natural resource the applicant intends to remove, whether they reside in the council area if the resource is for use within the council area, and the purpose for which the resource is needed.⁶⁰

The Council Secretary is not authorised to issue a removal permit if the destination of the resource is outside of Botswana. Additionally, the Council Secretary cannot grant a permit that allows the removal of more than five tons of firewood (or any other

57 See *Malete Land Board v The Registrar of Deeds Botswana* MAHGB-000819-17.

58 Sec 16 of the Land Tribunal Act of 2014.

59 By-law 3 of the Natural Resources Protection (Model) By-laws, 1992.

60 Ibid.: By-law 4.

quantity determined by the council with the Minister's approval) or an excessive amount of any other natural resource beyond what is reasonably necessary for the stated purpose in the application.⁶¹

Removal permits are valid for a period determined by the Council Secretary.⁶² It is strictly prohibited to rent, assign, transfer, or otherwise relinquish a removal permit to another individual.⁶³

4.5 Urban planning law

Several legal instruments guide urban planning. These include the National Settlement Policy, 2004; Botswana Land Policy, 2015; the Town and Country Planning Act, 2013; Immovable Property Act, 1967; the Land Survey Act, 1959; Sectional Titles Act, 2003; and the Deeds Registry Act, 1960.

4.5.1 Town and Country Planning Act

The Act aims to ensure orderly and progressive land development in urban and rural areas while preserving and enhancing amenities. It defines "land" to include buildings and "development" as building, engineering, mining, or other operations on or under land, or changes in land use.

Land use control is implemented through zoning, and designating areas for residential, agricultural, industrial, or other purposes. Planning occurs at national, regional, and local levels. The Minister oversees national land-use policies,⁶⁴ while local councils draft plans,⁶⁵ consult stakeholders, and ensure compliance with environmental assessments.⁶⁶ Local plans address zoning, building regulations, public services, and transportation infrastructure.⁶⁷ The Minister can direct or modify these plans and oversee regional planning for multi-district areas.⁶⁸ Regional plans include land use, public utilities, and environmental conservation, supported by data analysis.⁶⁹

Urban planning in Botswana follows a centralised system, aligning national and sub-national plans.⁷⁰ National Development Plans (NDPs) guide local policies,

61 Ibid.: By-law 5.

62 Ibid.: By-law 7.

63 Ibid.: By-law 8.

64 Sec 3 of the Town and Country Planning Act of 2013.

65 Ibid.: Sec 5.

66 Ibid.: Sec 19.

67 Ibid.: Sch 2.

68 Ibid.: Sec 18(3).

69 Ibid.: Sec 17.

70 Molebatsi & Kalabamu (2018: 67 -68); GOB (2014).

requiring district plans to conform to regional and national frameworks. While efforts have been made to promote participatory planning through forums such as the National District Development Conference (NDDC), genuine public involvement is limited. Public consultation via *kgotla* meetings is hindered by low attendance, stigma, and restricted freedom of expression.⁷¹ Moreover, the accessibility of draft plans is constrained by their technical language and limited availability, reducing public awareness and compliance.

4.5.2 Land Survey Act, 1959

The Land Survey Act of 1959 serves the purpose of surveying land and establishing recognised units of land measurement. It includes provisions for the appointment of a Director of Surveys and Lands⁷² and the establishment of the Land Surveyors' Board. Under the Ministry of Land Management, Water, and Sanitation Services, the Department of Surveys and Mapping (DSM) is responsible for conducting cadastral, engineering, and geodetic surveys. The DSM also produce topographic and thematic maps and provides basic attribute and geospatial data to government, private, and public users.

The Director of Surveys and Lands supervises and controls the survey and charting of land for purposes of registration in the Deeds Registry. They are responsible for managing and preserving all records appertaining to land surveys, reviewing all general plans and diagrams before any registration is affected, and approving those plans and diagrams if they are satisfied that the surveys have been properly carried out. Land surveys were mainly conducted on state and freehold land, but with the introduction of the deed of customary land grants in tribal lands, land surveys have been extended to include tribal lands. Therefore, this Act is very crucial in the implementation of land policies through mapping, planning, and demarcation surveys.

4.5.3 Spatial planning law

Spatial plans are comprehensive documents that provide a roadmap for the development of a specific geographic area. They encompass policies, priorities, programs, and land allocations that will direct future growth and shape the distribution of people and activities across different scales. These plans are implemented at national, regional, and local levels. The main goal of spatial development planning is to effectively manage land use, ranging from the detailed design of individual sites in urban or rural areas to the distribution of activities across different regions of a country. As such, spatial

71 Maphosa, Ntau & Seleka (2019: 88); Molebatsi (2013: 9-14).

72 Sec 3 of the Land Survey Act [Cap 33:01].

planning in Botswana is guided by the Town and Country Planning Act of 2013; the National Spatial Plan 2036; and the National Settlement Plan (NPS) 2004.

The National Spatial Plan 2036 serves as a comprehensive guide for the development of spatial areas within Botswana for the next 20 years. The primary objective of the NPS is the establishment of a comprehensive set of guidelines intended to govern national physical planning. Its fundamental aim is to furnish a framework for the allocation of investments in a manner that harmonises with various determinants including the dimensions, population, economic prospects, level of infrastructure, and role as hubs for rendering services of distinct settlements. Moreover, the formulation of regional and local plans bolsters the implementation of the NSP. Currently, two regional plans and development plans for 100 settlements have been devised as integral constituents of this progression.

4.6 Cross-cutting issues

The Environmental Assessment Act of 2011 and the Environmental Assessment Regulations of 2012 provide for both Environmental Impact Assessment (EIA) and Environmental Strategic Assessment (ESA). An EIA is required for projects whose implementation will result in substantial use of a natural resource in a way that prevents the use or potential use of the resources for any other purpose, while SEAs are undertaken on district land use and structural plans, and national policies, legislation and development strategies and programmes. Furthermore, in terms of the Town and Country Planning Act, draft local plans prepared by the local planning authorities for submission and approval by the Minister, must be accompanied by an SEA prepared per the Environmental Assessment Act.

The Environmental Assessment Regulations of 2012 contain a list of projects that are required to undergo an EIA. These projects include activities in environmentally sensitive areas such as wetlands, waste management facilities, infrastructure development, and agricultural projects. The Environmental Assessment Act and the Regulations outline the procedures for conducting an EIA, developing environmental management plans, and making decisions regarding applications for environmental authorisation. Notably, an Environmental Management Plan (EMP) and Environmental Impact Statements (EIS) must include a comprehensive technical analysis of specific environmental impacts, such as pollution dispersal and soil erosion.

The right to receive and communicate information without interference is enshrined in the Constitution.⁷³ However, it does not impose an obligation on the state to provide information. Concerning EIAs, the Environmental Assessment Act provides for access to information and public participation. According to Section 7(2), an

73 Sec 12(1) of the Constitution.

applicant for environmental authorisation is required to engage a practitioner to conduct a scoping exercise as part of the EIA process. This exercise involves consultations with relevant government departments, local authorities, non-governmental organisations, members of the public, and any other interested party to determine the potential environmental impact of a proposed activity.⁷⁴ During the scoping exercise, the effects and benefits of the intended activity must be publicly advertised in the media using the official languages for a minimum period of 21 days.⁷⁵ Following this period, the practitioner must hold meetings with the affected individuals or communities to explain the nature of the activity and its potential effects.⁷⁶

The primary objective of the scoping exercise is to provide interested and affected parties with the opportunity to delineate the scope of the study to focus on pertinent and significant issues. This exercise aids in the identification and communication of potential impacts stemming from the proposed activity to all relevant parties. After the scoping exercise, the production of a comprehensive Scoping Report is obligatory, capturing the matters addressed during said exercise. Since the interested and affected parties vary depending on each project, it is imperative to accurately identify and engage these parties. A range of methodologies can be utilised by the practitioner to ensure meaningful public participation within the community, such as surveys, polls, questionnaires, advertisements, leafleting, community presentations, personal contacts, public meetings, and public hearings.⁷⁷ In practice, the Department of Environmental Affairs emphasises that applicants should consider different methods for consulting various stakeholders.

In addition to public participation during the scoping exercise, the Environmental Impact Assessment Act provides for public review of the EIS report.⁷⁸ The EIS must evaluate the environmental impact of an activity concerning numerous factors, including health, safety, quality of life, environmental conditions, and natural resources. Once the competent authority receives the EIS, it will assess compliance with the required standards. If the EIS meets the requirements, a notification will be published in the Government Gazette and newspapers, inviting comments and objections from affected and interested individuals.⁷⁹ The notification must provide information about the activity, its location, anticipated environmental impact, and proposed mitigation measures. The competent authority must consider the comments and objections raised by affected and interested parties in its decision-making. Additionally, the competent authority may conduct a public hearing to allow for public input, if necessary, especially if the activity could have a significant adverse impact on the environment.⁸⁰ The

74 Sec 2 of the Environment Assessment Act of 2011.

75 Ibid.: Sec 7(2)(a).

76 Ibid.: Sec 7(2)(b).

77 Mathope & Toteng (2018: 85).

78 Sec 9 of the Environmental Assessment Act of 2011.

79 Ibid.: Sec 10.

80 Ibid.: Sec 11.

findings from the public hearing must be considered by the competent authority when determining the adequacy of the EIS.

Under the Environmental Assessment Act, a person who is dissatisfied with a decision made by the competent authority has the right to appeal to the Appeals Committee within 30 days of being notified of the decision.⁸¹ This Appeals Committee is established by the Minister through the Environmental Assessment (Establishment of Appeals Committee) Order of 2019. The Appeals Committee has the power to uphold, modify, or overturn the decision of the competent authority. If the Committee decides to modify the decision, the modified decision will be considered the decision of the competent authority, unless the Committee specifies otherwise. A decision made by the Appeals Committee carries the same weight and can be enforced in the same manner as a decision made by a court of competent jurisdiction. Furthermore, such decisions are considered public records and can be inspected by any member of the public during normal working hours. Unless a party requests otherwise, the proceedings before the Committee are open to the public.

4.7 Specific instruments to control the behaviour of foreign investors

Botswana has signed Bilateral Investment Treaties (BITs) with several countries, including Belgium, Luxembourg, China, Germany, Ghana, Malaysia, Mauritius, and Switzerland. However, only the BITs with Germany and Switzerland are currently in force.⁸² These BITs aim to facilitate and safeguard the interests of foreign investors and their investments in the country. The BITs provide for equal treatment of foreign investors and do not discriminate against them based on their nationality. In addition, Botswana has signed an Investment Incentive Agreement with the Overseas Private Investment Corporation (OPIC), an agency of the US government. This agreement offers guarantees and protections to private US investors operating in Botswana.

Botswana's BITs do not impose specific obligations on foreign investors. However, they typically include a legality clause that requires foreign investors to establish, maintain, and operate their investments in compliance with domestic laws. There is a wide consensus that the legality clause is an international legal principle, applicable even in cases where it is not explicitly mentioned in an investment treaty. It is regarded as a "tacit condition, inherent in every BIT, since it cannot be understood under any circumstance that a State is offering the benefit of protection through investment arbitration when the investor, to reach that protection, has committed an unlawful

81 Ibid.: Sec 13.

82 See <https://investmentpolicy.unctad.org/international-investment-agreements/countries/26/botswana>, accessed 25 June 2024.

action.”⁸³ Consequently, foreign investors are expected to abide by Botswana’s domestic laws, including those on the conservation of soil resources.⁸⁴

Foreign investors are granted a range of incentives that serve to enhance their investment activities. This includes a considerable reduction in the applicable corporate tax rate, which stands at a mere 5% for the initial five-year period and subsequently increases to 10%, in contrast to the prevailing national tax rate of 22%. Additionally, foreign investors are exempted from customs duties on imported raw materials, thereby affording them significant cost advantages. Furthermore, rebates are provided for customs duties and value-added tax imposed on exports made outside SACU. Moreover, foreign investors enjoy extended land lease duration, as they are granted a minimum term of 50 years, rather than the standard lease term of 25 years.

4.8 Competences of enforcement entities

4.8.1 Agricultural Resources Board

The Agricultural Resources Board (ARB) was established in terms of the Agricultural Resources Conservation Act of 1972. Its primary function is to oversee the management of agricultural resources in Botswana. The ARB offers advice to the Minister on matters concerning the overall supervision of all agricultural resources, as well as the necessary legislation to ensure the proper conservation, utilisation, and enhancement of these resources. It also recommends measures to generate public interest in the effective preservation, utilisation, and improvement of agricultural resources. Additionally, the ARB has the authority to conduct independent investigations or inquiries into any issue on the conservation, use, or improvement of agricultural resources, either at its discretion or as directed by the Minister. It also issues orders on conservation, regulations related to conservation, and orders for the control of livestock.

The Act confers authority upon the Minister to establish conservation committees and subordinate conservation committees. The primary duties of said committees include conducting ongoing evaluations of agricultural resource conservation within their respective jurisdictions and making recommendations to the Board accordingly.

83 *SAUR International v Argentine Republic* ICSID Case No. ARB/04/4, Decision on Jurisdiction and Liability, 6 June 2012, para 306.

84 Art 5 of the BLEU (Belgium-Luxembourg Economic Union) - Botswana BIT (2006), acknowledges the sovereignty of each party in determining their levels of environmental protection and policies, as well as the authority to adopt or modify their environmental legislation accordingly. It is incumbent upon each party to endeavour towards enacting legislation that guarantees robust environmental protection and continuously enhances this legal framework. Moreover, the parties acknowledge the inappropriateness of incentivising investments by relaxing domestic environmental laws. Consequently, each party commits to ensuring that it refrains from waiving, derogating, or offering to waive or derogate from such legislation to encourage the establishment, maintenance, or expansion of investments within its jurisdiction.

Furthermore, they are tasked with persuading landowners and occupiers in their areas of jurisdiction to adopt farming or land use methods deemed necessary for the preservation of soil fertility and the protection of agricultural resources. These committees also aid in issuing notifications to affected landowners or occupiers regarding conservation orders, stock control orders, or conservation regulations. Additionally, they are empowered to propose to Land Boards the imposition of limitations on customary grants of land rights, and the attachment of restrictive conditions to grants of land rights under common law, when such limitations or conditions are deemed conducive to sound agricultural management. Moreover, the committees engage in promoting measures for the preservation, wise utilisation, and augmenting of agricultural resources within their areas of jurisdiction, as well as generating public interest in the conservation thereof. Lastly, they are responsible for examining, investigating, and submitting reports on matters referred to them by the Minister or the Board.

The function of a subordinate conservation committee is to perform any functions enumerated above as assigned to it by the conservation committee.

4.8.2 National Agrochemical Committee

The National Agrochemicals Committee (NAC), an advisory and review committee, is established by the Minister in terms of Section 6 of the Agrochemicals Act. NAC is composed of twelve members, and these are directors or representatives from departments of Crop Production and Forestry; Animal Production; Agricultural Research; Wildlife and National Parks; Quality Assurance, Botswana Bureau of Standards; Dean of Faculty of Agriculture, Botswana University of Agriculture and Natural Resources; Ministry of Health; Head of the Chemistry Department, University of Botswana; Chief Chemist, Department of Water Affairs; Representative of National Conservation Strategy (Coordinating) Agency (presently Department of Environmental Protection); representative of the farming community; and representative of the agrochemicals industry. The Minister may co-opt two other members who, in their opinion, have knowledge and experience likely to contribute to the carrying out of the Committee's functions.

The functions of the Committee are to control or regulate the importation, distribution, use, and disposal of agrochemicals; ensure compliance with the provisions of the Agrochemicals Act, including to make recommendations to and advise the Registrar, in respect of a certificate or licence sought to be issued in terms of this Act; and review the registration and licensing of agrochemicals.⁸⁵

85 Sec 8 of the Agrochemicals Act of 1999.

4.8.3 Land Boards

The Tribal Land Act establishes Land Boards (and subordinate land boards) for each district.⁸⁶ Each Land Board is composed of eight appointed members; three *ex-officio* members, namely a *Kgosi* (chief) or *Moemela Kgosi*, one member representing the Ministry responsible for Trade, and one member representing the Ministry responsible for Agriculture. The chairperson is appointed by the Minister from the members of the Land Board while the deputy chairperson shall be elected by members from amongst their number.

Land Boards are mandated to manage and administer tribal land; make and execute grants or other dispositions of any such land or any interest therein; ensure the equitable distribution of land to citizens of Botswana in a manner that ensures sustainable development and the protection of natural resources; and advise government, whenever appropriate, in any matters relating to policies as may be necessary for, or incidental to, the attainment of the objectives of the Land Board. As far as issuing of grants and protection of natural resources is concerned, Land Boards play an important role since they can cancel a land grant if the grant holder does not adhere to good husbandry.

4.8.4 Ministry of Environment and Tourism

The Ministry of Environment and Tourism assumes the responsibility for safeguarding, preserving, and deriving value from natural and cultural resources, whilst promoting a sustainable environment for the nation's benefit. It takes charge of formulating, implementing, and monitoring policies and strategies on environmental conservation and sustainable utilisation of natural and cultural resources. The Ministry seeks to extract benefits and value from these resources, fostering a nation that is empowered, adaptive, and environmentally conscious, whilst building resilience to climate change. Crucial entities within this Ministry include the Department of Forestry and Rangelands Resources, as well as the Department of Environment Protection.

4.8.5 Department of Forestry and Rangelands Resources (DFRR)

This Department is charged with the conservation, protection, and management of vegetation resources in Botswana and ensures that these resources are used sustainably for the benefit of the present and future generations. According to the Botswana National Action Programme to Combat Desertification, this Department is responsible for

86 Sec 3 of the Tribal Land Act of 2018.

controlling and preventing land degradation and facilitating enforcement of all environmental legislation aimed at minimising land degradation. Further, it is tasked to build the capacity of local authorities and policymakers; provide information on desertification and drought to formal, non-formal, and informal sectors of education; and build the capacity of communities to help combat desertification.

4.8.6 Department of Environmental Protection

The Department of Environment Protection (DEP) is primarily responsible for environmental protection and is the competent authority on EIAs. In terms of the Botswana National Action Programme to Combat Desertification, DEP is the leading agency in mobilising resources to implement the NAP. In this role, it partners with the DFRR, Ministry of Finance and Development Planning, Ministry of Lands and Agriculture, and civil society organisations. It is further tasked to undertake research on the processes of drought and desertification and facilitate capacity building for stakeholders involved in combating desertification and mitigating the effects of drought.

Furthermore, DEP is responsible for providing policy direction and leadership in all matters of sanitation and waste management. It registers persons who manage controlled waste, and registers and licenses waste carriers, waste disposal sites, and waste management facilities. It also monitors the collection, disposal, and treatment of controlled waste by local authorities and waste management industries in the private sector. Additionally, it occasionally inspects land to detect whether the condition of any part of the land is likely to cause pollution of the environment or harm to human, animal, or plant life and to take such other steps as are necessary in regard thereto. The promotion and coordination of human resources development and institutional capacity within the local authorities to effectively implement sanitation and waste management programmes is another task of the DEP.

4.8.7 Ministry of Lands and Agriculture

The Ministry of Lands and Agriculture is responsible for managing land resources, promoting agricultural development, ensuring food security, overseeing land tenure and access, conducting agricultural research, and addressing the impacts of climate change on the farming sector. Its primary goal is to balance land use with sustainable agricultural practices to support the country's economy and enhance social well-being. Regarding the protection of soil resources, specific attention will be directed toward examining the activities and initiatives undertaken by the Department of Crop Production and the National Agricultural Research and Development Institution (NARDI).

4.8.8 Department of Town Country and Planning (DTCP)

The DTCP is mandated with the responsibility to facilitate orderly and sustainable spatial development of land in Botswana. The Department formulates National Physical Planning Policies, advises Ministries, local authorities, government departments, the private sector, and NGOs on town and country planning matters and determines the optimal use of land. Furthermore, the Department advises the Ministry of Land, Water, and Sanitation on town and country planning matters. In terms of the Botswana NAP, the DTCP is expected to promote participatory land use planning to control and prevent land degradation.

4.8.9 Department of Survey and Mapping

The Department serves as the nation's principal surveying and mapping organisation, entrusted with the responsibility of providing essential geospatial information and services to support socio-economic development. Its core objectives include the collection, management, and dissemination of geospatial data, employing technologies such as Remote Sensing, Global Navigation Satellite System (GNSS), Geospatial Information Systems (GIS), aerial photography, and satellite imagery. Furthermore, the Department administers the National Mapping Programme, facilitating mapping activities at various scales throughout the country, encompassing tasks such as village mapping, delineation of electoral boundaries, and the mapping of tourism and facilities (e.g., schools, healthcare facilities, wildlife management areas). Additionally, the Department exercises regulatory authority over cadastral surveying, topographic surveying, and mapping within the confines of Botswana. This involves conducting statutory examinations and granting approvals for cadastral surveys to assist in the registration of titles following the Land Survey Act (Cap 33:01) and Regulations.

4.8.10 Department of Lands

The Department of Lands serves as the central authority for matters regarding land governance, government immovable asset management, and conveyancing. Its mandate encompasses guiding government departments and stakeholders on policy and operational matters concerning the planning, acquisition, operation, maintenance, and disposal of government immovable property, including land. Furthermore, it undertakes the initiation, development, and implementation of policies and legislation related to land, as well as facilitating the coordination of programs and projects related to land and property development. The Department also has oversight over the

administration of state land and tribal land and provides advice to the government on land dispute resolution and general land management and administration.

4.8.11 Ministry of Minerals and Energy

The Ministry of Minerals and Energy (MME) assumes responsibility for the formulation, direction, coordination, development, and execution of national policies and programs on the minerals and energy resources industry. Additionally, the MME devises strategies for the effective execution of approved policies and programs concerning minerals and energy. A pivotal entity within this Ministry is the Department of Mines, which seeks to ascertain that mineral resources are harnessed and utilised sustainably. It assumes the duty of granting licenses and overseeing prospecting and mining operations, to ensure adherence to established environmental, health, and safety standards, as well as relevant laws and regulations.

4.8.12 Department of Crop Production (DCP)

The Department of Crop Production is responsible for enhancing competitiveness within the arable sub-sector and reducing the nation's dependence on imports. This is achieved by facilitating the adoption of innovative production technologies by the farming community and aiding farmers in upgrading their management practices and technological utilisation. The Department also takes charge of regulating pests that are considered significant at a national level. Additionally, it plays an advisory role in addressing concerns related to the conservation of agricultural resources.

4.8.13 National Agriculture Research Institute (NARDI)

The National Agriculture Research Institute (NARDI), established in 2015 through the consolidation of the Department of Agricultural Research (DAR), National Veterinary (NVL) and National Food Technology Research Centre (NFTRC), endeavours to undertake high-quality, innovation-intensive and needs-driven research and development. NARDI also engages in commercialisation and technology transfer endeavours along the agricultural value chain, intending to benefit consumers, farmers, industry, government, and the scientific community. The primary objectives of NARDI are to augment the agricultural sector's contribution to Botswana's GDP, enhance the utilisation of natural products and agricultural goods, promote inclusive practices and initiatives for knowledge transfer, and offer inventive solutions and adaptations in

response to the challenges posed by climate change, yield improvement, and the commercialisation of agriculture.

The National Agriculture Research Institute (NARDI) engages in research and development activities across seven thematic areas: field crops and horticulture, animal production and health, agricultural and biosystems engineering, food science and technology, agricultural economics and statistics, innovation, knowledge management and intellectual asset beneficiation, and technology transfer and commercialisation. Within NARDI, the Department of Field Crops and Horticulture focuses on research in the field and horticulture crops sectors, to improve agricultural efficiencies. The Department leads field crops programs, as well as the Climate Smart Crops program.⁸⁷

Moreover, the Department of Natural Resources Management at NARDI conducts research on the intricate interactions between human beings and natural ecosystems, including rangelands, biodiversity, soils, and water, to promote sustainable management of natural resources and foster resilient livelihoods in the face of a changing climate. Research endeavours encompass various areas such as ecosystem services, assessment and monitoring of land degradation, sustainable land management, ecosystem rehabilitation to advance LDN and the evaluation, adaptation, and mitigation of climate change risks. Specifically, research efforts on land degradation assessment and rehabilitation concentrate on comprehending the dynamic processes governing rangelands, soils, and water, concerning the various management practices employed. The knowledge generated from this research is crucial in advocating for sustainable levels of natural resource utilisation, including rangeland carrying capacity, that are appropriate for diverse ecological zones. Additionally, the department is actively involved in the development of innovative technologies that facilitate the restoration of degraded ecosystems.

4.9 Availability and accessibility of environmental data

The Environment Statistics Unit in the Central Statistics Office is responsible for publishing statistics in the country. They use primary data pooled from different departments involved in environment and natural resources management and monitoring. The publications are readily accessible online. However, due to data paucity, not all the data environmental indicators are presented by the Central Statistics Office. Also, the statistics are not timeously published. Lamentably, even at the department level, statistics are not readily available.

Another challenge is that institutions are not willing to share available information with other departments.⁸⁸ The reluctance to share information, in the end, promotes

87 See <https://www.nardi.org.bw/services/field-crops-and-horticulture-dfch/>, accessed 20 May 2024.

88 GOB (2006: 25).

duplication of efforts and makes reporting processes cumbersome and difficult as there is limited information made available for the preparation of reports and any other reporting process for local consumption. As such there is a need to come up with an information-sharing structure to ease access to information.

Botswana's research institutes such as the University of Botswana/Harry Oppenheimer Okavango Research Centre (HOORC) and NARDI have been playing an important role in researching and disseminating information on issues of agriculture and natural resources. Research collaborations have been witnessed between these research institutions and environmental NGOs. Furthermore, the University of Botswana and Botswana University of Agriculture and Natural Resources have been, through their degree programmes, instrumental in developing human capital skilled in environmental issues, agriculture, and natural resource management. However, strengthening human capacity remains an issue.

Notably, there are currently two soil scientists at the Ministry of Lands and Agriculture and about five soil surveyors who were trained internally after completing Land Management.⁸⁹ There is a need for further training in soil science, as no institutions are currently producing soil scientists in the country.

5 Specific information on existing legislation concerning the main drivers of soil degradation

5.1 Agriculture

5.1.1 Agricultural Resources Conservation Act, 1972

The Agricultural Resources Conservation Act of 1972 aims to facilitate the preservation and enhancement of agricultural resources in Botswana. This Act defines agricultural resources as encompassing various essential components. These components include soil, water, plant life, vegetative products, animal life, fauna, and any other items that the Minister designates as agricultural resources through an official notice in the Gazette.⁹⁰

The Act provides for the establishment of the Agricultural Resources Board, which plays a central role in conserving and improving agricultural resources.⁹¹ This is achieved through the issuance of conservation orders and conservation regulations.⁹² Conservation orders require landowners or occupiers to take necessary measures to conserve agricultural resources on their land or prevent harm to agricultural resources

⁸⁹ See Rozanov & Wiese (2018).

⁹⁰ Sec 2 of the Agricultural Resources Conservation Act 39 of 1972.

⁹¹ Ibid.: Sec 3.

⁹² Ibid.: Sec 16(1)–(2).

on other land caused by their actions or omissions. In contrast, conservation regulations regulate agricultural land-use practices in specific areas designated by the Agricultural Resources Board as necessary for conserving agricultural resources. One month after being published in the Gazette, conservation regulations become effective in any designated area.

These orders and regulations have the power to prohibit, regulate, require, or control various activities such as cultivation, grazing or watering of livestock, firing, clearing or destruction of vegetation, and protection against fire. Additionally, they can address afforestation or re-afforestation of land, protection of slopes or catchment areas, and drainage of land including the construction, maintenance, or repair of artificial or natural drains, gullies, contour banks, terraces, and diversion ditches. The purpose of these measures and requirements is to protect land against erosion or the deposit of sand, stones, gravel, or any other material. They also aim to prevent the silting up of dams, preserve vegetation, maintain soil fertility, and promote sound husbandry practices. Furthermore, conservation orders may restrict or control the use of insecticides, fertilisers, or any other chemical compounds on, in, or over land.⁹³

Further, the law empowers the Board to make decisions regarding construction works on any land for the purpose of mitigating or preventing soil erosion, as well as for preventing or controlling bushfires through firebreaks or control burning. The costs of these works are typically covered by the government, but in certain cases, the Board may allocate the cost to the landowner or occupier.⁹⁴

Additionally, the Board is empowered to issue stock control orders.⁹⁵ These orders prescribe the maximum number and class of stock that can be kept or pastured by any landowner or occupier in a specified area or watered at a designated point. The implementation of a stock control order is deferred for a reasonable period, allowing the stock owner time to find alternative grazing or dispose of the stock to comply with the order. A stock control order can apply to any cattle on the land or water at the specified point, regardless of whether all or some of the cattle are subject to a contract that prohibits selling or slaughtering them. The Act defines stock to include various animals such as cattle, horses, donkeys, mules, sheep, goats, ostriches, pigs, animals of the Bovidae family in captivity, domestic fowls, turkeys, geese, ducks, and any other domesticated or captive animal or bird specified by the Minister in a Gazette notice.

5.1.2 Agrochemicals Act, 1999

The primary objective of this legislation is to establish a framework for the registration and licensing of agrochemicals, as well as to implement measures for the control and

93 Ibid.: Sec 16(5).

94 Ibid.: Sec 18.

95 Ibid.: Sec 19.

regulation of their importation, manufacture, distribution, use, and disposal. These provisions are intended to prevent environmental pollution and safeguard human, plant, and animal life from potential harm. Agrochemicals, as defined under this Act, encompass any organic, inorganic, or live biological materials that are intended or offered for sale, with the purpose of either eliminating, controlling, repelling, attracting, or preventing any detrimental life forms that could impede plant and animal growth, or promoting or inhibiting plant growth through the use of fertilisers, growth regulators, hormones, defoliants, or legume inoculants.⁹⁶

The possession, use, importation, manufacture, advertisement, distribution, or sale of agrochemicals is strictly prohibited unless the said agrochemical has been duly registered following the provisions outlined in this legislation.⁹⁷ Moreover, individuals must obtain a valid license under this Act to engage in activities such as manufacturing, importing, distributing, selling, or disposing of agrochemicals.⁹⁸

When applying for the registration of an agrochemical, the applicant is required to provide a comprehensive summary of its potential effects on the environment, with specific emphasis on its toxicity to earthworms and soil micro-organisms. This summary must also include information regarding its behaviour, methods of degradation, degradation products in soil, major metabolites, DT50 (in days), mobility, adsorption, and the mobility of metabolites.⁹⁹

Furthermore, a licensee must ensure that any agrochemical distributed by them complies with all legal requirements, including appropriate approval, accurate marking, secure packaging, and proper labelling following the law. The licensee must also ensure that the substance contained within the agrochemical aligns with the specifications stated on the label. Moreover, the directions for use and any other information provided on the label should be free from any misleading or false information.¹⁰⁰

To ensure the safe and appropriate handling of agrochemicals, the Registrar is mandated to periodically organise a training course for individuals seeking a license under these Regulations but lacking the requisite qualifications. This course shall encompass several key areas, including the interpretation of labels; categorisation of agrochemicals into distinct groups; classification of toxicity levels and corresponding colour codes; storage and handling protocols for various types of agrochemicals, as well as those differing in toxicity; utilisation of protective clothing; and appropriate methods for disposing of agrochemicals.¹⁰¹

In accordance with Agrochemicals Regulations, it is mandatory to ensure the safe disposal of all agrochemicals. This involves the shredding of bags and boxes, breaking

96 Sec 2 of the Agrochemicals Act of 1999.

97 Ibid.: Sec 10.

98 Ibid.: Sec 15.

99 Reg 3 of the Agrochemicals Regulations of 2003.

100 Ibid.: Reg 7.

101 Ibid.: Reg 13.

of pallets, burning of lightly agrochemical-contaminated waste, or packing such waste in 200-litre steel drums for subsequent disposal as toxic waste.¹⁰²

5.1.3 Town and Country Planning Act, 2013

This Act makes provisions for the orderly and progressive development of land in urban and rural areas and aims to preserve and improve the amenities thereof. Although the Act primarily focuses on planning, it also includes provisions for soil protection. This is more evident in the applications for land subdivisions and consolidations, which require the consent of planning authorities.¹⁰³ In cases where the land will be used for agriculture, the planning authority must consider the need for soil conservation.¹⁰⁴ Additionally, the Minister has the authority to issue orders that preserve trees, groups of trees, or woodland in any area.¹⁰⁵ These orders can prohibit the cutting down, topping, lopping, or intentional destruction of trees, and they may also require replanting. The preservation of trees and the practice of replanting are essential in managing soil degradation, as they help to prevent soil erosion.

5.1.4 Enforcement issues

The major constraint is that the Agricultural Resources Conservation Act is largely corrective rather than preventive and proactive. Actions can be taken when the land is degraded, but no tools are provided to prevent land degradation from occurring. Further, the implementation of the framework provided in this Act has been lacking due to the dissolution of the Agricultural Resources Board responsible for issuing conservation orders, regulations, and stock control orders. As a result, there is currently no institution with the authority to address the pressing issue of overstocking and promote sustainable soil management. This governance gap has hindered the effective management of land and livestock, potentially contributing to further environmental degradation. The Board must be revived to ensure the proper enforcement of conservation orders, regulations, and stock control orders to safeguard the country's soil health and mitigate the negative impacts of overstocking.

For inspection regarding agrochemicals, the Agrochemicals Act confers authority upon the Minister to designate an officer as an agrochemical inspector. These inspectors possess the power to lawfully enter any premises and conduct examinations, as well as obtain samples of any agrochemical or substance that is utilised or has the

102 Ibid.: Reg 12.

103 Secs 37-38 of the Town and Country Planning Act of 2023.

104 Ibid.: Sec 40(1).

105 Ibid.: Sec 41.

potential to be utilised in the manufacturing, production, processing, or treatment of an agrochemical. Inspectors may assess any process or activity occurring within said premises, relating to the agrochemical, or associated with its manufacturing, production, processing, or treatment. In addition, inspectors are entitled to examine any containers, facilities, or equipment employed in the context of agrochemicals, regardless of whether they are discovered on the premises, and are permitted to halt and search any motor vehicle used for the transportation of agrochemicals. However, to legally enter, inspect, or seize any agrochemical or its remnants, inspectors are required to possess a valid search warrant, along with written consent provided by the owner or occupant of the premises.¹⁰⁶ The necessity of obtaining this written consent and search warrant poses a hindrance to the inspectors, as it may prevent them from implementing the laws governing agrochemicals in a timely and effective manner, particularly if the owner or occupier elects to withhold their consent.

5.1.5 Monitoring

The Ministry of Lands and Agriculture is responsible for implementing all agricultural initiatives, based on the national policy frameworks. The Ministry operates through the Department of Agricultural Research, Statistics, and Policy Development (DARSPD), which is responsible for the monitoring and evaluation of agricultural programs. Moreover, DARSPD offers statistical information services to foster a competitive and sustainable agricultural sector while ensuring food security. Although DARSPD primarily focuses on the evaluation of agricultural programs, it does not prioritise the monitoring of soil resources. Additionally, the indicators used to compile agricultural statistics lack consideration for soil-related factors. In general, soil data is not readily accessible.

5.1.6 Climate smart agriculture

Botswana actively supports and implements climate-smart agriculture initiatives and programs as part of the Climate Smart Agriculture 2015-2025 program. Botswana showcases both traditional and research-based agricultural practices that promote climate resilience, including the adoption of minimum tillage, conservation agriculture measures, effective water and irrigation management techniques, and the introduction of new crop varieties.

Notably, the government has established specific programs to advance climate-smart agriculture, including the Integrated Support Programme for Arable Agriculture

¹⁰⁶ Sec 9 of the Agrochemicals Act of 1999.

Development (ISPAAD) in 2008 and the Livestock Management and Infrastructure Development (LIMID) in 2006. ISPAAD aims to bolster the commercialisation of agriculture through mechanisation and facilitates access to farm inputs and credit, while also enhancing extension outreach. Among its various components, ISPAAD includes provisions for incentivising minimum tillage practices. However, the structure of these incentives undermines the intended climate-smart approach. Specifically, ISPAAD provides lower financial support for minimum tillage compared to conventional tillage, despite the potential for minimum tillage to increase crop yield through soil moisture conservation and simultaneously sequester soil carbon.¹⁰⁷

The LIMID was implemented to enhance livestock and range resource management and conservation, specifically targeting resource-poor farmers. Its initiatives encompassed the provision of assistance in animal husbandry and fodder support, water development, the establishment of cooperative poultry abattoirs for small-scale poultry producers, as well as the promotion of small stock, guinea fowl, and Tswana chickens. To ensure effective oversight of the range lands, the Range Management Section (under the Ministry of Lands and Agriculture) collaborated with the Range Ecology Division (under the Ministry of Environment and Tourism) to undertake monitoring activities across each district. The resulting information obtained from these monitoring processes served to assess the adequacy of range resource management. The monitoring report, subsequently compiled, was presented to the district offices and the Ministry of Lands and Agriculture's headquarters for careful evaluation and consideration.¹⁰⁸

The Temo Letlotlo Programme, 2023 as a successor to the ISPAAD initiative, aims to foster the adoption of climate-smart technologies. An overarching principle of this programme is the preservation of the environment. This entails the prudent management of agricultural activities to safeguard ecological integrity while simultaneously ensuring the financial sustainability of farming enterprises. Furthermore, it involves the preservation of biodiversity and the mitigation of farming practices that contribute to the emission of greenhouse gases.

The government provides a 50% subsidy through the Programme's tractor and implement scheme to facilitate the acquisition of minimum tillage equipment, and to promote the use of climate-smart-friendly minimum tillage practices instead of conventional tillage methods. This subsidy covers equipment for minimum tillage (including ripping, harrowing, and weeding), planting, weed and pest control, as well as harvesting and processing. Additionally, it includes the procurement of a tractor-trailer to facilitate equipment transportation.

Furthermore, the government has involved the private sector in providing extension services. To create opportunities for the private sector, the Ministry will no longer conduct soil testing and analysis for farmers. Plans are underway to appoint locally

107 FANRPAN (2017); GOB (2013); Morapedi (2016: 288-300).

108 GOB (2009); Moreki et al. (2010).

owned companies to provide extension services and complement public extension efforts. This development is timely, as the country is currently experiencing a shortage of extension workers. Presently, the Ministry has 268 extension officers nationwide, each responsible for an average of 438 farmers.¹⁰⁹

Farmers are also eligible for seasonal loans, which are secured loans offered at a prime rate, up to a maximum of P8,300.00/ha, specifically intended for grain-producing farmers focusing on business. These loans will be utilised for working capital purposes, including the procurement of inputs, farm production services, and the acquisition of the Weather-based Agricultural Credit Guarantee Scheme (ACGS). A requirement for eligibility is the submission of soil test results from an accredited laboratory.

Implementation of the Temo Letlotlo Programme, 2023 initiatives will be crucial in preserving soil resources. However, it is essential to establish mechanisms that ensure soil test results are stored in a central database that is easily accessible to users. Engaging the private sector in extension services will address the existing weaknesses in the system, such as the lack of appropriate training among some extension workers and reliance on traditional and outdated methods. However, mechanisms must be established to ensure seamless collaboration between public and private sector extension workers.

5.2 Mining

Botswana's mining activities are subject to regulation under various laws¹¹⁰ including the Mines and Minerals Act and its accompanying Regulations,¹¹¹ as well as the Petroleum (Exploration and Production) Act of 2012. All rights of ownership in minerals are vested in the Republic and the Minister responsible for mining shall ensure, in the public interest, that the country's mineral resources are investigated and exploited in the most efficient, beneficial, and timely manner.¹¹²

109 GOB (2023: 43).

110 Diamond Cutting Act of 1979; Precious and Semi-Precious Stones (Protection) Act [Cap 66:03]; Mines, Quarries, Work, and Machinery Act [Cap 44:02]; Environmental Assessment Act of 2011; Unwrought Precious Metals Act of 2003; Explosives Act [Cap 24:02]; Botswana Geoscience Institute Act of 2014; Botswana Energy Regulatory Authority Act of 2016.

111 Mines and Minerals (Prospecting and Leasing Charges) Regulations, 1969; Mines and Minerals (Health, Mortality and Labour Returns) Regulations, 1970; Mines and Minerals (Demarcation of Mining Lease Areas) Regulations, 1971; Mines and Minerals (Restriction of Prospecting Activity for Coal) Order, 2012.

112 Sec 3 of the Mines and Mineral Act [Cap 66:01].

5.2.1 Mines and Minerals Act, 1999

Environmental protection is a paramount consideration in the entire lifecycle of mining activities. The grant of a prospecting licence is contingent upon the submission of a comprehensive prospecting operations programme that adequately accounts for environmental protection.¹¹³ Similarly, holders of mining licences¹¹⁴ and minerals permits¹¹⁵ are obligated to carry out mineral development and extraction activities following mining operations programmes that conform to good mining and environmental practices.

Detailed provisions regarding the environmental obligations of mineral concession holders are outlined in Section 65 of the Mines and Mineral Act. Such holders are required to conduct their operations in a manner that prioritises the preservation of the natural environment to the greatest extent possible. Additionally, they must minimise and control the wastage or undue depletion or degradation of natural and biological resources and promptly address pollution and contamination of the environment as necessary. To align with accepted international standards within the mining industry, applicants seeking mining licences, retention licences, or renewals thereof, must prepare and submit comprehensive EIAs as part of their Project Feasibility Study Reports. Moreover, the law imposes an obligation on mineral concession holders to periodically rehabilitate concession areas. It is a requirement that, upon the conclusion of operations, the topsoil of affected areas shall be restored or the land substantially restored to its pre-operations condition.

Section 82(f) stipulates that engaging in unlawful environmental damage, as prohibited by Section 65, or failing to rehabilitate an extraction site is considered an offence. Upon first conviction, the prescribed penalty is a fine that does not surpass P5 000, imprisonment for a duration not exceeding twelve months, or both. In the event of a second or subsequent conviction, the court retains the discretion to impose a penalty up to twice the previously mentioned penalty.

5.2.2 Petroleum (Exploration and Production) Act, 1981

The Act makes provisions relating to the exploration for and exploitation of petroleum resources in Botswana. Section 55 imposes a duty on holders of development licenses to conduct exploration and development activities in a manner that is proper, safe, and compliant with established oil field practices. License holders must take measures to prevent the contamination of water sources such as wells, springs, streams, rivers, lakes, reservoirs, and estuaries by substances including petroleum, salt water, drilling

113 Ibid.: Sec 14(b).

114 Ibid.: Sec 45(1)(b).

115 Ibid.: Sec 57(b).

fluids, chemical additives, gases (excluding petroleum), and any other waste products or effluents. In the event of pollution, license holders are required to treat or dispose of the contaminants in an environmentally acceptable manner.

5.2.3 The role of foreign investors

The primary concentration of FDI in Botswana occurs within the capital-intensive mining sector, notably through the significant investment by the Debswana Diamond Mining Company. This investment arises from the joint venture between the government of Botswana and De Beers of South Africa, with the government holding a 50% stake. Botswana's existing legal framework does not possess strong provisions for the treatment and protection of foreign investors' interests. It lacks a specific foreign investment law, and only two BITs with Germany and Switzerland are currently in effect.¹¹⁶

In 2001, the government proposed the introduction of a Foreign Investment Code aimed at enhancing the regulation of FDI in the country. This proposed code sought to impose minimum capital requirements and reserve certain sectors exclusively for national investors. The government put forward these proposals with the intent of appealing solely to "serious" foreign investors who would make substantial investments, admitting only "*bona fide*" foreign investors.¹¹⁷ Additionally, the aims were to curb the entry of economic refugees who might deprive citizens of employment opportunities and safeguard the interests of small local investors by creating investment prospects for them. However, this proposal failed to materialise due to dissent surrounding the minimum capital requirements. Notably, the proposal did not address the regulation of investors' conduct or adequately address their role in environmental protection.

5.2.4 Monitoring

The Botswana Minerals Policy of 2022 addresses various concerns, including consumer concerns related to climate change, environmental issues, and ethics. It aims to promote sustainable mineral development that prioritises environmental conservation and protection. To achieve this objective, several strategies have been identified, including the implementation of the polluter pays principle. The government, specifically the Department of Mines, is responsible for monitoring and enforcing mineral laws and policies.

116 See <https://investmentpolicy.unctad.org/international-investment-agreements/countries/26/botswana>, accessed 30 May 2024.

117 See https://unctad.org/system/files/official-document/itepcmisc10_en.pdf, accessed 30 May 2024.

Given the inherent nature of mining projects, they typically have a significant impact on the local environment, particularly concerning water and land resources, as well as causing pollution, dust, and noise. For instance, adverse environmental effects have been identified at Bamangwato Concessions Limited (BCL), a copper-nickel mine and smelting facility situated in Selebi Phikwe, located in northeastern Botswana. Studies conducted in this area have revealed that gaseous fumes and emissions resulting from mining activities have negatively affected respiratory health,¹¹⁸ potentially impacting the pulmonary well-being of residents.¹¹⁹ Additionally, these activities have contributed to vegetation destruction and soil contamination.¹²⁰

Overall, the effectiveness of monitoring and enforcing environmental obligations outlined in Section 65 of the Mines and Minerals Act has been greatly hindered by inadequate legislation. Currently, there are no regulations, standards, or approved guidelines to govern the implementation of Section 65.¹²¹ Additionally, the country lacks local expertise in environmental matters, especially in the mining field, which makes it challenging to address national needs in this area.¹²² This issue is further exacerbated by high staff turnover in the Department of Mines.¹²³ Moreover, there is evidence that the government lacks adequate monitoring equipment. In the case of the BCL mine, the Selebi-Phikwe Town Council did not have sufficient monitoring facilities and relied on information provided by the mine itself.¹²⁴

5.2.5 Diamond mining in Botswana

The discussion of mining activities in Botswana would be incomprehensive without acknowledging the significant role played by the diamond mining sector. Botswana holds the position of being the foremost global producer of diamonds in terms of value. Presently, there are eight operational diamond mines in Botswana, namely Orapa, Letlhakane, Jwaneng, Damtshaa, Lerala (previously referred to as Tswapong Mine), B/K11, A/K6, and Ghaghoo Mine (formerly known as Gope mine). The initial discovery of the diamond-yielding Kimberlite, recognised as the B/K1 pipe, transpired in Botswana approximately 15 kilometres north of Letlhakane in 1967, shortly following Botswana's attainment of independence from British colonial control over the then Bechuanaland Protectorate. In 1967, all Botswana tribal chiefs agreed with President Seretse Khama, relinquishing all mineral rights in the tribal regions to the

118 Asare & Darkoh (2001: 30-31).

119 Ekosse, van den Heever & Vermaak (2006).

120 Asare & Darkoh (2001: 30-31).

121 Abi (2006).

122 World Bank Group (2016).

123 See https://resourcegovernance.org/sites/default/files/RWI_Enforcing_Rules_Chapter2.pdf, accessed 1 June 2024.

124 Asare & Darkoh (2001: 31).

government.¹²⁵ This arrangement was made so that the potential wealth derived from minerals could be fairly distributed among all districts within Botswana.

The preeminent actor in this industry is Debswana Diamond Company (Pty) Limited (Debswana), which was established in 1969. It stands as a leading global diamond producer in terms of both value and volume. Debswana operates four diamond mines, namely Jwaneng, Orapa, Letlhakane, and Damtshaa Mines. The latter, known as Orapa, Letlhakane, and Damtshaa Mines (OLDM), consolidates four small diamond pipes discovered between 1967 and 1972 into a single mine. Debswana is a partnership of equal ownership between the government of Botswana and the De Beers Group of Companies. The diamonds extracted from these four mines are sold to De Beers and the Okavango Diamond Company, with Debswana as the primary contributor to the De Beers Group's rough diamond production.

Open pit mining is the predominant method used in the diamond industry for extraction, with mines such as Jwaneng, Orapa, Letlhakane, Karowe, and Damtshaa utilising this approach. Orapa stands as the world's largest conventional open-pit diamond mine. However, Ghaghoo Mine differs from this norm as it primarily employs underground mining techniques. The open pit method is generally favoured due to its perceived advantages in worker safety, extraction flexibility, and cost-effectiveness in development and maintenance. Nevertheless, this method is not without its drawbacks, as it has negative impacts on the environment and local communities both during production and afterwards.

The impact of mining activities on environmental degradation in Botswana has been extensively explored through research, with the Boteti sub-district serving as a notable case study. The area has long been recognised as one of the most severely degraded regions in the country. In 1993, Boteti was specifically selected as a case study for the Intergovernmental Convention to Combat Desertification (ICCD).¹²⁶ Consequently, since 2002, Boteti has been one of the sites for the Indigenous Vegetation Project (IVP), a five-year initiative funded by the government and the Global Environment Facility (GEF).

Research on the environmental impact of mining activities in Botswana, particularly in the Boteti sub-district, has shown significant changes in land use and land cover from 1968 to 2009. There is evident expansion of settlements from cattle posts to townships. This has translated to an increase in arable lands and grazing lands due to the growing population and its demand for agricultural production. Consequently, the grazing land has expanded into the shrub savanna land, as more people have entered the livestock farming sector. Further, local land use patterns have been witnessed in the Boteti area, resulting in considerable environmental degradation.¹²⁷ This degradation has primarily manifested in the form of displacement or constrained access to

125 Mineral Rights in Tribal Territories Act 31 of 1967.

126 Ringrose et al. (1994).

127 Engleton, Darkoh & Areola (2012: 25-42).

cultivable and grazing lands, as well as the depletion of natural resources. The conversion of formerly agricultural areas into mining sites has constituted a significant contributor to this phenomenon. Furthermore, the presence of borrow pits has the potential to exacerbate land degradation due to the elimination of vegetation, the creation of deep scars on the land surface, the persistence of overburden remnants, and disturbance of soil structure. The regions adjacent to the borrow pits are susceptible to erosion via both water and wind. The pits have altered the topography of the areas by excavating them below ground level. If not rehabilitated after use, the pits may degrade into unsightly blemishes on the landscape. While mining activities and their associated practices have directly and indirectly facilitated land degradation, engendering detrimental environmental effects in the Boteti district, other factors also contributed to land degradation. These include climatic fluctuations and other anthropogenic practices such as excessive grazing of rangelands, the establishment of fenced ranches on communal grazing lands, intensive cultivation of croplands, and deforestation.

In its 2022 Stakeholder Sustainability Report, Debswana has expressed its commitment to biodiversity conservation. The Biodiversity Management Program (BMP), which incorporates both international and regional legal frameworks, as well as domestic legal frameworks, guides the company's activities. Additionally, on a corporate level, the BMP adheres to several policy and administrative frameworks, including the Debswana Safety and Sustainability Development Policy of 2016 (revised in 2021), the De Beers Environmental Policy (2012, revised in 1999, version 4), and the De Beers Conservation Management Plan Guidelines.

One example of a biodiversity restoration project is the expansion of the Orapa Game Park by 28.328 hectares.¹²⁸ By fencing off this area, the land has been safeguarded against further destruction and plays a vital role in promoting biodiversity and ecosystem re-establishment. Furthermore, the Letlhakane Mine has undertaken rehabilitation initiatives to create a safe and stable landform for post-mining use. In 2022, the Letlhakane Mine initiated a rehabilitation project to establish grazing activities on an area previously utilised as waste rock dumps. This involved reshaping the dumps, applying topsoil cover, implementing slope-ripping techniques to prevent topsoil erosion, and revegetating the area with indigenous plant species. As a result, approximately 47 hectares of waste rock dumps were adequately rehabilitated.¹²⁹

Another endeavour being explored involves waste rock segregation and strategic dumping. This approach enables easy access to targeted rock for progressive rehabilitation, production of aggregate materials, and tourism development, all of which contribute to the circularity program. Additionally, there are potential high-value projects, such as the exploration of opportunities for carbon sequestration using kimberlite waste and the improvement of soil fertility and water-holding capacity in semi-arid

128 See <https://www.debswana.com/Media/Reports/DEBSWANA-RST-2022.pdf>, accessed 1 June 2024.

129 Ibid.

environments. Although still in the early stages, it has been demonstrated that mineral waste holds potential for carbon dioxide absorption, offering opportunities for achieving carbon-neutral mining operations.

5.3 Urbanisation and land pollution

5.3.1 Waste Management Act, 1998

This Act makes provisions for the planning, facilitation, and implementation of systems to regulate the management of controlled waste. It aims to prevent harm to human, animal, and plant life, minimise environmental pollution, and conserve natural resources. The Act also ensures compliance with the Basel Convention. While the word “environment” is not defined in this Act, the Waste Management Strategy of 1998 indicates that the environment should be understood to include water, air, soil, and biodiversity, while natural resources include land and raw materials. The Act has three cardinal objectives: protection of human health, protection of the environment, and protection of natural resources.

Local authorities are mandated to prepare a local waste management plan and a waste recycling plan for their respective areas of control.¹³⁰ The waste management plan must include information on the types of waste the local authority handles and the methods by which they intend to manage controlled waste within a specified period. It should also prioritise different waste management methods for that period.¹³¹ The recycling plan should provide information on the types and quantities of controlled waste that can be recycled and, as a result, would not be included in the waste collection and disposal process for the area. Additionally, the plan may consider the possibility of returning waste materials to the manufacturer to control pollution, conserve resources, and prevent harm to human, animal, or plant life.¹³²

The law requires all waste carriers to be registered and licensed. It is a crime to cause or facilitate the movement of controlled waste within Botswana or across borders without being registered and licensed as a waste carrier.¹³³ It is also illegal to use an unregistered and unlicensed waste carrier. Additionally, waste disposal sites and waste management facilities must be registered.¹³⁴ A waste management facility license may include conditions related to the supervision of activities; concerning the land or plants,

130 Secs 9-10 of the Waste Management Act of 1998.

131 *Ibid.*: Sec 9.

132 *Ibid.*: Sec 10.

133 *Ibid.*: Secs 12-13.

134 *Ibid.*: Secs 15-16.

the necessary precautions and works to be carried out before or after the authorised activities, and the management of waste other than controlled waste, if applicable.¹³⁵

A waste management facility licence may be suspended if the continuation of operations of the waste management facility would cause serious pollution or harm to human, animal or plant life; for failure to comply with the conditions of the license or where the operator or licensee of the waste management facility contravenes the conditions of the licence. Further, a waste management facility licence may be revoked by the Director of Environmental Protection where it is evident that the continuation of operations to which the waste management facility licence relates would cause pollution of the environment or harm to human, animal or plant life, and the pollution, danger or detriment that may result cannot be avoided by modifying the conditions specified in the waste management facility licence or be so seriously detrimental to the amenities of the locality affected by such operations that the continuation of them ought not to be permitted; the licensee has failed to comply with the directions of the Director and licensee is convicted under this Act.

A waste management facility licence may be suspended if the operations of the facility would cause significant pollution or harm to human, animal, or plant life. Suspension can also occur for non-compliance with the licence conditions or violations by the operator or licensee.¹³⁶ Additionally, the Director of Environmental Protection has the authority to revoke a waste management facility licence if the continuation of operations would result in environmental pollution or harm to human, animal, or plant life. The revocation may also be justified if the potential pollution, danger, or detriment cannot be prevented by modifying the licence conditions or if the operations would seriously impact the well-being of the affected community. Failure to follow the Director's directives and conviction under this Act can also lead to licence revocation.¹³⁷

The collection and disposal of household waste is the responsibility of the local authorities.¹³⁸ After being collected, the waste must be sent to a licensed waste management facility for disposal, unless the local authority decides to recycle certain household waste. If waste is disposed of at unapproved locations, the occupier of that land is required to remove it. If they are unable to do so, the local authority will handle the removal.¹³⁹ Local authorities have the option to collaborate with private waste management companies to recycle waste, utilise it to produce heat or electricity, or handle the collection and disposal of controlled waste.¹⁴⁰

A duty of care is imposed on all entities involved in waste management. To fulfil this duty, each local authority and any person involved in producing, carrying, keeping, treating, or disposing of controlled waste must take appropriate measures to prevent

135 Ibid.: Sec 18.

136 Ibid.: Sec 21.

137 Ibid.: Sec 22.

138 Ibid.: Secs 29–31.

139 Ibid.: Sec 32.

140 Ibid.: Sec 33.

the waste from escaping their control. Additionally, anyone handling waste must ensure that the person they are consigning the waste to is licensed to deal with it. Furthermore, any person who receives waste must also take necessary steps to prevent its escape from their control.¹⁴¹

Overall, this Act provides a framework for waste management. However, the actual handling of waste and its disposal is the responsibility of local authorities, who must develop and implement their waste management plans. It is expected that all local authorities have waste management plans in place, which should be regularly updated to meet the specific needs of each locality.¹⁴²

5.3.2 Council by-laws

Under the Local Government Act, local authorities possess the authority to enact by-laws on matters deemed necessary or desirable for safeguarding the health, environment, safety, and well-being of the residents within their jurisdiction. This includes the establishment of regulations governing the collection, management, and disposal of waste. Consequently, local authorities have enacted by-laws prohibiting waste accumulation within their designated areas.¹⁴³

5.3.3 Guidelines on Disposal of Waste by Landfill, 1997

In addition to legislation, waste management is also regulated by the Guidelines on Disposal of Waste by Landfill of 1997. These guidelines offer guidance on landfill site selection and design, waste classification, landfill operation, inspection, monitoring, restoration, and aftercare. The objectives of these landfill guidelines are to enhance waste disposal standards in Botswana, establish minimum requirements for environmentally acceptable waste disposal for various types and sizes of landfills, and provide a framework for sustainable waste disposal practices. The guidelines aim to safeguard public health, the environment, and local amenities through appropriate and cost-effective methods. They include numerous provisions aimed at protecting different environmental elements, including soils.

During landfill site selection, environmental factors such as topography, drainage, and soil characteristics must be considered. Fine to medium-grained soils with high

141 Ibid.: Sec 51.

142 See the Gaborone Waste Management Plan (2003-2009).

143 Jwaneng Town Council (General) By-laws, 1981; Gaborone City Council (General) By-laws, 1966; Selebi-Phikwe Town Council (General) By-laws, 1971; Francistown Town Council (General) By-laws, 1967; Lobatse Town Council (General) By-laws, 1967; Sowa Township Authority (General) By-laws, 1996; Ghanzi Township (Refuse) By-laws, 1978.

clay content and low permeability are preferred as they reduce the migration of pollutants. Landfill designs should minimise the risk of water pollution from leachate and adequately isolate the waste from the surrounding environment. When a landfill ceases operations, restoration work is typically required as part of the closure process. This includes shaping the land, applying a final cover, topsoiling, vegetating, and maintaining drainage.

Special attention is given to the treatment of sludge, as they tend to contain high nutrient levels. The optimal disposal method for sludge is land or soil improvement. However, certain characteristics of sludge, such as heavy metal concentrations (arsenic, chromium, nickel) and pathogen levels, must be monitored or controlled to protect human health and the environment. As for animal carcasses, although often left to undergo natural decomposition or burial, they require specific disposal methods in cases where a constant stream of carcasses is present, such as in intensive farming. This typically involves burial or burning. Also, clinical waste is burnt while tyres are shredded.

The guidelines also emphasise the importance of progressively restoring landfills by applying final cover and establishing vegetation to prevent soil erosion and enhance visual appearance. Where feasible, re-vegetation efforts should begin in areas where no further waste deposition will occur. The final cover should include topsoil capable of supporting vegetation. To prevent erosion and enhance aesthetics, re-vegetation should commence as soon as possible.

5.3.4 Monitoring

The oversight of controlled waste collection, disposal, and treatment falls under the purview of the Department of Environmental Protection (DEP), previously known as the Department of Sanitation and Waste Management. Per the Waste Management Act, local authorities have the executive responsibility of managing waste within their respective areas, including monitoring the activities of waste management operators.

One critical aspect of this monitoring is the operation of landfills, which necessitates regular inspections of air quality and leachate levels. District councils and the DEP collaborate in the monitoring of landfills, as outlined in the Landfill Operational Manual. The Senior Environmental and Health Officer (SEHO) is expected to visit the landfill site at least once a week to assess the landfill's operations and the performance of on-site staff. Monthly briefs are then compiled to update the Council Secretary for coordination purposes. Additionally, the DEP conducts inspections to ensure compliance with environmental regulations and submits reports to District Council Management for appropriate actions.

The Office of the Auditor General (OAG) has the authority to conduct performance audits of local authorities. One such performance audit focused on the Gamodubu

landfill, which is operated by the Kweneng District Council. The purpose of this audit was to assess whether the Gamodubu landfill was being appropriately managed by the Environmental Health Division of the Kweneng District Council. The audit objectives included evaluating the compliance of the landfill's operations with Waste Management Policies and Operational Guidelines, as well as environmental regulations aimed at mitigating the negative impacts of improper waste disposal on the environment and human health. This involved examining the landfill's practices in terms of waste compaction and covering, to reduce the adverse effects on the environment and human health. The audit also aimed to determine the extent to which the landfill management was monitoring its operations to ensure sustainable waste management practices.

The OAG Report in 2018 revealed inappropriate management practices at the Gamodubu landfill, including non-compliance with landfill frameworks (the landfill was not licensed to operate by DEP), inadequate waste compaction, poor aesthetics, insufficient monitoring of leachate and landfill gases, and the absence of emissions testing from incinerators. Consequently, the improper management of waste at the site poses adverse health effects through disease transmission and significantly impacts the environment, polluting air and soil, as well as surface and underground water sources.¹⁴⁴

5.3.5 Enforcement issues

The Local Government Act establishes the provision of a law enforcement office and officers at each district council. These law enforcement officers are responsible for enforcing by-laws enacted by the Council, as well as any other laws that are delegated to them for enforcement. They possess the authority to make arrests, and, with a valid warrant, are permitted to enter and search premises or places to seize and detain items that they reasonably believe to be or contain evidence of a breach of a by-law. Additionally, law enforcement officers possess the discretion to impose fines for violations of by-laws, as determined by the council.

Nonetheless, the waste management practices in Botswana suffer from a lack of effective implementation of laws, thereby posing a significant threat to the environment and public health. This has contributed to the widespread issue of indiscriminate illegal dumping of waste. Furthermore, the existing legal framework is deficient in that it lacks distinct guidelines concerning the responsibilities of waste generators and public authorities, as well as associated economic incentives. The duty of formulating waste management plans has been delegated solely to local authorities, thus, giving rise to inconsistencies in policy. As a result, Botswana lacks a waste segregation system, making it challenging to implement recycling policies and initiatives. Other

144 Office of the Auditor General (2018).

concerns pertain to the inadequate design of infrastructures, particularly landfills. In general, many landfills in Botswana do not possess adequate engineering, lack appropriate lining, and operate without efficient sanitary measures. Studies conducted on the Gaborone Landfill in Botswana have revealed instances of seepage from the landfill to its surrounding subsurface environment, leading to subsurface contamination, as well as adverse effects on the surface and subsurface environments arising from leachate plumes in the unlined landfill.¹⁴⁵ Furthermore, there is insufficient maintenance of available machinery and equipment, resulting in a low or non-existent collection of waste.

5.4 Deforestation and veld fires

5.4.1 Forest Act, 1968

The Forest Act of 1968 establishes a framework for the regulation and protection of forests and forest produce in Botswana. Forest produce, which includes trees and earth,¹⁴⁶ is subject to specific restrictions under Section 12 of the Act. This section prohibits various activities within forest reserves, such as felling, cutting, taking, working, burning, injuring, or removing any forest produce. It also prohibits setting fire to grass or undergrowth, grazing livestock or allowing them to trespass, and clearing, cultivating, or breaking up land for cultivation or other purposes within these reserves.

Furthermore, on state land, it is strictly prohibited to cut, take, work, burn, injure, or remove any tree that is growing within ten meters of the bank of any river.¹⁴⁷ Exceptions to these prohibitions exist when the removal of forest produce is necessary for domestic purposes. In such cases, the removal is allowed if it is carried out by an individual belonging to a community that relies entirely on hunting, gathering food-stuffs, and gathering forest produce for their livelihood. This individual must also be personally dependent on these resources, and the removal must be for the reasonable requirements of the community members to whom they belong. Undertaking any of the prohibited activities mentioned above requires a license, which must be obtained to ensure compliance with the Forest Act.¹⁴⁸

In addition to regulating the conduct of individuals, the Forest Act also establishes the legal responsibilities of employers and parents or custodians. Section 31 of the Act imposes vicarious liability on employers for the actions of their employees. This means that employers can be held accountable for offences committed by their employees concerning the Act. Section 32 of the Forest Act focuses on the liability of parents or

145 Mmereki (2018: 563); Mmereki, Machola & Mokokwe (2019: 1230-1246).

146 Sec 2 of the Forest Act of 1968.

147 Ibid.: Sec 13.

148 Ibid.: Secs 15-16.

custodians with respect to the conduct of their children. According to this provision, if a person who has authority over a child knowingly encourages or enables the child to engage in conduct that would be considered an offence under the Act if committed by an adult, or if the person fails to prevent the child from engaging in such conduct when it was reasonably possible to do so, they will be deemed to have committed an offence. The repercussions for this offence include a fine not exceeding P250, imprisonment for a maximum period of three months, or both.

The Forest Act needs revision and updating to address current issues and challenges, particularly concerning climate change and sustainable management of forestry resources. Issues of afforestation and restoration of forests are not provided in the Act. Additionally, the Act does not extend its coverage to tribal and freehold land, further limiting its effectiveness.

5.4.2 Herbage Preservation (Fire Prevention) Act, 1977

The Herbage Preservation (Fire Prevention) Act establishes a legal framework for the prevention and control of bush and other fires. Section 4 prohibits the intentional or negligent setting of fire to any vegetation on land not owned or lawfully occupied by an individual, if such fire causes damage, destruction, or poses a threat to another person's property. Moreover, in terms of Section 5 individuals who light a fire on land they do not own or lawfully occupy are required to extinguish it carefully and properly.

The Act also imposes obligations on landowners and occupiers regarding fire prevention. They are required to issue a notice to a police officer or headman before burning vegetation¹⁴⁹ and may be ordered by the Herbage Preservation Committee to construct and maintain firebreaks. The Committee will specify the extent and location of these firebreaks. Failure by owners or occupiers to fulfil these obligations may result in the Committee entering the land to construct and maintain boundary firebreaks, with the owner or occupier being liable for the reasonable cost of such actions.¹⁵⁰

Various personnel, including members of the Herbage Preservation Committee, administrative officers, agricultural officers, fire rangers, forest officials, police officers, traditional authorities, and landowners or occupiers, are empowered to request assistance from any person present at or near a fire.¹⁵¹ They may ask for necessary actions to control, extinguish, or prevent the spread of the fire. Moreover, any person acting in good faith may enter upon land to control, extinguish, or prevent the spread of a fire that is not under control or poses a threat to life or property. Counter-firing is allowed under Section 12 of the Act, provided that reasonable care is exercised to prevent the fire from spreading beyond what is necessary to prevent loss or injury.

149 Sec 6 of the Herbage Preservation (Fire Prevention) Act of 1977.

150 Ibid.: Secs 9–10.

151 Ibid.: Sec 11.

The Act also addresses the liability of servants. If a servant contravenes any provision of the Act or an order issued by the Herbage Preservation Committee while acting on the instructions or commands of their employer, the employer will be deemed to have also contravened that provision. As a result, the employer may be prosecuted under the Act for the contravention, either alone or together with the servant.¹⁵²

5.4.3 Town and Country Planning Act, 2013

The Town and Country Planning Act of 2013 is an enactment that establishes regulations for the systematic and progressive development of land in both urban and rural areas, with the primary objective of safeguarding and enhancing the amenities of such territories. While the central focus of this legislation revolves around the field of planning, it also contains provisions regarding the protection of soil. This is evident in Section 41 of the Act, which confers upon the Minister the authority to issue orders that safeguard individual trees, groups of trees, or woodland within specified areas. These orders possess the capacity to prohibit actions such as the felling, topping, lopping, or deliberate destruction of trees, and they may additionally necessitate the replanting of vegetation. It is important to note that the preservation of trees and the implementation of replanting initiatives play a crucial role in the effective management of soil degradation, as they serve to mitigate the occurrence of soil erosion.

5.4.4 Monitoring

Botswana's forests, although occupying a limited geographic area, hold significant value in terms of safeguarding biodiversity and facilitating carbon dioxide sequestration. In response to the FAO's periodic requests for forest resource data to update the Global Forest Resources Assessment, Botswana has diligently monitored and provided information regarding its forest resources in recent years.¹⁵³ However, to enhance the monitoring of forest resources, it has been suggested that there is a need for the enhancement of GIS hardware and software systems at the district offices. Additionally, the implementation of a forest sector Master Plan is advocated, which would establish comprehensive mechanisms to ensure the efficient functioning of monitoring structures.¹⁵⁴

Regarding fire management, it is noteworthy that Botswana does not currently have an operational fire early warning system, apart from periodic fire awareness campaigns

152 Ibid.: Sec 13.

153 See <https://openknowledge.fao.org/server/api/core/bitstreams/2da4cd28-3ca5-4090-be5c-b49c22bf2965/content>, accessed 30 May 2024.

154 See https://openjicareport.jica.go.jp/pdf/12301594_01.pdf, accessed 30 May 2024.

held at the onset of the fire season. The efficacy of fire monitoring is significantly hampered by inadequate reporting of fire-related information, attributable to incomplete documentation of field fire reports and deficient record-keeping practices. However, an appreciable development in recent times involves the utilisation of the MODIS satellite instrument, which has played a pivotal role in the detection of fires and estimation of burnt areas.¹⁵⁵ Also, among the different stakeholders involved in fire management, the Botswana Defence Forces (BDF) offers aerial support for reconnaissance purposes, assisting in firefighting operations such as fire line spotting and crew placement.

5.4.5 Enforcement issues

The Forest Act delineates the duties of forest officers and foresters. According to Section 3 of the Act, the forest officer, or any forester delegated by them, may issue licenses to individuals authorising activities such as cutting down trees. Additionally, forest officers and foresters possess the authority to perform searches on any land without a warrant for the purpose of investigating suspected violations. They are empowered to make arrests and seize any instruments employed in the commission of suspected offences.

Furthermore, forest officers and foresters bear the responsibility of taking charge of fire extinguishment or prevention efforts when such fires occur within their presence. In fulfilling this duty, they may employ precautionary measures deemed necessary or expedient for extinguishing or containing the fire. These measures may include the appropriate destruction of trees, grass, crops, or other vegetation through burning, cutting, or ploughing, and the enlistment of able-bodied individuals in the area to help or perform acts essential for controlling or quelling the fire. Non-compliance with instructions issued by forest officers constitutes an offence. The law offers protection from liability to forest officers for any loss or damage arising from the lawful exercise of their conferred powers. Moreover, no legal action may be initiated for trespass or damages incurred in good faith through operations carried out under this section or through the assistance provided therein.¹⁵⁶

In the context of fire management, Section 3 of the Herbage Preservation (Fire Prevention) Act establishes the Principal Herbage Preservation Committee, as well as Subordinate Herbage Preservation Committees. These committees consist of individuals or groups designated by the Minister. The Principal Herbage Preservation Committee exercises jurisdiction over the entire territory of Botswana, while the area of authority for Subordinate Herbage Preservation Committees is specified by the Minister. The Principal Herbage Preservation Committee has the authority to appoint any

155 Dube (2013: 26–41).

156 Sec 30 of the Forest Act.

individual as a fire ranger. The Herbage Preservation Committee (HPC) has the authority to grant permission for the ignition of fire in vegetation and possesses the power to proscribe the burning of vegetation within its jurisdictional area. Moreover, in addition to mandating the establishment of firebreaks, HPCs also possess the authority to hear appeals about arrangements concerning the construction of firebreaks by landowners or occupants.

Generally, insufficient efforts have been made to adequately safeguard forests in Botswana. The country lacks a comprehensive and coordinated approach to sustainable forest management and lacks a strategic framework for guiding the development of the forest sector. Such strategic frameworks are essential for the successful implementation of REDD+ initiatives. In addition, inadequate forestry research has impeded informed decision-making concerning forest management, resulting in an undervaluation and underestimation of the direct and indirect benefits derived from forests. Consequently, limited resources, in terms of manpower and equipment, have been allocated by the government and other stakeholders.¹⁵⁷ In light of these deficiencies, the enforcement of laws related to forest protection is weak, and the penalties imposed for non-compliance are minimal.

Another challenge arises from the duplication of roles by different institutions, especially in fire management. The Agricultural Resources Board possesses the authority to mandate the construction of structures to prevent or manage bushfires through firebreaks. This same responsibility is also bestowed upon the Herbage Preservation Committee, which is empowered to issue orders necessitating the establishment and upkeep of firebreaks by landowners or occupants within its designated jurisdictional boundaries. This often leads to inefficiencies in the delivery of government policies and plans.

Additionally, Botswana lacks air-based firefighting capacity. It has limited human resources and inadequate coordination among key stakeholders. The Herbage Preservation (Prevention of Fires) Act mandates public participation in fire prevention efforts, yet there is a lack of systematic measures to recruit, train, and retain volunteers. Additionally, the prevalence of fires in communal lands, where resource utilisation is not exclusive, creates a disincentive for community engagement in fire management.

Nevertheless, the government has been working on the development of a Forest and Range Resources Bill to address some of the shortcomings. The Bill merges the Forest Act, Herbage Preservation Prevention of Fires Act, and the Agricultural Resources Conservation Act to create a comprehensive forest and rangeland resources legislation that encompasses all relevant aspects, including fire management and agricultural resources. The Herbage Preservation (Fire Prevention) Act and the Agricultural Resources Conservation Act are currently separate laws that provide specific regulations for fire prevention and agricultural resource conservation. The consolidation

157 See <https://www.fao.org/4/x6774e/X6774E03.htm>, accessed 28 May 2024.

and updating of these laws will help create a more streamlined and comprehensive legal framework for the management of forestry resources in Botswana.

6 Recommendations

6.1 Improvements of legislation and policies

There is currently no specific legislation in place for soil management. However, it is important to note that the Constitution does provide provisions for the taking of property to protect soil resources. Additionally, the Agricultural Resources Conservation Act does offer some measures for soil protection. However, these laws have certain limitations that have been identified. Considering these observations, it is strongly advised that Botswana establish a dedicated policy and legislation that specifically addresses the sustainable management of soil resources. This will ensure that comprehensive measures are in place to effectively protect and preserve the country's soil resources.

Botswana is currently grappling with severe land degradation issues resulting from overgrazing caused by overstocking practices. Despite the intentions of the Botswana Land Policy to restrict the practice of dual grazing rights, the lack of appropriate legislation has hindered the effectiveness of these interventions. Therefore, it is recommended that the legislation be amended to effectively regulate and restrict the practice of dual grazing rights.

Regarding land use planning, it has been observed that the planning process in Botswana is predominantly technocratic in nature, lacking genuine public participation, accessibility, and decentralised decision-making. This centralised approach prioritises national policies over local considerations, resulting in limited participation and a lack of awareness regarding development control requirements. As a result, land development plans are frequently violated, with non-compliance often attributed to this limited involvement. To address this issue, it is recommended that access to planning processes be enhanced by ensuring the publication of plans in both local languages and English, rather than solely in the Government Gazette.

The current Agricultural Resources Conservation Act primarily focuses on corrective measures rather than preventive and proactive approaches to land degradation. While actions can be taken to mitigate degradation after it occurs, there is a lack of provisions to prevent degradation in the first place. Consequently, it is suggested that this Act be amended to incorporate preventive and mitigation measures for the protection and development of agricultural resources.

In the mining sector, the absence of regulations, standards, or approved guidelines to govern the implementation of environmental obligations poses a significant obstacle

to the protection of soil resources. To address this, it is recommended that regulations be established to fulfil the aspirations outlined in the Mines and Minerals Act.

Botswana's waste management systems suffer from a lack of effective implementation of existing laws, posing a substantial threat to the environment and public health. This has led to widespread illegal dumping of waste. Furthermore, the current legal framework lacks clear guidelines regarding the responsibilities of waste generators and public authorities, as well as associated economic incentives. Hence, it is advised that the law be reviewed and amended to provide distinct duties for different waste generators.

While Botswana may have limited forest coverage, the significance of these forests should not be underestimated. However, the Forest Act requires revision to align it with sustainable forestry management principles. Commendably, Botswana is making efforts to enact the Forest and Range Resources Bill, which seeks to create comprehensive legislation that encompasses all relevant aspects of forest and rangeland resources, including fire management and agricultural resources.

6.2 Improvements concerning enforcement, monitoring, and access to environmental information

While Botswana may not have specific legislation on soil management, there is a range of existing laws that should, to some extent, offer legal protection. However, these laws have not been adequately enforced due to dysfunctional or non-existent institutions. For instance, the Agriculture Resources Board has been discontinued, resulting in a lack of conservation orders and regulations under the Agriculture Resources Conservation Act. Additionally, the enforcement of soil management laws is hindered by the presence of multiple institutions with overlapping mandates. Considering these deficiencies, it is recommended that a dedicated institution be established solely responsible for soil resource management in the country. This institution should be empowered to collaborate with other organisations, as soil is a cross-cutting issue. This institution needs to have access to relevant information and the capacity to disseminate it to the public. Crucially, part of its functions is to establish and maintain a soil database, which is easily accessible to everyone.

Furthermore, it is recommended that the government invest in the training and capacity-building of enforcement officers at both the central and local levels. These officers, established under the Local Government Act, play a crucial role in implementing laws related to the conservation of natural resources. Their specialisation in this area would enable them to more effectively identify violations of environmental laws. Additionally, investment in capacity-building is needed in the context of forests, where enforcement is currently weak in monitoring the illegal harvesting of forestry resources. Concerning the mining sector, the Department of Mines should be adequately

funded and staffed to ensure compliance with mining and environmental legislation. Furthermore, there is a need to educate and raise awareness among the general population through educational programs.

Access to environmental information is generally restricted, with limited avenues for the public to obtain such information. The Environmental Assessment Act is the only law that affirms the public's right to information and facilitates their participation in the EIA process. Early stages of the EIA process involve public consultations, where interested and affected parties are encouraged to provide input on the EIA report before authorisation is granted. These consultations serve to disseminate information to the relevant groups, empowering them to make well-informed decisions regarding matters that impact their environment. The EIA framework, overall, effectively promotes public participation¹⁵⁸ and the right to information. However, it is crucial to recognise that beyond this framework, there is no specific right to access environmental information. Moreover, the Constitution does not impose an obligation on the state to provide such information. Therefore, there is a need to improve access to information and this includes access to soil data.

Furthermore, while the Agricultural Resources Conservation Act imposes a duty on the Agricultural Resources Board to prepare and submit an annual report to the Minister, the information contained therein is not accessible to the public. This report must encompass all conservation orders, conservation regulations, stock control orders issued, a compilation of all works undertaken under the Board's guidance, and a detailed report of any investigations or inquiries conducted by the Board. It is additionally required to include a report on the directions provided to the Land Boards according to Section 9(h). It is important to note that this report is primarily intended for the government, rather than the public who may have a keen interest in the government's efforts to safeguard agricultural resources, as the custodian of all natural resources in Botswana.

Another area in need of improvement pertains to the issue of *locus standi*. Currently, Section 18 of the Constitution restricts access to the High Court solely to individuals whose rights have been infringed, without providing for the participation of others. This means that public interest litigation, which allows for one person or a group of individuals to advocate for public rights, is not recognised under the law. This limitation, coupled with the absence of an explicit right to the environment in the Constitution, presents significant obstacles to the protection of the environment, as many environmental issues affect the public interest rather than the interests of a specific complainant. To address this issue, Botswana should amend its Constitution to include the right to the environment and expand the requirements for *locus standi* to encompass public interest litigation.

158 Mathope & Toteng (2018: 85). The significance of public participation was underpinned in the case of *Quarries of Botswana (Pty) Ltd v Tlokweng Land Board* [2003] 1 BLR 113.

Additionally, the weak criminal liability regime poses a challenge to enforcement. For example, while the Mines and Minerals Act establishes criminal liability for holders of mining concessions who fail to adhere to environmental obligations, no criminal prosecutions have been brought forth thus far relating to environmental violations. Additionally, an overreliance on criminal penalties as an enforcement mechanism is problematic, as they are reactive, time-consuming, and costly. Recognising this, it is recommended that penalties in statutes be reviewed to align with the severity of the violations, and incentives should be introduced for corporations and individuals engaging in environmentally friendly activities.

6.3 Improvements concerning land rights

Land rights in Botswana are derived from statutes and customary law. The primary statutes are the Tribal Land Act, the State Land Act, and the Land Control Act. These laws emphasise the importance of adhering to laws related to good husbandry. Failure to comply may result in the cancellation of land grants for tribal lands and refusal to grant changes in ownership for freehold land under the Land Control Act. However, both laws assume the existence of comprehensive laws related to good husbandry in Botswana, which is not the case. Therefore, it is recommended that comprehensive laws on good husbandry be enacted, accompanied by necessary guidelines.

A significant issue with tribal lands is the access and use of communal lands. Policies and laws recognise that most citizens depend on communal lands for grazing purposes. However, due to a lack of exclusive privileges in their usage, communal lands have been degraded because of livestock overstocking. Also, land ownership disincentives local communities from engaging in fire management in communal lands. While the Land Policy of 2015 recognises the need to restrict the exercise of dual grazing rights, due to a lack of law this policy objective has not been achieved. It is, therefore, recommended that Botswana amend its laws on tribal land to include restrictions on dual grazing rights.

6.4 Improvements concerning the control of foreign investors

Foreign investors play a significant role in Botswana's economy, prompting the government to offer various incentives to attract and retain such investments. However, the current legal framework governing foreign investments in Botswana does not include obligations for investors to protect the environment. This is a common characteristic of countries that import capital, where domestic environmental laws may be inadequate to regulate the activities of foreign investors.

There are two potential approaches to addressing this issue. Firstly, Botswana could undertake a comprehensive domestic legal reform, which may involve the creation of a foreign investment code and broader reforms to environmental laws. Secondly, the government could leverage the Botswana Investment and Trade Centre (BITC) to attract foreign investment, specifically in the renewable energy sector. The National Energy Policy recognises the importance of developing clean coal technologies to capitalise on significant coal resources in an environmentally sustainable manner, contributing to economic diversification. Additionally, potential areas for investment include solar and wind energy, as well as biomass and waste energy. Nevertheless, the absence of a suitable legal and regulatory framework poses a challenge to potential investors, undermining confidence in the system.

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Country report for Burkina Faso

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Abstract

This chapter focuses on strengthening soil management in Burkina Faso. It highlights the challenges facing soil health, particularly emphasising the need for improved legislation, enforcement, and land rights protection. The chapter explores the implications of these issues, particularly regarding sustainable agricultural practices, environmental protection, and social equity, and examines how they impact sectors such as food security, local livelihoods, and ecosystem health.

An analysis of the existing legal framework reveals several shortcomings, including insufficient environmental standards in the Mining Code, weak enforcement mechanisms, and inadequate protection of customary land rights. Specific attention is given to Burkina Faso's mining regulations and the complexities arising from land tenure systems and governance structures, which often hinder effective soil management and the equitable distribution of resources.

The chapter presents key findings on the need for more robust legal frameworks, enhanced monitoring capabilities, and greater transparency in foreign investment. It offers recommendations aimed at improving the integration of environmental and social governance in policy, strengthening land rights protections, and fostering responsible mining practices. It concludes by emphasising the urgent need for a comprehensive soil management law, particularly considering the increasing pressures from mining activities, climate change, and urbanisation.

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Summary

This chapter focuses on strengthening the legal and policy frameworks surrounding soil management in Burkina Faso, addressing key challenges in soil protection, land rights, and environmental governance. It outlines the necessary actions to improve soil management, with a particular emphasis on legislation, enforcement, monitoring, and the role of foreign investors.

To enhance soil management and protection, the chapter advocates for periodic reviews and updates to the Mining Code, aligning it with international best practices. It calls for stricter environmental standards, particularly regarding waste management, site rehabilitation, and biodiversity protection. Promoting responsible artisanal mining through training, financing, and incentives is also highlighted as crucial. Institutional capacity building is necessary to ensure government agencies can effectively enforce policies. Additionally, research and development efforts should be encouraged to foster innovation in environmentally friendly soil management technologies.

Effective enforcement of environmental laws is fundamental to sustainable soil management. The chapter stresses the need to enhance monitoring capacity by training and equipping regulatory bodies, as well as establishing anonymous reporting mechanisms for violations. It also proposes creating a national public online platform for transparent access to environmental impact reports, mining permits, and data on emissions, waste, and land degradation. Strengthening corporate accountability through dissuasive sanctions and promoting public participation in monitoring and dispute resolution are key aspects of this approach. The use of innovative technologies, such as drones and remote monitoring, is recommended to improve environmental oversight.

Protecting communities' customary land rights, particularly in mining areas, is a central concern. The chapter advocates for fairer, more inclusive consultation processes to ensure the free, prior, and informed consent of local communities before mining licences are granted. It also calls for strengthening women's land rights and ensuring their meaningful involvement in decision-making. Land demarcation, public awareness campaigns, and improved legal remedies are necessary to prevent conflicts and ensure equitable land rights distribution.

To maximise the economic benefits of foreign investments while ensuring responsible resource exploitation, the chapter proposes strengthening transparency requirements for foreign mining contracts and financial flows. It stresses the importance of promoting local participation, encouraging corporate social responsibility (CSR), and ensuring compliance with environmental standards. Public-private partnerships are recommended to foster responsible resource management and equitable benefit distribution.

Key recommendations for improving soil management legislation and policies include strengthening environmental assessments, incorporating sustainable development clauses in investment agreements, and harmonising local regulations with

international environmental protection and CSR standards. The chapter advocates for the creation of specialised soil courts to address environmental issues and calls for integrating soil legislation into national development strategies. It emphasises the need for comprehensive soil legislation that covers all sectors affecting soil, such as agriculture, livestock, mining, and water resources, prioritising preventive measures over punitive ones.

In conclusion, the chapter calls for the establishment of a clear institutional framework for soil management, including regular soil assessments and the implementation of integrated soil fertility management plans. It highlights the need for regulations on pesticide use, soil conservation, and rehabilitation, as well as supporting vulnerable groups in land management. These proposed changes aim to create a robust and sustainable approach to soil protection and land use in Burkina Faso.

1 Country information

1.1 Area and population

Burkina Faso is a country in West Africa, with a total area of approximately 274,000 square kilometres. The country is landlocked and located between Ivory Coast to the southwest, Ghana and Togo to the south, Benin to the southeast, Mali to the northwest, and Niger to the east and northwest. The distance from north to south is 625 km and from east to west is 850 km.¹ From the point of view of administrative organisation, the country is divided into thirteen regions, 45 provinces, 49 urban communes, 302 rural communes, and 9,288 villages and sectors. The Eastern region is the largest, accounting for 17% of the total area, and the Central region is the smallest, accounting for 1%. The Southwestern region has the largest number of villages, totalling 1,093, while the Central region has the fewest, with only 242 villages.

In 2019, the population of Burkina Faso was 20,505,155 inhabitants, of which 51.7% were women and 48.3% were men.² The growth rate is 2.94% per year, giving an estimated population of 22,367,402 inhabitants in 2022. Life expectancy at birth, which was 56.7 years in 2006 (57.5 years for women compared to 55.8 years for men), reached 61.5 years in 2020 according to estimates, with 60.6 years and 62.4 years for men and women, respectively.³ There is a strong immigration to the big cities, especially the capital Ouagadougou, making the central region the densest with 1,056.25 inhabitants/km². Approximately 26% of the population, or 5,360,112 inhabitants, live in the city and nearly 45% of city dwellers live in the capital Ouagadougou.

1 DGD (2022: 3).

2 RGPH (2019).

3 MSHP (2021: 20).

There are multiple languages and ethnic groups, reflecting the diversity of the country's cultural landscape.⁴ The official language is French, inherited from colonisation. However, there are also several indigenous languages spoken by about 60 ethnic groups. The government strives to promote national languages through the adoption of a language policy.⁵ This initiative aims to describe, implement, and effectively use national languages in all aspects of national life.

1.2 Climate

Burkina Faso is located mainly in the Sahelian climatic zone, characterised by arid and semi-arid conditions. The country experiences two distinct seasons, namely a dry season from November to May and a wet season from June to October.⁶ During the dry season, winds from the northeast, known as the harmattan, bring dust, while during the rainy season, winds from the southwest, called the monsoon, bring moisture from the Gulf of Guinea. Rainfall is often irregular. In the northern part of the country, the rainy season is shorter and less intense, unlike in the southern part where the rains last longer and are sufficient to ensure a more considerable harvest and vegetation.

The country can be divided into three distinct climatic zones. In the north, the Sahelian zone is characterised by a three-month rainy season with annual precipitation of less than 600 mm. Average temperatures range from 23.6°C in January to 34.6°C in May. The Sudano-Sahelian zone, which covers the central part of the country, has a rainy season of about four months with annual precipitation ranging from 600 to 900 mm. Average temperatures range from 25°C in January to 33°C in April. Finally, the Sudanian zone, located in the south, has a long rainy season of about five months, with annual precipitation exceeding 900 mm. Average temperatures range from 25.2°C in August to 31°C in April. The isohyet analysis shows a northward shift during the period 1991-2020, compared with 1981-2010. In contrast, the isotherms indicate a southward shift over the same period. According to the regional climate change centre's climate fact sheet, the country faces major climate risks, with temperature increases projected to range from 2.5°C to 3.5°C by 2050, as well as increased precipitation expected between 2040 and 2060.⁷

4 Nyamba (2001).

5 Law 033-2019/AN on the promotion of national languages.

6 See <https://www.meteoburkina.bf/>, accessed 3 February 2025.

7 RCCC-Country Profile (2022: 2).

1.3 Topography and hydrology

Burkina Faso's landscape is characterised by a mostly flat topography, with more than half of its land area lying between 250 and 350 meters above sea level. Its highest and lowest points are 747 meters in the far west and 125 meters in the east, respectively. In addition to this, the country is home to three international rivers, namely the Niger, Volta, and Comoé, as well as four distinct river basins: the Comoé, Niger, Nakambé, and Mouhoun. The Niger basin, covering an area of 83,442 km², generates an interannual volume of 0.86 billion cubic meters of water as it exits the territory. Another major basin is the Nakambé, which covers 81,932 km² and produces an interannual volume of 2.44 billion cubic meters of water. The Mouhoun basin, covering 91,036 km² in Burkina Faso and representing 22.32% of the Volta River basin, has an interannual volume of 2.64 billion cubic meters of water leaving the territory. Finally, the Comoé basin, with an area of 17,590 km², generates an interannual volume of 1.55 billion cubic meters of water leaving the territory. These basins play a crucial role in the water supply and agricultural development of the country.⁸

1.4 Soils

Throughout the national territory of Burkina Faso, nine soil classes are listed:⁹ Raw mineral soils, comprising 5% of the country's total surface area, are characterised by their low thickness due to limited pedological evolution, resulting in shallow depths that reduce their agronomic value. Poorly developed soils, covering 30% of the surface area, are typically rich in mineral elements but are highly susceptible to degradation. Ferralitic soils, occupying 1% of the territory, develop on sandstones and sometimes on schists, and are known for their low water retention capacity. Soils with iron and manganese sesquioxides, which account for 43% of the territory, are distinguished by their high content of iron or manganese oxides and hydroxides. Vertisols, representing 4% of the surface area, are clayey soils rich in organic matter, offering excellent water retention capacity. Brownified soils, covering 5% of the surface, are rich in humus and are marked by high biological activity. Isohumic soils, occupying 2% of the territory, are mainly found in the Sahel region and are characterised by limited water availability. Sodic soils, covering 3% of the territory, are distinguished by the presence of exchangeable sodium and/or magnesium and are predominantly found in the Sahel region. Hydromorphic soils, making up approximately 7% of the surface, are located along the country's rivers and streams.

⁸ World Bank (2017).

⁹ See <https://www.bunasols.bf/>, accessed 3 February 2025.

Soils show a general tendency towards degradation, particularly mineral soils, poorly evolved soils, sodic or salsodic soils, as well as hydromorphic soils, together representing 45% of the country's soils.¹⁰

In terms of land use, we note the presence of forest plantations, forests, savannahs and wooded, shrubby, and grassy steppes, as well as a diversity of agricultural production systems.¹¹

1.5 Vegetation

Burkina Faso boasts a variety of landscapes, including open forests in the southwest, savannahs with diverse features in the west, centre, and east, as well as steppes in the northern region.¹² This diversity of landscapes is reflected in the variety of vegetation, which ranges from savannahs and woodlands to desert forests and shrubs. In the south, particularly around the Sudanian and Guinean zones, there are wooded savannahs with tall grasses, scattered trees such as acacias, and shrubs. Moving northwards into the Sahel region, the vegetation becomes sparser, with a predominance of thorny shrubs and grasses adapted to semi-arid conditions. Finally, in the northernmost parts, particularly in the Saharan region, the landscape is marked by desert vegetation composed of sparse shrubs, grasses, and drought-resistant plants.

1.6 Main economic activities

Burkina Faso is facing major economic challenges due to security instability. Despite this, the Burkinabe economy would experience growth of 3.6% in 2023, compared to 1.8% in 2022 according to the results of the macro-economic framework of December 2023, carried out by the Ministry of Economy, Finance, and Foresight.¹³ This growth would be supported by the tertiary (+4.9%), secondary (+3.7%), and primary (+1.8%) sectors. Average inflation in Burkina Faso is estimated at 0.7% in 2023, marking a sharp decline after the peak of 14.1% in 2022. This decline in inflationary pressures is explained by better availability of food products on the markets, as well as by the measures taken by the Central Bank and the government to combat the high cost of living.

¹⁰ MEEVCC (2019).

¹¹ OSS (2015).

¹² Guinko (1985).

¹³ MEFP (2023).

The country relies on key sectors such as agriculture, mining, livestock, and informal trade to support its economic growth, with agriculture accounting for around 30% of the gross domestic product (GDP) and employing nearly 80% of the workforce.¹⁴

The mining sector plays a vital role, accounting for around 19% of total government revenue in 2021,¹⁵ and providing employment opportunities to more than 20,000 people.¹⁶ The country is blessed with natural resources such as gold, manganese, and limestone, with gold being the main source of revenue. Significant foreign investment has flowed into the mining sector in recent years, leading to an increase in the presence of multinational mining companies. However, the sector faces challenges in environmental sustainability, community relations, and governance.

Livestock production accounts for 15% of agricultural GDP but currently faces significant security challenges. Informal trade, representing about 40% of total employment, is also vulnerable to security disruptions.

Furthermore, Burkina Faso has other diversified economic sectors, including industry, crafts, tourism, posts, and telecommunications, as well as transport, which play a significant role in its overall economic development.¹⁷ Industry includes manufacturing, mining, and energy. Handicrafts, the third largest employer, contribute 25% to GDP, with a high participation of women. Tourism, which has recently been a significant source of revenue, is currently experiencing a substantial downturn due to ongoing socio-political crises. Posts and telecommunications have experienced significant growth, as has the transport sector, which is crucial due to the country's strategic geographical position.

1.7 Gross national product and gross domestic product

Burkina Faso relies mainly on its agricultural and mining sectors. However, fluctuations in commodity prices, such as cotton and gold, disrupt these sectors. To encourage economic growth and reduce this dependence, a study recommends economic diversification towards high-value-added sectors.¹⁸ Regarding the GDP, it reached 10,322.33 billion CFA francs in 2020, with an average growth of 5.3% between 2016 and 2020. This economic growth fell sharply in 2020 (1.9%) due to the COVID-19 pandemic and insecurity.¹⁹ Despite this, nominal GDP grew by more than 35.72% over the period. In 2022, Burkina Faso recorded growth of 3.2%, still low due to socio-political instability, military coups, the precarious security environment, and the fallout from Russia's

14 FAO (2019).

15 ITIE-BF (2023).

16 MEMC (2022).

17 DGD (2022).

18 UN (2024).

19 DGD (2022).

invasion of Ukraine, as highlighted by the African Development Bank.²⁰ For example, extractive activities have been affected by mine closures for safety reasons. Despite this, the resilience of the agricultural and tertiary sectors should be noted.

1.8 National debt

Burkina Faso's national debt has increased significantly, from 2.5 trillion CFA francs in 2017 to 3.8 trillion CFA francs in 2021. This increase is mainly attributable to borrowings taken out to finance infrastructure projects and budgetary pressures related to the COVID-19 pandemic.²¹

In 2020, the outstanding public debt reached 4,777.67 billion CFA francs, recording an increase of 20.4% compared to 2019. This debt, composed of external and internal debts, saw an increase in both its external and internal components. Debt service, representing the annual payments made by the state to honour its financial obligations, also increased significantly, from 226.92 billion CFA francs in 2016 to 558.53 billion CFA francs. This increase is mainly attributable to the increase in domestic debt service, which represents on average 75.1% of total debt service over the period 2016-2020.

At the end of March 2023, external debt reached 3,145.31 billion CFA francs (equivalent to 5,213.27 million USD), recording an increase of 3.7% compared to the end of December 2022. This increase can be explained by the combined effect of exchange rate fluctuations and net drawings, which totalled +121.25 billion CFA francs as of 31 March 2023. External debt is mainly held by multilateral organisations (89.6%), bilateral creditors (8.7%), and commercial banks (1.7%), exposed to 32.7% foreign exchange fluctuations. As for domestic debt, it stood at 3,663.90 billion CFA francs at the end of March 2023, marking a decrease of 1.1% compared to the end of December 2022.²² However, on an annual basis, it increased by 12.5%, mainly consisting of government securities (78.3%). During the first quarter of 2023, three bond issues for a total amount of 215.08 billion CFA francs and two Treasury Bill issues for a cumulative amount of 12.76 billion CFA francs were carried out.

The growing national debt poses various challenges for the country, including hampering its ability to invest in priority sectors such as health, education, and infrastructure, and imposing fiscal constraints on future generations. Prudent and strategic management of national debt is crucial to ensure Burkina Faso's financial sustainability and foster sustainable economic development.

²⁰ AFDB (2023).

²¹ World Bank (2021).

²² MEFP (2023).

1.9 Foreign investments

Foreign investment is essential for Burkina Faso's economic development, fostering job creation, technology transfer, and growth in key sectors. The country has recently attracted an increasing flow of such investment. Foreign direct investment (FDI) increased significantly from USD 3 million in 2017 to USD 480 million the following year, reaching a total FDI stock of USD 2.7 billion in 2018, or about 19.1% of GDP.²³ In 2022, FDI in Burkina Faso reached USD 121 million, marking a rebound from negative net inflows of -USD 80 million the previous year. The total FDI stock then stood at USD 2.44 billion, representing about 12.5% of the country's GDP. The mining sector is the main beneficiary of these investments, with strong exploration of new deposits such as gold, zinc, and manganese. Although significant FDI also exists in telecommunications, banking, financial technology, agriculture, transport, logistics, and energy.

To further encourage FDI, the Burkinabe government is implementing measures such as tax breaks and investment incentives, as well as tax exemptions on certain equipment.²⁴ However, the lack of access to the sea, agricultural resources, and the weakness of the country's industrial sector harm investments. In addition, political instability, and insecurity have unfavourable repercussions on the business climate.

It should be noted that excessive reliance on foreign investment in certain sectors could pose challenges to the country's economic sovereignty and increase its vulnerability to external shocks. To maximise benefits and mitigate risks, the country should consider strategies such as diversifying investment sources, promoting public-private partnerships, and improving the business climate.

1.10 Education

Education and health are priority areas for Burkina Faso, as they are closely linked to the quality of life and economic productivity of the population. In recent years, Burkina Faso has made significant progress in the field of education, with an increase in the enrolment rate. Access to primary education increased from a rate of 46.5% in 2001, including 38.9% for girls, to a rate of 88.5% in 2017, including 89.0% for girls and 81% for boys.²⁵ However, challenges persist in access to quality education and student retention, particularly in rural and disadvantaged areas, or those affected by insecurity. Indeed, as of 31 December 2023, approximately 21% of the country's educational facilities were closed due to insecurity, affecting more than 800,000 students.²⁶

23 UNCTAD (2019).

24 UNCDD (2009).

25 See <https://www.unicef.org/burkinafaso/education>, accessed 3 February 2025.

26 MENAPLN (2023).

Literacy is a key component of education in Burkina Faso. Between 1994 and 2018, the literacy rate increased significantly, from 18.9% to 39.3%, an increase of 20.4%. However, disparities persist based on gender, geographic location, and place of residence, with lower literacy rates among women, in rural areas and certain regions of the country.²⁷ As for education in the technical and vocational field, it remains underdeveloped, representing only 3.7% of schools in 2019/2020, and students in these establishments constitute only 2.7% of all post-primary and secondary students.²⁸

1.11 Health

In Burkina Faso, the health sector faces various challenges, such as limited access to medical services, particularly in rural areas, as well as a shortage of medical personnel and resources. Financing the health system relies mainly on out-of-pocket payments, making it difficult for many people, especially those living in disadvantaged communities, to access essential medical care. The availability of health infrastructure has been significantly affected by the security crisis that has been raging in the country since 2016, leading to the closure of approximately 500 health centres.²⁹

The recent outbreaks of COVID-19 and dengue fever have highlighted the vulnerability of the country's health system. These health crises have exposed structural weaknesses, including in response capacity, infrastructure, medical personnel, and material resources. Efforts have been made to improve the accessibility and quality of health care, but disparities persist in terms of access to health and maternal and child health services. For example, the under-five mortality rate declined significantly between 2003 and 2021. It fell from 184 deaths per 1,000 live births in 2003,³⁰ reflecting improvement but also highlighting the need to strengthen basic health services and disease prevention. The government has implemented initiatives such as the National Health Development Plan (NHDP) to strengthen the health system, increase access to basic services, and address major health issues such as maternal and child health, infectious diseases, and malnutrition.³¹ In 2016, the government approved a free healthcare policy to remove financial barriers to maternal, newborn, and child health services. This policy is implemented in all public health facilities, as well as in a few selected private facilities.³² Additionally, several international organisations and NGOs operate in Burkina Faso to support health initiatives, including vaccination

27 INSD (2014).

28 DGGT (2022).

29 See www.conasur.gov.bf, accessed 3 February 2025.

30 MSHP (2022).

31 Ministry of Health (2011).

32 Matt et al. (2020).

campaigns, maternal and child health programs, and efforts to combat diseases such as HIV/AIDS, malaria, and tuberculosis.

Despite these efforts, significant challenges remain, including inadequate infrastructure, limited financing, lack of qualified human resources, and socio-economic disparities, affecting equitable access to services and the quality of education and health care, and persistent political instability, which can hamper progress in the health sector. To address these challenges, the country needs to invest more with particular attention to improving the quality of education, training and recruiting qualified medical personnel, and promoting preventive health practices and awareness.

1.12 Socio-political crises

Burkina Faso has been facing major socio-political crises in recent years. Popular uprisings in 2014 were followed by an escalation of instability due to terrorist attacks perpetrated by jihadist groups since 2016, mainly in the north and east of the country. These attacks have led to massive population displacement, loss of life, and disruption of basic social services, particularly in the areas of health and education. The Burkinabe authorities have deployed measures to counter this insecurity, by strengthening security capacities and cooperating with neighbouring countries and international forces. Despite these efforts, insecurity persists, threatening the stability of the country.

The security crisis has negatively impacted education, health, household expenditure and social protection indicators of internally displaced persons (IDPs). Only 41% of IDP children have access to education, with significant regional disparities, and 60% have access to health services, although morbidity is increasing, especially in some regions. In addition, about 68% of households believe that social assistance flows have decreased since the beginning of the crisis.³³

In some parts of the country, there are profound impacts on agriculture, livestock, and the national economy. The massive displacement of populations has led to the abandonment of large areas of agricultural land, especially in the Sahel region, where more than half of farmers have become IDPs. In 2022, agricultural production suffered significant losses, with approximately 251,000 tonnes of cereals, 89,546 tonnes of cash crops, and 47,323 tonnes of legumes and tubers potentially lost, equivalent to a loss in value of more than 106 billion CFA francs. This situation has also affected livestock, with rising prices for cattle and small ruminants between 2016 and 2021, as well as significant livestock losses estimated at 180 billion CFA francs. The agricultural support system is also impacted, with the forced departure of many agents from risk areas, leading to a reduction in assistance services for farmers.³⁴

33 UNDP (2021).

34 MARAH (2023).

The disruptions directly impacted the country's economy and the purchasing power of households, particularly those in rural areas. In 2022, economic growth fell to 1.5%, compared to 6.7% in 2021, due to the decline in extractive activities after the closure of some mines for security reasons. Despite this, the agricultural and tertiary sectors maintained growth, with rates of 10.3% and 6.6%, respectively. Simultaneously, the inflation rate increased to 14.4%, mainly due to the increase in the prices of imported food and fuel products.³⁵ There was an increase in the incidence of poverty, from 41.4% in 2018 to 43.2% in 2021. This increase in poverty is more marked in urban areas, with the incidence increasing from 13.1% in 2018 to 16.6% in 2021, while in rural areas it increased from 51.1% to 52.7%.³⁶

Socio-political crises have significant consequences for soil protection, worsening environmental degradation and compromising conservation efforts. Indeed, political instability disrupts the implementation of soil protection programs, with reforestation and sustainable management initiatives often interrupted or insufficiently funded. In this period of crisis, pressure on natural resources has increased in areas hosting displaced populations who are increasingly exploiting the land to survive, leading to deforestation, overgrazing, and unsustainable agricultural practices. In addition, insecurity makes some rural areas inaccessible, preventing the monitoring and implementation of protection measures, and, thus, promoting destructive practices. Awareness-raising programs on sustainable agriculture are also disrupted, leading to the abandonment of good practices, while reduced investments in environmental projects, due to security-oriented budget priorities, further hamper conservation initiatives. Despite the unfortunate nature of the situation, a positive aspect of the population displacements is the abandonment of land, which naturally lies fallow. This promotes the regeneration of soil fertility, while awaiting its future exploitation.

1.13 Information on the organisation of the territory

The country has a law aimed at structuring and regulating the administrative organisation of the country.³⁷ This law defines the general framework for the management of local authorities and decentralised administration. It establishes several administrative levels, including regions, provinces, and municipalities, each with executive and deliberative bodies. It specifies the powers, responsibilities, and relations between the central state and these local entities. It encourages decentralisation by granting local authorities self-management powers, particularly in local development, while maintaining coordination with the decentralised services of the state. The main objective of the law is to promote better local governance and ensure more efficient and

35 INSD (2024a).

36 INSD (2024b).

37 Law 041/98/AN on the Organisation of Territorial Administration.

participatory management of public affairs at the territorial level, by promoting socio-economic development and bringing the administration closer to citizens. This law stipulates in Article 1 that the territory of Burkina Faso is divided into local authorities or local authorities and administrative districts. Local authorities are the province and the municipality. Administrative districts are the province, the department, and the village. The territories of local authorities and administrative districts may coincide. The province is both a local authority and an administrative district.

1.14 Information on the political organisation

Burkina Faso is organised according to the Constitution of 2 June 1991,³⁸ which has been subject to several amendments since 1997. In 1997, Article 37 concerning presidential mandates was repealed,³⁹ then reinstated in 2000.⁴⁰ In 2002, the Senate was largely abolished.⁴¹ Adjustments were made in 2009 to counter “political nomadism” and reorganise the powers in electoral disputes.⁴² In 2012, the extension of parliamentary mandates was at the heart of the revisions,⁴³ followed by significant changes.⁴⁴ The 2013 revision suspended the 2012 institutions, allowing the National Assembly to deliberate alone before the Senate was established and authorising the Constitutional Council to rule before the appointment of the other members.⁴⁵ In 2015, under the National Transitional Council, the Senate was abolished.⁴⁶ More recently, in 2023, the revision of the Constitution, under the Transitional Legislative Assembly, focused on strengthening democratic processes, political reforms, protecting social and economic rights, strengthening human rights and individual freedoms, promoting ethnic and religious diversity, strengthening national security and stability, as well as protecting the environment and sustainable development.⁴⁷

1.14.1 Form of government

Burkina Faso, known as the “Land of Upright Men”, adopts a semi-presidential system in which a President, as head of state, and a Prime Minister, as head of government,

38 Kiti n°AN-VIII-330/FP/PRES of 11 June 1991.

39 Law 002/97/ADP of 27 January 1997, revising the Constitution.

40 Law 003-2000/AN of 11 April 2000, revising the Constitution.

41 Law 001-2002/AN of 22 January 2002, revising the Constitution.

42 Law 015-2009/AN of 30 April 2009, revising the Constitution.

43 Law 023-2012/AN of 18 May 2012, revising the Constitution.

44 Law 033-2012/AN of 11 June 2012, revising the Constitution.

45 Law 035-2013/AN of 12 November 2013, revising the Constitution.

46 Law 072-2015/CNT of 5 November 2015, revising the Constitution.

47 Law 045-2023/ALT of 30 December 2023, revising the Constitution.

coexist. The President is elected by universal suffrage for a five-year term and can be re-elected once. The Prime Minister is appointed by the President and is responsible for managing the day-to-day affairs of the government. In addition, Burkina Faso has a unicameral Parliament, the National Assembly, whose members are elected by the people. The Constitution establishes a political system based on the separation of powers. The executive (President) and legislative (Parliament) branches operate independently to ensure a balance of power within the government.

The country is administratively divided into regions, provinces, departments, and communes, each with its administrative bodies and elected representatives responsible for local management. Overall, the governmental structure reflects the values of a democratic republic, with distinct branches of government providing checks and balances.

The judicial system, for its part, is independent of the executive and legislative branches, including, among others, the Supreme Court. The courts of the judicial order include the Court of Cassation, the courts of appeal, the high courts, the commercial courts, the labour courts, and the departmental or district courts.⁴⁸ The legal system, based on French civil law, is considered a colonial legacy.⁴⁹ Adaptations are undoubtedly necessary to respond to local realities since the country's independence in 1960. Studies have highlighted the challenges of modernising and strengthening the judicial system, highlighting obstacles such as accessibility, independence, and the efficiency of justice.⁵⁰

Between January and September 2024, the country experienced two *coups d'état*, resulting in a transitional regime led by the Patriotic Movement for the Safeguarding and Restoration (MPSR). In this transition, the National Assembly was replaced by the Legislative Assembly of the Transition (ALT), composed of 71 members. These members include 20 appointed by the transitional President, sixteen by the defence and security forces, thirteen by the vital forces of the regions not affiliated with a political party, twelve by political parties and movements, and ten by civil society organisations.⁵¹

1.14.2 Legislative competence

Burkina Faso moved from a bicameral parliament to a unicameral assembly by abolishing the House of Representatives.⁵² A constitutional revision in 2012 had previously restored bicameralism and established a Senate.⁵³ However, in 2015, a further revision

48 Law No. 015-2019/AN of 2 May 2019, on the Judicial Organisation.

49 John-Nambo (2002: 332).

50 Kouvo & Pearson (2016).

51 See <https://data.ipu.org/fr/parliament/BF/BF-LC01/>, accessed 3 February 2025.

52 Law 001-2002/AN of 22 January 2002, revising the Constitution.

53 Law 023-2012/AN of 18 May 2012, revising the Constitution.

of the Constitution led by the National Transitional Council (NTC) led to the abolition of the Senate, thus, returning the system to a unicameral regime.⁵⁴ According to the Constitution, the members of the National Assembly, called deputies, are elected by direct, equal, and secret universal suffrage and exercise legislative power.⁵⁵ The National Assembly votes on laws, approves taxes, and monitors government action following the current Constitution.⁵⁶ It is headed by a president and a bureau. The president of the National Assembly is elected for the duration of the legislature, either by an absolute majority in the first round or by a simple majority in the second round, and may be re-elected only once.⁵⁷ The National Assembly examines finance bills and settlement bills per the rules established by law.⁵⁸ It has the power to table a motion of censure against the government, which must be signed by at least one-third of the deputies and adopted by an absolute majority of the members of the National Assembly. If the motion is rejected, its signatories cannot present another one for a year.⁵⁹

Draft laws are discussed, amended, and adopted according to established procedures, aimed at ensuring a transparent and democratic legislative process.

1.14.3 Power of execution

According to the Constitution,⁶⁰ the government, as an organ of the executive, is responsible for directing national policy. In this capacity, it is responsible for various responsibilities, including the examination of draft international agreements, draft and proposed laws, as well as draft regulatory texts. It exercises its authority over the Administration and the Defence and Security Forces.⁶¹ The government is subject to accountability to Parliament, under the provisions of the Constitution.⁶²

The Prime Minister, as head of government, is responsible for directing and coordinating government action. He is also responsible for implementing the national defence policy, defined by the President. He exercises regulatory power per the law, ensures the execution of laws and appoints to civil and military positions, except those falling within the competence of the President.⁶³ He ensures the Presidency of the Council of Ministers by delegation and for a specific agenda.⁶⁴ It determines the

54 Law 072-2015/CNT of 5 November 2015, revising the Constitution.

55 Art 80 of the Constitution Kiti n°AN-VIII-330/FP/PRES of 11 June 1991.

56 Ibid.: Art 84.

57 Ibid.: Art 91.

58 Ibid.: Art 103.

59 Ibid.: Art 115.

60 Constitutional Law No. 072-2015/CNT.

61 Ibid.: Art 61.

62 Ibid.: Art 62.

63 Ibid.: Art 63.

64 Ibid.: Art 64.

responsibilities of the members of the government by decree taken in the Council of Ministers.⁶⁵

To implement its programs, the government may ask the National Assembly for authorisation to take measures by ordinances, for a limited period. These ordinances must be ratified by Parliament to become permanent.⁶⁶ The Prime Minister has access to the National Assembly and may be represented there by a member of the government. He may also be assisted during debates or in committee by members of the government, advisers or experts of his choice.⁶⁷ Members of the government also have access to the National Assembly, its committees and advisory bodies, and may be assisted by advisers or experts.⁶⁸ The government is required to provide the National Assembly with all requested explanations on its management and actions, and the National Assembly may set up parliamentary commissions of inquiry if necessary.⁶⁹

1.14.4 Role of traditional bodies

The Constitution recognises customary and traditional chieftaincy as a moral authority that is the repository of customs and traditions within society. However, their influence may vary depending on the region and local customs. Some communities attach great importance to these traditional authorities, particularly in conflict resolution and cultural preservation.

Since the advent of the Fourth Republic in 1991, traditional leaders have entered the political sphere, actively participating in electoral processes and holding positions in Parliament and municipal councils. They play a crucial role in local governance, particularly in the electoral field where they are often called upon by political parties to mobilise voters.⁷⁰

Burkinabe royalties and chieftaincies are often called upon by the state to intervene in the mediation of community conflicts and development initiatives. They play a crucial role in conflict mediation, mobilising the population around development issues, and settling certain disputes, particularly those related to land.⁷¹ In addition, they contribute to the animation of cultural life and are often called upon by the state to organise festivities aimed at promoting local cultures.

65 Ibid.: Art 65.

66 Ibid.: Art 107.

67 Ibid.: Art 109.

68 Ibid.: Art 110.

69 Ibid.: Art 113.

70 Ouedraogo (2008).

71 See <https://revues.acaref.net/wp-content/uploads/sites/3/2024/05/2-Guilga-Francois-de-Paule-YAMBRESSINGA.pdf>, accessed 3 February 2025.

2 Main factors of land degradation

2.1 State of the environment

Burkina Faso boasts significant agricultural potential, with a total agricultural land area of approximately 20,923,989 hectares, according to a mapping and assessment by the Council of Ministers in May 2024.⁷² Of this, 9,020,198 hectares are classified as having good or average agricultural suitability, while 11,178,919 hectares are considered to have poor suitability. Despite this, about 59% (12,346,559 hectares) of the arable land is already being exploited, leaving 8,577,429 hectares of arable land yet to be utilised. The lowlands, which cover 1,871,765 hectares, are also experiencing significant exploitation, with 55% (1,030,485 hectares) already in use, leaving 841,280 hectares unexploited. Additionally, the country has an estimated 878,226 hectares of pastoral land, with 778,219 hectares remaining available after excluding classified forests and mining areas.

Despite these vast natural resources, Burkina Faso faces considerable challenges with land degradation, largely driven by recurrent droughts and human activities. The degradation is evident through reduced plant cover, excessive soil exposure, and declining agricultural productivity, which increases vulnerability to erosion and threatens food and nutritional security.

To address these challenges, Burkina Faso has set a baseline for land degradation neutrality (LDN) using three key indicators: land productivity, land use, and occupation, and organic carbon stocks. Between 2002 and 2013, nearly 19% of the territory was degraded, with 9.3% experiencing a decline in land productivity, 9.6% in terms of land use and occupation, and 3% in carbon storage, translating to an annual loss of 469,650 hectares.⁷³

The drivers of land degradation are categorised into two broad types: direct factors, such as land use patterns, which may be natural or human-induced, and indirect factors, such as demographic, economic, or socio-political elements. A 2017 study on the economics of land degradation in Burkina Faso, conducted under the Land Development and Resource Conservation Project (PATECORE) in the Central Plateau, highlights that investments in sustainable land management can yield substantial returns.⁷⁴ The study found that sustainable land management practices could generate between 162,000 CFA francs/year and 440,350 CFA francs/year per hectare of developed land. Additionally, these efforts led to a surplus of 11,016.7 tons of cereals in 2017, enough to meet the annual food needs of around 58,000 people.

72 See <https://sentinellebfbf.com/wp-content/uploads/2024/05/CONSEILDESMINISTRESN015DU08MAI2024.pdf>, accessed 3 February 2025.

73 MEEVCC (2017).

74 Traoré & Requier-Desjardins (2019).

This evidence underscores the importance of adopting policies that promote soil conservation, sustainable agricultural practices, and natural resource management. Such strategies would not only mitigate land degradation but also ensure the long-term sustainability of Burkina Faso's agricultural and environmental systems.

2.2 Direct factors of land degradation

2.2.1 Direct anthropogenic factors

Human activities in Burkina Faso significantly contribute to land degradation through various practices that undermine soil health and ecosystem stability. Key factors include land clearing for agriculture and energy, deforestation, and unsustainable agricultural methods such as intensive ploughing, excessive use of fertilisers and pesticides, and inappropriate soil management in certain cropping systems. Overgrazing, unplanned urbanisation, and mining also play a major role in land degradation.

The intensive use of pesticides in some farming systems is particularly harmful to both the environment and human health. A study in vegetable production systems revealed that pesticide application rates exceeded recommended levels by 72%, and the concentrations of these products surpassed the recommended amounts by 56%. Alarmingly, 36% of vegetables grown had pesticide levels above health standards, posing risks to consumers.⁷⁵

Soil cultivation practices lead to significant carbon loss, estimated at 2.2% annually or around 360 kg per hectare in Burkina Faso's western cotton-growing areas.⁷⁶ Furthermore, the country loses an average of 0.72% of its forest cover each year, contributing to soil erosion and declining soil fertility.⁷⁷ Bushfires exacerbate the loss of certain forest species, further compounding the environmental challenges.⁷⁸

Overgrazing, with an annual livestock growth rate of around 2.7%, accelerates species loss and vegetation degradation, which in turn contributes to soil erosion. Mining activities, both artisanal and industrial, have an even more alarming impact. Between 700 and 1,000 artisanal mining sites are concentrated in the southwestern and northern regions, and industrial mining involves extensive land disruption, such as large-scale excavation or digging galleries up to 100 meters deep, rendering the land unsuitable for agriculture.⁷⁹ In addition, mining operations contaminate soils with toxic substances such as mercury, cyanide, sulfuric and nitric acids, zinc, used engine oils, and detergents, all of which threaten the health of local populations.

75 Lehmann (2017).

76 Ouattara et al. (2011).

77 See <https://www.environnement.gov.bf/accueil>, accessed 3 February 2025.

78 Dayamba (2010).

79 Won (2022); Bohbot (2017).

Finally, rapid and unplanned urbanisation is transforming agricultural land into urban areas, leading to the degradation of plant cover and the loss of biodiversity. The capital, Ouagadougou, faces rapid urban expansion, placing tremendous pressure on its surrounding agricultural land and further exacerbating environmental degradation.⁸⁰

2.2.2 Direct natural factors

In Burkina Faso, certain natural factors directly contribute to soil degradation due to the inherent fragility of the country's soils. Most soils are sandy, clayey, or loamy, with clay content rarely exceeding 20%, making them particularly susceptible to erosion.⁸¹ In these vulnerable conditions, both water and wind erosion play significant roles in land degradation, impacting over 20% of the country's arable land. Water erosion is most severe in the southwest, where higher rainfall and mountainous terrain lead to land losses that can exceed 50 tonnes per hectare, as well as substantial losses of carbon and nutrients.⁸² In contrast, erosion is less intense in the arid northern regions, where limited rainfall reduces its impact.

Soil salinity, while generally less problematic in Burkina Faso, does affect around 5% of soils at depths between 30 and 100 cm. However, in the top 30 cm, salinity is negligible, with over 95% of soils showing zero salinity in this layer. This resilience to salinity is a positive aspect, although the vulnerability to erosion remains a serious challenge for sustainable land management in the country.⁸³

2.3 Indirect factors of land degradation

Land degradation in Burkina Faso is driven by a complex interplay of demographic, socio-economic, and political factors. Rapid population growth, currently at an annual rate of 2.7%, is leading to heightened demand for agricultural land, pushing both the expansion and intensification of farming practices, which contribute to soil degradation. With around 78% of the population under 35, much of the country's youth relies on agriculture as a primary source of income, further increasing land pressure. For instance, in the Sissili province in the south, agricultural expansion has reduced savannah lands from 85.2% of the province in 1975 to just 42.3% by 2013.⁸⁴

⁸⁰ Zabré et al. (2023).

⁸¹ Baumann et al. (2020).

⁸² Lesschen et al. (2007).

⁸³ See https://www.fao.org/fileadmin/user_upload/GSP/GSAS21/017.pdf, accessed 3 February 2025.

⁸⁴ Nebie & West (2019).

Additionally, mass displacement due to insecurity impacts land use dynamics. While abandoned lands left by displaced persons may temporarily recover fertility through fallow periods, urban and peri-urban areas hosting these individuals face intensified land pressure, often resulting in soil degradation due to limited technical and financial means for sustainable management.

Socio-economic factors, including land insecurity and low agricultural household incomes, significantly contribute to land degradation. Research shows that land tenure insecurity, particularly affecting migrants, women, youth, and agro-pastoralists, hinders investments in sustainable land management technologies. In contrast, those with secure customary land rights are more likely to invest in land improvement.⁸⁵ Limited education and restricted access to knowledge on sustainable land management also act as barriers, particularly for small-scale producers. For low-income populations, meeting immediate needs through natural resource exploitation, such as deforestation for energy, often takes precedence over long-term sustainable practices.

Finally, policy gaps or ineffective implementation exacerbate degradation. For example, the absence of specific legal frameworks for soil governance poses a major challenge in addressing soil health. Certain policies, such as those prioritising mining, agricultural intensification for food security, or urbanisation, often conflict with sustainable land management goals, highlighting the need for integrated policy approaches that balance land use and protection.

3 Public legislation relating to soils

Burkina Faso's approach to sustainable development involves a collaborative effort among the state, international partners, and local stakeholders to protect natural resources. This includes implementing national policies, strategies, and action plans across sectors such as agriculture, land security, environmental protection, and rural development. Together, these initiatives aim to enhance food security, promote sustainable land use, and strengthen resilience to climate impacts.

3.1 Policy frameworks for soil protection

3.1.1 Policies, strategies, and action plans

Burkina Faso has established a comprehensive policy framework to enhance food security, sustainable agriculture, and environmental stewardship. These initiatives

⁸⁵ IASS (2017).

address food security and the sustainable management of agricultural and natural resources:

National Food Security Strategy (SNSA) (2003): This strategy aimed to reduce hunger and malnutrition by 2015.⁸⁶ It evolved into the National Food and Nutrition Security Policy (PNSAN) in 2013, which aims to ensure sustainable food and nutrition security by 2025. PNSAN emphasises sustainable agricultural practices, focusing on the intensification of plant production to promote long-term food security.

National Policy for Sustainable Development of Irrigated Agriculture (PNDDAI) and Strategy for Sustainable Development of Irrigated Agriculture (SNDDAI) (2004): These policies focus on increasing agricultural output through irrigation, boosting economic contributions, and improving rural incomes by promoting efficient, sustainable water use.⁸⁷

National Environmental Policy (PNE) (2007): Aiming to integrate environmental protection with development, PNE promotes the sustainable use of resources, improving the quality of life, and addressing desertification. It supports agricultural and pastoral activities while protecting ecosystems.⁸⁸

National Policy for Land Security in Rural Areas (PNSFMR) (2009): This policy ensures fair land access, secures rural investments, and resolves land conflicts. Backed by rural land laws and regulations, it fosters productive and sustainable agriculture by ensuring stable land tenure.⁸⁹

National Sustainable Development Policy (PNDD) (2013): PNDD sets out sustainable development principles for planning, and establishing guidelines for implementing development projects and programs, thereby, promoting economic and social progress in harmony with environmental sustainability.⁹⁰

Strategic Investment Framework for Sustainable Land Management (CSI-GDT) (2014): CSI-GDT aims to reverse land degradation trends by promoting sustainable agricultural practices that enhance soil fertility and ecosystem restoration. It focuses on mobilising financial, technological, and knowledge resources to support rural productivity.⁹¹

National Plan for Sustainable Territorial Development and Planning (SNADDT) (2017): SNADDT guides balanced and equitable regional development under the

86 See <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC188165/>, accessed 3 February 2025.

87 See <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC174080/>, accessed 3 February 2025.

88 See <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC198271/>, accessed 3 February 2025.

89 See <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC085683/>, accessed 3 February 2025.

90 See <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC172660/>, accessed 3 February 2025.

91 See <http://news.aouaga.com/h/31255.html>, accessed 3 February 2025.

National Economic and Social Development Plan (PNDES).⁹² Its goals include reducing regional disparities, fostering regional growth, and strengthening national infrastructure.⁹³

Agro-Sylvo-Pastoral Production Sector Policy (PS-PASP) (2016-2026): This policy aims to modernise Burkina Faso's agro-sylvo-pastoral sector, making it competitive and sustainable. It focuses on developing family farms and agro-businesses to improve food security and support rural development.⁹⁴

National Strategic Plan for Agro-Sylvo-Pastoral Investments (PNIASP) (2021-2025): Aligned with PNDES and PS-PASP, PNIASP focuses on transforming the agro-sylvo-pastoral sector. Its main goals include boosting productivity, enhancing sector competitiveness, and promoting sustainable resource management and good governance.⁹⁵

These policies collectively reinforce Burkina Faso's commitment to sustainable development, addressing food security, environmental protection, land security, and rural development, and aligning with international and regional goals for resource management and climate resilience.

3.1.2 Treaties and conventions

Burkina Faso has shown a strong commitment to environmental and natural resource protection by ratifying several international conventions and aligning its policies with global and regional environmental standards. Key conventions that Burkina Faso has ratified include:

Ramsar Convention on Wetlands (1971): Ratified by Burkina Faso in 1990, this treaty aims to conserve wetlands, halt their disappearance, and promote sustainable management of these vital ecosystems, which support diverse flora and fauna.⁹⁶

United Nations Framework Convention on Climate Change (UNFCCC) (1992): Signed in 1992 and ratified in 1993, this convention focuses on stabilising greenhouse gas concentrations to mitigate climate change. The UNFCCC paved the way for further climate agreements, including the Paris Agreement.⁹⁷

92 See <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC223802/>, accessed 3 February 2025.

93 See <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC215540/>, accessed 3 February 2025.

94 See <https://leap.unep.org/en/countries/bf/national-legislation/politique-sectorielle-production-agro-sylvo-pastorale-2018-2027>, accessed 3 February 2025.

95 See <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC210385/>, accessed 3 February 2025.

96 See <https://www.ramsar.org/fr>, accessed 3 February 2025.

97 See <https://unfccc.int/en/processes-and-meetings/what-is-the-unfccc-the-united-nations-framework-convention-on-climate-changes>, accessed 3 February 2025.

Convention on Biological Diversity (CBD) (1992): This agreement, which Burkina Faso joined in 1992, targets the conservation of biodiversity, sustainable use of its components, and equitable sharing of benefits from genetic resources. It addresses threats to biological diversity and promotes sustainable ecosystem use.⁹⁸

United Nations Convention to Combat Desertification (UNCCD) (1994): This convention focuses on combating desertification and reducing drought impacts, particularly in Africa. It supports Burkina Faso's efforts in addressing land degradation and enhancing resilience against climate-related challenges.⁹⁹

African Convention on the Conservation of Nature and Natural Resources (Algiers Convention) (1969, revised in 2003): Ratified in 2016, this regional treaty obligates parties to protect against land degradation, emphasising soil conservation, and erosion control to combat poor land use.¹⁰⁰

Stockholm Convention on Persistent Organic Pollutants (POPs) (2001): Ratified by Burkina Faso in 2007, this convention targets the reduction or elimination of harmful chemical releases, promoting safer agricultural and industrial practices to prevent environmental contamination.¹⁰¹

In addition to these formal conventions, Burkina Faso participates in several non-conventional frameworks supporting sustainable soil and environmental management.¹⁰²

World Soil Charter (1981): Adopted by the FAO, this charter emphasises sustainable soil management principles, including reducing deforestation, avoiding acidifying crops, and supporting agricultural practices that protect soil health. Burkina Faso's involvement reflects its commitment to sustainable land use.

Agenda 21 (1992): Chapter 10 of Agenda 21, part of the UN's Earth Summit outcomes, promotes an integrated approach to land planning and management, urging countries to gather soil data and implement soil protection measures.

These conventions and frameworks underscore Burkina Faso's proactive approach to environmental conservation and sustainable land management, aligning with international goals and promoting a comprehensive strategy to safeguard its natural resources for future generations.

98 See <https://www.cbd.int/history>, accessed 3 February 2025.

99 See https://www.un.org/en/events/desertification_decade/convention.shtml, accessed 3 February 2025.

100 See https://www.bonobosworld.org/fr/glossaire/convention-africaine-pour-la-conservation-de-la-nature-et-des-ressources-naturelles?tmpl=component&show_layout=1, accessed 3 February 2025.

101 See <https://www.bafu.admin.ch/bafu/fr/home/themes/produits-églises/info-specialistes/affaires-internationales--produits-chemicals/convention-de-stockholm-pop-sur-les-polluants-organiques-persist.html>, accessed 3 February 2025.

102 Guaranteed & Zakané (2008).

3.2 Environmental provisions in the Constitution

In Burkina Faso, while the Constitution lacks explicit provisions on soil and general land rights, it includes broad protections for the environment and natural resources. Key constitutional principles and protections related to environmental stewardship include:

Environmental protection emphasis: The Constitution underscores the importance of protecting the environment as part of the country's commitment to sustainable development.¹⁰³

People's ownership of natural resources: Natural resources and wealth are considered collective assets of the people, meant to be managed for the improvement of citizens' living conditions and in line with sustainability principles.¹⁰⁴

Right to a healthy environment: Citizens are guaranteed the right to a healthy environment, and protecting and promoting environmental welfare is deemed a civic duty.¹⁰⁵

Right to petition for environmental protection: Every citizen can initiate or join collective action, such as petitions, to oppose acts that may harm public assets, social communities, the environment, or cultural and historical heritage.¹⁰⁶

Investment in environmental initiatives: By guaranteeing the right to ownership, the Constitution supports investments in environmental efforts, such as tree planting and land restoration, which can improve environmental resilience and land productivity.¹⁰⁷

In terms of environmental protection legislation, the Constitution mandates that laws establish fundamental principles for environmental protection, development, and oversight of national development plans. This framework extends to the management and disposition of state property and production organisation.¹⁰⁸

Regarding international treaties and agreements, the President has the authority to negotiate, sign, and ratify treaties, though certain types of treaties (e.g., those affecting state finances or legislative provisions) require legislative approval.¹⁰⁹ If a treaty contradicts the Constitution, it can only be ratified after amending the Constitution.¹¹⁰ Once ratified, treaties take precedence over domestic laws, provided they are reciprocated by the other party.¹¹¹

103 Law 072-2015/CNT of 5 November 2015, revising the Constitution.

104 Ibid.: Art 14.

105 Ibid.: Art 29.

106 Ibid.: Art 30.

107 Ibid.: Art 15.

108 Ibid.: Art 101.

109 Ibid.: Art 148.

110 Ibid.: Art 150.

111 Ibid.: Art 151.

These constitutional commitments support Burkina Faso's framework for environmental governance, but practical implementation largely relies on further legislative measures and policy frameworks to address specific land and soil management needs.

3.3 Land ownership legislation

3.3.1 Constitution

Burkina Faso's Constitution does not directly address land ownership or land-specific policies. Instead, it provides general principles on the ownership and management of natural resources. Starting with the first Constitution of 2 June 1991, and maintained in subsequent versions, the Constitution establishes that all wealth and natural resources belong collectively to the people. This approach reflects a commitment to using natural resources as a means of improving citizens' living conditions, aligned with principles of sustainable development.

3.3.2 Public law

Land legislation in Burkina Faso has a rich history, evolving from pre-colonial customs to modern legal frameworks.¹¹² During the colonial period, particularly in the 1940s, land regulations began to address issues of land control, including policies for expropriation in the public interest. These regulations laid the early groundwork, but they were primarily focused on colonial interests.

After Burkina Faso gained independence in 1960, land laws became more comprehensive and specialised. The landmark Agrarian and Land Reorganisation (RAF) reform of 1984 marked a new era in land governance, setting out ambitious goals to consolidate land management under the state. This reform introduced significant changes, such as abolishing private land ownership in favour of state ownership and establishing "titles of enjoyment" instead. However, tensions with customary practices emerged, particularly in rural areas where traditional land tenure systems remained strong.

Since 1984, land legislation in Burkina Faso has undergone multiple revisions and now encompasses three main categories:

National land: This includes the state's control over public and private land domains, regulating urban areas, housing, industry, and other public land uses.

Rural land: Laws here focus on agricultural, pastoral, forestry, and conservation activities, aiming to secure tenure for rural communities while promoting sustainable

112 Nacambo & Sanou (2015).

land use. However, customary tenure practices remain a significant factor, particularly in rural areas where traditional rights coexist with modern laws.

Related sectors: These include policies on water resources, pastoralism, and environmental management, which are increasingly recognised as integral to sustainable land management and rural development.

3.3.2.1 Colonial land policies

Former French colonial authorities in West Africa critiqued traditional land tenure systems as lacking clarity and impeding economic development. To address this, they introduced a land registration system to promote private property, innovation, and economic growth. This system was first implemented through decrees in 1906 and 1932 across French West Africa (AOF), encouraging a shift toward individual land ownership.

Land registration involved a formal process managed by a land registrar, granting exclusive and irrevocable property rights that were immune to dispute. This system established definitive real estate rights, including ownership, usufruct, and easements. However, the registration system faced challenges, as it was often incompatible with local customs and led to a complex, bureaucratic process that limited its adoption. Consequently, a 1925 decree introduced the “administrative certificate,” which acknowledged customary land rights and provided a simplified way for communities to attest to their land rights. Despite this, the system remained largely unsuccessful and was discontinued in 1955.

In response, the 1955 decree introduced the “land booklet” system, which formally recognised customary land rights and allowed their conversion into private property. This shift aimed to increase agricultural productivity by integrating local communities into the colonial economic framework. Despite the colonial push for private property, customary rights remained strong, leading to their eventual formal acknowledgement in the 1955 reform.

Colonial land policy in West Africa, especially in Burkina Faso, prioritised agricultural exploitation over urban development. This was evident in the largely rural focus of colonial interventions, which aimed to control and utilise agricultural land while leaving urban development as a secondary concern. The persistence of customary rights alongside imposed property systems underscored a complex interplay between colonial objectives and traditional practices, ultimately shaping the modern land tenure landscape in Burkina Faso and other parts of West Africa.

3.3.2.2 Postcolonial land policies

The Burkinabe Revolution marked a significant shift in land policy, recognising that control over land was fundamental for effective urban development. Through radical reforms, the Revolution declared all land to be state property, abolishing individual land titles inherited from colonial rule and replacing them with usage rights. The Agrarian and Land Reorganisation (RAF) sought to redefine the land framework by establishing a national land domain that encompassed land managed by the state, local authorities, and private individuals.¹¹³

This national land domain was segmented into two main categories: urban and rural land. Urban land was designated for housing, commerce, and industry, while rural land was intended for agriculture, livestock, forestry, and conservation activities. Within this framework, the state's land domain includes both a public domain, allocated for public use, and a private domain, covering real estate not designated as public property. Local authorities also maintain a land domain with a similar structure: a public domain for communal use and a private domain for properties held with title deeds.

Individual landholdings within the RAF framework consist of full ownership of land and real estate, rights to use land in the unallocated private domains of the state and communities, and rural land assets. The RAF aims to improve land management and enable the state to pursue urban development and housing projects, while also allowing the coexistence of customary land rights. This dual approach intends to balance state-led modernisation efforts with respect for traditional practices and local land use customs, recognising both formal and customary rights within the national land system.

3.3.3 Traditional law

Land management in Burkina Faso has evolved significantly, reflecting an ongoing tension between customary and modern legal systems, especially following the country's independence in 1960. Before the RAF, tenure security relied on customary practices that viewed land as inalienable, complemented by a regulatory regime offering security through documentation, including administrative certificates and land booklets. However, with the “domanialisation” of land, the state sought to assert greater control over resources, creating a complex coexistence between state and customary legal frameworks.¹¹⁴ This dual system has led to persistent friction between the formal legitimacy of state laws and the social legitimacy of customary law. Despite multiple reforms, including efforts to harmonise these systems, the conflict endures. Local

113 Law No. 034-2012/AN of 2 July 2012, on Agrarian and Land Reorganisation.

114 See https://www.cifor-icraf.org/publications/pdf_files/Books/BBouda0801.pdf, accessed 3 February 2025.

authorities and customary structures remain key in everyday land management, even with the state's established legal frameworks. A study in southern Burkina Faso underscores the need for a co-constructed normative model for land access, one that is broadly accepted by all stakeholders.¹¹⁵

Customary law, deeply ingrained in local traditions, remains the backbone of land management despite the state's centralised reforms. The RAF of 1985 declared all land as state property but faced resistance in rural areas, where customary practices prevail. Land ownership varies by ethnic group and environmental conditions, with areas experiencing land pressure seeing challenges to collective lineage-based management.¹¹⁶ Farmers and younger family members increasingly seek individualised land management without necessarily pushing for full private ownership. Although customary law traditionally prohibits land sales, such transactions are becoming more common in some areas, often without the customary authorities' involvement, rendering them illegitimate under both customary and formal legal standards. Immigrants' land rights are traditionally based on permissions from village authorities and social obligations to the host community, but intensifying competition over land is straining these relationships and increasing expectations for immigrants.

The institutional development of land law in Burkina Faso has undergone several phases.¹¹⁷ During the colonial period, there was inconsistent recognition of local land rights. After independence, the state acknowledged local rights while emphasising state ownership. The revolutionary era in 1984 abolished all private land rights in favour of state ownership, which created friction with traditional landholders. In the post-revolution period, customary rights were informally recognised but lacked formal legal validation. Since 1991, local land rights have been acknowledged in practice, but without full legal status, until the 2009 Land Law, which marked a shift toward progressive recognition of customary land rights within the formal legal framework.

3.3.4 Land conflicts

Land conflicts in Burkina Faso often stem not only from the intensifying competition for natural resources but also from complex social dynamics within African societies.¹¹⁸ These conflicts can manifest in various ways, reflecting both economic pressures and traditional social structures. One major factor is the commodification of land, which can undermine the land rights of non-natives who previously acquired land through customary transfers. Native populations may attempt to reinterpret these transfers as commercial contracts and, if unsuccessful, might seek to expel non-native

115 Birba (2020).

116 Won (2022).

117 Rattle (2014).

118 ONF-BF (2016).

beneficiaries to reallocate the land within a commercial framework. Additionally, the rise of substantial land rents can provoke or rekindle territorial disputes between village communities, sometimes reviving longstanding native claims to lands that non-natives have cultivated for generations. This dynamic illustrates how traditional land arrangements are increasingly being challenged by market-driven motives, potentially leading to conflict and social fragmentation.

In Burkina Faso, land disputes often involve various rights and contractual issues and can take multiple forms, reflecting the complexities of land tenure systems and economic pressures. Disputes over the transferor's rights are common, especially when extra-familial parties contest the transferor's right to convey land, often raising questions about ownership or boundaries. Conflicts may also arise from objections by the land's custodian or their heirs, who previously granted access to an outsider, now disputing the outsider's or their heirs' right to sell the land. Family members of the transferor might also consider the transfer illegitimate if not properly sanctioned. Disagreements over lease terms can emerge when the transferor attempts to adjust the rent retrospectively, especially if they notice a productive yield from the tenant's farming, or if the tenant introduces agricultural practices not initially specified in the lease. Contract enforcement issues also arise, particularly around deadlines—such as when leased land is not returned on time, prompting the transferor to reclaim the plot before the contract's conclusion. Payment delays, often when rent is not paid at the beginning of a farming cycle, can further aggravate relations.

In Burkina Faso, these land conflicts are typically resolved through customary conciliation methods, although some cases escalate to administrative or formal judicial systems when parties reject traditional settlement. Such rejections often stem from power imbalances or the declining authority of customary bodies. Land-use conflicts are another major source of tension, driven by land development and natural resource exploitation. Livestock farmers face growing insecurity as agricultural expansion reduces available land, intensifying conflicts with farmers as increased livestock numbers strain land capacity. Additionally, herders often clash with artisanal gold miners, whose activities impact traditional grazing areas. These disputes underscore the pressures on land as multiple stakeholders vie for resources within evolving economic and social contexts.

3.3.5 Land security and conflict resolution

One of the major challenges is to ensure that populations can coexist harmoniously and make the most of available resources. This requires effective means of securing land tenure and resolving conflicts when they arise. Land tenure security results from the fusion of modern and customary rights, thus, ensuring the legality and legitimacy of land tenure. It considers local realities and the needs of vulnerable groups, such as

women and youth in rural areas. Land tenure security and conflict resolution can be categorised as follows:

Several organisations play vital roles in managing and securing rural land. The Specialised Public Body is tasked with establishing, developing, and managing land within the state's rural land domain. This body is responsible for preserving this land, securing state-owned rural lands, and promoting their development and rational management according to established guidelines. The National Fund for Land Security in Rural Areas supports land security and management efforts by financing and subsidising operations focused on rural land areas.¹¹⁹ Additionally, a national body for consultation, monitoring, and evaluating rural land policy and legislation has been established by the state. This body unites public, private, and civil society stakeholders, including representatives from customary authorities, local government, and research institutions, to ensure rational, equitable, and sustainable management of rural land.

The state's decentralised technical services offer essential support to rural land services in managing local authority land and ensuring the security of individuals' rural land assets. These services work to provide technical assistance, helping local authorities implement land management practices that safeguard ownership and usage rights for individuals in rural areas.¹²⁰

Land management at the local level involves several key bodies. The rural land service, operating at the municipal level, is responsible for managing and securing municipal land, including common-use natural resource areas, and for protecting the rural land assets of individuals. Local land consultation bodies, formed at the request of municipalities either at the municipal or inter-municipal level, address matters related to land security for local stakeholders, land management and governance, equity, and sustainable rural land use, providing recommendations as needed. Additionally, each village has a village land commission, established under the Village Development Committee (CVD), which includes customary and traditional village land authorities or their representatives, as well as other individuals deemed valuable for their input on land issues.

3.4 Public environmental law

3.4.1 Legal acts and provisions specific to soils

The soil-specific legal acts in Burkina Faso address various measures and legal obligations aimed at the protection and sustainable management of soils. These measures impose obligations on public authorities and individuals, regulate potentially polluting

119 Art 90 of Law No. 034-2009/AN of 16 June 2009, relating to Rural Land Regime.

120 Ibid.: Art 86.

discharges and deposits, and integrate the prevention of natural risks into territorial planning. The Law on the Environmental Code¹²¹ imposes a proactive responsibility on public authorities to protect and sustainably manage soils and natural resources, including combating desertification and ensuring soil fertility.¹²² This law also prohibits any action that could harm the environment, including soils, to protect them from contaminants¹²³ and regulates discharges, spills, and activities likely to degrade the quality of air, water, soil, and biodiversity.¹²⁴ The Forest Code¹²⁵ provides for provisions for the protection of soils in forest areas, in particular the fixing of sloping soils and protection against erosion.¹²⁶ The new Mining Code adopted in 2024¹²⁷ supervises mining operations through respect for the rights of affected communities, in particular their rights to an adequate standard of living and the improvement of their living conditions,¹²⁸ and imposes strict public health, occupational safety and environmental regulations on the domestic exploitation of quarried substances.¹²⁹ The Orientation Law Relating to Pastoralism¹³⁰ regulates the use of pastoral and agricultural land, ensuring a balance between agricultural and pastoral needs and prohibiting activities that disrupt animal watering points.¹³¹ The Agro-Sylvo-Pastoral, Fisheries and Wildlife Orientation Law¹³² promotes sustainable land management and environmentally friendly agricultural practices, including the restoration of degraded land and the promotion of organic farming.¹³³ Finally, the General Code of Local Authorities¹³⁴ makes town halls responsible for land use permits, involving local authorities in environmental management.

3.4.2 Legal acts relating to nature conservation

Nature conservation in Burkina Faso is based on a diverse and integrated legal framework, aimed at ensuring sustainable management of natural resources through collaboration between the state, local authorities, private actors, and local populations.

121 Law No. 006-2013/AN of 2 April 2013, relating to the Environmental Code.

122 Ibid.: Art 19.

123 Ibid.: Art 48.

124 Ibid.: Arts 75-79.

125 Law No. 003-2011/AN of 5 April 2011, relating to the Forest Code.

126 Ibid.: Art 46.

127 Law 016-2024/ALT on the Mining Code.

128 Ibid.: Arts 21-22.

129 Ibid.: Art 88.

130 Law No. 034-2002/year of 14 November 2002, relating to the Framework Law relating to Pastoralism.

131 Ibid.: Arts 23, 26 & 32.

132 Law No. 070-2015/CNT of 22 October 2015, relating to the Agro-Sylvo-Pastoral, Fisheries, and Wildlife Orientation Law.

133 Ibid.: Arts 81-82.

134 Law No. 055-2004/AN of 21 December 2004, relating to the General Code of Local Authorities.

Existing legal provisions emphasise a holistic approach to nature conservation, involving various actors and establishing mechanisms to ensure the sustainability and protection of natural resources. The Environmental Code¹³⁵ integrates the conservation of natural resources and the management of natural risks into land use planning policies¹³⁶ and classifies establishments presenting environmental hazards into categories, with specific requirements for each class to protect the environment.¹³⁷ The Forest Code¹³⁸ advocates the conservation of biological diversity¹³⁹ and provides for the allocation of funds to finance the conservation of forest, wildlife and fisheries resources. It imposes rational and balanced management of forests, including specific measures to protect soils and rare species,¹⁴⁰ and defines protected wildlife areas and wildlife reserves for the conservation of wildlife.¹⁴¹ The Orientation Law Relating to Pastoralism¹⁴² requires pastoralists to respect environmental laws and participate in the sustainable management of pastoral resources.¹⁴³ The Orientation Law Relating to Water Management¹⁴⁴ prioritises the conservation of aquatic ecosystems because of their multifunctional importance¹⁴⁵ and regulates water-related activities to preserve quality and ensure sustainable management.¹⁴⁶ The Sustainable Development Orientation Law¹⁴⁷ establishes a framework for coherent sustainable development, based on principles such as prevention, precaution and CSR.¹⁴⁸ The Agro-Sylvo-Pastoral, Fisheries, and Wildlife Orientation Law¹⁴⁹ insists on the development of management plans for the sustainable exploitation of agro-sylvo-pastoral, fisheries, and wildlife resources, with particular attention to the protection of endangered species and the conservation of genetic resources.¹⁵⁰ The Plant Seed Regulation Act¹⁵¹ ensures the preservation of traditional plant genetic resources.¹⁵² Finally, the General Code of Local Authorities¹⁵³

135 Law No. 006-2013/AN of 2 April 2013, relating to the Environmental Code.

136 *Ibid.*: Art 23.

137 *Ibid.*: Art 38.

138 Law No. 003-2011/AN of 5 April 2011, relating to the Forest Code.

139 *Ibid.*: Art 6.

140 *Ibid.*: Arts 46-47.

141 *Ibid.*: Arts 72 & 93.

142 Law No. 034-2002/year of 14 November 2002, relating to the Framework Law relating to Pastoralism.

143 *Ibid.*: Arts 9-10.

144 Law No. 002-2001/AN of 8 August 2001, relating to the Framework Law relating to Water Management.

145 *Ibid.*: Art 4.

146 *Ibid.*: Arts 27 & 47.

147 Law No. 008-2014/AN of 8 April 2014, relating to the Orientation Law on Sustainable Development.

148 *Ibid.*: Arts 2, 5 & 14.

149 Law No. 070-2015/CNT of 22 October 2015, relating to the Agro-Sylvo-Pastoral, Fisheries, and Wildlife Orientation Law.

150 *Ibid.*: Arts 26, 93, 95, 97 & 100.

151 Law No. 010-2006 of 31 March 2006 regulating Plant Seeds.

152 *Ibid.*: Art 13.

153 Law No. 055-2004/AN of 21 December 2004, relating to the General Code of Local Authorities.

delegates environmental management skills to local authorities, including the protection of water resources, the fight against pollution, and the management of forests and green spaces.¹⁵⁴

3.4.3 Subsidiary regulations on environmental thresholds and quality standards

Burkina Faso's legislative framework for environmental thresholds and standards comprises various laws aimed at integrating environmental requirements and establishing control mechanisms for effective protection. The Environmental Code¹⁵⁵ mandates that the government develop environmental standards, monitor compliance, ensure restoration where necessary, and encourage eco-friendly economic activities.¹⁵⁶ This Code stipulates that goods imported with potential for pollution must meet national standards and requires that standards for discharges, emissions, and deposits are developed jointly by relevant ministries and periodically revised.¹⁵⁷ Violations of these standards are subject to strict penalties,¹⁵⁸ and cross-border environmental issues are managed in consultation with neighbouring states, in line with international standards.¹⁵⁹

The Forest Code¹⁶⁰ specifies that any discharge of substances into the water must comply with established standards,¹⁶¹ while hygiene and quality standards for fish processing establishments fall under the jurisdiction of the fisheries ministry.¹⁶² Similarly, the Mining Code¹⁶³ requires both artisanal and industrial mining operations to adhere to public health, workplace safety, and environmental protection standards, mandating that access routes within mining areas respect environmental standards.¹⁶⁴

The Orientation Law on Water Management¹⁶⁵ enforces principles of continuity and adaptability in water management to maintain water quality for domestic use, specifying clear thresholds to ensure safe distribution.¹⁶⁶ Furthermore, the Sustainable Development Orientation Law¹⁶⁷ provides a national framework to harmonise sustainable

154 Ibid.: Arts 89-102.

155 Law No. 006-2013/AN of 2 April 2013, relating to the Environmental Code.

156 Ibid.: Art 10.

157 Ibid.: Arts 68 & 72.

158 Ibid.: Art 135.

159 Ibid.: Art 145.

160 Law No. 003-2011/AN of 5 April 2011, relating to the Forest Code.

161 Ibid.: Art 236.

162 Ibid.: Art 238.

163 Law 016-2024/ALT on the Mining Code.

164 Ibid.: Arts 94, 110, 137 & 152.

165 Law No. 002-2001/AN of 8 August 2001, relating to the Framework Law relating to Water Management.

166 Ibid.: Arts 46 & 50.

167 Law No. 008-2014/AN of 8 April 2014, relating to the Orientation Law on Sustainable Development.

development efforts,¹⁶⁸ promoting the green economy and emphasising risk reduction for environmental sustainability.¹⁶⁹ This law also involves the private sector in promoting sustainable practices and mandates their participation in repairing environmental damage.¹⁷⁰

Under the Agro-Sylvo-Pastoral, Fisheries, and Wildlife Orientation Law,¹⁷¹ fish and agro-sylvo-pastoral products must meet quality standards,¹⁷² with measures in place to encourage quality through labelling and other initiatives.¹⁷³ The Pesticide Management Control Act¹⁷⁴ sets safety and quality standards for pesticide production and repackaging, particularly for emissions and discharges.¹⁷⁵ To minimise environmental pollution risks associated with mineral fertilisers, quality control provisions are enforced; producers must obtain a National Certificate of Conformity (CNC) issued by the ministry responsible for trade, with input from the agriculture ministry, to gain approval.¹⁷⁶

3.4.4 Legal acts relating to capacity building

Environmental management and protection require capacity building for grassroots stakeholders. In Burkina Faso, existing legislative provisions include those governing scientific research and knowledge transfer, as well as the organisation of stakeholders. The Scientific Research and Innovation Orientation Law¹⁷⁷ specifies that scientific research is carried out following the national development plan and the development plans of local authorities.¹⁷⁸ It also specifies that scientific research and innovation activities must generate knowledge contributing to the economic, social, cultural, and environmental development of the country.¹⁷⁹ Finally, it provides for provisions for the valorisation of research results for the benefit of public authorities and users.¹⁸⁰ The Law on the Regulation of Interprofessional Organisations in the Agricultural,

168 Ibid.: Art 2.

169 Ibid.: Art 4.

170 Ibid.: Art 14.

171 Law No. 076-2015/CNT of 22 October 2015, relating to the Agro-Sylvo-Pastoral, Fisheries, and Wildlife Orientation Law.

172 Ibid.: Art 99.

173 Ibid.: Arts 148-151.

174 Law No. 026-2017/year of 15 May 2017, on the Control of Pesticide Management.

175 Ibid.: Arts 15 & 23.

176 Art 3 Law No. 026-2007/AN of 20 November 2007, Establishing Fertiliser Control.

177 Law 038-2013 on the Orientation Law for Scientific Research and Innovation.

178 Ibid.: Art 2.

179 Ibid.: Art 3.

180 Ibid.: Art 43.

Forestry, Pastoral, Fishing, and Wildlife Sectors¹⁸¹ specifies the role of the state in providing support and advice to stakeholders.¹⁸²

3.4.5 International law, bilateral, and multilateral agreements

Burkina Faso is engaged in various international, bilateral, and regional agreements to respond to environmental challenges. At the level of multilateral agreements, we can cite among others:

- The United Nations Framework Convention on Climate Change (UNFCCC),¹⁸³ aimed at limiting greenhouse gas emissions;
- The Kyoto Protocol and Paris Agreement, which aim to reduce global greenhouse gas emissions with specific actions to mitigate climate change and build resilience;¹⁸⁴
- The Convention on Biological Diversity (CBD), which aims to conserve biodiversity, use biological resources sustainably, and share the benefits arising from the utilisation of genetic resources equitably;¹⁸⁵ and
- The United Nations Convention to Combat Desertification (UNCCD), is intended to combat land degradation.¹⁸⁶

At the level of bilateral agreements, this includes, among other things, cooperation with European countries such as France involving initiatives for the sustainable management of natural resources, reforestation, and access to drinking water and partnerships with Germany for sustainable development projects, particularly in the areas of renewable energies and sustainable agriculture.

The country is also involved in African regional agreements aimed at protecting the environment and promoting sustainable development. These include environmental initiatives within the Economic Community of West African States (ECOWAS), including water resource management and combating desertification. However, on 29 January 2025, the country finalised its withdrawal from ECOWAS to form the Sahel States Alliance with Mali and Niger, which could potentially impact certain agreements. Additionally, the country benefits from initiatives under the Congo Basin Forest Partnership for forest conservation and natural resource management, despite not

181 Law No. 050-2012/AN of 30 October 2012, regulating Interprofessional Organisations in the Agricultural, Forestry, Pastoral, Fisheries, and Wildlife Sectors.

182 Ibid.: Art 33.

183 See <https://unfccc.int/resource/docs/convkp/convfr.pdf>, accessed 3 February 2025.

184 See <https://www.acte.centre-val-de-loire.developpement-durable.gouv.fr/du-protocole-de-kyoto-aux-accords-de-paris-a39.html>, accessed 3 February 2025.

185 See <https://www.cbd.int/>, accessed 3 February 2025.

186 See https://www.un.org/en/events/desertification_decade/convention.shtml, accessed 3 February 2025.

being geographically part of the Congo Basin. The Law on the Environmental Code¹⁸⁷ specifies in Article 145 that the management of environmental problems of a trans-boundary nature is done in consultation with the states concerned in compliance with international standards in this area.¹⁸⁸

3.5 Urban planning law

Urban planning law in Burkina Faso is mainly governed by a law that establishes a comprehensive framework to regulate land use, development, and construction activities.¹⁸⁹ This law covers various essential aspects, such as zoning and land use regulation, determining the allocation of land according to permitted activities, and building permits, and regulating the obtaining of permits for construction. It also establishes construction and safety standards to ensure the quality and safety of buildings and ensures the protection of the environment by ensuring the preservation of natural resources in urban planning projects. In addition, the law specifies the conditions for expropriation for public utility and the terms of compensation, as well as dispute resolution mechanisms to resolve disputes related to urban planning. The Ministry of Urban Planning and Housing (MHU) is responsible for implementing this law and supervising urban development, also providing access to legislation, regulations and other relevant resources. Urban planning management is carried out through specific documents, such as the master plan for development and urban planning, which determines the general destination of the land and locates the areas to be urbanised or protected, and the land use plan (POS), which sets out the rules for land use and easements that can go as far as prohibiting construction.¹⁹⁰ All urban municipalities must have a master plan and a POS following the provincial, regional, and national land use plans, while rural municipalities must also have a POS.¹⁹¹ Urban development areas are subject to various operations such as subdivision, restructuring, urban renewal, real estate restoration, and urban consolidation.

3.6 Land use planning law

The Law on Territorial Planning and Sustainable Development establishes the fundamental principles of planning and sustainable development in Burkina Faso.¹⁹² It aims

187 Law No. 006-2013/AN of 2 April 2013, relating to the Environmental Code.

188 *Ibid.*: Art 145.

189 Law No. 17-2006 AN of 18 May 2006, relating to the Urban Planning and Construction Code.

190 *Ibid.*: Art 2.

191 *Ibid.*: Art 18.

192 Law No. 024-2018/AN of 28 May 2018, relating to the Orientation Law on the Planning and Sustainable Development of the Territory in Burkina Faso.

to promote social progress, economic efficiency, and environmental protection, thus, ensuring structured and equitable development of the territory.¹⁹³ This law encourages productive investments and poverty reduction while strengthening the partnership between the state, local authorities, and other stakeholders involved. It also promotes the sustainable management of natural resources and contributes to the preservation of social peace. The general principles include the conservation of biodiversity,¹⁹⁴ the promotion of local techniques to improve land use, and the sustainable management of natural resources. The law guarantees the rehabilitation of degraded areas, the improvement of the living environment, and the management of nature reserves and protected areas. Considering the constraints linked to climate change,¹⁹⁵ it integrates mitigation and adaptation measures to address the adverse effects of these changes.

3.7 Provisions specific to agriculture

Burkina Faso has put in place several legislative and regulatory texts to regulate the use and management of land, with the objectives of securing land rights, promoting sustainable management of land resources and preventing conflicts in rural areas.

The Rural Land Tenure Act, which recognises and protects customary and modern land rights, including land registration and titling, promotes sustainable and environmentally friendly agricultural practices and establishes mechanisms for resolving land conflicts involving local authorities and rural communities.¹⁹⁶

In addition, the Law on Agro-Sylvo-Pastoral, Fisheries, and Wildlife Orientation sets out the principles for the development of the agro-sylvo-pastoral sector, aimed at modernising agriculture, increasing productivity, and ensuring food security.¹⁹⁷ It promotes sustainable agricultural techniques, facilitates farmers' access to essential resources such as water, seeds and agricultural equipment, and sets up support programmes for smallholders including training, subsidies, and easy access to credit.

To protect soils and promote sustainable management, Burkina Faso implements the United Nations Convention to Combat Desertification (UNCCD), implements reforestation and land conservation programs, and initiates training and awareness-raising for farmers on sustainable agricultural practices.

Other legal texts include the Law on Animal Health and Veterinary Public Health,¹⁹⁸ the Law Regulating Interprofessional Organisations in the Agricultural,

193 Ibid.: Arts 2 & 24.

194 Ibid.: Art 5.

195 Ibid.: Art 26.

196 Law No. 034-2009/AN of 16 June 2009, relating to the Rural Land Regime.

197 Law No. 070-2015/CNT of 22 October 2015, relating to the Agro-Sylvo-Pastoral, Fisheries, and Wildlife Orientation Law.

198 Law No. 048-2017/AN of 16 November 2017, relating to the Animal Health and Veterinary Public Health Code.

Forestry, Pastoral, Fishing, and Wildlife Sectors,¹⁹⁹ the Water Management Law,²⁰⁰ the Law on Pastoralism,²⁰¹ the Forest Code,²⁰² the Law on Agrarian and Land Reorganisation,²⁰³ the Environmental Code,²⁰⁴ the Law on Sustainable Development,²⁰⁵ and the Agro-Sylvo-Pastoral, Fisheries, and Wildlife Investment Code.²⁰⁶

Some of the international conventions, which the country has signed up to help regulate the agricultural sector include the Stockholm Convention on Persistent Organic Pollutants, the UNCCD, the UNFCCC, the CBD, and the Convention on Wetlands of International Importance.

3.8 Transparency and environmental justice

3.8.1 Environmental impact studies

Burkina Faso has a comprehensive legislative framework for land management and environmental protection, including strict requirements for conducting environmental impact assessments (EIAs). The law regulates rural land use, securing land rights, and promoting sustainable resource management to prevent conflict.²⁰⁷ It requires EIAs to assess the impacts of projects on the environment.²⁰⁸ Key provisions include land tenure security, sustainable land management, and the requirement to conduct EIAs to identify environmental impacts, prevent land degradation, ensure regulatory compliance, and promote public participation. The decree, issued on 17 July 2001, sets out guidelines for environmental impact studies and notices under the law establishing the Peasant Environmental Code.²⁰⁹ This decree details the scope, content, and approach to be followed to carry out these studies. According to this decree, an EIA is a prospective analysis intended to assess the environmental repercussions of a development

199 Law No. 050-2012/AN of 30 October 2012, regulating Interprofessional Organisations in the Agricultural, Forestry, Pastoral, Fisheries, and Wildlife Sectors.

200 Law No. 002-2001/AN of 8 August 2001, relating to the Framework Law relating to Water Management.

201 Law No. 034-2002/year of 14 November 2002, relating to the Framework Law relating to Pastoralism.

202 Law No. 003-2011/AN of 5 April 2011, relating to the Forest Code.

203 Law No. 034-2012/AN of 2 July 2012, on Agrarian and Land Reorganisation.

204 Law No. 006-2013/AN of 2 April 2013, relating to the Environmental Code.

205 Law No. 008-2014/AN of 8 April 2014, relating to the Orientation Law on Sustainable Development.

206 Law No. 017-2018/AN of 17 May 2018, relating to the Agro-Sylvo-Pastoral, Fisheries, and Wildlife Investment Code.

207 Law No. 034-2009/AN of 16 June 2009, relating to the Rural Land Regime.

208 Law No. 006-2013/AN of 2 April 2013, relating to the Environmental Code.

209 Decree No. 2001-342/PRES/PM/MEE of 17 July 2001 (JON°31 2001) relating to the Scope, Content and Procedure of the Study and Environmental Impact Notice in Burkina Faso.

project or program.²¹⁰ On the other hand, an Environmental Impact Statement (EIS) is a simplified version of the EIA, but it must, nevertheless, provide sufficiently relevant information to assess environmental impacts. The EIA report is a document summarising the results of the study, assisting the project owner in designing a plan that minimises adverse effects and maximises economic and environmental benefits, thus, facilitating informed decision-making by the authority and promoting a better public understanding of the environmental consequences of the project. The project owner, whether a private or public entity, is the one who requests authorisation for the project to be carried out. The environmental management plan includes all the measures that the project owner undertakes to implement to reduce negative impacts and strengthen the positive aspects of the project on the environment.

3.8.2 Public participation

Regarding public participation in environmental justice, the country has established a legislative framework that includes local communities and stakeholders in natural resource management and land use planning processes. Public participation is carried out through various frameworks such as preliminary consultations with local communities to gather their views before any major projects are launched, public meetings and hearings to discuss development plans and specific projects, providing a platform for people's concerns and expectations, and partnerships with local authorities that facilitate public participation by acting as intermediaries between the people and central authorities, ensuring that local voices are heard. There are texts on securing farmers' land rights for sustainable land management, preventing land conflicts and customary and modern land rights.²¹¹

3.8.3 Access to information

The Environmental Code and Rural Land Tenure Acts provide specific provisions for access to environmental information aligned with international transparency standards. The Ministry of the Environment plays a central role in disseminating information through reports, studies, and bulletins accessible online. The National Agency for the Promotion of Information and Communication Technologies also contributes to this accessibility by digitising public data. Public participation is encouraged through consultations within the framework of EIAs and public forums organised regularly to discuss environmental policies. The results of EIAs, as well as proposed mitigation measures, are in principle made public to ensure transparency and allow citizens to

²¹⁰ Ibid.: Art 2.

²¹¹ Law No. 034-2009/AN of 16 June 2009, relating to the Rural Land Regime.

formulate comments and concerns. Annual reports and online databases also facilitate access to this information.

Access to environmental information is crucial to ensure effective public participation in environmental decision-making processes. However, studies such as the 2014 Environmental and Mining Services Assessment Study (EESS) have highlighted gaps in this area, such as a lack of awareness of legal texts, the non-public nature of EIAs and the mining cadastre, and the lack of data collection on the impacts of artisanal mining.²¹² To address these gaps, measures have been proposed, including the dissemination of documents to stakeholders and the availability of reports on relevant websites. In line with this, the Minister of Environment recently launched a digital platform, Envirinfos, which aims to provide environmental information accessible to the public.²¹³

3.8.4 Recourse and access to courts

Burkina Faso has established a legal framework to guarantee the right to appeal against administrative decisions that impact the environment and agricultural activities. The Environmental Code Law and the Agro-Sylvo-Pastoral Orientation Law establish procedures to challenge these decisions and protect the rights of citizens and affected communities. Administrative courts are competent to examine these appeals, with the possibility of appealing to the Supreme Court in the event of disagreement. In addition, mediation and arbitration mechanisms are available to resolve land conflicts more quickly and less costly. Local authorities and traditional leaders play an important role in resolving land conflicts, with the National Commission for the Reconciliation of Land Disputes providing a platform for mediation and conciliation between conflicting parties.²¹⁴

Access to justice in Burkina Faso faces several challenges, including the language used in judicial structures. To overcome this barrier, a Support Project for Strengthening Justice to Fight Impunity (PARJI), funded by the European Union, is being implemented. This project supports the Ministry of Justice and Human Rights and the National School of Administration and Magistracy to train court interpreters. This initiative responds to a crucial need to make justice accessible to all, in their mother tongue.²¹⁵

212 CNEE (2023).

213 See <https://lefaso.net/spip.php?article121462>, accessed 3 February 2025.

214 See https://www.hiil.org/wp-content/uploads/2022/09/HiiL-Burkina-Faso-JNS_FR_web.pdf, accessed 3 February 2025.

215 See <https://open.enabel.be/fr/BFA/2473/p/projet-d-support-au-renforcement-de-la-justice-pour-lutter-contre-l-impunit-au-burkina-faso.html>, accessed 3 February 2025.

3.9 Specific instruments to control the behaviour of foreign investors

3.9.1 Respect for public law

Legal and institutional instruments exist to control the behaviour of foreign investors, thus, ensuring that their activities comply with sustainable development goals, environmental standards, and national interests.

The legislative framework includes the Investment Code,²¹⁶ which promotes the entry of foreign capital by guaranteeing freedom of investment, the absence of discrimination, and the same rights for foreign employers and workers as for nationals. The Environmental Code requires EIAs for significant projects and allows the Ministry in charge of the Environment to carry out regular checks and sanction non-compliance. The Agro-Sylvo-Pastoral, Halieutic, and Fauna Investment Code offers similar protection for foreign companies in these sectors. Institutions such as the Burkinabe Investment Agency (ABI) created by a decree in 2018, and the Ministry of the Environment monitor and assist investors to ensure compliance with commitments and local standards. Participation and transparency mechanisms, such as public consultations and monitoring committees, ensure the inclusion of local communities in the decision-making process. Finally, bilateral and multilateral investment protection agreements include sustainable development clauses, aligning foreign investments with national sustainable development objectives.

3.9.2 Land acquisition methods

The Investment Code in Burkina Faso established a set of measures to control and regulate the acquisition of land by foreign investors. This favourable regulatory framework is based on several key principles. First, it guarantees freedom of investment while avoiding any discrimination between domestic and foreign investors, thus, ensuring a fair environment for all parties. In addition, it requires foreign investors to strictly comply with local laws and regulations, including land laws, to prevent any unfair or illegal acquisition of land. This regulation also grants foreign companies equal protection to that of national companies in terms of commercial and intellectual property, thus, eliminating any form of discrimination. Furthermore, it explicitly recognises the right of foreign migrants established in Burkina Faso to acquire land rights, without any distinction, thus, promoting economic and social integration. In addition, the regime guarantees the right of foreign investors to transfer their capital and income, subject to compliance with the provisions of the Investment Code.

216 Law No. 038-2018/AN of 30 October 2018, relating to the Investment Code.

3.9.3 Fair taxation

Fair taxation of foreign investors in Burkina Faso is guaranteed by several legislative provisions.

The Investment Code establishes a common law regime for the benefit of companies, encouraging the entry of foreign capital.²¹⁷ This legislation guarantees freedom of investment, the absence of discrimination between national and foreign investors, as well as total freedom of management and financial transfers. Foreign investors are subject to the same duties, contributions, and taxes as nationals, following the legislation in force. In addition, foreign companies benefit from equitable protection concerning commercial properties and intellectual properties, with fair and equitable treatment excluding any discriminatory measure. Furthermore, the Agro-Sylvo-Pastoral, Fishing, and Wildlife Investment Code grants foreign companies the same protection as national companies in terms of commercial and intellectual property.²¹⁸ In addition, Burkina Faso adopted a law establishing a special tax and customs regime in June 2012 applicable to investment agreements signed with the state.²¹⁹ This regime aims to attract foreign investors, particularly those with significant capital to invest, in the implementation of “growth poles”. It guarantees the right to transfer capital and its income to foreign investors making investments financed by a contribution of foreign currency.²²⁰

3.10 Legal requirements for environmental monitoring

3.10.1 Competence of the bodies responsible for the application of legislation

Environmental management and enforcement of environmental laws in Burkina Faso involve a variety of both governmental and non-governmental agencies. The Ministry of the Environment plays a leading role, overseeing various technical departments and services, including water management, coordination of efforts against climate change, and biodiversity preservation. In parallel, institutions such as the National Agency for the Promotion of Renewable Energy and Energy Efficiency (ANEREE), the National Office for Water and Sanitation (ONEA), the National Agency for Environmental Assessments (ANEE), and the National Energy Sector Regulatory Authority (ARSE), the National Public Health Laboratory (LNSP) also contribute to environmental

217 Ibid.: Arts 9-10.

218 Art 13 of Law No. 017-2018/AN of 17 May 2018, relating to the Agro-Sylvo-Pastoral, Fisheries, and Wildlife Investment Code.

219 Law 025-2012/AN establishing a Special Tax and Customs Regime applicable to Investment Agreements signed with the state as part of the Implementation of the Accelerated Growth and Sustainable Development Strategy (SCADD).

220 Ibid.: Art 4.

monitoring. Local and international NGOs, including the International Union for Conservation of Nature (IUCN) and the Sustainable Development Actors Network (RADD), also play an active role in environmental monitoring, through advocacy and awareness-raising. These organisations are tasked with developing and implementing environmental policies, monitoring activities to ensure compliance with laws, conducting environmental impact studies, and imposing sanctions in the event of non-compliance. On the legislative level, the Environmental Code establishes the principles and rules for environmental protection. The processes of environmental impact studies, environmental monitoring and control, as well as sanction measures in the event of non-compliance with environmental standards are regulated by a strict legal framework.

3.10.2 Accessibility to environmental data

Transparency of environmental data is an essential pillar of responsible management of natural resources and public engagement in environmental preservation.

In Burkina Faso, several initiatives and mechanisms promote the transparency of environmental data. Government data portals, such as those of the Ministry of Environment, Green Economy, and Climate Change (MEEVCC) and the Agency for Environment and Sustainable Development (AEDD), provide online access to a variety of environmental information, including reports and impact studies. In addition, regular public reports on the state of the environment are published by government agencies, covering crucial aspects such as biodiversity, pollution, and climate change. Public consultations are also integrated into environmental assessment procedures, allowing local communities to be informed and participate in decisions regarding development projects. In addition, civil society organisations play a key role in collecting, publishing, and disseminating environmental data, while raising awareness of environmental issues. Finally, the media and awareness campaigns organised by government and non-government actors also contribute to the dissemination of environmental information, thereby strengthening transparency and public engagement in environmental protection in Burkina Faso. However, despite this progress, Burkina Faso faces a need for institutional capacity building and public awareness of the importance of environmental data transparency. To address these challenges, it is essential to continue efforts to improve the accessibility and quality of environmental data while strengthening collaboration between government actors, civil society, and local communities.

3.10.3 Expertise and research institutions

The expertise and technical skills required for effective environmental monitoring are essential in Burkina Faso. However, the country faces several challenges in this area. It is essential to continue training and strengthening the skills of environmental professionals. Government institutions, supported by international organisations, are running training programs aimed at improving technical skills in environmental monitoring. In addition, recruiting qualified specialists in various related fields is crucial to strengthen local expertise.

Research institutions play a crucial role in providing scientific data, analysis and recommendations based on rigorous research. These institutions include the National Environmental Information System (SNIE), the Ministry of Quarries, Mines and Energy (BUMIGEB), the National Soil Bureau (BUNASOLS), universities and polytechnics across the country, the National Centre for Scientific and Technological Research (CNRST) with its institutes such as the Institute of Environment and Agricultural Research (INERA) and the Institute for Research in Applied Sciences and Technologies (IRSAT), as well as the Directorate of Meteorology.

In the field of research, considerable efforts are being made to understand and control the dynamics of ecosystems through various research devices set up in several forests of the country. These are mainly devices to study anthropogenic influences such as fires, logging, grazing, increasing urbanisation and agricultural activity, as well as climatic variations. The objective is to design effective and adapted technical tools to ensure sustainable management of natural forests. There are also long-term experimental devices that aim to study the long-term effects of different fertilisation practices on soil productivity. The oldest of these devices is the one that has been set up since 1960 at the agricultural and environmental research station of Saria, located in the centre-west of the country. Research carried out on this device since its establishment highlights key elements for sustainable agriculture. They first emphasise the crucial importance of organic amendments to support long-term production of sorghum, cotton and cowpea. Furthermore, these studies highlight the essential role of crop rotation, particularly with legumes such as cowpeas, to maintain sustainable production in the long term by preserving soil fertility and reducing disease risks. Furthermore, they highlight both the importance, and the challenges associated with the use of mineral and/or organic amendments, as well as crop rotation to achieve sustainable agriculture.²²¹

Collaboration among different stakeholders, including government agencies, NGOs, research institutions, and international partners, is crucial to improve environmental knowledge production and to share resources, knowledge, and best practices.

221 See <https://www.foodsystemstories.org/blog/20/04/20/long-term-field-trial-of-saria-leading-to-a-sustainable-agricultural-production-and-food-system-in-sub-saharan-africa>, accessed 3 February 2025.

However, despite the potential of research institutions, several challenges persist, including a lack of adequate funding, the need for modern monitoring equipment, and insufficient accurate and up-to-date data. To overcome these obstacles, it is crucial to improve coordination among different stakeholders and strengthen the institutional framework.

3.10.4 Personnel and equipment

The availability of qualified personnel is crucial for effective environmental monitoring. In Burkina Faso, several challenges remain in this area.

In terms of training and capacity building, there is an urgent need for continuing education programs in areas such as environmental impact assessment, natural resource management, and modern monitoring techniques. In addition, there is a need for the recruitment of specialists in specific fields such as hydrology, waste management, and other related disciplines. Collaborations with universities, research institutes, and academia are essential to develop a talent pool and provide opportunities for training and applied research.

In terms of technical equipment, the country faces limitations in terms of equipment. Indeed, environmental agencies need modern monitoring devices such as air quality sensors, water monitoring stations, and remote sensing equipment to track changes in the environment. Furthermore, although laboratory analysis capacities exist in some universities and research institutions, these laboratories have yet to be well equipped for soil, water, and air analysis, and to conduct in-depth environmental research. Capacity building in equipment maintenance is also important. Finally, Information and Communication Technologies (ICT), such as the use of Geographic Information Systems (GIS) and environmental databases is crucial for monitoring and managing environmental data.

Burkina Faso benefits from the support of various international partners and organisations to strengthen its environmental monitoring. Some cooperation projects funded by international organisations, such as the World Bank, the United Nations Environment Program (UNEP), the European Union, and the International Atomic Energy Agency provide financial and technical resources to improve monitoring capacities. Training programs and workshops organised in collaboration with international partners also help to develop local skills.

3.11 Institutional frameworks

The institutional framework for the management of natural resources reflects a certain instability since independence, with a distribution of skills between various ministries

and structures. It presents a structuring in different levels of decision, namely the central level, the decentralised/deconcentrated level, and the non-state level.

At the central level, a multitude of ministries and structures, including the National Assembly, as well as the ministries in charge of the Environment, Energy, Research, Agriculture, and Animal Resources, are involved in the management of these resources.

The decentralised and deconcentrated levels include regions, provinces, departments, and municipalities. Finally, non-state structures include a variety of actors such as chambers of trade, professional associations, NGOs, local actors, training and research institutions, technical and financial partners, as well as regional and international cooperation structures.

Concerning the environment, it is based on an institutional framework structured around the Ministry in charge of the Environment and Living Environment, as well as other ministries and structures concerned with the management of natural resources. At the central level, the Ministry in charge of the Environment is the main actor, organised into General Directorates, in particular the General Directorate of Nature Conservation and the General Directorate of the Improvement of the Living Environment, with the Directorate of Environmental Assessments playing a crucial technical role. The Permanent Secretariat of the National Council for Sustainable Development (SP-CNDD) ensures coordination and consultation, with a specialised commission on legislation and environmental assessments. The operational plan is supported by the Directorate of Environmental Assessments (DEE), responsible for promoting environmental assessments, supervising impact studies, analysing and validating reports, and contributing to the regional harmonisation of procedures. It is organised into two departments: promotion of environmental assessments and monitoring/control of environmental management plans.

4 Legislation concerning the main drivers of land degradation

4.1 Urbanisation

Legislation on land degradation and urbanisation in Burkina Faso is based mainly on specific laws on land use planning, urban planning, and the environment, as well as on implementing decrees and local regulations.

The Law on Land Use Planning and Sustainable Development, for example, aims to promote rational and sustainable management of natural resources and to improve living conditions through the creation and renovation of urban infrastructure.²²² It

222 Law No. 024-2018/AN of 28 May 2018, relating to the Orientation Law on the Planning and Sustainable Development of the Territory in Burkina Faso.

allows the state and local authorities to acquire land through expropriation procedures or by right of pre-emption for urban development projects. This legislation also establishes principles of soil and water conservation, and respect for land, while integrating objectives of social progress, economic efficiency, and environmental protection.

In terms of sanctions, fines and imprisonment are provided for those who carry out construction or modifications without a permit, and demolitions can be ordered for illegal constructions. The Urban Planning and Construction Code regulates urban planning and construction, imposing technical controls to guarantee the solidity and safety of the works.²²³ The establishment of a planning police force, as well as monitoring and evaluation mechanisms, ensure the implementation and compliance with these laws, contributing to structured and sustainable urban development in Burkina Faso.

The Law on Land Use Planning and Sustainable Development and the Urban Planning and Construction Code of Burkina Faso aims to promote sustainable land use planning and development. These laws aim to integrate objectives of social progress, economic efficiency, and environmental protection, by structuring, harmonising, and balancing territorial development. They also seek to reduce poverty, encourage citizen participation, and ensure sustainable management of natural resources.

Regarding urban planning, the law specifies that urban infrastructure must be developed and renovated to improve living conditions.²²⁴ The state and local authorities may acquire land for this purpose by various legal means, including expropriation. The Ministry of Urban Planning, in collaboration with other ministries, is responsible for delineating the master development plans.

The law also establishes the fundamental principles of rational management of natural resources, including the conservation of water and soil and the protection of land according to its purpose.²²⁵ As for sanctions, it provides for violations of development plans, with fines and suspensions for the approved experts involved, and establishes a development police force to coordinate prevention and repression actions.²²⁶

Articles 99 and 100 detail the regular monitoring and evaluation of planning policies and legislation, carried out by the Ministry of Regional Planning, which must prepare periodic reports on the state of sustainable development in the territory.

The Urban Planning and Construction Code organises and regulates the areas of urban planning and construction. It imposes fines and prison sentences for construction without a permit and requires mandatory technical inspections for certain types of construction to ensure the safety and stability of the works.

223 Law No. 17-2006 AN of 18 May 2006, relating to the Urban Planning and Construction Code.

224 Arts 28-30 of Law No. 024-2018/AN of 28 May 2018, relating to the Orientation Law on the Planning and Sustainable Development of the Territory in Burkina Faso.

225 Ibid.: Arts 1, 2 & 5.

226 Ibid.: Arts 102-104.

4.2 Industrial and artisanal mining

Mining plays a crucial role in Burkina Faso's economy, particularly through the gold sector, which contributes significantly to national revenues. However, this activity generates environmental, social, and economic challenges. The legal framework, foreign investors, and monitoring of mining are essential to maximise socio-economic benefits while minimising negative impacts on the environment and local communities. An integrated approach involving the government, mining companies, local communities, and civil society organisations is necessary to ensure sustainable and equitable mining.

The legal framework governing mining is based on the new Mining Code, adopted in 2024, which establishes the conditions for granting mining permits, the obligations of mining companies in terms of social and environmental responsibility, and the terms of sharing revenues with the state. For example, the law stipulates that individuals or legal entities may conduct mining activity on state land, on the domains of local authorities, or the land assets of individuals.²²⁷ However, the conduct of such activities is subject to the prior obtaining of a mining title. In addition, mining activities must be conducted in a manner that ensures the preservation and management of the environment,²²⁸ and the sites must be rehabilitated using mining funds supplied by annual contributions from holders of operating permits.²²⁹

The new Mining Code governs all mining operations, including prospecting, exploitation, processing, transport, transformation, marketing, and rehabilitation of mining sites. Administrative, financial, or criminal sanctions are provided for violations including those of non-compliance with environmental clauses.²³⁰ Environmental impact studies (EIA) or environmental and social impact notices (NIES) are mandatory before any mining activity and failure to comply with these obligations is considered a violation.²³¹ Sworn or mandated agents of the Mining Administration or any other agent duly mandated by another administration are responsible for monitoring and controlling mining activities to ensure their compliance with the legislation. The new Mining Code also provides for artisanal mining with specific permits.

Although these regulations aim to mitigate the negative impacts of industrial and artisanal mining, their effectiveness depends on their implementation, awareness-raising among the actors involved, and the rigorous application of sanctions in the event of non-compliance.

227 Art 6 of Law 016-2024/ALT on the Mining Code.

228 *Ibid.*: Arts 152 & 155.

229 *Ibid.*: Arts 28 & 32-33.

230 *Ibid.*: Art 204.

231 *Ibid.*: Art 205.

4.3 Industry and infrastructure

Industry and infrastructure are governed by various laws and regulations aimed at mitigating adverse impacts on land and the environment. Environmental legislation requires infrastructure and industry developers to conduct EIAs to assess potential impacts on land, natural resources, and local communities. An environmental permit must be obtained before any industrial or infrastructure project begins, stipulating the conditions necessary to minimise environmental impacts.

Spatial planning requires that industrial and infrastructure projects comply with land use and urban planning plans, defining industrial zones, protected areas, and sensitive areas. Construction and waste management standards must be respected to limit negative impacts on land, including the use of sustainable construction techniques and efficient waste management.

Government authorities monitor and control industrial and construction activities to ensure compliance with environmental legislation. Regular inspections help detect violations and apply corrective measures if necessary. The environmental responsibility of developers is also emphasised, requiring the rehabilitation of sites after the end of projects to restore degraded land.

The Environmental Code frames these activities with principles such as public participation, prevention, precaution, polluter pays, and sustainable development. It stipulates that authorities must facilitate access to environmental information and encourage the participation of populations in decision-making processes.²³² It requires that industrial activities avoid harmful effects on the environment and authorises the closure or suspension of establishments presenting serious dangers to public health.²³³

Penalties for environmental violations are strict. It allows the jurisdiction to publish convictions, suspend activities, or close offending establishments.²³⁴ They also provide for fines and imprisonment for violations of environmental requirements, including non-compliance with EIAs, opposition to environmental monitoring, and illegal treatment of hazardous waste. Finally, the law establishes control of products placed on the market, radiation sources, and biological and genetic monitoring of the territory, thus, ensuring comprehensive and proactive management of the environmental impact of industries and infrastructure in Burkina Faso.²³⁵

232 Art 6 of Law No. 006-2013/AN of 2 April 2013, relating to the Environmental Code.

233 Ibid.: Arts 37 & 46.

234 Ibid.: Art 122.

235 Ibid.: Art 101.

4.4 Agriculture (animal production)

The pastoral areas of the lands in Burkina Faso, designated as “open pastoral areas”, are often sources of conflict between pastoralists and farmers due to their multiple uses. These conflicts are exacerbated by unclear laws on their management and access to natural resources. To address these challenges, the Pastoralism Orientation Law, adopted on 14 November 2002, aims to secure these areas and guarantee pastoralists equitable access to natural resources. It sets out the principles for sustainable and integrated development of pastoral activities. Pastoral resources include plant, water, and mineral resources exploited for pastoral livestock farming, while pastoral areas are areas allocated and open to animal grazing, including special development areas and fodder crop areas.

The law stipulates that the state and local and regional governments must guarantee pastoralists the right to access and equitable use of resources, improve the performance and quality of pastoral livestock farming, and protect and develop pastoral areas. Specific regulations include pasture management to prevent overgrazing, protection of water resources, management of animal waste, rehabilitation of degraded areas, and awareness-raising and training of livestock farmers. The law provides for penalties for various offences, such as fines for illegal clearing and unauthorised settlement, as well as imprisonment for serious offences. Offences are recorded by judicial police officers and sworn agents, and penalties are applied following the laws and regulations in force.

The key provisions are relevant to ensure sustainable and balanced development of these activities. The law prohibits clearing for agricultural purposes in pastoral areas²³⁶ and allows animals to access fallow agricultural land, except for specific restrictions.²³⁷ In terms of offences and penalties, the law provides for fines and imprisonment for various violations, such as illegal settlement in special development areas, unauthorised clearing, or dumping of toxic products. Violations are recorded by judicial police officers and sworn agents, with sanction procedures per the Code of Criminal Procedure.²³⁸

4.5 Agriculture (use of pesticides)

The Pesticide Control Law establishes a framework for monitoring pesticide management in Burkina Faso and a framework for supervising all activities related to these substances. It defines the scope of control, the creation of a National Pesticide Management Committee (CNGP), as well as the regulatory procedures and standards to be

236 Art 23 of Law No. 034-2002/an of 14 November 2002, relating to the Framework Law relating to Pastoralism.

237 Ibid.: Art 26.

238 Ibid.: Arts 49-50.

followed.²³⁹ It specifies the control procedures, the approval requirement, and the control standards on production, experimentation, storage sites, etc.²⁴⁰

As for offences and penalties, it lists the various acts considered as offences, such as the production or importation of pesticides without a valid licence, and the corresponding penalties, ranging from imprisonment to fines, as well as the withdrawal or suspension of licence in the event of serious offences.²⁴¹

For monitoring, it specifies the skills of the agents authorised to search for and note offences, the terms of police custody, the possibility of transactions for certain offences, and the management of fines and confiscations.²⁴² The main legal provisions clearly define the scope of the control, with the creation of a National Pesticide Management Committee responsible for supervising all stages of this management. The control procedures, entrusted to the agents of the Ministry of Agriculture, require approvals for any activity related to pesticides and specify the standards to be followed.

4.6 Agriculture (mineral fertilisers)

The legislation on plant production and the use of mineral fertilisers in Burkina Faso aims to regulate these activities while preserving the land and the environment. It regulates the use of fertilisers, requiring their approval by the competent authorities and compliance with good agricultural practices to preserve the health of the soil and the environment. Fertiliser labelling is also strictly regulated, providing comprehensive information on their composition, recommended dosage, and environmental impact. The Burkinabe government is implementing training programs to raise awareness among farmers about good fertiliser use practices, promoting rational and sustainable use. Government authorities monitor and control fertiliser use, with regular inspections to detect violations and take corrective measures. In addition, farmers are required to effectively manage agricultural waste, including fertiliser packaging, to avoid soil and water contamination, thereby encouraging environmentally friendly agricultural practices.

The law adopted on 20 November 2007, establishes a system of control of fertilisers, covering their import, export, and local production.²⁴³ In the event of an infringement, administrative or judicial measures are based on analysis reports from approved laboratories and inspection reports. Non-compliant fertilisers may be seized or

239 Arts 1-4 of Law No. 026-2017/an of 15 May 2017, on the Control of Pesticide Management.

240 Ibid.: Arts 5-12.

241 Ibid.: Arts 50-71.

242 Ibid.: Arts 73-77.

243 Art 1 of Law No. 026-2007/AN of 20 November 2007, establishing Fertiliser Control.

confiscated, and refusal to re-label within the prescribed time limits may result in the suspension of approval and confiscation of the offending batch.²⁴⁴

Monitoring of these activities, placed under the responsibility of the Ministry of Agriculture, includes controls at borders, at production and sales sites, as well as sampling and analyses in approved laboratories. In addition, the creation of a National Fertiliser Control Commission (CONACE) aims to contribute to the development of the national policy on fertiliser control and promotion, underlining Burkina Faso's commitment to the responsible use of mineral fertilisers and environmental protection.²⁴⁵

4.7 Agriculture (good agricultural practices)

In Burkina Faso, legislation on good agricultural practices is mainly focused on land preservation and the promotion of sustainable agricultural methods. Forest legislation in Burkina Faso establishes a rigorous framework for the sustainable management of forest resources and the prevention of their degradation. In terms of scope, it establishes the fundamental principles of sustainable management and development of forest, wildlife, and fisheries resources,²⁴⁶ and specifically aims to protect and enhance these resources.²⁴⁷ Bushfires are strictly prohibited,²⁴⁸ except in controlled and regulated circumstances.²⁴⁹ Any activity that could harm the balance of forests, such as unauthorised clearing,²⁵⁰ and the carrying out of major works without prior authorisation and EIA,²⁵¹ is also prohibited. Violations of these provisions are severely punished, ranging from imprisonment to significant fines.²⁵² Furthermore, monitoring and implementation of these regulations are ensured through inspections and legal proceedings carried out by the relevant ministries, as stipulated.²⁵³

4.8 Institutions and procedures (application of the law)

Land degradation legislation mobilises various institutions and procedures to ensure effective and sustainable management. The Ministry of Environment, the Ministry of

244 Ibid.: Arts 13-15 & 26.

245 Decree No. 2011-880/PRES/PM/MAH/MEDD/MEF/MICA/MRSI of 8 November 2011, on the composition and operation of the National Fertiliser Control Commission.

246 Art 1 of Law No. 003-2011/AN of 5 April 2011, relating to the Forest Code.

247 Ibid.: Art 2.

248 Ibid.: Art 50.

249 Ibid.: Art 51.

250 Ibid.: Art 47.

251 Ibid.: Art 48.

252 Ibid.: Arts 263-266.

253 Ibid.: Arts 251-253.

Agriculture, the Ministry of Urban Planning and Housing, the Ministry of Mines and Energy, as well as local authorities such as municipalities, are responsible for enforcing these laws. Enforcement procedures include regular inspections, investigations, and interventions to ensure compliance. In the event of non-compliance, administrative, civil, or criminal sanctions, such as fines, suspension of activities, and legal proceedings, may be applied. In parallel, authorities and civil society organisations conduct awareness-raising and training campaigns to inform various stakeholders about land degradation risks and preventive measures. Burkina Faso is also working with international partners and regional organisations to strengthen its land management capacities, including through access to funding and training programs.

4.9 Data management and popularisation

Regarding data management and outreach on land degradation in Burkina Faso, various initiatives and legislative provisions are put in place to collect, manage, and disseminate relevant information for sustainable land management. Government institutions, such as the Ministry of Environment and the Ministry of Agriculture, play a central role in collecting data on land conditions, soil degradation, agricultural practices, natural resource use, and other relevant indicators. These data are crucial for assessing land degradation trends and identifying areas at risk. Geographic information systems (GIS) are used to map and analyse spatial data related to land degradation, facilitating the visualisation of changes in land use, land cover, and degradation trends. The government is establishing data-sharing platforms to enable researchers, policy-makers, practitioners, and the public to access reliable and up-to-date information.

Although data collection and sharing systems exist, it is important to highlight the lack of coordination between the institutions responsible for this collection, which often leads to duplication of efforts and misuse of financial resources. The third symposium on Sustainable Land Management (SLM) in Burkina Faso, in its Ouagadougou declaration, highlights the crucial need to establish a national platform for the formalisation of SLM and recommends the creation of a regional SLM platform under the coordination of sub-regional institutions.²⁵⁴ Extension programmes are organised to raise awareness among farmers and local communities about good land management practices, providing information on soil conservation, erosion control, water management, crop rotation, and other sustainable farming techniques. Field agents receive specialised training to advise farmers and awareness campaigns are conducted through the media, community events and public meetings to inform the public about land degradation issues and promote responsible behaviour in natural resource management.

254 SSSBF-CILSS-ANSAL (2021).

4.10 Role of traditional leaders

The role of traditional leaders in land degradation management is critical and often recognised in national legislation and policies. Existing legislation recognises traditional leaders as key actors in natural resource management, valuing their local knowledge, authority, and influence over communities in national natural resource management policies.

Traditional leaders are consulted and actively participate in the development of land management policies and programmes, with their views and perspectives considered in the design and implementation of strategies to prevent land degradation and promote the conservation of natural resources.

In collaboration with local authorities, such as municipal councils, traditional leaders participate in land management and decision-making regarding the use of communal land, acting as mediators and coordinators between local communities and government institutions. They often encourage the adoption of traditional and sustainable agricultural practices, such as agroforestry, community-based pasture management, and crop rotation, which preserve soil fertility and reduce erosion.

In addition, traditional leaders raise awareness and educate local communities on land degradation issues, using their moral authority and communication skills to promote environmentally friendly behaviours and sustainable land management practices. However, the effectiveness of their role depends on several factors, including collaboration with government authorities, active participation of local communities, and the integration of their traditional knowledge into land management policies and programs.

4.11 Dispute resolution

Land degradation dispute resolution legislation aims to resolve land and environmental disputes efficiently and equitably. The Burkinabe legal framework includes environmental legislation and other specific laws concerning land and natural resource management. These texts lay down the basis for the management of land and environmental conflicts, and specific provisions are found in environmental legislation. For example, the Forest Code allows the competent departments of the ministries of the environment, wildlife, and fisheries to bring actions and prosecutions before the competent criminal courts for offences against forestry, wildlife, and fisheries legislation.²⁵⁵ In addition, mechanisms such as mediation, arbitration, and tribunals are provided to find acceptable and lasting solutions to land and environmental disputes.

²⁵⁵ Art 251 of Law No. 003-2011/AN of 5 April 2011, relating to the Forest Code.

Community mediation, often led by elders, traditional chiefs, and other community leaders, plays a key role in resolving land and environmental conflicts. In some areas, customary courts apply customary law to resolve these disputes, considering local customs and traditions in their decisions. The law also guarantees access to justice for all parties involved in conflicts, ensuring fair and impartial treatment of cases and respecting the fundamental rights of those affected.

In addition to resolving conflicts, the legislation aims to prevent them by promoting good land governance, clarifying property rights, strengthening natural resource management, and fostering dialogue and collaboration between stakeholders.

4.12 Land management

Land management in Burkina Faso is essential to prevent land degradation, resolve land conflicts, and promote sustainable use of natural resources. It aims to ensure land security, prevent conflicts, and promote sustainable use of agricultural land and natural resources, thereby, protecting the rights of local communities, preserving the environment, and promoting sustainable rural development. The Law on Rural Land Tenure regulates rural land management. This law specifies that it aims to ensure equitable access to rural land, promote investment, increase productivity in the agro-sylvo-pastoral sector, and promote poverty reduction in rural areas.²⁵⁶ It also encourages rational and sustainable management of natural resources and contributes to the preservation of social peace.

Burkinabe legislation recognises customary land rights, particularly in rural areas, where traditional practices and local customs predominate. These rights are often administered by traditional chiefs and customary authorities. The Law on Agrarian and Land Reorganisation emphasises the importance of securing the land rights of all rural land stakeholders.

To ensure the legal security of property titles and prevent land conflicts, Burkina Faso is setting up rural land registry systems according to which all land constituting the rural land domain of local authorities must be listed, demarcated, and registered in the name of the local authority concerned.²⁵⁷ These lands are then managed rationally and sustainably by the competent community services, with the support of the state's technical services.

In the management of communal lands, the legislation provides mechanisms to ensure equitable and sustainable use, while preserving the rights of local communities. Rules and procedures regarding land acquisition by third parties, such as foreign investors or companies, are strictly regulated to ensure that such acquisitions do not

256 Art 1 of Law No. 034-2009/AN of 16 June 2009, relating to the Rural Land Tenure.

257 Ibid.: Art 30.

compromise the interests of local populations and do not contribute to land degradation.

4.13 Foreign investors

Foreign investors play a major role in Burkina Faso's mining sector, providing financing, technical expertise, and access to international markets. According to statistics from the country's Chamber of Mines, foreign mining investment reached USD 500 million in 2023, representing 60% of total investment in the mining sector. Research has highlighted the importance of foreign investment in Burkina Faso's mining development, highlighting its contribution to job creation, infrastructure development, and revenue generation for the government and local communities.²⁵⁸ Moreover, other work has shown that foreign investors have also played a role in the transfer of technologies and good environmental practices in the mining sector.²⁵⁹ Foreign investment in Burkina Faso, while promoting economic growth, can have significant impacts on land degradation. Industrial agriculture and mining, the main targets of these investments, are often accompanied by practices that deplete soils, cause deforestation, and worsen erosion. Land grabbing for large-scale agricultural projects deprives local communities of their traditional lands, while mining activities pollute soils and water resources with toxic chemicals. In addition, increased pressure on water resources for irrigation and mining contributes to desertification, which is already a concern in the country. These impacts are often exacerbated by a lack of strict environmental regulation, allowing investors to pursue unsustainable practices. Thus, foreign investment, if not framed by rigorous environmental policies, can accelerate land degradation and compromise Burkina Faso's ecological resilience.

5 Recommendations

Given the various challenges facing Burkina Faso's soils, it is crucial to examine several key aspects of soil management, including improving legislation and policies, strengthening enforcement and monitoring, improving land rights, and other measures to promote their sustainable management.

258 Kansole et al. (2021).

259 Garcia (2021).

5.1 Improving legislation and policies

To strengthen the legislative and political framework for soil management and protection in Burkina Faso, several actions could be undertaken.

It is crucial to regularly review the Mining Code, for example, every five years, to ensure that it remains aligned with developments in the sector and international best practices. Strengthening environmental standards is also essential. Indeed, the Mining Code must integrate precise criteria for waste management, site rehabilitation, and the protection of biodiversity.

Promoting responsible artisanal mining requires the development of supportive policies, including training, access to finance and incentives for environmentally and human rights-friendly practices. The integration of CSR should be required of mining companies, with a focus on community engagement, local job creation, and social infrastructure development.

To ensure transparency and accountability, transparent monitoring and evaluation mechanisms must be put in place.

Encouraging research and development is also crucial to foster innovation, particularly in energy efficiency, reducing greenhouse gas emissions, and more environmentally friendly soil management technologies.

Institutional capacity building is also essential. Government agencies responsible for environmental regulation and monitoring must receive adequate training and sufficient resources to improve their effectiveness and integrity in implementing existing policies and regulations.

5.2 Improving enforcement, monitoring, and access to information

Improving the enforcement of mining legislation, strengthening environmental monitoring, and transparent access to information for stakeholders will contribute to a more responsible and sustainable use of natural resources, particularly soils. To achieve this, it is crucial to strengthen monitoring capacities by investing in training and equipping monitoring bodies, as well as establishing anonymous reporting mechanisms to report violations.

Improving access to environmental information involves creating a national public online platform that would make environmental impact reports, mining permits, and data on emissions, waste and land management and degradation accessible.

Strengthening corporate accountability must include establishing dissuasive sanctions for those who violate environmental and social laws, ensuring that they compensate for damage caused to the environment and local communities.

Promoting public participation is essential and should be strengthened by encouraging the active participation of citizens and civil society organisations in the mining

monitoring process, including through regular public consultations and increased collaboration between stakeholders.

Strengthening dispute resolution mechanisms is necessary to quickly and fairly resolve disputes between mining companies, local governments, and affected communities.

Integrating innovative technologies such as drones, sensors, and remote monitoring systems can also enhance environmental monitoring and enable early detection of illegal or non-compliant activities.

Finally, it is important to strengthen international partnerships by working with other countries and regional organisations to exchange best practices, data, and resources in environmental monitoring, to strengthen national capacities and improve international standards.

5.3 Improvement of land rights

Improving land rights requires fairer mining that respects local communities. Burkina Faso must recognise and protect communities' customary land rights on land affected by mining activities. This involves considering their traditional governance systems and resource management practices. It is also essential to facilitate local communities' access to effective legal remedies in the event of violations of their land rights by mining companies, by providing adequate legal and financial support.

Formal and inclusive consultation mechanisms must be put in place to ensure that the free, prior, and informed consent of local communities is obtained before mining licenses are granted. Strengthening women's rights is crucial and their land rights must be recognised and protected, abolishing discriminatory practices, and ensuring their meaningful participation in decisions regarding mining.

Land demarcation and mapping are necessary to clarify land rights and avoid conflicts related to the overlapping of mining titles and customary rights. In addition, it is essential to raise awareness among local communities about their land rights and the implications of mining, by providing them with training on legal procedures, grievance mechanisms, and available remedies.

Finally, monitoring and evaluation mechanisms must be put in place to monitor the impact of mining activities on the land rights of local communities, allowing their active participation in this process.

5.4 Improving control of foreign investors

Burkina Faso can strengthen its control over foreign investors in the mining sector and the industry in general, by promoting more responsible and equitable exploitation of

natural resources and maximising economic benefits for the country and its citizens through several key actions.

Strengthening transparency requirements by requiring full disclosure of mining contracts, payments made to governments, and ownership structures of mining companies is essential to combat corruption and ensure responsible management of natural resources.

The establishment of mechanisms to monitor financial flows related to foreign investments, in cooperation with international financial institutions and anti-money laundering agencies, is also crucial. It is important to conduct economic impact studies to assess the impact of foreign investments on the national economy, focusing on job creation, tax revenues, and infrastructure development.

Encouraging local participation is another priority, by facilitating access to public markets for local companies, encouraging partnerships with foreign investors, and promoting the transfer of skills and technologies.

The promotion of CSR should be encouraged so that foreign investors support social, educational, and environmental development initiatives in the areas of operation. It is also crucial to strengthen the monitoring of the environmental practices of foreign companies, requiring their compliance with national and international standards on environmental protection and waste management.

Finally, promoting public-private partnerships between government, foreign companies, and civil society organisations is essential to ensure transparent and responsible management of natural resources, ensuring that the benefits of exploitation benefit the entire population.

5.5 General recommendations

To improve legislation and policies regarding soil management, several recommendations should be considered. It will be necessary to strengthen mandatory environmental assessments, requiring more rigorous studies for all investment projects likely to have a significant impact on the environment. Encouraging consultation with local stakeholders is crucial, and this can be achieved by establishing more inclusive consultation mechanisms for local communities and civil society organisations. Environmental safeguards should be established by imposing financial guarantees for foreign investors to cover the potential costs of restoring degraded land. Promoting green technology and good environmental practices should be prioritised, encouraging the transfer of sustainable technologies and practices through tax incentives and subsidies. Additionally, strengthening institutional capacities to improve monitoring and enforcement of environmental and land regulations is vital. Local regulations should be harmonised with international standards on CSR, environmental protection, and human rights to ensure more responsible investments. It is also important to include sustainable

development clauses in investment protection agreements to ensure that foreign investments contribute to national sustainable development objectives while minimising their environmental impact. Strengthening the skills of magistrates, who are often insufficiently trained on environmental issues, is another key consideration, and creating specialised soil courts could be beneficial. An effective strategy, including clear communication regarding soil legislation, should be established to ensure the application of existing laws. Integrating land legislation into national development policies and strategies is essential, as is including soil legislation in the curricula of agricultural and rural training schools. Finally, the development of a specific collection on soil legislation would provide further clarity and support for effective soil management.

Burkina Faso should adopt specific legislation on soil management. This legislation should establish a clear institutional anchor for soil issues, strengthen soil monitoring and data management, and include specific provisions for all soil-related sectors, such as crop production, livestock, mining, industry and infrastructure, water, forests, and agricultural inputs. It is also crucial to include appropriate measures in the event of social or political conflict, as is currently the case with terrorism, and to prioritise incentives rather than punitive measures for soil protection.

In terms of soil management, it is essential to implement several key measures in the legislation. This includes the carrying out of prior or periodic soil or morpho-soil studies, as well as the assessment of land on agricultural, forestry, pastoral, fishing, and wildlife farms, whether public or private.

It is also crucial to regularly conduct physical, chemical, biological, and microbiological analyses of soils, fertilisers, organic amendments, plants and irrigation water.

Water and soil conservation, as well as soil defence, restoration, rehabilitation, and recovery, must be prioritised. In addition, the implementation of integrated soil and crop fertility management plans, periodic monitoring of soil fertility, and the implementation and monitoring of soil impact management plans are essential to ensure land sustainability and productivity.

Legislation should also encourage the addition of micronutrients in fertilisation formulas, the supply of organic matter and consideration of the specific soil quality of each site. It is important to exclude the overdosage of fertilisers and to respect the specific needs of plants. Regarding pesticides, it is essential to use approved products, control their quality, regulate production and import, define the minimum size of plots requiring the use of pesticides, and demarcate pesticide-free zones.

Regarding mining, legislation should enforce land rehabilitation clauses, regulate the use of harmful chemicals, and rigorously carry out environmental impact assessments.

The legislation should also encourage state support for vulnerable groups in land management such as smallholders, the elderly, people with disabilities, widows, migrants, refugees and displaced persons.

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Country report for Cameroon¹

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Abstract

This chapter examines soil protection in Cameroon. It highlights the fragmented and insufficient legal framework addressing soil management, particularly emphasising the weak enforcement of existing laws and the lack of integration of soil protection into broader environmental policies. The chapter explores the implications of these shortcomings, especially their impact on sectors such as agriculture, mining, and industrial development, which contribute to soil degradation and affect food security and ecosystem health.

An analysis of the existing legal framework reveals significant gaps, including outdated soil-related data, inadequate public awareness, and insufficient protection from harmful agricultural practices. Specific attention is given to the 1996 Framework Law on Environmental Management, Decree No. 2011/2584/PM, and sectoral regulations for agriculture, mining, and forestry. The complexities arising from governance issues, such as weak institutional coordination and land tenure problems, further complicate soil protection efforts.

The chapter also presents key critiques of the current system, particularly the lack of community involvement, capacity-building, and enforcement. Recommendations are offered aimed at strengthening the legal framework, improving public education, enhancing enforcement mechanisms, and integrating soil management into broader climate change and land tenure policies. It concludes by emphasising the urgent need for a dedicated soil protection law, particularly given the increasing pressures from industrial development, mining, and unsustainable agricultural practices.

1 This chapter is an update of the one authored by Tamasang, Effala & Tassah (see Reference List).

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Summary

This chapter provides an in-depth analysis of soil protection in Cameroon, identifying the gaps and challenges within the existing legal and regulatory frameworks. While soil protection is addressed through various legal instruments, such as the Constitution, the Framework Law on Environmental Management, and sector-specific laws related to agriculture, mining, and forestry, the overall approach is fragmented and insufficient. For example, Decree No. 2011/2584/PM specifically deals with soil and subsoil

protection but is limited in scope, failing to address crucial areas such as public participation, education, policy advocacy, and monitoring. These gaps weaken the overall effectiveness of soil protection efforts.

Although the 1996 Framework Law acknowledges the importance of environmental information and public participation, its implementation remains weak. Soil-related information is often outdated, inadequate, and not georeferenced, leading to a lack of awareness among the public regarding the severity of soil degradation. Furthermore, key sectors such as agriculture, mining, and industrial development contribute significantly to soil degradation, yet existing laws provide limited protection. For instance, while the 2023 Mining Code indirectly addresses soil protection, its implementation remains ineffective due to the absence of enabling instruments.

Foreign investors, particularly in the mining sector, often neglect environmental concerns, contributing to soil degradation through harmful practices such as mercury use. Additionally, the industrial sector lacks specific legislation to govern its environmental impact, leading to harmful effluent discharges that degrade soil health, especially in cities such as Douala. Agricultural practices, involving the overuse of chemicals and unsustainable methods including slash-and-burn, exacerbate soil degradation. Although regulations on pesticides and fertilisers exist, they are poorly enforced, and illegal practices persist.

Land tenure issues, such as the persistence of colonial-era laws and difficulties in obtaining land titles, further complicate sustainable soil management. Many farmers lack secure land rights, which limits their ability to implement long-term soil conservation measures. As a result, soil protection remains a challenge in Cameroon, with weak legislative frameworks, poor enforcement, and inadequate institutional coordination.

The chapter outlines several recommendations to improve soil protection in Cameroon. First, it suggests that a specific provision for soil protection should be added to the Constitution, in addition to the existing references to natural resources. Legislation should then be passed to integrate soil protection into existing laws, creating clear and effective regulations for implementation. This includes developing detailed soil protection laws, incorporating soil management into educational curricula at all levels, and providing capacity-building programmes for farmers.

Additionally, the chapter advocates for the empowerment of local governance structures, enabling them to enforce soil protection laws effectively. An inter-ministerial committee should be established to ensure better coordination between government departments and facilitate land-use decisions that promote sustainable soil management. Public access to soil-related information should also be improved, alongside strengthening monitoring structures and enforcing Environmental and Social Impact Assessments (ESIAs) to better regulate industrial and agricultural practices.

On land rights, the chapter recommends harmonising land tenure laws to recognise customary land rights as private property. This would provide greater security for local

communities and enable more sustainable soil management practices. It also proposes that foreign investors should be required to pay an environmental tax, particularly in sectors such as mining, to incentivise responsible environmental practices. Furthermore, the government should limit land acquisition by foreign investors to prevent land grabbing and hold investors accountable for their social and environmental impact.

To address harmful agricultural practices, the chapter calls for policies that raise awareness of soil degradation and promote sustainable alternatives. A moratorium on the most damaging farming techniques should be considered, alongside greater public access to soil data to support better decision-making.

Ultimately, the success of soil protection in Cameroon depends on strong political will, backed by effective public advocacy, lobbying, and collaboration with key stakeholders. Gaining the support of politicians and government officials is crucial for creating and implementing comprehensive soil protection laws. Clear and focused messaging, along with sustained public awareness campaigns, are essential to garner support for effective soil protection policies.

In conclusion, while Cameroon's current approach to soil protection faces significant challenges, there is potential for improvement. By implementing the recommendations outlined in this chapter, Cameroon can strengthen its legal frameworks, enhance coordination between institutions, and better address the causes of soil degradation, ensuring the long-term sustainability of its soil resources.

1 Country information

Often referred to as 'Africa in miniature' due to its remarkable geographical and cultural diversity, Cameroon is a key member of the Central African Subregion, a significant political and economic bloc in Africa.

1.1 Geography and climatic conditions

Cameroon, located in Central Africa, spans latitudes 2°N to 13°N and longitudes 9°E to 16°E, stretching from Lake Chad in the north to the Atlantic Ocean in the southwest.² It shares borders with Nigeria, Chad, the Central African Republic, Congo, Equatorial Guinea, and Gabon. Strategically positioned in the Gulf of Guinea, Cameroon serves as a gateway between West and Central Africa, with key deepwater ports in Douala and Kribi supporting regional trade and access for landlocked countries such as Chad and the Central African Republic.³

2 Neba (1987: 2).

3 Ngoh (1996: 3); Yahmed et al. (2007: 18); Tajoche (2008: 12).

Covering 475,442 km², Cameroon features diverse climates and landscapes.⁴ It experiences equatorial and tropical climates, with high temperatures year-round.⁵ The equatorial climate dominates the southern regions, with heavy rainfall and a mix of wet and dry seasons, while the tropical climate includes humid and dry subtypes, found in the highlands, plateaus, and northern lowlands.⁶ Rainfall decreases from south to north, with the north experiencing a drier Sahel climate.

1.2 Economy

Cameroon's economy is predominantly agro-based, with nearly 70% of the population engaged in agriculture.⁷ It relies heavily on exporting unprocessed primary commodities, while the industrial sector remains underdeveloped. Rapid urbanisation has driven growth in the service sector. Once among Africa's fastest-growing economies following independence in 1961, the country experienced economic decline due to falling export prices, an overvalued currency, and mismanagement, resulting in rising poverty.⁸ However, initiatives such as the IMF's Heavily Indebted Poor Countries Programme and Cameroon's Growth and Employment Strategy Paper (GESp) aim to revive economic growth.

In 2018, Cameroon's gross national product (GNP) was USD 36.37 billion, a 10.66% increase from 2017, while public debt reached 35% of GDP, driven by large-scale infrastructure projects.⁹ Foreign direct investment (FDI) remains low compared to the country's potential, with most investment originating from the European Union and China, focusing on sectors such as mining, oil, and infrastructure.¹⁰ China's significant contributions include the Kribi Port and the Memve'ele Hydroelectric Dam. Despite its potential, Cameroon struggles to attract FDI due to corruption, inadequate infrastructure, high taxes, and a challenging business environment, ranking 167th out of 190 in the 2020 Doing Business index.¹¹

4 Neba (1987: 8).

5 Ayonghe (1999: 19).

6 Dobgima (2008: 238).

7 Tassah (2018: 3).

8 Ngoh (2019: 2); Mbu (2014: 21).

9 See <https://www.macrotrends.net/countries/CMR/cameroon/gnp-gross-national-product>, accessed 3 October 2019; <https://www.businessincameroon.com/finance/0705-9098-cameroon-public-debt-reached-xaf7-494bln-in-q1-2019-35-of-gdp>, accessed 19 July 2019.

10 See <https://en.portal.santandertrade.com/establish-overseas/cameroon/investing>, accessed 23 May 2019.

11 See https://www.indexmundi.com/Cameroon/economy_profile.html, accessed 28 January 2021; <https://archive.doingbusiness.org/content/dam/doingBusiness/country/c/cameroon/CMR.pdf>, accessed 16 December 2024.

1.3 Society

Population data for Cameroon is inconsistent. One source estimates the population at 24 million, with a density of 50.5 people per km², while another gives a figure of 40.8 people per km² across 475,442 km².¹² Population distribution is uneven, with high concentrations in urban centres including Douala, Yaoundé, and Bafoussam, and areas such as the Western Highlands and Coastal Lowland. These regions have fertile soil, a strong transport network, and industrial concentrations.

Cameroon's adult literacy rate stood at 75% in 2015, a significant increase from 41.2% in 1976.¹³ Education has expanded at all levels, particularly in secondary and higher education.¹⁴

Cameroon guarantees religious freedom, with Christianity, Islam, and traditional religions being the main practices.¹⁵ Christianity is the dominant religion, with the Roman Catholic Church comprising 39.2% of the population, followed by Protestantism (28.1%) and Islam (19.5%).¹⁶ Traditional African religions account for 4.3%, and other beliefs including atheism and Hinduism make up smaller percentages. These religious groups influence cultural practices and national holidays, with large land acquisitions by Christian denominations for religious purposes.

1.4 Information on the organisational structure of Cameroon

Cameroon has three main branches of government: the Bicameral Legislature, the Judiciary, and the Executive. While the country is officially a democracy, it has been dominated by a strong, centralised government led by the President since 1972. Although Cameroon was once a federal system, it is now a decentralised unitary state, according to Article 1(2) of the Constitution. The country is divided into a central government and ten regions.¹⁷

12 National population census data, 2005; BUCREP (2010: 19).

13 See <https://bit.ly/3s9dtau>, accessed 19 July 2019.

14 Republic of Cameroon (2013).

15 See <https://www.studycountry.com/guide/CM-religion.htm>, accessed 19 July 2019.

16 See <https://www.worldatlas.com/articles/religious-beliefs-in-cameroon.html>, accessed 28 January 2021.

17 See Art 1(2) of the Constitution instituted by Law No. 96/06 of 18 January 1996 to amend the Constitution of 2 June 1972, amended and supplemented by Law No. 2008/001 of 14 April 2008.

1.4.1 Legal system and legal tradition

Cameroon is a bilingual and bijural country, with two legal systems operating side by side.¹⁸ Its legal system, a legacy of colonialism, is unique in that it combines English common law, French civil law, and customary law. These systems often coexist, sometimes in tension. However, Cameroon is actively working towards harmonising the laws from both legal traditions, representing the major English and French cultural influences.

1.4.2 Competence of legislation

In Cameroon, both the legislative and executive powers contribute to the creation of legal acts.¹⁹ Article 26 of the Constitution grants Parliament the power to legislate, while Article 27 gives the executive the authority to issue regulations to implement legislation. The government can also issue regulations on matters not reserved for Parliament. Additionally, Article 28 allows Parliament to empower the President to legislate by ordinance for specific purposes and timeframes. The legislative body drafts and adopts bills, while the President promulgates them into law. The executive has exclusive authority over regulatory acts.

1.4.3 Competence of law enforcement

In Cameroon, law enforcement is the responsibility of the executive and judiciary, supported by law enforcement officials such as the national police, gendarmerie, bailiffs, and the military. However, law enforcement is hindered by widespread corruption, bribery, and delays in court procedures, with particularly severe issues in the judiciary and finance sectors.²⁰ The executive is tasked with implementing the law at both central and decentralised levels, with the assistance of government departments, regional entities, local councils, and traditional authorities, as outlined in the Constitution (Article 57(2)) and various laws on regions,²¹ local councils,²² and chieftaincy.²³

18 See https://www.nyulawglobal.org/globalex/Cameroon1.html#_The_Cameroonian_Legal, accessed 23 May 2019.

19 See Arts 14(1), 8(8), 26 & 28 of the Constitution.

20 See <https://www.business-anti-corruption.com/country-profiles/cameroon/>, accessed 23 May 2019.

21 Law No. 2004/019 of 22 July 2004 fixing the rules applicable to regions.

22 Law No. 2004/018 of 22 July 2004 fixing the rules applicable to councils.

23 Decree No. 77/245 of 15 July 1977 to organise Chiefdoms. See Arts 19, 20(1)-(2) & 21.

1.4.4 The Constitution, statutory, and customary law: Role of traditional entities

Although the Constitution does not explicitly mention the role of traditional entities in customary law, Article 1(2) affirms that Cameroon recognises and protects traditional values that align with democratic principles, human rights, and the law. These traditional values can be understood as customary law, which is upheld and enforced by traditional entities. The role of these entities is further acknowledged in the 2011 Judicial Organisation Ordinances and the 1977 Law on Traditional Chieftaincies.

2 Soil degradation

2.1 The state of the environment

The environment is crucial for the survival of many Cameroonians, supporting activities such as agriculture, grazing, timber and non-timber forest exploitation, mining, and fishing. Cameroon's diverse climate has created an environment that varies across the country. Overall, environmental degradation remains relatively low, though there are significant differences in regions. Large-scale degradation is most prevalent in the northern Sahel zone and the Western Highlands, primarily due to continuous land use without adequate fallow periods.²⁴

2.2 Different types of soil and their vulnerability in terms of degradation

Soil types in Cameroon vary due to topography, rainfall, and natural occurrences. The soils are classified into zonal, azonal, and intrazonal categories.²⁵ Zonal soils, such as ferralitic and ferruginous soils, are influenced by climate.²⁶ Ferralitic soils are reddish or brownish and found in the southern region's Equatorial Rainforest, characterised by heavy rainfall and high temperatures.²⁷ These soils are low in nutrients due to rapid decomposition and leaching. Ferruginous soils, found in the Adamawa Plateau and Northern Lowlands, are hard, skeletal, and have low nutrients, suitable for grain crops including groundnuts and maize.²⁸

Azonal soils, including volcanic and alluvial soils, are young and rich in minerals.²⁹ Volcanic soils, found around Mount Cameroon and the Western Highlands, are fertile

24 Fogwe et al. (2001: 9).

25 Ndzeidze (2008: 6–7 & 146); Dobgima (2008: 323); Neba (1987: 74).

26 Dobgima (2008: 120–123, 134–136 & 323); Nchangvi (2010: 46–47 & 199).

27 Neba (1987: 28–30 & 71).

28 See Nchangvi (2010: 51–62 & 199).

29 Ndzeidze (2008: 146).

and support a variety of crops, including cocoa and maize.³⁰ Alluvial soils, deposited by rivers, are found in the Coastal Lowlands, the Logone Valley, and other flood plains, and are highly fertile for crops including rice.³¹ Intrazonal soils, such as hydromorphic soils, occur in waterlogged areas such as coastal swamps and wetlands.³²

2.3 Main drivers of soil degradation

Cameroon's soils vary in quality, with some naturally poor and others degraded due to human activities. Soil degradation refers to a decline in soil health, reducing the ecosystem's ability to provide essential goods and services. Degraded soils fail to deliver the normal benefits expected from them in their ecosystem.³³

2.3.1 Agriculture

Cameroon's economy is primarily agrarian, with over 80% of the population relying on agriculture, mainly through subsistence small-scale farming, which is a key driver of soil degradation.³⁴ Common practices such as slash-and-burn, bush burning, and the ankara system degrade soil quality. Slash-and-burn farming involves clearing forests, burning plant debris, and cultivating land temporarily before allowing it to fallow. This practice harms vegetation and soil carbon stocks, contributing to soil degradation and climate change.³⁵

The ankara method, used in the Western Highlands, involves burning dry plant waste to improve soil fertility. However, it leads to carbon emissions and long-term soil fertility loss.³⁶ Agriculture in these highlands also faces erosion from intense rainfall and overgrazing, further degrading soil quality.³⁷ In the South Low Plateau, bush fallowing and shifting cultivation are common, while the northern part relies on monocropping, which lacks proper soil regeneration. Traditional grazing methods also contribute to overgrazing and soil erosion.

In the Coastal Lowlands, large-scale plantations rely heavily on chemical fertilisers and pesticides, harming both soil and underground water, while small-scale farming

30 See Neba (1987: 33–37 & 74); Dobgima (2008: 140); Ndzeidze (2008: 12–24).

31 See Nchangvi (2010: 62–66 & 199); Neba (1987: 30–38); Dobgima (2008: 145–148); Ndzeidze (2008: 26–29 & 146).

32 See Neba (1987: 28–29); Dobgima (2008: 146–148 & 323).

33 FAO (2015: 71).

34 FAO (2009: 192).

35 See Pollini (2015: v); Ministry of the Environment and Nature Protection & FCPF (2008: 4).

36 See Njoh et al. (2018: 24).

37 Fogwe et al. (2001: 10).

suffers from declining soil fertility and overuse. The growing population and demand for food have reduced fallow periods, worsening soil degradation across the country.

2.3.2 Mining

Cameroon is rich in mineral deposits, with major mining sites such as iron ore in Mbalam and Betare-Oya, bauxite in Fongo-Tongo, and limestone around Fugil Hill.³⁸ However, large-scale mining has a detrimental impact on soil quality. Mining releases toxic chemicals and acidic water, contaminating the soil and making it unsuitable for plant growth. It also disrupts the nitrogen flow in soil ecosystems, leading to further degradation. Mining activities cause erosion, sinkholes, and additional soil contamination from waste products.

The exploitation of mineral resources generates significant solid and liquid waste, which is often not treated before disposal, exacerbating soil degradation. The construction of a railway to facilitate mineral transport has also resulted in deforestation, exposing soils to further degradation in the affected regions. Mining companies in Cameroon frequently operate without adequate environmental protection measures, leading to serious negative impacts on soil and the surrounding ecosystem.

2.3.3 Wildfires, farming, hunting, and cattle rearing

Human-induced wildfires are a major driver of soil degradation in Cameroon. Uncontrolled fires cause extensive forest destruction, degrade topsoil, and expose land to erosion from wind and rain. Fire is commonly used by communities for subsistence farming and hunting.

With over 30% of the country's land used for pastoral activities, including six million cattle and seven million small ruminants, livestock farming is widespread.³⁹ As farmers expand grazing areas, especially in mountainous regions, they resort to burning forests to regenerate vegetation for livestock, further exacerbating soil degradation. Climate modelling predicts that the frequency and severity of wildfires will increase due to climate change, worsening the impact on soil and ecosystems.⁴⁰

38 Lambi (2009: 28); Cameroon Tribune No. 8036/4325 of 18 January 2004.

39 Forest Carbon Partnership Facility Cameroon (2013: 39).

40 CPF (2008: 13).

2.3.4 Industrial sites

Cameroon is largely industrially underdeveloped, with most raw materials extracted from the country undergoing minimal processing. Key industrial zones include Douala, Yaoundé, Mbandjock, Belabo-Mbalmayo, and the Western Highlands. However, environmental management in many of these industries remains inadequate, with poor implementation despite political promises. For example, the Chad-Cameroon oil pipeline has caused oil spills, further degrading the environment.

Most industries in Cameroon lack international environmental certifications such as ISO 14001, which ensures proper management of environmental impacts. As a result, industries emit pollutants that contribute to soil degradation, including air pollutants causing acid rain and untreated chemical waste.⁴¹ Additionally, refinery activities, including those at SONARA in Limbe, contribute to soil and marine pollution through the disposal of sludge.⁴²

2.3.5 Urban sprawls

Cameroon is rapidly urbanising, particularly in rural areas, leading to deforestation and the conversion of forestland into settlements and agricultural spaces to meet growing food demands. This expansion exposes soil to erosion, as poor farming practices and excessive use of chemical fertilisers degrade soil quality.

Urban sprawl and unsustainable development have also led to wetland degradation, as wetlands are reclaimed for agriculture, housing, and industry.⁴³ This conversion threatens the ecosystem services provided by wetlands, such as nutrient cycling, soil formation, and erosion control. The absence of a comprehensive legal framework for wetland management exacerbates this issue, and the population's limited understanding of the value of wetlands further contributes to their degradation. Protecting wetlands is essential for soil protection, as they play a critical role in preventing soil erosion and maintaining soil health.

2.3.6 Demographic growth rate

Cameroon is experiencing rapid population growth, particularly in rural areas, driven by policies from the 1960s to 1980s that encouraged population expansion for economic development and national pride.⁴⁴ This growth has led to increased agricultural

41 Ekane & Oben (2001: 120); Fogwe et al. (2001: 8).

42 Fogwe et al. (2001: 14).

43 Kang (2013: 3); see also Kwame (2006: 10).

44 Bella (1993: 22).

extensification and unsustainable grazing practices to meet food demands. As a result, forests and wetlands are being cleared for farming and housing, exposing the land to erosion and landslides, particularly on hilly terrain. This demographic growth is contributing to environmental degradation and declining soil productivity. In 1984, Cameroon officially shifted its population policy to focus on improving the quality of the population rather than encouraging large families.⁴⁵

2.3.7 Weather and climate factors: The symbiotic relationship between soil and climate change

Weather refers to short-term atmospheric conditions in a specific location, while climate is the long-term average of these conditions. Climate change, driven by greenhouse gases including CO₂ and CH₄, impacts soil in various ways. Direct effects include changes in organic carbon transformations, nutrient cycling, and increased erosion from intense rainfall.⁴⁶ In Cameroon, climate variations affect soil degradation, with droughts and high evapotranspiration in the north, leaching in the south, and erosion in the western highlands. Indirect effects come from climate change adaptation, which alters soil processes. Soils, as carbon sinks, play a crucial role in mitigating climate change by storing carbon.⁴⁷ Protecting soils is essential to reduce GHG emissions and combat climate change.⁴⁸ However, practices such as ploughing, aggressive tillage, and draining wetlands can release stored carbon, exacerbating climate change.

2.3.8 Topographic constraints

Cameroon's topography is diverse, comprising the Coastal Lowlands, South Cameroon Low Plateau, Western Highlands, Adamawa Plateau, and Northern Lowlands. This variation affects soil quality and quantity.⁴⁹ The Western Highlands, with steep volcanic slopes, experience erosion, landslides, soil creep, and rockfalls, which degrade soil. In contrast, low-lying areas such as the Northern Lowlands and Coastal Plains, as well as depressions such as the Ndop, Mbaw, and Santchou Plains, have fertile alluvial soils. These soils are replenished by streams and rivers that wash them down from the highlands.

45 Ibid.: 24.

46 Hamidov et al. (2018).

47 Brevik (2012: 1).

48 Pareek (2017: 136); Zomer et al. (2017: 1).

49 Lambi (2000: 139).

2.3.9 Land-grabbing

Land-grabbing refers to the large-scale acquisition or leasing of land, often in developing countries, by domestic and transnational companies, organisations, and individuals.⁵⁰ This practice is linked to soil degradation, as large agro-investors, in collusion with governments, appropriate land and use it unsustainably. In rural areas, land is mostly held under customary tenure, but this no longer guarantees security, as lands are forcefully acquired by governments, powerful corporations, and some traditional leaders. The influx of investors in Cameroon, acquiring vast land for plantations, increases pressure on soils through deforestation, the use of harmful chemicals, and poor waste management, driving soil degradation.

2.3.10 Other causes or drivers of soil degradation

Soil degradation in Cameroon is driven by deforestation, pollution, compaction, salinisation, erosion, loss of organic matter, and migration.⁵¹ Deforestation exposes soils to high temperatures, increasing evaporation and erosion. Industrial pollutants, agro-chemicals, and poor waste management in coastal and agro-industrial zones contribute to soil contamination. Soil compaction in the northern Sahel, due to cattle herding and drought, leads to barren landscapes. Salinisation affects the coastal lowlands, with salt-water intrusion threatening soil and groundwater. Soil erosion, exacerbated by human activities, is a major concern in the Western Highlands.⁵² Loss of organic matter, due to increased chemical use and reduced soil restoration, lowers soil productivity. Migration, driven by socio-political unrest and environmental changes, further pressures land and contributes to deforestation and soil degradation, especially in regions affected by internal displacement.⁵³

2.4 Key actors in soil degradation

Soil degradation in Cameroon is driven by multiple actors, making it challenging to pinpoint a single cause. Foreign investors, particularly in agriculture and mining, play a significant role. The mining sector leaves large areas of land barren, contributing to soil degradation. Agro-industrial operations, especially in the Coastal Lowlands, use harmful chemicals that degrade soil quality. Small-scale farmers, reliant on soil for

50 See Fru (undated: 3).

51 Ekane & Oben (2001: 130); Sanz et al. (2017: 49).

52 Tassah (2019).

53 McLeman (2017: 3); see also IOM & UNCCD (2019: 1 & 6); Olimova & Olimov (2012: 8).

their livelihoods, also contribute to degradation through unsustainable farming practices.

Industries in Cameroon, particularly in urban centres such as Douala, further exacerbate soil degradation through the discharge of effluents and waste.⁵⁴ Weak enforcement of environmental laws, corruption, and poor urban planning have compounded the problem. These actors—foreign investors, large- and small-scale farmers, and industrial operators—are all key contributors to soil degradation in Cameroon.

2.5 Conclusion

The drivers of soil degradation in Cameroon vary in importance, with some having a more significant impact than others. The primary causes include mining and industrial operations, which lead to soil contamination; unsustainable agricultural practices by small-scale farmers; pesticide use by both small- and large-scale farmers; urbanisation, particularly on wetlands; climate change and weather patterns; wildfires from farming, hunting, and cattle rearing; topographic constraints; and land-grabbing.

Other contributing factors include deforestation, contamination from industrial chemicals and pesticides, soil compaction, salinisation, erosion, and the loss of organic carbon and soil biodiversity. Key actors in soil degradation include foreign investors, small- and large-scale farmers, and industrial operators.

3 General information on public soil legislation

Soil is essential for life on earth and serves as the foundation of biodiversity.⁵⁵ Its ecological and socio-economic functions make its legal protection crucial. In Cameroon, soil protection and management are addressed through a range of legal instruments, rather than a single law. The legal framework is organised hierarchically, including the Constitution, international treaties, parliamentary laws, presidential decrees, and various ministerial and local orders. While multiple public administrations oversee soil management, the Ministry of Environment, Protection of Nature and Sustainable Development (MINEPDED) is the primary authority responsible for soil protection.

⁵⁴ Fogwe et al. (2001: 8).

⁵⁵ Hannam & Boer (2004: 1).

3.1 Policy frameworks, government strategies, action plans, etc.

The government of Cameroon has developed soil protection policies aimed at safeguarding living beings and the environment, particularly in areas prone to soil degradation. National policy frameworks, strategies, and action plans for soil protection align with international instruments focused on sustainable soil management. This section will explore both international and national policies relevant to soil protection in Cameroon.

3.1.1 International policies relevant to soil protection

3.1.1.1 The land degradation neutrality initiative

At its 12th Conference of the Parties (COP), the United Nations Convention to Combat Desertification (UNCCD) defined land degradation neutrality (LDN) as a state where the quantity and quality of land resources necessary for ecosystem functions and services, and to enhance food security, remain stable or improve over time and across ecosystems.⁵⁶ The goal of LDN is to sustain and improve natural land and its ecosystem services.⁵⁷ The UNCCD provides an international framework for developing and implementing the LDN concept, which includes efforts to protect soil. The Science–Policy Interface of the UNCCD developed the ‘Scientific Conceptual Framework for Land Degradation Neutrality,’ offering a scientific approach for planning, implementing, and monitoring LDN initiatives at national or regional levels. Key actions to achieve LDN include sustainable land management practices that prevent or mitigate degradation, and efforts to restore degraded lands. LDN implementation is carried out at the landscape level through integrated land-use planning, aiming to avoid further loss of land-based natural capital.⁵⁸

3.1.1.2 The 2030 Agenda for Sustainable Development instituting the Sustainable Development Goals

Adopted by the United Nations General Assembly, the global 2030 Agenda for Sustainable Development consists of 17 Sustainable Development Goals (SDGs) with 169 associated targets, designed as integrated and indivisible commitments for both developing and developed countries. The most relevant SDG for soil protection is Goal 15, which aims to protect, restore, and promote sustainable use of terrestrial ecosystems,

⁵⁶ Decision 3/COP.12, UNCCD, 2015.

⁵⁷ See Cowie et al. (2017: 25).

⁵⁸ See Orr et al. (2017: 3).

combat desertification, halt land degradation, and reverse biodiversity loss. Specifically, Target 15.3 calls for achieving a land degradation-neutral world by 2030, making it a critical target for soil protection.

Other SDGs linked to soil protection include Goal 12, which promotes sustainable consumption and production patterns; Goal 13, which urges urgent action to combat climate change; and Goal 17, which focuses on strengthening the means of implementation and revitalising global partnerships for sustainable development. Soil plays a key role in climate change mitigation as a carbon sink, and maintaining soil carbon is a cost-effective way to limit climate change. Therefore, preventing soil degradation is crucial for mitigating climate change, and these SDGs are essential for achieving sustainable soil management.

3.1.1.3 The African Union Vision 2063: The Africa We Want

The African Union (AU) Vision 2063, also known as Agenda 2063: ‘The Africa We Want’, adopted in September 2015, is Africa’s strategic framework for transforming the continent into a global powerhouse by 2063.⁵⁹ It aims for inclusive and sustainable development, reflecting the pan-African ideals of unity, self-determination, freedom, and collective prosperity. Agenda 2063 outlines seven Aspirations for the future, with Aspiration 1 being most relevant for soil protection. This aspiration seeks a ‘prosperous Africa based on inclusive growth and sustainable development,’ though it does not explicitly mention soil.

Paragraph 10 of Agenda 2063 highlights Africa’s goal to harness its resources for sustainable development, ensuring that its natural environments and ecosystems, including soil, are healthy, valued, and protected. In Paragraph 72(b), there is a focus on accelerating actions to ensure effective land planning, tenure, and management systems, which are essential for soil protection.

3.1.1.4 The Regional Implementation Plan for the African Soil Partnership

Cameroon is part of the Regional Implementation Plan for the African Soil Partnership (AfSP), adopted in 2016, which highlights the importance of soil as a key resource in sub-Saharan Africa. The AfSP calls for strong support from governments and regional entities to achieve sustainable soil management, structured around five pillars: promoting sustainable soil management for protection, conservation, and production; encouraging investment, policy, education, and technical cooperation; supporting targeted soil research; improving soil data collection and integration; and harmonising

59 See <https://au.int/en/agenda2063/overview>, accessed 5 June 2019.

methods for sustainable soil management. The plan also prioritises addressing soil degradation, promoting sustainable practices, enhancing soil data, developing climate resilience, training experts, and establishing networks to support soil health.

3.1.1.5 The Green Wall for the Sahara Initiative

The Green Wall for the Sahara Initiative, launched in December 2006 by the AU in collaboration with the FAO, UNEP, UNCCD, and others, was adopted by African heads of state in January 2007. The programme spans several countries, including Algeria, Tunisia, Libya, Egypt, Mauritania, Mali, Niger, Chad, Sudan, Eritrea, Ethiopia, Djibouti, Cameroon, Nigeria, Benin, Burkina Faso, Senegal, Gambia, Western Sahara, and Cape Verde. Its goals are to slow the Sahara Desert's expansion, enhance environmental sustainability, control land degradation, promote integrated natural resource management, conserve biodiversity, reduce poverty, and create jobs.⁶⁰ These objectives are directly linked to sustainable soil management.

3.1.1.6 Other regional and sub-regional commitments of Cameroon relevant to sustainable soil management

Cameroon participates in sub-regional initiatives relevant to sustainable soil management, including within the Economic Community of Central African States (ECCAS), Central African Economic and Monetary Community (CEMAC), and the Congo Basin, under the Central African Forests Commission (COMIFAC). COMIFAC's treaty commits member states to prioritise forest conservation and sustainable management in national development programs, including agriculture, which impacts soil protection.⁶¹ COMIFAC also adopted the Sub-regional Action Plan for Combating Land Degradation and Desertification (PASR-LCD) and has a thematic working group on land degradation.⁶² Additionally, the revised 2015 COMIFAC Convergence Plan includes priorities such as conserving biodiversity and combating climate change and desertification, both relevant to the soil. Cameroon, as part of the COMIFAC Convergence Plan, is involved in combating land degradation and implementing strategies for sustainable forest and soil management.⁶³ Through its subregional programs, COMIFAC integrates the UNCCD's objectives into regional frameworks, promoting

60 For information on the Green Wall for the Sahara Initiative Commission of the African Union, see <https://www.unccd.int/actions/great-green-wall-initiative>, accessed 31 January 2021.

61 Treaty on the Conservation and Sustainable Management of Forest Ecosystems in Central Africa, 2005.

62 The Convergence Plan for the Conservation and Sustainable Management of Forest Ecosystems in Central Africa, February 2005, revised and adopted in July 2015.

63 Hannam & Boer (2004: 1); GEF (2007: 34).

sustainable agriculture and natural resource management.⁶⁴ While these instruments may not directly address soil, they indirectly protect it by focusing on land, natural resources, and ecosystems.

3.1.2 National policies relevant to soil protection

3.1.2.1 The National Environmental Management Plan

The National Environmental Management Plan (NEMP), established in 1996, guides strategies for environmental protection and resource management to promote sustainable development.⁶⁵ Its five priorities include land-use management, natural resource sustainability, land restoration, soil fertility improvement, capacity-building, and shared resource management. NEMP has important implications for soil management, especially in restoring degraded land and improving soil fertility. However, it is a non-binding policy, with no legal enforceability. Restoration methods vary by type of degradation, and while the NEMP addresses soil improvement, it lacks specific standards to measure successful restoration. This is a major weakness, and updating the NEMP to include restoration standards is essential.

3.1.2.2 Intended nationally determined contributions of Cameroon

Ahead of the 2015 Paris COP, countries submitted Intended Nationally Determined Contributions (INDCs) outlining their climate actions, which became binding Nationally Determined Contributions (NDCs) upon ratification of the Paris Climate Change Agreement (PCCA). On 28 September 2015, Cameroon pledged to reduce carbon emissions by 32% by 2035, compared to business-as-usual levels, with support from international financing, capacity-building, and technology transfer.⁶⁶ Soils, recognised as natural carbon sinks, were highlighted in Cameroon's NDC as vital for achieving this target, promoting better soil management practices including restoration. However, the 2021 updated NDC falls short, offering only a passive mention of sustainable soil management in the context of climate mitigation.⁶⁷

64 UN Economic Commission for Africa (2007: 39).

65 See <http://theredddesk.org/countries/plans/national-plan-environmental-management-cameroon>, accessed 3 June 2018.

66 See Republic of Cameroon (2015: 4-5).

67 See République du Cameroun, Nationally Determined Contribution (NDC) – Updated in September 2021 and submitted on 11 October 2021.

3.1.2.3 The National Action Plan for the Fight Against Desertification

The National Action Plan for the Fight Against Desertification (NAP-FAD), established in 2007 by the government with MINEPDED, aims to combat desertification and protect soils.⁶⁸ Ratified in 1994, Cameroon committed to addressing desertification through this plan, to reverse degradation to fight poverty and promote sustainable development.⁶⁹ The plan focuses on restoring degraded lands and improving soil fertility, especially in the Sudano-Sahelian zone, particularly in the North and Extreme North regions. While progress is ongoing, challenges remain in achieving these objectives. The NAP-FAD also identifies the causes and effects of soil degradation, and several projects have been implemented to address these issues. However, desertification leads to significant environmental and social problems, such as reduced agricultural productivity, food insecurity, biodiversity loss, and increased poverty, with an estimated CFA F100 million losses annually.

3.1.2.4 The National Biodiversity Strategy and Action Plan II

The National Biodiversity Strategy and Action Plan II (NBSAP II) offers a renewed approach to reversing biodiversity loss.⁷⁰ Since soil is a fundamental component of biodiversity, NBSAP II is directly relevant to soil protection.⁷¹

3.1.2.5 The Readiness Plan Idea Note and REDD+ Readiness Preparation Proposal of Cameroon

Cameroon's Readiness Plan Idea Note (R-PIN, 2008) and REDD+ Readiness Preparation Proposal (R-PP, 2013) were developed for implementing the REDD+ initiative, aimed at reducing emissions from deforestation and forest degradation. REDD+ incentivises sustainable forest management in developing countries through financial rewards for emissions reductions. Although not directly addressing soil, both the R-PIN and R-PP highlight slash-and-burn agriculture, extensive livestock breeding, and bush-fires as major contributors to deforestation, greenhouse gas emissions, and soil degradation, including decreased fertility and desertification.⁷² Therefore, these documents are relevant for soil protection in Cameroon.

68 See Republic of Cameroon (2012: 43).

69 GEF (2007).

70 See Republic of Cameroon (2012: 43).

71 Hannam & Boer (2004: 1).

72 See Ministry of the Environment and Nature Protection & FCPF (2008); Forest Carbon Partnership Facility Cameroon (2013).

3.1.2.6 Cameroon's National REDD+ Strategy

The National REDD+ Strategy emphasises soil protection through landscape restoration in northern regions, focusing on restoring degraded soils, setting up private wood energy plantations, regaining soil fertility, and protecting water catchments with agro-forestry techniques.⁷³ It promotes sustainable agriculture by advocating for practices that reduce deforestation and degradation, such as growing food crops with low environmental impact, carbon-conserving systems including cocoa and coffee, improved seed use, bio-fertilisation, and the recovery of fallow land. The strategy also supports agro-sylvo-pastoral management, including securing pastures to reduce bushfires.

3.1.2.7 The 1995 Indicative Land Use Framework or Zoning Plan

Soil is a multi-use resource that requires coordinated management to prevent environmentally unsustainable practices that harm soil quality. The land-use framework, adopted in 1995, includes provisions for permanent forest estates, which help protect soil in these areas.⁷⁴ However, the zoning plan is considered outdated and poorly consulted with local communities.⁷⁵ Despite government efforts to create a land-use policy, these initiatives fall short, particularly in addressing soil protection. A comprehensive land-use plan is needed to effectively protect the soil.

3.1.2.8 Other relevant national policy instruments for soil protection in Cameroon

Key policy documents relevant to soil protection in Cameroon include the 1995 National Forest Action Programme, the 2035 Vision, Poverty Reduction Strategy Papers (PRSPs) 2003–2010, and the GESP 2010–2020. These documents emphasise modernising the agricultural sector and addressing rural poverty, but they also create soil pressures that could lead to degradation. Cameroon's 2009 climate change position paper and the NAP-FAD are aligned with international policies promoting sustainable soil management, though no specific legislation addresses the Land Degradation Neutrality

73 Cameroon's National Strategy for Reducing Emissions from Deforestation and Forest Degradation, Sustainable Management of Forests, Conservation of Forest and Enhancement of Carbon Stocks, (National REDD+ Strategy), 2018.

74 See Arts 1(2) & 6(2) of Decree No. 95/678/PM of 18 December 1995 to institute an indicative land use framework. In addition to Decree No 95/678, there are additional texts addressing zoning and land tenure, including Decision No. 135/D/MINEF/CAB of 26 November 1999 establishing the procedures for the classification of the forests in the permanent forest areas of the Republic of Cameroon; Ordinances No. 74/2 and No. 74/1; See <http://theredddesk.org/countries/policies/indicative-land-use-framework-cameroon>, accessed 17 October 2017.

75 See <http://www.forestlegality.org/risk-tool/country/cameroon-0>, accessed 31 January 2021.

(LDN) initiative. The National Development Strategy 2020-2030 (SND30) includes priority actions for soil protection, such as promoting responsible agricultural practices, soil restoration, reforestation, and the development of soil maps. The SND30 outlines key actions to ensure sustainable soil management and climate change adaptation, thus, supporting soil protection goals.

3.2 Relevant international law for the protection of soils

Cameroon's national legislation and policies align with its international commitments, though there is no specific global soil instrument. While an early proposal for a 'convention on sustainable use of soil' was made in 1998, international soil regulation remains fragmented.⁷⁶ However, existing global, regional, and subregional instruments contain provisions relevant to soil protection.

Article 45 of the Cameroonian Constitution stipulates that "duly approved or ratified treaties and international agreements" override national laws, implying the direct applicability of international law without the need for national transposition measures. This principle of 'direct applicability' ensures that international law is integrated into the national legal system, and the principle of 'primacy' ensures that international law prevails in case of conflicts with national law.

Cameroon is a signatory to various international instruments for soil protection, though these agreements differ in nature, with some being binding ('hard law')⁷⁷ and others non-binding ('soft law').⁷⁸

3.2.1 Relevant international soft law commitments

While not legally binding, soft law instruments have significantly influenced the development of binding "hard law" agreements. Relevant international soft law instruments for soil protection, to which Cameroon is a signatory, include:

- The Stockholm Declaration (1972), which laid the foundation for environmental governance.
- The Rio Declaration on Environment and Development and Agenda 21 (1992), which emphasise sustainable development principles.
- The Future We Want (Rio+20 Conference, 2012), which reaffirmed commitments to sustainable development.

76 See Boer et al. (2016: 56).

77 Hard law instruments consist of conventions, protocols, covenants, charters, pacts, constitutive instruments, final acts, etc. See Tamasang (2014: 29).

78 Soft law instruments consist of declarations, resolutions, recommendations, directives, statements, guidelines, stipulations, targets, decisions, plans, etc. See Tamasang (2014: 29).

- The 2030 Agenda for Sustainable Development (2015), which includes the Sustainable Development Goals (SDGs) guiding global development, including soil protection.
- The Johannesburg Declaration on Sustainable Development (2002), which furthered the implementation of sustainable practices.

These instruments have shaped global environmental policies, including those related to soil management and conservation.

3.2.2 Relevant international hard law instruments⁷⁹

Relevant international hard law instruments for the protection of soil to which Cameroon is a signatory are the following:

- The United Nations Convention to Combat Desertification, 1994;
- the Convention on Biological Diversity, 1992;
- the United Nations Framework Convention on Climate Change, 1992;
- the Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997;
- the Paris Climate Change Agreement, 2015;
- the Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1998 (as amended in 2004, 2008, 2011, 2013, and 2015);
- the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, 1989;
- the Stockholm Convention on Persistent Organic Pollutants, 2001;
- the African Convention on the Conservation of Nature and Natural Resources, 1968 (revised by the Maputo Convention in 2003);
- the Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, 1991;
- the Convention for the Establishment of the African Centre for Fertiliser Development, 1985;
- the Phyto-Sanitary Convention for Africa, 1967;
- the Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction. Opened for Signature at London, Moscow, and Washington, 1972;
- the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, Geneva, 1992;

79 See also Ruppel & Owona Mbarga (2018: 100).

- the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, New York, 1976;
- the Convention on the Conservation of Migratory Species of Wild Animals, 1979;
- the Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat, 1971;
- the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Montreal, 2000;
- the Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, 1981;
- the Protocol Concerning Co-operation in Combating Pollution in Cases of Emergency, 1981;
- the International Plant Protection Convention, 1951; and
- the African Charter on Human and Peoples' Rights, Banjul, 1981.

3.3 Relevant national legal provisions for the protection of soil

Cameroon lacks a comprehensive and coherent policy or legislation specifically dedicated to soil protection. Instead, relevant provisions are embedded in various legal and policy frameworks, including the Constitution, land tenure regulations, agriculture, environmental and natural resource laws, urban and spatial planning laws, and cross-cutting areas such as environmental and social impact assessments (ESIA), public participation, access to environmental information, and rights to appeal administrative decisions. These scattered legal instruments provide guidelines for soil access, land dispossession, and land use. While they include provisions for soil protection, they also inadvertently incentivise soil degradation, highlighting the strengths and weaknesses of the existing framework in promoting sustainable soil management.

3.3.1 The Constitution

The 1996 Cameroonian Constitution does not contain specific provisions directly addressing soil protection. However, it recognises the broader category of natural resources, which includes soil, as essential for national development.⁸⁰ The Constitution's Preamble establishes the right to a healthy environment and imposes a duty on both citizens and the state to protect and improve the environment. While the

80 Para 3 of the Preamble and Art 26(2)(d)(5) of Law No 96/06 of 20 January 1996 as amended.

Constitution does not provide detailed provisions on soil, this commitment to environmental protection can be interpreted as covering soil conservation.⁸¹

Article 65 clarifies that the Preamble is binding, making the rights and obligations outlined therein enforceable.⁸² Although the Constitution does not explicitly address environmental protection in detail, it grants the legislative power the authority to enact laws concerning natural resources, which includes soil. Thus, while the Constitution does not directly address soil protection, it provides a foundation for legislative actions on environmental and soil management.

3.3.2 Legislation on land tenure (landownership, access, and users' rights)

3.3.2.1 Historical overview of landownership

Landownership significantly affects livelihoods and human development in both urban and rural Cameroon. Historically, land was communally owned by families or villages with traditional leaders as custodians, and it held religious significance.⁸³ However, colonial rule transformed landownership systems. Under German rule (1884-1916), the Crown Lands Act of 1896 gave the state ownership of land, depriving natives of land rights.⁸⁴ France implemented a land registration system, while under British rule, land was divided into regions with native rights protected by traditional rulers.⁸⁵

Post-independence, Cameroon inherited two land tenure systems and attempted to harmonise them through legislation. The 1974 land reforms categorised land into private, national, and public land, allowing government control over land use. Despite these regulations, customary land rights were reduced, and the government maintained supremacy in land ownership. This legal pluralism continues to create power imbalances, with the wealthy and well-connected having easier access to land, while marginalised groups struggle to assert land claims. The conflict between customary and statutory land rights often results in land and soil degradation, as the poor resort to unsustainable practices.

3.3.2.2 Modern landownership

The Constitution of Cameroon guarantees the right to ownership, allowing individuals to use, enjoy, and dispose of property, with deprivation only possible for public

81 Ibid.: Art 26(2)(d).

82 Ibid.: Art 65.

83 Belaunde et al. (2010: 18).

84 See Lemmens (2010).

85 Belaunde et al. (2010: 18).

purposes and compensation as determined by law. However, environmental obligations are not subject to compensation, as the Constitution mandates everyone to protect the environment. Land ownership is recognised through a land certificate, which is difficult for the average citizen to obtain, and the process varies depending on the land's origin.

Public law on land access and use is governed by Ordinances No. 74/1 and No. 74/2 of 6 July 1974, along with several other decrees and regulations, including those on expropriation, indemnities, and land transactions. Key laws also include the 1996 Environmental Management Law and the 1994 Forestry, Wildlife, and Fisheries Law.

Ordinance No. 74/1 categorises land into public lands (for roads, rivers, etc.), private state lands (acquired by the state), and national lands (including untitled lands used by rural communities). National lands are managed by the state for public good, a distinction that can be confusing, especially regarding the concept of “private property of the state.”

3.3.2.3 Acquiring land under statutory law

3.3.2.3.1 Acquiring land from the national domain

In Cameroon, land acquisition occurs through a concession process where the state authorises individuals with development projects to acquire unoccupied land from the national domain. The process is divided into two phases: provisional and final. During the provisional phase, the applicant submits a request to the Department of Lands, which is reviewed by a consultative commission led by the Senior Divisional Officer (SDO). The commission assesses the land and the feasibility of the project and then submits a report to the Minister of Land Affairs. The applicant is granted five years to develop the land according to specified terms (*cahier de charge*). If the conditions are met, the final concession is granted; otherwise, the concession is revoked. The procedure for obtaining a provisional concession includes purchasing fiscal stamps, obtaining a certified copy of the national identity card, paying fees for file opening and application, submitting the concession request, obtaining a Prefectural Order for a site visit, receiving the Ministerial Order for the provisional concession, and paying the land fee. For the final concession, the applicant must submit proof of land development, the SDO conducts a site visit to confirm the development, and upon approval, the applicant receives the Ministerial Order for the final concession, pays the land fee, applies for a land title, and finally collects the title or certificate.

3.3.2.3.2 Acquiring private land of the state

A private estate of the state in Cameroon can be allocated for use or ownership by individuals or legal entities. Sales of state property are only valid after obtaining authorisation and approval from the minister responsible for state property and land affairs. Full payment of the agreed price, following the minister's authorisation, grants the right to subdivide, partition, or transfer the land title. The procedure for acquiring ownership through sale by negotiation involves purchasing fiscal stamps, obtaining a certified copy of a national identity card, paying the application fee, submitting the application for mutual consent, obtaining the Prefectural Order for a site visit, securing Ministerial Authorisation for the sale, paying the land fee, submitting the necessary documents for the land title, and finally collecting the title.

3.3.2.3.3 Acquiring private land of an individual

A land title is the official proof of land ownership. Land transactions in Cameroon can occur through transfer or parcelling out, with land titles being transferred after full cession, either with or without obligations. Successive sales or divisions lead to parcelling out of the original title for the benefit of the buyers. Cameroonian law requires all land transactions to be done through a notary, who registers documents at the taxation office and submits applications for land titles. A land certificate, the sole proof of ownership, is issued after a Deed of Conveyance is signed, following due diligence by a property attorney.⁸⁶ Notary officers draft deeds, conduct site surveys, and ensure no encumbrances. Vendors must disclose all relevant information before a sale to avoid legal penalties.

Land certificates are governed by Decree No. 76/165 of 1976 and its 2005 amendment. A Deed of Conveyance is not the same as a land certificate. The process to obtain a land certificate involves applying with a survey plan, paying a processing fee, boundary demarcation, cadastral mapping, publication, and eventual issuance. For transferring land titles, a technical file must be obtained, involving the purchase of fiscal stamps, completing necessary forms, and payment of fees. Similarly, parcelling out land requires buying fiscal stamps, submitting applications, and collecting the technical file.

The process of obtaining land titles is bureaucratic, slow, and costly, creating uncertainty about tenure rights. State-controlled land ownership benefits the state, large corporations, and elites, potentially leading to unsustainable practices that hinder soil protection.⁸⁷

⁸⁶ As per Sec 8(1) of Ordinance No 74/1 and Sec 74 of Law No. 90/059 of 19 December 1990.

⁸⁷ See *Divisional Officer of Ndop v Yenlong*, (1994) CAJ-CLC 56; *C. Chekeba v Divisional Officer of Mezam*, (1994) CAJ-CLC 18. (1994) CAJ-CLC 18; also see *Martin Fobuzie v SDO*

3.3.2.4 Traditional law

In Cameroon, land tenure is governed by traditional/customary law, influenced by over 250 ethnic groups, each with its own customs.⁸⁸ Customary law recognises land ownership under customary tenure, which was initially acknowledged by Ordinance No. 74/1 until 5 August 1974. After this date, the law mandated that all lands under customary ownership must be registered or cease to exist under customary tenure.⁸⁹ As a result, statutory law effectively abolished customary landownership after 5 August 1974, leading to widespread landownership conflicts. Despite long-standing claims by local communities, most lands in Cameroon are classified as national or state-owned.

3.3.2.5 Conflicts and means of conflict resolution

In Cameroon, land tenure is diverse, encompassing state-owned lands (public, private state, and national lands), private lands, and lands owned communally by communities. These lands fall under statutory and customary tenure systems, both of which often lead to conflicts and unsustainable land management practices. Many civil cases in Cameroonian courts are rooted in land disputes, underscoring the importance of land as a core resource. In cases of conflicting claims, ownership is granted to the individual who can prove a stronger title to the land. If no title document is available, possession of the land can be demonstrated through activities such as cultivation, construction, or demarcation with beacons. Traditional evidence may also be used to establish ownership, provided the court is convinced of the land's history and lineage. Land disputes are resolved in courts of ordinary jurisdiction, with a judicial hierarchy that includes the Supreme Court, Court of Appeal, High Court, Court of First Instance, and, where applicable, Traditional or Customary Courts. Any citizen can approach the court if their rights in a land transaction are violated.

3.3.3 Public environmental law

3.3.3.1 Soil-specific legal acts

Decree No. 2011/2584/PM of 23 August 2011 is Cameroon's primary legal text focused on soil and sub-soil protection. Article 3 mandates that soil exploitation must

Mezam BCA/2/78 unreported decision of the Bamenda Court of Appeal. Cited by Munge (2011: 209).

88 Ngwafor (1996).

89 Art 17(2) of the Land Tenure Ordinance, 1974 read in conjunction with Art 15 classifying land into two categories.

minimise erosion and desertification, while Article 5 prohibits activities that degrade or alter the quality or structure of arable land. The decree, an enabling instrument of Law No. 96/12 on Environmental Management, tasks the environmental administration with its enforcement, including imposing sanctions for violations.

Key provisions include the prohibition of exploitation in high erosion-risk zones (Article 4) and the requirement for ESIA for agricultural activities involving intensive use of fertilisers, pesticides, or soil-conditioning apparatuses (Articles 9 and 10). Similarly, manufacturers or processors of fertilisers and pesticides must conduct ESIA.

However, implementation challenges persist. Corruption undermines inspections and reporting, and sanctions, though issued, are often insufficiently deterrent. Judicial outcomes are hampered by a lack of expertise in environmental law and occasional corruption. Furthermore, the ESIA requirement for intensive use is criticised as impractical, as smaller scale but cumulative activities may still degrade soils. Without a comprehensive soil law, soil governance in Cameroon relies on fragmented environmental legislation and regulations.

3.3.3.2 Environmental law, relevant provisions concerning soils

In Cameroon, soil and subsoil protection is addressed in Law No. 96/12 of 5 August 1996, the framework law on environmental management, and its enabling instrument, Decree No. 2011/2584/PM of 23 August 2011. Article 36 of the framework law mandates the rational management and protection of soil and subsoil against degradation, desertification, erosion, and pollution, while prescribing conditions for the use of fertilisers, pesticides, and chemicals to safeguard soil quality. However, unauthorised substances are still used, degrading the soil, and highlighting the need for better enforcement.

Article 37 requires mining and quarrying permit holders to rehabilitate exploited sites, but the absence of enabling instruments has delayed implementation despite significant mining activities. This is emblematic of a broader issue in Cameroon's legislative process, where laws are crafted with broad provisions, leaving details to enabling instruments, which are often delayed, rendering laws ineffective.

The framework law also includes provisions for sustainable land use (Article 38), conservation of biodiversity (Articles 62-66), and rational management of resources (Articles 63-69). While Cameroon has ratified international conventions on soil protection, enforcement remains weak due to fragmented responsibilities and limited coordination among public administrations. For example, MINEPDED, the ministry responsible for environmental protection, struggles to enforce restoration requirements on industrial sites because these activities often fall under other ministries' jurisdiction, leading to conflicts between local communities and industrial operators.

To enhance soil protection, it is crucial to improve coordination among public administrations, enforce restoration requirements, and ensure enabling instruments are drafted alongside primary laws to avoid delays in implementation.

3.3.3.3 Nature conservation

3.3.3.3.1 Law No. 98/005 of 14 April 1998 (Water Code)

The following provisions address soil protection concerning water management: Article 2(1) of the Water Code requires the state to ensure water protection. Article 4(1) prohibits the disposal, leakage, or deposit of any materials or wastes into waters if they may alter water quality, harm public health, or aquatic life, or compromise economic and tourism development. Article 4(2) allows the minister in charge of water to regulate and potentially withdraw authorisations for such disposals after consultation with other ministries. Article 7 establishes protection perimeters around water capture, treatment, and storage points, declaring lands within these areas as of public utility.

While the Water Code focuses on water, it indirectly addresses soil concerns by emphasising soil's role in water management. Protecting soils is essential to ensuring sustainable water resources for domestic and industrial uses. By implication, the Water Code and its enabling instruments demonstrate a commitment to soil protection as a fundamental component of effective water management.

3.3.3.3.2 Law No. 94/01 of 20 January 1994 on Forests, Fauna, and Fisheries Regulation

Law No. 94/01 serves as the fundamental legislation for forest exploitation in Cameroon, addressing critical issues such as desertification and deforestation, which significantly contribute to soil degradation. Deforestation, particularly when trees are not replaced, exposes soil to erosion and degradation, leading to the transformation of fertile lands into barren deserts.

To mitigate these effects, the law mandates reforestation and the reinstatement of exploited tree species. However, compliance with this provision remains a major challenge, especially among illegal forest exploiters. In response, the state, civil society organisations, and development partners have introduced licensing and certification procedures to regulate forest exploitation and combat unsustainable practices. These initiatives aim to ensure better adherence to reforestation requirements and to protect soil and forest ecosystems from further degradation.

3.3.3.4 Subsidiary regulations on environmental thresholds, environmental quality standards, and more

A document on environmental protection norms is under homologation at the Norms and Quality Agency. Beyond the Framework Law on Environmental Management, several regulations address soil protection in Cameroon. Key laws include: Law No. 89/027 (1989) on toxic and hazardous waste, requiring industries to declare and safely manage such waste; Law No. 98/015 (1998) and related orders on dangerous, unhealthy, or uncomfortable establishments; Decree No. 99/818/PM (1999) on procedures for operating dangerous establishments; Decree No. 2011/2581/PM (2011) regulating harmful chemicals; Decree No. 2012/2809/PM (2012) on waste sorting, collection, and disposal; and Decree No. 2000/092/PM (2000), amending the 1995 forest regime, alongside wildlife and forestry regulations ensuring controlled fires and forest use. These legal frameworks aim to protect public health, prevent deforestation, safeguard wildlife, and preserve ecosystems, which indirectly protect soil.

3.3.4 Environmental monitoring

Environmental monitoring is crucial for effective environmental management, particularly soil protection.⁹⁰ It involves systematic soil sampling to assess ecological conditions, monitor the impacts of harmful activities, ensure regulatory compliance, and guide policymaking.⁹¹ In Cameroon, environmental monitoring is conducted through EIA, which tracks and addresses biophysical and social changes during projects. The Ministry of Environment oversees this through its service dedicated to monitoring and climate follow-up, which develops ecological alert systems, climate strategies, geographic information systems, and disaster management plans. Article 45 of Decree No. 2012/431 outlines these responsibilities, while Law No. 96/12 (1996) and Decree No. 2013/0171/PM (2013) establish conditions for EIA and Environmental Management Plans (EMP). EMPs are subject to administrative surveillance, requiring biannual reports for projects. Articles 27–29 of the 2013 decree ensure environmental monitoring of projects, implicitly protecting soil, and allow the administration to engage expert assistance. Monitoring may involve government agencies, NGOs, private firms, or individuals.

90 FAO (2009: v).

91 Taza-Asaba (2013).

3.3.4.1 Execution of the law

The executive arm of government implements laws at both central and decentralised levels with the support of law enforcement agents. Government departments handle implementation centrally, while regional entities,⁹² local councils,⁹³ and traditional authorities manage it locally.⁹⁴ However, these decentralised entities operate within institutional frameworks established by law, raising the question of whether these arrangements foster effective collaboration and cooperation for sustainable resource management, including soil. Unfortunately, this is not the case, as the transfer of authority and resource management is incomplete. Central government departments overseeing territorial administration retain control, complicating the execution of projects by decentralised entities.

3.3.4.2 Enforcement issues

One challenge in soil protection is the enforcement of existing legislation. While public prosecutors and judicial police have general enforcement authority, officials under oath in various administrations—such as cadastral surveys, town planning, public works, forestry, mining, industry, and tourism—are tasked with applying regulations relevant to their sectors. They investigate and establish violations to enforce the legal frameworks within their domains, as outlined in Article 88 of the 1996 Framework Law on Environmental Management. Similar provisions exist in Article 202(1) of the Mining Code⁹⁵ and Articles 159 to 164 of the new Mining Code under Law No. 2023/014 of 19 December 2023, which repeals the 2016 Mining Code under Section 200.

3.3.4.3 Competences of enforcement entities

Each administration manages its area of competence through dedicated control services. For the environment, an environmental inspection brigade identifies acts that violate environmental laws. This unit comprises environmental inspectors and controllers. While the brigade does not handle routine administrative monitoring, it can be called upon when public agents uncover serious environmental violations during their monitoring activities.

92 Law No. 2004/019 of 22 July 2004 fixing the rules applicable to regions.

93 Law No. 2004/018 of 22 July 2004 fixing the rules applicable to councils.

94 Decree No. 77/245 of 15 July 1977 to organise Chiefdoms.

95 Law No. 2016/017 of 14 December 2016 repealing Law No. 001 of 16 April 2001 establishing the Mining Code and its modification by Law No. 2010/011 of 29 July 2010.

3.3.4.4 Available and accessible data

The ministry in charge of the environment in Cameroon has a Centre for Information and Environmental Documentation, responsible for collecting, storing, and disseminating environmental information. The centre is equipped with clearing house mechanisms (CHMs), which correspond to the number of multilateral environmental agreements Cameroon has ratified. The ministry also operates a website that publishes key information within its domain. While environmental data is generally accessible to the public, information specifically on soil is not available on the website.

3.3.4.5 Sufficient expertise and support from research institutions

For many years, various research institutions, including state universities and private entities, have established study centres focused on environmental matters. These institutions provide training in environmental fields, producing skilled professionals. However, the administration responsible for the environment struggles to employ all these qualified individuals. While the private sector is increasingly seeking environmental experts, the number of recruits remains limited. State universities are at the forefront of environmental research, and the environmental ministry occasionally taps into the expertise of these institutions and their research centres.

3.3.4.6 Staff and technical equipment

MINEPDED, established in 2004 and reorganised in 2012, still faces staffing challenges, with many offices in its new structure unoccupied due to a shortage of personnel. Several factors contribute to this, such as the absence of a legal framework for environmental professionals, outdated training institutions, and a temporary halt in public service recruitment. Despite efforts to establish its institutional framework and raise public awareness of environmental issues, MINEPDED's technical teams are underdeveloped. The administration urgently requires updated equipment and training to strengthen its capacity for environmental inspections and control.

3.3.4.7 Science-policy interface of soil data/information

Scientific data is essential for sustainable soil management, but in Cameroon, such data on soil degradation and management is not widely available, especially to small-scale farmers. This lack of accessible information hinders informed agricultural practices and sustainable soil management. While legal frameworks for environmental

monitoring exist, weak implementation due to limited resources, poor coordination, and lack of monitoring methodologies further exacerbate the issue. Additionally, ineffective land-use planning, with conflicting land-use maps, contributes to soil degradation. Environmental monitoring remains inadequate, and there is a need for regulatory reforms and independent, accountable monitoring systems to enhance soil protection. International NGOs and research institutions can play a key role in strengthening these efforts and building capacity for better monitoring and enforcement.

3.3.5 Cross-cutting issues

3.3.5.1 Need for environmental impact assessments

EIA is required by both international and national laws to evaluate the potential adverse effects of projects on the environment.⁹⁶ In Cameroon, the Framework Law on Environmental Management mandates EIAs for projects that could harm the environment.⁹⁷ However, the law faces challenges in implementation, including ineffective public participation, inadequate personnel, corruption, and poor monitoring.⁹⁸ These issues hinder effective soil protection. Furthermore, small-scale agriculture, which impacts soil health, is not adequately addressed by the EIA process, despite its widespread practice.⁹⁹ To improve soil protection, all agricultural projects should be subject to EIA, but challenges such as the cost of assessments and control over millions of small-scale farms need to be addressed.¹⁰⁰ Providing extension services to educate and monitor farmers could be a potential solution.

3.3.5.2 Provisions of public participation and access to environmental information

Public participation is a key principle in international environmental law, emphasised in the 1992 Rio Declaration.¹⁰¹ It includes the right to participate in decision-making, access relevant information, and seek justice.¹⁰² In Cameroon, laws including the 1996 Framework Law on Environmental Management and the 2013 ESIA Decree mandate

96 Such as the Rio Declaration on Environment and Development, 1992; the Convention on Biological Diversity, 1992; etc.

97 Dashaco & Tarh (2018: 196).

98 Alemagi et al. (2007).

99 See Ginzky et al. (2019: 4).

100 Tchoffo (2009: 3).

101 It is reflected in the Rio Declaration 1992; the Non-Legally Binding Instrument on All Types of Forests; the Convention on Biological Diversity, among others; Report of the UN Conference on Environment and Development: Annex 1. Rio Declaration on Environment and Development, UN Doc A/CONF.151/26 (Vol.I), 12 August 1992, Principle 10.

102 See Ngwome (2018: 257); Costenbader (2009: 36).

public consultation and access to environmental information. However, the implementation of these rights is often insufficient, particularly regarding soil management. Information on soil degradation is outdated, not easily accessible, and poorly understood by the public.

Despite the legal framework, public participation is not fully realised, and laws are poorly enforced. For example, consultations are sometimes missing during land concessions. The need for adequate soil management information, including integrating it into educational curricula, is urgent. The lack of enabling instruments further complicates effective implementation. Case law, such as the African Commission's rulings on land-grabbing, underscores the importance of free, prior, and informed consent in environmental matters.¹⁰³ These cases highlight violations of indigenous peoples' rights and the need for stronger protections and consultations.

3.3.5.3 Right to appeal administrative decisions – access to courts

The right to appeal administrative decisions and access to justice is essential for sustainable environmental and soil management. Conflicts often arise in natural resource management, and without adequate access to justice, stakeholders cannot protect their rights, making governance ineffective.¹⁰⁴ In Cameroon, environmental justice is underdeveloped, and the lack of an environmental court means soil protection is poorly enforced.¹⁰⁵ There is a need for stronger, independent dispute resolution mechanisms, as well as better capacity among court officials.

Access to justice involves having effective and accessible systems for resolving conflicts, such as litigation, alternative dispute resolution, or administrative review.¹⁰⁶ These mechanisms need to be strengthened to ensure sustainable soil protection. International law requires governments to provide citizens with access to judicial proceedings, free legal services, and community support for marginalised groups.¹⁰⁷

103 See 276/2003 – *Centre for Minority Rights Development (Kenya) and Minority Rights Group International on behalf of Endorois Welfare Council v Kenya*, at https://www.hrw.org/sites/default/files/related_material/2010_africa_commission_ruling_0.pdf, accessed 17 October 2019; Secretary African Commission on Human and Peoples' Rights, Banjul, Communication, *Social and Economic Rights Action Center v Nigeria*, at <http://www.hlrn.org/img/documents/SERAC%20v%20%20Nigeria%20Communication.pdf>, accessed 17 October 2019.

104 Costenbader (2009: 53).

105 Denier et al. (2014: 129).

106 Ngwome (2018: 318); Denier et al. (2014: 129).

107 Reference to the right of access to justice under international law includes: Principle 10 of the Rio Declaration on Environment and Development; Arts 2, 9, 14, 26 & 50 of the International Convention on Civil and Political Rights and its First Protocol; Arts 8, 11, 13, 20, 28, 32 & 40 of the UN Declaration on the Rights of Indigenous Peoples; Art 15 of the Convention for the Elimination of All Forms of Discrimination Against Women; Arts 9, 12 & 14 of the ILO Convention No. 169; Arts 7, 8 & 10 of the Universal Declaration of Human Rights; Art XVI of the 2003 African Convention on the Conservation of Nature and Natural Resources.

Increasing legal awareness at the community level is essential for vulnerable groups to enforce their rights.¹⁰⁸ The government should ensure citizens can easily access courts, provide legal aid, and promote awareness of legal rights.¹⁰⁹ Strengthening dispute resolution systems will enhance accountability, protect stakeholders' rights, and support soil management.

3.3.5.4 Specific instruments to control the behaviour of foreign investors

3.3.5.4.1 Compliance with public law

Each administration in Cameroon is responsible for ensuring that investors comply with relevant regulations in their sectors. For example, the hydrocarbons administration ensures investors follow the Petroleum Code, while the water and mining administrations enforce regulations in their respective fields. The same applies to forestry and environmental protection.

However, despite these regulations, illegal operators often ignore the rules, such as some mining exploiters who operate outside the law. This is partly due to inadequate mining data and the negligence of some authorities, which contributes to soil and environmental degradation.

Cameroon also has a law (Law No. 2017/015) that encourages private investment, treating all foreign investors equally. This law establishes a single body to guide investors, allowing them to complete necessary procedures without navigating multiple administrations.

3.3.5.4.2 No unfair or illegal land acquisition

Access to land for foreign investors in Cameroon is governed by Ordinance No. 47/01 of 6 July 1974, which allows foreign individuals and companies to lease or purchase land, excluding border areas. These transactions require prior approval from the minister in charge of lands, or they will be void. For diplomatic missions and international organisations, approval from both the Minister of External Relations and the Minister of Lands is required. The state has a pre-emptive right to purchase property upon resale.

The new Mining Code (Law No. 2023/014) outlines land access for mining activities. Under Section 87, exploration permit holders can apply for land necessary for mining after approval of their pre-feasibility study. Expropriation for public interest

108 Ngwome (2018: 318).

109 Denier et al. (2014: 130-131).

must precede this, and the expropriated land is registered in the state's name and leased to the permit holder. Section 88 addresses mining for semi-mechanised artisanal and industrial operations, where operators may receive leases or concessions. Section 89 requires operators to repair damages to private property or neighbouring structures, with compensation determined by agreement or state intervention. Damages include loss of land use, environmental harm, and interruption of farming activities (Sections 90-91).

3.3.5.4.3 Fair taxation

Law No. 2018/012 of 11 July 2018, governing the financial regime of the state and public entities in Cameroon, establishes the ministry in charge of finance as the sole authority for regulating taxation. While many legal texts mention financial provisions, all such provisions must be formulated in consultation with this ministry. Each fiscal year, the ministry prepares and presents a finance law, which is implemented through a circular outlining instructions for budget execution, monitoring, and control. These two documents define the financial expectations for the public treasury and all sectors of activity.

3.4 Relevant ministries and state institutions and their responsibilities

3.4.1 Ministry of Agriculture and Rural Development

Decree No. 2005/118 of 15 April 2005 assigns the Ministry of Agriculture and Rural Development (MINADER) the responsibility for developing, implementing, and evaluating government policies related to agriculture and rural development. The ministry is also tasked with establishing standards and regulations for agriculture, as well as identifying and preparing agricultural investment projects and programs. Given that agriculture contributes to soil degradation, MINADER's role is crucial for ensuring soil protection.

3.4.2 Ministry of State Property, Surveys, and Land Tenure

Article 1 of Decree No. 2012/390 of 18 September 2012 assigns the Ministry of State Property, Surveys, and Land Tenure (MINDCAF) the responsibility for developing and implementing government policy on land tenure, land registration, and land surveying. This includes drafting legislative and regulatory texts, managing public and private government property, proposing land allocations, and creating and maintaining

cadastral plans. Since activities linked to soil degradation, such as mining and agriculture, often begin with land acquisition, MINDCAF's role is critical for soil protection.

3.4.3 Ministry of Environment, Protection of Nature, and Sustainable Development

According to Decree No. 2012/431 of 1 October 2012, the Ministry of Environment, Protection of Nature, and Sustainable Development (MINEPDED) is tasked with defining sustainable management principles for natural resources, developing environmental management measures in collaboration with other ministries, and preparing sectoral master plans for environmental protection. It coordinates and monitors regional and international organisations' interventions related to the environment and natural resources and ensures compliance with environmental regulations in large projects. MINEPDED also educates the public on environmental management, negotiates environmental treaties, and enforces environmental and social commitments. Given that soil degradation is a form of environmental degradation, MINEPDED plays a crucial role in overseeing proper ESIA and ensuring compliance with environmental standards.

3.4.4 Ministry of Forests and Wildlife

The Ministry of Forests and Wildlife (MINFOF) is responsible for developing and implementing national policies related to forestry and wildlife.¹¹⁰ It manages protected areas and conservation concessions, oversees regeneration, reforestation, and forest inventories, and ensures compliance with logging standards. Given the direct link between forest management and soil protection, MINFOF plays a crucial role in addressing soil degradation. Sustainable forest management practices help protect soil, while unsustainable practices can lead to soil degradation. Therefore, MINFOF is a key stakeholder in soil protection efforts.

3.4.5 Ministry of Economy, Planning, and Regional Development

According to Article 1(2) of Decree No. 2008/220 of 4 July 2008, the Ministry of Economy, Planning, and Regional Development (MINEPAT) is responsible for developing, monitoring, and coordinating the government's economic policy, as well as

110 See Decree No. 2005/099 of 6 April 2005 to organise the Ministry of Forest and Wildlife. See also Republic of Cameroon (2012: 48).

creating and enforcing regional planning norms and rules. Since poor land-use planning is a major driver of soil degradation, MINEPAT's role is crucial for environmental and soil protection, especially when it comes to managing investments and economic activities that could contribute to soil degradation.

3.4.6 Ministry of Urban Development and Housing

Created by Presidential Decree No. 2004/320 of 8 December 2004, the Ministry of Urban Development and Housing (MINDUH) collaborates with decentralised territorial entities (urban and rural councils) to address urban challenges and create well-planned cities. As the supervisory ministry of the Cameroon Real Estate Company (Société Immobilière du Cameroun), MINDUH is central to urban policy in Cameroon. According to Decree No. 2005/190 of 3 June 2005, MINDUH is responsible for developing, implementing, and evaluating government policies on urban development and housing, planning city growth, ensuring sanitation and drainage, beautifying urban centres, and overseeing social housing policies. Its role is crucial in ensuring that urban development projects do not contribute to soil degradation.

3.4.7 Ministry of Trade

By Decree No. 2011/408 of 9 December 2011, the Ministry of Trade is responsible for developing and implementing government policy on trade. In terms of soil degradation or protection, the ministry promotes and defends quality labels for local products, monitors import standards in collaboration with relevant authorities, oversees conservation and distribution circuits of consumer products, and ensures compliance with storage and presentation standards. It also applies sanctions for fraud or non-compliance. The Ministry of Trade's role is crucial in preventing the importation and transportation of products that could negatively impact soil quality.

3.4.8 Ministry of Mines, Industry, and Technological Development

The Ministry of Mines, Industry, and Technological Development (MINMIDT) is responsible for formulating and implementing mining and industrial policies, as well as developing strategies for technological advancement across various sectors of the national economy. Given that mining and industrial activities are significant drivers of soil degradation, the role of MINMIDT is critical in addressing soil protection and degradation, and it should be carefully considered in this context.

3.4.9 Ministry of Scientific Research and Innovation

The Ministry of Scientific Research and Innovation (MINRESI) is responsible for formulating and implementing national policies related to scientific research and innovation. It coordinates and supervises scientific research activities in collaboration with various sectoral ministries and organisations.¹¹¹ Given the significant implications of scientific research on soil protection and degradation, MINRESI's role is crucial in this context and should be further strengthened.

3.4.10 Ministry of Livestock, Fisheries, and Animal Industries

The Ministry of Livestock, Fisheries, and Animal Industries (MINEPIA) plays a crucial role in implementing policies to reduce soil degradation caused by animal husbandry practices. Its focus on sustainable livestock management is essential in mitigating the impact of overgrazing and other practices that can lead to soil erosion and degradation.

3.4.11 Institute of Research for Agricultural Development

The Institute of Research for Agricultural Development (IRAD) is tasked with conducting high-level scientific research aligned with Cameroon's agricultural priorities across its five agro-ecological zones.¹¹² IRAD's focus on sustainable resource management and environmental conservation makes it a key player in preventing soil degradation caused by agricultural development in the country.

3.4.12 Inter-Ministerial Committee for the Environment

The Inter-Ministerial Committee for the Environment, hosted by MINEPDED and consisting of fourteen key ministerial departments, plays a crucial role in coordinating and overseeing environmental policies. Given that soil is an integral component of the environment, this committee's function in evaluating and controlling the environmental impacts of various sectoral policies and projects is essential for preventing soil degradation and ensuring sustainable land management across the country.

¹¹¹ Republic of Cameroon (2012: 48).

¹¹² IRAD was created by Presidential Decree No. 96/050 of 12 March 1996 as modified by Decree No. 2002/230 of 6 September 2002.

3.4.13 National Consultative Commission for the Environment and Sustainable Development

The National Consultative Commission for the Environment and Sustainable Development, created by the environmental framework law, plays a key role in ensuring broad stakeholder participation in the development and implementation of environmental management policies and strategies. Given its inclusive approach, the commission's involvement is crucial for fostering collaborative efforts in soil protection, ensuring that all relevant sectors and communities contribute to the sustainable management of soil resources.

3.4.14 Regional and local authorities

Regional and local authorities in Cameroon, as part of their delegated responsibilities from the central government, play a crucial role in ensuring the implementation of environmental provisions relevant to soil protection. Through monitoring and inspection, these authorities ensure that activities conducted by individuals and enterprises do not result in environmental degradation. They carry out this responsibility in collaboration with the relevant central administrative departments, following the guidelines and regulations established by law. This decentralised approach ensures that soil protection efforts are applied at both local and regional levels, contributing to effective environmental governance.

3.4.15 National Council for Planning and Sustainable Development of the Territory

The National Council for Planning and Sustainable Development of the Territory, established by Law No. 2011/008, will play a key role in soil protection by advising on spatial planning and sustainable development policies. It will also review major laws related to these areas. However, the overall institutional framework provides minimal direct support for soil protection. Ministries, through regional and local delegations, are tasked with implementing policies, and decentralisation laws require them to transfer some responsibilities and resources to local entities for better management of soil and environmental issues.

3.5 Conclusion

The assessment of Cameroon's environmental and natural resources policies reveals a lack of a comprehensive soil policy or legislation to address soil degradation. While some provisions related to soil protection exist, they are fragmented across various laws and are often poorly implemented. As a result, soil protection is not effectively enforced, and soil as a resource is not adequately integrated into the legal framework. Sustainable soil management is not a priority, as it has not been directly addressed in specific legal instruments. Additionally, the institutions responsible for implementing soil-related laws often work in isolation, leading to a lack of coordination and cooperation in improving soil health.

4 Legislation on main drivers of soil degradation: Strengths and weaknesses

Soil degradation in Cameroon is driven by both natural factors and human activities, with the latter being influenced by sectoral legislation. This section examines the legal aspects of the main drivers of soil degradation, including agriculture, mining, industrial development, demographic growth, urban sprawl, land planning, climate change, land tenure insecurity, and wildfires in farming, hunting, and livestock management. While legislation governing these sectors contributes to soil degradation, it also contains provisions for soil protection, highlighting both the strengths and weaknesses of these laws in addressing soil health.

4.1 Agriculture

4.1.1 Relevant legal provisions

4.1.1.1 Law No. 2003/003 of 21 April 2003 on phytosanitary protection

The 2003 law on phytosanitary protection governs agricultural practices and aims to safeguard human, animal, and environmental health. It restricts the import, distribution, and use of unapproved phytosanitary products and mandates their use in line with good agricultural practices. The law also calls for integrated pest management and encourages collaboration with farmers, researchers, and other stakeholders. However, poor implementation and lack of effective monitoring, especially at border controls, contribute to soil degradation.¹¹³ While the law covers key areas of phytosanitary protection, its enforcement remains weak due to inadequate cooperation between

¹¹³ Law No. 2003/003 of 21 April 2003 on plant protection.

ministries and non-compliance by farmers. To address this, stronger coordination and stricter enforcement are needed.

4.1.1.2 Law No. 2003/007 of 10 July 2003 governing the activities of the fertiliser subsector

The law regulating fertilisers in Cameroon aims to enhance farm productivity and ensure sustainable natural resource management. It covers the production, import, export, packaging, distribution, and use of fertilisers to prevent harmful effects. However, the law's effectiveness is hindered by the absence of an enabling instrument, making its implementation and monitoring difficult. Fertilisers not in compliance with regulations are still used, often due to illegal practices and weak enforcement. To address this, the government must enforce compliance and ensure proper implementation of fertiliser regulations to prevent soil degradation.

4.1.1.3 Decree No. 2011/2584/PM of 23 August 2011 laying down soil and subsoil protection modalities

Most agricultural projects in Cameroon contribute to soil degradation, mainly due to the misuse of chemicals (pesticides and fertilisers) and unsustainable practices such as slash-and-burn, bushfire, and ankara methods. Decree No. 2011/2584/PM of 23 August 2011 regulates land use to prevent erosion, desertification, and loss of arable land. It mandates that fertilisers and pesticides meet national and international standards and requires soil assessments and regular evaluations of environmental impacts. However, many farmers ignore these provisions, continuing harmful practices. To address this, policies should focus on educating farmers about the risks of non-homologated chemicals and unsustainable farming techniques.

4.1.1.4 Common Provisions on the Homologation of Pesticides in the Economic and Monetary Community of Central Africa Zone

The use of pesticides in Cameroon is governed by the Common Provisions on the Homologation of Pesticides within the Common Provisions on the Homologation of Pesticides in the Economic and Monetary Community of Central Africa (CEMAC) zone. The goal is to ensure the rational use of pesticides while protecting human health and the environment. The regulation covers all activities related to pesticides, including testing, import, export, transport, and use. However, enforcement is weak due to challenges such as porous borders, which allow contraband pesticides to enter, bypassing

the Homologation Committee. These products, often sold at low prices, are used by farmers unaware of their harmful effects.

CEMAC laws have supranational status, meaning they override national laws in member states including Cameroon. The Cameroonian Constitution affirms the direct application of CEMAC regulations, giving them supremacy over national legislation.¹¹⁴ Despite this, effective implementation of pesticide regulations remains a challenge. Authorities must ensure compliance to protect soil health.

4.1.2 Enforcement issues

In addition to the public prosecutor and judicial police, officials in various environmental and administrative sectors are responsible for enforcing regulations. This includes ensuring the implementation and control of environmental laws, as outlined in Article 88 of the 1996 Framework Law on Environmental Management. These officials, once sworn in, are tasked with identifying and prosecuting offenders. The same responsibility applies to ministries overseeing water, energy, mines, and other sectors, as per Article 202(1) of the Mining Code.¹¹⁵ Similar provisions can be found in Article 157 of the new Mining Code instituted by Law No. 2023/014 of 19 December 2023.

However, soil protection enforcement is hindered by inadequate monitoring, poor communication between ministries, and corruption among law enforcement agents, which complicates the enforcement of agricultural and environmental regulations. This undermines efforts to achieve sustainability in the agricultural sector.

4.1.3 Monitoring

The Ministry in charge of the environment is responsible for ecological monitoring, which includes developing systems for environmental surveys, climate change programs, and strategies for nature protection and sustainable development. It also manages geographic information systems, coordinates international environmental agreements, and centralises data on environmental issues, as outlined in Article 45 of Decree No. 2012/431.

However, corruption, lack of information and data, and poor communication between institutions hinder effective monitoring. These challenges have serious implications for soil degradation.

114 Art 21 of the Additive to the CEMAC treaty. This principle has as its basis the integration of the community legal order.

115 Law No. 2016/017 of 14 December 2016 repealing Law No. 001 of 16 April 2001 establishing the Mining Code and its modification by Law No. 2010/011 of 29 July 2010.

4.1.4 And what is more?

The National Agriculture Investment Plan (PNIA) for 2014–2020 aims to boost agricultural growth by at least 10% through four key areas: improving food security, modernising rural infrastructure, sustainably managing resources, and fostering good governance. Tax exemptions have also been introduced to support the sector, benefiting soil protection. However, the shift to second-generation agriculture may rely on unsustainable practices, such as the use of non-homologated fertilisers and chemicals harmful to soil. To ensure soil protection, issues relating to corruption, inadequate monitoring, and poor communication between institutions must be addressed.

While these legal and policy instruments seek to protect soils and promote sustainable practices, they also have weaknesses. For example, they encourage actions such as forest clearance and increased chemical inputs, which contribute to soil degradation. Effective implementation and enforcement of these laws remain critical challenges.

4.2 Mining

4.2.1 Relevant legal provisions

Cameroon's new Mining Code, established by Law No. 2023/014, repeals the 2016 Mining Code. While the Code includes general environmental protection provisions, it does not directly address soil protection. The provisions that indirectly support soil protection include requirements for compliance with environmental laws, ESIA's, and rehabilitation of mining sites. Mining operators are responsible for waste management, preventing geo-hazards, and restoring mining sites to stable conditions. However, the Code's major weakness is its lack of direct references to soil protection and its reliance on regulations that have not yet been implemented, hindering effective enforcement. The establishment of a Mining Site and Quarry Restoration Fund aims to support environmental rehabilitation, but without the necessary regulations, soil protection remains difficult to achieve. It is recommended that the enabling regulations be developed alongside the main law to ensure effective implementation.

4.2.2 The role of foreign investors

Foreign investors play a significant role in Cameroon's mining sector due to the country's lack of technical equipment and technology. While the government encourages collaboration with national investors for technology transfer, many foreign investors neglect environmental protection, often starting activities without proper

environmental authorisation and failing to rehabilitate exploited sites. This leads to soil degradation and pollution, particularly from hazardous chemicals such as mercury.

Although the Mining Code mandates compliance with environmental regulations for soil protection, its application is hindered by the lack of enabling instruments, which are still missing under the new Code. This delays effective enforcement and potentially contributes to soil degradation. To address this, the government could either enact complete legislation or ensure that enabling instruments are created alongside the main law to facilitate implementation and soil protection.

4.3 Industrial development

Cameroon has low industrialisation, but its Vision 2035 and the GESP focus on industrial development as a path to becoming an emerging economy. This growth, however, may pressure the environment, especially soil. Currently, there is no specific industrial sector legislation, with regulation spread across various laws. Waste treatment, particularly industrial waste, is governed by several legal provisions, including the 1996 Framework Law on Environmental Management, which controls hazardous waste disposal, and the 1994 Forestry Law, which bans dumping in national forests without permits.

The Water Code restricts discharges of pollutants into water bodies, while Order No. 002/MINEPDED requires operators handling toxic waste to submit waste management plans and ensure traceability. Other orders regulate waste sorting, collection, and transport, and require environmental permits.

The Petroleum Code,¹¹⁶ while neglecting soil-specific protection, includes provisions for environmental conservation during petroleum operations. It mandates ESIA's, public inquiries, and compliance with environmental protection standards. The Petroleum Code's Decree No. 2023/232 of 4 May 2023 complements these regulations, focusing on pollution control, emergency response, and mandatory waste management plans, though soil protection remains indirect.

The creation of a Pollution Prevention Committee, though consultative, aims to assist in enforcing environmental protection laws, including soil preservation. The Decree also mandates remedial actions for environmental damage, including soil, if operations cause harm.

116 Law No. 99/013 of 22 December 1999 to institute the Petroleum Code. See Arts 82-83.

4.4 Demographic growth, urban sprawl, and land-planning regulatory frameworks

Population growth and urban sprawl are major drivers of environmental degradation, including soil erosion. As the population grows and urbanisation accelerates, natural ecosystems such as forests and wetlands are transformed into urban and agricultural areas to meet the demand for housing and food. This places immense pressure on the environment, leading to soil degradation.

Cameroon's urban and spatial planning laws, in theory, aim to manage natural resources sustainably, including soil. The 1996 Constitution and Law No. 2011/008 on spatial planning emphasise decentralisation and sustainable development. Policies such as Decree No. 77/193 (1977) and the National Land Use Planning for Sustainable Development Scheme (SNADDT) are intended to protect soils. The first phase of SNADDT has zoned the territory by resources and development potential, and the second phase is creating a national land-use plan.

Despite these policies, implementation is hindered by poor coordination among ministries and a lack of direct references to soil protection. To improve outcomes, reforms are needed to strengthen legal frameworks, promote participatory planning, and enhance stakeholder capacity to protect soils effectively.

4.5 Climate change law and soil degradation

Climate change is a major cause of soil degradation, while soil also plays a crucial role in mitigating climate change through carbon sequestration. Unfortunately, Cameroon lacks specific climate change legislation addressing soil's role in this process. Both international and national climate policies have largely overlooked soil as a key element in combating climate change and its impacts.

Though Cameroon lacks a dedicated climate change law, it has developed policies to implement the REDD+ initiative since 2005, including the 2008 R-PIN, the 2013 R-PP, and the 2018 National REDD+ Strategy. While these documents do not directly mention soil, they highlight activities such as slash-and-burn agriculture and bushfires as significant drivers of deforestation, GHG emissions, and soil degradation. Cameroon's NDCs aim for a 32% reduction in GHG emissions by 2035, identifying soil management as critical to this target, particularly through restoration efforts.¹¹⁷

The National REDD+ Strategy includes plans for restoring degraded soils through landscape management, agroforestry, and promoting sustainable agricultural practices. However, challenges remain, particularly in securing international support for financing and technology transfer.

117 See Republic of Cameroon (2015: 4-5).

Cameroon's national climate change observatory tracks climate evolution and alerts the government to ecological threats.¹¹⁸ Despite these efforts, soil's role in climate change mitigation needs specific legal protection to address the interconnected challenges of climate change and soil degradation.

4.6 Land tenure insecurity: Relevant legal provisions and associated problems

4.6.1 Ordinance No. 74/2 of 6 July 1974 establishing the rules governing state lands

Ordinance No. 74/2 governs both public and private property in Cameroon, as outlined in Article 1. It distinguishes between natural and artificial public properties. Natural public property includes coastlands, waterways, subsoil, and airspace, with a particular focus on maritime, landed, and fluvial public properties.

Maritime public property includes the soil and subsoil of territorial waters, which, though not typically exploited by the general population, are affected by offshore petroleum extraction and the disposal of pollutants, such as plastic waste. Landed public property refers to the subsoil, subject to legal devolution for exploitation or valorisation, meaning its transfer from one owner to another for such purposes.

Fluvial property, including marshlands, is generally not available for use by the public. These areas are designated as non-aedificandi zones, where construction and similar activities are prohibited under Cameroonian law.

4.6.2 Ordinance No. 74/1 of 6 July 1974 establishing the rules governing land tenure

Ordinance No. 74/1, which establishes the land tenure regime in Cameroon, guarantees land ownership for both individuals and corporations. It allows anyone, whether Cameroonian or foreign, to acquire land, but the process often involves high costs and bureaucratic hurdles. This has led to a rise in land grabs, where large parcels of land are acquired by foreign corporations or influential local elites, often resulting in displacement and soil degradation.¹¹⁹

One notable case is Herakles Farms' acquisition of 73,086 hectares in the Southwest Region, where the company cleared forest land, causing severe soil degradation and other environmental issues.¹²⁰ Similarly, the Bakweri people's claims to ancestral lands in the Fako Division highlight long-standing disputes over land ownership,

118 Amougou et al. (2018: 722).

119 FAO & ITPS (2015: 92); Tafon & Saunders (2019: 42); Amin & Jaha (2016: 19).

120 See Fraser & Mousseau (2016: 3); Tafon & Saunders (2019: 50); Ndi (2017).

particularly regarding the Cameroon Development Corporation (CDC), which has been accused of expropriating local lands.¹²¹

While land grabs are commonly associated with large corporations, religious institutions, such as the Catholic Church, have also been involved in acquiring vast land holdings for their social missions.¹²² However, unlike corporate land grabs, the church's land acquisitions have not been linked to soil degradation.

The growing economic value of land has led to increased land grabbing, often displacing vulnerable groups and exacerbating conflicts. In regions such as the Northwest, local elites use their wealth and power to acquire large tracts of land, further marginalising the disadvantaged populations who rely on this land for their livelihoods.¹²³

4.6.3 Decree No. 76/166 of 27 April 1976 establishing the terms and conditions for the management of national lands

Decree No. 76/166 implements Ordinance No. 74/2 of 6 July 1974, outlining the rules for state land allocation. It allows individuals or corporations to obtain unoccupied or unexploited national lands for development projects through temporary grants, which can evolve into leases or absolute grants. These grants are contingent upon alignment with the country's economic, social, or cultural policies. However, the law does not specify limits on the amount of land that can be acquired, raising concerns about over-exploitation and soil degradation.

The decree limits the duration of temporary grants to five years, with possible extensions if the project aligns with national policies, including soil management. Additionally, land use must comply with ESIA to ensure minimal negative impact, particularly on soil conservation.

4.6.4 Circular No. 001/CAB/PM of 1 April 2014 relating to measures applicable to investors on access to land

In the hierarchy of norms, circulars lack binding force but can be interpretative or imperative. Interpretative circulars clarify laws without creating rights or obligations, while imperative circulars are mandatory and create rights and obligations for specific parties. The 2014 Prime Ministerial Circular falls into the latter category, addressing irregularities in land allocation for development projects.

121 See Tande (1999); Ngwoh (2019).

122 See Lang (2017: 120).

123 Lang (2017: 116); Sone (2012).

The Prime Minister observed that some administrations acted contrary to existing laws, while investors sought land without proper feasibility or financing assessments. Large land requests were often used to secure financing, undermining land's developmental role. The circular redefined procedures, rights, and obligations for land allocation, reducing land-grabbing and illegal occupations, and improving soil access and management.

4.6.5 Law No. 85/009 of 4 July 1985 relating to expropriation on grounds of public utility and the modalities for the payment of indemnities

Law No. 85/009 governs land expropriation in Cameroon for development projects serving the public interest. Article 1(1) states that the state can expropriate land for public utility, while Article 3(1) ensures owners receive compensation—financial or in-kind—unless illegal activities, such as unauthorised construction, are involved (Article 10(3)).

Expropriation requires a specific decree from the President or Prime Minister. While the law provides for compensation, disputes often arise over payment calculations and delays. These delays may incentivise landowners to engage in soil-degrading activities out of frustration, impacting soil management.

4.6.6 Traditional law

Customary land tenure in Cameroon is complex, reflecting its over 250 ethnic groups, each with distinct customs.¹²⁴ Before the 1974 land tenure legislation, land ownership was purely customary. However, the law required all customary lands to be registered or lose their legal status, making the state the exclusive owner.¹²⁵ Since then, rural communities have retained only access and use rights, such as hunting and fruit picking, which have minimal soil impact.¹²⁶

This legal shift sparked conflicts, as communities continued to claim rural lands, especially when these were allocated for public purposes or to investors without compensation or resettlement. While the 2005 land reform simplified the titling process, issues including poor record-keeping and contradictory laws persist. Untitled lands remain classified as National Land, enabling the state to evict occupants for 'effective exploitation.' Communities can only title land used before 1974, excluding unoccupied or non-farmland vital to their livelihoods.

124 Ngwafor (1996).

125 Art 17(2) of the Land Tenure Ordinance, 1974 read in conjunction with Art 15 classifying land into two categories.

126 Ibid.: Art 17(3).

Elites now exploit this system by financing land registration in exchange for large portions of land. Though this offers limited tenure security, disputes remain unresolved. Weak customary recognition incentivises unsustainable land use, threatening soil protection. Strengthening customary tenure—legally ceding ownership and management rights to communities—while enforcing legal reforms is essential to ensuring sustainable land and soil management.

4.6.7 Conflicts and means of resolution

Diverse land tenure types often create conflict and unsustainable land management. Customary rules governing land claims frequently clash with national legislation, leaving communal lands vulnerable to state acquisition for development.¹²⁷ This legal insecurity incentivises soil degradation, as communities lack motivation to protect lands, they do not feel secure on. Lang noted that such dual rules cause “confusion and difficulties” in regulating land rights. Strengthening customary land tenure can enhance legitimacy, local support, and sustainable soil protection, offering economic, social, and environmental benefits.

Several court cases highlight recurring issues of overlapping land certificates, administrative errors, and unclear regulations:

- *Nkamgang Mingeu Joseph v The State*: The court dismissed the petition due to irregularities, despite claims of fraudulent land certificates.¹²⁸
- *Noumsi Jean Bosco v The State*: The Supreme Court ordered the cancellation of a land certificate issued under dubious circumstances.¹²⁹
- *Yongo Marc v The State*: The court ruled administrative faults, and fraud invalidated a contested land title.¹³⁰
- *Watson Mbua Maliva v The State*: The petition was inadmissible due to procedural oversights regarding disputed land.¹³¹

Other notable cases include *Ousmanou Dairou v The State*,¹³² *The University of Buea v Bulu Village Council*,¹³³ and *Barrister Ebai Helen v The State*.¹³⁴ These disputes emphasise the importance of resolving tenure conflicts and securing fair access, ownership, and use rights for sustainable land and soil management.

127 See Lang (2017: 118–119).

128 Suit No. SWAC/LPM/006/2014.

129 CS/CA Judgment No. 34/04-05 of 29 December 2004.

130 CS/CA Judgment No. 76/04-05 of 27 April 2005.

131 Suit No. SWAC/LSP/007/2017, Judgment No. 014/2018.

132 Suit No. 01/RG/F/016 of 2 February 2016, Judgment No. 08/AFD/ 2017.

133 Suit No. SWAC/LSP/003/2017, Judgment No. 015/2018.

134 Suit No. SWAC/PND/001/2016, Judgment No. 006/2018.

4.6.8 Land tenure legislation and associated land-grabbing

Land-grabbing is a major driver of soil degradation, enabled by a provision in the Land Law stating that “the state shall be the guardian of all lands” and may intervene for rational land use or national interests (Section 1(2)). This provision has facilitated large-scale land acquisitions by powerful actors—such as the state, corporations, elites, and the wealthy—at the expense of vulnerable groups including local communities and the poor. As a result, the generous land tenure legislation risks accelerating soil degradation in the country.

4.6.9 Relationship between landownership and environmental responsibility

Cameroon’s land tenure laws guarantee ownership rights, including exclusive possession, mortgage, and transfer, but remain silent on the owners’ responsibility for sustainable land management. While the Constitution indirectly assigns environmental duties to citizens and the state, these pronouncements lack the force of specific land legislation. The Land Law must be revised to impose clear environmental responsibilities on landowners and users to protect soil health.

Decree No. 2013/0171/PM mandates ESIA for large projects, ensuring environmental compliance and requiring public consultations (Article 3(1)). However, small-scale subsistence agriculture—such as slash-and-burn practices—escapes scrutiny despite its cumulative impact on soil degradation. Small farmers lack incentives, resources, and oversight for sustainable soil management.¹³⁵ Extension services could bridge this gap by educating and monitoring local farmers.

Cameroon’s tenure system, where the state owns all land,¹³⁶ exacerbates land degradation. Customary land rights are poorly recognised, creating tenure insecurity and encouraging short-term land exploitation, including deforestation to secure occupancy claims. Disjointed laws, weak institutional frameworks, and poor land-use policies further worsen soil degradation.

To address these challenges, land tenure clarification, spatial planning, and mainstreaming soil protection provisions are crucial. Secure land ownership will incentivise communities to view land not just as an economic asset but as a resource requiring sustainable management.

135 See Ginzky et al. (2019: 4).

136 See Sec 1(2) of the Land Ordinance No. 74/1.

4.7 Wildfires, hunting, and cattle rearing

Human-induced wildfires are a significant driver of soil degradation in Cameroon. Despite existing fire management policies, strengthening wildfire prevention can help protect the soil. The 1994 Forestry Law prohibits starting fires that harm vegetation in national forests without authorisation, and hunting with fire is also banned. Penalties range from fines to imprisonment for violating these provisions.

Decree No. 95/531/PM outlines fire control responsibilities for forestry staff and the Ministry of Territorial Administration, including fire permits. However, local fire prevention committees are ineffective due to a lack of environmental focus.

In cattle rearing, where fires are used to clear land for fresh grass, policies are needed to address this issue. Implementing intensive cattle ranching systems, such as those in Indonesia,¹³⁷ could reduce soil pressure but would require a financial investment.

4.8 Conclusion

Cameroon's sectoral legislations show both strengths and weaknesses in soil protection. While they make some incidental references to soil protection, many are incomplete and lack enabling instruments, leading to delays in implementation. This issue, seen with the mining law, hampers effective soil protection. Ideally, laws should be detailed and complete, as in common law countries, or crafted with enabling instruments to ensure immediate implementation.

Cameroon's land tenure system, with its mix of statutory and customary rights, also complicates sustainable soil management. Historical legacies of land ownership by the state and land-grabbing by elites, along with the non-legalisation of customary land titling, further undermine soil protection. Current land laws lack explicit soil protection provisions, leaving them incoherent and incomplete.

These gaps call for legal reform, including a comprehensive land management framework and a national soil protection agency. Secured land rights would also support sustainable soil management practices, alongside policies that incentivise land conservation and improve access to education and poverty reduction.

137 Epule et al. (2014: 412).

5 Lessons learnt and recommendations

5.1 Positive lessons learnt and opportunities for soil protection

Soil protection in Cameroon is addressed through various scattered provisions in laws such as the Constitution, the Framework Law on Environmental Management, and sectoral laws for agriculture, mining, and forestry. While Decree No. 2011/2584/PM specifically addresses soil and subsoil protection, it lacks comprehensiveness. Key areas such as public participation, education, policy advocacy, and monitoring are essential for soil protection but are weakly addressed in existing laws.

Interventions to combat soil degradation should focus on sustainability, involving small-scale farmers and local communities, whose knowledge is vital for effective soil management. While the 1996 Framework Law recognises this, community empowerment and capacity-building have not been fully realised. Regulations such as the Common Provisions on Pesticides aim to protect human health and the environment, but the industrial sector remains governed by fragmented regulations.

Given the cross-cutting nature of soil issues, strong institutional frameworks are needed to coordinate and implement policies. While several government ministries and institutions support soil protection, their effectiveness is hampered by weak powers and poor coordination. Sustainable soil management requires an integrated approach, but current initiatives, such as the Inter-Ministerial Committee for the Environment, remain weak in practice.

5.2 Negative lessons learnt

In Cameroon, while the 1996 Framework Law on Environmental Management guarantees access to environmental information and public participation, its implementation is weak. Soil-related information is often outdated, inadequate, and not georeferenced, and public awareness of soil degradation is low. Key sectoral activities such as agriculture, mining, and industrial development contribute significantly to soil degradation, but existing legislation offers limited protection. The 2023 Mining Code indirectly addresses soil protection but lacks effective implementation due to a lack of enabling instruments.

Foreign investors in the mining sector often disregard environmental concerns, contributing to soil degradation through harmful practices including mercury use. The industrial sector also lacks specific legislation, leading to harmful effluent discharges that affect soil health, especially in cities such as Douala. Moreover, Cameroon's climate change policies overlook soil's critical role in climate mitigation, reflecting insufficient political will.

Agricultural practices, such as overuse of chemicals and unsustainable methods including slash-and-burn, further degrade soils. Legislative frameworks on pesticides, fertilisers, and environmental impact assessments are poorly implemented. Land tenure issues, such as the persistence of colonial-era laws and difficulties in obtaining land titles, complicate sustainable soil management.

5.3 Recommendations

To support the goal of doubling agricultural production and natural resource exploitation, soil protection legislation is crucial. Soil is the foundation of all environmental resources, so recommendations for strengthening soil protection are necessary. While the Constitution references natural resources, a specific provision addressing soil protection should be enacted. Parliament should then pass comprehensive legislation integrating soil management into existing laws. This would involve: creating detailed soil protection laws for clear, effective implementation; including soil management in education from elementary to university levels; educating farmers through capacity-building programs and outreach; ensuring soil management is included in contracts, governance, and transparency efforts; engaging stakeholders, including NGOs, in crafting soil legislation; strengthening decentralisation, empowering local entities with resources and authority to enforce laws; and consolidating applicable laws and creating an inter-ministerial committee for land-use decisions to ensure better coordination.

Regarding soil protection in forestry, strategies should include afforestation, restoration of degraded landscapes, engaging development partners, and updating the NEMP to set restoration standards. For enforcement, improving collaboration among entities, enhancing access to environmental information, and public participation are essential. An access-to-information law should allow the public to access soil-related information, promoting transparency. Strengthening monitoring structures and enforcing existing ESIA measures is also crucial.

For land rights, harmonising land tenure laws and recognising customary rights within modern legislation is key. A single land act should be passed, offering protection to customary land rights as private property. On foreign investment, laws should impose an environmental tax, certify commodities that may degrade soil, limit land acquisition, and hold investors accountable for social and environmental responsibility. Incentives should encourage farmers to invest in degraded lands, and governance and institutional capacity must be improved.

The CEMAC Sub Regional Community Secretariat should urge governments to enforce community regulations on soil protection and integrate soil protection into climate change legislation. Addressing harmful agricultural practices, such as unsustainable farming and pesticide use, requires policies to raise awareness and prevent soil

degradation. A moratorium on degrading practices and greater public access to soil data is vital.

Politicians' buy-in is critical for successful soil protection, requiring strong political will, supported by public advocacy, lobbying, and alliances with stakeholders. Clear, focused messaging is key to gaining support from government officials, legislators, and the public.

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Country report for Kenya¹

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Abstract

This chapter examines soil conservation in Kenya, focusing on the legal and institutional challenges that hinder its effectiveness. It highlights key issues such as weak law enforcement, fragmented policies, and the insufficient prioritisation of soil conservation within development planning. The chapter explores how these challenges exacerbate soil degradation, particularly considering Kenya's growing population, rapid urbanisation, and industrialisation, and the subsequent impact on sectors such as food security and ecosystem health.

An analysis of the existing legal framework reveals significant shortcomings, including the lack of a dedicated soil protection law. Specific attention is given to existing laws, such as the Environmental Management and Coordination Act (EMCA) and the Fertilisers and Animal Foodstuffs Act, but the chapter emphasises that soil conservation remains overshadowed by other environmental priorities. The complexities of Kenya's land tenure system and institutional governance, with overlapping responsibilities between national and county governments, further complicate soil management.

The chapter also presents key findings, including the need for stronger institutional coordination, enhanced public awareness, and a more integrated approach to soil conservation. It offers recommendations aimed at improving legal frameworks, fostering inter-institutional collaboration, and developing region-specific soil management laws. It concludes by emphasising the urgent need for a dedicated soil protection law, particularly considering Kenya's ambitions in the green economy and the critical role of soil in mitigating climate change.

1 This chapter is an update of the one authored by Kameri-Mbote, Kamunge & Yatich (see Reference List).

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Summary

This chapter explores the state of soil conservation in Kenya, highlighting its secondary importance compared to broader land and environmental protection concerns. Despite the existence of various laws related to soil conservation, their effectiveness is severely undermined by weak institutions, poor implementation, and corruption. These challenges have allowed soil degradation to persist and worsen, especially as Kenya's growing population, rapid urbanisation, and industrialisation exert increasing pressure on land and soil resources. While legal frameworks exist, they have not evolved sufficiently to address the compounded challenges facing soil conservation. Agricultural production often takes precedence over soil protection, leading to a lack of comprehensive strategies for soil conservation.

One of the most significant gaps in Kenya's legal framework is the absence of a dedicated soil protection law. The chapter highlights that while numerous laws and policies address aspects of soil conservation, they are fragmented, overlapping, and occasionally in conflict, leading to inefficiency and confusion in their implementation. Although laws such as the Environmental Management and Coordination Act (EMCA, 1999), the Fertilisers and Animal Foodstuffs Act, and the Irrigation Act regulate environmental and soil-related activities, there is no cohesive law specifically focused on soil conservation. As a result, soil conservation is treated as an incidental element of broader environmental management, rather than as a critical component of Kenya's sustainable development strategies.

The chapter also reflects on the lessons learned from Kenya's constitutional and legal framework. The Constitution of Kenya guarantees the right to a clean and healthy environment, which includes soil protection. This right is linked to other fundamental rights, such as the right to adequate food, freedom from hunger, and the highest attainable standard of health. The judiciary has shown a progressive approach, particularly after the 2010 constitutional reforms, by emphasising the interconnectedness of environmental and socio-economic rights. Several court cases have held entities accountable for environmental harm, demonstrating the judiciary's commitment to interpreting environmental protection broadly. However, despite this judicial progress, soil conservation remains a peripheral concern within Kenya's overall environmental governance structure. Although laws such as the EMCA have been effective in addressing air, water, and biodiversity issues, soil conservation has not received the same level of attention or protection.

A key challenge identified in the chapter is Kenya's fragmented approach to environmental governance, where laws are often sector-specific and fail to address the interconnections between various environmental components such as soil, water, and air. This compartmentalised legal structure has resulted in poor coordination between national and county governments, hindering effective soil protection. Moreover, although environmental impact assessments (EIAs) are required for development

projects, their enforcement is weak, and irregularities in issuing EIA licences contribute to further environmental degradation.

Urbanisation is another major factor driving soil degradation in Kenya. The chapter focuses on counties including Kitui, Machakos, and Makueni, where urban sprawl and industrialisation, combined with fragile sandy soils and low rainfall, make these areas particularly vulnerable to soil erosion and degradation. Soil degradation disproportionately affects rural communities reliant on agriculture for their livelihoods, contributing to food insecurity and poverty. Despite Kenya's aspirations to lead in the green economy and climate change mitigation, soil conservation efforts have not been as robust as other environmental initiatives, especially given the critical role soil plays in carbon sequestration and mitigating climate change.

The chapter argues that addressing soil conservation in Kenya requires a multifaceted approach that integrates technical, economic, and political considerations. Political will is essential for successful legislative and policy reforms, as political dynamics often influence the adoption of such reforms. The chapter stresses the importance of recognising the political economy of soil governance, highlighting that treating legislative changes purely as technical processes is likely to fail without addressing the broader political context and the incentives of various stakeholders. The chapter calls for improved institutional collaboration, prioritisation of public awareness, and enhanced access to information to strengthen soil conservation efforts.

The chapter presents several recommendations for improving soil conservation and protection in Kenya. These include the development of a comprehensive national soil policy involving all stakeholders, the participatory creation of soil legislation, and the establishment of region-specific soil management laws at the county level. These laws should be tailored to the unique characteristics of local soils and promote coordinated efforts between national and county governments. The chapter advocates for a move away from fragmented, sectoral approaches to environmental law enforcement and calls for greater collaboration between institutions such as the National Environment Management Authority (NEMA) to implement soil protection laws effectively.

The chapter also recommends integrating soil conservation education into school curricula to foster awareness among younger generations and cultivate future environmental stewards. Access to updated, specific soil quality information is essential, particularly for small-scale farmers who rely heavily on soil for their livelihoods. Soil protection techniques including afforestation, reforestation, and the promotion of low-cost soil conservation technologies should be actively encouraged. In addition, incentives such as subsidies for fertilisers and manure should be provided to improve soil fertility.

A holistic legislative approach to soil conservation is necessary, one that addresses the many factors contributing to soil degradation, such as erosion, contamination, acidification, salinisation, and nutrient loss. The chapter also suggests that soil conservation efforts should extend beyond national borders, recognising the transboundary

nature of soil-related issues. The proposed legislation should incorporate gender-sensitive provisions, acknowledging the vital role of women in soil and land management and their heightened vulnerability to soil degradation.

The chapter advocates for the establishment of a national soil authority to oversee soil information, planning, evaluation, and monitoring. This authority would work alongside devolved expert advisory bodies to guide legal, strategic, and policy decisions. Furthermore, the proposed soil law should facilitate public participation, capacity building, and research, particularly in erosion-prone areas. A guaranteed financing scheme should also be set up to support the resource-intensive nature of soil conservation efforts, ensuring their long-term sustainability. The law must provide clear mechanisms for accountability, offering dispute resolution through the National Environment Tribunal and the Environment and Land Court.

In conclusion, the chapter calls for the creation of a soil-specific law that provides a comprehensive, integrated approach to soil conservation. This law should prioritise public participation, address transboundary issues, and enforce accountability. Such legislation would not only protect Kenya's soils but also promote sustainability, equity, and long-term environmental health.

1 Introduction and country information

Kenya, a former British colony, attained self-rule in June 1963 and full independence on 12 December 1963. Situated along the Equator, it lies between latitudes 4°N and 4°S and longitudes 33°83'E and 41°75.5'E.² The country shares borders with Uganda to the west, Tanzania to the south, Ethiopia to the north, South Sudan to the northwest, Somalia to the east, and the Indian Ocean to the southeast. Kenya spans approximately 582,646 km², 11,230 km² (1.9%) of which is water. Notably, 84% of its landmass (490,000 km²) comprises arid and semi-arid areas characterised by low rainfall, high evapotranspiration, poor soil fertility, and limited water resources.

Kenya's geography can be divided into four distinct regions: the coastal plain, the arid low plateau, the highlands, and the Lake Victoria basin, each with unique land use patterns and rainfall levels. The Lake Victoria basin receives the heaviest and most consistent rainfall.³

Historically, Kenya has been the leading economy in East Africa, excelling in GDP, poverty alleviation, literacy, healthcare, infrastructure, and industry. However, its dominance is now being challenged by neighbours such as Rwanda and Ethiopia. Internal issues, including corruption and high taxation, have raised the cost of doing business and deterred investment. To maintain its regional influence, Kenya must

2 Government of Kenya (2016b: 21).

3 Ibid.: 25-26.

address these challenges, repurpose infrastructure projects, and deepen regional integration.

Kenya is also a regional leader in integration, hosting refugees from neighbouring countries and playing a key role in peace processes for Sudan and Somalia. However, refugee camps in arid areas have worsened land degradation in those regions.

The country faces significant security threats, particularly from al-Shabaab, a militant group based in Somalia. Al-Shabaab recruits primarily from Kenya's marginalised borderlands, which have long suffered neglect. While terror attacks have spread across the country, coastal counties including Kwale have been proactive in countering violent extremism. Initiatives in these regions aim to promote sustainable development and mitigate the insecurity and displacement caused by terrorism, with a focus on bolstering agriculture and coordinating multi-stakeholder efforts.

Soil has ecological, cultural, economic, and political dimensions.⁴ It supports diverse ecosystems, provides habitats for living creatures, and sustains livelihoods.⁵ Despite its critical role, Kenya lacks specific legislation dedicated to soil management. Soil protection principles are scattered across various laws and policies addressing land rights, environmental protection, natural resources, and public health.

For example, measures such as bench terraces protect soil from erosion, while public health laws address soil contamination by vermin. However, soil is rarely the primary focus, leading to fragmented management that struggles to balance competing interests. This highlights the need for dedicated soil policies, sound governance, and effective monitoring to ensure sustainable soil use for future generations.

This chapter examines Kenya's laws, policies, and programs on soil protection to inform model legislation for sustainable soil management in Africa. While Kenya has no comprehensive soil legislation, efforts are underway with the National Agricultural Soil Management Policy and a forthcoming bill. The chapter explores existing laws with implicit or explicit soil protection elements, reviews soil-related governance and drivers of degradation, and traces soil protection narratives throughout Kenya's history.

The chapter is structured to provide background on Kenya's demography, soil types, climate, and economy; analyse the main drivers of soil degradation; provide the historical context of soil legislation; and recommend future soil protection laws.

1.1 Religion

The main religions practised in Kenya include Christianity, Islam, Hinduism, and traditional African religions. Christianity, particularly Catholicism and Protestantism, has had a significant presence since its introduction during colonial times. However, in

4 Allan (2008).

5 Howard (2015).

recent decades, Pentecostal churches and Islam have gained more followers, reducing the dominance of traditional Christian denominations. Despite colonial efforts to suppress African religions, traditional beliefs persist, although their numbers are difficult to quantify. These indigenous beliefs continue to influence the practice of introduced religions in Kenya.

1.2 Climatic conditions

Kenya has a moderate tropical climate, influenced by topographical features such as Mount Kenya, Mount Elgon, the Aberdare Range, and the Mau Range, as well as the movement of the Intertropical Convergence Zone (ITCZ). Large water bodies, such as Lake Victoria and the Indian Ocean, also affect rainfall patterns. The coastal region experiences a relatively wet tropical belt, while the inland areas are predominantly arid and semi-arid. Kenya has two main rainfall seasons: the ‘long rains’ (March–May) and the ‘short rains’ (October–December). The country has an average annual rainfall of about 680 mm, but this is unevenly distributed, ranging from 200 mm in arid zones to over 2,000 mm in humid areas. As a result, Kenya often faces insufficient and erratic rainfall, leading to frequent droughts and occasional floods, which significantly impact the economy, particularly the rain-fed agriculture sector.

1.3 Population

According to the 2009 census, Kenya’s population was 38.6 million,⁶ which rose to 47.6 million in 2019 and is projected to reach 56.1 million in 2024.⁷ The population more than tripled between 1969 and 2009, from 10.9 million.⁸ The annual growth rate decreased from 2.9% in 2009⁹ to 2.2% in 2019.¹⁰ Kenya’s population is concentrated in the central and western parts,¹¹ with the most densely populated counties being Nairobi (4,397,073), Kiambu (2,417,735), Nakuru (2,162,202), Kakamega (1,867,579), and Bungoma (1,670,570). Less populous counties include Lamu (143,920), Isiolo (268,002), Samburu (310,327), and Taita Taveta (340,671). Approximately 40% of the population is under the age of fifteen.¹² Around 75% of the population lives in medium to high-potential agricultural areas, which constitute 20% of the land, while the rest

6 See <https://www.knbs.or.ke/?p=5621>, accessed 1 February 2021.

7 Government of Kenya (2019a).

8 Ibid: 5.

9 See <https://data.worldbank.org/indicator/SP.POP.GROW?locations=KE>, accessed 1 February 2021.

10 Government of Kenya (2019a).

11 Ibid: 11.

12 Government of Kenya (2019b:12).

live in arid and semi-arid regions.¹³ In 2015/2016, literacy rates for those aged 15 and above were 84.5%, with urban areas at 93.2% and rural areas at 78.8%.¹⁴

1.4 The economy

Kenya's economy is primarily driven by agriculture, natural resources, energy, manufacturing, construction, transport, tourism, and information and communication technology. Agriculture, being climate-dependent, directly contributes 26% of the gross domestic product (GDP) and another 27% indirectly through its connections to other sectors.¹⁵ The sector employs over 40% of the population, with more than 70% of Kenya's rural population relying on it. It accounts for 65% of export earnings and supports the livelihoods of more than 80% of the population, while also contributing to nutrition through the production of diverse, nutrient-dense foods. Agriculture is also a key driver of the non-agricultural economy, including manufacturing, transportation, construction, and social services, making soil management and regulation vital for the economy.

In 2018, Kenya's real GDP grew by 6.3%, up from 4.9% in 2017.¹⁶ This growth was largely due to increased agricultural production, manufacturing activities, and a vibrant service sector.¹⁷ The agriculture, forestry, and fishing sectors saw significant growth, with favourable weather conditions contributing to a 6.4% growth in agriculture, up from 1.9% in 2017. However, by June 2018, Kenya's public debt had risen to KSh4.54 trillion, with 56.6% of this debt being external.¹⁸ This includes KSh829.8 billion from multilateral agencies and KSh480 billion from external bonds.¹⁹ By October 2019, the national debt had increased to KSh5.9 trillion, representing 59.9% of GDP, up from KSh1.89 trillion in 2013, highlighting the country's growing debt burden.²⁰

1.5 Kenya's political system and governance

Kenya's sovereign power, as outlined in the 2010 Constitution, is vested in the people of Kenya (Article 1(1)). This power is exercised either directly or through elected representatives at both national and county levels, under the system of devolved

13 Government of Kenya (2019a: 11).

14 Kenya National Bureau of Statistics (2018: 83).

15 See www.fao.org/kenya/fao-in-kenya/kenya-at-a-glance/en/, accessed 8 May 2019.

16 Kenya National Bureau of Statistics (2019: 1).

17 Ibid: 2.

18 Ibid: 1.

19 Ibid: 80.

20 Herbling (2019); Owino & Mutua (2019: 6).

governance (Article 1(2)). The Constitution delegates sovereign power to various branches of government: the National Executive, legislative assemblies in county governments, the Judiciary, and independent tribunals (Article 1(3)). These governments at the national and county levels are distinct yet interdependent, maintaining their relationships based on consultation and cooperation (Article 6(2)).

The National Executive comprises the President, the Deputy President, and the Cabinet (Article 130(1)). The President is both the head of state and government, as well as the Commander-in-Chief of the Kenya Defence Forces (Article 131(1)). The Cabinet consists of the President, the Deputy President, the Attorney General, and between fourteen to 22 Cabinet Secretaries, each responsible for different sectors (Article 152(1)). These Cabinet Secretaries are appointed by the President but must be approved by the National Assembly (Article 152(2)). For example, there are Cabinet Secretaries dedicated to the environment and land. Under the Cabinet Secretaries are Chief Administrative Secretaries and Principal Secretaries, who carry out functions under designated directorates.

Parliament is bicameral, consisting of the National Assembly and the Senate, with a total of 418 members, including the speakers of both Houses (Articles 93 and 97-98).

The Constitution also establishes 47 counties, each with its own government (Article 6(1)). A county government comprises a county assembly and a county executive (Article 176(1)). The county assembly, which is made up of elected members from the county's wards, is responsible for making laws that are necessary for the county's effective governance (Article 177). The executive authority is vested in the county executive committee, which includes the county governor, the deputy governor, and other members appointed by the governor with approval from the county assembly (Article 179). The county executive committee is tasked with implementing county legislation, managing county functions, and coordinating administration within the county (Article 183). Additionally, it may propose new legislation for consideration by the county assembly (Article 185(1)).

The county assemblies are empowered to make laws related to the performance of county functions, and they oversee the work of the county executive committee (Article 185(2)). Counties have enacted legislation on issues such as climate change, quarrying, charcoal burning, and land use.²¹ They are also responsible for overseeing the implementation of both county and national laws within their jurisdictions (Article 185).

21 See the examples of Makueni, Kericho, and Kitui. It is worth noting that many of these legislations address the collection of fees and not the unsustainability of the practices. Counties such as Kitui have, however, banned charcoal burning.

1.6 Legislative authority

Kenya's legal and policy framework on soil governance is primarily integrated into land law, which has historically concentrated on land rights rather than land use.²² Soil-specific management and conservation have not been sufficiently addressed, and the law is often applied generically without considering the diverse soil types and management needs across the country. Until 2010, the National Assembly was the sole legislative body, but with the introduction of devolved governance, the 47 county assemblies now play a crucial role in lawmaking at the local level.

Article 185 of the Constitution empowers county assemblies to make laws necessary for the effective performance of county functions, including environmental and natural resource management. Under the Fourth Schedule, the national government is responsible for formulating policies related to environmental conservation, land, and agriculture. The county governments are tasked with implementing these policies at the local level, including those addressing soil and water conservation.

Given the diversity of soil types across the country, the need for soil-specific protection measures is clear. Counties can create tailored soil governance legislation that addresses the unique soil challenges and requirements in different regions. With devolved governance, county governments are also expected to improve law enforcement and strengthen agricultural and soil extension services, which are key to monitoring soil fertility, combating degradation, and promoting sustainable agricultural practices. By focusing on soil health and nutrient replenishment, county governments can help reduce soil degradation and contribute to increased food production, ultimately fostering healthier soils and more resilient agricultural systems.

1.7 Environmental dispute resolution

Kenya's judiciary, which is independent as per Article 160 of the Constitution, plays a vital role in the governance and protection of soil and the environment. The Constitution ensures judicial independence by providing judicial officers with security of tenure and protection from external influence, including from the executive. However, despite this constitutional safeguard, challenges remain, particularly regarding underfunding, which has limited the judiciary's capacity to function effectively.²³ The judiciary's independence has been further compromised by occasional smear campaigns targeting judges, especially those who make rulings not aligned with the executive's interests.²⁴

22 National Land Policy 2009; National Land Use Policy 2017.

23 Namusyule & Mueni (2018); Ogemba & Muthoni (2019).

24 See <https://bit.ly/3d7B9aQ> accessed 1 November 2019.

The Environment and Land Court (ELC) has a central role in addressing environmental and soil-related issues. The court is empowered to adjudicate disputes on land, environmental degradation, and conservation, with the ability to issue orders for environmental restoration and rehabilitation. Importantly, the ELC has been proactive in enforcing constitutional provisions that protect environmental rights, ensuring sustainable development and environmental preservation.

A key case, *Patrick Musimba v National Land Commission* [2016] eKLR, highlighted the constitutional duty of the state to promote sustainable development and ensure access to a clean and healthy environment. The court emphasised the importance of public participation in environmental governance, as mandated by Article 69 of the Constitution. Similarly, in *Save Lamu v National Environmental Management Authority* [2019], the National Environment Tribunal halted a coal project due to inadequate environmental impact assessments and insufficient public participation, underscoring the importance of transparent, informed decision-making processes in environmental governance.

The ELC also affirmed the minimum requirements for effective public participation in environmental matters in *Mui Coal Basin Local Community v Permanent Secretary Ministry of Energy* [2012] Petition No. 305, asserting that public participation must be tailored to the specific context and should guarantee access to relevant information.

Additionally, Kenya's legal framework recognises the importance of alternative dispute resolution, particularly in community land matters, where over 60% of Kenya's land is categorised as community land. The National Land Commission promotes the resolution of land disputes through traditional means, which can significantly influence soil governance and conservation efforts.

In sum, the judiciary, particularly through the ELC, has played an instrumental role in advancing soil and environmental protection in Kenya. However, it continues to face challenges related to funding and external interference, which could impact its effectiveness in the long term. Nonetheless, the court's role in ensuring environmental rights and promoting public participation remains a crucial avenue for advancing sustainable soil governance.

2 Main drivers of soil degradation

Agriculture, the backbone of Kenya's economy, involves soil cultivation, crop production, and livestock rearing. Despite being the fourth-largest economy in sub-Saharan Africa, Kenya faces challenges with its population nearly doubling since 1989 while arable land—only 10% of the country's landmass—continues to decline.²⁵ Expanding

25 Mohajan (2014); Mwanza (2019).

urban areas, including Kiambu and Nakuru counties, are converting fertile farmland into infrastructure, increasing pressure on the diminishing agricultural soil to meet growing food demands.

Soil and environmental degradation in Kenya are rising, driven by both natural factors and human activities. Climate change, urbanisation, soil erosion, overgrazing, over-cultivation, compaction, industrial activities, illegal land allocations, and encroachment on sensitive areas are all contributing to the loss of soil fertility and biodiversity.

2.1 Kenya soil profile: Soil types, distribution, and degradation vulnerability

Kenya's soils are diverse, ranging from sandy to clayey and low to high fertility, influenced by geology, terrain, and climate.²⁶ However, many face issues such as salinity, acidity, low fertility, and poor drainage. The country has 25 major soil types, with fifteen dominant ones, including Nitisols, Regosols, Cambisols, Luvisols, and Ferralsols.²⁷ While 59% of Kenya's soils are moderately to highly fertile, they face significant challenges.²⁸

Nitisols, found in the central highlands, are highly productive but require manure and inorganic fertilisers to maintain fertility. Counterfeit fertilisers, such as those with harmful metals, undermine soil health. Andosols, occurring in areas with steep slopes and high rainfall, are prone to erosion and leaching, requiring liming and fertilisers to improve productivity.

Acrisols, Alisols, Lixisols, and Luvisols, common in coffee-growing zones, are acidic and low in nutrients, requiring fertilisers and erosion control. The combination of Nitisols and Andosols, particularly in densely populated areas, further strains soil resources.

Planosols and Vertisols, found in rice-growing regions, suffer from poor drainage due to high clay content and require careful irrigation management. Their vulnerability is heightened by using substandard chemicals and wastewater in irrigation.²⁹ Ferralsols, found in older, leached areas, are nutrient-poor and require fertilisers and organic matter management to maintain productivity.³⁰

26 Government of Kenya (2016b: 30).

27 Ibid.: 30-31.

28 Ibid.: 32.

29 Nyabonyi (2016).

30 Government of Kenya (2016b: 33).

2.2 Challenges that face Kenyan soils

The national soil management policy in Kenya highlights several challenges facing agricultural soil, including the lack of responsibility for soil and water conservation on communally owned land, inadequate investments in conservation, and insufficient development and use of land use plans. Unsustainable farming practices, encroachment into environmentally fragile areas, and limited capacity for soil and water conservation are also major concerns. Additionally, there is inadequate research and dissemination of conservation technologies, poor coordination among stakeholders, and a lack of extension services. The high cost of conservation activities and inadequate awareness of soil degradation further exacerbate the issue. Furthermore, there is insufficient quality control on agrochemicals, a lack of standards and soil testing facilities, and weak enforcement of environmental laws. Uncoordinated research, inadequate legal and regulatory frameworks, and land tenure issues compound the problem. The country is also ill-prepared for climate risks, with indigenous knowledge of soil conservation often overlooked. The high cost and untimely availability of fertilisers, conflicting policies among state agencies, and the absence of gender-sensitive soil management technologies add to the complexity of addressing these challenges.

2.3 The main drivers of soil degradation

Soil degradation in Kenya refers to the decline in soil quality and fertility caused by both human activities and natural processes. This includes physical, chemical, and biological degradation, resulting in reduced agricultural productivity, loss of ecosystem services, and increased vulnerability to droughts and floods. Overuse of chemicals, fertilisers, and fungicides has poisoned and compacted soils, while industrial and urban waste contributes to further degradation.³¹ Soil compaction is a major issue, especially in high livestock-density areas, leading to reduced infiltration and increased runoff, soil erosion, and gullyng.³² Salinity and sodicity affect about 40% of Kenya's land, particularly in arid and semi-arid regions.³³ High soil erodibility, influenced by soil texture and human activities, leads to soil erosion, particularly in areas with poor vegetation cover or steep slopes.³⁴ Erosion is worsened by unsustainable farming practices, including overgrazing, shifting cultivation, and improper ploughing techniques.³⁵ This degradation results in reduced soil functions, increased flooding risks, and the need for more chemicals to maintain productivity, perpetuating further soil and

31 Kenya Land Alliance (2003: 43).

32 Government of Kenya (2016b: 66).

33 Ibid.: 68.

34 Ibid.: 65.

35 Kenya Land Alliance (2003: 37).

water pollution. Additionally, human activities such as deforestation, pollution, and unsustainable land use practices exacerbate the problem. The loss of biodiversity, driven by land degradation, climate change, and invasive species, further threatens soil conservation.³⁶

2.3.1 Agriculture

Agriculture is crucial to Kenya's economy, practised across large, small, and subsistence scales. However, rapid urbanisation is converting arable land into concrete spaces, putting immense pressure on the remaining farmlands to feed the growing population. This is coupled with increased mechanisation, technology use, and reliance on agrochemicals. The importation of substandard fertilisers has led to soil and water pollution, particularly in irrigation schemes such as the Mwea Rice Scheme.

Kenya's agricultural extension services, though recognised for improving productivity, remain inadequate, contributing to poor soil nutrition and over-reliance on agrochemicals.³⁷ Unsustainable farming practices such as land clearing, overgrazing, and bush burning further degrade soil fertility.³⁸ The country's population growth and food demand have driven agricultural expansion, but limited land resources and over-reliance on land have resulted in nutrient depletion and the breakdown of traditional soil management practices.³⁹

Most farming in Kenya is subsistence-based, with smallholder farmers using outdated methods including burning vegetation to cultivate virgin land.⁴⁰ This contributes to carbon buildup in the soil. Many farmers cultivate on steep slopes and fragile soils, which are prone to erosion. The over-cultivation of land without adequate soil restoration leads to reduced productivity and soil degradation. Nutrient loss, estimated at 112 kg of nitrogen, 2.5 kg of phosphorus, and 70 kg of potassium in the highlands, further impacts land productivity and water quality.

2.3.2 Mining

Kenya is rich in minerals such as fluorspar in Kerio Valley, gold in the west, titanium along the coast, and soda ash in Kajiado and coastal areas. Other resources include manganese, iron ore, gypsum, diatomite, and silica sand. Anticipating discoveries, Kenya adopted its first mining policy in 2016 to maximise future benefits.

36 Government of Kenya (2016b: 65); Government of Kenya (2013a: 14).

37 Muyanga & Thomas (2006).

38 Government of Kenya (2018b: 45).

39 Ibid.: 53.

40 Government of Kenya (2016b: 67).

However, heavy mining and quarrying have led to biodiversity loss, soil erosion, chemical contamination, and water pollution.⁴¹ Although the Environmental Management and Coordination Act (EMCA) mandates Environmental Impact Assessments (EIAs) for projects, enforcement is weak. Many EIAs in mining fail to meet legal standards, as seen in *Cortec Mining Kenya Limited v Cabinet Secretary Ministry of Mining* [2017] eKLR and *Save Lamu v NEMA* [2019] eKLR, where activities proceeded without proper assessments. These instances highlight the disregard for environmental laws essential for soil and ecosystem protection.

2.3.3 Industrial activities

Kenya's growing industrial sector, serving local and export markets, is concentrated in cities and agriculturally rich areas for value addition. Industrialisation is a government priority to boost employment and the economy.⁴² However, industrial activities often lead to soil pollution. A 2015 study revealed persistent organic pollutants in soils near industrial zones and declining soil fertility in high-activity areas.

Despite the EMCA, which prohibits soil pollution and unregulated waste discharge, enforcement is weak. Industries frequently discharge effluents into rivers and soils, as seen in *Benson Ambuti Adega v Kibos Sugar and Allied Industries* [2019] eKLR, where Kibos Sugar Factory was repeatedly penalised for environmental violations.⁴³ EMCA designates the National Environment and Coordination Authority (NEMA) as the lead agency for environmental protection, but overlapping institutional roles often lead to inaction and blame-shifting, hindering effective pollution control.

2.3.4 Unregulated urban and infrastructural development

Over the past two decades, Kenya's population has doubled, with rapid rural-to-urban migration driving urban growth.⁴⁴ The urban population rose from 5.4 million in 1999 to 12.2 million in 2009 and was projected to reach 17.6 million by 2017, representing 39% of the total population and an annual urban growth rate of 7.5%. County governments have also spurred urbanisation, particularly in the 47-county headquarters. However, planning laws have lagged, resulting in inadequate housing, sanitation, and infrastructure.

Urban expansion has replaced fertile agricultural lands with concrete structures, reducing vegetation and forest cover and intensifying pressure on remaining

41 David et al. (2016); Mutono (2016).

42 Government of Kenya (2017a).

43 Allan (2019).

44 Ministry of Land and Urban Planning (2017).

productive soils. Government-supported infrastructure projects, such as affordable housing initiatives, road expansions, the Standard Gauge Railway, and the Mombasa-Nairobi petroleum pipeline, have further degraded soils.⁴⁵ These developments lead to soil sealing, compaction, topsoil loss, biodiversity reduction, and contamination risks. For example, pipeline leaks in Makueni have polluted soils and water, posing health and fire hazards to communities and livestock.

2.3.5 Climate change

Soil serves as the planet's largest natural reservoir of carbon, storing more carbon-containing compounds than the combined total of the Earth's biomass and atmosphere. Soil organic carbon comes from microbes, fungi, invertebrates, root matter, and decomposing vegetation. However, Kenya faces significant challenges related to climate change,⁴⁶ including rising temperatures, unpredictable rainfall, and increasing loss of soil organic carbon—an indicator of land degradation that threatens biodiversity, sustainable development, and climate adaptation.⁴⁷

Over 70% of natural disasters in Kenya are linked to extreme climate events such as droughts and floods, both of which exacerbate soil degradation. Floods, caused by reduced vegetation and poor rainfall infiltration, lead to soil erosion, loss of property, and displacement.⁴⁸ Counties such as Garissa, Tana River, Kisumu, and Busia are particularly flood-prone, with major floods recorded during the 1997/1998 El Niño event, affecting 1.5 million people, and subsequent years including 2012.

Droughts are a recurring challenge, especially in arid and semi-arid regions, with increasing frequency and severity over recent decades. Notable droughts occurred in 1972, 1984, 1991, and as recently as 2010/2011, with drought events now happening every two years.⁴⁹ These droughts destroy vegetation, leaving the land vulnerable to erosion by wind and water, compounding Kenya's soil degradation crisis.

2.3.6 Brownfield sites

Brownfield sites are underutilised or abandoned lands, often associated with actual or perceived contamination from previous uses, but they hold potential for redevelopment or reuse.⁵⁰ In Kenya, many industrial sites have been abandoned due to the relocation

45 Kenya National Bureau of Statistics (2018: 174).

46 Ministry of Foreign Affairs of Netherlands (2018).

47 Government of Kenya (2016b: 64).

48 Ibid.: 62.

49 Ibid.: 64.

50 Kazungu et al. (2011).

of industries to areas such as the Athi River. These sites face significant challenges, including land-cover changes, loss of organic matter, altered soil structure, compaction, and reduced fertility. Despite these constraints, some brownfield sites may offer advantages such as existing infrastructure and desirable locations, making them viable for redevelopment with proper planning and remediation.

2.3.7 Deforestation

Forest ecosystems play a vital role in conserving soil, water, and biodiversity while moderating the climate. However, Kenya's public and community forests have faced significant threats from human activities such as charcoal burning, illegal logging, overgrazing, and encroachment.⁵¹ This has resulted in the loss of approximately 5,000 hectares of forest annually, causing extensive soil erosion in Leroghi, Ndoto, and Mount Nyiru forest reserves.

Despite these challenges, Kenya's forest cover increased from 7.2% in 2013 to 7.29% in 2017, with the government aiming to achieve 10% tree cover by 2022.⁵² The consequences of deforestation include increased runoff, nutrient cycle disruption, higher soil temperatures, reduced organic matter input, loss of tree cover, and biodiversity decline.

2.3.8 Overgrazing

Rangelands, covering about 70% of Kenya's total area, are crucial to the country's economy.⁵³ Predominantly located in arid and semi-arid regions, these lands are home to pastoralists and agro-pastoralists who face growing competition from farmers migrating from overcrowded, higher-potential areas.

Rangeland degradation is marked by vegetation loss and increased bare soil, primarily caused by livestock overgrazing. Overgrazing exposes soil to wind and water erosion, while excessive trampling by livestock and wildlife compacts the soil, reducing its infiltration capacity.⁵⁴ These factors contribute to increased runoff, desertification, biodiversity loss, and overall soil degradation.

51 Government of Kenya (2018c: 28).

52 Government of Kenya (2018b: 85); See <https://bit.ly/3cumZ33>, accessed 1 February 2021.

53 Ibid.: 76.

54 Hannam & Boer (2004: 4).

2.3.9 Topographic features

Kenya's diverse topography, with its steep mountains, hills, and highlands, makes the country particularly vulnerable to soil erosion. These steep slopes facilitate excessive water runoff, significantly contributing to land degradation.

For example, in the upper Tana River sub-catchments of Thika and Chania, 66% of farmers cultivate very steep slopes, which are prone to severe runoff. Studies in the Central Highlands have documented soil losses of up to 247 tons per hectare annually on steep slopes in high-potential areas. Similarly, in the steep agricultural lands of Taita Taveta, approximately 50% of the land has been affected by rill and gully erosion, highlighting the urgent need for sustainable land management practices.

2.3.10 Land tenure

The land tenure system defines how ownership, access, and use of land rights are structured within a society or country. In Kenya, land tenure is categorised into three major groups: public, private, and community land. Public or state-owned land, which includes national parks, forest reserves, and government agricultural land, constitutes about 10% of the total land area and is governed by the Constitution and the Land Act 2012. This land faces challenges relating to encroachment and mismanagement, leading to deforestation and biodiversity loss. Private land, owned by individuals or legal entities, accounts for 20% of the land and is governed by the Land Act and the Land Registration Act 2012. Over-subdivision and intensive exploitation of private land contribute to soil degradation, and the high costs of soil conservation discourage private landowners from investing in such practices. Community land, comprising over 70% of the total land area, is held collectively by communities and managed according to traditional systems. It includes customary community land, trust land, and group ranches, and is regulated by the Community Land Act 2016. While the Act recognises communities' rights over ancestral lands, communal ownership often results in a lack of accountability for soil conservation, as no individual feels responsible. The National Agricultural Soil Management Policy of 2023 emphasises that both communal and private landowners are not motivated to invest in soil conservation due to its high costs, exacerbating soil degradation across Kenya. Effective soil management requires addressing these issues through policies that incentivise sustainable practices and promote responsibility among all land tenure groups.

2.3.11 Poverty

Poverty is a significant driver of soil degradation in Kenya. It compels people to encroach on marginal lands and forests in search of resources for survival. The need for income often leads to harmful practices such as illegal charcoal burning and the collection of firewood, both of which contribute to deforestation. These activities degrade the land, reducing its fertility and making it more vulnerable to erosion. The resulting loss of vegetation cover further exacerbates soil degradation, creating a vicious cycle where poverty fuels environmental harm, which in turn deepens the poverty of affected communities. Sustainable solutions are needed to break this cycle, including poverty reduction strategies and programs that promote land conservation.

2.3.12 Encroachment of freshwater and wetland ecosystems

Freshwater resources and wetlands are crucial for soil formation, nutrient cycling, and providing habitats for species. Wetlands help regulate water flow, control floods, and prevent soil erosion by absorbing excess stormwater and slowing floodwater, which reduces downstream flood volumes.⁵⁵ They also protect soil from wind and wave damage. However, wetlands face threats from population pressure, land use changes, pollution, and climate variability, leading to degradation and loss of ecosystem services. Illegal land allocations around riparian areas, including commercial developments, have cleared vital riparian vegetation, worsening soil erosion.⁵⁶ The Kenyan government is working to reclaim riparian land and demolish illegal structures.

2.4 Key actors in soil degradation

2.4.1 Investors

Local and international investors involved in agriculture, mining, and infrastructure development contribute to soil degradation. Therefore, it is crucial to involve them in interventions to combat soil degradation. These interventions should include incentives to promote sustainable soil management and sanctions to deter harmful activities.

⁵⁵ National Wetlands Conservation and Management Policy (2014: 6).

⁵⁶ Commission of Inquiry (2004).

2.4.2 Government

National and county governments, as landowners and custodians, play a crucial role in soil degradation. They are responsible for land use planning, allocation, and managing activities on land. Engaging their leadership is essential for comprehensively addressing soil degradation.

2.4.3 Farmers

Farmers, both on community and private land, are key actors in soil degradation. To address this, initiatives should focus on educating and providing extension services to farmers, promoting sustainable practices and reducing soil contamination from chemicals. Engaging both large- and small-scale farmers is essential, as they play a central role in soil-related activities.

2.4.4 Pastoralists

Pastoralists in arid and semi-arid lands contribute to soil degradation through unsustainable rangeland management and overstocking. The soils around watering points are often compacted, leading to further degradation. Targeted education and extension services can help address these practices, promoting better soil health and ecosystem integrity, and, ultimately, benefiting the land users.

2.5 Conclusion

Soil degradation in Kenya, where agriculture accounts for 24% of the GDP, has severe consequences. The main drivers include agriculture, mining, unsustainable land use, urban sprawl, climate change, soil erosion, deforestation, and overgrazing. Other contributing factors are soil compaction, sodicity, erodibility, poverty, loss of biodiversity, and land tenure systems. As Kenya experiences rapid development, population growth, and industrialisation, it must address these biological, natural, and physical drivers of soil degradation. The introduction of devolution presents an opportunity to implement more specific soil legislation at the county level.

3 Background on soil legislation

3.1 Historical perspective

Kenya's establishment as a British colony was influenced by the strategic importance of the Suez Canal and the need to expand the British Empire.⁵⁷ From 1895 to 1963, legislation facilitated the consolidation of land by settlers, while Africans were moved to native reserves. Colonial laws did not directly address soil conservation but destabilised local communities and disrupted the relationship between people and their environment, leading to overuse and soil degradation.⁵⁸ Land acquisition for settlers was politically driven, with legal instruments giving binding force to decisions.⁵⁹ The 1894 Indian Lands Acquisition Act extended to the East African Protectorate in 1899, allowing land to be declared Crown lands or granted to individuals.⁶⁰ The 1901 East Africa (Lands) Order-in-Council defined Crown lands as public lands controlled by the British.⁶¹ Settlers struggled to acquire land from natives due to differing views on land ownership,⁶² with Africans seeing land as communal and inalienable.⁶³ This has had lasting impacts on Kenyan land law and policy.

3.2 Colonial laws, policies, and plans

3.2.1 Crown Lands Ordinance, No. 21 of 1902

The Crown Lands Ordinance, No. 21 of 1902, was introduced under pressure from settlers, granting the commissioner the power to sell freeholds in Crown land to purchasers in lots up to 1,000 acres.⁶⁴ This gave colonial authorities broad discretion to define waste and unoccupied land, often disregarding native land rights. Native rights were viewed as temporary and could be extinguished if the land was not actively

57 Mungeam (1966); Wolff (1974).

58 See e.g. Lugard (1929) on the effects of colonialism on the institution of traditional chiefs in Kenya; see also Huxley (1935).

59 Kameri-Mbote (2002).

60 See Palley (1966: 82) quoting the Report of the Foreign Office FOCP 7403 No. 101.

61 See Sec 1 of the East African Order-in-Council, 1901, passed at the Court of St. James on 8 August 1901.

62 For some time, the colonial officers considered themselves unable to grant anything more than temporary certificates of occupancy, which the early settlers found unacceptable.

63 Bentsi-Enchill (1964); See the case of *Mulwa Gwanobi v Alidina Visram* (1913) 5 K.L.R. 141 involving the sale of land by members of the Jibana tribe, where the court held that what the tribe members sold were rights to occupy and reap fruits from the land and not absolute rights as the purchaser would have had the court believe. In the judge's view, the members of the tribal community had only a right of occupancy and they could, consequently, not pass on by sale a right greater than the one of occupancy.

64 See Sec 4 of the Crown Lands Ordinance 1902.

occupied, a perspective that marginalised nomadic communities such as the Maasai and those practising shifting cultivation.⁶⁵ The ordinance allowed the Crown to grant land, including native settlements, and once native occupancy ceased, ownership would transfer to the grantee. This effectively turned communal resources into open-access lands, encouraging settlement but undervaluing native communities' ability to develop the land.⁶⁶ The low price and rent offered to settlers reflected colonial authorities' belief that natives could not develop the land as envisioned for Kenya's future.

3.2.2 Crown Lands Ordinance, 1915

The Crown Lands Ordinance of 1915 declared all land in the protectorate to be Crown land, regardless of native occupation or reservation for native use.⁶⁷ It allowed for 999-year leases, though settlers pushed for perpetual leases.⁶⁸ In the case of *Isaka Wainaina v Murito wa Indagara*, Chief Justice Barth ruled that Africans were merely tenants of the Crown, with temporary land rights.⁶⁹ Section 54 gave the governor the power to reserve land for native tribes, leading to the establishment of 24 African reserves in 1926.⁷⁰ However, these reserves lacked the security of tenure. The population increase in these reserves contributed to soil degradation, as evidenced by Leakey's 1933 testimony on the Kikuyu reserves.⁷¹ His suggestion to expand the Kikuyu land by 2,000 square miles from the forest reserve was rejected, fuelling a protracted struggle for independence, with land as the central issue. The forced expropriation of native land had lasting consequences on land health, soil quality, and resource management.

3.2.3 Native Lands Trust Ordinance, 1938

Section 65(1) of the Native Lands Trust Ordinance of 1938 granted the governor the authority to create rules on several matters related to land and soil management in native reserves, including: Controlling occupation and use of native reserves for grazing and pasturing livestock; reducing the number of livestock in any native land unit; regulating the reconditioning of native land, including prohibiting and regulating the

65 See *Sobhuza II v Miller* [1926] A.C. 518 at 525.

66 See, e.g. Bondi & Mugabe (1996) arguing that environmental degradation manifests in regions under customary land tenure is largely due to interference in rural resource management by a "modernising" nation-state rather than the "inherent vices" of customary property relations; see also Gadgil (1989).

67 See Sec 5 of the Crown Lands Ordinance, 18 May 1915.

68 Ibid.: Sec 34.

69 Kenya Law Reports (1922–23) Vol. IX 102.

70 Kakumu (1996).

71 Corray (1978).

occupation of certain areas; general regulation of land use and conservation in native reserves; issuing licenses for cattle grazing rights and the removal of timber, forest products, sand, limestone, and other minerals (except surface salt); and protecting trees and forest products on land not covered by the Forest Ordinance, and regulating the felling and removal of such trees or products.

These provisions aimed to manage and conserve the land and its resources, but they were largely centred on control by colonial authorities, with limited empowerment of local communities.

3.2.4 Agricultural Policy, 1944

The Agricultural Policy of 1944 was introduced towards the end of World War II, during a period of food scarcity exacerbated by drought. The policy, inspired by Humphrey Norman's proposals, included suggestions such as moving Africans exceeding the land's carrying capacity to less populated areas and focusing on new agricultural methods and drought-resistant crops. It also advocated for communal cultivation to promote cooperation in soil conservation. In 1945, elders in Nyeri initiated a trial care program for their lands, where women were required to dig terraces twice a week, leading to impressive results. However, this initiative was halted in 1948 when Jomo Kenyatta, in a Kenya African Union speech, opposed compulsory labour for women on the terraces. This highlights the community's enthusiasm for soil care, the key role of women, and political interference that overlooked the benefits of soil conservation efforts.

3.2.5 African Courts Ordinance, 1951

The African Courts Ordinance of 1951 established that courts would be composed of elders appointed by the provincial commissioner, with jurisdiction over all Africans.⁷² Administrative officers, including the district officer and the provincial commissioner, supervised these courts.⁷³ During this period, the Native Authority of the clans was recognised, allowing them to make rules and orders on crucial matters such as soil conservation. The African courts were responsible for addressing breaches of these rules and orders.⁷⁴

⁷² The African Courts Ordinance of 1951, Sec 4.

⁷³ *Ibid.*: Sec 1(b).

⁷⁴ Munro (1959).

3.2.6 Swynnerton Plan, 1954

By 1940, land shortages in the reserves and demands for the return of stolen lands led to the Mau Mau revolt in 1952, primarily led by the Kikuyu.⁷⁵ This forced the colonial administration to address tenure reform. Colonial experts saw African land tenure as problematic, viewing it as a non-property system that hindered agricultural development. The division of land through inheritance led to reduced productivity and soil degradation.

The solution was individualised land titles and intensified agriculture. A commission was established to investigate tenure systems, leading to the Swynnerton Plan of 1954, which recommended consolidating family land holdings and granting individual property rights to increase agricultural productivity.⁷⁶ Soil conservation was essential to this plan.

Soil erosion had been a concern since the 1920s, and compulsory terracing schemes, including the Muhiriga system, were introduced in the 1940s.⁷⁷ These schemes were unpopular as their benefits were unclear, and their enforced communal nature led to resentment. Many terraces were abandoned by the early 1960s, with little improvement in terracing between 1948 and 1961 in areas such as Kangundo and Masii.

3.3 Selected soil conservation initiatives in post-independence Kenya

After independence, terracing was revitalised and carried out voluntarily. Farmers began constructing terraces shortly after opening new land, even in the drier, warmer, and less steep areas such as Makueni, which were settled after 1945.⁷⁸ By 1978, nearly all arable land in these areas was terraced, with significant progress made between 1961 and 1978 as the population grew. By 1990, erosion on arable land was largely under control, although grazing land was still facing challenges.

In the 1970s, growing concern about the future of farmland sparked increased participation in soil and water conservation efforts. Erosion worsened due to expanding crop areas and recurring droughts, especially affecting maize yields. Unlike in colonial times, enforced conservation was ineffective, but by the 1970s, farmers were more receptive to advice, seeing the potential benefits. Increased community awareness and participation in decision-making played a key role in the success of conservation efforts.

⁷⁵ See Swynnerton (1954).

⁷⁶ See Osolo-Nasubo (1977).

⁷⁷ Karuku & International Network for Natural Sciences (2018: 123).

⁷⁸ *Ibid.*: 124.

Several projects aimed at improving crop and livestock productivity were initiated, though not tied to national laws or policies. These projects laid the foundation for soil protection and offer valuable lessons for future soil legislation in Kenya.

3.3.1 National Soil and Water Conservation Project

The National Soil and Water Conservation Project, funded by the Government of Kenya and the Swedish International Development Agency from 1974 to 1994, aimed to improve food security and living standards through effective conservation practices.⁷⁹ It focused on eroded fields, particularly using the *fanya juu* terracing technique to conserve soil and rainwater. The project's goal was to maintain rainfall where it fell and prevent soil loss, improving crop conditions both short-term and long-term.

In 1987, the project shifted to a catchment-based approach, organising farmers into groups within shared hydrological areas. Activities included gully control, tree planting, and riverbank protection. Tools and materials such as farm tools and agroforestry seeds were provided. A shifting approach focused on one catchment area per year, with farmers expected to continue activities after the project's involvement.

While the project successfully simplified extension messages and engaged farmers, it was ultimately unsustainable. After donor support ended, community activities collapsed, and catchment committees ceased their roles.

3.3.2 Permanent Presidential Commission on Soil Conservation and Afforestation

In 1981, President Moi established the Permanent Presidential Commission on Soil Conservation and Afforestation under the authority of Sections 23 and 24 of the 1969 Constitution, which allowed the President to create and abolish offices in the public interest. This decision came after recognising that the Ministry of Agriculture's bureaucratic structure was insufficient to address soil conservation effectively.⁸⁰ The commission had a broad mandate to address soil conservation without needing to amend its objectives. It focused on afforestation, soil conservation strategies, policy formulation, public education, and coordination of government efforts. One notable achievement was the establishment of presidential soil conservation sites across the country, such as those in Machakos, including Mwanyani (1982), Uuni (1984), and Masinga (1985). During Moi's presidency, various authorities were created to oversee soil conservation and protection efforts.⁸¹

79 Mutisya et al. (2010: 8).

80 Bragdon (1990).

81 Gichuki (1991).

3.4 Types of conservation measure that have been used in Kenya over the years

3.4.1 Terraces

Levelled bench terraces and earth bunding are common in Kenya, particularly in the highlands, where steps and crop residues are used to improve soil fertility and water retention.⁸² The *fanya juu* earth bunding system traps runoff and sediment but requires significant labour for construction and maintenance. *Fanya chini* is similar, with soil placed on the lower side of the contour trench to conserve soil and divert water.

3.4.2 Conservation agriculture

Conservation agriculture in Kenya focuses on minimal soil disturbance, permanent soil cover, and crop rotation, leading to improved soil organic matter, water retention, and soil structure over time.

3.4.3 Cover crops

Cover crops stabilise soil moisture and temperature, improve soil structure, recycle nutrients, control weeds and pests, and increase organic matter. Common cover crops include velvet bean, hairy vetch, and sun hemp, which help improve soil fertility and reduce erosion.⁸³

3.4.4 Green manure

Green manure crops, such as leguminous plants, fix nitrogen in the soil and improve water infiltration.⁸⁴ Green manure is comparable to farmyard manure in terms of nutrient addition. *Tithonia diversifolia*, used in agroforestry systems, provides high-nutrient green biomass.

82 Karuku & International Network for Natural Sciences (2018: 125).

83 Ibid.: 127.

84 Ibid.: 128.

3.4.5 Agroforestry

Agroforestry in Kenya includes fertiliser trees, fodder trees, fruit trees, medicinal plants, and fast-growing timber for timber and fuel, all contributing to soil conservation and improved productivity.⁸⁵

3.4.6 Hedges

Contour hedges, made of trees or shrubs, control erosion, increase water infiltration, and help form terraces, benefiting soil and water conservation.

3.4.7 Improved fallows

Improved fallows involve leaving the land to rest while enriching it with leguminous plants to replenish soil fertility and reduce erosion, improving crop yields in the long term.

3.4.8 Vegetation strips

Vegetation strips of grass, such as *Imperata cylindrica* and *Vetiveria zizanioides*, are grown across slopes to reduce runoff, encourage sediment deposition, and aid in terrace formation.

3.4.9 Stone lines

Stone lines along contour lines slow water runoff, reduce erosion, and trap sediment, improving water infiltration and soil preservation, especially in areas with abundant stones.

3.4.10 Conservation and regeneration measures

Measures such as area closure and rotational grazing are used to regenerate vegetation and protect land from overgrazing, improving soil and water quality.⁸⁶

⁸⁵ Ibid.: 129.

⁸⁶ Ibid.: 131.

3.4.11 Contour farming

Contour farming involves planting along the contour to reduce water runoff and erosion, with the use of grass barriers to maintain contour lines and improve soil conservation.⁸⁷

3.4.12 Trash lines

Trash lines made of crop residues along contours help slow runoff, enhance infiltration, and improve soil fertility through decomposition, especially in the Tharaka area.

3.4.13 Cut-off drains, retention, and infiltration ditches

Cut-off drains divert surface runoff safely, while retention ditches capture and retain water for infiltration, particularly in semi-arid areas, aiding water conservation.

3.5 Conclusion

Soil degradation in Kenya has been a concern since colonial times, with various measures implemented over the years to address soil erosion and land degradation. These initiatives provide a strong foundation for soil legislation. The widespread negative effects of land degradation, especially in agricultural areas that have become less productive, highlight the need for effective legislation. Additionally, the loss of lives due to floods and landslides, often linked to land degradation, further underscores the urgency for both the enactment and implementation of soil-specific laws.

4 Legislation on the main drivers of soil degradation

Kenya has a plural legal system, including the Constitution, which incorporates international treaties, religious and customary laws, acts of Parliament, and county laws. Many laws are operationalised through subsidiary legislation by ministries, including those responsible for the environment, mining, and agriculture.⁸⁸ The Constitution mandates the promotion of science and the protection of indigenous knowledge in national development.⁸⁹ Kenya is also party to international treaties addressing soil, such

⁸⁷ Ibid.: 132.

⁸⁸ Constitution of Kenya 2010, Art 11.

⁸⁹ Ibid.: Arts 11(2)(a) & 69(1)(c).

as the United Nations Framework Convention on Climate Change,⁹⁰ the United Nations Convention on Biological Diversity,⁹¹ and the United Nations Convention to Combat Desertification,⁹² which the Constitution states form part of Kenyan law.⁹³ However, the application of international law is complex and often requires national legislation for domestication.⁹⁴ Kenya's environmental laws incorporate many international norms, and the country is committed to achieving the Sustainable Development Goals (SDGs),⁹⁵ which include soil management. Despite a long history of soil conservation efforts, these measures are not directly addressed in laws, missing an opportunity to strengthen soil protection within the legal framework.

4.1 International instruments relevant to soil protection

Kenya has ratified several international treaties, policies, and strategies that, while not always focused solely on soil protection, have significant implications for soil conservation. These include the Declaration on Environment and Development,⁹⁶ the World Heritage Convention,⁹⁷ the Ramsar Convention on Wetlands,⁹⁸ Agenda 21 on Environment and Development,⁹⁹ the Rotterdam Convention on Hazardous Chemicals,¹⁰⁰ the Millennium Declaration,¹⁰¹ the Johannesburg Declaration on Sustainable Development,¹⁰² the Cartagena Protocol on Biosafety (2000),¹⁰³ and the Stockholm Convention on Persistent Organic Pollutants (2004).¹⁰⁴ These instruments shape national soil conservation policies, and their relevance to soil protection will be further discussed in the following section.

90 Adopted 9 May 1992, United Nations Treaty Series, Vol 1771.

91 Adopted 5 June 1992, entered into force 29 December 1993.

92 Adopted 17 June 1994, entered into force 26 December 1996.

93 Constitution of Kenya 2010, Art 2(6).

94 Wabwire (2013); Oduor (2014); Kabau & Njoroge (2011); Kabau & Ambani (2013); O'Connell (1960: 452).

95 UN, Transforming Our World: The 2030 Agenda for Sustainable Development. A/RES/70/1, 2015.

96 UNEP Report, Stockholm, 5-16 June 1972, A/CONF.48/14/Rev.1.

97 Adopted on 16 November 1972, entered into force on 17 December 1975.

98 Adopted 2 February 1971, Treaty Series, Vol 996.

99 A/CONF.151/26 (Vol. I). New York: United Nations, 1993.

100 Adopted 10 September 1998, Treaty Series, Vol 2244.

101 A/RES/55/2, adopted on 8 September 2000.

102 Held 2-4 September 2002, A/CONF.199/20.

103 Adopted on 29 January 2000, entered into force on 11 September 2003, Treaty Series Vol 2226.

104 Adopted on 22 May 2001, entered into force on 17 May 2004, Treaty Series Vol 2256.

4.1.1 Convention on Biological Diversity

Kenya is a party to the Convention on Biological Diversity (CBD), which aims to conserve biological diversity and promote the sustainable use of biological resources, including soil. According to Article 3, states have the right to exploit their resources but must ensure activities within their jurisdiction do not harm other states' environments. Therefore, while Kenya has sovereignty over its soil, it is responsible for preventing soil degradation. Article 23 mandates the Conference of the Parties (COP) to review the implementation of the convention, and Article 26 requires countries to report on their progress. Kenya submits reports to the COP and has developed national biodiversity action plans, starting with the first in 2000, to guide implementation through various laws, policies, and strategies.

4.1.2 Strategic Plan for Biodiversity (2011–2020) and Aichi Biodiversity Targets (2020)

In 2010, contracting parties to the CBD adopted a strategic plan for biodiversity, covering 2011–2020, to halt biodiversity loss and enhance benefits to populations. The plan included the Aichi Biodiversity Targets, which serve as indicators of progress. These targets focus on five main goals: socio-economic and institutional changes, reducing pressures on biodiversity, ensuring the flow of benefits to people, and developing conditions for implementation and knowledge-building. When Kenya submitted its Fifth National Report to the CBD, it acknowledged that it had not completed all required measures but committed to reviewing and enacting laws to restore and maintain ecosystems.

4.1.3 United Nations Convention to Combat Desertification

Kenya ratified the UNCCD on 24 June 1997, focusing on preventing soil degradation and restoring degraded land. The convention defines desertification broadly, including soil erosion, loss of vegetation, and the deterioration of soil properties. Under the convention, parties must develop National Action Programmes (NAPs) to address desertification causes and identify practical measures for its combat.

Kenya, with support from UNDP/UNSO, developed its NAP following ratification.¹⁰⁵ The 2002 NAP highlighted constraints such as a sectoral approach, low funding, and inadequate legal and community involvement. Recommendations included

105 Government of Kenya (2002).

enhancing resource mobilisation, integrating NAP into national processes, and improving community participation.

A 2013 UNDP study on the implementation of the CCD in Kenya's drylands identified lessons, such as the importance of improving livelihoods and using indigenous knowledge for land management.¹⁰⁶ Kenya has since implemented programs including the African Initiative for Combating Desertification and promoted drought-resistant tree planting to reduce land degradation. Additionally, Kenya hosted the 15th Session of the Committee for the Review of the Implementation of the UNCCD in 2016, where it launched a land restoration program aimed at restoring significant land areas by 2030.

4.1.4 Land degradation-neutrality

Land Degradation Neutrality (LDN) was defined at the 12th UNCCD Conference of Parties as a state where land resources necessary for ecosystem functions and food security remain stable or improve.¹⁰⁷ LDN encourages measures to reduce, avoid, or reverse land degradation through sustainable land management and land-use planning.¹⁰⁸

In Kenya, while there is no specific LDN legislation, several laws and policies indirectly support its goals. The Constitution guarantees the right to a clean environment and sustainability, influencing all legal instruments related to land and soil.¹⁰⁹ The Environment Management and Coordination Act (1999) promotes soil conservation and reforestation, aligning with LDN objectives. Other relevant laws include the Agriculture and Food Authority Act (2015) and Community Land Act (2016), which focus on soil conservation and land management.

The National Environment Policy advocates for a National Soil Conservation Policy, while the National Land Use Policy (2017) emphasises regulating land use and conserving ecologically sensitive areas. Additionally, county governments, such as Makueni, have passed laws including the Makueni County Sand Conservation and Utilisation Act (2015) to combat land degradation locally.

While no specific LDN law exists, Kenya's existing legal and policy framework supports the principles of LDN, highlighting the need for stronger policy coherence on soil conservation.

¹⁰⁶ UNDP (2013).

¹⁰⁷ UNCCD (2016).

¹⁰⁸ Gichenje et al. (2019).

¹⁰⁹ Constitution of Kenya, Arts 42 & 60.

4.2 Regional policies and instruments

At the regional level, several treaties and instruments address soil conservation and the prevention of land degradation. These initiatives focus on fostering cooperation among countries to combat desertification, promote sustainable land management, and protect soil health.

4.2.1 African Convention on the Conservation of Nature and Natural Resources, 1968

The African Convention on the Conservation of Nature and Natural Resources, signed in 1968 and revised in 2003 and 2017, has been ratified by over 30 countries, including Kenya. Its goals are to promote environmental protection, and sustainable use of natural resources, and coordinate policies for ecologically sound, economically viable, and socially acceptable development. The Convention emphasises the right to a satisfactory environment for development and the duty of states to meet environmental and developmental needs sustainably. It recognises soil as a key natural resource for protection. Article VI specifically calls for measures to prevent land degradation, conserve soil, and promote sustainable farming practices, making soil conservation central to achieving its objectives.

4.2.2 Action Plan of the African Union/New Partnership for Africa's Development Environment Initiative

The Action Plan of the African Union/New Partnership for Africa's Development (NEPAD) Environment Initiative was developed in response to Africa's environmental challenges, following a consultative meeting of environment ministers under the African Ministerial Conference on the Environment (AMCEN). Adopted in Maputo on 12 July 2003, the plan began implementation in 2004. AMCEN's work program, which focuses on combating desertification, land degradation, and drought, is a key part of the initiative, with support from UNEP and other agencies. In Kenya, the implementation of NEPAD was formalised in 2002 through an executive order, and a National Steering Committee was established to guide Kenya's participation.

4.2.3 NEPAD's Initiative for the Resilience and Restoration of African Landscapes

The Initiative for the Resilience and Restoration of African Landscapes, launched by NEPAD in Paris on 6 December 2015, aims to enhance resilience in Africa's landscapes, particularly in drylands and vulnerable areas. It focuses on biodiversity conservation, climate-smart agriculture, rangeland management, and forest and ecosystem conservation. In partnership with the African Forest Landscape Restoration Initiative, it aims to restore 100 million hectares of degraded land by 2030, improving soil fertility, food security, and combating desertification.

In Kenya, while specific programs under the initiative are not confirmed, the Ministry of Environment and Natural Resources is leading a tree planting effort in the Maasai Mau Forest, aiming to plant ten million trees. This program, initiated with three million trees in 2019, focuses on protecting water catchment areas and promoting soil conservation through reforestation.

4.2.4 Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region, 1985

The Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region, adopted in Nairobi on 21 June 1985, aims to protect threatened species and important natural habitats in East Africa. Article 8 of the Protocol mandates the establishment of protected areas to preserve ecosystems, including those that support endangered, endemic, migratory, and economically important species. Soil and forests, vital for soil conservation, form key ecosystems for these species. While the Protocol does not explicitly mention soil, it indirectly requires its protection by prohibiting activities that degrade habitats, which includes safeguarding soil from degradation.

4.3 National policies

4.3.1 National Environment Policy, 2014

The National Environment Policy outlines measures to enhance ecosystem conservation and the sustainable use of natural resources. It highlights the adverse effects of urban degradation, poor waste management, and industry-related pollution on soil quality. Human activities such as unsustainable land use, poor soil and water management, deforestation, overgrazing, and pollution contribute to environmental degradation in Kenya. The policy proposes several soil conservation measures, including the development of a National Soil Conservation Policy, the promotion of eco and organic

farming to maintain soil fertility, and community involvement in soil conservation efforts. It also emphasises promoting good soil management practices to prevent disasters such as landslides and floods.

4.3.2 National Land Policy, 2009

Kenya's National Land Policy is the country's first land policy, offering guidance on land administration, access, planning, restitution, and governance. It addresses land tenure, compulsory acquisition, and land-use conflicts. The policy emphasises sustainable land-use practices as essential for food security and self-sufficiency, highlighting issues such as soil erosion, population pressure, overstocking, and lack of alternative land uses. It calls for promoting soil conservation through technology, scientific methods, and traditional practices, and aims to control land degradation. The policy also includes environmental assessments, audits, and monitoring mechanisms to manage urban and rural environmental degradation and protect soil quality. Public participation and enforcement, including the 'polluter pays principle,' are also key aspects.

4.3.3 National Land Use Policy, 2017

The National Land Use Policy aims to establish a framework for the sustainable and productive use of land-related resources at national, county, and community levels. It is based on principles of economic productivity, social responsibility, environmental sustainability, and cultural conservation. The policy addresses issues such as soil erosion, land degradation, and desertification, especially in arid and semi-arid regions. It highlights the impacts of poor land-use practices, including soil erosion and environmental degradation, which reduce food production capacity. The policy calls for assessing land resources, conducting soil surveys, and promoting modern farming practices to sustain soil fertility. It also advocates for unified mechanisms for data collection and sharing to manage soils effectively.

4.3.4 National Climate Change Action Plan, 2013

The National Climate Change Action Plan focuses on achieving low-carbon, climate-resilient development while prioritising adaptation. Key adaptation actions that impact soil include increasing forest cover to 10% of the total land area and rehabilitating degraded lands.¹¹⁰

110 Government of Kenya (2018b: 37).

4.3.5 National Agricultural Soil Management Policy, 2023

The National Soil Management Policy in Kenya aims to address key challenges affecting soil productivity, sustainability, and the broader agricultural sector. The policy's overall goal is to contribute to economically viable, environmentally sustainable, and socially acceptable development opportunities that improve food security, reduce poverty, and enhance agricultural production through better soil management. The policy's specific objectives focus on:

Sustainable agricultural soil and water conservation: Addressing soil erosion and land degradation caused by unsustainable practices such as intensive cultivation on slopes, deforestation, overgrazing, and improper farming methods. There is an emphasis on promoting organic farming and bio-fertilisers, though the lack of regulation for bio-fertilisers and weak policy enforcement for organic practices remain challenges.

Soil management and environmental protection: Acknowledging that poor soil management practices contribute to environmental degradation, including soil erosion, landslides, and loss of soil fertility. There is a call for better regulations and standards for soil contaminants and for addressing the increasing environmental pollution from industrial activities.

Technology development, dissemination, and utilisation: The policy emphasises the importance of research and innovation in soil management, particularly through improving extension services to better serve Kenya's small-scale farmers.

Fertiliser development and investment: Highlighting the need to regulate and invest in fertiliser use, with concerns over the quality of fertilisers in the market, lack of adequate soil testing facilities, and insufficient government funding for soil-related investments.

Cross-cutting issues: The policy also addresses social factors such as gender inequalities, the impacts of diseases such as HIV/AIDS and COVID-19 on agricultural productivity, and the potential conflicts arising from climate change and the competition for resources such as land and water.

The policy acknowledges that soil degradation in Kenya is linked to factors including population pressure, poor land-use practices, and climatic changes, and it proposes comprehensive measures to restore and rehabilitate soils, promote agroforestry, and enhance soil conservation through both traditional and modern techniques. However, issues such as weak policy enforcement, lack of sufficient investment, and inadequate soil testing infrastructure need urgent attention for the policy to be fully effective.

4.3.6 The Livestock Policy, 2020

The Livestock Policy aligns with the Constitution, Kenya Vision 2030, and agriculture strategies, recognising that over 80% of Kenya's land is arid and semi-arid (ASAL),

where livestock is the main livelihood. It also highlights livestock's role in family income, food security, and foreign exchange earnings through exports. The policy focuses on commercialising livestock development while addressing environmental impacts, including land, water, and wildlife interactions. It aims to improve livestock productivity in ASALs and tackle overgrazing, invasive plants, pests, declining soil health, climate change, land use competition, and inadequate forage supply.

4.4 National Laws

4.4.1 The Constitution of Kenya, 2010

Kenya's 2010 Constitution significantly transformed environmental conservation and management, emphasising sustainable development (Article 10(2)(d)) and access to environmental justice. It recognises environmental rights as fundamental human rights (Article 42), granting citizens the right to a healthy environment, including soil. If a person alleges that a right to a clean and healthy environment has been, is being or is likely to be denied, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to these issues (Article 70(1)).

The Constitution mandates the state to provide information on environmental matters (Article 35(1)(9)(a) and (b)) and establishes the ELC to handle soil conservation disputes (Article 162(2)(b)). It also outlines principles for land management and environmental protection, including sustainable use and conservation of natural resources (Article 60). While soil conservation is a shared responsibility between national and county governments, devolution has been slow, and challenges such as unclear roles and insufficient resources hinder effective implementation.¹¹¹ Cooperation between the two levels of government is crucial for sustainable soil governance.¹¹²

4.4.2 Environmental Management and Coordination Act, 1999 (as amended)

The EMCA is Kenya’s primary environmental law, establishing the legal and institutional framework for environmental management. It defines “environment” broadly, including both natural and built environments, covering land, water, climate, and biological factors (Section 2). Section 5 of EMCA empowers the Cabinet Secretary for Environment to formulate policies and set priorities for environmental protection, including soil management.

111 See *Johnson Kamau Njuguna v Director of Public Prosecutions* [2018] eKLR; *Mulinge et al.* (2016).

112 See *Council of Governors v Senate* [2015] eKLR.

EMCA establishes NEMA, which oversees environmental coordination and supervises the implementation of environmental policies (Section 7 read with Section 9(1)). NEMA's responsibilities include coordinating soil protection activities, conducting research, advising on land-use planning, monitoring resource use, enforcing environmental standards, and raising public awareness. Through these functions, NEMA can address soil protection by gathering data on soil conditions, developing educational programs, and promoting sustainable soil management practices.

4.4.2.1 National Environment Trust Fund (NETFUND)

The National Environment Trust Fund, established under Section 24 of EMCA (1999), is managed by a board of trustees per a trust deed. The fund's purpose is to support research, capacity-building, environmental awards, publications, scholarships, and grants related to environmental management. As such, the fund can be used to support research and initiatives focused on soil protection.

4.4.2.2 National Environment Restoration Fund

The 1999 EMCA established the National Environment Restoration Fund (Section 25(1)), which is managed by NEMA through the director-general (Section 25(3)). The fund is primarily designed to address environmental degradation, including situations where the responsible party cannot be identified or where exceptional circumstances require the authority's intervention. It is financed through fees determined by NEMA, contributions from industries, and donations from project proponents. The fund can be used to mitigate soil degradation. However, administrative procedures for soil rehabilitation and restoration need to be developed to ensure the effective use of the fund for this purpose.

4.4.2.3 Deposit bonds

Under Section 28 of the EMCA, NEMA is required to maintain a register of activities, industrial plants, and undertakings that are likely to have significant adverse effects on the environment if not operated following good environmental practices. Based on the recommendations of the cabinet secretary in charge of environment and natural resources, the cabinet secretary responsible for finance may mandate operators in these high-risk sectors to pay deposit bonds as security for adherence to good environmental practices.

These deposit bonds are refundable if the operator maintains good environmental practices for a period not exceeding six months, as determined by NEMA. If the operator fails to comply, the bond may be confiscated after an opportunity for the operator to be heard. In severe cases, the operator's license may be revoked if they are found to be a habitual offender.

The proceeds from these deposit bonds are directed into the restoration fund and are considered part of the fund until refunded. Any interest generated from the deposit bonds is for the benefit of NEMA. This mechanism provides a financial incentive for operators to follow good environmental practices and helps fund the restoration of environmental damage. This could be relevant to soil degradation mitigation if industrial activities are contributing to soil harm.

4.4.2.4 County environment committees

Under the EMCA, County Environment Committees (CECs) play a vital role in managing the environment at the county level (Section 30). These committees are established by the governor through a Gazette notice and are chaired by the executive committee member responsible for environmental matters within the county. The CECs include representatives from various sectors such as ministries, farmers or pastoralists, the business community, and public benefit organisations involved in environmental management.

The CECs are responsible for overseeing the management of the environment within the county and are tasked with the development of county strategic environmental action plans every five years. The committees also have the authority to take on additional functions, as prescribed by EMCA or as delegated by the governor through a Gazette notice. This could include tasks related to soil protection and management, particularly if soil degradation is an environmental concern within the county.

The inclusion of soil protection in the committee's mandate is possible, as CECs are responsible for implementing the environmental policies within their jurisdiction. Their role in developing action plans and coordinating with various stakeholders allows them to address specific environmental challenges, including soil degradation, and to promote sustainable soil management practices at the county level. This ensures that local issues are addressed effectively and in line with national environmental policies.

4.4.2.5 National Environment Complaints Committee (NECC)

The National Environment Complaints Commission (NECC), established under Section 31 of the EMCA, 1999, investigates allegations of environmental harm, including soil degradation. Formerly the Public Complaints Committee, it was renamed in the EMCA (Amendment) No. 5 of 2015. The NECC plays a key role in assessing the environment and facilitating alternative dispute resolution. It makes recommendations to the Cabinet Secretary and contributes to environmental policy development. The commission can also investigate environmental degradation cases and take legal action, including public interest litigation, against those responsible for soil degradation.

4.4.2.6 National Environment Action Plans

The authority must formulate the National Environmental Action Plan every six years through a participatory process and submit it for approval by the Cabinet Secretary. Once approved, the plan is sent to the National Land Commission and the Ministry responsible for land and published in the Gazette. NEMA reviews the plan every three years. Once adopted by the National Assembly, the plan becomes binding on all government bodies. The goal of the plan is to coordinate environmental policies and actions across national and county governments, promoting consistency, protecting the environment, and preventing actions that could harm economic or health interests. Soil protection plans could be incorporated into the National Environmental Action Plans.

4.4.2.7 County Environment Action Plans

Each county environment committee is required to develop a County Environmental Action Plan every five years through a participatory process, which is then adopted by the County Assembly (Section 40). When preparing the plan, the committee must consider other county plans to ensure consistency. After adoption, the plan is submitted to the Cabinet Secretary for incorporation into the National Environment Action Plan. The plan must address issues from the National Environment Action Plan relevant to the county. NEMA is tasked with reviewing county plans and recommending their incorporation into the national plan or suggesting necessary changes. The Cabinet Secretary, based on NEMA's recommendations, may issue guidelines for preparing environmental action plans, including soil planning, ecological limits, soil zoning, and soil classification.

4.4.2.8 Monitoring compliance with environmental plans

NEMA is responsible for monitoring compliance with national and county environmental action plans (Section 41). It may take necessary steps or make inquiries to determine if the plans are being followed. If NEMA finds noncompliance, it will issue a written notice to the concerned body, specifying required corrective actions. The body must respond within 30 days, detailing objections or proposed actions. NEMA will then issue a final notice within 30 days, either confirming, amending, or cancelling the notice, or specifying further actions and deadlines. NEMA is also required to keep a record of all environmental action plans, ensuring they are available for public inspection.

4.4.2.9 Protection and conservation of the environment

Part V of EMCA addresses the conservation and management of environmental resources, including rivers, lakes, wetlands, forests, and mountainous areas. Section 44 mandates NEMA, in consultation with relevant agencies, to develop regulations for the sustainable use of hills, mountain areas, and forests. These regulations focus on protecting water catchment areas, preventing soil erosion, and regulating human settlement.

Section 45(1) requires county environment committees to identify hilly and mountainous areas at risk of degradation, such as those prone to soil erosion or deforestation. These areas must be targeted for afforestation or reforestation. County committees encourage local communities to engage in tree planting and vegetation restoration (Section 46). Landholders, including those with leasehold or customary tenure, must implement the committee's measures.

Section 47 obligates NEMA, in consultation with relevant agencies, to issue guidelines for the sustainable use of hills, mountain areas, and forests. These guidelines cover appropriate farming methods, soil erosion control, disaster preparedness for landslides, protection of water catchments, and more. County environment committees are responsible for ensuring the implementation of these measures. Violators of these regulations face penalties.

4.4.2.10 Integrated environmental impact assessment

Section 57A of EMCA mandates that all policies, plans, and programs be subjected to strategic environmental assessments (SEAs). SEAs are a formal process to analyse the environmental impacts of strategic initiatives at national, county, and regional levels (Section 2). The authority determines which plans should undergo SEA based on their

potential environmental effects. The entities preparing these plans bear the costs of the assessments, which must be submitted for approval to the authority, in consultation with relevant stakeholders.

Before starting projects listed in the Second Schedule of the Act, proponents must submit a project report to NEMA and may need to conduct an EIA, including soil impact assessments (Section 58(1)). NEMA regulates integrated environmental impact assessments and environmental audits, and the cabinet secretary, in consultation with NEMA, is tasked with making regulations for these practices and accrediting experts.

False or misleading reports are punishable by up to three years of imprisonment, fines, or both, and may lead to license revocation. NEMA can cancel, suspend, or revoke licenses for violations, providing written reasons for the action.

To improve public access to information, NEMA must publish notices of proposed projects in newspapers, on the radio, and on its website, including summaries of EIA reports (Section 59(1)). This allows the public to access soil-related information and participate in decision-making processes.

4.4.2.11 Environmental monitoring

In consultation with relevant agencies, the authority monitors environmental changes and assesses their impacts and the effects of industries, projects, or activities (Section 69(1)). Environmental inspectors may enter the premises to verify compliance with EIA Study Reports (Section 68(2)). Project operators must keep records, submit annual compliance reports, mitigate unforeseen adverse effects, and submit environmental audit reports to the authority as required (Section 68(3-4)).

4.4.2.12 Environmental quality standards

The cabinet secretary for environment, on the authority's recommendation, is empowered to set standards for water and air quality (Sections 71 & 78), waste classification and management (Section 85), hazardous waste (Section 91), pesticide residues (Section 94), noise, vibration (Section 101), and radiation levels (Section 104). The secretary must also identify hazardous materials and processes, issue guidelines for their management, and regulate waste handling, storage, transportation, and disposal.

Disposing of waste or hazardous substances in a way that causes pollution or harm is an offence (Section 87(1)). It is an offence for any person to discharge a hazardous substance, chemical, oil or mixture containing oil into any waters or other areas of the environment (Section 93(2)). It is an offence for any person to discharge or dispose of any wastes, whether generated within or outside Kenya, in such a manner as to cause pollution to the environment or ill health to any person (Section 87(1)). Offenders must

cover removal and restoration costs and compensate third parties as determined by the court (Section 93(3)).

For pesticides and toxic substances, the cabinet secretary establishes standards for their lifecycle, from import to disposal, monitors their environmental impact, maintains standards in laboratories, and enforces regulations for safe storage, packaging, and transportation.

4.4.2.13 Environmental restoration orders

The authority may issue an environmental restoration order requiring a person to restore the environment to its prior state, prevent any action likely to harm the environment, compensate individuals whose environment or livelihood was harmed, and cover the costs incurred by authorised entities in restoring the environment (Section 108). The order may also mandate actions such as preventing pollution or environmental hazards, restoring land through soil replacement, replanting flora, or preserving geological, archaeological, or historical features, stopping actions contributing to pollution or hazards, removing or mitigating harm to land, the environment, or local amenities, preventing damage to land, aquifers, flora, fauna, or surrounding areas, properly disposing of waste or refuse deposited on specified land or sea and paying any compensation specified in the order.

4.4.2.14 Environmental easements and environmental conservation orders

A court may grant an environmental easement or conservation order on burdened land to preserve flora and fauna, maintain water quality and flow in dams, lakes, rivers, or aquifers, protect geological, ecological, archaeological, or historical features, safeguard scenic views and open spaces, allow defined paths for walking, preserve natural land contours, restrict mining or agricultural activities, establish works to prevent environmental harm or create and maintain wildlife migration corridors (Section 112).

4.4.2.15 Integrated National Land Use Guidelines

NEMA, under Section 9(2) of EMCA, developed the Integrated National Land Use Guidelines to address various environmental concerns.¹¹³ For lakes, a 30 m buffer zone is proposed to minimise soil erosion, while coastal guidelines protect near-shore coral reefs from harmful activities. On agricultural land, the guidelines advocate mapping

113 National Environment Management Authority (2011).

soil capability profiles for sustainable farming, with crop production aligned to agroecological zones, soil traits, and recommended practices. Contour farming is advised on slopes up to 12%; for slopes 12%-55%, soil conservation measures are mandatory, and above 55%, perennial crops such as tea and bananas are recommended. Soil protection strategies include contour ploughing, crop rotation, manure application, crop residue retention, and terracing.

The guidelines address red soil harvesting, emphasising the rehabilitation of degraded sites, banning loose hanging materials near excavations, and restricting activities in road reserves, residential zones, and sensitive areas. Vertical quarry faces exceeding 2.5 m are prohibited. In flood-prone areas, afforestation, tree planting, and conservation in catchments and watercourses are recommended. For landslide-prone areas, intensified soil and water conservation on settled lands and slope-based infrastructure planning are emphasised.

4.4.2.16 Assessment of the effectiveness of the Environmental Management and Co-ordination Act

NEMA is responsible for studying and examining land-use patterns to assess their impact on natural resources, including soil, and making recommendations for land planning in Kenya.¹¹⁴ This function necessitates coordination with other government entities such as the Ministry of Lands and Physical Planning, the National Land Commission, and county governments.¹¹⁵ However, the lack of institutional coordination and harmony among statutes establishing these bodies poses significant challenges to effective land-use management, as highlighted in the National Land Use Policy. The 2017 policy aims to improve institutional coordination to address issues such as agricultural area encroachment, urban sprawl, and environmental degradation.

Inadequate resource mapping further limits the effectiveness of environmental conservation, particularly in soil management. Effective soil conservation requires detailed information on vulnerable lands, watersheds, vegetation, topography, and drainage courses. However, there has been insufficient focus on soils compared to other resources such as water and forests.¹¹⁶

EIAs are crucial tools for balancing development and conservation.¹¹⁷ However, the effectiveness of EIAs is often compromised. Many capital-intensive projects proceed without EIAs or with assessments that fail to meet legal standards, as illustrated in *Cortec Mining Kenya Limited v Cabinet Secretary Ministry of Mining* [2015]

114 Environment Management and Coordination Act, 1999, Sec 9.

115 Government of Kenya, National Land Use Policy, Sessional Paper, No. 1 of 2017, 20.

116 Government of Kenya, Royal Netherlands Government & UNEP (1997).

117 Environment Management and Coordination Act, 1999, Sec 57.

eKLR.¹¹⁸ Such lapses result in unmitigated environmental harm, particularly to soil and water resources.

EMCA also addresses water quality for agriculture, recognising the link between poor water quality and soil degradation.¹¹⁹ The Environmental Management and Coordination Quality Regulations, 2006, prohibit using wastewater for irrigation unless it meets the standards in the Eighth Schedule. However, studies, such as one on the Mwea Irrigation Scheme, reveal widespread use of toxic wastewater, degrading soil quality and reducing productivity.¹²⁰

The law prohibits hazardous waste disposal without a valid permit, defining hazardous waste as substances likely to harm human health or the environment.¹²¹ However, enforcement is weak, and even government entities mismanage waste and dumpsites, exacerbating environmental degradation.¹²² Citizens have often resorted to legal action to compel the government to manage waste properly.¹²³

Additionally, regulations mandate the cabinet secretary, with NEMA's advice, to establish standards for pesticides and toxic substances.¹²⁴ Despite measures to combat illicit chemical and fertiliser trade, substandard products remain widespread, adversely affecting the agricultural sector. This issue, alongside other challenges, continues to hinder effective environmental and soil management.

4.4.3 Forest Conservation and Management Act, 2016

The Forest Conservation and Management Act 34 of 2016 aims to ensure the sustainable management, conservation, and rational utilisation of forest resources for Kenya's socio-economic development and related purposes (Section 2). The Act defines "forest produce" to include resources such as limestone, murram, and soil. Section 7 establishes the Kenya Forest Service (KFS), tasked with conserving, protecting, and managing all public forests, preparing and implementing management plans for public forests, and assisting in drafting plans for community or private forests when requested. KFS is also responsible for reviewing applications for licenses or permits related to forest resources, establishing and implementing benefit-sharing arrangements, building forestry management capacity for county governments, and developing programs

118 See also *Save Lamu v National Environmental Management Authority (NEMA)* [2019] eKLR, where the National Environment Tribunal nullified an EIA licence because the due process of undertaking the EIA was not followed.

119 Environment Management and Coordination Act, 1999, Sec 71.

120 Nyabonyi (2016).

121 Environment Management and Coordination Act, 1999, Sec 91.

122 Wasilwa & Nanjala (2019).

123 See *African Centre for Rights and Governance (ACRAG) v Municipal Council of Naivasha* [2017] eKLR.

124 Environment Management and Coordination Act, 1999, Sec 94.

for tourism, recreation, and ceremonial uses in public forests. Additionally, KFS promotes forestry education and training, collaborates with stakeholders to identify research needs and apply findings, and manages water catchment areas to support soil and water conservation, carbon sequestration, and other environmental services. All indigenous forests and woodlands are managed sustainably to conserve water, soil, and biodiversity and to protect riparian zones and shorelines (Section 42(1)(a) and (b)). This comprehensive approach aims to enhance ecosystem resilience, support environmental conservation, and provide socio-economic benefits tied to sustainable forest resource use.

4.4.3.1 Quarrying

The KFS is required to grant consent for quarrying operations in forest areas only after an independent EIA or audit has been conducted (Section 46(1)(c)). Following this, the cabinet secretary, based on the service's recommendation and in consultation with the cabinet secretary for the environment and other relevant government agencies, will issue rules to regulate quarrying activities in forest areas. If the quarrying activity is likely to deplete forest cover, the licensing conditions will mandate the licensee to carry out compulsory restoration and re-vegetation immediately after the activity's completion (Section 46(4)). This re-vegetation process will be carried out in consultation with the KFS, which will determine the appropriate seeds and seedlings to be used (Section 46(5)). This approach ensures that quarrying activities in forest areas are carefully regulated to mitigate environmental impacts and support the restoration of forest ecosystems.

4.4.3.2 Incentives for increasing forest and tree cover

The cabinet secretary for the National Treasury has the authority to propose tax and fiscal incentives aimed at boosting investments in forestland use and resource utilisation, thereby, promoting forest conservation and preventing degradation (Section 54(1)). These incentives may include waivers on customs and excise duties for imported capital goods, tax rebates for forest industries investing in machinery for better resource utilisation, exemptions from land rates and other charges for private forests (Section 54(2)). Additionally, income and other tax deductions may be offered to landowners who establish forest conservation easements. The cabinet secretary is also responsible for planning and executing programs for national tree-planting week and the International Day of Forests (Section 55).

Under Section 64 of the Act, certain activities are prohibited in public or provisional forests unless authorised by a license, permit, or management agreement. These

prohibited activities include felling, cutting, taking, burning, injuring, or removing any forest produce; smoking or starting fires where prohibited; allowing livestock to graze; clearing or cultivating land; constructing roads or paths; or setting fire to any forest produce. Violating these restrictions is an offence, punishable by a fine of up to 100,000 shillings, imprisonment for up to six months, or both. This legal framework is designed to protect forests and ensure sustainable management and conservation.

4.4.4 Water Act, 2016

The Water Act 43 of 2016 provides a legal framework for the regulation, management, and development of water resources, water and sewerage services, and related activities. It emphasises the importance of water resource management, which includes the conservation, protection, development, and utilisation of water resources, as well as soil and water conservation (Section 2). According to the Act, no person is allowed to provide water services without a licence issued by the Regulatory Board (Section 85(1)). The application for such a licence must include supporting documents as required by the Board.

A licensee is authorised to enter into agreements with other parties for activities related to the management and protection of water resources. This includes protecting catchment areas, land drainage, soil conservation measures, vegetation control, and ensuring the purity and quantity of the water being extracted (Section 104(1)). These agreements are made to ensure the licensee can effectively manage the water resources under their control while maintaining environmental integrity.

4.4.5 Climate Change Act, 2016

Kenya has established a robust legal and policy framework to address climate change through several key instruments, including the National Climate Change Action Plan (2013), the National Climate Change Framework Policy (2016), and the Climate Change Act 11 of 2016. These instruments are designed to reduce the causes of climate change, build resilience, enable climate financing, manage knowledge, develop capacity, and address technological needs, alongside monitoring and reporting mechanisms.

The Climate Change Act specifically applies to the development, management, and regulation of mechanisms that promote climate change resilience and low-carbon development across all sectors of the economy (Section 2). It is implemented by both the national and county governments and aims to mainstream climate change responses into development planning and decision-making. The Act focuses on building resilience, enhancing adaptive capacity to climate impacts, and incorporating climate change disaster risk reduction into the strategies of both public and private entities.

Additionally, it emphasises gender equity and intergenerational fairness in climate change responses.

The Act also establishes the Climate Change Council, which serves as the central body for coordinating climate change efforts across the country. The council's responsibilities include ensuring that climate change is integrated into the operations of national and county governments, approving and overseeing the implementation of the National Climate Change Action Plan, and promoting climate action in various sectors (Section 6). Additionally, the Climate Change Directorate provides analytical support to ministries, agencies, and county governments in their climate change efforts (Section 9).

Kenya has also emerged as a leader in sustainable energy development, highlighted by its hosting of Africa's largest wind power plant.¹²⁵ The country's commitment to sustainability extends to its financial sector, with the Capital Markets Authority approving Kenya's first green bond aimed at funding environmentally friendly student accommodation.¹²⁶ Furthermore, private lending institutions, such as F3 Life, are offering farmers affordable green loans.¹²⁷ These loans are linked to soil conservation practices, with the interest rates determined by the quality of the farmer's conservation efforts, thus, incentivising soil and land preservation through financial support. This approach represents a transformative integration of climate resilience, sustainable development, and financial innovation.

4.4.6 Land laws

In Kenya, land tenure systems play a significant role in shaping land-use practices and, consequently, the quality of soils. The Constitution classifies land into three main categories: public land, community land, and private land (Article 61(2)). Public land includes government-owned land such as alienated government land used by state organs, government forests, game reserves, national parks, water catchment areas, roads, rivers, lakes, and other protected areas (Article 62(1)). It also includes minerals, mineral oils, and land where no individual or community ownership can be established. Public land is held in trust for the people by county or national governments and administered by the National Land Commission (Article 62(3)). However, insecurity of tenure often leads to the invasion and over-exploitation of public land, particularly forestland, contributing to soil degradation.

125 Salaudeen (2019).

126 See https://www.cma.or.ke/index.php?option=com_content&view=article&id=591:press-release-cma-approves-kenya-s-first-green-bond&catid=12:press-center&Itemid=207, accessed 6 November 2019.

127 See <http://farmbizafrika.com/profit-boosters/1434-farm-loan-pegs-interest-on-soil-conservation>, accessed 3 November 2019.

Community land is held by communities based on ethnicity, culture, or shared interests, and includes land registered in the name of group representatives, land transferred to a community by law, ancestral lands, community forests, grazing areas, shrines, and land held as trust land by county governments (Article 63(1-2)). If unregistered, community land is held in trust by county governments on behalf of the communities (Article 63(3)). Community land can be prone to misuse, especially when tenure security is unclear, leading to unsustainable land-use practices that degrade soil quality.

Private land consists of land held under freehold or leasehold tenure and includes land registered in the name of any person or entity (Article 64). Private landholders have more secure tenure rights, which can encourage sustainable land-use practices. However, soil degradation can still occur if landowners prioritise short-term economic gains over long-term land and soil conservation. The management and use of these types of land depend heavily on the legal and policy framework governing land tenure, with a significant impact on soil conservation and degradation. For example, the insecurity of tenure on public land often leads to illegal exploitation of forest resources, resulting in soil erosion and loss of fertility. Similarly, community land, if not well-managed or registered, can suffer from overuse and mismanagement, while private land is more likely to be protected through individual investment in soil conservation practices, depending on the landowner's priorities.

4.4.6.1 Land Act, 2012

The Land Act 6 of 2012 is designed to give effect to Article 68 of the Kenyan Constitution by consolidating and rationalising land laws to promote sustainable administration and management of land and land-based resources. Article 68 grants Parliament the authority to revise, consolidate, and rationalise existing land laws, revise sectoral land-use laws based on constitutional principles, set minimum and maximum land-holding acreages for private land, regulate land conversion, and ensure the protection, conservation, and access to public land. The Act empowers the Cabinet Secretary to develop land policies upon the recommendation of the National Land Commission, facilitate the implementation of land reforms, coordinate land management, and oversee the National Spatial Data Infrastructure (Section 6). Additionally, the Cabinet Secretary provides policy direction for all land classes in collaboration with the Commission. The National Land Commission plays a key role in managing public land on behalf of the national and county governments (Section 8). It evaluates public land parcels using land capability classifications, resource mapping, and land-use potential and may designate land for specific uses under defined conditions. The Commission also sets management guidelines for public land used by various public agencies,

statutory bodies, and state corporations, outlining priorities and operational principles to ensure effective resource management (Section 10).

4.4.6.1.1 Development plans

The Land Act grants the National Land Commission the authority to reserve public land for the public interest upon the request of the national or county government, through an order in the Gazette (Section 15). A management body, either on its own or at the request of the Commission, must submit a development, management, and use plan for the reserved public land to the Commission for approval (Section 17(1)). Before submitting this plan, the management body is required to consider any conservation, environmental, or heritage issues that may be relevant to the land's development, management, or use (Section 17(2)). The body must also include a statement confirming that these issues have been considered in the plan, submit an environmental impact assessment as per existing environmental law, and ensure the plan aligns with constitutional values and principles.

Once the Commission approves the plan and notifies the management body, the body is authorised to develop, manage, and use the land following the approved plan, which may vary over time (Section 17(3)). However, if the management body fails to adhere to the Commission's guidelines or directions, or if it does not submit a plan in compliance with the Commission's request, the Commission can revoke the management order through an order in the Gazette (Section 18(1-2)). Additionally, if the Commission determines that revoking the management order serves the public interest, it may also issue such a revocation order. The preparation and implementation of the development plan must comply with physical planning regulations and any other relevant laws (Section 18(3)).

4.4.6.1.2 Conservation of land-based natural resources

The National Land Commission is empowered to create rules and regulations to ensure the sustainable conservation of land-based natural resources. These rules may include measures to protect critical ecosystems and habitats, provide incentives for individuals and communities to engage in income-generating conservation programmes, and facilitate the access, use, and co-management of forests, water, and other resources by communities with customary rights. Additionally, the Commission may establish procedures for registering natural resources in an appropriate register, define stakeholder involvement in managing and utilising these resources, and implement measures to ensure benefit-sharing with affected communities (Section 19).

Section 135 of the Land Act establishes the Land Settlement Fund, managed by the Land Settlement Fund Board of Trustees. The board is responsible for providing access to land for various purposes, including conservation. The Fund is financed through various sources, including appropriations from Parliament, contributions from bilateral or multilateral donors, gifts, grants, donations, and endowments. It also receives money from rates, charges, or fees levied by the board, payments made by beneficiaries of settlement schemes, and any other sums allocated to the board through legislation or other laws.

4.4.6.2 Land Regulations

The Land Regulations of 2017 govern the management and administration of public, private, and community land in Kenya. Applications for the subdivision, amalgamation, partition, and re-parcellation of freehold land must be submitted to the county government (Regulation 16(1)). The county government reviews these applications to determine their viability and consults with relevant authorities, including the national director of Surveys, the national director of Physical Planning, the land administration officer from the national government, and the Land Control Board, where applicable (Regulation 16(2)).

Similarly, applications for the subdivision, amalgamation, partition, and re-parcellation of leasehold land are also submitted to the county government (Regulation 17(1)). In this case, the county government seeks representations from the same authorities before approving (Regulation 17(2)).

For building plans on leasehold land, the application is submitted to the relevant county government (Regulation 20(1)). Once the county government approves the building plans or other developments on leasehold land, it communicates the approval to the cabinet secretary and the National Land Commission to confirm that the conditions of the lease have been met (Regulation 20(2)).

4.4.6.3 Guidelines for management of public land held by public agencies, statutory bodies, and state corporations

Public agencies, statutory bodies, and state bodies entrusted with the control, care, and management of reserved land under Section 16 of the Land Act are required to carry out their responsibilities in line with the guidelines provided in the First Schedule of the Land Regulations (Regulation 5). These guidelines mandate that the institutions prepare long-term land-use and management plans for the reserved land and submit these plans to the National Land Commission for deposit. This process ensures that the

management of reserved land aligns with national land-use objectives and regulatory frameworks.

4.4.6.4 Community Land Act, 2016

The Community Land Act 27 of 2016 outlines important provisions for the recognition, protection, and registration of community land rights, as well as the management and administration of community land. It emphasises the role of county governments in managing unregistered community land. Key aspects of the Act include the establishment of community land management committees, which are responsible for the day-to-day management of community land, including the coordination of community land-use plans with relevant authorities (Section 15(4)). The committees also promote cooperation and participation among community members in managing the land and must ensure that rules and regulations governing the community are ratified by the community assembly.

A registered community is required to have a community assembly made up of adult members, with decision-making requiring a quorum of no less than two-thirds of the assembly (Section 15(1)). The assembly elects between seven and 15 members to form the community land management committee (Section 15(3)).

The provisions in the Community Land Act present a valuable opportunity to embed sustainable soil management practices through the active involvement of community members in the decision-making process, the creation of land-use plans, and the implementation of rules that promote the responsible management of natural resources, including soil. By ensuring that the community is involved in the management of its land, the Act fosters cooperation that can lead to better soil conservation and land-use practices, contributing to long-term environmental sustainability.

4.4.6.4.1 Land use and development planning of community land

A registered community has the right to submit a plan for the development, management, and use of its community land to the county government, either on its initiative or at the request of the county government (Section 19(1)). Before submitting such a plan, the community must consider key factors such as conservation, environmental, or heritage issues related to the land (Section 19(2)). The community must include a statement in the plan confirming that these issues have been considered and should also consider an environmental impact assessment in line with existing environmental laws. The plan must comply with constitutional values and principles and be ratified by the members of the registered community. The community must also ensure that the plan aligns with any relevant physical development plan.

Once the community submits the plan to the county government and receives approval, the community is required to manage and use the land according to the approved plan, or any subsequent amendments (Section 19(3)). The county government, in considering the plan, must adhere to development planning laws (Section 19(4)). Additionally, upon request from the commission, the county government must provide records of development plans submitted to it following this provision (Section 19(5)). This process ensures that community land is developed and managed in a way that is legally sound, environmentally responsible, and aligned with the community's values and the broader regulatory framework.

4.4.6.4.2 Conservation and management of resources in community land

For sustainable conservation of land-based natural resources, each registered community must comply with relevant laws, policies, and standards (Section 20(1)). Communities should implement measures to protect ecosystems, offer incentives for natural resource conservation, facilitate access and co-management of resources including forests and water for communities with customary rights, and establish procedures for resource registration and stakeholder involvement in resource management (Section 20(2-3)).

4.4.6.4.3 Grazing rights

A registered community must consider the customs and practices of pastoral communities relating to land, provided they align with the Act or applicable law (Section 28(1)). Community land in pastoral areas must be available for grazing, subject to conditions such as the type and number of livestock, designated grazing sections, rotation plans, and the community's right to use the land as per the Act (Section 28(2)). This is vital to prevent overgrazing, a key cause of soil degradation. The community may grant grazing rights to non-members under specific conditions but can withdraw these rights in cases such as drought or failure to comply with regulations (Section 28(3-5)). Additionally, no one may build, cultivate, or obstruct access to watering points on grazing land without the community's written approval (Section 28(6)).

4.4.6.4.4 Land use rights on community land

A registered community may designate special purpose areas for uses such as farming, settlement, community conservation, access and rights of way, cultural and religious sites, urban development, or any other purpose deemed necessary by the community,

county government, or national government for the public interest (Section 29(1)). These areas must be used exclusively for their designated purposes (Section 29(2)).

4.4.6.4.5 Natural resources on community land

Natural resources on community land must be used and managed sustainably and productively for the benefit of the entire community, including future generations (Section 35). This should be done with transparency, accountability, and equitable sharing of the resulting benefits.

4.4.6.4.6 Rules and by-laws

A registered community may create rules or by-laws to regulate the management and administration of its land (Section 37). These may cover the regulation of investments, lease terms for investment purposes, land conservation and rehabilitation, land use and physical planning, and other relevant matters.

4.4.6.4.7 Regulation of community land-use planning

The state has the authority to regulate land use, or any interest or right over land, for purposes such as defence, public safety, public order, public morality, public health, and land-use planning (Section 38(1)). The management of community land is also subject to national and county government laws and policies concerning fishing, hunting, gathering, wildlife protection, water conservation, hydraulic engineering, forestry, environmental protection, energy policy, and the exploitation of minerals and natural resources (Section 38(2)).

4.4.6.5 Land Control Act, 2012

The Land Control Act, Cap 302, governs the development, use, and subdivision of agricultural land. It establishes the Land Control Board for each land control area, which must grant consent for transactions such as the sale, transfer, lease, mortgage, exchange, partition, or other dealings with agricultural land (Section 6(1)). It also covers the division of agricultural land into parcels, except when the area is less than 20 acres and subject to specific planning regulations, as well as the transfer of shares in companies or cooperatives owning agricultural land.

When deciding whether to grant consent, the board must consider the economic development of the land and the maintenance or improvement of good husbandry practices (Section 9(1)). Consent is generally refused if the terms of the transaction are unfair or disadvantageous to one party, or if the division of land would reduce its productivity.

Although the requirement for consent can support soil conservation, land control boards have often been ineffective due to corruption, with some cases where the principle of granting consent has been based on the highest bidder, leading to the disbanding of boards by the government.¹²⁸

4.4.6.6 Physical and Land Use Planning Act, 2019

The Physical and Land Use Planning Act, which repealed the Physical Planning Act of 1996, aligns with the Constitution of Kenya, 2010 (Article 1), establishing a framework for sustainable land use and planning at both national and county levels. The Act aims to regulate physical and land-use development through a set of principles, procedures, and standards, with a focus on equitable and sustainable land management (Section 3). It establishes key bodies such as the National Physical and Land Use Planning Consultative Forum (Section 6) and the National Land Commission (Section 9), which oversee land-use planning and provide a forum for consultations on national plans (Section 10).

The Act requires national and county authorities to ensure public participation in planning, following the devolution principles of increasing community engagement in decision-making (Sections 9-10). The planning process also emphasises the importance of integrating economic, social, and environmental needs, including sustainable soil management.

One of the major goals of the Act is to ensure the preparation of long-term national physical and land-use plans, which may guide soil conservation and protection efforts (Section 21). The plans must include spatial analysis and environmental data such as soil maps and other relevant environmental information (Section 24). The planning system incorporates the development control process, ensuring that land use complies with the Constitution (Article 60), focusing on equitable, efficient, and sustainable management.

Despite these advancements, challenges remain. Past planning laws faced issues such as corruption, weak institutions, and ineffective development control mechanisms.¹²⁹ Moreover, the rapid conversion of agricultural lands to urban developments has led to conflicts, undermining sustainable land management.¹³⁰ While the 2019 Act

128 Maina (2016).

129 Mativo (2015: 37).

130 Ndegwa (2001).

improves on previous laws by addressing many of these issues, the duplication of institutions at both county and national levels could continue to hamper effective soil governance and land-use planning.

For soil conservation and protection, effective enforcement of the Act's provisions and addressing governance inefficiencies are crucial to ensuring long-term environmental sustainability in Kenya.

4.4.7 Agriculture, Fisheries, and Food Authority Act, 2013

The Agricultural, Fisheries and Food Authority Act 13 of 2013 establishes the Agriculture and Food Authority (AFA), which regulates and promotes best practices in the agricultural sector, excluding livestock. Under the Crops Act, No. 16 of 2013, the authority oversees various activities such as the production, processing, marketing, grading, storage, collection, transportation, and warehousing of agricultural products, ensuring compliance with established standards (Section 4(b)). It also collects and compiles data, maintains a comprehensive database on agricultural products, and monitors the sector through the registration of relevant stakeholders. Additionally, the AFA determines agricultural research priorities and provides advisory services to guide the development of the sector. The Act delineates the roles of both national and county governments, with the national government focusing on policy, regulation, and research, while county governments handle local implementation and oversight. Through these mechanisms, the authority aims to enhance agricultural productivity, ensure sustainable practices, and support effective land and soil management in alignment with national development goals.

4.4.7.1 Development, preservation, and utilisation of agricultural land

Regarding the development, preservation, and utilisation of agricultural land, the Cabinet Secretary, on the advice of the Agriculture and Food Authority (AFA) and in consultation with the National Land Commission, is empowered to issue general land development guidelines (Section 21(1)). These guidelines apply to all categories of agricultural land and are aimed at ensuring the sustainable and productive use of land for agricultural purposes. The guidelines are to be implemented by the respective county governments, which must consider the unique circumstances of their areas when applying the guidelines (Section 21(2)). These guidelines may require the adoption of specific management or farming practices, as well as the execution of necessary tasks or the placement of certain structures or materials on the land, to ensure its proper development for agricultural use (Section 21(3)). This framework helps guide the

preservation of agricultural land, encourages best practices in farming, and supports sustainable land management at the local level.

4.4.7.2 Rules on preservation, utilisation, and development of agricultural land

The Cabinet Secretary, on the advice of the Agriculture and Food Authority and in consultation with the National Land Commission, is authorised to create general rules for the preservation, utilisation, and development of agricultural land (Section 22(1)). These rules may dictate how landowners, whether they are occupiers, should manage their land following good estate management practices (Section 22(2)). They may also specify how occupiers should farm the land in line with good husbandry practices. Furthermore, the rules could provide guidelines on the control or prohibition of certain agricultural practices, such as the cultivation of specific crops or the keeping of certain types of stock (Section 22(3)(a)). They may also regulate the construction of buildings and other structures on agricultural land.

In addition, the rules can include exemptions or conditional exemptions to ensure that vulnerable groups, including women, are not unfairly impacted. An agricultural landowner is considered to fulfil their responsibility if they manage the land in a way that allows the occupier to maintain efficient production of crops or livestock. An occupier is fulfilling their responsibilities if they maintain a reasonable standard of production, ensuring the land remains in good condition for future use and continued productivity (Section 22(3)(b)).

4.4.7.3 Soil conservation

Section 23(1) of the Agriculture, Fisheries and Food Authority Act empowers the Cabinet Secretary, on the advice of the Agriculture and Food Authority and in consultation with the National Land Commission, to establish national guidelines for soil conservation and the prevention of soil erosion. These guidelines can address various activities related to land preservation, including prohibiting, regulating, or controlling agricultural practices such as the burning, clearing, or destruction of vegetation if deemed necessary to protect the land from degradation, preserve water catchment areas, or maintain soil fertility. They may also require, regulate, or control afforestation and re-afforestation efforts, as well as drainage measures such as constructing and maintaining drains, gullies, contour banks, terraces, and diversion ditches to prevent issues relating to salinisation, acidification, and soil salting. Additionally, the guidelines may mandate the uprooting or destruction of vegetation planted in violation of a land preservation order, without compensation, and ensure the supervision of unoccupied land to prevent neglect. Furthermore, they may prohibit, restrict, or control the use of land for

specific agricultural purposes, excluding livestock. The guidelines may include provisions for exemptions or conditional exemptions, allowing flexibility in their application. They may also specify conditions for granting permits or exemptions, limiting the application to certain periods, individuals, or areas, and requiring or prohibiting specific actions on land to benefit other lands or properties, even those under different ownership or occupation (Section 23(2)).

4.4.8 Crops Act, 2013

The objective of the Crops Act 16 of 2013 is to accelerate the growth and development of agriculture, boost the productivity and incomes of farmers and rural populations, improve the investment climate and efficiency of agribusinesses, and develop crops as export commodities to enhance the country's foreign exchange earnings. Under this Act, landowners and lessees of agricultural land, as stewards, are obligated to cultivate their land in a sustainable and environmentally friendly manner, ensuring that the land remains economically productive (Section 4(b)).

4.4.9 Irrigation Act, 2019

The Irrigation Act 14 of 2019 is aimed at the development, control, and improvement of irrigation schemes, along with related purposes. Section 3 of the Act establishes the National Irrigation Board, which is tasked with overseeing the development and management of national irrigation schemes in Kenya (Section 15(1)). The Cabinet Secretary, in consultation with the Board, has the authority to create regulations, including those governing standards of good husbandry and the control of pests and diseases in irrigation schemes (Section 27(1)(b)). These regulations may also outline methods for harvesting, storage, transportation, processing, marketing, and selling produce grown in such schemes (Section 27(1)(e)).

To implement these regulations, the Irrigation (National Irrigation Schemes) Regulations of 1977 were enacted. Under these regulations, individuals who reside, conduct business, or occupy any part of an irrigation scheme, or graze livestock there, must hold a valid license granted by the scheme manager and approved by the committee (Regulation 4). A critical condition for obtaining a license is compliance with specific guidelines on good husbandry, such as proper stock management (e.g., branding, dipping, inoculation), soil preservation, preventing erosion, and maintaining vegetation (Regulation 8(1)(f)). Failure to adhere to these conditions may result in penalties and the termination of the license by the Cabinet Secretary (Regulation 8(3)).

Licensees are prohibited from constructing any buildings or works on their land without prior written consent from the scheme manager (Regulation 10(5)).

Unauthorised construction must be demolished at the licensee's expense, and the land must be restored to its original condition, which includes addressing soil degradation. Additionally, the Irrigation Act bans the use of prohibited chemicals or substances in irrigation schemes. However, the illegal use of substandard fertilisers, chemicals, and polluted water highlights gaps in the effective implementation of the law.

4.4.10 Plant Protection Act, 2012

The Plant Protection Act Cap. 324 of 2012 empowers the Minister to make rules aimed at preventing and controlling the spread of pests or diseases affecting plants (Section 3). While the primary focus of the Act is plant health, it indirectly contributes to soil protection by safeguarding crop cover, which plays a critical role in preventing soil erosion. Healthy crops act as a protective barrier against soil degradation, ensuring that the soil remains intact and fertile for agricultural use. Therefore, the Plant Protection Act helps to maintain soil stability by controlling plant pests and diseases that might otherwise compromise crop health and increase the risk of erosion.

4.4.11 Mining Act, 2016

The Mining Act 12 of 2016 governs the extraction of minerals specified in the First Schedule of the Act, excluding petroleum and hydrocarbon gases (Section 3). It stipulates that a mineral right, license, or permit granted under the Act does not exempt the holder from complying with any laws related to environmental protection (Section 176(1)). A mining license will only be granted if the applicant has obtained an EIA license, conducted a social heritage assessment, and had the environmental management plan approved (Section 176(2)). This ensures that mining activities are carried out with consideration for environmental sustainability and compliance with regulations designed to protect the ecosystem.

4.4.11.1 Land use

Section 179 of the Mining Act mandates that holders of permits or licenses under the Act must use the land following the conditions outlined in their permit or license. This includes ensuring the sustainable use of land by restoring abandoned mines and quarries, preventing the seepage of toxic waste into natural water bodies such as streams, rivers, lakes, and wetlands, and disposing of toxic waste only in designated areas. It also requires that blasting and other activities causing significant vibrations be carried out in a way that minimises their impact, adhering to permissible vibration levels set

by the EMCA. Upon completion of prospecting or mining activities, the land must be restored to its original condition or as close as possible to its natural state, in a manner that is acceptable and reasonable. This provision ensures that mining activities consider long-term environmental sustainability and land rehabilitation.

4.4.11.2 Requirement of site restoration and mine-closure plans

The Mining Act stipulates that the cabinet secretary will not grant a prospecting, retention, or mining licence to an applicant unless the applicant has submitted site mitigation and rehabilitation plans, or mine-closure plans, for approval (Section 180(1)). These plans must be reviewed and approved before the licence is issued. Furthermore, the cabinet secretary has the authority to prescribe regulations that outline specific obligations related to site rehabilitation and mine closure (Section 180(2)). This ensures that mining operations are conducted with consideration for long-term environmental impacts and that adequate measures are in place for restoring the land after mining activities are completed.

4.4.11.3 Environmental protection bonds

The Mining Act requires applicants for a prospecting, retention, or mining licence to provide an environmental protection bond or other financial security (Section 181(1)). This bond must be sufficient to cover the costs associated with the applicant's environmental and rehabilitation obligations. The form and amount of the bond are determined by the cabinet secretary, considering the characteristics of the project and the applicant's obligations under the EMCA (Section 181(2)). The cabinet secretary can release part of the bond upon the satisfactory completion of rehabilitation measures during the licence period, and the bond can be fully released once all environmental and rehabilitation obligations are met (Section 181(3)). In cases of soil pollution, the bond can be used for soil restoration and rehabilitation. However, the effectiveness of these measures is challenged by issues in small-scale mining, where artisanal miners often operate without licences, and illegal use of toxic metals including mercury and lead in gold mining has caused significant soil pollution.¹³¹

The Petroleum Act 2 of 2019 provides a framework for the exploration, development, and production of petroleum, establishing environmental protections for upstream petroleum operations. It requires operators to adhere to environmental, health, safety, and best industry practices, ensuring that operations prevent pollution of soil, water, air, biodiversity, and other resources (Section 59(1)). Operators are required to

¹³¹ Odinga (2018).

use the best available technology, prevent waste, and mitigate environmental harm (Section 59(2)). They must also submit detailed plans before drilling wells, maintain emergency preparedness measures, and ensure that any environmental damage is restored to the original state (Section 60(1)). The cabinet secretary is responsible for managing disaster preparedness and coordinating emergency responses to incidents (Sections 67(1-2) and 69(1-2)). Additionally, individuals seeking to refine, import, export, or store petroleum products must obtain a valid licence from the Energy Regulatory Commission, which ensures compliance with environmental laws, and health, and safety regulations (Section 74(1)).

4.4.11.4 Liability for damage

The Petroleum Act imposes strict liability on contractors for environmental damage resulting from pollution related to their upstream petroleum operations, regardless of fault (Section 72). This liability extends to damages occurring within Kenya's borders or territorial waters.

Operators engaged in petroleum logistics, transportation, or sales must comply with environmental, health, and safety laws (Section 97(1)). In cases of fire, explosion, oil spills, injuries, or fatalities, the operator is responsible for cleaning up pollution or repairing damage at their own expense. This must be done to the satisfaction of the relevant licensing authority and other applicable authorities. Additionally, operators are required to maintain an oil clean-up plan in line with the National Oil Spill Policy and other environmental, health, and safety guidelines (Section 97(2)).

If an operator or transporter fails to act or delays unreasonably in addressing the pollution or damage, the licensing authority has the right to undertake the necessary remediation measures (Section 97(3)). The costs incurred are then charged to the operator or transporter. This provision ensures accountability and timely action to minimise environmental harm from petroleum-related activities.

4.4.12 Environment and Land Court Act, 2011

The 2010 Kenyan Constitution established a specialised court, the ELC, to address disputes related to land and the environment. This marked recognition of the critical importance of natural resources and sustainable land management in the country. The promulgation of the Environment and Land Court Act 19 of 2011 further underscored this priority.

However, the court has faced significant challenges in its nearly nine years of operation. A major issue has been the time spent defining its jurisdiction and its relationship with the High Court, which delayed the resolution of cases. Jurisdictional disputes

initially bogged down the court, slowing its capacity to adjudicate matters related to land use, land planning, and environmental protection. Additionally, the court has been persistently understaffed, despite the high volume of land and environmental cases requiring attention.¹³² While land law is a mandatory subject in Kenyan law schools, there is a shortage of legal professionals with specialised competence in environmental and land law, further limiting the court's effectiveness.

These delays in resolving disputes have had indirect consequences, including contributing to environmental degradation. The slow adjudication process has often left land-use and environmental conflicts unresolved, hampering enforcement of sustainable land-use practices and environmental protections. Strengthening the court's capacity and specialisation is critical for improving its efficiency and mitigating environmental harm.

4.4.13 Fertilisers and Animal Foodstuffs Act

The Fertilisers and Animal Foodstuffs Act Cap 345 establishes the Fertiliser and Animal Foodstuffs Board of Kenya, tasked with ensuring that fertilisers imported, manufactured, or distributed within Kenya comply with prescribed quality and safety standards. The Act also explicitly prohibits the importation, manufacture, compounding, mixing, or sale of unapproved fertilisers or animal foodstuffs.

However, as highlighted in Chapter Two, most of Kenya's agricultural soils require frequent replenishment of nutrients to maintain productivity. The use of substandard fertilisers, often smuggled into the country, has significantly contributed to soil degradation. Alarming, instances of collusion between smugglers and government institutions have been reported, exacerbating the issue and undermining efforts to safeguard soil health.¹³³

4.5 Jurisprudence on environmental protection

The courts in Kenya have played a pivotal role in interpreting the Constitution and various environmental laws, emphasising the right to a clean and healthy environment. Through their decisions, the judiciary has underscored the importance of upholding environmental protection principles, which include sustainable development and soil conservation. The case law discussed in this section illustrates how courts have understood and applied these principles and the effects on soil conservation and improvement.

¹³² See <https://bit.ly/3pp4W1f>, accessed 6 November 2019.

¹³³ See *Afri Ventures (Kenya) Limited v Turbo Highway Eldoret Limited* [2014] eKLR; Ombati (2018).

4.5.1 *John Mutungu Waititu v China Wuyi (Kenya)*

a) Co. Limited [2018] eKLR

The appellant (John Mutungu Waititu) sued the respondent for failing to restore his land after excavating murram, leaving it vulnerable to soil erosion. The lease agreement required the respondent to refill holes and return the topsoil, but this was not done. The court defined environmental degradation as the depletion of natural resources including soil and found that the respondent's actions contributed to this. Instead of awarding damages, the court ordered the respondent to restore the land by topping up the soil, prioritising environmental restoration over monetary compensation. This decision emphasises soil conservation and environmental responsibility.

4.5.2 *African Centre for Rights and Governance (ACRAG) v Municipal Council of Naivasha* [2017] eKLR

The petitioner challenged the operation of a dumpsite near Naivasha, claiming it violated the constitutional right to a clean and healthy environment. The court directed the County Government of Nakuru to immediately clean up plastic litter and ensure ongoing waste management practices, such as incineration. The court also ordered the County Government to apply for a waste disposal license from NEMA within fourteen days, with a thorough EIA to consider alternative sites and mitigation measures, including the possibility of a modern landfill. Justice Munyao Sila also instructed the cabinet secretary responsible for the environment to review policy and compliance on solid waste management.

4.5.3 *Martin Osano Rabera, John Ndungu Kinyanjui v Municipal Council of Nakuru, NEMA & County Government of Nakuru* Petition No. 53 of 2012 eKLR

The petitioners, residents near the Gioto waste disposal site, claimed their right to a clean and healthy environment under Article 42 of the Constitution had been violated. Justice Ohungo ruled that the responsibility to ensure a clean environment lies with everyone, including the state, individuals, and organisations. The court emphasised that while the 2nd respondent had a technical role in environmental matters, the primary responsibility for waste management rested with county governments. The court ruled in favour of the petitioners, reinforcing the principle that waste management is a county government responsibility under the Fourth Schedule of the Constitution.

4.5.4 *Moffat Kamau v Aeolus Kenya Limited (the Kinangop Wind Park Project case)* Nakuru ELC Petition No. 13 of 2015 (2016) eKLR

In this case, the company initially received an EIA licence for a 30 MW wind power project in Kinangop, which was later transferred to Aeolus Limited. Aeolus expanded the project to 61 MW and increased the coverage from two km² to fourteen km² but applied for only a variation of the original EIA licence, not a new one. The petitioners challenged this decision. The court ruled that substantial changes in the project's scope required a fresh EIA rather than a mere variation of the original licence. It held that when there are significant changes in the project, such as in its size, site, technology, or environmental effects, a new EIA must be conducted before issuing a licence variation.

4.5.5 *John K. Kibicho (suing on behalf of the Milimani Residents Welfare Association) v County Government of Nakuru* Petition No. 13 of 2013 eKLR

In this case, the residents of Milimani in Nakuru opposed the construction of a multi-storey residential block in an area predominantly consisting of bungalows. The developer applied for a change of user, which was contested by the petitioners. Despite this, the Nakuru County Government approved the development without granting the petitioners a hearing. The court ruled that the change of user application required proper notification to adjacent landowners and public advertisement as per Section 41 of the Physical Planning Act. Since only one advertisement in one English daily newspaper was published, the court found the procedures were not followed and cancelled the change of user licence.

4.5.6 *Justus Irungu Githae v Attorney General* Case No. 804 of 2013 (2016) eKLR

In this case, the court issued an injunction against the County Government of Kirinyaga, halting its waste dumping on land adjacent to the petitioner's property. The petitioners argued that the county's actions threatened their right to a clean and healthy environment. The county government admitted in its response that it had not conducted an EIA before beginning the waste disposal. The court ruled that further dumping should be stopped until the petition could be heard.

4.5.7 *Joseph Leboo v Director Kenya Forest Service* Case No. 273 of 2013 eKLR

In this case, the plaintiffs challenged the issuance of licences by the KFS for tree felling in Lembus Forest. They argued that KFS had illegally allocated timber harvesting rights to both pre-qualified and unqualified sawmillers, without involving the local

community as required by law. Additionally, the saw millers were found to be harvesting trees that were not designated for their use and were cutting unspecified trees. The court noted that there was no management plan for the forest, which is a requirement under the Forest Act of 2005. The Act mandates a five-year management plan for each forest and prohibits KFS from issuing timber harvesting authorisations without a site-specific plan. Since these conditions were not met, the court issued an injunction halting any further tree harvesting in the forest.

4.5.8 *Raycon Limited v Superply Limited* Case No. 39 of 2017 (2017) eKLR

In this case, the plaintiff claimed to have been granted harvesting rights over exotic timber in the Mau Forest by the KFS. The plaintiff alleged that the first and second defendants had encroached on its allocated area and were illegally harvesting trees, seeking an injunction to stop their actions. However, it was revealed during the hearing that the plaintiff did not hold a valid licence for tree harvesting, despite being permitted by KFS to do so. The court also questioned how the first and second defendants were allowed to harvest timber, given the clear provisions in the Forest Act of 2016 that prohibit tree harvesting without a licence. The court was not convinced that either the plaintiff or the defendants had the necessary licences to harvest trees and issued a summons for the Director of KFS to explain why these parties were permitted to harvest timber in Mau Forest.

4.6 Conclusion

Soil conservation in Kenya is currently a secondary concern compared to broader land and environmental protection. While several laws touch on soil conservation, their impact is limited due to weak institutions, poor implementation, and corruption. Furthermore, soil conservation is not prioritised in development planning. Kenya's growing population, rapid infrastructure development, and its role as a regional business hub have increased pressure on land and soil. Population growth, urban sprawl, and industrialisation further exacerbate soil degradation, but legal measures have not evolved to address these challenges, often sidelining soil conservation in favour of production goals.¹³⁴

To improve the situation, we recommend strengthening law enforcement, enhancing capacity-building, and improving coordination among institutions. While Kenya has a legal framework for soil protection, it is fragmented across various policies,

134 Mundia & Murayama (2010).

statutes, and international agreements, leading to overlaps, unclear responsibilities, and potential institutional conflicts.

A dedicated soil protection law could provide clearer focus and responsibilities, streamline resource allocation, and elevate soil conservation efforts. Such a law would encourage effective collaboration between institutions. The ELC, which already has a mandate to protect the environment, could play a crucial role in enforcing soil protection and developing a strong soil jurisprudence similar to environmental law.

5 Lessons learnt and recommendations for future legislation

Soil protection has been a focus in Kenya's policy and law since colonial times, with discussions at high political levels. However, there is currently no dedicated law for soil protection. While various laws contain provisions that can aid in soil conservation, the absence of a specific law means soil protection may be overlooked. This highlights the need for a consolidated law that incorporates existing soil protection measures.

5.1 Lessons learnt

The Constitution of Kenya recognises the right to a clean and healthy environment, including protecting the environment for current and future generations through legislative and other measures. This right encompasses a habitable environment with clean water, soil, and air free from toxins that threaten human health. It is intrinsically linked to other constitutional rights, such as the right to adequate food, freedom from hunger, and the highest attainable standard of health, providing a robust foundation to demand soil conservation and protection.¹³⁵ Kenya's judiciary, particularly after the 2010 constitutional reforms, has demonstrated a progressive approach to enforcing environmental rights. Courts have emphasised the interconnection between the right to a clean environment and socio-economic rights, as seen in *Friends of Lake Turkana Trust v Attorney General*,¹³⁶ which established that rights such as life, dignity, and economic rights are indivisible. Kenyan courts have interpreted the right to a clean environment broadly, inherently proscribing pollution and holding entities accountable for environmental harm,¹³⁷ as evidenced in *Save Lamu v National Environmental Management Authority (NEMA)*,¹³⁸ where an environmental impact assessment licence was nullified due to inadequate public participation. However, despite a comprehensive environmental legal framework, including the EMCA, 1999, soil conservation lacks the same

135 Okpara (2012).

136 See *Friends of Lake Turkana Trust v Attorney General* [2014] eKLR.

137 See *Pastor James Jessie Gitahi v Attorney General* [2013] eKLR.

138 See *Save Lamu v National Environmental Management Authority (NEMA)* [2019] eKLR.

level of attention and robust protection as water, air, forests, and wildlife. While laws such as the Fertilisers and Animal Foodstuffs Act ensure quality fertilisers and the Irrigation Act, 2019, restrict harmful substances, illegal practices including the use of substandard chemicals persist. Kenya's land tenure system—comprising private, public, and community lands—offers opportunities for collaborative soil conservation, with Article 69 of the Constitution obligating the state to ensure sustainable exploitation and management of natural resources.

Access to information is critical for soil conservation, as recognised in Article 35 of the Constitution and Kenya's Access to Information Act, 2016. This right is vital for enforcing environmental rights, yet the information available is often outdated and lacks geographical specificity, undermining efforts to curb unsustainable agricultural practices. Sustainable soil management demands an integrated approach that values both local and natural resources while incorporating targeted inputs and practices. Assigning economic value to land degradation could further help policymakers prioritise soil conservation, highlighting its benefits for food security and poverty reduction. Kenya's environmental governance is hindered by compartmentalised, sectoral laws that inadequately address soil-specific issues, with soil protection relegated as an incidental aspect of environmental management. Institutional coordination is insufficient, with conflicts between national and county governments over agricultural responsibilities creating inefficiencies.¹³⁹ Despite laws mandating environmental impact assessments, irregularities in their issuance contribute to environmental degradation. Similarly, enforcement mechanisms, such as those of the National Environment Management Authority (NEMA), face challenges due to weak inter-agency cooperation.

Urbanisation exacerbates soil degradation, particularly in counties such as Kitui, Machakos, and Makueni, where sandy soils and low rainfall increase susceptibility to erosion. Soil degradation disproportionately affects rural communities dependent on agriculture, linking it closely to poverty and food insecurity. Kenya's ambitions as a leader in the green economy and clean energy contrast with limited efforts to conserve soils, despite the critical role of soil carbon in climate change mitigation. Political goodwill is essential for successful legislative and policy reforms in soil conservation. Legislative proposals require the backing of both Parliament and the Executive, as political dynamics significantly influence the adoption of reforms. Recognising the political economy of soil governance is vital, as attempts to treat legislative changes as purely technical processes are likely to fail without addressing broader political contexts and stakeholder incentives. Thus, achieving effective soil conservation in Kenya requires a multifaceted approach that integrates technical, economic, and political considerations while fostering institutional collaboration and prioritising public awareness and information accessibility.

139 See *County Government of Migori v Privatization Commission of Kenya* [2017] eKLR.

5.2 Recommendations

Given the foregoing, the following recommendations are proposed to enhance soil conservation and protection in Kenya: The country should develop a comprehensive soil policy involving all stakeholders to establish principles and guidelines for soil management. Nationally, there is a need for participatory enactment of comprehensive soil legislation that embodies these principles. Given the devolution of agriculture to county governments under the Fourth Schedule of the Constitution, county assemblies should develop region-specific soil management laws tailored to the unique characteristics of their soils. Soil conservation measures should adopt an integrated approach, considering the interconnected nature of soil with other environmental components, and delineate the roles of national and county governments while ensuring harmonised institutional coordination.

To address lax enforcement, institutions such as the National Environment and Management Authority should collaboratively implement environmental laws related to soil protection, moving away from a fragmented sectoral approach. Enhanced penalties for breaches, alongside restoration taxes for offenders, should be introduced. Education on sustainable soil management must be integrated into school curricula to cultivate young champions of soil conservation, similar to climate change education initiatives. Accessible, updated soil quality information is essential for the public, particularly small-scale farmers reliant on soil for livelihoods. Conservation techniques including afforestation, reforestation, and low-cost soil protection technologies should be promoted. Incentive schemes, including subsidies for fertilisers and manure, should support small-scale farmers to improve soil fertility.

A holistic legislative approach is necessary, addressing erosion, acidification, salinisation, compaction, contamination, and nutrient loss, which contribute to soil degradation. Legislation must also consider the impact of activities such as land-use changes, urban expansion, intensive agriculture, specific farming methods, and deforestation on soil health and biodiversity. Recognising the transboundary nature of soil issues, soil conservation efforts should transcend political boundaries for effective management. These recommendations provide a basis for crafting robust, soil-specific legislation that integrates comprehensive strategies to sustainably manage and protect Kenya's soils.

5.3 Elements of a soil-specific legislation

A soil-specific law in Kenya should focus on the sustainable management of soils, with clearly defined purposes, objectives, and principles to guide its application. The law must establish a competent organisation to oversee soil-related issues, set priorities, and define its geographical scope and application areas. It should include a definitional section for clarity, with objectives centred on soil conservation, preventing degradation, and improving fertility to ensure food security. Rights and responsibilities

of various stakeholders should be delineated to promote accountability, while special provisions must protect marginalised groups such as women, the poor, and communities in arid and semi-arid areas, recognising their disproportionate vulnerability to soil degradation. A robust institutional framework is essential, including a national soil authority tasked with overseeing soil information, planning, evaluation, and monitoring, alongside a devolved expert advisory body to guide legal, strategic, and policy issues. Public and community participation must be mandated to align with Kenya's constitutional value of inclusivity, ensuring local insights inform soil management. The law should also provide for national soil strategies and policies, reviewed periodically to adapt to sectoral changes. Harmful activities must be explicitly prohibited, with the authority empowered to enforce penalties. Provisions for research, capacity building, and regular monitoring, particularly in erosion-prone areas, are critical for effective soil management. A guaranteed financing scheme should support resource-intensive conservation efforts, and the law should uphold the constitutional right to soil information to ensure government accountability. Recognising the transboundary nature of soil degradation, the law must facilitate cooperation with neighbouring countries and counties. Gender-sensitive provisions are vital to address women's critical role in soil and land management and their heightened vulnerability to degradation. Finally, the law should establish liability and redress mechanisms, granting the National Environment Tribunal original jurisdiction for soil-related disputes and allowing appeals to the Environment and Land Court, ensuring effective dispute resolution. This comprehensive approach would promote sustainability, equity, and accountability in soil governance across Kenya.

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Country report for Madagascar

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Abstract

This chapter focuses on sustainable soil management in Madagascar. It highlights the challenges in translating environmental policies into actionable strategies, particularly emphasising the need for effective land management and soil conservation practices. The chapter explores the implications of these challenges, especially in relation to agricultural productivity, ecosystem health, and broader socio-economic development.

An analysis of the existing legal framework and policies reveals significant gaps, particularly in the integration of soil management into sectoral laws and the absence of a dedicated legal framework for soil preservation. Specific attention is given to the Environmental Charter and the General State Policy (2024), with a focus on the complexities arising from decentralised governance, land tenure systems, and the lack of coordination between key sectors such as agriculture, urbanisation, and mining.

The chapter also presents key findings, such as the need for stronger political will, enhanced local authority involvement, and improved awareness and education on sustainable soil practices. Recommendations are made to strengthen legal frameworks, decentralise natural resource management, and integrate environmental considerations into all development sectors. It concludes by emphasising the urgent need for a dedicated soil law and comprehensive implementation strategies, particularly given the growing challenges posed by population pressure, urbanisation, and climate change.

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Summary

In Madagascar, while the foundations for sustainable development have been established, much work remains to turn policy into concrete actions. The Environmental Charter outlines six key priorities for action: developing human resources, promoting sustainable and equitable development through effective natural resource management, conserving biodiversity, improving living conditions for both urban and rural populations, balancing population growth with resource development, and enhancing environmental management tools, particularly around land issues. To meet these priorities, a variety of approaches must be developed, including decentralising natural resource management, raising awareness, promoting sustainable agricultural practices, strengthening land management, and integrating environmental concerns into sectoral policies.

The Environmental Action Plan (EAP), which spans fifteen years and is divided into three phases, outlines operational goals, focusing on reducing natural resource degradation and reversing deforestation. The plan also calls for the establishment of Environmental Units within ministries and the mandatory use of Strategic Environmental Impact Studies for major development projects. All national development programmes must incorporate environmental considerations through the environmental assessment process.

The new General State Policy (2024) underlines the need for a balanced approach to human development and ecological resources. It recommends that sectoral policies and strategies focus on the seven key axes outlined for sustainable soil management. This chapter provides detailed sectoral recommendations on issues related to agriculture, urbanisation, land management, mining, and industry. While the causes of land degradation in these sectors are diverse—ranging from environmental, political, legal, technical, socio-economic, and cultural factors—common threads emerge, particularly the need for urgent attention to soil preservation at the national level.

On the part of the Malagasy administration, the state must show political will by clearly defining its policies and strategies for land management. This includes developing a legal framework to combat soil degradation, outlining the benefits of sustainable land management, identifying the main causes of degradation, and proposing technical, legal, and social solutions. An integrated monitoring system, involving local authorities, customary leaders, and designated officials, should be established to oversee the implementation of these policies. Awareness and mobilisation efforts must engage both public and private entities, with training for local authorities who will be responsible for enforcement. Legal sanctions for non-compliance should be clear and enforceable.

The success of large-scale investments, both national and foreign, must be ensured through strengthened oversight and adherence to sustainable land management laws. Given that this policy is a new approach, it is suggested that pilot projects be

implemented to test its effectiveness, refine it based on real-world observations, and demonstrate its importance to the public.

Decentralised local authorities (CTDs), which are enshrined in Madagascar's Constitution, will be instrumental in the success of the proposed sustainable soil management policy. These local authorities must take responsibility for monitoring and regulating land use and must be supported with both technical and financial resources from the central government.

Additionally, education programmes on sustainable land management should be integrated at all levels of schooling, with special attention given to training professionals in the field. Experimental projects should also be used to demonstrate effective soil management practices.

Although not formally recognised by law, customary chiefs play an important role in managing community land use. It is crucial to formalise their role in the legal framework, particularly in terms of land management, to ensure peace and stability.

In conclusion, this chapter stresses the need for a collaborative approach to soil preservation in Madagascar, involving clear legal frameworks, institutional support, community engagement, and education. The success of the proposed soil management policy will depend on effective cooperation between the government, local authorities, and communities, alongside the mobilisation of resources and strong enforcement mechanisms.

1 Introduction

Soil, a living and vital component of the geosphere, is the foundation of life on earth. Africa is richly endowed with natural resources, particularly its soil. However, the continent faces severe land degradation, with 65% of its soils compromised and nearly three million hectares of forest lost each year, resulting in a 3% reduction in the gross domestic product (GDP).¹ This chapter reviews Madagascar's legal framework regarding soil protection, examining the causes of soil degradation, including agricultural practices, mining, urbanisation, land tenure challenges, and poor governance, such as corruption and weak enforcement mechanisms. In Madagascar, slash-and-burn agriculture is particularly damaging, threatening the iconic baobab forests, with 4,000 hectares destroyed annually.² These forests are crucial for both the ecosystem and local communities, providing essential resources for food and cosmetics.³ Sustainable land

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- 1 See <https://www.banquemonde.org/fr/news/feature/2016/11/14/africas-bold-and-ambitious-endavor-restoring-100m-hectares-of-land-by-2030>, accessed 23 December 2024.
 - 2 See <https://theconversation.com/madagascars-ancient-baobab-forests-are-being-restored-by-communities-with-a-little-help-from-ai-229019>, accessed 23 December 2024.
 - 3 See <https://ledsgp.org/app/uploads/2015/07/policy-and-financing-for-sustainable-land-management-sub-saharan-africa.pdf>, accessed 23 December 2024.

management is key to reversing land degradation, which impedes agricultural growth, exacerbates poverty, and threatens biodiversity. At the 22nd Conference of the Parties (United Nations Climate Change Conference), sub-Saharan African countries committed to restoring and sustainably managing 100 million hectares of land by 2030.⁴ This chapter assesses Madagascar's current laws on soil protection, identifying strengths, gaps, and areas for improvement and offering recommendations for creating a more effective, integrated legal framework for sustainable soil management.

1.1 Demographic, geographic, climatic, and institutional data

The Republic of Madagascar is an island nation located in the Indian Ocean, geographically separated from the African continent by the Mozambique Channel. Stretching 1,580 km in length and 580 km in width, Madagascar covers an area of 587,000 km², making it the fourth-largest island in the world, after Greenland, New Guinea, and Borneo. The capital city is Antananarivo. Malagasy is the national language, with both Malagasy and French serving as official languages. The country is surrounded by several islands and archipelagos, including the Comoros (and Mayotte), the Mascarene Islands (including Réunion and Mauritius), and the Seychelles. The official currency is the Ariary (Ar or MGA).

According to provisional data from the 2018 General Population and Housing Census (RGPH-3) conducted by the National Institute of Statistics (INSTAT), Madagascar's population was estimated at 25.7 million,⁵ with slightly more women (13,015,251) than men (12,658,945).⁶ The population is distributed between rural and urban areas, with 10.4 million women and 10.3 million men in rural areas, and 2.6 million women and 2.4 million men in urban areas. The Malagasy population is notably young, yet faces significant challenges, including a high poverty rate, with 80.7% of the population living below the poverty line in 2023, earning less than USD 2.15 per day.⁷

Madagascar experiences a tropical climate, characterised by two distinct seasons: a hot and humid summer from November to April, and a cool and dry winter from May

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- 4 See <https://www.banquemonde.org/fr/news/feature/2016/11/14/africas-bold-and-ambitious-endeavor-restoring-100m-hectares-of-land-by-2030>, accessed 23 December 2024.
 - 5 See <https://documents1.worldbank.org/curated/en/099220011092219139/pdf/BOSIB0717e1bcd0990919008933ddc517f9.pdf>, accessed 23 December 2024.
 - 6 See [https://demostaf.web.ined.fr/index.php/catalog/202/study-description#:~:text=INSTAT%2DRGPH%2D2018-,Madagascar%20%2D%20Recensement%20g%C3%A9n%C3%A9ral%20of%20the%20population,of%20the%20habitation%20\(2018\)&text=It%20is%20the%20third%C3%A8me,1975%2C%20the%20second%C3%A8me%20in%201993.&text=This%20census%20is%20the%20third%C3%A8me,place%20in%201975%20and%201993](https://demostaf.web.ined.fr/index.php/catalog/202/study-description#:~:text=INSTAT%2DRGPH%2D2018-,Madagascar%20%2D%20Recensement%20g%C3%A9n%C3%A9ral%20of%20the%20population,of%20the%20habitation%20(2018)&text=It%20is%20the%20third%C3%A8me,1975%2C%20the%20second%C3%A8me%20in%201993.&text=This%20census%20is%20the%20third%C3%A8me,place%20in%201975%20and%201993), accessed 23 December 2024.
 - 7 See <https://www.undp.org/fr/madagascar/propos-de-madagascar>; <https://www.banquemonde.org/fr/country/madagascar/overview>, accessed 23 December 2024.

to October. The central highlands have a temperate climate with four seasons. The eastern coast receives rainfall year-round, with precipitation reaching up to 4,000 mm annually, while the extreme southern region is arid, with only around 200 mm of rain per year.⁸

The country is highly vulnerable to extreme weather events, ranking among the world's most disaster-prone nations.⁹ Frequent floods, tropical storms, cyclones, and droughts have devastating impacts on the population, making Madagascar the third most vulnerable country to the effects of climate change.¹⁰

Madagascar's state institutions include the President and the government; the National Assembly and the Senate; and the High Constitutional Court. The judiciary is composed of the Supreme Court, appellate courts, specialised courts, and the High Court of Justice.

1.2 Historical context of Madagascar and the education system

The history of Madagascar can be divided into four main periods:¹¹

Settlement of the island: The origins of Madagascar's settlement are debated, but the most widely accepted theory suggests that the Malagasy people are descendants of migrants from Asia, Africa, and the Middle East, who arrived around the beginning of the Common Era. The Malayo-Indonesian settlers are credited with introducing irrigated rice cultivation and the outrigger canoe, while African migrants brought slash-and-burn farming and various livestock, including zebu. Arab traders introduced Islam, which remains a significant part of the culture today, along with the trade of spices, aromatic plants, and medicinal herbs.

Unification of Madagascar: Madagascar was historically divided into several kingdoms: Southern, Eastern, Western, and Central. These kingdoms remain a point of reference in Malagasy culture, and the descendants of the ancient kings are highly respected. During this era, a civil code was established, and a highly structured territorial administration was developed.

Colonisation by France: Madagascar officially became a French colony in 1896, and its agricultural, mineral, and human resources were exploited for the benefit of France. The Malagasy population protested fiercely against the colonial regime, and after years of resistance, French colonisation ended on 26 June 1960.

8 See https://edbm.mg/nouvelles-economiques_presentation-de-madagascar/, accessed 23 December 2024.

9 See <https://www.hi.org/fr/actualites/madagascar---l-impact-humanitaire-du-changement-climatique>, accessed 23 December 2024.

10 See https://www.reseau-canope.fr/fileadmin/user_upload/Projets/AFRICA_2020/Madagascar.pdf, accessed 23 December 2024.

11 See <https://www.madadecouverte.com/madagascar-histoire.php>, accessed 23 December 2024.

Independence: Madagascar gained independence on 14 October 1960. The country went through three republics, with the Fourth Republic being established by a new Constitution on 17 November 2010. This Constitution introduced a strong presidential system, where the President of the Republic holds significant power, though legislative power remains with Parliament. The Fourth Republic continues to follow a flexible separation of powers, allowing the executive to dissolve Parliament if needed.

The Malagasy education system: Education in Madagascar is overseen by public and private institutions, comprising four cycles: preschool, basic education, secondary education, and higher education.¹² The system is managed by various ministerial departments responsible for National Education, Employment, Technical Education, Vocational Training, Higher Education, and Scientific Research. However, the education system faces challenges due to the country's economic and social situation. The national education budget is insufficient to meet the country's needs, and there are significant regional disparities. Currently, 80% of primary school teachers are recruited and paid by parents, placing a heavy financial burden on families and contributing to high dropout rates.¹³ The shortage of well-trained teachers and educational resources, combined with overcrowded classrooms, further hinders the quality of education. In response, the French Development Agency (AFD) has supported the Improvement of the Quality of Education (AQUEM) project since 2014, aligning with the Interim Education Plan (2013-2015) and the Sector Plan approved by the Malagasy government in 2018.

1.3 Malagasy society and the land (soil)

In Madagascar, the terms “land” and “soil” are synonymous, both referred to as *tany* in Malagasy. The 2005 Law 2005-019, which governs land rights, does not define the term “land” or “soil.”¹⁴ Although land or soil is not legally defined under the current legislation, environmentalists have a certain concept of these notions. They refer to the land as the national territory, which includes both terrestrial and maritime space, as well as terrestrial and marine biodiversity. Therefore, discussions on soil or land protection should also encompass the protection of the sea, marine resources, and the territorial marine space. Approximately 62% of the population lives in rural areas, while

12 See <https://www.ifadem.org/fr/pays/madagascar/systeme-educatif>, accessed 23 December 2024.

13 See <https://www.afd.fr/fr/carte-des-projets/ameliorer-la-qualite-de-leducation-madagascar-aquem>, accessed 23 December 2024.

14 See https://edbm.mg/wp-content/uploads/2017/12/loi-2005-019_statuts_des_terres.pdf, accessed 23 December 2024.

38% reside in urban centres.¹⁵ The population is notably young, with around 64% under 25 years old and nearly 47% under fifteen.¹⁶

Malagasy culture is diverse and continues to play a significant role in daily life. Customs, rites, *fady* (prohibitions), and rituals are deeply intertwined with the practices and beliefs of the people.¹⁷ The cultural landscape of Madagascar is shaped by its various ethnic groups and regions, offering a unique insight into the country's history, spirituality, and way of life.

For the Malagasy people, land holds deep sacred value, considered the primary natural capital for sustenance and production. The word “land” can be interpreted in two ways: as a noun, it refers to the relationships between people and the land, and as a qualifier, it pertains to the rules regarding private ownership. Land encompasses the land base, its ownership, exploitation, and taxation.

The meaning of land varies depending on the social context. For the state, land is considered a public or private asset that requires protection. For researchers, it is a biophysical entity that supports ecosystem functions. Environmental stakeholders see it as natural capital that provides essential ecosystem services. For indigenous communities, the land is viewed as a nourishing mother, vital to their identity and survival.

In Madagascar, land is not only a physical asset, but a sacred inheritance passed down through generations.¹⁸ Its market value is secondary to its cultural, sentimental, and identity-based significance. The land's history and its connection to the Malagasy people are paramount, transcending material concerns.

1.4 On the legal land regime and land policy

The Malagasy land legal system is heavily influenced by French colonisation (1895–1960), blending French civil law with Malagasy customary law. This system is considered “dualistic,” as it features both modern written laws and elements of traditional law that continue to persist.¹⁹ In the Malagasy legal framework, the Constitution is the highest legal authority, followed by laws and regulations (decrees and orders), which are mandatory once published in the Official Journal.

According to Article 3 of the Constitution, Madagascar is a decentralised state, structured around three levels of governance. This system includes decentralised territorial services, which are extensions of the central government, and Decentralised

15 See <https://futures.issafrica.org/geographic/countries/madagascar/>, accessed 23 December 2024.

16 See <https://faolex.fao.org/docs/pdf/mad151060.pdf>, accessed 23 December 2024.

17 See <https://maison-de-madagascar.ch/culture-coutumes-rites-fady-a-madagascar/>, accessed 23 December 2024.

18 Evers & Seagle (2012).

19 See https://www.legiscompare.fr/web/IMG/pdf/170904_la_chouette_fp_madagascar.pdf, accessed 23 December 2024.

Territorial Communities (CTD), which are guaranteed administrative and financial autonomy by the Constitution and defined by law.²⁰

Madagascar operates under a multi-party semi-presidential unitary republic. The President serves as the head of state, elected for a five-year term, while the prime minister acts as the head of government. Executive power rests with the government, while legislative power is shared between the government and a bicameral Parliament, comprising the National Assembly and the Senate. Judicial power is independent and is exercised by the Supreme Court, the High Constitutional Court, and the High Court of Justice.

The National Assembly consists of 160 representatives, elected by direct suffrage every five years. The Senate is made up of 90 senators, with two-thirds elected by local legislators and the remaining third appointed by the president, all serving five-year terms. The prime minister, appointed by the president from the majority party in the National Assembly, heads the Council of Ministers, which oversees the day-to-day administration of the government.

The Prime Minister and Parliament jointly initiate legislation, with the government responsible for its implementation. The President has the authority to dissolve the National Assembly, while the National Assembly can pass a motion of censure to compel the Prime Minister and Council of Ministers to reverse their decisions. The Constitutional Court adjudicates election disputes, ensures compliance with the Constitution and organic laws, and resolves conflicts between public institutions.²¹

1.5 What about customary rules?

Malagasy law remains profoundly influenced by custom, which continues to serve as a living source of law in specific areas. Customary law, recognised since 1962, was further reaffirmed in 2004. However, for custom to be applicable, it must be clear, well-established, and not contradict public order or good morals.²² While customary rules can help shape legal standards and guide judges, they sometimes complicate the application of statutory laws. In cases where law and custom conflict, custom may prevail, even if it contradicts formal legal provisions.

The “Dina” is a type of collective agreement rooted in Malagasy tradition, representing a set of customary rules designed to organise society. It emanates from the genuine will of the people, reflecting their collective needs. Faced with pressures on natural resources that disrupt the economy, ecology, and social fabric of the land, the

20 See <https://edbm.mg/wp-content/uploads/2022/06/GUIDE-JURIDIQUE.pdf>, accessed 23 December 2024.

21 See <http://www.hcc.gov.mg/wp-content/uploads/2015/09/ORD-2001-003.pdf>, accessed 23 December 2024.

22 Esoavelomandroso (2020).

Dina is often used in governance, conservation, and sustainable resource management. An example of Dina's effectiveness can be seen in the "Tapia Forest" project, initiated by the "Marina" project, which imposes a series of restrictions to protect the endemic Tapia tree.²³ The Dina, which prohibits, among other things, activities such as cutting and uprooting trees, coal mining, burning, agricultural development, and infrastructure construction. It also mandates the removal of invasive species, including pines and eucalyptus trees, and requires the restoration of two Tapia trees per household annually.

Additionally, the Dina regulates fishing practices by prohibiting the use of nets with mesh sizes smaller than 4 cm, the capture of fish smaller than 7 cm, and fishing during spawning periods or in spawning areas. These measures aim to ensure the sustainable management of lakes. Any violations of Dina's rules are met with sanctions known as "Vonodina," which typically involve monetary or other forms of compensation as specified by the community agreement.²⁴

1.6 Relevant environmental policy and regulations

The following key principles form the foundation of Madagascar's sustainable development policy: developing human resources; promoting sustainable, equitable, and harmonious development through effective management of natural resources; rehabilitating, conserving, and managing Madagascar's rich biodiversity; improving the living conditions of urban and rural populations; ensuring a balance between population growth and resource development; enhancing environmental management tools; and addressing land-related issues.

Recognising the escalating environmental degradation and biodiversity loss, largely driven by poverty and economic challenges, the government of Madagascar created its first National Environmental Action Plan (EAP) in 1989 with support from the World Bank, international agencies, and non-governmental organisations.²⁵ Since the 1990s, environmental management and sustainable development have been central to Madagascar's public policies, which are supported by Technical and Financial Partners.²⁶ After ratifying the Convention on Biological Diversity (CBD) in June 1992, Madagascar placed a strong emphasis on the development and sustainable

23 See <https://planete-urgence.org/projet-tapia-preservation-de-la-foret-de-tapia-soie-sauvage-api-culture-a-madagascar/>, accessed 23 December 2024.

24 See <https://www.equatorinitiative.org/fr/2017/06/30/le-dina-un-outil-de-developpement-durable/>, accessed 23 December 2024.

25 See <https://mg.chm-cbd.net/implementation/politique-nationale-de-lenvironnement>, accessed 23 December 2024.

26 See <https://www.droit-afrique.com/upload/doc/madagascar/Madagascar-Loi-1990-33-charte-environnement-MAJ-2004.pdf>, accessed 23 December 2024.

management of its overexploited natural resources.²⁷ As part of this effort, the country pioneered the transfer of environmental responsibility to local communities, notably through the implementation of the Secure Local Management Law in 1996, a key component of the Environmental Sustainable Development Programme (2016).²⁸

Two primary legal texts safeguard the environment in Madagascar: Law No. 2015-003 of 20 January 2015, which updates the Malagasy Environmental Charter that has been in effect since 1990, and Decree No. 2204-167, which amends certain provisions of Decree No. 99-954 of 15 December 1999, related to the Compatibility of Investments with the Environment (MECIE Decree). The political and legal framework governing sustainable development in Madagascar is encapsulated in several key policies and strategies:

- The Constitution;
- General State Policy (PGE) (2024-2028);
- The National Development Plan (PND);
- The Updated Malagasy Environmental Charter;
- The New Energy Policy (2015-2030);
- The National Environmental Policy for Sustainable Development (2015);
- The National Water, Sanitation, and Hygiene Strategy; and
- The New Land Policy (2018–2030).

These policies are implemented through legal frameworks across various sectors. The National Environmental Policy for Sustainable Development aligns with the country's broader objective of achieving the Sustainable Development Goals (SDGs).²⁹ Both the PGE and the PND prioritise environmental protection to ensure the long-term sustainability of poverty reduction and national development efforts. Key legislative texts for environmental protection include:

- Law 2015-003 of 13 February 2015, updating the Environmental Charter.
- Decree No. 99-954 of 15 December 1999, regarding investment compatibility with the environment, amended by Decree No. 2004-167 of 3 February 2004 (MECIE Decree).
- Order No. 6830/2001 of 28 June 2001, establishing public participation procedures in environmental assessments.
- Interministerial Order No. 4355/97 of 13 May 1997, defining and delineating sensitive areas.

Environmental assessment procedures, including Environmental Impact Assessments (EIA) and Environmental Commitment Programmes (PREE), are guided by the MECIE Decree. The Environmental Charter mandates that no project may commence

27 See <https://www.un.org/fr/observances/biological-diversity-day/convention>, accessed 23 December 2024.

28 See <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC178891/>, accessed 23 December 2024.

29 See <https://www.undp.org/en/sustainable-development-goals>, accessed 23 December 2024.

without obtaining an environmental permit, and all related activities must comply with the provisions of the MECIE Decree regarding environmental assessments.

1.7 The Constitution and soil protection

Historically, Malagasy constitutions have placed significant emphasis on environmental protection and natural resources management. However, the current Constitution of the Fourth Republic mentions environmental protection only in its Preamble (paragraphs 7 and 10-15). While it acknowledges the importance of environmental protection, it does not explicitly recognise a right to the environment within the body of the text. Additionally, no specific safeguard measures are articulated, and the concept of “land” is notably absent. The Constitution generically references natural resources, leaving the inclusion of land as one of its components ambiguous. Similarly, the theme of sustainable management is addressed only vaguely, with a focus on preserving resources for future generations, limiting its constitutional commitment to a recommendation rather than enforceable measures.

Madagascar’s framework for sustainable land management, however, is supported by a series of political, strategic, legislative, and regulatory instruments developed after it ratified the United Nations Convention to Combat Desertification (UNCCD) in 1997. In 2003, a National Action Plan (NAP) was formulated through Decree No. 2003-199 of 11 March 2003 and later aligned with updated strategies in 2015 by Decree No. 2015-747 of 28 April 2015. These updates aimed to strengthen climate change adaptation and mitigation actions, integrate climate considerations at all governance levels, and promote research, development, and technology transfer in support of sustainable development.

SDG 15, titled “Life on Land,” calls for the sustainable management of terrestrial ecosystems, the preservation of biodiversity, and the combatting of deforestation, desertification, and land degradation. The goal also emphasises mitigating the impacts of natural disasters. In Madagascar, the protection of ecosystems and biodiversity is integrated into national planning and poverty reduction strategies, with specific emphasis on combating desertification and land degradation through frameworks such as the Malagasy Environmental Charter.

Decades of human-driven overexploitation and poor land management practices have led to severe ecosystem degradation, biodiversity loss, and diminished ecosystem services. These issues, in turn, negatively affect the living conditions of populations reliant on natural capital, particularly land resources. Discussions on sustainable land management in Madagascar have centred on poverty reduction, sustainable development, food and water security, climate change, biodiversity conservation, landscape restoration, and the government’s commitment to addressing these challenges. One

notable policy initiative is the “Policy Letter on Land Degradation Neutrality,” enacted through Decree No. 2017-757 of 5 September 2017.

The foundations for sustainable management in Madagascar date back to legislation such as Order No. 73-073 of 1 December 1973, which, in Article 26, highlights the long-standing legislative concern for sustainable rural development. Furthermore, Madagascar’s commitments under the CBD reinforce the importance of conserving ecosystems, species, and genetic resources. Article 6 of the CBD outlines general measures for conservation and sustainable use, requiring parties to rehabilitate degraded ecosystems and restore biodiversity. It also promotes the recovery of threatened species through the development and implementation of management strategies or action plans.

In sum, Madagascar has developed a multi-layered framework for sustainable development and environmental management. However, the lack of robust constitutional safeguards and detailed provisions for land management highlights the need for further refinement and integration of environmental governance within its legal and institutional systems.

1.8 Malagasy foreign policy

Madagascar is an active member of several regional and international organisations. These include the Indian Ocean Commission (IOC), which it chaired from February 2022 to May 2023, the Southern African Development Community (SADC), the Indian Ocean Rim Association (IORA), the African Union (AU), the Common Market for Eastern and Southern Africa (COMESA), and the International Organisation of La Francophonie (OIF).³⁰

1.9 International environmental conventions ratified by Madagascar

Madagascar is a signatory to a wide range of international agreements and conventions related to environmental management, which all projects must adhere to.³¹ These include:

- Rio Convention on Sustainable Development (1995);³²

30 See <https://www.diplomatie.gouv.fr/fr/dossiers-pays/madagascar/presentation-de-madagascar/>, accessed 23 December 2024.

31 See <https://www.scribd.com/document/379843012/Conventions-Internationales-Ratifiees-Par-Madagascar>, accessed 23 December 2024.

32 See <https://unfccc.int/fr/processus-et-reunions/les-conventions-de-rio>, accessed 23 December 2024.

- African Convention on the Conservation of Nature and Natural Resources (1969);³³
- Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat (1998);³⁴
- Convention concerning the Protection of the World Cultural and Natural Heritage (1982);³⁵
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1975);³⁶
- Convention on the Conservation of Migratory Species of Wild Animals (CMS);³⁷
- Vienna Framework Convention for the Protection of the Ozone Layer (1994);³⁸
- United Nations Framework Convention on Climate Change (UNFCCC) (1998);³⁹
- Kyoto Protocol on Climate Change;⁴⁰
- Convention on Biological Diversity (CBD) (1995);⁴¹
- Stockholm Convention on Persistent Organic Pollutants (POPs) (2005);⁴²
- International Treaty on Plant Genetic Resources for Food and Agriculture (2006);⁴³
- Minamata Convention (2014);⁴⁴
- Convention for the Safeguarding of the Intangible Cultural Heritage (2006);⁴⁵

33 See <https://www.ecolex.org/fr/details/treaty/african-convention-on-the-conservation-of-nature-and-natural-resources-tre-000492/>, accessed 23 December 2024.

34 Text of the Convention at https://www.ramsar.org/sites/default/files/documents/library/current_convention_text_e.pdf, accessed 23 December 2024.

35 See <https://whc.unesco.org/fr/conventiontexte/>, accessed 23 December 2024.

36 See <https://bi.chm-cbd.net/sites/bi/files/2020-10/conven-comm-interna-esp-faun-flor-sauva-menac-extinct.pdf>, accessed 23 December 2024.

37 See https://www.cms.int/sites/default/files/instrument/CMS_text_fre.PDF, accessed 23 December 2024.

38 See https://ise.unige.ch/isdd/IMG/pdf/convention_de_vienne.pdf, accessed 23 December 2024.

39 See <https://unfccc.int/resource/docs/convkp/convfr.pdf>, accessed 23 December 2024.

40 See <https://unfccc.int/resource/docs/convkp/kpfrench.pdf>, accessed 23 December 2024.

41 See https://www.ifdd.francofonie.org/wp-content/uploads/2021/09/747_Resume_CdP14_bi-odiversite_2018-2.pdf, accessed 23 December 2024.

42 See https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-15&chapter=27&clang=fr, accessed 23 December 2024.

43 See <https://openknowledge.fao.org/server/api/core/bitstreams/87da23da-6091-4576-ac03-dc7470e9b54f/content>, accessed 23 December 2024.

44 See <https://www.nrdc.org/sites/default/files/minamata-convention-on-mercury-manual-FR.pdf>, accessed 23 December 2024.

45 See <https://ich.unesco.org/en/convention>, accessed 23 December 2024.

- Convention on the Protection and Promotion of the Diversity of Cultural Expressions (2005).⁴⁶

These commitments reflect Madagascar's dedication to global efforts in environmental conservation and sustainable development.

1.10 The economic situation

Madagascar's economy is predominantly based on agriculture. Economic growth is projected to strengthen from 3.8% in 2023 to 4.5% in 2024, driven by key sectors such as agriculture, mining, manufacturing (particularly textiles), and telecommunications. The tourism sector is also gradually recovering from the impacts of the pandemic.⁴⁷

Despite its abundant natural resources and unique biodiversity, Madagascar faces significant challenges. Natural disasters, including cyclones and floods, coupled with recurring political crises rooted in corruption and poor governance, are primary drivers of poverty and hinder socio-economic progress. In 2021, the country ranked 173rd out of 191 on the United Nations Development Programme's Human Development Index.⁴⁸

With a population estimated at 30.3 million in 2023, Madagascar struggles with a persistently high poverty rate.⁴⁹ While the country's economic situation showed slight improvement in 2023 compared to 2022, challenges stemming from the global health crisis and geopolitical tensions persisted. Real GDP is anticipated to grow by 4.6% in 2024, yet poverty remains alarmingly high.

A World Bank report launched in February 2024, assessing poverty and living conditions over the past decade (2012–2022), revealed concerning trends.⁵⁰ National poverty has stagnated, with 75.2% of the population classified as poor in 2022—including 79.9% in rural areas and 55.5% in urban areas. While rural poverty declined slightly, urban poverty increased significantly by 31.5%, particularly in secondary cities where it surged from 46% to 61%. This alarming rise in urban poverty is attributed to declining economic opportunities, a worsening business environment, and insufficient investment in education, healthcare, and urban infrastructure.

Madagascar's economic progress remains compromised by weak state institutions, widespread corruption, a largely uneducated population, susceptibility to climate

46 See <https://www.unesco.org/creativity/fr/2005-convention>, accessed 23 December 2024.

47 See <https://www.banquemonnaie.org/fr/country/madagascar/overview#:~:text=Le%20d%C3%A9ficit%20de%20la%20balance,du%20PIB%20%C3%A0%20moyen%20terme>, accessed 23 December 2024.

48 UNDP, Human Development Report (2021/2022: 337).

49 Ibid.

50 See <https://www.banquemonnaie.org/fr/country/madagascar/publication/madagascar-afe-pov-erty-assessment-navigating-two-decades-of-high-poverty-and-charting-a-course-for-change>, accessed 23 December 2024.

shocks, and vulnerability to external disruptions.⁵¹ These factors create uncertainty about the country's development prospects.

The agricultural sector, although vital to the economy, lacks a comprehensive legal framework addressing soil and land management. This oversight exacerbates land degradation, necessitating an in-depth examination of how various sectoral activities contribute to this critical issue.

2 Mining sector

2.1 The legal framework

The mining sector in Madagascar is regulated by Law No. 2023-007 of 27 July 2023, which revises the Mining Code. Within Title VI regarding the obligations related to mining activities, Chapter II is entirely dedicated to environmental protection, clearly defining obligations based on the type of mining activity undertaken. In Chapter III, the law introduces improvements in hygiene and safety standards, emphasising the importance of safeguarding both human health and the environment, thereby steering the mining sector toward a more responsible and sustainable approach.

Under Title IV, Chapter II of this law, all mining permit or authorisation holders are required to conduct an environmental study, either through an PREE or an EIA. The criteria for these assessments are outlined in Annex I of the Environmental Compatibility Decree (MECIE Decree) No. 99-954 of 15 December 1999, as amended by Decree No. 2004-167 of 3 February 2004.

Article 3 of the MECIE Decree stipulates that all public or private investment projects, regardless of whether they require authorisation or approval from an administrative authority, and if they have the potential to harm the environment, must undergo an impact study. Additionally, Article 253 of the Mining Code requires that, beyond a mining permit, an environmental permit or authorisation must be obtained before commencing any mining activities, based on the scale or location of the project. Article 306 further obligates permit holders to repair any damage caused to private or public property and the environment because of their operations.

Non-compliance with environmental commitments or the Specific Environmental Management Plan, as per Articles 34 to 37 of the MECIE Decree, constitutes a violation and triggers sanctions specified in the decree.

On the social and economic front, the Code underscores the importance of ethical and responsible mining practices. Article 241 requires mining permit holders to develop a Corporate Social Responsibility plan, aimed at ensuring good social integration

51 Swiss Embassy for Madagascar, Economic Report (2024).

of projects. This includes establishing an environmental provision dedicated to environmental rehabilitation, protection, and reforestation.

Madagascar boasts significant mineral reserves, including nickel, cobalt, and ilmenite, which dominate the country's mining industry.⁵² Other resources, such as coal, iron, graphite, and limestone, are still under exploration. The country is on the verge of a major expansion in large-scale mining operations, with many projects in development.

According to the African Development Bank (AfDB), Madagascar's mining sector holds considerable potential for economic growth. In its 2023 report, the AfDB estimated that the sector could contribute up to 14% of GDP by 2025, driven by increasing global demand for strategic minerals such as ilmenite, nickel, and cobalt.⁵³ It has been projected that in 2024, mining is a key pillar of the Malagasy economy, providing both national and local benefits. It is projected that 50–55% of operational costs for current mines—amounting to approximately USD 370 million—will be spent on local goods and services, making mining a cornerstone of industrial development in Madagascar.⁵⁴

Despite its economic benefits, the mining sector presents significant environmental challenges, particularly concerning soil degradation. Large-scale mining operations often lead to habitat destruction, soil erosion, and contamination, posing risks to Madagascar's rich biodiversity and fragile ecosystems. While the revised Mining Code introduces measures to mitigate environmental damage, ensuring effective implementation and enforcement remains critical to balancing economic gains with sustainable environmental management.

2.2 Major mining investments

Law No. 2001-031 of 8 October 2002, which established the Special Regime for Large Investments in the Malagasy Mining Sector, was developed in alignment with the 1998 Mining Policy.⁵⁵ This law outlines criteria for project selection, including investment thresholds, foreign exchange implications, taxation, customs, and associated legal rights and obligations. To mitigate illegal land use in mining activities, the current Mining Code incorporates measures detailed in Articles 39, 61, 70, 79, 87-89, and 91.

Major mining investments are governed by establishment agreements, such as the Ilmenite Project, which define the specific tax and customs frameworks applicable to

52 See <https://midi-madagasikara.mg/des-gains-economiques-considerables-pour-madagascar-selon-la-bad/>, accessed 23 December 2024.

53 African Development Bank, *Madagascar Country Report* (2023).

54 CSRM (2014).

55 See <https://www.droit-afrique.com/upload/doc/madagascar/Madagascar-Loi-2001-31-grands-investments-miniers-MAJ-2005.pdf>, accessed 23 December 2024.

each project.⁵⁶ These agreements mandate compliance with sustainable soil management practices as per prevailing legal provisions, including the Mining Code, the Environmental Charter, and their respective implementation texts.

For instance, QMM SA is required to adhere to both national and international environmental standards, including relevant policies, conventions, ISO certifications, IFC guidelines, and industry norms.⁵⁷ Given the inherent impacts of mining activities on natural resources and human environments, strict adherence to environmental regulations is essential. This includes compliance with the requirements for environmental assessments and the management of sensitive areas, both during the operational phase and after the cessation of mining activities.

2.3 The main causes of soil degradation

The main causes of soil degradation in mining occur throughout the various phases of the mining lifecycle.⁵⁸ During the preparatory and installation phase, which can last between two to 20 years depending on the project, activities such as feasibility studies, construction, deforestation, blasting, and the installation of infrastructure and wastewater and waste treatment facilities contribute to soil disruption. In the operating phase, lasting ten to 50 years, resource extraction, discharges, intensive exploitation of resources, heavy vehicle and machinery traffic, and the maintenance and repair of infrastructure further degrade the soil. Finally, during the site closure phase, activities such as sealing mining shafts, restoring exploited areas, and dismantling buildings and infrastructure also impact soil quality. Each phase underscores the critical need for effective soil management and mitigation strategies to minimise environmental harm.

2.4 Illegal mining projects and their environmental impacts

In Madagascar, many mining operations are carried out illegally, bypassing established mining regulations and environmental protection laws. These activities frequently ignore environmental assessment protocols, with corruption being a primary driver. As a result, several environmental problems arise, creating significant barriers to sustainable land management. These include illegal mining operations without permits, modifications to the landscape such as the removal of plant cover, alteration of the

56 See [57 See <https://www.riotinto.com/-/media/Content/Documents/Operations/QMM/RT-QMM-Brochure-summary-FR.pdf>, accessed 23 December 2024.](https://omnis.mg/mines/le-projet-ilmenite-de-fort-dauphin/#:~:text=Situ%C3%A9%20C3%A0%20Tolagnaro%2C%20au%20sud, millions %20of%20tons%20of IIm%C3%A9nité, accessed 23 December 2024.</p></div><div data-bbox=)

58 Sectoral EIA Guide for Open Pit Mining Project (2005).

topography, destruction of vegetation, disruption of the drainage network, and obstruction of water flow. Additionally, illegal mining leads to land disputes, conflicting land uses, uncontrolled environmental pollution, and human displacement. Other issues include land grabbing, contamination from oils, greases, hydrocarbons, chemical products, and mining waste, as well as the degradation of soil quality.

Illegal mining activities severely hinder effective land management, resulting in landscape degradation, soil erosion, contamination, loss of vegetation cover, and disruption of local communities. These activities contribute to environmental damage such as landslides, flooding, and the alteration of watercourses. To address these issues, the Mining Code, through Articles 142 and beyond, has established control zones aimed at formalising illegal mining activities. This initiative mandates administrative, technical, and environmental supervision for artisanal miners, requiring them to form groups and adhere to specific environmental commitments outlined in a management plan. While the legal framework for the mining sector includes general environmental protection provisions, it lacks specific legislation dedicated to sustainable soil management, which remains a critical gap in addressing the full scope of environmental challenges.

2.5 Challenges and recommendations for the mining sector

The stakes are incredibly high in Madagascar's mining sector. The country is not only rich in mineral resources but also holds one of the world's most significant reserves of biodiversity, with over 80% of its species being endemic.⁵⁹ As Madagascar seeks to expand its mining industry and attract foreign direct investment, a critical question arises: How can large-scale mining be reconciled with the need for sustainable development, particularly regarding environmental protection and the social rights of vulnerable populations?

A 2023 assessment by the International Institute for Sustainable Development highlighted the need for a robust legal framework governing Environmental and Strategic Impact Assessments in the extractive industries sector.⁶⁰ Such a framework offers clear benefits: (i) establishing a transparent roadmap for conducting high-quality ESIAAs, (ii) clearly defining the roles, responsibilities, and collaborative efforts of all stakeholders, and (iii) preventing social and legal disputes that may arise from mining activities.

Furthermore, the government must strengthen its commitment to implementing the Extractive Industries Transparency Initiative standards to ensure the legal framework

59 See <https://dicf.unepgrid.ch/madagascar/biodiversity>, accessed 23 December 2024.

60 See <https://www.iisd.org/system/files/2023-05/cadre-juridique-cies-secteur-minier-madagascar.pdf>, accessed 23 December 2024.

is both resilient and robust.⁶¹ This framework should be complemented by principles and regulations that focus on sustainable soil management to ensure long-term environmental and social benefits.

3 Land sector

Land tenure, as defined by the Food and Agriculture Organization (FAO), refers to a system of rules created by a society to regulate its members' behaviour.⁶² These rules determine how property rights over land are distributed, as well as how the rights to use, control, and transfer land are allocated, along with the associated responsibilities and limitations. In simple terms, land tenure defines who can access which resources, for what period, and under what conditions.

Since 2005, Madagascar has launched an innovative land reform aimed at legally recognising local land rights and decentralising land management.⁶³ However, despite these commitments to protect farmers' land rights, the government has simultaneously supported the transfer of large areas of land—some of which were already appropriated—to foreign investors. This reveals the ambivalence in Madagascar's land policy. The crucial question then arises: How does the Malagasy land tenure system contribute to soil degradation in the country?

3.1 The Malagasy land system

Order No. 62-036, which amends Order No. 60-146 concerning the land registration system, applies to all types of land, whether developed or undeveloped, as well as to mining areas, with specific provisions for the latter outlined in this ordinance and related regulations. As part of its ongoing land reform efforts initiated in 2005, the Malagasy government introduced the Land Policy Letter in 2015, setting a horizon of 2015-2030. This policy's primary goal is to "use land as a lever for sustainable development by securing diverse rights, promoting collaborative land management, and addressing both current and future land needs."

The land tenure system in Madagascar is a hybrid one, combining elements of modern civil law and customary practices. While titled lands offer formal legal security, most untitled rural lands are governed by local traditions. This dual system complicates land management and often leads to uncertainties and conflicts, especially in areas affected by rural migration. Despite this, traditional practices are not officially recognised by the state, which prioritises formal legal procedures. Approximately 85%

61 See <https://eiti.org/countries/madagascar>, accessed 23 December 2024.

62 See <https://www.fao.org/4/y4307f/y4307f05.htm>, accessed 23 December 2024.

63 Burnod & Andriamanalina (2017).

of rural lands in Madagascar remain unregistered, leaving landholders vulnerable to conflicts, expropriation, and challenges in accessing agricultural credit.⁶⁴

The 2005 land reform introduced land certificates as a simplified mechanism to secure unregistered lands, but this process remains limited due to institutional, financial, and social barriers.⁶⁵ In Madagascar, land title remains the primary method for securing property rights, offering absolute, inalienable ownership protected by law.⁶⁶ However, its effectiveness is hampered by several factors, such as a complex and lengthy administrative process and an incomplete land registry. As the Malagasy land registry does not cover the entire country, the identification and formalisation of property rights become more difficult.

State-owned lands, including public domains, nature reserves, infrastructure areas, and lands designated for investment projects, are considered state property. While private state lands can be acquired, the management of these lands is often marked by conflicts with local communities, especially when customary land rights are not acknowledged during land allocation.⁶⁷

3.2 Challenges and recommendations for the land sector

The land tenure system in Madagascar is highly complex, presenting numerous challenges that need to be addressed for the sector to effectively support sustainable land and soil management. These challenges include the lack of legal provisions specifically addressing land use or exploitation within the legal framework, the failure to recognise and integrate customary land management practices, and the inconsistencies and contradictions between various sector-specific laws and land legislation. Additionally, the dominance of mining, forestry, and tourism sectors often comes at the expense of agricultural land use, while conflicts arise from the absence of a Local Land Use Plan (PLOF), which is necessary to prevent overlapping rights and conflicts between sectors such as agriculture, mining, and infrastructure.⁶⁸ Furthermore, there is a lack of soil protection measures for private land holdings. These issues contribute to significant socio-economic and environmental consequences, such as poverty hindering agricultural development, the exclusion of vulnerable communities, social conflicts, and soil fertility degradation.

64 Transparency International, *Land and Corruption in Africa Baseline Survey* (2015).

65 See <https://www.foncier-developpement.fr/publication/fiche-pedagogique-la-certification-fonciere-a-madagascar-entre-2005-et-2021-quels-beneficiaires-et-quels-effets/>, accessed 23 December 2024.

66 See <https://textes.lexxika.com/lois-malagasy/droit-foncier/loi-fixant-les-principes-regissant-les-statuts-des-terres/>, accessed 23 December 2024.

67 See <https://faolex.fao.org/docs/pdf/mad90303.pdf>, accessed 23 December 2024.

68 See <https://sarytany.mg/services/amenagement-travaux-fonciers/amenagement-foncier/>, accessed 23 December 2024.

To address these challenges, several key actions are needed, including gaining a clearer understanding of the diverse land tenure regimes in Madagascar and formalising them, establishing a single, multidisciplinary institution responsible for overseeing sustainable soil management, ensuring consistency between land-related sectoral laws, modernising the land information system, accelerating efforts to secure land tenure, improving urban land management through tools such as the PLOF, regularising land occupations in urban areas, strengthening land governance by training state agents, fostering public-private partnerships, combating corruption, and enhancing administrative oversight. Additionally, political measures are needed to recognise land claims based on customary practices, and the legitimacy of traditional authorities should be recognised, as they play a crucial role in maintaining stability and effectiveness within customary land tenure systems, including land allocation and conflict resolution.

4 Urbanisation

4.1 The phenomenon of urbanisation in Madagascar

Rapid urbanisation is a global phenomenon that is reshaping both urban and rural landscapes, with significant consequences for soil quality and the environment. Madagascar, similar to many African nations, is not immune to this trend. Currently, around 20% of the Malagasy population resides in urban areas, a proportion that continues to grow, with an average annual increase of 2.3% from 1993 to 2018.⁶⁹ Today, more than one in three households live in cities, and demographic projections suggest that nearly half of the population will be urban dwellers within the next decade, signalling a fundamental shift in the country's structure. This rapid urbanisation in Madagascar is driving significant changes in land use.

Although urbanised areas currently cover only 0.18% of the nation's total land area, this share is growing swiftly. Between 2010 and 2018, Malagasy cities expanded by 498.86 km², at an annual rate of 62.35 km².⁷⁰ A key factor behind this growth is rural-urban migration, a trend that is especially prominent in Africa and Madagascar. This migration is driven by poverty, the depletion of agricultural land, and the search for better economic opportunities. Malagasy youth are increasingly migrating to cities, where informal jobs, though precarious, are often more accessible than in rural areas.⁷¹ As a result, rural regions, especially those that are poor and sparsely populated, are losing their inhabitants, further deepening the urban-rural divide. This uncontrolled

69 National Institute of Statistics, Third General Population and Housing Census (2020).

70 Territorial Observatory, Indicators of Cities and Urban Diagnosis of Madagascar (2022).

71 See <https://les-yeux-du-monde.fr/actualites-analysees/34122-lexode-rural-a-madagascar/>, accessed 23 December 2024.

migration leads to unplanned urbanisation, exacerbating land management challenges in urban areas and contributing to widespread environmental degradation.

4.2 Legislation governing urban planning

4.2.1 Law on the Orientation of Regional Planning

Promulgated in 2016, the Land and Territorial Planning Law (LOAT) aims to foster balanced territorial development by integrating social progress, economic efficiency, and environmental protection.⁷² As outlined in Article 4, the law addresses various aspects of land use planning, with a focus on environmental preservation. Specifically, it sets out key principles to prevent soil degradation during development activities, including the protection of landscapes. Among the recommended measures are: allocating sufficient productive land for agriculture, particularly in areas where river systems exist; and for extensive livestock grazing, particularly for crop rotation areas; ensuring that developments blend seamlessly with the landscape; preserving public access to the banks of lakes and rivers for movement; conserving natural sites and recreational areas; and maintaining forests for their diverse functions. The territorial planning tools outlined in Article 32 of the LOAT allow for the implementation of a comprehensive, integrated approach to territorial planning at all levels. These tools aim to align sectoral plans and programs, guiding long-term development goals that balance economic growth, social inclusion, and environmental conservation.⁷³

4.2.2 Law on Urban Planning and Housing (LUH)

Promulgated in 2016, Law No. 2015-052 on Urban Planning and Housing replaced the 1963 Urban Planning and Housing Code.⁷⁴ As outlined in Article 1, the law aims to guide urban growth in a way that prioritises sustainability and inclusiveness. According to Article 95 of the Constitution, the legislature is responsible for establishing the rules governing urban planning, housing, land management, urban development, and standards related to construction and development activities.

72 See <https://www.assemblee-nationale.mg/wp-content/uploads/2020/11/Loi-n%C2%B02015-051-orientation-de-lam%C3%A9nagement-du-territoire.pdf>, accessed 23 December 2024.

73 See <https://slideplayer.fr/slide/3500515/>, accessed 23 December 2024.

74 See <https://edbm.mg/wp-content/uploads/2017/12/L2015-052UH.pdf>, accessed 23 December 2024.

4.2.3 Planning operations and authorisations

Urban planning authorities issue various permits to regulate the location of investments and ensure that urbanisation and land use are conducted in an orderly, environmentally responsible manner, in line with existing regulations. These permits are required for different activities, including those outlined in Articles 22 (building permits), 60 (quarrying, excavation, and land raising), 62 (dangerous, unsanitary, or inconvenient establishments), 91 (concerted development zones), and 151 (subdivisions or building permits with potential environmental harm). Each of these permits is subject to environmental protection measures to minimise negative impacts and ensure sustainable land use.

4.3 The National Land Use Planning Policy and the National Urban Development Policy

The National Land Use Planning Policy (PNAT) of 2006 and the National Urban Development Policy (PNDU) of 2019 serve as the primary guiding frameworks that shape the vision for urban development in Madagascar.⁷⁵ The PNAT emphasises sustainable natural resource management and urban development as key strategies for effectively managing growth while mitigating the destruction of natural habitats. The PNDU's Vision 2036 aims to create well-planned, safer, more resilient, inclusive, and sustainable cities that reflect the cultural identity of Malagasy society. These cities are envisioned to fulfil their roles as service providers, economic drivers, and key components of national territorial structuring. Key urban challenges outlined in this policy include improving and redeveloping informal settlements while preventing their expansion, and promoting the development of green and ecological cities. The PNDU integrates environmental considerations into urban planning, with a focus on enhancing quality of life and preserving urban landscapes.

4.4 The impacts of urbanisation on land use

Rapid urbanisation is driving significant changes in land use, leading to negative environmental impacts and a decline in the quality of life for urban residents. The unchecked expansion of cities, often poorly planned and disorganised, has resulted in the growth of informal settlements that now house over 60% of the urban population. These underserved neighbourhoods, frequently situated in areas lacking basic

⁷⁵ World Bank, Madagascar Urbanisation Review (2024).

infrastructure, are breeding grounds for poverty and social inequality.⁷⁶ Sanitation remains a critical issue, with only 31% of the urban population having access to improved sanitation. Waste management is also a major challenge, as only 21% of waste is collected by organised services, while the rest is either discarded, buried, or burned by residents. Informal urbanisation is largely occurring in high-risk areas prone to flooding or landslides.⁷⁷ Nearly 48% of urban areas are vulnerable to flooding, affecting approximately 24% of the population.⁷⁸ Additionally, the 27 coastal cities, which cover around 43.8% of the country's territory and house a significant portion of the population, are increasingly vulnerable to coastal erosion.⁷⁹ These challenges further complicate urban management and heighten the risk of natural disasters. Insufficient urban planning, struggling to keep pace with rapid population growth, is accelerating soil degradation, reducing agricultural land, and amplifying disaster risks, particularly flooding and erosion.⁸⁰

4.5 Recommendations for urbanisation

To prevent urbanisation from becoming a major driver of land degradation, it must be strategically planned and managed, utilising effective land-use planning tools and adhering to relevant legislation. In this context, several key technical proposals are recommended: the establishment of a national solid waste management policy, and the creation of an institutional, legal, and financial framework tailored to different levels of governance. Additionally, it is essential to update the PNAT, translating it into both a strategic and an operational plan, while ensuring its alignment with the PNDU.⁸¹

5 Other causes of soil degradation

5.1 State failure and lack of awareness among the population

This study on the legal framework of sectors most impacted by soil degradation reveals two major issues: firstly, the absence of a dedicated public policy for sustainable soil management, and secondly, the lack of a specific legal framework governing soil. To date, the fight against corruption in Madagascar has not met the public's expectations. While the state's general policy serves as the foundation for all sectoral legislation, the

76 Territorial Observatory, Indicators of Cities and Urban Diagnosis of Madagascar (2022).

77 World Bank, Madagascar Urbanisation Review (2024).

78 Territorial Observatory, Indicators of Cities and Urban Diagnosis of Madagascar (2022).

79 Ibid.

80 World Bank, Madagascar Urbanisation Review (2024).

81 Ibid.

Constitution includes principles related to the respect, protection, and development of the environment, but there is no specific provision within the Malagasy legal framework addressing sustainable soil management. This gap underscores the need for relevant ministries to align their sectoral legal frameworks with the principles and guidelines of sustainable soil management. As a result, there is a significant lack of public awareness and engagement concerning the vital role that soil plays in supporting life, as well as the detrimental effects of soil degradation on both present and future generations, and on the broader environment. In essence, citizens lack access to the necessary information and training on sustainable soil management practices and technologies that would preserve soil fertility and stability.

5.2 Deforestation

In Madagascar, slash-and-burn agriculture, locally known as “tavy,” is a major driver of deforestation, particularly in regions where land availability is scarce.⁸² On the cleared and burned land, farmers primarily grow rainfed rice, along with maize, cassava, and sweet potatoes. They rely on simple, traditional methods, such as perforating the soil with a wooden rod, placing the seeds in the holes, and covering them with soil. In addition to subsistence farming, pasture fires and the demand for wood energy further contribute to deforestation.⁸³ Around forested areas, poorer households often depend on agriculture for their livelihoods, and agricultural expansion, along with traditional livestock farming, occurs at the expense of forests.⁸⁴ This dependence on land and resources makes local populations even more vulnerable. The loss of natural vegetation from deforestation and fires depletes the organic content of soils, leading to increased runoff and severe erosion.⁸⁵ It is widely recognised that the current deforestation of the highlands is entirely driven by human activity, with the demand for timber and pastures for livestock. Without the protective forest cover, the soil is left exposed, and the grasslands become fragmented. As a result, organic matter is destroyed or lost, and rainfall causes rapid soil erosion.⁸⁶ Deforestation and poor agricultural practices, such as improper tillage, are the primary factors contributing to soil degradation. In Madagascar, the loss of organic matter due to fires and the failure to replenish nutrients is the predominant process driving soil degradation.

82 Ministry of Environment and Sustainable Development, Madagascar National REDD+ Strategy, adopted by Decree No. 2018-500 of 30 May 2018, 3-6.

83 See <https://www.wwf.mg/en/?1967916/Madagascar-nouveau-front-de-deforestation>, accessed 23 December 2024.

84 Minten, Zeller & Randrianarisoa (2000: 79-118).

85 Chabalier (1997).

86 Segalen (1948).

5.3 Climate change

According to data from the Ministry of the Environment, the development of Madagascar's NAP has helped assess areas impacted by desertification and land degradation, driven by climate change, and track their dynamics over time.⁸⁷ Of the island's 23 regions, twelve are affected, encompassing 30.24% of the total area, with priority action zones for combating land degradation covering 28.76% of these areas. Erosion is driven by specific climatic factors, such as rain and wind, which can become particularly intense, as is currently the case. When the soil is not shielded by sufficient vegetation, these factors lead to rapid degradation of the surface soil layers.⁸⁸

The severity of this climate-driven degradation is evident in several ways: a marked dry season, during which herbaceous vegetation disappears, leaving the soil vulnerable at the onset of the rainy season; intense precipitation, manifesting as torrential downpours with peak intensities reaching several millimetres per hour; and a wind regime that is both regular (trade winds, monsoons) and violent (cyclones), with speeds that can be very high. The ongoing progression of soil degradation not only threatens the food security of the population but also exacerbates the impacts of climate change.

6 Overall recommendations

6.1 For Malagasy environmental policy

In Madagascar, the foundations for sustainable development have been established, but much work remains to be done. The policy must be translated into concrete actions aligned with the six key priorities of the Environmental Charter: (i) developing human resources; (ii) promoting sustainable, equitable, and harmonious development through effective natural resource management; (iii) rehabilitating, conserving, and managing Madagascar's biodiversity heritage; (iv) improving the living environment for both urban and rural populations; (v) ensuring a balance between population growth and resource development; and (vi) enhancing environmental management tools while addressing land issues. At the action level, the following approaches need to be developed: decentralising natural resource management to local communities; limiting unrestricted access to resources to enhance their value; raising awareness among citizens; removing barriers that lead farmers to adopt harmful production methods through mini-projects; finding alternatives to destructive practices; strengthening land management; incorporating environmental considerations into sectoral policies; and developing specific environmental management tools.

87 Ministry of Environment, Ecology, and Forests, Final Report of the Land Degradation Neutrality Target Setting Programme (2018).

88 Fournier (1949: 97-103).

The operational implementation of the Environmental Policy is outlined in the EAP included in the Charter of Environment, which spans fifteen years and is divided into three phases.⁸⁹ Its objectives focus on curbing natural resource degradation and reversing deforestation. To enhance sectoral environmental management, the establishment of Environmental Units within ministries and the integration of Strategic Environmental Impact Studies for major development projects are key outcomes of the EAP. All national development programs must integrate environmental considerations through the environmental assessment process. The alignment of sectoral investments with environmental protection requirements is ensured by adhering to environmental assessment procedures.

The new General State Policy (2024) emphasises the need for adequate responses to re-establish a sustainable and harmonious balance between human development and ecological resources.⁹⁰ It is, thus, recommended that sectoral policies and strategies focus on the seven key axes outlined above for sustainable soil management. Detailed sectoral recommendations, presented at the end of each chapter, address the issues affecting agriculture, urbanisation, land management, mining, and industry. The causes of land degradation in these sectors are diverse and manifest in political, legal, technical, socio-economic, and cultural contexts. However, certain recurring elements emerge across all sectors, underscoring the need for urgent attention to soil preservation at the national level.

6.2 On the side of the Malagasy administration

First and foremost, the Malagasy state must demonstrate political will by clearly defining its policy and strategy for land management in Madagascar. It is essential to justify the need for regulating land use and exploitation to ensure that soils maintain their “nourishing function.” A dedicated legal framework to combat soil degradation must be developed in line with this policy. This legislation should outline the benefits of sustainable land management for humanity, identify the main causes of degradation, and propose technical, technological, legal, and social solutions to address the issue.

An integrated monitoring system, involving local authorities, customary leaders, and designated public officials, must be established to oversee implementation. Key sectoral departments, particularly those responsible for the environment, agriculture, industry, land, urbanisation, and mining, must align their legal frameworks with the overarching law governing soil. Awareness and mobilisation efforts should engage all public and private entities, with targeted training programs for CTDs, which will be

89 See <https://shs.cairn.info/revue-tiers-monde-2007-2-page-435?lang=fr>, accessed 23 December 2024.

90 See <https://www.ivorary.org/politique-generale-de-letat-2024-2028-vers-plus-de-realisme-et-pourquoi-pas-plus-de-concretisation/>, accessed 23 December 2024.

responsible for local control. Legal sanctions for non-compliance with legal and regulatory requirements must be both clear and enforceable.

To ensure the effectiveness of large-scale investments, whether national or foreign, the central state must strengthen its oversight and ensure that all investments comply with legal and regulatory provisions for sustainable land management in Madagascar. Given that this will be the country's first experience with such a policy, it would be prudent to implement pilot projects to assess the strategy's effectiveness, refine it based on real-world observations, and demonstrate to the population the crucial importance of this policy for their current and future well-being.

It is important to recognise that, under the constitution, one of the key roles of decentralised local authorities (CTDs) is to contribute to the economic, social, cultural, and environmental development of their regions. Therefore, they will bear the responsibility for the success of the sustainable soil management policy. In addition to the specific legal framework that governs soil, CTDs will require technical and financial support from the central government, along with the necessary equipment to effectively implement and enforce this new policy.

6.3 On the part of the administrators

To preserve its environmental and natural resources, the Malagasy population must receive enhanced training and support in sustainable natural resource management, particularly in soil conservation. Madagascar's decentralised governance model, as guaranteed by the Constitution, mandates the transfer of authority and financial resources to the CTDs. These local authorities must therefore take responsibility for monitoring and regulating land use and exploitation. They are ideally positioned to raise awareness among various population groups, particularly farmers, landowners, and rural residents, who are the primary land users.

Incorporating sustainable soil management into the education system is essential. Educational programs focused on these practices should be integrated at all levels of schooling, including in specialised centres or professional institutes, where training for professionals and operators is vital for the country's overall sustainable development. Furthermore, experimental projects should be developed to serve as practical demonstrations of sustainable land management practices.

In Madagascar, the roles of customary chiefs within communities have not been legally formalised, but they traditionally hold significant influence over decisions that affect the common good. One of the responsibilities of current leaders should be to legally formalise these traditional practices, particularly those related to land management, to ensure peace and stability in the country.

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Country report for Morocco

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Abstract

This chapter discusses soil preservation and protection in Morocco. It highlights key challenges such as gaps in the legal framework, weak enforcement mechanisms, and insufficient integration of sustainable land management practices. The chapter explores the implications of these issues on soil health, food security, and environmental sustainability, particularly focusing on the need to address soil degradation and promote more effective land use policies.

An analysis of the existing legal framework reveals that while environmental laws contain strong provisions, their implementation faces significant obstacles due to fragmented legislation and a lack of enforcement capacity. Specific attention is given to the need for a unified environmental code, the establishment of specialised jurisdictions for environmental disputes, and the complexities arising from diverse land tenure systems.

The chapter also presents key findings regarding the role of both public authorities and civil society in promoting soil protection. It offers recommendations to strengthen legal frameworks, improve policy coordination, and empower stakeholders. It concludes by emphasising the urgent need for a dedicated authority for soil conservation, particularly considering emerging environmental challenges, such as climate change and industrial pressures.

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Summary

This chapter highlights the vital role of soil as an essential resource for agriculture and other economic sectors in Morocco. It explores the challenges of soil degradation, driven by both climatic and human-induced factors, and stresses the need for environmentally sustainable management to protect this crucial resource. Spanning 712,550 km², Morocco boasts diverse geographical features, from mountains and plateaus to plains. The country has approximately nine million hectares of cultivated land and 65 million hectares of rangeland. However, factors such as erosion, overgrazing, and unsustainable agricultural practices have led to the degradation of over 40% of the nation's land.

Morocco's climate is varied, with a Mediterranean climate in the north and a desert climate in the south, making the country susceptible to frequent droughts. Water stress is becoming increasingly severe, with per capita freshwater availability declining. In response to these challenges, the National Water Plan 2020-2050 aims to mobilise non-conventional water resources. The combination of recurring droughts and soil degradation threatens agricultural production and food security, making Morocco more reliant on imports, particularly wheat. To address these issues, the government launched the "Generation Green 2020-2030" plan to enhance the sustainability of the agricultural sector.

While the importance of soil is widely recognised, Morocco currently lacks a specific legal framework for its protection. Several environmental laws and strategies address soil indirectly, with the 2011 Constitution acknowledging the right to a healthy environment. Additionally, Morocco has ratified various international conventions to safeguard natural resources. This chapter identifies multiple factors contributing to soil degradation and emphasises that stakeholders must focus on soil restoration and protection to ensure food security and environmental sustainability.

The chapter stresses the urgency of adopting sustainable soil management practices and strengthening the legal framework to protect this fragile resource. Collaboration among stakeholders, along with a commitment to integrated environmental policies, is crucial for ensuring a sustainable future for soil in Morocco. By tackling these challenges through legal reforms, public awareness, and strategic land management, Morocco can better safeguard its soil resources and ensure the long-term sustainability of its agriculture, environment, and food security.

To improve the legal framework for environmental protection, it is essential to revise and strengthen existing laws to address implementation challenges. A participatory approach, incorporating scientific research into legal development, will make laws more practical and enforceable. The creation of an environmental code and specialised courts for environmental disputes will also enhance enforcement. Public authorities should mandate the use of clean technologies in industries, and a dedicated authority for soil conservation should oversee policies related to agriculture, urban planning, and industry. Additionally, mechanisms should be established to allow citizens to challenge harmful policies, giving communities a voice in protecting the environment.

To improve law enforcement and public awareness, actions such as designating World Environment Day as a national event could raise awareness of climate change and environmental issues, particularly among young people. Environmental laws should be unified into a comprehensive framework to ensure accessibility and legal certainty. Civil society organisations should be empowered with the necessary tools and support to strengthen environmental protection efforts. Furthermore, an institutional and technological system for managing and using soil data will help create more coordinated and strategic approaches to soil conservation.

For better land management, incentives should be provided to encourage the revitalisation of barren lands with a focus on sustainability. A review of the collective land management system is necessary to incorporate soil protection into national development plans. Prohibiting investment projects on forest lands will help preserve these vital areas. The diversity of land tenure systems poses challenges to cohesive soil protection policies, and efforts should be made to harmonise these systems in line with national soil conservation goals.

The creation of an environmental protection fund is recommended to support projects focused on preserving natural resources and fostering private sector involvement in sustainability efforts. The decarbonisation of industry should be prioritised to align with global climate goals and encourage responsible investment. Supporting the integration of small and medium-sized enterprises (SMEs) into industrial value chains can foster regional equity and create sustainable jobs. Identifying and classifying productive lands as protected areas will prevent degradation from industrial activities, ensuring these lands continue to support agriculture, food security, and ecological balance.

In conclusion, this chapter outlines a comprehensive, multi-faceted approach to soil conservation, integrating legal reforms, industrial transformation, and public

engagement. By implementing these recommendations, Morocco can protect its soil resources and ensure sustainable land management and environmental protection for future generations.

1 Introduction

Soils are vital natural resources essential for agriculture and economic activities. However, soil degradation, driven by climate, natural conditions, and especially human activities, affects fragile soils. Sustainable agricultural, forestry, and pastoral practices are key to maintaining soil health, boosting productivity, and protecting the environment.

Morocco faces food security challenges, mainly due to climate change, droughts, and its reliance on imports, especially wheat.¹ Reduced rainfall, high temperatures, and low dam levels have affected crop conditions. 2023 cereal production was 15% below average, and the country's global food security ranking has fallen. Population growth and soil degradation add pressure on food systems.

Morocco is investing in agricultural innovation through the Green Generation 2020-2030 and the Green Morocco Plan to address these issues. Agriculture, contributing 14% to the gross domestic product (GDP), remains central to the economy but faces ongoing threats from climate change and resource depletion.²

Sustainable soil management is crucial for Morocco's natural resource preservation and economic development. Soil health supports agriculture, forestry, livestock, mining, and construction. Practices such as crop rotation, soil conservation, and efficient water management can boost agricultural productivity while protecting the environment. Soil preservation also supports ecosystems and strengthens resilience to climate change.

Sustainable mining practices and responsible waste management are essential for protecting soils and ecosystems, ensuring long-term viability and fostering balanced development. Given Morocco's reliance on agriculture and agri-food industries, sustainable soil management is vital for economic stability. This chapter examines Morocco's environmental state, legal framework, and development prospects, offering recommendations to improve soil management.

1 See <https://www.fao.org/giews/countrybrief/country.jsp?code=MAR>, accessed 7 December 2024.

2 See https://www.ires.ma/sites/default/files/docs_publications/presentation_1.pdf, accessed 7 December 2024.

1.1 Geographic data

Morocco is in the northwest of the African continent, bordered by the Atlantic Ocean to the west and the Mediterranean Sea to the north, together providing approximately 3,600 km of coastline. It lies between latitudes 20°30' to 36° north of the equator and longitudes -1° to -17°30' west of Greenwich. Covering an area of 712,550 km², Morocco is a country of diverse geography, with mountains, plateaus, plains, and continental dunes.³ The country's altitude ranges from -55 meters at Sebkhah Tah to 4,165 meters at Jbel Toubkal, the highest point in North Africa. Large permanent rivers flow through the country, with lengths varying from 200 km to 1,200 km.

Morocco has around nine million hectares of cultivated land, approximately 65 million hectares of rangeland, and around nine million hectares of forests. Most of the country is dominated by the Sahara Desert in the south. It is bordered by the Atlantic Ocean to the west, the Mediterranean Sea to the north, Algeria to the east, and Mauritania to the south.

Morocco also has two significant maritime facades: an Atlantic coast and a Mediterranean coast. The Atlantic coast stretches 2,934 km along the Atlantic Ocean, while the Mediterranean coast spans 512 km along the Mediterranean Sea. The Atlantic coast is considerably longer, providing Morocco with a significant maritime presence on the Atlantic.⁴

1.2 The population

According to the results of the 2024 General Population and Housing Census (RGPH), the legal population of Morocco reached 36,828,330 inhabitants as of 1 September 2024. This includes 36,680,178 Moroccans and 148,152 foreign residents. Compared to the 2014 census, the population grew by 2,980,088 inhabitants, reflecting an average annual growth rate of 0.85%, down from 1.25% between 2004 and 2014. The number of foreign residents in Morocco increased by 61,946 between 2014 and 2024, with an annual growth rate of 5.6%. In urban areas, the population reached 23,110,108, growing by 2,677,669 inhabitants between 2014 and 2024, at an average annual growth rate of 1.24%. In contrast, rural areas saw a population of 13,718,222, an increase of 302,419 from the 2014 census, with a lower average annual growth rate of 0.22%.⁵

3 See <https://www.donneesmondiales.com/afrique/maroc/index.php>, accessed 7 October 2024.

4 See <https://fr.diplomatie.ma/fr/geographie-du-maroc>; https://www.larousse.fr/encyclopedie/divers/Maroc_géographie_physique/185525, accessed 7 October 2024.

5 See Decree No. 2.24.1009 establishing the Legal Population in Morocco; https://www.hcp.ma/Population-legale-du-Royaume-du-Maroc-repartition-par-regions-provinces-et-prefectures-et-communes-selon-les-resultats-du_a3974.html, accessed 7 October 2024.

1.3 The economy

In 2022, Morocco's GDP at current prices reached 1,330.2 billion DH, reflecting a 4.4% increase compared to 2021. The Organisation for Economic Co-operation and Development (OECD) Economic Survey of Morocco projects real GDP growth of 3.5% in 2024 and 4.0% in 2025. The primary drivers of this growth are expected to be the services sector and exports, with continued expansion in the manufacturing sectors, especially in automotive and electronics. Public debt stands at approximately 70% of GDP, which is significantly higher than the historical average of 59.81% observed between 1965 and 2022. While this debt ratio is approaching the peak of 117.71% reached in 1985, it remains well below the low of 21.66% recorded in 1965.⁶

The Moroccan economy is increasingly characterised by sectoral diversification. Traditionally dominated by agriculture, the country has seen significant expansion in other sectors such as industry, tourism, and services. Agriculture now contributes around 12% to GDP, while industry accounts for 27%, and services make up 61%.⁷

The Moroccan economy has displayed resilience in the face of several challenges, including a global economic slowdown, inflationary pressures, the earthquake in Al Haouz province, and recurring droughts. Despite these challenges, growth has accelerated, with GDP increasing by 3.4% in 2023. This growth has been driven by strong consumption, rising investment, a rebound in the tourism sector, and thriving export-oriented manufacturing sectors, particularly in automotive and aeronautics.⁸

Foreign investment in Morocco has steadily increased over the past decade, with most foreign companies investing in the manufacturing sector, particularly in automotive and pharmaceuticals. Other significant sectors attracting foreign investment include real estate, telecommunications, tourism, energy, and mining.

Despite the challenges posed by global geoeconomic fragmentation, Morocco's unique advantages—such as its strategic geographic location, trade agreements, renewable energy potential, robust infrastructure, and stable business environment—position the country to experience a potential shift in its foreign direct investment (FDI) attractiveness.

However, gross FDI receipts have recently declined due to the impact of the COVID-19 pandemic. According to the Foreign Exchange Office, FDI inflows represented an average of 3.2% of GDP between 2012 and 2022, but this figure decreased to 2.2% of GDP in 2023.

6 See <https://maroc-diplomatique.net/dette-publique-plombs-en-2024/>, accessed 7 October 2024.

7 See <https://www.moroccobusiness.fr/post/agriculture-maroc-2024>, accessed 7 October 2024.

8 World Bank (2024); OECD (2024).

1.4 Education

Morocco has made significant progress in education over the past two decades, particularly in expanding access to primary education and increasing enrolment in secondary education.⁹ The Strategic Vision 2030 for Education aims to improve quality through three key pillars: ensuring equity and equality in education, enhancing the quality of schooling, and promoting individual and societal development through education. Vision 2030 focuses on equitable access to education, particularly for rural and disadvantaged areas, ensuring rights for people with disabilities, and improving infrastructure. It also emphasises improving teacher training, restructuring school cycles, creating links between general and vocational education, and enhancing school governance.

Morocco has established institutions for assessment and monitoring, including the Higher Council for Education, which guides policies on education and research.¹⁰ Despite these efforts, challenges remain, such as the low quality of apprenticeships and high youth unemployment, raising concerns about the alignment of education with labour market needs.

The higher education system in Morocco consists of public universities, non-university institutions, and private institutions, with 448 institutions serving over 1.2 million students. Since 2003, various reforms have been implemented to improve higher education, including the National Charter of Education, Law 01-00, and the Vision 2030 strategy, which continues to prioritise equitable access and quality improvements across the sector.

1.5 The climate

Morocco's climate is influenced by its position between temperate low-pressure systems and the subtropical Azores high, creating a transition zone between temperate and desert climates. The climate varies regionally: coastal areas have a temperate climate, while the south and east are desert.¹¹ The northern part experiences a Mediterranean climate, the west is oceanic, and the interior is continental, with the south being Saharan. The climate features hot, dry summers with little precipitation and mild winters on the coast, but colder inland and in mountainous regions.

Morocco's vast arid and semi-arid regions face frequent climatic crises, making the ecosystem fragile. Precipitation is highly variable, ranging from under 100 mm in

9 See <https://www.oecd-ilibrary.org/docserver/9789264301832-fr.pdf?expires=1732744195&id=id&accname=guest&checksum=8229CE2F8596151EA94B2C29AC078172>, accessed 7 October 2024.

10 See <https://www.csefrs.ma/wp-content/uploads/2020/05/Rapport-ES-re%CC%81gule%CC%81.pdf>, accessed 7 October 2024.

11 See 2022https://unfccc.int/sites/default/files/resource/Morocco%20BUR3_Fr.pdf, accessed 7 October 2024.

the south to 1,200 mm in the north. The years 2019-2022 were the driest in decades, with a 32% rainfall deficit, stressing water resources and raising concerns about future supplies.¹²

Over the last two decades, Morocco has shifted from “water shortage” to “water stress.”¹³ The average annual rainfall is about 140 billion m³, with renewable water resources around 22 billion m³, including 18 billion m³ of surface water and 4 billion m³ of groundwater.¹⁴ Freshwater availability per capita has dropped from 2,500 m³ in 1960 to 606 m³ today, marking a critical water shortage. Dams were only 34% full by February 2022, compared to 51% the previous year. This shortage has led to the over-use of groundwater, causing falling water levels, contamination, and soil erosion. Groundwater supplies over 90% of rural water and irrigates 40% of agricultural land.

Morocco launched the National Water Plan 2020-2050, focusing on non-conventional water sources, including wastewater treatment, brackish water demineralisation, and seawater desalination.¹⁵ However, water scarcity remains a challenge, exacerbated by pollution, soil erosion, and increased demand from a growing population, urbanisation, and agriculture. These pressures are deteriorating the quality and availability of water resources.¹⁶

1.6 Information on the organisational structure of the state

1.6.1 The form of the state

The first article of the Constitution of 2011 establishes Morocco as a constitutional, democratic, parliamentary, and social monarchy. It highlights the separation of powers, balance, collaboration, citizen participation, good governance, and accountability. The country’s unifying constants include Islam, national unity, the constitutional monarchy, and democratic choice.

The Kingdom follows a decentralised territorial organisation based on advanced regionalisation.¹⁷ The King is the guarantor of national independence and territorial integrity (Article 42). He exercises his powers through royal decrees and is responsible for appointing the head of government, ministers, governors, ambassadors, and officials in key positions. The King also holds the authority to dismiss ministers, dissolve

12 Ministry of Equipment and Water and General Directorate of Meteorology (2023).

13 Naciry (2017).

14 Ministry of Equipment and Water, Hydraulics Department (2023).

15 The National Program for Drinking Water Supply and Irrigation (PNAEPI) 2020-2027.

16 See <https://projet.oss-online.org/maghreb-eau/sites/default/files/2020-01/Etat-des-Lieux-Secteur-Eau-Maroc.pdf>, accessed 7 October 2024; https://www.ires.ma/sites/default/files/docs_publications/Avenir_de_leau_au_Maroc-Rapport_de_synthese.pdf, accessed 7 October 2024.

17 Fadil (2022).

Parliament, and make strategic decisions regarding national security.¹⁸ He serves as the supreme commander of the Armed Forces and chairs important councils related to security and judiciary matters. He also chairs the High Council of the Judiciary and the High Council of Ulemas, in his capacity as Commander of the Faithful.¹⁹

1.6.2 Legislative competence

The Moroccan Parliament consists of two chambers: the House of Representatives and the Chamber of Councillors.²⁰ The 395 members of the House of Representatives are directly elected for five years by universal suffrage. The Chamber of Councillors, with 120 members, is indirectly elected for six years, representing local authorities, professional chambers, and employees.²¹ Members of Parliament hold their mandate from the nation, with personal voting rights and parliamentary immunity. The Presidents of both chambers and the heads of the Standing Committees are elected at the start of the legislature and again in the third year. Members of the Chamber of Councillors are elected for nine years, with three-fifths chosen by local authorities and two-fifths by professional chambers and employees.

Parliament holds two sessions annually, with the option for extraordinary sessions requested by a majority of either chamber or the government. Sessions are public, and each chamber has its internal regulations, reviewed for constitutional compliance by the Constitutional Court. Parliament's powers include legislative authority and government oversight. It legislates, votes on laws, monitors government action, and evaluates public policies. The Head of Government and Parliament members can initiate laws, with drafts concerning local authorities and social affairs prioritised by the House of Councillors. Amendments to laws can be proposed by both chambers and the government. The agenda is set by each chamber's bureau, and laws are adopted through voting and ratification.

1.6.3 Executive competence

The King of Morocco appoints the Head of Government from the majority party resulting from legislative elections. The Head of Government then proposes the list of ministers and members of the government to the King.²² The government is

18 Eluassi (2020).

19 See <https://fr.diplomatie.ma/fr/systeme-politics-du-royaume-du-maroc>, accessed 7 October 2024.

20 See https://www.asgpf-francophonie.org/documents/documents/BicamerismeauMaroc_M.Khoaja_vf.pdf, accessed 7 October 2024.

21 Ahmyiane (2019).

22 See <https://www.cg.gov.ma/fr/attributions-du-government>, accessed 7 October 2024.

accountable to both the King and Parliament. Once appointed, the Head of Government presents the government's program to both Houses of Parliament. This program outlines the government's planned actions across economic, social, environmental, cultural, and foreign policy sectors. It is debated by both chambers and followed by a vote in the House of Representatives. The government is formally invested after obtaining the confidence of the House of Representatives through a majority vote in favour of its program. The government exercises executive power, implementing its program, enforcing laws, managing the administration, and overseeing public companies and institutions. Under the authority of the Head of Government, regulatory powers may be delegated to ministers, with acts countersigned by the relevant ministers.

In addition to the executive authority, other institutions, such as the police, public prosecutor's office, and judiciary, are responsible for enforcing laws in Morocco.

2 Soil degradation

Soil degradation refers to the physical, chemical, or biological processes that diminish the productive capacity of soils or the usefulness of natural resources.²³ A soil is considered degraded when it loses some of its key qualities, such as its ability to store water and nutrients, provide support for plant roots, act as a reservoir for biodiversity, filter pollutants, and sequester carbon. Soil degradation also includes a decline in soil quality.

2.1 The state of the environment in Morocco

The Moroccan state is committed to environmental monitoring, as mandated by Article 24 of Framework Law 99-12 on the National Charter for the Environment and Sustainable Development. This law requires the government to conduct continuous monitoring of environmental quality, gather and analyse data related to the state of the environment, and disseminate this information.

Morocco's climate varies across regions, contributing to its rich biodiversity. The Kingdom ranks second in the Mediterranean in terms of biological diversity, boasting over 24,000 animal species and more than 7,000 plant species. The country's fauna has an overall endemism rate of 11%, while vascular plants have an impressive 20% endemism rate, making Morocco one of the regions with the highest biodiversity endemism.²⁴ Morocco is home to 29 ecosystems of significant ecological value, recognised for their richness in flora and fauna. The Department of Sustainable

23 Ginzky et al. (2021: 383).

24 See https://decarbonation.cgem.ma/wp-content/uploads/2023/03/La-Transition-du-Maroc-vers-un-Economie-Verte_-Etude-globale-PAGE-Maroc-2022.pdf, accessed 7 October 2024.

Development has declared ten national parks and 154 Sites of Biological and Ecological Interest (SIBE), covering a vast area of 2.5 million hectares. Additionally, 38 wetlands, spanning nearly 320,000 hectares, are designated Ramsar sites, highlighting the importance of these areas for global biodiversity. Forests cover nine million hectares of Morocco, housing seven million people. The Moroccan coastline extends 3,446 km, including 2,934 km of Atlantic coastline and 512 km along the Mediterranean.

This vast natural wealth has led to growing awareness of the need for a sustainable and inclusive transition. Morocco has made significant strides in adopting environmentally friendly practices and promoting green economy initiatives. These efforts are reflected in strategic frameworks such as the New Development Model of Morocco (NMD), the National Sustainable Development Strategy (SNDD), the National Climate Plan (PCN), the National Household Waste Program (PNDM), and the Renewable Energy Strategy (SER). These projects aim to protect biodiversity, promote sustainable production and consumption, and support a green economy.

2.2 Soil types in Morocco

Soil faces various challenges that hinder sustainable agricultural production and development. To effectively address these constraints, it is crucial to understand the types of soils found across Morocco and their distribution.

Morocco uses the “French Soil Classification” (CPCS 1967), which categorises soils based on their morphology, climatic conditions, topography, and underlying bedrock. According to this classification, the following soil types are found in Morocco: raw mineral soils, poorly evolved erosion soils, poorly evolved contribution soils, calcimagnesian soils, Isohumic soils, Vertisols, iron sesquioxide soils (fersiallitic), browned soils, sodic soils, and hydromorphic soils. The predominant soils in Morocco include Mollisols, Vertisols, Inceptisols, and Entisols.²⁵ These soils are typically found in the internal mountainous areas and are characterised by shallow layers and minimal weathering, retaining features similar to their parent rocks. They are highly susceptible to erosion. Aridisols, which are found in alluvial deposits along rivers, share similarities with Entisols but are more weathered.

2.3 The main factors of soil degradation

Soil degradation can generally be divided into two main categories: the removal and displacement of soil elements by water and wind erosion, and the degradation of soil quality through chemical or physical processes.²⁶ There is often confusion between

²⁵ FAO (2014).

²⁶ Roose (2010).

erosion and soil degradation. While some consider erosion to be the primary cause of soil degradation, others argue that erosion primarily affects already degraded soils, exacerbating the visible signs of deterioration. Over 40% of Morocco's land is affected by soil erosion, driven by deforestation, overgrazing, and poor agricultural practices. Harsh climatic conditions, such as extended droughts followed by intense rainfall, further intensify the problem. Soil erosion is occurring at rates far exceeding international standards, with specific degradation rates ranging from 212 to over 2,000 tons per square kilometre per year.²⁷ Regions in the north and northwest experience rates exceeding 2,000 tons per square kilometre annually.

Regions are categorised based on the severity of soil degradation:²⁸ Areas with specific degradation rates exceeding 2,000 tons per square kilometre per year, such as the Rif region near Sebou (Oued Ouergha); areas with rates between 1,000 and 2,000 tons per square kilometre per year, including parts of Sebou and Loukkos; regions with specific degradation rates between 500 and 1,000 tons per square kilometre, such as certain slopes of the Oum Er Rabia wadi and Souss (Tessaout, Issen, and Bine El Ouidane); and areas with degradation rates below 500 tons per square kilometre per year.

Wind erosion is a significant concern, though data on its extent is lacking.²⁹ The most recent National Colloquium on Forests estimates that 250,000 hectares in Er-rachidia and 30,000 hectares in Ouarzazate are at risk from wind erosion.

Several human activities contribute to soil degradation. Unsustainable agricultural practices, such as deep ploughing and intensive tillage, weaken soil aggregates and disrupt the soil structure. This leads to the destruction of habitats for organisms that contribute to soil formation and stability, resulting in soil erosion, increased susceptibility to compaction, reduced water retention, and decreased nutrient recycling capacity. Overgrazing accelerates soil erosion by reducing protective vegetation cover and increasing soil compaction. This disrupts ecosystems and leads to significant biodiversity loss. The Moroccan Ministry of Agriculture lists overgrazing as a primary driver of desertification.

Deforestation is primarily driven by human activities, with agricultural expansion responsible for 90% of global deforestation, according to the Food and Agriculture Organization of the United Nations (FAO). In Morocco, forest cover is declining at a rate of 17,000 hectares per year,³⁰ while reforestation efforts have not exceeded 20,000 hectares annually under the new forestry strategy for 2020-2030. Overall, Morocco loses 31,000 hectares of forest annually.³¹

Urban expansion also contributes to soil degradation, as land is converted for housing, infrastructure, and amenities. This leads to soil sealing and the loss of fertile land,

27 Boukhari et al. (2019).

28 Chikhaoui & Naimi (2011).

29 Benbrahim et al. (2004).

30 See <https://www.cese.ma/media/2023/10/Avis-ecosystemes-forestiers-du-Maroc-VF.pdf>, accessed 7 October 2024.

31 Benzyane (2007: 47).

disrupting ecosystems and biodiversity.³² Industrial and mining activities are another significant source of soil degradation. They can release toxic pollutants, heavy metals, and other hazardous substances into the soil. The pollution from industrial and mining sources is often inadequately measured and addressed by current legislation. Inappropriate management of industrial waste and improper disposal of chemicals can lead to widespread soil contamination.

Finally, soil salinisation poses a growing threat to food security, particularly due to the intensification of agriculture and poor irrigation practices. This process reduces the area of irrigated land by 1-2% annually.³³ In Morocco, nearly 500,000 hectares of land, including 160,000 hectares in irrigated areas, are affected by soil salinisation.

3 International law and bilateral and multilateral agreements

Morocco has consistently aligned itself with the international community in environmental protection and the fight against climate change, ratifying numerous international conventions and agreements.³⁴ These include conventions addressing waste and hazardous chemicals, such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal,³⁵ the Stockholm Convention on Persistent Organic Pollutants,³⁶ the Rotterdam Convention on Hazardous Chemicals and Pesticides in International Trade,³⁷ and the Minamata Convention on Mercury.³⁸

Additionally, Morocco has ratified multiple conventions related to fauna and flora, including the International Convention on the Protection of Plants (ratified in 1972),³⁹ the International Convention for the Protection of New Varieties of Plants (2006),⁴⁰ the African Convention on Conservation of Nature and Natural Resources (1977),⁴¹ the Ramsar Convention on Wetlands (1980),⁴² and the Convention on Biological Diversity (1995).⁴³

Morocco has also supported agreements targeting atmospheric protection, such as the Vienna Convention for the Protection of the Ozone Layer (1995),⁴⁴ the Montreal

32 See <https://openknowledge.fao.org/server/api/core/bitstreams/74b4394d-b389-4450-a4d7-bd37ab751c31/content>, accessed 7 October 2024.

33 Gana, Oumara & Elyoussf (2022).

34 See <https://www.environnement.gov.ma/fr/lois-et-reglementations/conventions-et-accords>, accessed 7 October 2024.

35 Adopted 22 March 1989, United Nations Treaty Series, Vol 1673.

36 Adopted 22 May 2001, United Nations Treaty Series, Vol 2256.

37 Adopted 10 September 1998, United Nations Treaty Series, Vol 2244.

38 Adopted 10 October 2013, United Nations Treaty Series, Vol 2888.

39 Adopted 6 December 1951, United Nations Treaty Series, Vol 828.

40 Adopted 2 December 1961, United Nations Treaty Series, Vol 815.

41 Adopted 15 September 1968, Organisation of African Unity, OAU Treaty Series, No 15.

42 Adopted 2 February 1971, United Nations Treaty Series, Vol 996.

43 Adopted 5 June 1992, United Nations Treaty Series, Vol 1760.

44 Adopted 22 March 1985, United Nations Treaty Series, Vol 1513.

Protocol (1995),⁴⁵ the UN Framework Convention on Climate Change (1998),⁴⁶ the Kyoto Protocol (2005),⁴⁷ and the Paris Agreement (2016).⁴⁸

4 The legal framework applicable on the ground in Morocco

4.1 The Constitution

The Moroccan Constitution does not explicitly address soil but underscores environmental protection and sustainable development, affirming the right of all Moroccan citizens to a healthy and sustainable environment. Key provisions include Article 31, which obligates the state to protect the environment, combat pollution, and preserve biodiversity, and Article 35, which emphasises sustainable and human development, promoting social justice while preserving natural resources and the rights of future generations. Article 115 mandates the state to raise awareness about environmental issues and involve citizens in their protection, while Article 71 assigns legal responsibility for environmental management, natural resource protection, and sustainable development to the law. Additionally, the Constitution establishes the Economic, Social, and Environmental Council (Article 151), tasked with advising on matters related to the economy, society, and the environment, and providing opinions on national economic and sustainable development policies (Article 152). While soil is not directly mentioned, its conservation is implicitly covered under the broader principles of protecting natural resources outlined in Article 35.

4.2 General information on soil protection policies

Morocco currently lacks a dedicated public policy or strategy solely focused on soil protection. Instead, soil is considered a component of broader environmental concerns within the context of sustainable development, which has become a central pillar of the country's environmental policy. The government has committed to addressing environmental challenges through various reforms aimed at both advancing environmental progress and supporting national economic development.

To provide a comprehensive view of the national strategies influencing sustainable development and soil management, we will explore four key public policies:

The National Strategy for Sustainable Development (SNDD) 2030 is based on several guiding principles set by the Moroccan government to ensure its coherence and

45 Adopted 16 September 1987, United Nations Treaty Series, Vol 1522.

46 Adopted 9 May 1992, United Nations Treaty Series, Vol 1771.

47 Adopted 11 December 1997, United Nations Treaty Series, Vol 2303.

48 Adopted 12 December 2015, United Nations Treaty Series, Vol 3156.

effectiveness.⁴⁹ These include the principle of international conformity, which aligns Morocco's efforts with global best practices on issues relating to climate change and biodiversity; the principle of conformity with Framework Law 99-12, which ensures the strategy is in line with Morocco's National Charter for the Environment and Sustainable Development, incorporating principles such as integration, solidarity, and participation. Additionally, the stakeholder engagement principle emphasises the importance of involving all relevant parties in the strategy's implementation, while the operational strategy principle focuses on creating a clear, actionable plan based on existing frameworks. The SNDD aims to address seven major challenges, such as strengthening governance, transitioning to a green economy, and accelerating climate change mitigation efforts. However, Morocco has identified structural obstacles in its development, prompting a revision of the strategy. The updated SNDD will focus on aligning with the New Development Model (NMD) to ensure the transformation of Morocco's economy into a green, inclusive economy while addressing inequalities and reinforcing social welfare.

The Strategic Orientations of the New Development Model (NMD), adopted in April 2021, aims to address environmental pressures, including climate change impacts on natural resources and biodiversity.⁵⁰ The model highlights the need for sustainable policies to reduce inequalities and foster economic growth while preserving the environment. A key strategy is the development of modern, socially and ecologically responsible agriculture, leveraging technology for sustainability. This includes improving productivity through precision agriculture, prioritising water conservation, and enhancing resilience to climate change. The model also focuses on strengthening local production and ensuring access to climate-resilient seeds, sustainable fertilisation, and effective pest control.

Morocco is facing increasing waste generation, with the cost of environmental degradation reaching nearly 33 billion DH or 3.52% of GDP.⁵¹ In response, the country has adopted the National Strategy for the Recovery and Reduction of Waste (SNRVD), aligned with its sustainable development goals. The strategy prioritises the waste management hierarchy: first, reducing waste production; second, reusing materials; and third, recycling, composting, or generating energy from waste. Landfilling is considered a last resort. The strategy emphasises circular economy principles, including reducing, reusing, and recycling, to address the growing waste challenge.

The Energy, Mining, and Geology Sectors Strategy focuses on three key areas. For energy, the goal is to use the sustainable energy transition as a driver for economic and social development. Key objectives include ensuring energy security, availability, widespread access, demand control, and environmental preservation. Strategic actions

49 See <https://faolex.fao.org/docs/pdf/Mor185348.pdf>, accessed 7 October 2024.

50 See https://csmd.ma/documents/Rapport_General.pdf, accessed 7 October 2024.

51 See <https://siredd.environnement.gov.ma/BeniMellal-Khenifra/Files/Documents/ETUDE%20SNRVD%20-%2016-04-2019%20VF.pdf>, accessed 7 October 2024.

include optimising the energy mix, developing renewable energy, enhancing energy efficiency, and exploring new energy sources including hydrogen and biomass. In the mining sector, the focus is on revitalising the national mining industry, particularly non-phosphate mining. The Morocco Mines Plan (PMM) 2021-2030 aims to build on the 2013 strategy, ensuring responsible and sustainable development at local, regional, and national levels.⁵²

Additionally, the Green Generation Plan for Agriculture focuses on promoting sustainable agricultural practices that protect and improve soil health while enhancing productivity and food security.⁵³ Agriculture in Morocco has long been a strategic sector crucial to the country's socio-economic development. Following the Green Morocco Plan (PMV) (2008-2020), which aimed to make Morocco a major agricultural exporter, the Generation Green Plan (2020-2030) was launched to ensure sustainability and resilience in the sector. The PMV successfully increased agricultural production but led to issues including overexploitation of groundwater and reduced water reserves. The Generation Green plan seeks to address these challenges, reinforcing and expanding the reforms initiated under the PMV. The new strategy, inspired by royal directives, aims to align with national projects including the National Water Plan and vocational training development. It focuses on sustainability, agricultural growth, and strengthening the agricultural middle class, to double agricultural GDP and exports. This vision emphasises giving stakeholders more responsibility for effective resource management.

4.3 General environmental law

Morocco's legal framework for environmental protection and sustainable development lays a foundation for addressing soil management, although specific legislation solely dedicated to soil remains absent. The framework is anchored in Framework Law No. 99.12 of 2014, which establishes a national charter for the environment and sustainable development, defining fundamental objectives for state action to protect natural resources, including soil, within the broader context of sustainability.⁵⁴ Law No. 11.03 of 2003 complements this by outlining general principles for environmental protection and development.

52 See https://mtedd.gov.ma/index.php?option=com_content&view=article&id=17&Itemid=295&lang=en, accessed 7 October 2024.

53 See <https://www.agriculture.gov.ma/fr/ministere/generation-green-2020-2030>, accessed 7 October 2024; <https://www.ada.gov.ma/sites/default/files/GG/Nouvelle%20strategie%20agricole%20-%20Presentation%20projetee.pdf>, accessed 7 October 2024.

54 See http://dmp.uae.ma/textes_juridiques/generaux/loi_cadre_99_12.pdf, accessed 7 October 2024.

Chapter III of Law No. 11.03 focuses on the protection of nature and natural resources, explicitly mentioning soil and subsoil.⁵⁵ It emphasises their protection against degradation and calls for their rational exploitation. Article 17 advocates general soil protection, while Article 18 introduces measures to address desertification, erosion, pollution, and other threats. Article 19 requires prior authorisation for activities that could harm soil, such as industrial or agricultural development. Chapter IV addresses pollution and waste management, indirectly protecting soil by regulating harmful discharges and waste disposal. Chapter V introduces environmental quality norms, considering soil's capacity for self-purification and its ecological significance.

In 2011, a draft law specifically targeting soil protection was introduced by the Ministry of Energy Transition and Sustainable Development.⁵⁶ This initiative aimed to create a dedicated framework for soil governance, addressing principles such as collective heritage, damage prevention, precautionary measures, and polluter responsibility. It proposed measures for rational land use, contamination prevention, and site rehabilitation, but the draft remains unpublished and unenacted. Existing provisions in Law No. 11.03, while valuable, are broad and lack specificity, treating soil within a generalised environmental context rather than as a unique resource requiring focused attention.

Despite these legislative efforts, several challenges remain. The lack of precise definitions for “soil” and “subsoil” within the legal framework hampers targeted policy implementation. Soil is often overshadowed by other environmental concerns, such as air and water quality, and the existing provisions largely depend on pre-existing laws without introducing enforceable measures tailored to soil-specific issues. Implementation gaps and insufficient regulations further limit the effectiveness of current soil governance.

Opportunities for improvement include enacting the draft soil law to establish a comprehensive legal framework specifically addressing soil's importance. Clarifying and expanding the scope of existing provisions within Law No. 11.03 could also strengthen their application to soil. Developing measurable standards and protocols for soil health, akin to those for air and water, would provide a clear basis for policy enforcement. Enhanced collaboration among agriculture, urban planning, and environmental sectors could integrate soil protection measures into broader sustainable development strategies. Addressing these gaps would strengthen Morocco's capacity to protect its soil resources, ensuring ecological balance, long-term food security, and sustainable development.

55 See <https://www.onssa.gov.ma/wp-content/uploads/2022/06/Reglementation/C.Reglementation-Connexe/4.%20Divers/LOI.11-03.FR.pdf>, accessed 7 October 2024.

56 See <http://www.environnement.gov.ma/fr/sol/114-theme/sol/214-un-projet-de-loi-specifique-pour-la-protection-des-sols>, accessed 7 October 2024.

4.4 Conservation and exploitation of forests

Forest management in Morocco plays a pivotal role in soil conservation, particularly in combating erosion. The Dahir of 10 October 1917 on the conservation and exploitation of forests provides a robust legal framework for this purpose. Article 25 of the Dahir emphasises the necessity of forest conservation in specific cases where it directly impacts soil health and ecosystem stability. This includes maintaining land stability on mountains or slopes, protecting soil against both rain-induced erosion and invasion by running water, safeguarding dam reservoirs from sedimentation, ensuring the sustainability of water sources and watercourses, mitigating wind erosion and sand encroachment, and preserving public health and socio-economic balance. To prevent harmful clearing practices, the Dahir imposes conditions on land use. Article 25a stipulates that clearing activities may only proceed if the landowner commits to implementing soil protection and restoration measures. These measures are predefined in terms of their nature, scope, and timelines within the non-opposition decision. Should the landowner fail to comply, the administration is empowered to carry out the necessary works under the provisions of Article 27. Alternatively, the landowner may renounce the clearing before its commencement. The administration may impose additional conditions to mitigate the impact of clearing. These could include prohibiting the uprooting of certain tree species or mandating the retention of a specified number of trees to preserve the land's ecological integrity.

The Dahir of 20 September 1976 complements these provisions by institutionalising governance structures for forest management. It establishes the National Forestry Council under the Ministry of Agriculture and Agrarian Reform and provincial and municipal councils to oversee the development and enhancement of Morocco's forest heritage. These councils play critical roles in reconciling administrative and user interests, resolving disputes, and proposing legal and regulatory solutions. The National Council specifically addresses conflicts related to the use of arable land within forests and defines guidelines for sustainable resource use. Meanwhile, municipal councils regulate temporary forest land occupations and oversee quarry exploitation through their deliberative processes. This multi-tiered governance system supports soil protection and ensures that forest management contributes to broader environmental, social, and economic goals. By balancing the rights and responsibilities of landowners, users, and the state, these legal instruments reinforce sustainable land-use practices, safeguarding Morocco's soil and forest resources for future generations.

4.5 Soil protection and restoration

Article 6 of the Dahir of 25 July 1969, on the defence and restoration of soils, grants the Moroccan administration the authority to establish zones known as "perimeters of

defence and restoration of soils of national interest.” These zones can be created through a decree proposed by the Minister of Agriculture and Agrarian Reform, in consultation with the Ministers of the Interior and Finance. This designation is used in situations where erosion poses significant threats, such as endangering built-up areas, public works, or agricultural regions, or when erosion control measures are required across entire elementary or main watersheds. Within these designated perimeters, the state has the authority to mandate measures and implement works aimed at combating erosion. The specific conditions for these interventions are outlined in the Dahir, ensuring a structured approach to soil conservation within critical areas.

Beyond the designated perimeters, the Dahir also provides for state support in broader soil restoration efforts. This support is offered through agreements with private owners, communities, and legally recognised groups willing to adopt administration-recommended measures for soil protection and restoration. Assistance may take the form of direct involvement in carrying out restoration works or granting subsidies to facilitate these efforts. This dual approach—combining direct state action in high-priority areas with incentivised collaboration outside these zones—underscores Morocco’s commitment to addressing soil erosion comprehensively. By integrating regulatory mechanisms with financial and technical support, the framework encourages the widespread adoption of sustainable practices essential for long-term soil conservation and resilience against environmental degradation.

4.6 Combating air pollution

Law No. 13-03 on the fight against air pollution establishes a comprehensive framework to prevent and combat atmospheric emissions that could harm human health, wildlife, soil, climate, cultural heritage, and the environment.⁵⁷ It applies to all natural or legal persons, whether under public or private law, who own, hold, use, or operate buildings or installations involved in activities such as mining, industry, commerce, agriculture, craftsmanship, motor vehicle operation, waste incineration, heating, or refrigeration.

The law’s implementation is supported by various regulations and directives aimed at ensuring compliance and effective management of air quality. Decree No. 2.18.74 of 21 March 2019, establishes the national greenhouse gas emissions inventory system. Decree No. 286-09-2 of 8 December 2009, sets air quality standards and outlines the procedures for creating security networks, while Decree No. 2.09.631 of 6 July 2010, specifies the permissible limits for discharges and releases of pollutants from persistent sources, along with control methods. Additional joint orders provide sector-specific regulations, such as emissions standards for the ceramics and cement industries, which

57 Dahir No. 1.03.61 of 12 May 2003 establishing Law No. 13-03 relating to the fight against air pollution.

include the determination of pollutant discharge ceilings and provisions for waste incineration.

The law also addresses the calculation of air quality indices, as detailed in the joint order of 8 May 2014, and establishes notification thresholds, alert protocols, and emergency measures through the joint order of 29 October 2014. Vehicle emissions standards are defined through a series of joint orders, including those of 25 December 2010, 8 October 2012, and subsequent amendments through 2022, which set conditions for vehicle approval based on compliance with pollutant emission and fuel engine requirements.

By integrating these measures, the legislation reflects Morocco's commitment to reducing atmospheric pollution. It underscores the need for inter-ministerial coordination, the establishment of sector-specific standards, and the adaptation of policies to address evolving environmental challenges, ensuring the protection of both human and ecological health.

4.7 The coastline

Law No. 81.12 on the coast establishes the fundamental principles and rules for the integrated and sustainable management of coastal areas to ensure their protection, proper development, and enhancement.⁵⁸ This legal framework is complemented by a set of implementing decrees and orders that provide detailed provisions for its application.

Decree No. 2.21.965 of 17 May 2022, approves the National Coastal Plan, which outlines strategies for coastal management, as published in the Official Bulletin No. 7096 of 2 June 2022. Decree No. 2.15.769 of 15 December 2015, defines the composition, membership, mandate, and operational methods of the National Committee for Integrated Coastal Management and regional commissions. It also specifies the processes for developing the national and regional coastal plans, published in the Official Bulletin No. 6428 of 7 January 2016. Decree No. 717-95-2 of 22 November 1996, guides preparing and addressing emergency marine pollution, as detailed in the Official Bulletin No. 4440 of 19 December 1996. Additionally, Decree No. 2.07.253 of 18 July 2008, classifies waste and defines hazardous waste, contributing to environmental protection measures along the coast. The Prime Minister's Order No. 00-3-3 of 16 July 2003, implements the provisions of Decree No. 717-95-2 concerning marine pollution control measures, as reflected in the Official Bulletin No. 5132 of 7 August 2003.

These legislative instruments collectively support Morocco's commitment to safeguarding its coastal zones by integrating environmental sustainability, pollution control, and effective governance. The law underscores the need for a collaborative

58 Dahir No. 1.15.87 published on 16 July 2015 (BO. No. 6384 of 6 August 2015).

approach involving national and regional authorities to address the multifaceted challenges of coastal management.

5 Legal texts concerning the main factors of soil degradation

Moroccan legislation includes several legal texts that address soil protection, covering a wide range of sectors involved in the preservation of natural resources.⁵⁹ These laws, developed over time to meet international obligations and adapt to evolving environmental concerns, are designed to enhance the protection and preservation of biological diversity, with a particular focus on the management of protected areas and biodiversity conservation.

One of the key legal frameworks is Law No. 07-22 on protected areas, which reflects Morocco's commitment to expanding and improving the quality of its network of protected areas. This law aligns Morocco's legal framework with international standards and ensures the protection of areas with biological and environmental significance. It not only includes national parks but also covers other internationally recognised types of protected areas. The law defines five categories of protected areas: national parks, natural parks, environmental reserves, nature reserves, and natural sites. These categories serve various purposes, including preserving biological diversity, protecting ecosystems, and supporting sustainable local development through responsible management.

Additionally, Law No. 05-22, which addresses the protection of wild animal and plant species and controls their trade, aims to conserve Morocco's rich natural wealth, which includes rare species and unique ecosystems. This law responds to the threats posed by overexploitation and international trade, especially of endangered species. It aligns with international agreements, particularly the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which Morocco ratified in 1975.⁶⁰ This law provides a framework for regulating the trade of endangered species and controlling activities that put pressure on wildlife, ensuring that Morocco meets its international obligations.⁶¹

These legislative initiatives highlight Morocco's efforts to strengthen its legal arsenal in the field of nature protection, focusing on biodiversity conservation and

59 See Morocco http://fig.net/resources/proceedings/fig_proceedings/morocco/proceedings/TS4/T_S4_5_ghanam.pdf, accessed 7 October 2024; <https://www.environnement.gov.ma/fr/sol/114-theme/sol/212-les-processus-de-degradation-des-sols?showall=1&limitstart=>, accessed 7 October 2024.

60 Adopted 3 March 1973, United Nations Treaty Series, Vol 993.

61 See <http://www.eauxetforets.gov.ma/AccueilAR/SitePages/Contexte-National.aspx>, accessed 7 October 2024; Law No. 29-05 relating to the protection of species of wild flora and fauna and the control of their trade.

addressing factors that contribute to soil degradation, such as the loss of plant and animal species, deforestation, and unsustainable land use practices.

5.1 Urban planning

Urban planning in Morocco is guided by a set of evolving laws designed to manage urbanisation in line with both national and international development trends. At the core of urban planning is Law No. 12-90, which provides the framework for urban development in the country. This law lays the foundation for several urban planning tools, including the urban development master plan, the zoning plan, and the development plan.

The urban development master plan is a long-term planning tool that outlines the general organisation of urban growth over 25 years. Its primary goals include determining the economic and social development strategies for the region, identifying new zones for urbanisation, and preserving agricultural and forest areas by regulating when and where urban development can take place. Additionally, it specifies the allocation of land for various uses, such as agricultural, forest, green spaces, and areas of cultural or historical significance.

The zoning plan, a key component of the urban development master plan, helps local authorities prepare for development by establishing the main functions for different areas. It assigns zones for residential, industrial, commercial, and agricultural uses, ensuring that urban growth occurs in an organised manner and in line with the objectives of the master plan.

Meanwhile, the development plan provides more detailed guidance on land use. It outlines the allocation of zones for specific purposes, such as residential or industrial, and sets regulations for green spaces, public areas, and protected sites. This plan ensures that urban development respects the cultural, historical, and natural heritage of the region.

In addition to these key instruments, other legal texts further guide urban planning in Morocco. For instance, Dahir No. 1.92.7, enacted in 1992, regulates real estate divisions and residential complexes, while Dahir No. 1.60.063 focuses on the enlargement of rural buildings. Decree No. 2-92-832, which implements Law No. 12-90, helps enforce these regulations and manage land use at the local level.

A critical challenge Morocco faces is urban sprawl, particularly the uncontrolled expansion of cities into agricultural areas. This has become a significant issue, prompting the government to prioritise the regulation of land use through the urban planning framework. The urban development master plan plays an essential role in preventing the loss of agricultural and forest land by establishing clear boundaries and zoning laws.

The law on soil protection should be closely aligned with these urban planning provisions. It should emphasise the importance of maintaining agricultural lands and preventing their conversion for non-agricultural uses. By doing so, Morocco can ensure the long-term sustainability of its agricultural soils, which are vital for food production and ecological health, while also managing urban growth in a way that respects both the environment and the needs of its growing population.

5.2 Pollution and waste management

Law No. 28-00 on waste management and disposal in Morocco aims to protect human health, ecosystems, and the environment by regulating the handling and disposal of waste. The law sets forth measures to prevent soil pollution and the harmful effects of waste on the environment. It emphasises that any individual or entity involved in waste production or handling must ensure that their actions do not harm the soil, fauna, flora, air, water, or landscapes. In cases where waste management might lead to environmental degradation, the law requires that proper elimination methods be employed.

The administration is tasked with drafting national and regional master plans for hazardous and non-hazardous waste management. These plans determine appropriate sites for disposal and storage facilities, ensuring they align with town planning guidelines and environmental protection standards. Special provisions are made for biodegradable agricultural waste, which may be disposed of on the farms where it is produced, provided it is managed in an environmentally responsible way.

Article 50 of the law prohibits the establishment of controlled landfills near sensitive environmental areas such as national parks, wetlands, and areas of high agricultural potential. In cases where a controlled landfill is closed, the operator is required to restore the site to an ecologically acceptable condition.

While the law plays a crucial role in preventing soil pollution related to waste handling, it does not specifically address the rehabilitation of sites contaminated by old landfills. Recent revisions to Law No. 28-00 have not introduced new provisions regarding soil contamination from historic waste disposal sites. To support the law, various decrees and orders provide specific guidelines and procedures for the import, export, and disposal of waste, including hazardous, medical, agricultural, and industrial waste. These regulations also cover the classification of waste and set standards for waste collection, treatment, and recovery methods, ensuring that waste management aligns with environmental protection standards.

5.3 Cross-cutting issues

5.3.1 Environmental assessment

Morocco has made significant progress in establishing a regulatory framework to manage the environmental impact of economic activities, particularly through Law No. 12-03 on environmental impact studies (EIS) and Law No. 49-17 on environmental assessment.⁶² These laws require that any project undergo an evaluation process to determine its environmental acceptability, based on principles of precaution, prevention, and responsibility. This evaluation aims to integrate environmental and social considerations into development projects, helping to minimise adverse impacts, including those on soil.

However, despite the advancement, gaps remain in the current legal framework, especially concerning the treatment of soil.⁶³ Soil is not fully addressed as a complex ecosystem in the environmental assessment process. The law lacks detailed criteria to assess the full range of impacts on soil quality, leaving certain activities that could negatively affect soil to potentially escape the assessment procedure. This limits the effectiveness of the law in protecting soil resources.

The law introduces several key processes to assess environmental impacts. It includes strategic environmental assessments that integrate environmental considerations into policies, plans, and programs; environmental impact studies to evaluate the effects of projects before implementation; and environmental impact maps that assess and mitigate minor impacts from smaller projects. Environmental inspections are also mandated to ensure existing industrial units and activities comply with environmental standards.

While these provisions represent significant strides forward, their full implementation is hindered by the absence of regulatory texts needed to specify procedures and requirements for different project stages. Many of these regulatory texts remain unpublished, causing delays in ensuring the law is fully operational. Moreover, although Law No. 19-17 attempts to address certain deficiencies by requiring approved design offices for major projects and mandating environmental audits for industrial units, challenges remain. The slow publication of necessary regulations and the lack of specific guidelines for assessing soil impacts indicate a need for stronger measures to ensure effective soil protection within Morocco's environmental assessment system.

⁶² Saad (2021).

⁶³ Per Art 1 of Law No. 49-17 on environmental assessment, this law is part of the implementation of the requirements of the legal framework 99.12 as the National Charter for the Environment and Sustainable Development published in 2014, this new law replaces the provisions of Law 12.03 relating to environmental impact studies published on 12 May 2003.

5.3.2 Provisions relating to public participation

In Morocco, civil society associations play a crucial and recognised role in areas related to development, the environment, and human rights. The legal framework governing these associations is rooted in Dahir No. 1,583,376 of 15 November 1958, which was revised in 1973 and amended in 2002. The Constitution of Morocco guarantees the right to form associations and emphasises the importance of establishing participatory mechanisms for dialogue and consultation. It also provides for the creation of the Consultative Council for Youth and Associative Action, which focuses on youth protection and promoting associative life.

Environmental civil society organisations in Morocco have several key roles and objectives.⁶⁴ They actively contribute to the work of public bodies in environmental matters by expressing opinions and participating in the formulation of policies and legislation, following the applicable laws. These organisations also have the right to litigation, allowing them to bring legal proceedings before judicial authorities in cases of environmental damage, ensuring accountability and protecting environmental rights. Furthermore, environmental civil society institutions work to consolidate the idea of environmental citizenship, promoting rational behaviour among citizens to preserve natural resources. Through various collective activities, these organisations aim to raise awareness of environmental issues and highlight the serious consequences of environmental degradation for human life and the planet. Finally, these associations support the principle of information and participation, providing citizens with accurate and specific information about environmental issues. This helps individuals better understand the environmental risks they face and empowers them to take informed actions toward safeguarding the environment.

5.3.3 Access to environmental information

Since March 2018, Morocco has implemented a legal framework through Law No. 31-13, which establishes the right of access to information. This law aims to enable citizens to access information held by legal entities under public law, such as the House of Representatives, the House of Councillors, public administrations, and courts. It is designed to enhance transparency and promote good governance by responding to the constitutional provision in Article 27, which guarantees citizens the right to access

64 See Arts 12-13 of the Constitution read with Framework Law No. 99-12 as the National Charter for the Environment and Sustainable Development published in the Official Journal of March 2014, which highlighted the need to strengthen the role of associations and institutions of civil society, which are now required to contribute to the achievement of development objectives and the preservation of the environment.

information held by public institutions, elected bodies, and organisations entrusted with public service missions.

Access to environmental information plays a critical role in environmental protection efforts. It not only facilitates informed decision-making but also strengthens administrative transparency, ensuring that the public is well-informed about matters that affect their environment. As a result, citizens and civil society organisations now have the legal right to request access to information related to public service, except for those pieces of information deemed protected under the law.⁶⁵

5.3.4 Access to the courts

Article 107 of the Moroccan Constitution asserts the independence of the judiciary from the legislative and executive branches, with the King serving as the guarantor of this independence.⁶⁶ Furthermore, Article 113 states that the High Council of the Judiciary (CSPJ), chaired by the King, ensures the protection of the rights and guarantees of judges, particularly regarding career management.⁶⁷ Article 118 emphasises the right of access to justice, stating that every person is entitled to defend their rights and interests through legal means. It further affirms that administrative actions can be appealed before the competent administrative court. This provision establishes access to state justice as a fundamental right for individuals and legal entities, while also allowing for alternative dispute resolution methods such as arbitration and mediation, which are governed by specific laws, including Law 95-17 on arbitration and conventional mediation.⁶⁸

The judicial organisation in Morocco, as per Law No. 38.15, includes several levels of courts.⁶⁹ These range from the courts of first instance, which are spread across the country, to the courts of appeal and the Court of Cassation based in Rabat.⁷⁰ The

65 Art 2 of Law 31-13 specifies that within the meaning of this law, it is understood as: “Information: data and statistics expressed in the form of figures, letters, drawings, images, audiovisual recordings or in any other form, and included in documents, documents, reports, studies, decisions, periodicals, brochures, service notes, databases and other documents of a general nature, produced or received by institutions or institutions. The organisations concerned within the framework of the missions of the public establishment, regardless of the medium in which they are found, whether paper, electronic or other.”

66 Mrahi (2017).

67 For more details concerning the prerogatives of the Higher Council of the Judiciary: see the provisions of Organic Law No. 100-13, which came into force under Dahir No. 1-16-40 of 24 March 2016.

68 BO 7099 of 13 June 2022 and entered into force on 14 June 2022.

69 For example, Art 5 of Law No. 80.03 establishing administrative courts of appeal provides that: “Administrative courts of appeal are competent to hear, on appeal, judgments rendered by administrative courts and orders of their presidents unless otherwise provided by law.”

70 Dahir No. 1.22.38 of 30 June 2022 relating to Law No. 38.15 relating to the judicial organisation (BO No. 7108 of 14 July 2022).

country's judicial system covers a variety of jurisdictions, including commercial and administrative courts.⁷¹

In environmental matters, Morocco's judiciary plays a crucial role in safeguarding the environment by addressing violations and ensuring that offenders are held accountable. Courts are expected to protect the environment through judgments that require environmental offenders to pay civil compensation and face punishment according to the law. Moroccan law includes provisions on civil liability for environmental damages, with laws such as Law No. 11.03 on environmental protection, Law No. 13.03 on combating atmospheric pollution, Law No. 28.00 on waste management, and Law No. 36.15 on water.⁷² However, these special laws have had limited success in protecting the environment and public health, as they only address certain types of environmental damage. As a result, the judiciary often relies on broader civil liability provisions to fill the gaps and ensure adequate environmental protection.

5.3.5 Instruments specific to foreign investments

Framework Law 03-22, which forms the Investment Charter of Morocco, is designed to achieve several important objectives, with a focus on creating permanent jobs, reducing regional disparities in investment attraction, and directing investments towards priority sectors. One of the central goals is to increase the share of private investment from one-third to two-thirds by 2035.

The law is divided into several parts that address different aspects of the investment environment. It begins with general provisions, setting the foundational principles and definitions. It then outlines systems and mechanisms to support investment, including additional complementary measures. Investors are granted various legal guarantees and protections under the law. Investment governance is also emphasised, detailing how investments will be managed and overseen. To address potential conflicts, the law includes provisions for dispute settlement. Finally, the law contains miscellaneous and transitional provisions, ensuring a smooth implementation of the reforms.

71 Decree No. 2.23.665 of 10 November 2023 establishing the judicial mapping of the kingdom (BO No. 7260 of 28 December 2023).

72 Art 77 of the Moroccan Code of Obligations and Contracts provides that: "Any act whatsoever, of a person who, without the authority of the law, knowingly and voluntarily causes material or moral damage to another, obliges its author to repair said damage, when it is established that this act is the direct cause. Any stipulation to the contrary is without effect."

5.3.6 Compliance with public law

The principle that “ignorance of the law is no excuse” is a well-established legal doctrine, confirmed by Article 2 of the Moroccan Penal Code. This principle means that individuals cannot avoid responsibility for their actions by claiming ignorance of the law. While there is no formal requirement for citizens to know all laws, the onus is on individuals to inform themselves and abide by the legal rules in place. This obligation extends to all persons on Moroccan soil, including foreigners, as affirmed in Article 6 of the Constitution. The law is considered the highest form of the nation’s will, and all individuals and legal entities, including public authorities, are equal before it and must comply. Public authorities are responsible for creating conditions that ensure the freedom, equality, and participation of citizens in various aspects of life, including political, economic, cultural, and social matters. Additionally, the Moroccan legal framework ensures that laws are clear, published, and adhere to the principles of constitutionality, hierarchy, and the non-retroactive effect of legal standards. This means that laws do not apply to actions that occurred before their enactment, offering a measure of fairness and clarity.

5.3.7 The question of the enforcement of foreign judgments

In Morocco, the execution of foreign court decisions is governed by specific provisions in the Code of Civil Procedure, particularly Articles 430-432. While court decisions are typically executed in the country where they are issued, there are exceptions allowing for their enforcement in other countries, including Morocco. To ensure that the execution of foreign judgments does not interfere with the political, economic, or social order, Moroccan law requires that any foreign judicial decision be recognised through a process called “*exequatur*.” The *exequatur* is a legal procedure by which a foreign judgment or act is formally recognised and made enforceable in Morocco. Before a foreign decision can be executed, it must meet certain requirements in terms of both form and substance.⁷³ Once the *exequatur* is granted, the foreign judgment holds the same legal weight as a domestic Moroccan decision and can be executed according to Moroccan law.

5.3.8 Fair or legal acquisition of land

In Morocco, the right to property is constitutionally guaranteed, though its exercise may be subject to limitations for reasons related to the country’s economic and social

73 Belbachir (2023).

development. Expropriation is permitted only in the cases and forms specified by law. Article 14 of the Code of Real Rights states that property owners have the exclusive right to use, exploit, and dispose of their property, with limitations only imposed by law or agreement.⁷⁴ The land ownership structure in Morocco is diverse, with several categories of property governed by different laws and regulations.

Collective lands are an important category, particularly for ethnic communities. These lands are owned by communities such as tribes, tribal factions, and douars, and are governed by the Dahir of 27 April 1919. These communities are legally recognised under private law, with supervision by the Ministry of the Interior. The total area of collective land is around fifteen million hectares, primarily used for pastures (85%) and agriculture. Collective lands are considered imprescriptible, unseizable, and inalienable, except for transactions with the state, public institutions, local authorities, and other ethnic communities. The governance of these lands is managed by the Naibs (delegates) of ethnic communities, who oversee decisions on transactions and the distribution of collective land benefits.⁷⁵ Administrative delimitation and real estate registration are the main procedures used to manage these lands.

Guich lands are a particular type of property granted to tribes by the sovereigns in return for military services. These lands are still under the supervision of the Ministry of the Interior and are considered inalienable, unseizable, and imprescriptible. They can only be expropriated for public utility.

Habous buildings are properties designated for public or charitable purposes, governed by Muslim law (Maliki rite) and subject to the Dahir No. 1.09.236 of 23 February 2010. These properties are inalienable, unseizable, and cannot be used as collateral or transferred, except under specific conditions.

State lands include both the public and private domains. Public lands, such as roads, shores, and ports, are managed by the Ministry of Equipment and are inalienable and unseizable. State private lands can be sold under specific conditions, but as with public lands, they are inalienable and unseizable unless formally altered.

Melk properties are those owned privately, often through inheritance or contract. These properties can be transferred, seized, and expropriated for public utility.

Buildings in the process of being registered are those undergoing the land registration process, which, once completed, results in a definitive land title governed by the Dahir of 12 August 1913.

Agricultural land ownership is restricted for foreigners. To acquire agricultural land, the land must first be reclassified as non-agricultural, a process requiring a “non-agricultural certificate” from the Regional Investment Centre.

74 Dahir No. 1-11-178 of 22 November 2011 promulgating Law No. 39-08 relating to the Code of Real Rights as amended and supplemented.

75 See <http://www.terrescollectives.ma/>, accessed 7 October 2024.

Morocco's land ownership system, with its various categories and legal frameworks, reflects the complexity of property management and emphasises the protection of collective and public lands.

5.3.9 Fair taxation

The Moroccan tax system is divided into two main categories: state taxation and local taxation. State taxation is governed by the General Tax Code (CGI), while local taxation is regulated by Law No. 47.06, which covers the taxation of local authorities. State taxes in Morocco include income tax (IR), which applies to the income and profits of individuals and partnerships. Corporate tax (IS) targets the profits of companies and legal entities. Value Added Tax (VAT) is levied on consumer spending, while registration fees (DE) and stamp duties apply to specific documents and transactions, such as contracts and property deeds.

To encourage investment and stimulate growth in certain sectors, Morocco offers tax exemptions in some industries, aiming to promote economic development.⁷⁶ The tax system operates on a declarative basis, meaning that taxpayers are responsible for declaring their income and profits. Consequently, tax auditing plays an essential role in ensuring compliance. Audits are conducted by tax inspectors under the General Directorate of Taxes, which operates under the supervision of the Ministry of Economy and Finance. These audits are crucial both as a deterrent against non-compliance and as a means of educating taxpayers about their obligations.

5.3.10 Legal requirements for environmental monitoring

In Morocco, environmental monitoring is primarily the responsibility of the Ministry of Energy Transition and Sustainable Development, under the Secretariat of State responsible for sustainable development. According to Article 10 of the decree that defines the ministry's roles, it ensures the enforcement of environmental legislation by conducting regular checks and inspections, in collaboration with relevant departments.⁷⁷ Environmental monitoring involves both technical and legal processes aimed at ensuring compliance with environmental laws, regulations, and technical standards. It includes scheduled and surprise inspections to verify adherence to legal requirements. The importance of these monitoring activities is influenced by factors such as

76 See https://www.tgr.gov.ma/wps/wcm/connect/24173050-c3f5-44c9-8e95-c8f841f03524/levo-lution_fiscalite_marocaine.pdf?MOD=AJPERES&CACHEID=24173050-c3f5-44c9-8e95-c8f841f03524, <https://www.finances.gov.ma/Publication/dgi/2024/Note-Synthetique-MesuresFiscales2024.pdf>, accessed 7 October 2024.

77 Decree No. 2.14.758 of 23 December 2014.

political will, as expressed in the National Charter for the Environment and Sustainable Development.

However, environmental control is not solely the responsibility of the Ministry of Energy Transition. Other government bodies also play key roles in environmental management. For example, the Ministry of the Interior oversees territorial administration and public security, including the supervision of local authorities, and the Ministry of Agriculture is also involved in certain aspects of environmental governance. Several specialised agencies also contribute to environmental monitoring. The National Agency for Water and Forests is responsible for managing and implementing policies related to forests, sylvo-pastoral resources, wildlife conservation, and desertification control.⁷⁸ Additionally, the water basin agencies monitor water resources, conducting measurements, and studies, and ensuring integrated management of water resources, particularly considering extreme climatic events such as floods and droughts.⁷⁹

To enforce environmental laws, there are several law enforcement agencies. The judicial police handle general environmental violations under the criminal code. The environmental police, established by Article 35 of the National Charter for the Environment, are specifically tasked with monitoring environmental laws, conducting inspections, investigations, and reporting violations.⁸⁰ They work under the government authority responsible for the environment. The water police, meanwhile, focus on violations related to water laws, conducting investigations and reporting breaches in compliance with the water law and its regulations. These police forces, including judicial, environmental, and water police, work together to detect, investigate, and penalise environmental offences.⁸¹

5.3.11 Availability and accessibility of data

The Moroccan government has made strides in managing environmental data, but significant gaps still exist, especially concerning soil data. While various institutions, including agriculture, urban planning, and water and forest agencies, collect and manage sector-specific data, this information is often confined to internal use and lacks centralisation or wide dissemination. Research institutions such as INRA and ICARDA collect data on land use and degradation, yet much of this work remains limited to the efforts of individual researchers rather than comprehensive national initiatives.

The High Commission for Planning (HCP) is the main producer of official statistics in Morocco, but its publications related to soil are minimal, appearing only in certain

78 Law No. 52-20 establishing the National Water and Forests Agency (BO No. 7014 of 19 August 2021).

79 Art 80 of Law No. 36-15 relating to water (Bo. No. 6506 of 6 October 2016).

80 Bo. No. 6366 of 4 June 2015.

81 Art 131 of Law No. 36-15 relating to water (Bo. No. 6506 of 6 October 2016).

speeches or studies, underscoring the need for a more robust data collection and dissemination system on soil issues. Recognising this, the Moroccan government has embarked on an ambitious project to enhance data management, particularly in the public sector, including institutions such as ministries and local authorities. This effort aims to unlock large quantities of data that can be reused across various sectors, benefiting researchers, developers, businesses, and the public. As part of these efforts, the government has launched the national open data portal, managed by the Digital Development Agency (ADD), which allows free access to various data sets. This initiative supports Morocco's commitment to Open Government, enhancing transparency and enabling the creation of innovative services. However, soil-related data remains scarce within this platform, reflecting the broader challenge of collecting and disseminating environmental data.

Additionally, the Moroccan government produces regular reports on the state of the environment, such as the State of the Environment Report (REEM). The most recent edition, REEM4 (2020), is based on the DPSIR framework (Driving Forces, Pressures, State, Impacts, and Responses), which provides a comprehensive analysis of key environmental themes.⁸² Soil is one of these themes, alongside water, air, climate change, and others.⁸³ Despite these efforts, more attention needs to be given to improving the collection, integration, and publication of soil-related data to better address environmental challenges and guide policy decisions.

5.3.12 Expertise and support from research institutions

Morocco has developed significant natural resource and soil management expertise, backed by extensive scientific research. Based on a participatory approach, the State of the Environment Reports involve consultations with various sectors and a national multidisciplinary network that includes universities and research institutes.⁸⁴ This approach helps assess environmental conditions and trends, highlighting the causes and consequences of environmental changes, including challenges that Morocco will face in the future. The report covers seven major environmental areas, such as water, air, soil, marine environments, climate change, and the circular economy.

82 See https://mtedd.gov.ma/index.php?option=com_content&view=article&id=29:4eme-rapport-sur-l-etat-de-l-environnement-du-maroc-version-integrale&catid=13:publications&Itemid=452&lang=en; <https://www.environnement.gov.ma/PDFs/Rapport-reem.pdf>, accessed 7 October 2024.

83 See https://mtedd.gov.ma/index.php?option=com_content&view=article&id=29:4eme-rapport-sur-l-etat-de-l-environnement-du-maroc-version-integrale&catid=13:publications&Itemid=452&lang=en, accessed 7 October 2024.

84 See <https://www.environnement.gov.ma/ar/etat-d-environnement-ar/119-etatenv/3443-rapport-sur-l-etat-de-l-environnement-au-maroc-ar>, accessed 7 October 2024.

Several public institutions, scientific research bodies, and public companies manage different aspects of soil and natural resource conservation. Many of these are overseen by the government's agriculture authority. For instance, the Regional Offices for Agricultural Development (ORMVAs) are responsible for managing irrigation areas, studying land improvements, and advising farmers on modern cultivation and management techniques. Other key institutions such as the National Seed Marketing Company (SONACOS) are involved in the supply of fertilisers, seeds, and seedlings, contributing to soil fertility.

The National Agency for Land Conservation, Cadastre, and Cartography (ANCFCC) manages land registration, conservation, and mapping, playing an essential role in land management. Institutions such as the National School of Agriculture of Meknes (ENA) and the National Forestry Engineering School of Salé (ENFI) train professionals in agricultural and forestry disciplines, supporting sustainable land and resource management. Furthermore, the National Institute for Agricultural Research (INRA) and Hassan II Agronomic and Veterinary Institute (IAV) are dedicated to agricultural research and innovation, developing techniques to improve soil and agricultural productivity.

Other key players include the National Office of Agricultural Council (ONCA), which provides agricultural advice to farmers, and the National Agency for the Development of Oasis Zones and Argan (ANDZOA), which focuses on integrated development in specific agricultural regions. Similarly, the Agricultural Development Agency (ADA) is instrumental in promoting agricultural modernisation and productivity improvement.

The Official Laboratory for Chemical Analysis and Research (LOARC), established in 1914 and restructured in 1984, ensures the quality of agricultural products, fertilisers, and pesticides through chemical analyses, expert appraisals, and research. It also supports the Customs Administration and aligns with international regulatory standards. The National Office for Food Safety (ONSSA), created in 2009, oversees plant, animal, and food safety. It conducts veterinary and phytosanitary inspections, approves agricultural inputs, and ensures food quality, safeguarding Morocco's supply chain and consumer confidence. The National Interprofessional Office of Cereals and Legumes (ONICL), founded in 1937, manages Morocco's cereal and legume markets, maintains security stocks, regulates imports and exports, and supports sector modernisation through studies and market monitoring.

The International Centre for Agricultural Research in Dry Areas (ICARDA) is another significant partner working with Morocco on innovative projects that aim to create sustainable and resilient livelihoods for farming communities. ICARDA's collaboration with Moroccan institutions, especially INRA, has been instrumental in advancing research, particularly in dryland agriculture. Over the years, ICARDA has invested heavily in the country, helping to develop sustainable agricultural practices and contributing to Morocco's "Generation Green 2020-2030" strategy, which aims to

modernise the agricultural sector, improve food security, and boost rural employment, especially for women and youth.

5.3.13 Staff and technical equipment

Soil conservation is a critical issue in Morocco, where there is broad recognition that soil is a non-renewable natural resource essential to economic and social well-being. Agriculture, contributing nearly 15% of GDP and employing around 40% of the workforce, depends heavily on healthy soils. In response, the Moroccan state, companies, public institutions, and civil society have prioritised soil protection and sustainable management. Key initiatives include Law No. 11-03, which establishes mechanisms to safeguard soil from harmful human activities and promote sustainable agricultural practices, and the National Sustainable Development Strategy (SNDD), which sets specific soil conservation objectives aimed at reducing degradation and promoting environmentally friendly techniques. The Green Morocco Plan (PMV) emphasises natural resource management, advocating advanced agricultural technologies and resilient crops to improve soil health, while the Desertification Control Programme works to restore degraded lands and prevent desertification through tree planting and sustainable farming practices. Scientific research institutions play a significant role in supporting these efforts, providing technical expertise and aligning public policies with soil health objectives. The National Committee on Climate Change and Biodiversity, comprising expert members, ensures coherence across national policies addressing climate change, biodiversity, and sustainable development. It coordinates Morocco's commitments under the UN Framework Convention on Climate Change, the Convention on Biological Diversity, the Paris Agreement, and the UN Sustainable Development Goals,⁸⁵ ensuring effective implementation across sectors.

6 Specific information on the legal framework concerning the main factors of soil degradation

6.1 Agriculture

In Morocco, the Useful Agricultural Area (UAA) spans 9,183,375 hectares, dominated by cereals occupying 6.2 million hectares (68%), followed by fallow land (12.5%), fruit growing (8.8%), fodder (2.2%), legumes (2.8%), market gardening (2.6%), and

85 Adopted 25 September 2015, UN General Assembly Resolution A/RES/70/1.

smaller shares for oilseeds (1.2%) and industrial plantations (1.9%).⁸⁶ Forests cover 12.6% of the national territory, equating to 9,132,500 hectares, with natural forests comprising 63.7%, Alfa grasslands 34.9%, and 1.4% artificial plantations. Rangelands extend over 65 million hectares, primarily collective lands characterised by low productivity and spread across various ecological zones, mainly in arid, semi-arid, and Saharan climates, accounting for over 90% of their area.

Morocco's irrigated areas in 2000 totalled 1,004,500 hectares, around 11% of the UAA, with gravity irrigation prevailing (87%) alongside sprinkling systems (13%). Large-scale hydraulics accounted for 672,200 hectares, and small to medium-scale hydraulics covered 332,300 hectares. However, UAA per inhabitant has declined significantly, from 0.732 hectares in 1960 to 0.224 hectares in 2020. This trend, driven by demographic pressures, reduced farm sizes, and land scarcity, compels farmers to seek new lands at the expense of pastoral and forest resources, intensifying cereal cultivation.

Legislation such as Law No. 33-94 addresses soil conservation within bour development areas, aiming for integrated, modern agriculture through participatory planning.⁸⁷ The law delineates zones for agricultural development, pastoral improvement, and soil conservation, mandating operations including clearing, erosion control, and vegetation management (Article 37). Specific measures include planting windbreaks, dune stabilisation, and erosion infrastructure. Sanctions for violations include imprisonment and fines, although enforcement challenges hinder effectiveness (Article 48). The challenges in implementing these provisions stem from their lack of a sufficiently mandatory nature, and the enforcement of the prescribed sanctions has proven to be limited in practice. Despite being relatively dated, this law includes valuable measures for the conservation and development of bour soils (rain-fed agriculture).

Law No. 42-95 regulates agricultural pesticide trade, prohibiting unapproved products and requiring verification of their safety for humans, animals, and the environment. This encompasses a range of products, including herbicides, antiseptics, and plant growth regulators. Despite its rigour, the law's practical impact depends on robust implementation and monitoring mechanisms.

The government authority responsible for agriculture plays a central role in shaping and executing policies for agricultural development. Within the framework of its responsibilities, and in coordination with other ministerial sectors, the ministry ensures the formulation and implementation of government policies for agricultural development and preparation, designs strategies to improve and organise real estate structures in the agricultural sector and implements measures to optimise the use of water resources for irrigation purposes. It also encourages agricultural production and supports

86 See <https://www.agrimaroc.ma/secteur-agricole-au-maroc/>; https://www.ires.ma/sites/default/files/docs_publications/rapport-de-synthese_-avenir-de-lagriculture-au-maroc_-_version-publique.pdf, accessed 7 October 2024.

87 Promulgated by Dahir No. 1-95-10 of 22 February 1995.

professional agricultural organisations within production chains, establishes mechanisms to promote investment in agriculture, and conducts studies and research essential for regional and national agricultural development. The ministry is tasked with drafting and enacting legal and regulatory frameworks for agricultural activities, collecting, analysing, and disseminating agricultural statistics and information, and developing strategies for higher agricultural education, research, and technical or vocational training. Additionally, it participates in free trade negotiations related to agriculture, explores new markets, and promotes plant and animal products. The ministry is involved in implementing studies and projects to transform and add value to agri-food products, monitors national and international markets, agricultural product prices, and production costs, and proposes appropriate intervention measures. It also shapes and implements policies for plant, animal, and food safety nationwide and at border points, while proposing and coordinating rural development policies and ensuring their execution in collaboration with relevant authorities.⁸⁸

6.2 What is more?

The Green Morocco Plan was accompanied by a series of legal and regulatory reforms, leading to a comprehensive overhaul of the agricultural sector's legislative framework. Between 2008 and 2019, more than 22 legal texts and over 4,850 regulatory texts (decrees and orders) were enacted.⁸⁹ The New Green Generation Strategy (2020-2030), with a focus on promoting eco-resilient agriculture, emphasises the adoption of best practices, such as direct seeding on one million hectares, to conserve soil and enhance its sustainability.

Key constitutional and legal reforms in the agricultural sector from 2008 to 2019 include Dahir No. 1-08-85 (2008), which amended Agricultural Credit Law No. 15-99, and Dahir No. 1-09-16 (2009), which established the Agency for Agricultural Development. Other reforms, such as Dahir No. 1-10-187 (2010), led to the creation of the National Agency for the Development of Oasis Zones and Argan Trees, and Dahir No. 1-12-67 (2013) established the National Office of Agricultural Council. Reforms also targeted land status and registration, including Dahir No. 1-11-177 (2011) and Dahir No. 1-19-117 (2019), addressing land registration laws and collective lands in irrigation areas.

⁸⁸ The mandate of the agricultural sector was determined by Decree No. 2.09.168 issued on 25 Jumada al-Awwal 1430 (21 May 2009) specifying the mandate and organisation of the central directorates of the Ministry of Agriculture, Fisheries, Rural Development, Water and Forests, as amended and supplemented.

⁸⁹ See the website <https://www.agriculture.gov.ma/fr/ministere/cadre-juridique>, accessed 7 October 2024.

In the area of agricultural production chains, significant laws include Dahir No. 1-08-56 (2008), which addressed distinctive signs of origin and quality for foodstuffs, and Dahir No. 1-12-66 (2013), which introduced organic production laws. The legal framework also focused on professional organisations and agricultural advisory services, as seen in Dahir No. 1-12-14 (2012) and Dahir No. 1-14-94 (2014), which regulated agricultural and fishing interprofessional organisations and agricultural advisory professions.

Regarding food safety, Dahir No. 1-10-08 (2010) established laws for the health and safety of food products. Complementing these reforms, several regulatory decrees have been issued to implement these laws, including those relating to agricultural credit reform (Decree No. 1.08.85, 2008), the Agricultural Development Agency (Decree No. 1.09.16, 2009), and the National Office for Food Safety (Decree No. 1.09.20, 2009), among others. These reforms collectively contribute to enhancing the agricultural sector's regulatory framework and fostering sustainable development in agriculture.

6.3 The mining sector

Morocco's new mining plan for 2021-2030 seeks to enhance the country's mining sector significantly, aiming to boost transactions—excluding phosphates—from 6.5 billion dirhams in 2020 to 15 billion dirhams by 2030.⁹⁰ This ambitious goal focuses on increasing investments in research and exploration and improving the legal and regulatory framework to attract both foreign and local investments.

Key amendments to Morocco's mining law, introduced in July 2021, are designed to improve the business environment. The changes focus on simplifying procedures for obtaining mining licenses and increasing transparency, making the sector more attractive to investors. Notably, the amendments allow for a second three-year renewal of mining permits, contingent on a program to develop proven mineral resources. This provision is expected to foster more technical studies and advanced exploitation methods.

The law also prioritises the employment of local labour, provided they meet the required qualifications, and encourages the use of locally sourced materials. Additionally, it mandates that local companies be subcontracted under certain conditions, fostering broader economic participation. A significant addition is the creation of a Strategic Minerals Committee, which will determine a list of strategic minerals. This list will be updated annually to reflect both local and global industry needs. To further

90 See https://www.mem.gov.ma/Lists/Lst_rapports/Attachments/30/PPM%20flyer.pdf, accessed 7 October 2024.

enhance exploration and investment, Morocco has also provided new opportunities for the mining areas in Tafilalet and Figuig.⁹¹

Additionally, Law No. 27-13, which came into effect in November 2017, regulates quarry exploitation in Morocco. This law, along with its implementing decree, replaces the outdated Law No. 08-01. It adopts a comprehensive approach to quarry management, emphasising resource optimisation, environmental sustainability, and careful regulation of mining practices, especially concerning natural spaces and communities.⁹²

In Morocco, the implementation of the legal framework governing the mining sector is overseen by the government authority responsible for Energy Transition. This ministry plays a central role in several aspects of the mining sector, ensuring that the sector's development aligns with national strategies and complies with the relevant legislative and regulatory frameworks. The ministry is tasked with supervising and formulating national strategies for the development of geology, minerals, hydrocarbons, and energy, ensuring a coordinated approach across these sectors.

It also monitors companies and public institutions in the mining and energy sectors to ensure compliance with the applicable laws and regulations. The ministry is responsible for managing the country's energy and mineral resources and promoting sustainable development while optimising their use. Additionally, it is involved in the formulation and implementation of policies related to geological research and exploration, ensuring the preservation of Morocco's geological heritage.

The ministry also ensures the safety of individuals and facilities in the energy and mining sectors, contributing to a safe working environment. It strengthens exchanges and consultations with relevant departments and institutions, integrating various stakeholders into the development process. Furthermore, the ministry has established a system to monitor and collect data in the fields of geology, minerals, hydrocarbons, and energy, which is essential for economic analysis and impact assessments. Finally, the ministry supports research, development, and national engineering in geology and mining by training skilled personnel and preparing the necessary infrastructure to foster innovation and growth in the sector. Through these efforts, the ministry ensures that Morocco's mining industry remains robust, sustainable, and well-regulated, contributing to the country's economic growth.⁹³

91 See <https://www.mem.gov.ma/ar/Pages/secteur.aspx?e=7>, accessed 7 October 2024.

92 Dahir No. 1.15.66 of 9 June 2015 containing Law No. 27-13 relating to the exploitation of quarries (Official Bulletin under No. 6374 dated 2/7/2015).

93 See https://mtedd.gov.ma/index.php?option=com_sppagebuilder&view=page&id=59&Itemid=272&lang=ar, accessed 7 October 2024.

7 Recommendations

In conclusion, several key recommendations can be made for the preservation and protection of soil in Morocco:

7.1 The legal framework and public policies

The legal framework for environmental protection should be revised and strengthened. While existing laws contain strong provisions for environmental protection, implementation often faces significant obstacles and gaps. The relevant authorities and stakeholders need to review these laws to make them more practical and enforceable.

A participatory approach should be encouraged in the development of legal texts, incorporating scientific studies that have already been conducted on environmental issues. Additionally, it is crucial to prepare the implementing texts for laws before their publication and consider creating an environmental code that consolidates all relevant legislation into a comprehensive framework.

A specialised jurisdiction for environmental disputes should be established, with magistrates and technicians trained specifically in environmental laws. This would ensure that cases related to environmental issues are handled with the expertise and attention they require. Non-governmental environmental organisations should also be granted the right to plead before these courts.

Looking beyond Morocco, successful foreign models for environmental preservation should be studied and adapted to local conditions. These policies can serve as a basis for the development of more effective and innovative approaches to soil and environmental protection.

Public authorities, especially in industrial cities, should be mandated to use clean technologies in industries, with penalties for non-compliance. This would promote sustainable industrial practices and help protect the environment.

A dedicated authority for soil conservation and protection should be established. This authority would be responsible for coordinating policies impacting soil, collecting data from various stakeholders, and ensuring that efforts in agriculture, urban planning, and industry align with soil protection goals. It would need to work closely with government ministries, public institutions, and scientific research bodies.

Finally, legal mechanisms should be created to allow citizens and civil society to challenge public policies and projects that harm the environment or soil. This could include the right to contest decisions in court when such projects threaten public health and the environment, ensuring that communities have a voice in protecting their natural resources

7.2 Law enforcement, monitoring, access to environmental information, etc.

In terms of law enforcement, monitoring, and access to environmental information, several important actions can be taken. First, World Environment Day should be made a national event to focus on climate change, environmental challenges, and solutions. This occasion can serve as a platform to raise awareness, particularly among children and young people, about critical environmental issues and the need for urgent action.

There is also a need to unify environmental laws into a single, comprehensive legal framework. By making environmental laws easily accessible to researchers, stakeholders, and the public, Morocco can ensure that no one is unaware of their legal responsibilities, thus, promoting legal certainty and better adherence to environmental regulations.

Empowering civil society organisations with sufficient authority is crucial. These organisations play a key role in ensuring environmental protection, preventing pollution, and spreading environmental awareness. Providing them with the tools and support needed to act will help build a more engaged and proactive public.

Finally, creating an institutional and technological system for collecting, disseminating, and utilising data on soil management is essential. This system would allow for a strategic, well-coordinated approach to managing Morocco's soil resources, which are becoming increasingly scarce. By leveraging data effectively, the country can develop a clearer vision of how to protect and sustainably use this vital resource.

7.3 The land

To address the challenges in soil protection and land management, several recommendations can be considered. First, encouraging both domestic and foreign investment in revitalising barren lands could be a key strategy. By offering financial incentives and simplifying procedural requirements, the government can stimulate the restoration of degraded lands, making them productive again while safeguarding soil health.

Next, a review of the collective land management system is crucial. It should incorporate sustainable land management practices and require that any investment project on such lands clearly outline its potential impact on soil. This would ensure that soil protection is integrated into development plans from the start, helping prevent further degradation.

Additionally, there should be a prohibition on the use of forest lands for investment projects, as certain provisions of Moroccan law currently allow such uses. Repealing these provisions would help preserve forested areas, which are essential for maintaining soil health and preventing erosion.

Lastly, the diversity of land tenure systems in Morocco is a significant barrier to creating a unified public policy for soil protection. A mechanism should be developed

to streamline and harmonise land regimes, ensuring that they all align with national goals for soil conservation and sustainable development.

7.4 Foreign investors

To further strengthen soil protection and environmental sustainability, establishing an environmental protection fund is crucial. This fund would focus on investing in environmental projects, providing financial support for initiatives aimed at preserving natural resources and encouraging private sector involvement in these efforts. By securing dedicated funding, the government can ensure that necessary projects receive the financial backing they need to succeed.

Additionally, it is essential to impose a strict prohibition on investment projects on productive land, whether domestic or foreign. This prohibition should be absolute, with no exceptions unless an investment project directly enhances the land's productivity and contributes to its long-term sustainability. This measure would protect valuable agricultural lands from being diverted for other purposes, ensuring they remain available for food production and vital ecological functions.

7.5 The industry

To advance sustainable development, it is crucial to prioritise the decarbonisation of industry in Morocco. This will align the country with global climate goals while positioning it as an attractive destination for responsible investment and eco-friendly production. By adopting cleaner technologies and promoting greener practices, Morocco can enhance its reputation as a leader in environmental responsibility.

Furthermore, promoting sustainable and inclusive industrial development should remain a key focus. Policies that support the integration of small and medium-sized enterprises (SMEs) into industrial value chains can foster regional equity, create sustainable jobs, and empower young people with opportunities in green sectors. This approach ensures that economic growth is balanced, inclusive, and environmentally responsible.

Finally, identifying and classifying productive lands as protected areas is essential. These areas should be shielded from projects that could degrade soil and environmental health, regardless of whether the projects are industrial, construction, mining, or other types. Such protection will ensure that these vital lands remain intact for future generations and continue to serve as the backbone of agriculture, food security, and ecological balance.

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Country report for Mozambique¹

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Abstract

This chapter examines Mozambique's legal framework for environmental protection and soil conservation. It highlights the challenges of soil degradation, with particular emphasis on the lack of dedicated soil conservation legislation. The chapter explores the implications of this gap in the legal framework, discussing how it impacts ecosystem health and sustainable land management. An analysis of the existing legal system reveals significant shortcomings, especially in enforcement and the absence of comprehensive, sector-specific laws addressing soil issues. Specific attention is given to the 1997 Environmental Law and the complexities arising from land tenure systems, particularly the state's ownership of land and the use of DUATs (land-use rights), which complicate the effective implementation of policies.

The chapter also presents key critiques regarding the fragmented application of environmental laws and offers recommendations aimed at strengthening the legal framework, improving enforcement, and introducing specialised laws for soil conservation. It concludes by emphasising the urgent need for a dedicated soil conservation law, particularly considering the growing concerns over land degradation, climate change, and the need for sustainable agricultural practices.

1 This chapter draws from a book chapter authored by Ruppel, Ruppel-Schlichting, Houston & Afua (see Reference List).

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Summary

Mozambique has established a comprehensive and modern legal framework for environmental protection, with constitutional provisions that mandate the state to preserve the environment and ensure citizens' right to a balanced ecosystem. At the core of this framework is the 1997 Environmental Law, regarded as progressive, which has influenced a wide range of environmental legislation, covering areas such as land use, forestry, mining, waste management, and agriculture. The law incorporates important concepts relating to environmental liability and offences, as outlined in Articles 26 and 27, which hold individuals and organisations accountable for causing environmental

damage. Additionally, the law requires Environmental Impact Assessments (EIAs) for projects that might negatively affect the environment, offering safeguards against unsustainable development. A central feature of the law is its emphasis on public education regarding environmental issues, highlighting the need to change harmful practices and encourage sustainable behaviours, as per Article 20.

Alongside the Environmental Law, Mozambique's legal framework includes several sector-specific laws that protect areas such as forestry, mining, and waste management. The establishment of dedicated ministries—such as the Ministry for the Coordination of Environmental Affairs, as well as Ministries for Agriculture and Land—has improved the application of these laws, although challenges persist in fully enforcing them. Mozambique's international commitments to environmental matters further reflect its efforts to align with global standards on sustainability and environmental protection.

However, despite the presence of a comprehensive legal framework, soil degradation remains a significant concern in Mozambique, exposing gaps in the current legislative framework. One critical issue is the lack of specific legislation focused solely on soil conservation. While soil protection is indirectly addressed through broader environmental and constitutional laws, there is a need for a dedicated soil conservation law. A specific law focusing on soil would help fill the gaps in the fragmented regulatory system and provide clearer, more effective guidelines for soil protection, especially in the agricultural sector, which plays a key role in soil degradation. Strengthening the legal framework in this area is crucial in addressing ongoing issues such as soil erosion and land degradation.

Another critical issue is the enforcement of existing laws. Despite having a strong legal framework, Mozambique faces challenges in effective enforcement. A major weakness is the lack of robust mechanisms for enforcement, particularly in areas such as public access to information, licensing fees, and the monitoring of resource exploitation projects. There are also significant concerns regarding the application of land-use rights (DUATs) under the 1997 Land Law, with reports of irregularities in the approval process for large-scale projects. One such case is the gas project on the Afungi Peninsula, where the approval process lacked proper environmental assessments and consultation with local communities, exposing weaknesses in the system's ability to protect environmental and community rights.

Furthermore, although the Environmental Law includes provisions for environmental liability, the vague language surrounding “significant damage” and “particularly dangerous activities” has made enforcement difficult, as it lacks clear thresholds for action. The law also tends to rely on reparations and compensation, which often come too late to prevent environmental harm. The 2014 waste disposal law has also proven inadequate, as its broad approach does not address specific issues including waste reuse and recycling, which are crucial for maintaining soil health in expanding urban areas.

To address these shortcomings, the chapter suggests a multi-faceted approach. First, it advocates for updating and harmonising outdated environmental laws to ensure they meet current needs and challenges. A consolidated environmental code would help streamline the legal framework and improve enforcement. Specifically, revising the 1997 Environmental Law and introducing a dedicated soil conservation law would provide the legal clarity and protections needed to tackle soil degradation in a more targeted way. This would include specific provisions for sectors such as agriculture, mining, and waste management, which are major contributors to environmental harm.

Second, the chapter stresses the importance of improving enforcement mechanisms, particularly by enhancing public access to information, ensuring transparency in land-use allocations, and improving the monitoring of resource exploitation. Tackling corruption, especially in the approval process for projects, and ensuring that local communities are consulted in decision-making are also key to building trust and ensuring effective law enforcement.

Additionally, the chapter highlights the need for greater public engagement and education. Raising awareness about the importance of soil conservation and promoting sustainable practices is vital in changing harmful agricultural methods. Strengthening community participation in environmental governance can help reduce damaging practices and encourage more sustainable land management. Addressing illegal activities, such as unregulated mining and logging, and limiting actions that have high environmental impacts would also protect soil health.

Another crucial recommendation is to secure land tenure for local communities. Since the state holds ownership of land under the current DUAT system, communities often face insecurity regarding their land rights. This insecurity discourages long-term investment in sustainable land management, as land users may focus on short-term profits rather than ecological preservation. By ensuring secure land tenure, Mozambique can empower communities to take responsibility for land conservation efforts.

Finally, the chapter underscores the need to strengthen Mozambique's judicial system to ensure it is adequately funded, independent, and capable of enforcing environmental laws. This includes improving the effectiveness of the EIA process to ensure that it is rigorous and transparent for all development projects.

In conclusion, addressing Mozambique's environmental and soil conservation challenges requires a multi-pronged approach that strengthens both the legal framework and its enforcement. By creating a dedicated soil conservation law, updating existing environmental legislation, enhancing public education, and ensuring transparency, Mozambique can better protect its soil and natural resources. With a commitment to effective implementation and respect for community rights, Mozambique can ensure sustainable development and preserve its ecosystems for future generations.

1 Country information

1.1 Historical background

The first inhabitants of Mozambique were the Khoi-San hunter-gatherers, followed by indigenous communities that introduced agriculture between the first and fourth centuries. Arab traders later established settlements along the coast, integrating the region into the Indian Ocean trade network. Portuguese explorer Vasco da Gama reached Mozambique in 1498, initiating European involvement. After decades of local resistance, Portugal colonised Mozambique until the country gained independence on 25 June 1975. Following independence, approximately 250,000 Portuguese residents left Mozambique, marking a significant demographic shift.

After gaining independence, Mozambique endured a fifteen-year civil war between Marxist guerrillas and anti-communist forces, backed by the Soviet Union and South Africa, respectively.² The war claimed around a million lives, displaced over four million people, and severely hindered development.³ More than two decades were needed to clear landmines, with humanitarian efforts removing over 171,000 mines.⁴ Though the country has experienced 30 years of relative peace, local conflicts persist, and the lingering effects of the civil war still impact Mozambique today.

1.2 Geography and climatic conditions

Mozambique is located in southeastern Africa, stretching over 2,000 km from Eswatini and KwaZulu-Natal in South Africa to Tanzania in the north. It shares western borders with Zimbabwe, Zambia, and Malawi and has a 2,450 km coastline along the Indian Ocean. Covering 799,380 km², 1.62% of the country is water, and 7.2% is arable land.⁵ The capital, Maputo, is located at the southern end of the coastline.

The Mozambican coast extends from South Africa to Tanzania, facing Madagascar across the Channel. It features two major natural bays: Delagoa Bay, where the capital, Maputo, is located, and Sofala Bay in the central part of the country. The southern coast is primarily composed of tall dunes, some reaching heights of 100 meters, along sandy beaches.⁶ In contrast, the northern coast is marked by cliffs, rocky formations, and numerous islands, including the historically significant *Ilha de Moçambique*.

2 See <https://www.cia.gov/the-world-factbook/about/archives/2021/countries/mozambique/>, accessed 23 March 2024.

3 Ibid.

4 See Smith (2015); Gutiérrez et al. (2015).

5 See <https://academic-eb-com.ez.sun.ac.za/levels/collegiate/Article/Mozambique/109711>, accessed 23 March 2024; *CIA Factbook*; <https://data.worldbank.org/indicator/AG.LND.ARBL.ZS?locations=MZ>, accessed 23 March 2024.

6 See <https://aquadocs.org/handle/1834/349>, accessed 23 March 2024.

Mozambique is traversed by numerous rivers, each contributing to its diverse landscape. The Rovuma River defines the northern border with Tanzania, while the Zambezi River flows from Zimbabwe, creating a vast delta before emptying into the Indian Ocean. The Buzi River reaches Beira, and the Limpopo flows into Xai-Xai from South Africa. The Maputo River, originating from the south, enters the capital city. Many of these rivers flow from the eastern highlands to the western coast, forming deltas such as the expansive Zambezi delta.

Mozambique's topography is characterised by a western escarpment and flat lowlands along the coast. The country has notable highland regions, including the Angónia Highlands southwest of Malawi, the Lichinga Plateau near Lake Malawi, the Chimoio Plateau bordering Zimbabwe, and the Marávia Highlands bordering Zambia. These highlands feature a few prominent summits, with Monte Binga, the highest peak, reaching 2,440 meters near the Zimbabwean border. Mount Namuli in the north reaches 2,419 meters, rising from the Chimoio Plateau.

Mozambique has a predominantly tropical climate influenced by the Indian Ocean. Along the coast, the climate is tropical savanna (Aw) under the Köppen classification,⁷ while the northern highlands experience humid subtropical climates (Cwa and Cwb). In contrast, southern highlands are warmer and more arid (BWh and BSh). The country has a dry season from April to September and a wet season from October to March. Annual rainfall varies, with 630 mm in Tete to 1,600 mm in Beira. Temperatures often reach 30°C, peaking at 45°C in Tete, Mozambique's hottest region.

In the southern region of Mozambique, rainfall is scarcer, with Maputo receiving around 815 mm annually. Summer temperatures can climb to 38°C, while winter nights can drop to 10°C. Cyclones frequently impact the country, particularly from December to mid-April. Cyclone Freddy in March 2023 affected over 171,000 people,⁸ causing more than 200 deaths across Mozambique and Malawi.⁹ In January 2021, Cyclone Eloise led to heavy flooding in central Mozambique, destroying over 1,000 homes and affecting 160,000 people.¹⁰ Cyclones Idai and Kenneth in 2019 similarly devastated the Beira region.

7 See <https://climateknowledgeportal.worldbank.org/country/mozambique>, accessed 23 March 2024.

8 See <https://edition.cnn.com/2023/03/12/africa/cyclone-freddy-mozambique-intl/index.html>, accessed 23 March 2024.

9 See <https://apnews.com/Article/cyclone-freddy-mozambique-malawi-climate-change-7a0949c6ea48dec4fa772f5d05c494d5>, accessed 23 March 2024.

10 See <https://www.bbc.com/news/world-africa-55786149>, accessed 24 March 2024.

1.3 Soil classification

Mozambique's soils are diverse, with the northern and central regions being generally more fertile compared to the south.¹¹ The central areas benefit from sediments carried by the Zambezi River. The southern region is less fertile, except for alluvial soils near rivers. Key soil types include Arenosols (sandy soils on the southern coast), Ferralsols (rare in the north), Fluvisols (near rivers), and Leptosols (common in highlands).¹² Lixisols and Luvisols, found in the north, vary in nutrient-holding capacity, while clay and sodium-rich Solonetz soils dominate the south.

1.4 Agro-ecological and livelihood zones

The National Institute of Agronomic Research in Mozambique has classified the country into ten agricultural zones based on rainfall, topography, and soil types as follows:¹³

- R1: Located inland in southern Maputo province, this semi-arid zone receives about 570 mm of rainfall annually, primarily producing cassava, maize, and cattle in sandy soils.
- R2: Situated on the southern coast, this zone also experiences semi-arid conditions with similar rainfall and deep sandy soils, focusing on cassava, cashew nuts, and coconuts.
- R3: North of R1, this arid region has rainfall ranging from 400 to 600 mm per year, with loamy clay soils supporting sorghum and millet cultivation.
- R4: Located inland around Chimoio, this zone sees 1,000 to 1,200 mm of rainfall annually and is characterised by clay soils, producing maize, sorghum, cassava, and cowpeas.
- R5: Encompassing the central coast near Beira and the Zambezi delta, this region receives 1,000 to 1,400 mm of rainfall with vertosols and fluvisols, primarily cultivating rice.
- R6: Following the Zambezi inland, near Tete, this zone has low rainfall (500 to 800 mm) and sandy-clay soils, with millet, sorghum, and cassava as main crops.
- R7: Covering the northern highlands, this zone receives 1,000 to 1,400 mm of rainfall and contains sandy-clay soils, primarily growing maize and sorghum.

¹¹ See Jones et al. (2013); *Britannica*.

¹² See *Soil Atlas of Africa* 50.

¹³ See Walker et al. (2006); <https://fews.net/sites/default/files/documents/reports/MZ%20LHdescriptions%20August%202013%20en3.pdf>, accessed 29 March 2024.

- R8: On the northern coast of Cabo Delgado province, this zone sees 800 to 1,200 mm of rainfall and mainly sandy soils, focusing on cassava and millet production.
- R9: A small area in Cabo Delgado near the Tanzanian border, this zone experiences 1,000 to 1,200 mm of rainfall, with sandy-lime soils growing maize, sorghum, cowpeas, and cassava.
- R10: Located at the borders with Zimbabwe, Zambia, and Malawi, this high-altitude region receives over 1,200 mm of rainfall, featuring hard ferrasols and is known for maize, millet, beans, and potato production.

In addition to the agro-economic zones identified by the National Institute of Agromomic Research, Mozambique has 26 livelihood zones. These zones, defined as areas where communities share similar food sources, income options, and market access, were established by the USAID-backed Famine Early Warning System Network.¹⁴ They serve as a vital tool for identifying and addressing food insecurity in specific regions of the country. The country is divided as follows:¹⁵

- Coastal and Lakeshore Regions: These areas focus on fishing and crops such as cassava, rice, and sugarcane, contributing to local food sources and income.
- Highland Areas: Characterised by mixed cropping and tourism, these regions grow a variety of crops, including maize and tobacco, while also supporting forestry initiatives.
- Northwestern and Central Zones: These regions are crucial to producing staple crops such as maize and cassava, alongside cash crops such as tobacco and cotton. The Zambezi Valley stands out for its fishing activities combined with agriculture.
- Southern Regions: With a mix of semiarid and coastal conditions, these areas engage in cereal production, cattle farming, and fishing, playing a vital role in the country's food security.
- Cross-Border Trade and Economic Activities: Some northern and northeastern regions participate in cross-border trade, enhancing food availability but also complicating food security dynamics due to dependency on external markets.

An analysis has been conducted for each livelihood zone, examining various factors such as local crops, soil types, economic activities, challenges faced by communities, and the main hazards that threaten their livelihoods.

14 See <https://climateknowledgeportal.worldbank.org/sites/default/files/2019-06/CSA-in-Mozambique.pdf>, accessed 28 March 2024.

15 See <https://fews.net/sites/default/files/documents/reports/MZ%20LHdescriptions%20August%202013%20en3.pdf>, accessed 30 March 2024.

1.5 Demographics

In 2024, Mozambique's population was estimated at 36,769,000, with a density of 40.6 people per square kilometre.¹⁶ The birth rate is approximately 36.5 per 1,000 population, while the mortality rate stands at 9.6 per 1,000, resulting in a natural growth rate of 2.54% per year.¹⁷ This demographic data highlights the country's ongoing population growth and its implications for development and resource management.

Mozambique's population is predominantly black African, accounting for over 99% of its inhabitants. In addition to this majority, there are smaller communities of mixed ethnicities, along with people of European, Chinese, and South Asian descent. Among the various ethnic and linguistic groups, the Makua are prevalent in the north, while the Sena and Shona are found in the central region, and the Shagaan reside in the south.¹⁸ This diversity is a legacy of the Portuguese colonial period.

Portuguese is the sole official language of Mozambique, primarily used for official purposes. As of 2017, only 16.5% of the population speaks it as a first language, while 58% can understand it, mostly in urban areas.¹⁹ The most common first language is Emakhuwa, spoken by about 25% of the population, followed by Xichangana (8.6%), and Elomwe and Cisena (7% each). In addition to Portuguese, several languages, including Makhuwa, Sena, Tsonga, Lomwe, and Shona, are recognised.

In 2017, 60.5% of the population over fifteen could read and write, a significant rise from just 37% in 1997. This increase reflects improvements in education, although only about half of the country's children complete primary school. Fertility rates in Mozambique have decreased from 6 to 4.9 children per woman between 1997 and 2017. The median age is 14.5 years in rural areas and 17.6 in urban settings, with a life expectancy of 58.3 years.²⁰ The population is predominantly Christian (56.1%), followed by Muslims (17.9%), and practitioners of traditional religions (7.3%). About two-thirds of the population lives in rural areas, largely reliant on subsistence farming.²¹ The AIDS infection rate among adults was 11.5% in 2022.²²

The Human Development Index (HDI) evaluates a country's economic, human, and social development through life expectancy, education, and gross national income per capita.²³ In 2022, Mozambique ranked 183 out of 193 countries, with an HDI value

16 *Britannica*.

17 *CIA Factbook*.

18 *Britannica*.

19 Instituto Nacional de Estatística, censo 1980, 1997, 2007, 2017.

20 *CIA Factbook*.

21 *Britannica*.

22 See <https://www.unaids.org/en/regionscountries/countries/mozambique>, accessed 30 March 2024.

23 See <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>, accessed 30 March 2024.

of 0.461, comparable to Afghanistan. This highlights significant challenges in both economic and social progress within the country.

1.6 Economy

Mozambique's economy is developing and typical of a low-income country. In 2022, its gross domestic product (GDP) was estimated at USD 18.407 billion in current US dollars and USD 48.707 billion when adjusted for purchasing power parity.²⁴ This translates to a per capita GDP of USD 558.30 and USD 1,477.30, making Mozambique one of the countries with the lowest per capita GDP globally. The national currency, the Metical, is managed by the National Bank of Mozambique in Maputo. GDP growth averaged 7.6% from 1993 to 2015 but has slowed significantly since then.²⁵

1.6.1 Agriculture

Most of Mozambique's population relies on subsistence farming, with approximately 80% engaged in agriculture, contributing only 23% to the nation's GDP.²⁶ Crop yields are often limited, reaching only 30% to 60% of their potential. Maize is the most widely cultivated staple, covering half of the total cultivated area, but only 5% to 30% of farms sell their maize. Cassava ranks second, occupying 19% of arable land, with similar consumption-focused production. Rice, the third-largest crop at 8.73% of cultivated land, primarily comes from small farms averaging 0.5 hectares, leading to substantial imports.

Cash crops include cotton, sugar cane, bananas, and cashew nuts, with cotton mostly farmed by smallholders. Notably, 80% of banana production is exported, while cashew is grown in coastal regions and sugar cane thrives along rivers.

1.6.2 Fishing

Fishing is a vital source of food and income for Mozambicans, supplying half of the country's daily protein and supporting 350,000 livelihoods, representing 2% of the GDP.²⁷ Artisanal fishing dominates, accounting for 90% of production, which reached

24 *The World Bank Factbook.*

25 *World Bank.*

26 Silici et al. (2015).

27 See <https://documents1.worldbank.org/curated/en/342481619154376842/pdf/Fisheries-in-Mozambique-A-Snapshot.pdf>, accessed 15 April 2024.

about 397,200 tonnes in 2018.²⁸ Fishing communities are often small, isolated, and economically disadvantaged.²⁹ As of 2020, there were 377 semi-industrial vessels and 99 industrial ships, with many operations focused on shrimp fishing.³⁰

1.6.3 Manufacturing

Manufacturing in Mozambique began during colonial times but halted in the 1970s due to the exodus of skilled labour and the civil war, which reduced industrial production by two-thirds by 1990.³¹ Since then, limited industrial projects have emerged, such as the Mozal aluminium smelter, which opened in 2000 and uses 45% of the country's electricity while contributing 10% to GDP.³² In 2014, Hyundai established an assembly plant near Maputo,³³ but challenges such as a lack of skilled labour and infrastructure hindered the development of the car manufacturing sector.³⁴

1.6.4 Mining

Mining plays a vital role in Mozambique's economy, with resources such as aluminium, gold, iron, niobium, tantalum, gemstones, clay, coal, natural gas, and titanium being extracted.³⁵ In 2019, Mozambique was the second-largest producer of graphite, contributing 10% of the global supply. Mining accounted for approximately 55% of the country's exports that year, with several coal projects also underway.

28 See <https://ecofish-programme.org/wp-content/uploads/2023/03/ECO-2022-39-Fisheries-Mgmt-MOZ.pdf>, 10, accessed 15 April 2024.

29 See <https://documents1.worldbank.org/curated/en/403651525888008345/pdf/Communities-livelihoods-fisheries-fisheries-governance-and-shared-growth-in-Mozambique.pdf>, 2, accessed 15 April 2024.

30 See *Ecofish*.

31 *Britannica*.

32 See <https://www.news24.com/fin24/economy/mozambique-wants-to-end-cahora-bassa-deal-with-eskom-threatening-sa-power-supply-20240202>, accessed 15 April 2024; Tran (2013).

33 See <https://africanreview.com/manufacturing/industry/hyundai-opens-assembly-plant-in-mozambique>, accessed 25 April 2024.

34 See <https://www.zitamar.com/a-car-that-wont-start-obstacles-to-mozambiques-electric-vehicle-potential/>, accessed 25 April 2024.

35 See <https://pubs.usgs.gov/myb/vol3/2019/myb3-2019-mozambique.pdf>, accessed 25 April 2024.

1.6.5 Energy production

1.6.5.1 Natural gas

The discovery of natural gas has been transformative for Mozambique. The Mamba South gas field, located off Cabo Delgado's coast, was discovered in 2010, holding around 425 billion cubic meters of gas valued at approximately USD 350 billion.³⁶ This sparked significant investment, including a landmark USD 20 billion from Total Energies, Africa's largest foreign investment.³⁷ However, the project faced setbacks due to regional violence, particularly the 2021 attack on Palma, which halted operations.³⁸ By November 2022, Mozambique made its first liquefied natural gas shipment to Europe, but ongoing violence and legal actions against Total Energies raise concerns about the local benefits from gas exploitation.³⁹ Mozambique is expected to gain only about USD 20 billion from the discovered reserves,⁴⁰ illustrating the challenges faced by developing countries amid large foreign investments.

1.6.5.2 Hydraulic power

Mozambique's diverse geography, featuring highlands and rivers, is conducive to hydroelectric power generation. As of 2020, hydropower accounted for 79% of the country's electricity, down from 100% between 1998 and 2012.⁴¹ Access to electricity increased from 3.66% in 1998 to 30.60% in 2020,⁴² with an installed capacity of 2,834 MW in 2021.⁴³ The Cahora Bassa Dam, the largest in Southern Africa at 2,075 MW, primarily exports electricity to South Africa. However, Mozambique plans to redirect this supply for domestic electrification, including a new project at Mphanda Nkuwa expected to produce 1.5 GW.⁴⁴

36 See <https://www.bbc.com/news/business-15386875>, accessed 25 April 2024; <https://www.bbc.co.uk/news/world-africa-22008933>, accessed 25 April 2024.

37 See <https://www.bbc.com/news/world-africa-56886085>, accessed 25 April 2024.

38 See <https://www.bbc.com/news/world-africa-56557623>, accessed 27 April 2024.

39 See <https://www.africanews.com/2022/11/13/mozambican-leader-announces-first-lng-export-shipment/>, accessed 27 April 2024; <https://reliefweb.int/report/mozambique/acaps-briefing-note-mozambique-conflict-cabo-delgado-17-april-2024>, accessed 27 April 2024; <https://www.rfi.fr/en/africa/20240504-french-prosecutors-probe-totalenergies-over-deadly-mozambique-attack>, accessed 27 April 2024.

40 See <https://www.bbc.co.uk/news/world-africa-22008933>, accessed 27 April 2024.

41 See <https://data.worldbank.org/indicator/EG.ELC.HYRO.ZS?locations=MZ>, accessed 28 April 2024.

42 See <https://ourworldindata.org/energy/country/mozambique>, accessed 28 April 2024.

43 See <https://www.trade.gov/country-commercial-guides/mozambique-power-generation-transmission-distribution>, accessed 28 April 2024.

44 See <https://www.news24.com/fin24/economy/mozambique-wants-to-end-cahora-bassa-deal-with-eskom-threatening-sa-power-supply-20240202>, accessed 28 April 2024;

1.6.6 Tourism

Mozambique's stunning tropical coast is increasingly attracting tourists, with the industry projected to contribute 12% to the GDP in 2022.⁴⁵ The country welcomed two million tourists in 2019.⁴⁶ The tourism sector is relatively new, having faced significant challenges during the civil war that restricted access and deterred visitors. As the situation improves, Mozambique is positioning itself as a vibrant travel destination, offering unique experiences along its coastline and rich cultural heritage.

1.7 Internal conflicts

Mozambique has faced ongoing internal conflicts that also significantly impact soil health and land management. After a civil war and a brief peace period, political tensions between the ruling *Frente de Libertação de Moçambique* (FRELIMO) and the *Resistência Nacional Moçambicana* (RENAMO) led to intermittent insurgencies from 2013 to 2021,⁴⁷ alongside an Islamic insurgency in Cabo Delgado since 2017.⁴⁸ These conflicts disrupt agricultural practices, displace communities, and lead to land abandonment, adversely affecting soil health.

Uncertainty regarding land ownership hinders investment in sustainable practices, while increased resource exploitation can degrade soil quality. The instability threatens food security by reducing local agricultural production and increasing reliance on imports. Displacement forces farmers to cultivate larger plots in remote areas for safety, impacting their land management practices.⁴⁹ Understanding these socio-political challenges is essential for effective soil management and sustainability.

<https://www.trade.gov/country-commercial-guides/mozambique-power-generation-transmission-distribution>, accessed 28 April 2024.

45 See <https://360mozambique.com/business/tourism/mozambican-tourism-growth-of-12-in-2022/>, accessed 28 April 2024.

46 See <https://data.worldbank.org/indicator/ST.INT.ARVL?view=map&locations=MZ>, accessed 28 April 2024.

47 FRELIMO secured 52.29% of the vote, while RENAMO received 47.71%. See <https://african-elections.tripod.com/mz.html>, accessed 28 April 2024; Felimao (2014); Bowker (2015); <https://www.aljazeera.com/news/2019/08/mozambique-president-RENAMO-leader-sign-peace-deal-190801115411693.html>, accessed 30 April 2024; <https://allafrica.com/stories/202105210826.html>, accessed 30 April 2024.

48 For a discussion see Warner et al. (2020); Weiss (2019); Love (2023); Karr (2023); Goldbaum (2021); Borges et al. (2024); Corcoran (2020).

49 Temudo & Silva (2012: 433).

1.8 Political system and governance

1.8.1 Constitution

Mozambique gained independence through war, with FRELIMO emerging as both the victor and the ruling party. The 1975 Constitution, drafted by FRELIMO, declared the country a democratic and independent republic, solidifying the party's power.⁵⁰

In 1990, a new Constitution was enacted, recognising FRELIMO's role in the liberation struggle while allowing other political parties to participate, provided they respect the law.⁵¹ The current Constitution, introduced in 2004 and amended in 2018 and 2023, establishes a semi-presidential system where the President appoints the Prime Minister without a parliamentary confidence vote, though parliament can dismiss the government.⁵²

1.8.2 Executive branch

According to the Constitution, the President serves as the head of state, head of government, and commander-in-chief of the armed forces.⁵³ Elected by universal suffrage for a five-year term, the President can serve a second consecutive term and additional discontinuous terms.⁵⁴ The current President is Filipe Nyusi of FRELIMO, first elected in 2015.

The government, or Council of Ministers, includes the President, Prime Minister, and ministers, overseeing national administration with limited legislative power.⁵⁵ Additionally, the Council of State assists the President on matters such as assembly dissolution, general elections, war declarations, or government dismissal, comprising current and former officials and opposition leaders.⁵⁶

1.8.3 Legislative branch

Mozambique has a unicameral legislature known as the Assembly of the Republic, composed of 250 deputies elected through direct suffrage.⁵⁷ This body holds legislative

50 Arts 2-3 of the 1975 Constitution.

51 See Arts 32, 107 & 118 of the 1990 Constitution.

52 Ibid.: Art 159; Shugart (2005).

53 Art 146 of the 2004 Constitution.

54 Ibid.: Arts 147-148.

55 Ibid.: Arts 201 & 203-204.

56 Ibid.: Arts 164 & 166.

57 Ibid.: Art 169.

power, approves the state budget, and oversees government actions.⁵⁸ Currently, FRELIMO dominates the Assembly with 184 deputies, while RENAMO serves as the main opposition party with 60 deputies.

1.8.4 Judicial branch

Since the 1990 Constitution, Mozambique's judicial branch has operated independently, with judges required to uphold the law impartially.⁵⁹ The judiciary comprises various courts, including a Supreme Court, which is the highest court, and an Administrative Court, the highest for administrative matters.⁶⁰

1.9 Legal system

Mozambique's legal system is based on the Portuguese model, characterised by a civil law system where legislation serves as the primary source of law, lacking the binding precedent found in common law.⁶¹ The 2004 Constitution acknowledges legal pluralism, allowing for the coexistence of different legal traditions.⁶² New laws and decrees are officially published in the Bulletin of the Republic.⁶³

2 Soil degradation

2.1 Main drivers of soil degradation

Soil degradation in Mozambique results from rapid population growth and economic activities. As development accelerates, land demand leads to unsustainable practices harming soil health. Climate change exacerbates the issue, with droughts, floods, and cyclones causing erosion and fertility loss. Deforestation for agriculture and artisanal gold mining introduces further environmental degradation, including mercury

58 Ibid.: Art 179.

59 See Massarongo-Jona et al. (2023); Art 217 of the 2004 Constitution.

60 Ibid.: Arts 223 & 227-228.

61 *NYU Law*.

62 Art 4 of the 2004 Constitution.

63 *NYU Law*.

pollution.⁶⁴ These harmful practices threaten agricultural productivity, local ecosystems, and public health, jeopardising the livelihoods of communities reliant on healthy soil.⁶⁵

2.1.1 Agriculture

Agriculture in Mozambique primarily relies on subsistence farming, with 80% of the workforce engaged in this sector.⁶⁶ Unsustainable practices, such as excessive soil tillage and slash-and-burn techniques, contribute to soil degradation through erosion and nutrient depletion.⁶⁷ Research shows that common tillage methods, including using hand hoes, lead to poor soil quality by reducing organic matter and disrupting soil structure.⁶⁸ To mitigate these effects, reducing tillage intensity and maintaining crop residues can improve soil health, enhance fertility, and promote sustainable agricultural practices, crucial for carbon sequestration and ecosystem resilience.

2.1.2 Deforestation

Deforestation is a major problem in Mozambique. From 2001 to 2023, Mozambique lost an estimated 4.30 million hectares of tree cover. This represents a 15% decrease.⁶⁹ A study found that small-scale agriculture was responsible for $46 \pm 17\%$ of total biomass loss, followed by construction and other activities at $24 \pm 11\%$, charcoal production at $18 \pm 9\%$, logging at $9 \pm 5\%$, and commercial agriculture at $3 \pm 2\%$.⁷⁰

The expansion of cropland to accommodate population growth often comes at the expense of forests. Additionally, the rise of commercial farming displaces subsistence farmers, leading to increased deforestation and soil pollution.⁷¹

Timber harvesting in Mozambique, both legal and illegal, contributes significantly to deforestation as communities and private companies seek construction materials and firewood.⁷² Charcoal production, driven by urban demand, further exacerbates forest

64 See Bey et al. (2021); Perreira et al. (2024).

65 See <https://reporting.unhcr.org/files/2023-06/SA%20-%20Mozambique.pdf>, accessed 18 May 2024; https://planipolis.iiep.unesco.org/sites/default/files/ressources/mozambique_vnr_2020.pdf, accessed 18 May 2024.

66 See <https://www.usaid.gov/mozambique/agriculture-and-food-security>, accessed 18 May 2024.

67 See *Britannica*; Perreira et al. (2024); Serrani et al. (2022).

68 See Chichongue et al. (2020).

69 See <https://www.globalforestwatch.org/dashboards/country/MOZ/?category=forest-change&location=WyJjb3VudHJ5IiwTU9aIl0%3D>, accessed 19 May 2024.

70 See Ryan et al. (2014).

71 See Zaehring et al. (2018).

72 See Perreira et al. (2024).

loss, while also serving as a crucial income source in rural areas.⁷³ To combat this issue, Mozambique has launched its National Reforestation Strategy, aiming to develop a forest-based economy that provides alternatives to local populations and reduces pressure on native forests.⁷⁴

2.1.3 Mining

Mining, especially open-pit operations, significantly impacts soil quality in Mozambique.⁷⁵ Both large companies and small-scale miners contribute to soil degradation, with artisanal gold mining posing a notable threat.⁷⁶ The use of mercury in gold extraction is particularly damaging to soil, waterways, and miner health.⁷⁷ Additionally, contamination from arsenic, chromium, and manganese has been detected in soils and groundwater around large mining sites, highlighting the serious environmental and health risks associated with these practices.⁷⁸

2.1.4 Waste pollution

Waste pollution poses a severe threat to soils in Mozambique, as untreated waste is often dumped in landfills.⁷⁹ A National Census in 2017 revealed that 46% of the population burned waste, while others buried it or disposed of it in open areas. This practice leads to soil contamination, especially with heavy metals from solid waste, notably around Maputo's Hulene-B dumpsite, where 1,250 tons of waste are produced daily.⁸⁰ Additionally, hazardous waste from developed countries has been received, including toxic substances, despite a 2019 international convention aimed at addressing the issue.⁸¹

73 See Sedano et al. (2016).

74 See Mbanze et al. (2022).

75 See Perreira et al. (2024).

76 See Rase et al. (2022).

77 See Perreira et al. (2024); Global Assessment of Soil Pollution (2021).

78 See Marove et al. (2022).

79 See Sallwey et al. (2017).

80 See Bernardo et al. (2022); Amad et al. (2020).

81 See Global Assessment of Soil Pollution (2021).

2.1.5 Demographic growth and poverty

Rapid demographic growth and relative poverty in Mozambique significantly impact soil health.⁸² As the population increases, so does the demand for food, leading to expanded agricultural areas and intensified farming practices, which contribute to soil degradation. In Zambezia province, the decline of coconut trees due to disease has forced communities to exploit mangrove resources, worsening soil erosion. The Food and Agriculture Organization (FAO) highlights that these factors create a cycle of environmental stress and vulnerability, emphasising the need for sustainable practices to protect soil and ecosystems.⁸³

2.1.6 Climate factors and natural disasters

Climate factors, particularly droughts and floods, severely impact soil conservation in Mozambique by exacerbating erosion and reducing soil fertility.⁸⁴ The FAO identifies human activities and climate change as the main threats to soil quality, with hydric erosion being a major concern.⁸⁵ Droughts further worsen soil erosion and diminish agricultural productivity, forcing communities to resort to harmful practices. Although Mozambique is not a desert, some regions are becoming drier, increasing the risk of desertification and negatively affecting soil conservation efforts.⁸⁶

2.2 Conclusion

Demographic and economic growth in Mozambique significantly contributes to soil pollution. To address this, two key areas for improvement are stricter controls on companies and enhanced training for local populations. Effective implementation of tighter regulations requires strong policies, regular monitoring, and accountability. Promoting sustainable practices in forestry, agriculture, mining, and charcoal production is essential, particularly in the context of population growth. Increasing droughts and

82 See <https://www.unep.org/news-and-stories/press-release/mozambique-works-break-vicious-circle-environmental-degradation-and>, accessed 27 May 2024.

83 See <https://www.fao.org/mozambique/news/detail-events/en/c/1173887/>, accessed 27 May 2024.

84 See <https://www.npr.org/sections/goatsandsoda/2019/12/27/788552728/mozambique-is-racing-to-adapt-to-climate-change-the-weather-is-winning>, accessed 27 May 2024.

85 See <https://www.fao.org/mozambique/news/detail-events/en/c/1173887/>, accessed 27 May 2024.

86 See <https://www.uncdf.org/Article/8745/our-land-our-future-tackling-land-restoration-halting-desertification-and-building-drought-resilience-at-the-local-level>, accessed 27 May 2024.

desertification risks, combined with deforestation and harmful agricultural practices, further exacerbate soil erosion.⁸⁷

3 Relevant national legislative framework on the main drivers of soil degradation

3.1 Constitution

The 2004 Constitution of Mozambique offers environmental protections, ensuring citizens have the right to a balanced environment and the duty to protect it (Article 90). It mandates state and local authorities to implement policies for safeguarding the environment and promoting sustainable resource use. Article 117 emphasises the state's role in ecological balance and quality of life, outlining policies aimed at preventing pollution and erosion, integrating environmental objectives with sectoral policies, and ensuring the rational use of natural resources for future generations.

Article 102 of the 2004 Constitution allows the government to promote the knowledge and valuation of natural resources while setting conditions for their use and development according to national interests. While it does not explicitly require environmental protection, it provides a framework for the government to establish tighter regulations and control over resource exploitation. This article, in conjunction with others focused on environmental rights and sustainability, can support efforts to protect natural resources and the environment in Mozambique.

In Mozambique, land is state property, as established by Article 109, which prohibits land sales. Article 110 gives the government control over land use, allowing it to regulate sustainably. While not explicitly mandating environmental protection, this authority enables the state to deny permits for harmful projects. Article 111 recognises traditional land rights through inheritance or occupation, balancing land use regulation with these rights. This legal framework presents opportunities for promoting soil conservation and responsible land management in the country.

Article 81 of Mozambique's Constitution empowers citizens to initiate legal actions for environmental protection, reinforcing their role in safeguarding public interests. This provision, included in the 2004 amendment, enhances public accountability and encourages active participation in conservation efforts.

Thus, the Constitution contains multiple commitments to environmental protection and grants the state authority to manage natural resource access and land ownership, supporting sustainable practices. Various laws complement these constitutional provisions to address environmental issues in greater detail.

87 See <https://www.informea.org/sites/default/files/imported-literature/MON-094629.pdf>, accessed 30 May 2024.

3.2 Law No. 19/97 Land Law

3.2.1 Presentation of the law

Mozambique's land ownership system is rooted in its Marxist-Leninist political past.⁸⁸ Article 109 of the Constitution declares that land belongs to the state and cannot be sold. The 1997 Land Law builds on this by establishing a framework where land use is governed through DUATs (*Direito de Uso e Aproveitamento da Terra*), granting rights to individuals or organisations to use land for 50 years, renewable. This law aims to regulate land tenure, promote responsible land use and protect the rights of local communities while aligning with national development objectives (Article 17).

The 1997 Land Law reinforces the state's ownership of land, which cannot be transferred, leased, or mortgaged (Article 3). It establishes the State Land Fund and designates zones of total and partial protection (Article 4). Article 7 restricts land use in critical areas, such as nature reserves, while Article 8 focuses on safeguarding water sources. The law ensures sustainable land use through DUATs, granting usage rights but maintaining state control over land, thereby promoting conservation and responsible land management.

Article 12 outlines three paths for acquiring land in Mozambique: through customary norms by local communities, occupation by individuals in good faith for at least ten years, and legal petitions. Local communities, defined as families living in specific areas, cannot sell their land outright but can permit private individuals to apply for government leases, granting legal access to the land. This framework emphasises protecting community interests while maintaining state control over land usage.⁸⁹

Article 17 of Mozambique's Land Law stipulates that the right to use land for economic purposes is valid for 50 years but can be renewed. In contrast, local communities using the land for habitation or familial exploitation do not have a specified term for their rights. This distinction highlights the government's recognition of community needs while regulating land use for economic activities.

The 1997 Land Law in Mozambique aims to differentiate between local communities and nationals versus large commercial entities, particularly foreign ones. Local communities enjoy protective access to land, while commercial entities face restrictions and fees. Article 28 mandates that land use titleholders must pay fees, whereas national citizens benefit from preferential fees. Article 29 allows free land use for the state, local communities, and small-scale national cooperatives, highlighting a commitment to prioritise community needs over commercial exploitation. A subsequent decree clarified these provisions.⁹⁰

⁸⁸ See *Britannica*.

⁸⁹ McLain (2023: 11).

⁹⁰ *Regulamento da Lei de Terras vigente pelo Decreto* No. 66/98.

In 2010, the 1997 Land Law in Mozambique was amended to include a requirement for local communities to be consulted on land administration and use management (Article 27).⁹¹ The amendment emphasises the active participation of these communities in decision-making processes through local consulting committees, reinforcing their rights and involvement in land-related matters. This change aims to enhance transparency and accountability in land governance, ensuring that community voices are heard and considered in decisions affecting their land rights.

While the 1997 Land Law in Mozambique does not explicitly address environmental issues, the state's ownership and control over land use are crucial for implementing soil protection policies. The government's authority allows it to regulate land use practices that impact soil health, enabling the adoption of sustainable land management strategies that can help mitigate soil degradation and promote environmental conservation. The law's framework supports the integration of environmental considerations into land administration, fostering responsible land use among local communities and national entities.

In 2010, Mozambique established a consulting forum on land to enhance dialogue among stakeholders, focusing on ecological zone conservation.⁹² A 2024 consultation, following previous meetings and the 2022 land policy adoption, aims to modernise the law.⁹³ The reform seeks to improve land access for local communities and nationals while addressing the disconnect between law and practice.⁹⁴ However, concerns have been raised about proposed changes, including land privatisation, restricted access, and weakened guarantees for local communities, alongside calls for stronger environmental provisions.⁹⁵

The application of Mozambique's Land Law remains problematic, with some harmful projects being approved despite commitments to sustainable development.⁹⁶ For instance, the natural gas project on the Afungi Peninsula uprooted a community without clear justification, raising concerns about transparency and local rights. Similarly, mining projects in Tete province have been criticised for disregarding land rights

91 Decree No. 43/2010.

92 Decree No. 42/2010 creating the Consulting Forum on Land.

93 See <https://sibmoz.gov.mz/public-consultations/consulta-publica-do-anteprojecto-da-lei-de-terras/>, accessed 8 June 2024; <https://clubofmozambique.com/news/mozambique-government-approves-new-land-policy-its-implementation-strategy-aim-227836/>, accessed 8 June 2024; <https://naturaljustice.org/wp-content/uploads/2024/01/Moz-Land-Law-Fact-Sheets-2024-1-1.pdf>, accessed 8 June 2024; Resolution 45/2022.

94 See <https://www.dw.com/pt-002/mo%C3%A7ambique-revis%C3%A3o-da-lei-de-terras-em-fase-de-ausulta%C3%A7%C3%A3o-p%C3%BAblica/a-66176444>, accessed 10 June 2024; <https://www.cipmoz.org/wp-content/uploads/2021/10/RELATO%CC%81RIO-RELATIVO-A%CC%80-REVISA%CC%83O-DA-POLI%CC%81TICA-E-LEI-DE-TERRAS.pdf>, 15, accessed 10 June 2024.

95 See <https://naturaljustice.org/wp-content/uploads/2024/01/Moz-Land-Law-Fact-Sheets-2024-1-1.pdf>, accessed 10 June 2024.

96 See <https://www.wri.org/insights/qa-alda-salomao-natural-gas-project-threatens-community-land-mozambique>, accessed 10 June 2024.

and causing environmental degradation. These instances highlight the ongoing challenges in enforcing land and environmental protection laws while balancing economic development and community welfare.⁹⁷

3.2.2 Land tenure insecurity and land registration

Land tenure insecurity in Mozambique stems from the government's nationalisation of land after independence in 1975.⁹⁸ The 1997 Land Law aimed to provide legal recognition of land claims for local communities, allowing them to establish rights either through good faith occupation or customary practices (Article 12). This law sought to protect existing land claims, offering legal support to pre-existing *de facto* tenures, which is essential for ensuring the rights of communities in the face of ongoing development pressures.⁹⁹

Lawmakers in Mozambique faced the challenge of defining customary norms due to the country's diverse ethnic groups. Rather than specifying these norms, the 1997 Land Law was crafted to broadly encompass various customary practices across different regions. Article 12 allows local communities to use customary norms to assert their land rights, while Article 24 empowers them in natural resource management, dispute resolution, and entitlement processes. This flexible approach acknowledges the importance of local customs in land governance.

The inclusion of customary norms in Articles 12 and 24 highlights the lawmakers' recognition of existing land tenure structures in Mozambique. This approach allows the state to manage land tenure effectively without requiring documentation for every individual claim, relying instead on local customs. However, despite these protections, violations of the law have led to issues of land grabbing, undermining the intended security for local communities. The lack of respect for these provisions poses significant challenges for the integrity of land tenure in the country.¹⁰⁰

Land registration remains a critical issue in Mozambique, with over 80% of land held under good faith or customary occupations unregistered.¹⁰¹ Although customary rights are acknowledged in the Land Law, local communities struggle to prove and delineate their land use. Low literacy rates further complicate this process, leaving them vulnerable to exploitation. While long-term use can establish rights, registration

97 See https://www.hrw.org/sites/default/files/reports/mozambique0513_Upload_0.pdf, accessed 10 June 2024.

98 Art 109 of the 2004 Constitution.

99 See Knight (2021).

100 See <https://grain.org/en/article/5137-the-land-grabbers-of-the-nacala-corridor>, accessed 18 September 2024.

101 Balas et al. (2021: 2).

is not automatic and only confirms existing rights.¹⁰² Additionally, the absence of an efficient Land Information Management System (LIMS) hampers efforts to secure equitable land access and tenure.

To address this, two key initiatives were launched: *Acesso Seguro à Terra* in 2010, which aimed to register land in northern provinces and implement a LIMS (SiGIT), and *Terra Segura* in 2015, which aimed to regularise five million land parcels and delimit four thousand communities, with support from the World Bank.¹⁰³

Over four years, *Acesso Seguro à Terra* registered only 200,000 parcels, mainly in urban areas, while *Terra Segura* registered 220,000 parcels and delimited 400 communities by the end of 2016, far short of its goals. The average cost was USD 50 per parcel and USD 10,000 per community. Paper-based forms led to high rejection rates due to data issues such as invalid locations and missing mandatory information. Additionally, conducting community delimitations and individual registrations separately duplicated efforts, raising costs and causing dissatisfaction. The conventional methods were too expensive, slow, and riddled with data quality problems, making it clear that a more efficient and affordable approach was needed to achieve widespread land tenure security.

Despite significant donor investments, Mozambique has been slow to embrace technology for scaling land rights data, integrating systems, and utilising open data tools. The national land cadastre remains largely analogue, opaque, and disconnected.¹⁰⁴ While some issues stem from the SiGIT system, deeper problems include a lack of national standards for cadastral operations, missing and conflicting data, unrecognised community boundaries, political and elite interference, and insufficient human and technical resources. The lack of transparency in the cadastre may reflect both bureaucratic attempts to hide these dysfunctions and efforts to protect skewed land allocations from public scrutiny.

In Mozambique, most formal land administration is managed at the provincial level by the Provincial Services for Geography and Cadastre (SPGC), which maintains cadastral maps and DUAT records. District-based services, such as the District Services for Economic Activities (SDAE) or Infrastructure and Planning (SDIP), primarily handle technical and surveying tasks but often lack access to crucial data stored at the provincial level. As a result, local communities and customary leaders play the primary role in day-to-day land administration.

Recognising that full title registration is not feasible in the medium term, the Mozambican government has initiated the community land delimitation (CLD)

102 “Areas over which a right of land use and benefit has been acquired by occupancy according to customary practices may, when necessary or at the request of the local communities, be identified and recorded in the National Land Cadastre”. Art 9(3) of Decree 66/98; Art 14(2) of the Land Law.

103 Balas et al. (2021: 3).

104 Norfolk et al. (2020: 13).

program as a lower-cost option.¹⁰⁵ Historically, CLD efforts were mainly government-led, but due to financial and capacity constraints, progress was limited. In 2003, international donors launched the Community Land Initiative (*Iniciativa Terras Comunitarias*, or iTC) to promote local economic development through balanced community-investor partnerships and support the registration of community land rights.

The registration process for customarily acquired rights involves a participatory rural diagnosis, where local communities use their knowledge of history, land use, and socio-political organisation to define their community. This approach aims to empower residents by incorporating their insights into the formal recognition of their land rights.¹⁰⁶ At the start of the delimitation process, a consultation takes place, and local leaders claim the land belonging to their community. The technical regulations of the Land Law outline a multi-step delimitation process that begins with information dissemination to ensure all stakeholders are informed.¹⁰⁷ Following this, a participatory appraisal is conducted, allowing community members to engage actively in the process. This is followed by the creation of a sketch and a descriptive report that details the findings. Afterwards, feedback is gathered from participants to refine the process and address any concerns. Finally, the completed delimitation information is entered into the National Land Cadastre, ensuring that all data is officially recorded and accessible.

The SPGC oversees the technical accuracy of the mapping done based on the claims made by each local community. The sketch map realised after consultation with the local community must be approved by the leaders of that community, as well as the leaders of neighbouring communities.¹⁰⁸ The SPGC will store the map (*lançamento*) and issue a certificate (*certidão*), which certifies that the delimitation process was conducted lawfully.¹⁰⁹ This represents an entry into the National Land Cadastre.¹¹⁰

The mapping and cadastre can effectively identify local communities and vacant areas for potential projects. By documenting land rights, local communities are legally protected, although proving these rights without formal certificates can be challenging.¹¹¹ This approach allows for efficient mapping across Mozambique's rural landscape, aligning with the FAO's recommendations to manage communal land use cost-effectively. Instead of detailing each small plot, a larger boundary around villages can secure local land rights collectively, simplifying documentation and management.

In Mozambique, while the 1997 Land Law offers a framework for protecting local community rights, its implementation is lacking, leading to tenure insecurity. Despite

105 Ghebru et al. (2015: 1).

106 See Durang et al. (2004).

107 Ministerial Decision No. 29-A/2000 approving the Technical Annex to the Land Act, Art 5(1).

108 Land Law, Art 12(1).

109 See Durang et al. (2004).

110 Ministerial Decision No. 29-A/2000 approving the Technical Annex to the Land Act, Art 13.

111 Land Law, Art 12(1); Durang et al. (2004).

low literacy rates,¹¹² the law aims to be accessible. However, communities often lack legal protections against government actions that allocate their land to investors.¹¹³ The state's declaration of "unused" land as available for state control exacerbates this issue, undermining communities' efforts to secure their land rights even after successful delineation. This highlights a significant gap between legal provisions and practical enforcement.

Under the customary system, land access is primarily through inheritance, community leaders' allocations, land clearing, buying, or borrowing. Although land markets are legally prohibited, buying and selling land remains a widespread practice. One type of land market is community-based, where private investors negotiate access by providing agricultural produce, building schools or clinics, or employing local labour, often consulting community leaders. The second type is private land markets, which emerged after company privatisations increased demand for land investment. These markets involve internal community transactions, urban buyers acquiring land from rural sellers, or private groups, including foreigners, renting land through local intermediaries.

Political power and economic resources also play a significant role in determining land tenure security in Mozambique. Farmers and residents often depend on money and political connections to secure land for basic needs such as food, livelihoods, and housing.¹¹⁴ As wealthier individuals gain access to more land, the poor are left with fragmented and less fertile plots. This leads to a growing concern among existing landowners that their families and future generations are losing their land while rising population density further complicates efforts by farmers to buy or rent additional land for cultivation.

More than 90% of communities involved in a study on CLD outcomes in Mozambique reported fewer land conflicts, both internally and between neighbouring communities, after undergoing the CLD process.¹¹⁵ Additionally, perceptions of tenure security were significantly higher in CLD communities compared to those that did not participate in the CLD process. Despite the potential to leverage community institutional capacity and integrate local communities into the formal land administration system, the central government has not made this a practical focus, even though officials recognise its importance. Land administration is still viewed as a service provided to communities rather than a collaborative effort. Only recently has the government started to implement the Land Law with rural land users in mind. Before this, the focus of cadastral authorities was primarily on urban housing market transactions benefiting the middle class and facilitating land allocations for external investments in

112 See <https://data.worldbank.org/indicator/SE.ADT.LITR.ZS?locations=MZ>, accessed 18 September 2024.

113 See Knight (2021).

114 *Ibid.*: 7.

115 Ghebru et al. (2015).

agriculture, forestry, and mining.¹¹⁶ Notably, the Mozambican state did not finance any of the hundreds of CLD processes completed by 2015; these efforts were largely driven by NGOs with support from bilateral donors.

3.3 Law No. 19/2007 on Land Use Planning and Territorial Planning

The Law on Land Use Planning in Mozambique governs territorial planning, defining it as the process of creating plans that shape human interactions with their environment.¹¹⁷ This law directly impacts soil conservation. However, the government has identified several land use challenges, including unregulated urban expansion and inadequate spatial planning enforcement; poor supervision and coordination among stakeholders in land allocation; delays in hiring specialised personnel for urban planning and meeting housing demands; construction of homes in erosion and flood-prone areas; establishment of enterprises in unplanned zones; lack of designated spaces for essential infrastructure such as roads, markets, and recreational areas; difficulty in installing drainage systems and utilities in existing neighbourhoods; and rising poverty, vandalism, and deteriorating health and sanitation conditions.¹¹⁸

The law is organised into five chapters: general provisions, territorial management systems, planning tools, citizen rights and obligations, and evaluation, monitoring, and inspections. Its primary goal is to establish a legal framework for land use planning that aligns with constitutional principles.¹¹⁹ Key principles include sustainability, public participation, equal access to land, precaution, minimising environmental impact, public entity accountability, legal security, and transparency.¹²⁰ The law aims to secure local communities' land rights and ensure the preservation of soil fertility and quality.¹²¹ It introduces instruments such as the National Plan for Territorial Development and Special Territorial Planning Plans.¹²²

This law underscores the importance of territorial planning in Mozambique. Between 2006 and 2014, the Community Land Initiative helped secure land for local communities, aiding 679 communities in delimiting and 633 in demarcating their land, covering over nine million hectares by 2016.¹²³ This project empowered communities, allowing them to become key players in local land planning. The government aims to link land regularisation with planning, which offers benefits such as better protection

116 Norfolk et al. (2020: 14).

117 Law No. 19/2007 on Land Use Planning, Art 1.

118 See https://spp-pr.com/conferences/3rdMeeting/pdf/doc_langa.pdf 7-8, accessed 30 September 2024.

119 Law No. 19/2007 on Land Use Planning, Art 2(a).

120 Ibid.: Art 4(a-g).

121 Ibid.: Art 5(2)(a) & (d).

122 Ibid.: Art 10(2).

123 See Monteiro et al. (2017); Carrilho et al. (2024).

of natural resources, reduced resettlement risks, and diminished community conflicts, highlighting the need for proper consultations and assessments for sustainable development.

The 2008 Regulation of the Spatial Planning Law complements the 2007 Land Use Planning Law by establishing a legal framework for national spatial planning instruments. It regulates interactions between various levels of public administration and stakeholders, including representatives from economic, social, and cultural sectors, as well as local communities. This framework aims to enhance collaboration and ensure that diverse interests are considered in the spatial planning process, ultimately promoting effective land use management in Mozambique.¹²⁴

The MOZLAND project focuses on enhancing land tenure security in selected districts while improving the efficiency and accessibility of land administration services.¹²⁵ It aims to regularise two million DUATs (land usage authorisations) and is based on four principles: community participation, prioritising delimitation with land use zoning, a fit-for-purpose “pro-poor” cadastre, and clustering community efforts.¹²⁶ Although the project led to the new legislation, Diploma Ministerial n° 2/2020, it lacks provisions for analysing climate and disaster risks. The government recognises the need for trained personnel, planning to train over 18,000 individuals through the “Ordering My Neighbourhood” program, which focuses on land use planning and climate change awareness.¹²⁷

In 2021, the Mozambican government, through the Ministry of Land and Environment, recognised several challenges in land use planning.¹²⁸ Key issues include the training of technicians and community leaders, effective implementation of territorial planning instruments, enhanced monitoring and inspection, improved inter-sector coordination, the requalification of informal settlements, and better solid waste management and sanitation. Progress is being made through urban structure plans and government support for municipalities, districts, and provinces.

New laws must safeguard the rights of local communities while addressing environmental concerns. Following the issuance of DUATs (land usage authorisations), land use planning becomes essential in regulating land usage. To ensure better representation of local communities and adherence to the principles established in the 2007 Land Use Planning Law, it is crucial to actively involve these communities in the planning process. Furthermore, linking the land register directly with land use planning could enhance transparency and effectiveness in managing land resources.

124 See Santos et al. (2022).

125 See <https://www.fnds.gov.mz/index.php/pt/documentos/publicacoes?task=document.view-doc&id=115>, accessed 23 July 2024.

126 See Carrilho et al. (2024).

127 See <https://spp-pr.com/conferences/5thMeeting/common/pdf/D01-01-04.pdf> 16, accessed 30 September 2024.

128 See https://spp-pr.com/conferences/3rdMeeting/pdf/doc_langa.pdf 10-12, accessed 30 September 2024.

3.4 Law No. 20/97 approving the Environment Act

The 1997 Environment Law (*Lei do Ambiente*) in Mozambique establishes key principles for environmental management, emphasising soil as a critical component of the environment. It defines soil degradation and pollution, characterising desertification as a process resulting from natural and human-induced factors that lead to desert-like conditions.¹²⁹ Erosion is described as the loss of soil due to natural forces and human activities, while pollution encompasses harmful substances that negatively affect the ecosystem.¹³⁰ These definitions aim to enhance the law's effectiveness in addressing environmental challenges.

The 1997 Environment Law establishes a legal framework for responsible environmental management in Mozambique. Article 4 outlines fundamental principles, including a commitment to environmental protection aligned with constitutional mandates. Notably, paragraph 7 introduces the principle of responsibility, holding individuals accountable for environmental pollution or degradation. Additionally, Articles 5 and 6 describe the National Council for Sustainable Development's role as a consultative body to the Council of Ministers, which is responsible for proposing and reviewing environmental protection and natural resource management legislation.

Article 9 of the 1997 Environment Law explicitly prohibits pollution exceeding legal limits, stating that the production, deposition, or emission of any toxic substances that contribute to environmental degradation is not allowed in Mozambique. This strengthens existing commitments in the Constitution and other laws, although it remains somewhat general and necessitates more specific regulations for effective enforcement. Additionally, Article 12(1) bans activities that threaten the conservation and quality of biological resources, thereby supporting soil protection, as certain species play a crucial role in maintaining soil health and preventing erosion.

Article 20 establishes the right to education, requiring the government to implement formal and informal environmental education mechanisms, essential for combating soil degradation caused by improper practices. Article 21 grants citizens the right to seek justice for violations of their rights under this law, while Article 22 allows them to obtain administrative injunctions to stop activities harmful to an ecologically balanced environment. Articles 25 and 26 introduce civil liability and strict liability for those causing environmental harm, ensuring state intervention to prevent significant degradation. Article 27 mandates specific legislation to address environmental infractions.

Together, these articles establish a comprehensive framework for accountability by prohibiting harmful practices, imposing sanctions, and ensuring that responsible parties are held liable for environmental damage. This enforcement mechanism aims to foster greater responsibility among stakeholders. However, the practical

129 Environmental Law, Arts 1(2)(c), 1(7), 1(11) & 1(21).

130 Ibid.: Art 11(13).

implementation of this accountability framework faces challenges due to vague criteria for defining environmental damage and a lack of complementary legislation, which has made civil liability for environmental harm largely ineffective.

As highlighted, the law's use of vague terms such as "significant damage" and "especially dangerous activities" presents challenges for stakeholders attempting to access legal protections. This ambiguity often forces individuals and communities to rely on the Mozambican Civil Code, which necessitates proving fault—a difficult task in environmental disputes. This disparity between the theoretical framework and practical application underscores the pressing need for clearer definitions and more effective enforcement mechanisms to ensure genuine environmental protection.¹³¹

The provision for incentives in the law is a positive step towards promoting environmentally sound practices. However, the absence of detailed regulations means that its potential impact may not be fully realised. Without clear guidelines or frameworks for implementing these incentives, it can be challenging for businesses and communities to understand how to access and benefit from them. Establishing specific criteria, processes, and support mechanisms would be essential to effectively encourage the adoption of sustainable technologies and practices.¹³² This could help bridge the gap between the law's intentions and practical outcomes in environmental protection.

The *Lei de Ambiente* marks a significant advancement in Mozambique's environmental commitments, introducing critical prohibitions against pollution and establishing liability for polluters. These innovations provide a framework for accountability that is crucial for environmental protection. However, the law's general nature and the absence of specific regulations hinder its practical effectiveness.¹³³

The challenges in coordinating this law with industry-specific regulations highlight the need for reform to enhance its implementation.¹³⁴ Strengthening the regulatory framework could ensure that the mechanisms for environmental liability are more actionable, ultimately improving enforcement and compliance. Despite these limitations, the law serves as a foundational element for environmental protection efforts in Mozambique, paving the way for future advancements and reforms.

3.5 Environmental impact assessments regulations

In Mozambique, Environmental Impact Assessments (EIAs) are regulated by a 2006 Ministerial diploma that standardises assessment procedures to evaluate potential

131 See Silveira (2014).

132 Environment Law, Art 31.

133 Silveira (2014: 34).

134 Ibid.: 39.

environmental impacts of proposed projects.¹³⁵ The 2015 decree,¹³⁶ which replaced earlier regulations,¹³⁷ details the criteria for obtaining environmental permits, the public participation process, and the categorisation of activities based on their potential impact. This framework ensures that environmental assessments or exemptions are conducted before project work begins, maintaining essential environmental management principles.¹³⁸

Environmental auditing in Mozambique is governed by a 2011 decree, which establishes an impartial and documented process aimed at ensuring environmental protection.¹³⁹ This decree outlines the procedures for assessing operational practices against the standards in the environmental management plan, including legal requirements for specific projects.¹⁴⁰ Importantly, Article 7(1) mandates annual audits for projects deemed to have a non-negligible environmental impact, ensuring ongoing compliance with environmental standards throughout the project's lifecycle.

Environmental inspections in Mozambique are governed by a 2006 decree,¹⁴¹ which aims to supervise, monitor, and enforce compliance with environmental protection regulations nationwide.¹⁴² For any investment project to gain approval, an environmental inspection must be carried out by the Ministry of Land and Environment. This inspection ensures that the project aligns with existing environmental legislation. Additionally, before authorisation, the project's environmental management plan must be finalised and meet the required standards for environmental protection. This process ensures ongoing accountability for sustainable development.

Public consultation in Mozambique is regulated by a 2006 Ministerial diploma, which ensures maximum participation from stakeholders and those affected during the EIA process.¹⁴³ The law mandates that every project must include public participation, adhering to the procedures outlined in the decree. This process ensures that all relevant parties, including the local communities and stakeholders, can engage in and influence decisions related to the project's potential environmental impacts.

These processes aim to ensure that projects comply with environmental legislation during their planning stages by thoroughly assessing potential impacts. Public participation is a key component, allowing local communities to voice concerns, especially about issues that external parties might overlook. However, while EIAs are meant to safeguard against environmental damage, their practical implementation often falls

135 Ministerial Diploma No. 129/2006.

136 Decree No. 54/2015.

137 Decree No. 45/2004; Decree No. 42/2008.

138 See https://www.agricultura.gov.mz/wp-content/uploads/2024/08/ESIA_BUZI_Final.pdf. *Projecto de fortalecimento da cadeia de valor de arroz na zee-a-l e nos regadios das provincias de sofala e zambézia*, 19, accessed 18 June 2024.

139 Decree No. 25/2011.

140 See *Projecto de fortalecimento da cadeia de valor de arroz*.

141 Decree No. 11/2006: Approves the Regulation on Environmental Inspection.

142 See *Projecto de fortalecimento da cadeia de valor de arroz*.

143 Ministerial Diploma No. 129/2006; See *Projecto de fortalecimento da cadeia de valor de arroz*.

short. Approvals are granted quickly, and post-approval monitoring is sometimes inadequate, leaving environmental risks insufficiently addressed throughout a project's lifecycle.¹⁴⁴

3.6 Criminal Code provisions on environmental damage

The second chapter of the third title of Mozambique's 2019 Criminal Code emphasises environmental crimes. Article 314 penalises illegal mineral exploitation with imprisonment. Article 315 prohibits the handling of toxic substances and the operation of polluting enterprises without an environmental license, also punishable by imprisonment. Article 316 addresses the spread of diseases harming ecosystems, while Article 320 targets environmental negligence. Article 317, reflecting the 1997 Environment Law, imposes penalties of up to two years in prison and fines for discharging toxic substances or degrading the environment.

The recently revised Criminal Code in Mozambique enhances the enforcement of environmental laws by introducing stricter punitive measures. Article 317 builds upon the 1997 Environmental Law by explicitly holding polluters accountable for their actions, bringing them closer to legal prosecution.

3.7 Law No. 16/2014 on Protection, Conservation, and Sustainable Use of Biodiversity

Mozambique's 2014 Conservation Law, along with its 2017 amendment,¹⁴⁵ focuses on the protection, conservation, and sustainable use of biological diversity within conservation areas. It outlines the creation and management of both total conservation areas (with strict protection) and sustainable-use conservation areas (allowing resource extraction within sustainable limits).¹⁴⁶ This legal framework aims to integrate conservation efforts into the country's broader development goals, ensuring the responsible use of natural resources while protecting critical ecosystems. The law also provides detailed guidelines on managing and qualifying these zones.

The 2014 Conservation Law emphasises the recovery and restoration of biological diversity in Mozambique. Article 44 mandates state-led reforestation efforts for degraded areas, while Article 45 holds offenders responsible for ecosystem degradation due to deforestation or fires, requiring them to restore affected areas. However, the reference to "terms and conditions to be determined by proper regulations" limits the

¹⁴⁴ See Salcedo-La Viña (2015).

¹⁴⁵ *Lei de Protecção, Conservação e Uso sustentável da Diversidade Biológica No. 5/2017*.

¹⁴⁶ *Ibid.*: Art 13(3); <https://biofund.org.mz/wp-content/uploads/2017/04/Manual-sobre-a-Aplicacao-da-Lei-de-Conservacao-16-2014-ENG.pdf>, accessed 22 June 2024.

clarity and scope of this obligation, potentially hindering effective enforcement and recovery measures.

The 2014 Conservation Law lays a strong foundation for biodiversity protection in Mozambique. However, its effectiveness hinges on complementary regulations, adequate funding, and skilled personnel. Experts emphasise the importance of effective land-use planning, institutional coordination, community engagement, and private-sector incentives for successful conservation efforts.¹⁴⁷ Collaboration with local communities and investments in training and infrastructure to enhance tourism are also vital for promoting sustainable practices within conservation areas.

The establishment of the National Administration of Conservation Areas in 2014 aimed to enhance the management of these zones. However, while the 2017 amendment improved sanctions for environmental crimes¹⁴⁸ and financing for conservation areas,¹⁴⁹ the law lacks comprehensive soil protection at a national level. Addressing soil degradation necessitates a holistic approach rather than a fragmented strategy confined to specific areas. Effective soil conservation requires integrating practices across all land uses to better address the root causes of degradation.

3.8 Waste disposal legislation

3.8.1 Decree No. 83/2014 approving the Regulation on Hazardous Waste Management

The 2014 Decree on Hazardous Waste Management in Mozambique outlines general rules for hazardous waste disposal, emphasising principles such as producer responsibility, waste prevention, and pollution liability.¹⁵⁰ Article 8 mandates producers, transporters, and operators to minimise waste and ensure its proper treatment, temporary storage, and disposal without harming health or the environment. The decree also includes a list of hazardous wastes in Annex IX. For effective implementation, ongoing monitoring and compliance with these regulations are crucial to safeguard public health and the environment.

The decree also mandates environmental licensing and certification for transporters, requiring all public and private entities to have a management plan for hazardous

147 See <https://biofund.org.mz/wp-content/uploads/2017/03/Interpretacao-da-Lei-de-Conservacao-ING.pdf>, 113, accessed 22 June 2024.

148 Conservation Law, Art 62.

149 Ibid.: Art 8; *Regulamento da Lei No. 16/2014, de 20 de Junho, alterado e republicado pela Lei No. 5/2017, de 11 de Maio, Lei da Protecção, Conservação e Uso Sustentável da Diversidade Biológica*.

150 Regulation on Hazardous Waste Management, Art 4.

waste disposal before commencing activities.¹⁵¹ This ensures proper handling and disposal of hazardous waste, promoting environmental and public health safety.

3.8.2 Decree No. 94/2014 approving the Regulation on Urban Solid Waste Management

Decree No. 94/2014 regulates urban solid waste management in Mozambique, addressing significant soil contamination risks.¹⁵² Article 4 encourages waste minimisation and establishes polluter liability, ensuring public access to waste disposal information. Article 8 requires public and private organisations to develop integrated management plans for waste, following a hierarchy of waste management practices. Once approved, these plans remain valid for five years, integrating waste management into project planning and fostering responsible disposal solutions.

3.9 Mining and oil legislation

3.9.1 Law No. 20/2014 on Mining

The 2014 Mining Law of Mozambique modernises the mining sector and addresses soil protection, recognising mining as a significant cause of soil degradation.¹⁵³ Per Article 4, all mineral resources are state property, and mining requires permits (Article 5), including an environmental license before operations (Article 44(1)(a)). Article 36 mandates that mining holders undertake sustainable development actions, protect the environment, provide information on soil and environmental conditions, and restore damaged areas. Additionally, they must ensure the area is rehabilitated and properly closed after mining activities.¹⁵⁴

The 2014 Mining Law of Mozambique includes provisions for small-scale and artisanal mining, requiring operators to obtain mining certificates and an environmental license before commencing work.¹⁵⁵ Chapter IX focuses on the environmental management of mining activities, emphasising adherence to existing environmental laws

151 Ibid.: Arts 9-11.

152 Regulation on Urban Solid Waste Management, Art 2.

153 Law No. 20/2014 on Mining, Art 3: “The purpose of this law is to regulate the use and re-use of mineral resources in harmony with the best and safest mining and socio-environmental practices and transparency, allowing a sustainable long-term development and the raising of revenues in favour of the State.”

154 Ibid.: Art 44(2)(p).

155 Ibid.: Art 47(1).

and best practices.¹⁵⁶ It mandates the rehabilitation of mined areas, recognising the importance of restoring soils affected by mining operations.¹⁵⁷

3.9.2 Ministerial Order No. 189/2006 regulating the Environmental Management for Mining Activities

Ministerial Order No. 189/2006 aims to minimise environmental damage caused by mining activities.¹⁵⁸ It also aims to ensure that mining activities are conducted using simple methods that avoid air, soil, and water pollution.¹⁵⁹ Article 4 holds the perpetrator liable for cleanup costs in case of spills or damage. Article 5 requires earthmoving operations to be conducted in dry seasons to limit soil erosion. The storage of combustible and contaminated water,¹⁶⁰ as well as toxic substances,¹⁶¹ is also regulated. Article 10 provides that dust production should be minimised, by reducing driving speeds and limiting operations on windy days. The storage and disposal of toxic waste is regulated in Article 12 and the use of chemical products in Article 18. The rehabilitation process is described in Article 17. The cover layer affected by mining activities must be removed by the mine owner.¹⁶² In addition, each site, which suffered negative environmental impact must be rehabilitated and “must be left in a safe, stable, well-drained and maintenance-free state.”¹⁶³

3.9.3 Decree No. 26/2004 on the Environmental Regulations for Mining Activities

Decree No. 26/2004 on Environmental Regulations for Mining Activities aims to establish rules to prevent and mitigate the adverse environmental effects of mining while promoting sustainable development. Article 7 outlines essential environmental management instruments, including EIA, environmental management plans, environmental management programs, risk and emergency control programs, and environmental audits, detailing the function of each instrument to ensure compliance with environmental standards.

Article 18 mandates that mining owners and operators must take appropriate measures for the disposal and treatment of waste, prohibiting the deposition of

¹⁵⁶ *Ibid.*: Art 68.

¹⁵⁷ *Ibid.*: Art 71(1).

¹⁵⁸ Ministerial Order No. 189/2006, Art 1(1).

¹⁵⁹ *Ibid.*: Art 1(2).

¹⁶⁰ *Ibid.*: Art 6.

¹⁶¹ *Ibid.*: Art 8.

¹⁶² *Ibid.*: Art 17(1).

¹⁶³ *Ibid.*: Art 17(4).

hazardous waste in soil or subsoil. Article 20 establishes that they are responsible for any environmental damage caused by mining activities, while Article 21 allows for modifications to the mining project to ensure compliance with environmental laws. Overall, the decree strengthens existing legal commitments, providing the state with tools to monitor mining activities and enforce environmental liability.

3.9.4 Decree No. 56/2010: Environmental Regulations for Petroleum Operations

Oil exploitation in Mozambique is governed by a 2010 decree that mandates an EIA to assess the effects of oil extraction and proposed remedies (Article 12).¹⁶⁴ A rehabilitation plan must also be submitted.¹⁶⁵ Once approved by the authorities, an environmental license is issued, allowing oil extraction to commence. This regulatory framework aims to mitigate environmental impacts associated with oil activities.¹⁶⁶

3.10 Agricultural and forestry legislation

3.10.1 Law No. 17/2023 establishing the Basic Principles and Standards for the Protection, Conservation, and Use of Forestry Resources

Law No. 17/2023 replaces the 1999 Forest and Wildlife Act, focusing on biodiversity protection and sustainable forest use (Article 4). It mandates that local communities engage in forest exploitation according to specific regulations and customary practices while adhering to environmental laws (Article 51). Recognising the importance of forests for soil health, the law imposes a closure period from January to March, prohibiting exploitation. This measure aims to reduce soil degradation, encourage natural regeneration, conserve biodiversity, and safeguard the environment while allowing regulated forest use for community development.¹⁶⁷

The law strictly prohibits illegal logging and mandates that a license is required for any forest exploitation, with penalties, including imprisonment, for those operating without one.¹⁶⁸ Similarly, the illegal export of forest products is punishable by imprisonment.¹⁶⁹ The introduction of this law highlights lawmakers' commitment to forest protection, which is crucial for soil health. The regulations surrounding forest

164 Environmental Regulations for Petroleum Operations, Art 13(1).

165 Ibid.: Art 14.

166 Ibid.: Art 21.

167 Art 34 of Law No. 17/2023.

168 Ibid.: Art 77(1).

169 Ibid.: Art 78(1).

exploitation, especially for local communities, aim to curb illegal timbering practices and promote sustainable use, ultimately safeguarding soil health.

3.10.2 Decree No. 23/2008 approving the Regulation on Land Use Management

Decree No. 23/2008 establishes regulations for land use management, focusing on soil classification to ensure proper land use and ecological preservation.¹⁷⁰ It differentiates soil parcels based on location, human presence, usage, and potential installations, with classifications recorded in a land register (*cadastro*).¹⁷¹ This register documents the ownership of land use rights (DUATs) while maintaining state ownership of the land.¹⁷² The decree also regulates land expropriation, justifying it for soil preservation among other reasons.¹⁷³

3.10.3 Decree No. 6/2009 approving the Regulation on Pesticides Management

Decree No. 6/2009 regulates pesticide management in Mozambique. Article 2 states that the decree aims to “ensure that all processes involving the handling of pesticides are conducted without compromising public, animal, and environmental health.” Additionally, it establishes a registration procedure for pesticides to monitor their use effectively (Articles 3-4). The technical evaluation committee for the registration of pesticides is also created, and it oversees the evaluation, approval, and registration of pesticides, determining the technical conditions to be observed when trading pesticides and imposing restrictions on the use of certain pesticides (Article 6). Article 8 mandates the registration of pesticides, while Article 12 mandates the correct labelling of pesticides. Articles 29 provide guidelines for the transport of pesticides. Articles 41 and 42 provide guidelines for the storage of pesticides.

3.10.4 Decree No. 23/2018 approving the Regulation for the Implementation of Projects to Reduce Emissions from Deforestation and Forest Degradation, Conservation and Increase of Carbon Reserves

Decree No. 23/2018 establishes regulations for implementing projects aimed at reducing emissions from deforestation and forest degradation (REDD+ Regulation).¹⁷⁴ A

170 Regulation on Land Use Management, Arts 5(b) & 51(1)(a).

171 Ibid.: Arts 51(2), 52 & 54(a).

172 Ibid.: Art 5(c).

173 Ibid.: Art 68(2)(b).

174 Regulation for the Implementation of Projects, Art 2.

key objective is to promote sustainable forest management practices, addressing the significant mismanagement contributing to deforestation.¹⁷⁵ By encouraging these methods, the regulation seeks to protect forest ecosystems and enhance soil health, which is directly affected by deforestation activities.

Article 4 outlines several key principles of the decree, including the conservation, prevention, and control of deforestation, as well as the sustainable use of forests and biodiversity. It also emphasises the importance of territorial and environmental management, ensuring the rights of local peoples and communities. Article 5 further promotes the adoption of good practices in sustainable forest management and the conservation and restoration of degraded natural ecosystems, highlighting the law's commitment to environmental stewardship and community rights.

4 Relevant ministries, state institutions, and their responsibilities

4.1 Ministry of Land, Environment, and Rural Development

Created in 2015, the Ministry of Land and Environment focuses on land from an environmental point of view, while the Ministry of Agriculture and Rural Development focuses on land from an agricultural point of view. These two ministries form the second part of the country's policy on soil protection.

The Ministry of Land and Environment oversees various policies related to land administration, forest management, and environmental conservation in Mozambique.¹⁷⁶ Within this framework, the National Environment Directorate focuses on combating soil degradation, managing erosion, and addressing climate change.¹⁷⁷ Additionally, the Department of Environmental Education promotes environmental awareness by integrating these topics into school curricula, highlighting the importance of sustainable practices for protecting soil health and ecosystems.¹⁷⁸

The Ministry of Land and Environment has various missions, including implementing bilateral and multilateral agreements, promoting environmental education, and leading initiatives for soil recovery and management.¹⁷⁹ The judicial cabinet within the Ministry ensures compliance with relevant legislation and proposes necessary legislative measures, allowing for effective feedback to lawmakers and further development of existing laws.¹⁸⁰ This structure enhances the Ministry's ability to address soil degradation and environmental issues comprehensively.

175 See Veldkamp (2020); Regulation for the Implementation of Projects, Art 5(e).

176 Presidential Decree No. 4/2020, Art 1.

177 Ministerial Diploma No. 1/2016, Art 28(1)(i).

178 Ibid.: Art 29(1)(a).

179 Presidential Decree No. 4/2020, Arts 3(c)(xi), 3(c)(vi) & 3(c)(ix).

180 Ibid.: Art 69(1)(a)-(b).

4.2 Ministry of Agriculture and Rural Development

The Ministry of Agriculture and Rural Development was established in 1994 as the Ministry of Agriculture and Fishing.¹⁸¹ Its role is to direct, plan, and implement policies related to land, agriculture, livestock, forests, wildlife, and fisheries.¹⁸² The name changed in 2000 to its current title,¹⁸³ but it underwent two more name changes—becoming the Ministry of Agriculture in 2005¹⁸⁴ and the Ministry of Agriculture and Food Safety in 2015¹⁸⁵—before reverting to the current name in 2020.¹⁸⁶ The Ministry focuses on promoting sustainable development and managing agro-forestry resources.¹⁸⁷

The Ministry has initiated various projects for soil conservation, including the 2023 Food Security and Resilience Project in Mozambique.¹⁸⁸ This project targets areas at risk of soil degradation and aims to enhance agricultural output. Its goals include boosting the resilience and sustainability of natural resources, restoring agricultural production, and improving resource management. It directly benefits 17,500 small producers and 580 public sector professionals, emphasising food availability and integrating resilience into policymaking at national and regional levels.¹⁸⁹

In 2022, the Ministry developed the strategic plan PEDSA 2030 to tackle food scarcity and enhance agricultural development in Mozambique.¹⁹⁰ A key goal for 2023 is to ensure sustainable food production systems and resilient agricultural practices.¹⁹¹ This includes boosting productivity while preserving ecosystems, adapting to climate change, and improving land and soil quality. The plan also promotes agricultural research, particularly in enhancing soil quality information, contributing to both agricultural advancement and sustainable soil conservation practices.¹⁹²

In July 2024, the Ministry launched a project to enhance the rice production value chain in Sofala and Zambézia, part of the Environmental and Social Management Plan (PGAS).¹⁹³ The initiative aims to boost agricultural productivity, improve market access, and support strategic value chain development. A key focus is soil management,

181 Presidential Decree n° 2/1994.

182 Presidential Decree n° 7/1995.

183 Presidential Decree n° 1/2000; Ministerial Diploma n° 161/2000.

184 Presidential Decree n° 13/2005.

185 Presidential Decree n° 1/2015.

186 Resolution No. 3/2020.

187 See <https://www.agricultura.gov.mz/instituicional/ministerio/historial/>, accessed 15 July 2024.

188 See https://www.agricultura.gov.mz/wp-content/uploads/2023/04/FRSP_Plano_Engajamento_Partes_interessadas.pdf, accessed 15 July 2024.

189 *Ibid.*: 2.

190 See https://www.agricultura.gov.mz/documents/PEDSA_VERSAO_LONGA.pdf, accessed 15 July 2024.

191 *Ibid.*: 38.

192 *Ibid.*: 57.

193 See https://www.agricultura.gov.mz/wp-content/uploads/2024/08/ESIA_BUZI_Final.pdf, accessed 15 July 2024.

with objectives to minimise erosion, prevent sediment transport, avoid soil contamination, and maintain productivity. The plan also monitors soil compaction, erosion, and contamination, while optimising the use of fertilisers and pesticides.

4.3 Ministry for the Coordination of Environmental Action

In 1994, the Ministry for the Coordination of Environmental Action was established to enhance sector coordination and promote sustainable use of natural resources in Mozambique.¹⁹⁴ Its responsibilities include directing the implementation of environmental policies, managing resource utilisation, and issuing environmental licenses required for projects as per the EIA Regulations.¹⁹⁵ The Ministry also addresses cross-cutting issues, including poverty reduction linked to environmental development, and oversees action plans aimed at combating soil erosion.¹⁹⁶

5 Relevant policy framework on the main drivers of soil degradation

5.1 Resolutions No. 10/95 on the National Land Policy and No. 11/95 on the Agricultural Policy

In 1995, Mozambique implemented two key policies on land and agriculture through simultaneous resolutions. The Land Policy established a framework for land use, recognising customary land rights while promoting investment.¹⁹⁷ It emphasises sustainable development by mandating the protection of ecologically sensitive areas and advocating for responsible natural resource management (Article 14). This commitment to sustainability is reflected throughout the policy, aiming to align land use with ecological integrity for the benefit of future generations (Article 17). The 2022 draft of the new National Land Policy emphasises environmental sustainability by committing to the rational and sustainable use of land and natural resources. This focus aims to balance development needs with ecological preservation, ensuring that land management practices align with sustainable development goals.

194 Presidential Decree No. 2/94; *Plano de Accao para A Prevencao e Controle A Erosao de Solos*, 18.

195 See <https://www.portaldogoverno.gov.mz/por/Cidadao/Servicos/Estudo-do-impacto-ambiental/Entidade-Responsavel>, accessed 17 July 2024; <http://www.impacto.co.mz/informacao/licenca-ambiental/>, accessed 17 July 2024.

196 See https://www.unpei.org/files/pdf/estudo_sobre_a_an%C3%A1lise_de_instrumentos_econ%C3%B3micos_ambientais_para_a_redu%C3%A7%C3%A3o_da_pobreza_em_mo%C3%A7ambique_140115.pdf, accessed 17 July 2024; *Estudo sobre a Análise de Instrumentos Econômicos Ambientais para a Redução da Pobreza em Moçambique*, Introduction; <https://www.informea.org/sites/default/files/imported-literature/MON-094629.pdf>, accessed 17 July 2024.

197 See Filipe et al. (2017).

The 1995 Agrarian Policy serves as the foundation for Mozambique's agricultural policies, emphasising the sustainable use of resources in Article 17. This commitment to environmental protection aligns with the principles outlined in the Constitution, reinforcing the importance of responsible resource management for both current and future generations.

5.2 Resolution of the Council of Ministers No. 5/95 approving the National Policy on the Environment

The 1995 National Environmental Policy of Mozambique aims to promote sustainable development through poverty eradication, improved quality of life, and reduced environmental damage. It mandates the integration of environmental considerations into all development plans and emphasises community involvement in environmental management. The policy highlights the importance of both formal and informal education to enhance environmental awareness, recognising local communities' knowledge and expertise in promoting sustainable practices.

The 1995 National Environmental Policy establishes strategies for developing key institutions, notably the Ministry for Environmental Coordination. It emphasises effective inter-sectoral coordination, decentralisation, and professional training. Regarding legislation, it prioritises the promulgation and implementation of environmental laws, focusing on the finalisation of EIA regulations and alignment with international commitments. Medium- to long-term actions include building expertise in environmental law, establishing monitoring centres, and advancing academic studies in this field.

The strategy aims to establish an environmental education policy, integrate it into school curricula, and enhance collaboration among ministries, NGOs, and community groups. It promotes local language media programs to raise environmental awareness. For rural development, it emphasises decentralisation to empower local resource management and incentivise agriculture. In urban areas, the focus is on improving sanitation systems, solid waste disposal, and addressing soil erosion through better drainage, education, and limiting deforestation.

The 1995 Environmental Policy laid a crucial groundwork for environmental protection in Mozambique, establishing development axes that include legal frameworks and public education. This policy led to the 1997 Environmental Law, which created the legal structure for environmental safeguarding. Despite these efforts, nearly thirty years later, the country still faces significant environmental threats, particularly concerning soil degradation. Addressing these ongoing challenges is essential for sustainable development in Mozambique.

5.3 Action Plan for the Prevention and Control of Soil Erosion

5.3.1 Presentation and state of soil erosion in Mozambique

In 2007, Mozambique's Council of Ministers approved a plan by the Ministry for the Coordination of Environmental Action to address soil erosion.¹⁹⁸ This plan, crucial for soil protection, highlights existing challenges such as a lack of understanding of the erosion problem, insufficient mechanisms for solution identification, and unclear roles among stakeholders. The initiative aims to establish a comprehensive Soil Erosion Prevention and Control Program, addressing these gaps and enhancing the effectiveness of broader environmental protection legislation.

The document aligns with Mozambique's Environment and Land Laws, addressing erosion from human and natural factors while proposing mitigation strategies. It emphasises the need for preventive measures over corrective actions, identifying poverty as a key driver of soil erosion. The plan acknowledges that limited resources and survival pressures lead to the overexploitation of natural resources, exacerbating environmental degradation. By outlining responsibilities for stakeholders, it serves as a framework for implementing soil erosion prevention and control measures over eleven years.¹⁹⁹

The plan identifies several causes of soil erosion in Mozambique, including deforestation for construction and fuel, uncontrolled burning, subsistence farming on slopes, poor land planning, and overgrazing.²⁰⁰ It emphasises the adverse effects of erosion, such as the loss of topsoil, reduced organic matter, and disrupted soil structure, which together create an unfavourable environment for plant growth.²⁰¹ These insights serve as a foundation for proposing effective solutions to combat soil erosion in the country.

5.3.2 Remedies proposed by the plan

The development plan outlines strategies to combat various types of soil erosion in Mozambique. For laminar erosion, it recommends developing and preserving vegetation, implementing terracing, and utilising specific plants.²⁰² To tackle ravine erosion, the plan suggests constructing dams to redirect water flow.²⁰³ For wind erosion, reforestation, building hedges, and land clearing are proposed. To address coastal erosion caused by waves, the plan advocates constructing breakwater walls or using sandbags

198 Aprovado na 32ª Sessão do Conselho de Ministros, 4 de Dezembro de 2007.

199 *Plano de Acção para a prevenção e controlo da Erosão de Solos*, iv.

200 Ibid.: 8.

201 Ibid.: 10.

202 Ibid.: 12.

203 Ibid.: 14.

secured by tree trunks.²⁰⁴ These methods aim to enhance soil conservation across different landscapes.

The plan includes a comprehensive action strategy for soil restoration in Mozambique. In the short term, it aims to restore 20% of eroded areas by promoting sustainable practices and engaging local communities.²⁰⁵ The medium-term goal focuses on restoring 15% through continued risk area identification and accountability based on the “polluter pays” principle.²⁰⁶ The long-term goal targets a 10% restoration, emphasising the development of specific regulations from existing laws and training for personnel involved in environmental management to enhance capacity and effectiveness.²⁰⁷

The plan outlines a collaborative approach for implementation, designating provincial governments to adapt it locally while enhancing local government resources for public education on soil erosion.²⁰⁸ The private sector is encouraged to adopt socially and environmentally responsible practices, and NGOs are to implement projects and monitor progress.²⁰⁹ Local communities, as primary resource users, are tasked with forming management committees to engage in monitoring and sharing traditional knowledge for effective soil erosion control. This multi-stakeholder approach aims to foster sustainable management of natural resources.

The plan concludes by pointing out that a spirit of cooperation will be needed by the individuals in charge of the implementation of the plan, as well as a consideration of the cross-cutting nature of the erosion problem.

5.4 Resolution No. 15/2020 approving the Government’s Five-Year Programme for 2020-2024

In 2020, Mozambique launched a five-year development plan prioritising sustainable management of natural resources and the environment.²¹⁰ This plan aims to enhance biodiversity conservation by fostering partnerships between communities and the private sector, promoting employment opportunities and income-generating activities. It also emphasises environmental education and the implementation of best management practices. Additionally, the plan includes strengthening oversight of mineral, oil, and energy resource exploitation through systematic inspections to ensure sustainable practices.

204 Ibid.: 15.

205 Ibid.: 30.

206 Ibid.: 31.

207 Ibid.: 32.

208 Ibid.: 34-35.

209 Ibid.: 36.

210 Resolution No. 15/2020.

5.5 National Strategy for Adaptation and Mitigation of Climate Change, 2013-2025

The National Strategy for Adaptation and Mitigation of Climate Change in Mozambique, developed in 2012, emphasises adaptation and climate risk reduction as key national goals. It seeks to minimise the impacts of climate change through low-carbon development initiatives while ensuring that development efforts are not compromised. The strategy outlines short-, medium-, and long-term priorities that align with the country's five-year program.

The strategy emphasises protecting forests and promoting sustainable agriculture to enhance soil protection. It advocates for mechanisms to plant trees and establish local forests to prevent erosion and soil productivity loss. Additionally, the strategy includes developing a national action plan for soil conservation and nutrition, as well as diversifying crops resistant to climate variations. Legal concerns highlight significant limitations on environmental protection, with institutional coordination and the legal framework being key obstacles to effective policy implementation.

The strategy highlights the need for legal and institutional improvements in Mozambique to address climate change effectively. It proposes identifying gaps in existing laws, equipping sectors with necessary tools, and strengthening grassroots institutional frameworks. Training and empowering institutions responsible for monitoring and enforcing regulations are key components, alongside fostering collaboration among various stakeholders. Although its direct impact on soil protection may be limited, implementing the strategy is crucial for safeguarding soil health in the broader context of climate resilience.

5.6 National Fund for Sustainable Development

The National Fund for Sustainable Development, or *Fundo Nacional de Desenvolvimento Sustentável*, was created in 2016. It aims to promote and fund programs and projects that ensure sustainable, balanced, and inclusive development, with a particular focus on rural areas. The fund has multiple responsibilities, including promoting scientific research programs and actions related to sustainable development in rural areas, as well as financing initiatives for environmental management, climate change adaptation and mitigation, sustainable forest management, biodiversity conservation, land administration, and land use planning.

The fund financed different programs over the years. The PERS programme of sustainable rural economy aims to “increase productivity and market access for target beneficiaries and improve natural resource management practices in selected project

areas.”²¹¹ The REDD+ project on forest protection and reduction of carbon emissions is also linked to the fund.²¹²

6 Relevant international environmental commitments

6.1 The African Convention on the Conservation of Nature and Natural Resources

The 1968 African Convention on the Conservation of Nature and Natural Resources, ratified by Mozambique in 1981,²¹³ emphasises the importance of natural resources, soil, and water for public health. It requires parties to create conservation areas, implement measures for threatened species and their habitats, and develop effective soil conservation strategies to address erosion and misuse (Article IV).²¹⁴ While it advanced environmental legislation in newly independent African nations, its effectiveness could have been improved by establishing a central authority to oversee implementation and enforcement across the continent.²¹⁵

Mozambique ratified the updated 2003 version of African Convention on the Conservation of Nature and Natural Resources in 2016, which reflects the transition from nascent to well-established international environmental legislation.²¹⁶ The Convention emphasises the right to a satisfactory environment and obligates states to prevent land degradation and enhance soil quality.²¹⁷ It highlights the importance of local community involvement and recognises their rights in conservation efforts.²¹⁸ Additionally, it mandates measures to protect vegetation cover and²¹⁹ addresses liability for environmental damage.²²⁰ Article XXIV stipulates that the parties must promptly establish rules and procedures regarding liability and compensation for damages related to the issues addressed by the Convention. It remains uncertain whether the liability applies to the states themselves. Some authors argue that assigning financial liability to operators of activities or state parties could serve as a deterrent, potentially leading to changes in future practices.²²¹ They conclude that without sufficient funding and

211 See <https://www.fnds.gov.mz/index.php/pt/nossos-projectos/listagem-de-projectos/21-desenvolvimento-sustentavel/266-mozrural-programa-de-economia-rural-sustentavel>, accessed 23 July 2024.

212 See <https://www.fnds.gov.mz/index.php/pt/nossos-projectos/listagem-de-projectos/redd>, accessed 23 July 2024.

213 Adopted 15 September 1968, entered into force 16 June 1969; Resolution 18/81.

214 See Bowman et al. (2011).

215 Ibid.: 266.

216 Adopted 11 July 2003, entered into force 23 July 2016.

217 Ibid.: Arts II-IV & VI.

218 Ibid.: Art VI(3)(a).

219 Ibid.: Art VIII.

220 Ibid.: Art XIII(1).

221 See Bowman et al. (2011: 292-293).

political commitment to fulfil its obligations, any chance of progress under the 2003 African Convention is likely to be diminished.²²²

6.2 The Bamako Convention on the Prohibition of Hazardous Waste Import and Control of Transboundary Movements of Hazardous Wastes in Africa

The Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa was adopted in 1996 by Mozambique.²²³ It focuses on the management of toxic waste and its effects on human health and biodiversity. The disposal of toxic waste can be particularly harmful to soils. This Convention comes as a complement to the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, focusing on challenges faced by African countries. Many African countries often receive hazardous waste from more developed nations instead of generating it themselves. Additionally, they typically lack the necessary resources and infrastructure to manage and dispose of this waste safely.²²⁴

The Convention mandates that states must ensure access to adequate facilities for the treatment and disposal of hazardous wastes, promoting environmentally sound management. This requirement directly supports soil conservation efforts by minimising contamination risks.²²⁵ The Convention also requires parties to ensure that those managing hazardous wastes take necessary precautions to prevent pollution. This obligation is crucial for protecting the environment and preserving soil health from potential contamination.²²⁶

6.3 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

Mozambique ratified the Rotterdam Convention in 2010 to protect human health and the environment by regulating the trade and use of hazardous chemicals.²²⁷ The Convention bans certain dangerous chemicals²²⁸ and severely hazardous pesticides,²²⁹

222 Ibid.: 295.

223 Resolution n°19/96.

224 See <https://openknowledge.fao.org/server/api/core/bitstreams/fe5df8d6-6b19-4def-bdc6-62886d824574/content/src/html/chapter-12-5.html>, accessed 29 July 2024.

225 Adopted 30 January 1991, entered into force 22 April 1998, Art 4(3)(d).

226 Ibid.: Art 4(3)(e).

227 Adopted 10 September 1998, entered into force 24 February 2004, UNEP/FAO.

228 Ibid.: Art 5.

229 Ibid.: Art 6.

while also restricting their import and export.²³⁰ Annex III contains a detailed list of the restricted substances.²³¹

6.4 Stockholm Convention on Persistent Organic Pollutants

In 2004, Mozambique ratified the Stockholm Convention on Persistent Organic Pollutants. Persistent organic pollutants (POPs) pose a significant risk to soil conservation, as they remain in the environment for extended periods. A substance is classified as persistent if its half-life in the soil exceeds six months, leading to long-term contamination and potential harm to soil health and ecosystems.²³² The third article of the Convention lists the measures parties should take to reduce or eliminate releases of persistent pollutants from international production and use. They include the prohibition of the production of the worst pollutants and the restriction of the production of other pollutants.

6.5 Minamata Convention on Mercury

Mozambique signed the Minamata Convention on Mercury in 2013 and ratified it in 2024. The Convention aims to protect human health and the environment from mercury emissions and releases.²³³ It restricts mercury mining²³⁴ and the trade of mercury-added products.²³⁵ Key provisions include reducing mercury use in artisanal gold mining, minimising emissions, regulating mercury waste disposal under the Basel Convention, and managing contaminated sites.²³⁶ These measures are essential for safeguarding both public health and the environment.

6.6 UN Convention to Combat Drought and Desertification (UNCCD)

Mozambique ratified the UN Convention to Combat Drought and Desertification in 1996,²³⁷ which emphasises the need for an integrated approach to address desertification and drought. It mandates the establishment of strategies to combat these issues,

230 Ibid.: Arts 10-11.

231 Ibid.: Art III.

232 Adopted 22 May 2001, entered into force 17 May 2004, Annex D(1)(a)(b)(i).

233 Adopted 10 October 2013, entered into force 16 August 2017, Art 1.

234 Ibid.: Art 3.

235 Ibid.: Arts 4-5.

236 Ibid.: Arts 7, 9 & 11-12.

237 Resolution n°20/96.

promote local participation, and enhance relevant legislation.²³⁸ Droughts, a frequent occurrence in Mozambique,²³⁹ are significant contributors to economic losses.²⁴⁰ Reports from 1999²⁴¹ and 2004²⁴² highlighted the need for a national action plan and identified insufficient funding as a critical barrier to implementation.

6.7 Convention on the Protection of Wetlands

The Convention on the Protection of Wetlands was adopted by Mozambique in 2003.²⁴³ It acknowledges the ecological significance of wetlands for biodiversity. As a unique type of soil, wetlands must be protected due to their role in regulating water systems and supporting distinctive plant and animal life.²⁴⁴ The parties to the Convention are required to develop and execute plans that promote the conservation of wetlands on the list and, whenever possible, ensure their sustainable use within their territories.²⁴⁵

6.8 UN Convention on Biological Diversity

The UN Convention on Biological Diversity was signed by Mozambique in 1992 and ratified in 1995. The Convention mandates that states develop or adapt national strategies, plans, or programs focused on the conservation and sustainable use of biological diversity.²⁴⁶ It also emphasises the need to integrate these goals into relevant sectoral or cross-sectoral plans, programs, and policies as much as possible and as appropriate.²⁴⁷

The 6th national report on the implementation of the convention on biological diversity in Mozambique was published in 2019.²⁴⁸ It emphasises the structural challenges Mozambique encounters in biodiversity conservation while noting that recent

238 Ibid.: Arts 4-5.

239 Adopted 17 June 1994, entered into force 26 December 1996.

240 See https://www.ais.unwater.org/ais/pluginfile.php/601/mod_page/content/25/Mozambique_2.pdf, 4, accessed 30 July 2024.

241 See <https://www.unccd.int/sites/default/files/prais-legacy/Mozambique/1999/Mozambique%20-%20ACP%20-%201999%20eng.pdf>, accessed 30 July 2024.

242 See <https://www.unccd.int/sites/default/files/prais-legacy/Mozambique/2004/Mozambique%20-%20ACP%20-%202004%20eng.pdf>, accessed 30 July 2024.

243 Resolution n°45/03.

244 Adopted 2 February 1971, entered into force 21 December 1975, Preamble.

245 Ibid.: Art 2.

246 Adopted 5 June 1992, entered into force 29 December 1993, Art 6(a).

247 Ibid.: Art 6(b).

248 See <https://www.cbd.int/doc/nr/nr-06/mz-nr-06-en.pdf>, accessed 30 July 2024.

legal and political reforms in the forestry sector and biodiversity conservation have gradually enhanced efforts to protect biodiversity.²⁴⁹

7 Environmental crimes and application of the law

7.1 Illegal logging

Illegal logging has become a significant issue in Mozambique, contributing to environmental degradation. In recent years, several hundred cases have been opened annually, primarily focusing on illegal activities related to mineral resource exploitation, poaching, and logging.²⁵⁰ These cases highlight the ongoing challenges in enforcing environmental laws and protecting the country's natural resources. Logging and mining significantly impact soil conservation in Mozambique. To address these issues, USAID has offered training for judges to enhance their understanding of environmental laws. This initiative aims to prevent wildlife trafficking and strengthen the country's legal and judicial systems, ultimately supporting better enforcement of regulations related to natural resource management.²⁵¹

Mozambique's illegal logging problem is aggravated by corruption and suspected links to insurgent financing, despite government efforts to address it.²⁵² The Environmental Investigation Agency (EIA) published a report revealing a sharp decrease in forest cover, from 88% in 1980 to 43% in 2020.²⁵³ The EIA's recommendations for improving forest management include revising the Forest Code, implementing anti-corruption measures, enhancing the training and selection of forest guards, and enforcing stricter penalties for high-level offenders. These steps are vital for protecting both Mozambique's environment and its institutions.

7.2 Illegal mining

Mining concessions are expected to be granted through a comprehensive legal process; however, there have been instances where this process has been bypassed, resulting in

249 Ibid.: xiii.

250 See <https://clubofmozambique.com/news/mozambique-845-environmental-crime-cases-opened-in-the-last-12-months-221989/>, accessed 30 July 2024; See <https://ocindex.enactaf-rica.org/country/mozambique>, accessed 30 July 2024.

251 See <https://www.usaid.gov/mozambique/document/spotlight-justice-bringing-environmental-criminals-court>, accessed 18 September 2024.

252 See <https://www.bbc.co.uk/news/Articles/c51nnzzkpkkyo>, accessed 30 July 2024.

253 See https://eia.org/wp-content/uploads/2024/06/EIA_US_Mozambique_Timber_Report_0424_FINAL_SINGLES-5-13.pdf, accessed 30 July 2024; <https://openknowledge.worldbank.org/server/api/core/bitstreams/e05de39a-1acb-5187-99fb-daf66c4b9a74/content>, accessed 31 July 2024.

concessions being awarded without proper procedures.²⁵⁴ The Africa Organised Crime Index project, supported by the US and the EU, noted that in Mozambique, mining concessions are frequently held by individuals with political ties, and the processes for mineral production and export lack transparency. While illegal mining operations present a significant challenge, the problematic issuance of legal mining permits raises concerns about law enforcement and government transparency.

The Centre for Public Integrity published a report on the effects of illegal mining in Mozambique in 2024.²⁵⁵ It exposes different cases of illegal mining with disastrous consequences on the environment. The report's conclusions criticise the Mozambican government for failing to enforce environmental laws and uphold its commitments. It states that protecting the environment has not been a priority for authorities. Documented cases reveal severe environmental abuses occurring openly, raising serious questions about the state's role in safeguarding fundamental rights. The report highlights the extreme measures taken, such as blocking natural watercourses for extractive industries, often with little benefit to the state or local communities. It emphasises that despite having laws and ratifying international agreements, the lack of implementation undermines both current and future survival.²⁵⁶

The report recommends that the Mozambican government strengthen its fight against corruption and establish conditions for effective monitoring and penalisation of offenders.

Environmental case law appears to be limited and fails to address certain offences highlighted in the reports, suggesting underlying issues of corruption.

8 Cross-cutting issues

8.1 Customary dispute resolution

8.1.1 Traditional authorities

Traditional authorities in Mozambique hold a significant position in managing land issues, especially within the framework of the 1997 Land Law, which acknowledges local communities as vital stakeholders in land tenure.²⁵⁷ The complexities surrounding their authority raise important questions about governance, representation, and decision-making processes regarding land use and management.

254 See https://ocindex.enactafrica.org/assets/downloads/2023/english/ocindex_summary_mozambique.pdf, 4, accessed 31 July 2024.

255 See <https://www.cipmoz.org/wp-content/uploads/2024/02/Extractivismo-que-destrói-o-ambiente-.pdf>, accessed 31 July 2024.

256 *CIP Extractivismo que destrói o ambiente*.

257 Aminaka (2022: 120).

Traditional leaders, such as the *régulo*, oversee communal lands and facilitate land allocation, often acting as intermediaries between local communities and external investors. While these authorities can strengthen social networks and foster trust, they can also operate as criminal organisations that enforce social order through vigilantism. This duality complicates their role in local governance, where they might support community interests or align with external political agendas.

For example, in Nampula Province, the *muene*, a lineage-based chief, has a matrilineal inheritance system that provides a counterbalance to the more centrally appointed *régulo*, established during colonial times.²⁵⁸ This independence allows the *muene* to handle familial and land-related matters autonomously, while the *régulo* often echoes colonial practices by facilitating the interests of agricultural companies.

Following the civil war, Mozambique's governance structure experienced a crisis of authority, particularly for the ruling FRELIMO party.²⁵⁹ The state recognised traditional chiefs to restore legitimacy in areas with weak state presence, leading to a politically charged environment where traditional leaders' roles became entangled with political power dynamics.²⁶⁰ The post-war context allowed traditional authorities to fill governance gaps, but it also meant they could be easily manipulated for political ends.

The recognition of legal pluralism in Mozambique through the 2004 Constitution in Article 4 acknowledges the coexistence of various legal systems, provided they align with constitutional values. However, defining who constitutes a "community" remains ambiguous, often relying on customary norms and historical leadership structures.²⁶¹ This vagueness can complicate negotiations with outside investors, as determining legitimate representation is fraught with challenges.

While Mozambique's Land Law protects smallholder land rights based on customary use without formal documentation, there are no local institutions such as Tanzania's village councils to represent these rights effectively.²⁶² This absence raises questions about who legitimately represents communities during negotiations, often leaving them vulnerable to exploitation by investors.

Moreover, the formal recognition of traditional leaders has intensified competition among individuals seeking authority, leading to struggles over land control and allocation.²⁶³ This dynamic is emblematic of a broader resurgence of customary practices across Africa.²⁶⁴ In Mozambique's pluralistic legal landscape, individuals can petition both state and customary institutions to legitimise their land claims, sometimes resulting in overlapping claims to the same land, further complicating the governance landscape.

258 Ibid: 125-126.

259 See Alexander (1997: 20).

260 Aminaka (2022: 120); Patrício (2022: 14).

261 Regulation of Decree 15/2000, Art 8.

262 Walker (2020: 324-325).

263 Ibid; Buur (2006: 10).

264 Walker (2020: 324).

Also, various community authorities, such as neighbourhood secretaries and chiefs, perform similar duties, leading to confusion.²⁶⁵ Decrees No. 15/2000 and 11/2005 address their roles, but differing sources of legitimacy result in inconsistent actions.

To ensure effective land management and community protection, traditional authorities must maintain their independence while being held accountable to their communities. They should not merely serve as representatives of the ruling party, as this compromises their ability to act in the best interests of their constituents.

Recognising the rich cultural and legal diversity in Mozambique is crucial. The government must actively regulate legal pluralism to ensure that customary practices are respected while aligning with progressive values that promote democratic representation and accountability. By addressing these challenges, Mozambique can foster sustainable land governance that empowers local communities and protects their rights in the face of external pressures.

8.1.2 Community courts

Traditional authorities play a crucial role in resolving land disputes and managing customary norms in Mozambique. They mediate conflicts related to land allocation, family matters, and community issues.²⁶⁶ While considered informal by Western standards, their legitimacy stems from local customs. These authorities provide immediate and culturally relevant justice, fostering a collective approach that adapts to the community's context. This system emphasises honour and dignity, helping maintain social order within the community. Strengthening these traditional mechanisms can enhance access to justice and improve land governance.

Community courts in Mozambique, established in 1992,²⁶⁷ facilitate local dispute resolution using customary laws.²⁶⁸ These informal justice bodies focus on minor conflicts, enriching Mozambican law through community practices.²⁶⁹ Operating independently from formal judicial systems, they offer accessible and culturally relevant solutions, prioritising preventive measures.²⁷⁰ While they provide vital access to justice for marginalised populations, the lack of oversight can lead to power abuses, potentially compromising fairness and justice. Balancing traditional practices with accountability is essential to ensure the effectiveness of these courts.²⁷¹

The lack of regulation of Mozambique's 1992 law establishing community courts has led to an incomplete legal framework, allowing unofficial justice traits to

265 Patricio (2022: 14).

266 See Kaarhus et al. (2015: 201); Meneses (2005: 21).

267 Law No. 4/92.

268 See Trindade et al. (2006: 119).

269 Utter (2021: 175).

270 Ibid.: 152.

271 Ibid.: 176.

dominate.²⁷² Critics argue that the ruling FRELIMO party politicised the courts by influencing appointments and decision-making processes, filling judicial vacancies with party affiliates.²⁷³ By not establishing a comprehensive legal framework for these courts, FRELIMO allegedly maintained control over customary law, preventing the rise of a legal system that could challenge its political power. This manipulation risks undermining the courts' effectiveness and legitimacy.

The issue of judicial appointments in Mozambique's community courts is significant. Although Law No. 4/92 mandates that judges should be elected, the absence of regulations has prevented elections from occurring. Initially, judges from the previous Popular Courts stayed in office, but over time, they were replaced by judges connected to the ruling FRELIMO party. This practice diminished public trust in the courts, leading to the establishment of parallel courts in areas dominated by RENAMO. The lack of an appeal process and the seasonal disruptions of open-air courts further weakened their effectiveness and public confidence.²⁷⁴

Mozambique's Constitution recognises legal pluralism in Article 4, allowing multiple legal systems, including customary law, but without specifying which laws are included. This vague framework has enabled the FRELIMO party to codify customary laws and exert control over community court operations.²⁷⁵ High costs, long distances, and poor transportation hinder citizens from challenging these decisions in formal courts.²⁷⁶ The lack of integration between customary and statutory systems, particularly the absence of communication and appeals, limits community courts' effectiveness, making communities vulnerable to land disputes and government manipulation.²⁷⁷ Integrating these courts into the judicial system could enhance access to justice and reduce political interference.

8.2 Public participation

In Mozambique, the population suffers from soil degradation while also contributing to it. The state needs to enforce environmental legislation to address this issue, emphasising public participation. Although many laws promote environmental education, there is a need for legal frameworks that secure public involvement in environmental decision-making. Involving communities in creating environmental laws is essential to successfully combat harmful practices such as illegal mining and logging, ultimately reducing soil degradation.

272 See Gomes et al. (2006: 206).

273 See Utter (2021: 154 & 159-160).

274 Ibid.: 161.

275 Ibid.: 168.

276 See Open Society (2006: 15).

277 See Utter (2021: 172, 175 & 183); Trinidad (2006: 133).

Environmental democracy faces significant challenges in Mozambique, particularly regarding public participation in environmental decision-making. There is an urgent need to legally ensure citizens' rights to engage in processes affecting their lives.²⁷⁸ While access to information is vital, it is equally important for the public to be involved in creating environmental laws. Additionally, there are calls for simplified and more accessible legal mechanisms under Article 22 of the Environmental Law and Article 81(2)(b) of the Constitution to facilitate citizens' access to justice concerning community interests.

Economic barriers significantly impede access to justice, especially for the impoverished majority. High judicial costs and limited free legal assistance make it challenging for low-income individuals to seek justice.²⁷⁹ The government recognises these deficiencies and acknowledges the need for reforms. Simplifying legal procedures and improving funding for legal assistance could enhance access to justice for all citizens, enabling them to advocate for their rights more effectively.

Widespread legal violations contribute to a pervasive sense of impunity among local communities.²⁸⁰ Common infractions include operating without environmental licenses and illegally exploiting natural resources. This situation leaves residents feeling powerless, as they often lack the financial means to defend their rights, resulting in disengagement from environmental issues. Strengthening legal enforcement and ensuring accountability are essential for restoring community trust and fostering active participation in environmental governance.

8.3 Public access to information

Public access to information in Mozambique is legally guaranteed, notably by Article 19 of the 1997 Environmental Law. However, this access is often limited due to delays in the publication of official documents, such as the *Boletim de República*.²⁸¹ Additionally, language barriers pose challenges, as Portuguese is the official language but only about half the population speaks it fluently,²⁸² combined with low literacy rates.²⁸³ These factors significantly affect local communities' ability to engage effectively in land-grabbing cases and other environmental issues. Also, currently, there is fewer than one soil scientist per district in Mozambique, which has a total of 110 districts.²⁸⁴

278 See Meloni et al. (2021: 29).

279 *Plano Estratégico Integrado da Justiça II* (2009 – 2014), 17.

280 See Meloni et al. (2021: 31).

281 See Massarongo-Jona et al. (2023).

282 Instituto Nacional de Estatísticas, censo 2017.

283 See Liberti et al. (2018).

284 Rozanov & Wiese (2018).

In 2014, Mozambique's Parliament enacted a law affirming the right to information, mandating that public entities operate transparently in the public interest.²⁸⁵ Key provisions include Article 7, which requires these entities to ensure transparency, and Article 8, highlighting the necessity of access to information for meaningful democratic participation. Article 14(1) grants citizens the right to request information, while Article 17 ensures this access is provided free of charge, aiming to empower citizens in public decision-making processes.

The implementation of the right-to-information law in Mozambique is inadequate, as highlighted by the National Union of Journalists.²⁸⁶ There is a lack of accessible online information, with much of it being outdated and not in the public interest.²⁸⁷ Crucial documents, such as reports and contracts, are often missing. This lack of transparency hampers community awareness of projects and DUAT approvals, preventing legal challenges and potential violations of environmental legislation. Access to information is vital for meaningful public participation in environmental protection efforts.

8.4 Laws concerning foreign investors and land grab issues

The foreign investment law in Mozambique, first enacted in 1993²⁸⁸ and amended in 2009²⁸⁹ and 2021,²⁹⁰ includes provisions that help mitigate environmental impacts from foreign investments. It establishes clear decision-making processes for investment projects with potential political, social, economic, financial, or environmental consequences, requiring that these undergo scrutiny by the Council of Ministers.²⁹¹ Special economic zones are also required to conduct EIAs, ensuring environmental considerations in certain investment decisions. However, environmental protection could be more strongly emphasised within the law for greater safeguards.

Land grabs in Mozambique are a critical issue, often occurring with government complicity.²⁹² Despite the 1997 Land Law, which guarantees land rights for communities and individuals using land “in good faith” for over a decade (Article 12), enforcement is weak. Local populations, especially subsistence farmers, face significant threats from foreign investment projects, with land being taken without proper

285 Law No. 34/2014.

286 *Sindicato Nacional dos Jornalistas*; <https://www.dw.com/pt-002/acesso-%C3%A0-informa%C3%A7%C3%A3o-ainda-%C3%A9-um-grande-desafio-em-mo%C3%A7ambique/a-55084942>, accessed 8 August 2024.

287 See <https://www.dw.com/pt-002/acesso-%C3%A0-informa%C3%A7%C3%A3o-ainda-%C3%A9-um-grande-desafio-em-mo%C3%A7ambique/a-55084942>, accessed 8 August 2024.

288 Law No. 3/93.

289 Decree No. 43/2009.

290 Decree No. 20/2021.

291 Law No. 3/93, Art 3(a).

292 See <https://grain.org/en/article/5137-the-land-grabbers-of-the-nacala-corridor>, accessed 18 September 2024; Twomey (2014).

consultation or compensation. Strengthening the implementation of the Land Law and ensuring accountability in land transactions is essential to protecting community rights and preventing the social and environmental impacts of land grabs.

The ProSAVANA project in Mozambique's Nacala corridor, led by Brazil, Japan, and Mozambique, aimed to transform 35 million hectares into soybean farms, which would have been Africa's largest land grab.²⁹³ Strong opposition from local farmers and civil society led to its cancellation.²⁹⁴ However, protests in 2012 highlighted the land-grabbing nature of the project, revealing a lack of transparency and public consultation. A 2013 leak confirmed collusion between Japan, Brazil, and Mozambique's government.²⁹⁵ The 2018 Maputo Administrative Court ruling against ProSAVANA marked a small victory, but underlying issues of land grabbing remain unresolved.²⁹⁶

AgroMoz is another troubling example of land grabbing in Mozambique, where over a thousand people were displaced to make way for a 3,000-hectare soybean project.²⁹⁷ This process was marred by a lack of transparency, and the displaced communities were not given alternative land or compensation. One of the key investors in AgroMoz was Armando Guebuza, who was the president of Mozambique at the time, which raised concerns about government collusion and the disregard for local communities' rights and livelihoods.²⁹⁸

Numerous instances of land grabbing have been reported across Mozambique, with the Mozambican Farmers' Union expressing serious concerns about the detrimental effects on local communities.²⁹⁹ The Land Law allows communities to claim rights to land they have farmed for more than ten years, implying that former colonial estates should be returned to them. However, with rising foreign agricultural investments, the government is allegedly working with foreign investors, granting them long-term leases. These leases often prioritise those with political connections rather than agricultural expertise, exacerbating tensions with local populations.

The state's role in land-grabbing in Mozambique has shifted significantly with the 2022 Land Policy, which increased state control over land access and allocation. While the 1997 Land Law provided some protections, it was not foolproof. The new policy now allows the government to expropriate land without additional compensation or resettlement for affected residents, placing the burden on the state rather than private investors. This change has normalised land transactions, making land grabs more

293 See <https://dollarsandsense.org/archives/2015/0315wise.html>, accessed 18 September 2024.

294 See Funada-Classen (2019).

295 See <https://grain.org/article/entries/4703-leaked-prosavana-master-plan-confirms-worst-fears>, accessed 18 September 2024; Funada-Classen (2019).

296 *Tribunal Administrativo de Maputo, Processo n° 120/2017CA*. See https://farmlandgrab.org/uploads/attachment/Acordao_30-TACM-2018_Caso_Pros_avana_acesso_a%CC%80_informac%CC%A7a%CC%83o.pdf, 12, accessed 17 September 2024.

297 See Paulino (2014).

298 See Liberti et al. (2018).

299 See <https://grain.org/en/article/5137-the-land-grabbers-of-the-nacala-corridor>, accessed 18 September 2024.

discreet and often overlooked, threatening local communities' land rights and reducing public scrutiny.³⁰⁰

8.5 Extension services and the use of pesticides and fertilisers

Despite government efforts, the PEDSA highlights that yields for major crops in the family farming sector remain low, with average maize yields at only 1 ton/ha compared to a potential of 4.5–6 tons/ha. Low adoption of agricultural technologies contributes to this issue. Investments in agriculture and agrarian extension have been insufficient to address the challenges faced in the sector. Most farmers in sub-Saharan Africa, including Mozambique, do not adopt agricultural technologies, resulting in stagnant production and productivity levels. Criticisms of agrarian extension in the region highlight gaps such as inadequate training for extension workers, top-down approaches, and the marginalisation of resource-constrained female farmers. This combination limits support for disadvantaged farmers and neglects the unique challenges faced by smallholders. Over three decades, Mozambique's agricultural extension services have struggled significantly with these issues.³⁰¹

Mozambique's agricultural extension services are insufficient, with only about 4% of farming households accessing these services in 2015.³⁰² The National Directorate of Agrarian Extension reported 1,947 extensionists in the first half of 2019, yet many farmers remain without support.³⁰³ Assuming that each extensionist can assist up to 250 agricultural families, Mozambique would require approximately 18,000 extensionists to effectively support about 67% of the population engaged in agricultural activities, which amounts to approximately 18.7 million individuals.

The lack of attention given to this issue could be attributed to the fact that the agricultural sector in Mozambique has faced nearly constant organisational changes in recent decades due to a multitude of policies and plans. Between 1995 and 2005, numerous laws regarding natural resources were introduced, often conflicting with existing frameworks. From 2005 to 2013, various development strategies emerged, leading to frequent shifts in government responsibilities across ministries. This instability has overwhelmed existing capacity and diverted focus from essential public support

300 Bruna & Mbanze (2023); Bruna et al. (2024: 16–17).

301 Note, that there are non-governmental initiatives, such as 'Kulima ndi Malonda', which is a private sector-led agricultural extension approach in Mozambique. See chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.niras.com/media/cchl2swj/kulima-ndi-malonda_reduce-size.pdf, accessed 1 October 2024; See also <https://www.afdb.org/en/news-and-events/press-releases/mozambican-farmers-gear-planting-season-timely-2-million-fertilizer-financing-boost-72764>, accessed 1 October 2024.

302 Cunguara et al. (2018).

303 Marassiro et al. (2020: 430).

services for agricultural development, compounded by favouritism linked to powerful social groups influencing operations at various levels.

Mozambique's low agricultural productivity is further linked to minimal use of yield-enhancing inputs such as fertilisers, improved seeds, and pesticides.³⁰⁴ The 2015 Integrated Agricultural Survey shows that only 3.8% of smallholder farmers utilised fertilisers during the 2014/2015 season, with even lower percentages using pesticides (3.4%), manure (1.8%), and improved maize seeds (5.2%).³⁰⁵ Furthermore, agriculture remains predominantly rain-fed, with less than 3.3% of farmers using irrigation. Mozambique's fertiliser application rate of 5.7 kg/ha significantly lags behind regional targets, such as the government's aim of 25 kg/ha by 2020 under PEDSA and the Abuja Declaration's target of 50 kg/ha by 2025.

Smallholder farmers in Mozambique primarily source their fertiliser from local wholesalers, retailers, and small-scale agro-dealers in their villages. According to the 2015 Integrated Agricultural Survey, 66% of these farmers purchased fertiliser, while 24.1% received it on credit.³⁰⁶ Among those who bought fertiliser, 39.4% obtained it in their villages, and 33% procured it from nearby districts. This highlights the reliance on local suppliers for fertiliser access among smallholder farmers. This is especially significant considering that most roads in Mozambique are unpaved. Data from the National Road Administration indicate that, as of 2017, approximately 74.2% of the roughly 30,500 km of roads were unpaved, leaving only 35.7% paved.³⁰⁷ This underscores the critical inadequacy of transport infrastructure in the country, which can hinder access to essential agricultural inputs such as fertiliser for smallholder farmers and much-needed extension services.

Mozambique lacks a comprehensive fertiliser policy that addresses both supply and demand constraints holistically, including the training of extension workers, market development, and improved access to finance.³⁰⁸ Additionally, there is no existing bio-fertiliser policy to regulate the increasing use of inoculants in legume production. Although a draft fertiliser law is under review, its absence leaves the market vulnerable to low-quality fertilisers. A well-defined legal framework would enhance the fertiliser value chain and support effective subsidy programs, ultimately benefiting farmers through improved fertiliser quality.

Although, as noted, currently, fertiliser usage among smallholder farmers in Mozambique is low, with only 5.4% of fertiliser users having access to credit compared to 0.5% of non-users.³⁰⁹ Given that 66.8% of these farmers are asset-poor, improving credit access could enhance fertiliser demand. However, directly reducing fertiliser prices might be even more effective, as cost is a key barrier. Resource-poor

304 Anson et al. (2019).

305 Zavale et al. (2020: 2).

306 Ibid.: 10.

307 Ibid.: 9-10.

308 AFAP (2023: 15-16).

309 Zavale et al. (2020: 9).

farmers are unlikely to invest in fertiliser if it does not lead to profitable returns, making affordability crucial for increasing usage.

9 Lessons learnt and recommendations

9.1 Positive lessons learnt

Mozambique has established a comprehensive legal framework for environmental protection and soil conservation, deeply rooted in constitutional provisions that mandate the state to safeguard the environment and uphold the population's right to a balanced ecosystem.³¹⁰ The environmental legislation in Mozambique is recognised for its modernity, comprehensiveness, and diversity, effectively addressing various environmental issues.³¹¹

The Environmental Law of 1997 offers extensive provisions for environmental protection and was adopted relatively early compared to other countries. Key concepts such as environmental liability (Article 26) and environmental crimes (Article 27) serve as powerful tools for safeguarding the environment. Additionally, the EIA process acts as a safeguard mechanism against projects that could harm the environment (Article 16).

Educating the population about environmental issues is crucial for reducing harmful practices and promoting sustainable behaviours (Article 20). Other laws provide significant protection in areas such as forestry, agriculture, mining, waste management, and logging. The establishment of dedicated ministries for agriculture and land, which play roles relevant to soil conservation, enables better application of the ambitious laws enacted by the country. The Ministry for the Coordination of Environmental Affairs focuses on enhancing the efficiency of state environmental actions. Various development plans and action strategies further reflect the government's commitment to environmental protection. Moreover, Mozambique's numerous international commitments underscore its dedication to addressing environmental challenges effectively.

310 Arts 90 & 117 of the 2004 Constitution.

311 See <https://biofund.org.mz/wp-content/uploads/2018/06/1528197235-O-Meio-Ambiente-em-Mocambique-2012-Serra-et-al.pdf>, 13, accessed 12 August 2024.

9.2 Negative lessons learnt

9.2.1 Critique of the legislation

Despite the presence of a comprehensive environmental legal framework, soils in Mozambique continue to experience degradation, underscoring significant gaps in the effectiveness of this legislation. This situation can be analysed in two main areas for improvement: enhancing the legal framework itself and ensuring better enforcement of existing laws.

In terms of the legal framework, while Mozambique boasts a commendable legal system, the implementation of these laws faces substantial challenges. There are critical gaps, especially in areas lacking relevant legislation.³¹² Notably, one significant gap is the absence of dedicated soil conservation legislation. Although soil issues are addressed in constitutional provisions and general environmental laws, a comprehensive law focused specifically on soil conservation is missing. While the action plan against soil erosion is valuable, it would benefit greatly from a dedicated soil law that comprehensively addresses all soil-related issues with better harmonisation and scope than the current fragmented regulations.

The agricultural sector, which occupies vast areas of land, is a major contributor to soil degradation in Mozambique. Improving agricultural legislation could play a crucial role in promoting a transition away from harmful practices. A dedicated soil conservation law would likely have a more significant impact than the existing smaller pieces of legislation, providing clearer guidelines and stronger protections for soil health.

Since the Environmental Law was enacted in 1997, numerous pieces of environmental legislation have been introduced, addressing various sectors. Creating a comprehensive code that consolidates and harmonises these laws would significantly enhance legal coverage for environmental issues. Such codes exist in several civil law countries, including France.

The system of DUATs (land use rights) and state ownership of land grants the government considerable control over land use, particularly concerning large projects. This control, along with regulations governing EIAs, provides an opportunity to mitigate soil degradation. However, implementing tighter regulations would further bolster soil conservation efforts and ensure more effective protection of this vital resource.

Ultimately, addressing soil degradation in Mozambique requires a two-pronged approach: enhancing the legal framework with a specific focus on soil conservation and improving the enforcement of existing laws to ensure meaningful implementation and adherence.

312 See <https://biofund.org.mz/wp-content/uploads/2018/06/1528197235-O-Meio-Ambiente-em-Mocambique-2012-Serra-et-al.pdf>, 23-24, accessed 12 August 2024.

9.2.2 Critique of the application of the legislation

Serra highlighted a significant weakness in Mozambique's environmental governance: the ineffective implementation of existing environmental legislation.³¹³ Although a legal framework is in place, enforcing and adhering to these laws is a critical challenge for achieving meaningful environmental protection and soil conservation. Issues such as the inadequate application of public access to information law, uncollected licensing fees, and insufficient governmental oversight of resource exploitation projects further exacerbate the problem, raising concerns about the effectiveness of environmental protections.³¹⁴

In Mozambique, the state owns all land and issues usage rights through DUATs, regulated by the 1997 Land Law. However, concerns about the law's application have emerged, particularly regarding irregularities in the approval process for a gas project on the Afungi peninsula.³¹⁵ The NGO Centro Terra Viva noted issues such as the lack of a public exploitation plan before DUAT approval, the absence of local community consent, and missing EIAs. These lapses highlight the laws' limited effectiveness, which relies heavily on proper enforcement to achieve meaningful outcomes.

The 1997 Environmental Law in Mozambique, while theoretically valid and aimed at preventing environmental damage, suffers from significant enforcement issues. Article 33(1) mandates regulatory measures, yet practical effectiveness is limited, especially in prevention and environmental liability. Environmental damage occurs regularly, indicating insufficient preventive measures. While some advocate for Article 26's strict liability applicability, its vague terms, such as "significant damage" and "particularly dangerous activities," hinder effective enforcement without clearer regulations. This reliance on reparation and compensation highlights the law's inadequacies in protecting the environment.

Despite the existence of laws promoting environmental education, the impact has been limited, and harmful agricultural practices persist. This indicates that laws alone are insufficient; effective implementation and community involvement are essential for meaningful change.³¹⁶ The 2014 waste disposal law has seen inadequate enforcement, exacerbating waste management issues as urban areas grow, which jeopardises soil health.³¹⁷ The law's general nature and lack of specific policies for waste reuse

313 Ibid.: 29.

314 See <https://www.dw.com/pt-002/acesso-%C3%A0-informa%C3%A7%C3%A3o-ainda-%C3%A9-um-grande-desafio-em-mo%C3%A7ambique/a-55084942>, accessed 14 August 2024; <https://biofund.org.mz/wp-content/uploads/2018/06/1528197235-O-Meio-Ambiente-em-Mocambique-2012-Serra-et-al.pdf>, 30, accessed 14 August 2024.

315 See Salcedo-La Viña (2015).

316 See <https://www.fao.org/mozambique/news/detail-events/en/c/1173887/#:~:text=The%20Food%20and%20Agriculture%20Organization,nutritional%20security%20in%20the%20country>, accessed 14 August 2024.

317 See Amad et al. (2020).

and recycling hinder effective management, leading to ongoing challenges in soil conservation.³¹⁸

The creation of various ministries for agriculture, environmental action, and land has not led to the effective implementation of Mozambique's environmental protection laws. The primary challenge lies in the enforcement of existing legislation, which is often lacking. If the commitments stated in the Constitution and the Environmental Law were adequately enforced, they could significantly improve soil conservation efforts across the country.

9.3 Recommendations

The recommendations stress the necessity of bolstering existing legislation, introducing new specialised laws, and improving enforcement practices. A key focus is harmonising outdated environmental laws, as many have not been updated to align with recent legislation, leading to inconsistencies. The creation of an overarching environmental code could help address these gaps. Updating the 1997 Environmental Law is essential, along with establishing a dedicated soil conservation law to tackle soil issues across various sectors, such as agriculture, mining, and waste disposal.

Additionally, actionable plans to combat erosion should be developed, and environmental education should be promoted to engage communities in minimising harmful agricultural practices. It is also vital to address illegal mining and logging, restricting legal activities to those with minimal environmental impact. Enhancing transparency and public access to information regarding environmental laws is crucial for accountability. Tackling corruption that undermines environmental regulations, particularly in project approvals and land-use allocations, is essential.

Furthermore, respecting local communities and ensuring compliance with protective legislation can build trust. Addressing land grabbing through new protective laws and enforcing the 1997 Land Law will safeguard community rights. Since the state owns the land, individuals and communities typically hold only usage rights, leading to insecurity. This insecurity can discourage long-term investment in sustainable land management, as individuals may prioritise short-term gains over ecological preservation. Secure land tenure is essential for responsible stewardship, providing communities with the motivation to invest in the health of their land and resources.

Strengthening the judicial system through better funding and independence is vital, alongside upholding international environmental commitments by aligning national laws accordingly. Developing customary dispute resolution systems while maintaining their independence would further protect local communities. Finally, enhancing the EIA process ensures thorough and transparent evaluations for all projects.

318 See Sallwey et al. (2017).

In conclusion, addressing Mozambique's pressing environmental challenges necessitates a multifaceted strategy that strengthens existing laws, promotes community involvement, and enhances enforcement mechanisms. By harmonising legislation, prioritising soil conservation, and ensuring transparency and accountability, Mozambique can better protect its natural resources while empowering local communities. A commitment to effective implementation and respect for environmental rights will pave the way for sustainable development and a healthier ecosystem for future generations.

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Country report for Namibia¹

Ruda Murray & Oliver C. Ruppel

Abstract

This chapter examines the challenges and complexities of soil degradation and management in Namibia, with a particular focus on the weaknesses within the country's legal and regulatory frameworks. It underscores the key issues facing the agricultural, mining, and land use sectors, including inadequate enforcement, insufficient monitoring, and fragmented land tenure systems. These challenges contribute to ongoing soil degradation, which, in turn, threatens food security, ecosystem health, and sustainable development.

An in-depth analysis of the existing legal frameworks reveals significant gaps, particularly in the coordination and implementation of soil protection measures. The chapter pays close attention to specific legislation, such as the Soil Conservation Act, the Minerals (Prospecting and Mining) Act, and land tenure laws, all of which highlight systemic challenges, including land disputes, illegal fencing, and conflicting statutory and customary practices. Moreover, the pressures of demographic growth, urban sprawl, and emerging industries, such as green hydrogen, exacerbate the already fragmented policy landscape.

Key findings stress the urgent need for a more cohesive, integrated approach to soil governance in Namibia. The chapter offers recommendations focused on strengthening legal frameworks, improving cross-sectoral collaboration, and aligning policies across diverse sectors. Particular emphasis is placed on the need for a unified national soil policy that addresses both current and emerging challenges. It concludes by calling for greater public participation, improved coordination, and a proactive legislative approach to safeguard Namibia's soil resources, ensuring sustainable land use practices that contribute to long-term environmental and socio-economic resilience.

1 This chapter draws in parts from a book chapter authored by Ruppel, Ruppel-Schlichting, Houston & Afua (2021).

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Summary

Namibia's legislative framework for soil conservation and degradation mitigation is extensive but faces notable challenges in terms of enforcement and monitoring. Legal provisions are in place across sectors such as agriculture, mining, forestry, and urban planning, yet the effectiveness of these laws is undermined by weak enforcement and inadequate monitoring systems. While mining regulations are generally robust, the involvement of foreign investors and the challenges in ensuring environmental responsibility remain a concern. Similarly, laws addressing deforestation, invasive species, and industrial development are hindered by ineffective enforcement, continuing the risk of environmental degradation.

The rapid demographic growth and urban sprawl in Namibia place further strain on existing land-use regulations, exposing significant gaps in the current land-planning framework. The challenge is compounded by climate change, with outdated policies and legislative gaps preventing the country from effectively addressing the associated environmental impacts. Land tenure insecurity, particularly in communal areas, continues to be a critical issue. Conflicting statutory and traditional laws hinder the resolution of land disputes, contributing to land grabbing, and aggravating soil degradation. Furthermore, illegal fencing on communal lands significantly restricts access to essential resources such as grazing, firewood, and water, with slow and complex processes for removing these illegal structures.

Despite the extensive nature of Namibia's legislative framework, soil conservation efforts are hindered by the fragmentation of responsibilities between different sectors. The absence of a cohesive, unified policy to coordinate soil-related efforts has led to inefficiencies in addressing soil degradation. Contributing factors include rural poverty, population pressure, unsustainable land practices, and the impacts of climate

change. Moreover, the lack of cross-sectoral collaboration and insufficient resources further exacerbate these challenges. Bridging policy gaps, improving sector collaboration, and optimising resource mobilisation are identified as key steps for addressing soil degradation more effectively.

Namibia's soil conservation efforts are supported by several important legal frameworks, including the Soil Conservation Act, the Environmental Management Act (EMA), and sector-specific laws such as the Minerals (Prospecting and Mining) Act and the Forest Act. However, these laws are fragmented and outdated, and their implementation is weak, reducing their overall effectiveness in protecting soil health. The integration of new technologies, such as green hydrogen, into soil protection policies is also crucial, as this will ensure Namibia can meet its sustainable development goals while protecting its soil resources.

The chapter emphasises the need to address the fragmentation of responsibilities for soil conservation by establishing a central authority to coordinate all soil management activities. A unified policy framework is needed to harmonise existing laws and reduce confusion. Collaboration and communication between the various agencies and institutions responsible for soil management should also be enhanced to streamline efforts and maximise impact.

Land tenure remains a significant obstacle to effective soil conservation, particularly in communal areas. Insecure land tenure discourages long-term investment in sustainable land management practices. Reforms to formalise land tenure rights, improve transparency, and combat corruption in land allocation processes are necessary to protect soil resources. Incentives, such as subsidies for sustainable grazing practices including rotational grazing, should be introduced to encourage better land management and improve soil health, particularly in communal areas.

Integrating customary law and indigenous knowledge into soil policies can enhance their effectiveness, particularly in areas where traditional practices are still widely followed. Additionally, educating legal professionals and establishing specialised environmental courts or tribunals would improve the adjudication of environmental cases, ensuring fair and timely justice for soil-related issues. Such courts would provide expertise in environmental matters, leading to more consistent enforcement of soil protection laws.

Finally, effective soil governance requires coordinated efforts at both the domestic and international levels. Community participation is essential to ensure that soil protection efforts are inclusive and equitable. Governments, developers, civil society, and communities must collaborate to ensure that decisions affecting the environment are made transparently, fairly, and with due regard to the rights of all stakeholders.

In conclusion, strengthening Namibia's soil conservation framework requires addressing the fragmentation of legal responsibilities, improving enforcement, and integrating new challenges such as climate change and emerging technologies into policy. By enhancing cross-sector collaboration, securing land tenure, and involving

communities in decision-making, Namibia can build a more sustainable approach to soil management, safeguarding the country's natural resources for future generations.

1 Country information

Namibia, situated in southwestern Africa, has diverse landscapes, rich biodiversity, and unique cultural heritage.² Namibia's journey to independence is marked by a series of historical milestones. Initially, the inhospitable desert posed a formidable obstacle to European colonisation until the late eighteenth century.³ However, exploration efforts by traders and missionaries eventually led to German colonisation, establishing German Southwest Africa. This era came to an end with the onset of World War I, after which South Africa was mandated to take over the former German colony, marking the beginning of the South African administration.⁴

As international oversight grew through institutions, such as the League of Nations and later the United Nations (UN), pressure mounted on South Africa to relinquish control.⁵ The refusal to place Namibia under a trusteeship agreement sparked increased unrest, culminating in the revocation of South Africa's mandate over Namibia by the UN General Assembly in 1966. Subsequently, political and social tensions escalated, prompting the UN Security Council to pass Resolution 435 in 1978, paving the way for Namibia's transition to independence.⁶

On 21 March 1990, after enduring a protracted struggle, Namibia officially declared independence.⁷ This historical narrative underscores the complex colonial and post-colonial dynamics that shaped Namibia's path to self-governance.

1.1 Geography and climatic conditions

Namibia shares borders with Angola to the north, Zambia, and Zimbabwe to the north-east, Botswana to the east, South Africa to the south, and the Atlantic Ocean to the west. According to the 2024 census, the population stands at 2,641,805, with a population density of three inhabitants per square kilometre.⁸ Approximately 60% of the

2 See Ruppel & Ruppel-Schlichting (2022) for various aspects of environmental protection in Namibia.

3 Mwakikagile (2015: 26).

4 Wallace (2014: 205).

5 Wiechers (2010: 81-82).

6 Ibid.: 84.

7 Ibid.: 90.

8 See <https://www.worldometers.info/world-population/namibia-population/>, accessed 26 May 2024.

population resides in urban areas, with Windhoek serving as the capital with a population of 494,000.⁹

Covering a vast surface area of 823,290 square kilometres, Namibia's land tenure is characterised by three main categories: commercial farmland with freehold tenure (approximately 44% of the country, primarily in the south and centre), communal areas (approximately 41%, mainly in the north), and state land, including conservation areas (about 15%).¹⁰

Namibia's landscape features two deserts, the Kalahari and the Namib, earning it the title "land of savannahs" as mentioned in its national anthem. Despite its diverse terrain, Namibia is one of the driest countries in sub-Saharan Africa, with a mean annual rainfall of 278 mm, with notable fluctuations across different regions.¹¹ In the northeast, rainfall averages around 650 mm annually, while in the southwest and along coastal areas, it dwindles to less than 50 mm.

Namibia's climate is marked by high temperatures and significant regional variation. Mean annual temperatures range from 14.3°C to 24.2°C, with coastal areas cooler due to the Benguela current. Seasonal temperature changes are pronounced, with peaks before or during the wet season and lowest temperatures during the dry season. Daily maximum temperatures often exceed 40°C, and average temperatures remain above freezing year-round.

Consequently, vegetation cover is generally low, with prevalent soil types including unconsolidated sand and shallow, weakly developed soils on bedrock, leading to low water-holding capacity. Nevertheless, Namibia boasts a wide variety of vegetation types, ranging from deserts to savannahs and dry woodlands, supporting a rich and diverse mammalian fauna.¹² However, the country faces environmental challenges common to many parts of Africa, including climate change, water stress, land degradation, soil erosion, and deforestation. Addressing these issues requires concerted efforts and sustainable practices to preserve Namibia's natural heritage for future generations.

9 See <https://www.macrotrends.net/global-metrics/cities/21925/windhoek/population#:~:text=The%20metro%20area%20population%20of%20Windhoek%20in%202022%20was%20461%2C000,a%203.48%25%20increase%20from%202020.,> accessed 26 May 2024.

10 Ruppel & von Finckenstein (2016: 311); Chlouba & He (2021: 42).

11 See <https://climateknowledgeportal.worldbank.org/country/namibia/climate-data-historical#:~:text=Historically%2C%20rainfall%20in%20Namibia%20is,and%20along%20the%20coastal%20areas.,> accessed 26 May 2024.

12 Ruppel & von Finckenstein (2016: 311).

1.2 Economy

At independence, Namibia's economy relied heavily on primary commodities including beef, fish, and minerals.¹³ To diversify, the government prioritised value addition, manufacturing, and modernisation. Resource wealth, political stability, and sound governance elevated Namibia to upper-middle-income status and reduced poverty.¹⁴

Mining remains dominant, significantly contributing to the gross domestic product (GDP), which reached USD 12.91 billion in 2022.¹⁵ The economy grew by 4.2% in 2023, driven by mining and oil exploration. Namibia is a leading producer of diamonds, uranium, zinc, and smaller quantities of gold and copper. Marine diamond mining is increasingly important as terrestrial deposits decline.¹⁶

Foreign direct investment (FDI) inflows rose to USD 945 million in 2022, up from USD 697 million in 2021, with total FDI stock reaching USD 7.8 billion (63.6% of GDP).¹⁷ Key sectors attracting FDI include mining, tourism, agriculture, and infrastructure. The gross national income (GNI) in 2022 was USD 12.54 billion, while external debt stood at 71.6% of GDP.¹⁸

Socio-economic disparities from apartheid persist, worsened by COVID-19.¹⁹ Structural barriers such as low productivity and limited job creation continue to hinder inclusive growth, requiring targeted solutions for sustained progress.

1.3 Society

Namibia is a diverse country with a rich tapestry of ethnic groups. The largest include the Oshivambo speaking communities.²⁰ There are also communities of mixed ancestry, as well as people of European descent, including German, Dutch, and Portuguese. Additionally, smaller communities of other African nationals, as well as Chinese and Indian communities, reside in Namibia.

13 Aikins (2024: 12).

14 See <https://www.worldbank.org/en/country/namibia/overview>, accessed 26 May 2024.

15 See <https://tradingeconomics.com/namibia/gdp>, accessed 26 May 2024.

16 Wesgro (2021).

17 See <https://www.lloydsbanktrade.com/en/market-potential/namibia/investment#:~:text=FDI%20in%20Figures,63.6%25%20of%20the%20country's%20GDP.>, accessed 26 May 2024.

18 See <https://databank.worldbank.org/metadataglossary/world-development-indicators/series/NY.GNP.MKTP.KD>, accessed 8 May 2024; <https://fred.stlouisfed.org/series/MKTGNINAA646NWDB>, accessed 26 May 2024; <https://www.focus-economics.com/country-indicator/namibia/external-debt/>, accessed 26 May 2024.

19 See <https://www.worldbank.org/en/country/namibia/overview>, accessed 26 May 2024.

20 See <https://namibian.org/namibia/people/>, accessed 26 May 2024.

Namibia has a low population density overall. In terms of religion, Christianity is predominant, with 80-90% of the population adhering to the faith, and the remaining population follows traditional beliefs.²¹

Namibia's literacy rate in 2021 was 92%.²² Namibia's education system has an official primary school entrance age of seven. The primary school cycle lasts for seven years, followed by lower secondary education for three years, and upper secondary education for two years. In 2018, Namibia had 665,000 pupils enrolled in primary and secondary education.²³ Among them, approximately 72% are enrolled in primary education. In Namibia, 19% of 15-24-year-olds have not completed primary education. The tertiary school enrolment rate, as a percentage of all eligible children, was 28.37% in 2020.²⁴

Due to stronger GDP growth in both 2022 and 2023, poverty in Namibia is estimated to have decreased, but it remains high at 17.8%, based on the USD 2.15 per day international poverty line.²⁵ About 28.7% of the population in Namibia lives below the poverty line, while 15% are classified as extremely poor.²⁶ Poverty rates are higher in rural areas, with 37% of rural residents living in poverty compared to 15% in urban areas. Additionally, poverty is more prevalent among women, with 32% living below the poverty line, compared to 26% of men.

1.4 Information on the organisational structure of Namibia

Namibia is a sovereign, democratic state with three branches of government: executive, legislative, and judiciary (Constitution of 1990, amended to 2014). The President elected every five years, heads both state and government, is supported by the Cabinet and advised by the Prime Minister. Ministers and Deputy Ministers oversee various ministries.

The country is divided into fourteen regions (Article 102), each governed by Regional Councils elected by the people. Governors, appointed by the President, act as links between central and regional governments. Local authorities, including villages,

21 See <https://www.commonwealthgovernance.org/countries/africa/namibia/society/>, accessed 26 May 2024.

22 See <https://data.worldbank.org/indicator/SE.ADT.LITR.ZS?locations=NA>, accessed 26 May 2024.

23 Namibia National Education Profile (2018).

24 See https://www.theglobaleconomy.com/Namibia/Tertiary_school_enrollment/#:~:text=Tertiary%20school%20enrollment%2C%20percent%20of%20all%20eligible%20children&text=For%20that%20indicator%2C%20we%20provide,from%202020%20is%2028.37%20percent, accessed 26 May 2024.

25 See <https://www.worldbank.org/en/country/namibia/overview>, accessed 26 May 2024.

26 National Planning Commission, *The Root Causes of Poverty* (2023: 4).

towns, and municipalities, manage services and regulations, led by mayors or chairpersons.²⁷

Traditional leaders, chosen by customary law and recognised by the President, preserve cultural heritage and allocate communal land rights, including grazing management to prevent overuse.²⁸

The judiciary, comprising the Supreme Court, High Court, and Lower Courts, operates independently under the Constitution. Namibia's multi-party system is led by the Southwest Africa People's Organisation (SWAPO), in power since independence in 1990.

1.4.1 Legal system and legal tradition

Namibia's legal system combines Roman-Dutch civil law, English common law, South African law, and customary law.²⁹ The Constitution, as the supreme law (Article 1(6)), mandates respect for fundamental rights by all entities (Article 5), enforceable by the courts.

The Supreme Court serves primarily as an appellate body under the Supreme Court Act 15 of 1990, handling constitutional and other appeals from the High Court. The High Court, governed by the Constitution and the High Court Act 16 of 1990, is a superior court of record. Lower courts, established under the Magistrates' Courts Act 32 of 1944, include 34 permanent and 32 periodical courts, divided into a Regional Division and five administrative districts. Regional courts handle criminal cases (excluding high treason) but not civil matters.

Community Courts, created under the Community Courts Act 10 of 2003, address customary law issues in collaboration with traditional authorities and the Ministry of Justice. While Namibia adheres to the doctrine of *stare decisis*, courts may deviate from precedent when warranted by societal or legal changes.³⁰

There are no specialised environmental courts; such disputes are resolved within the general judiciary system, including the Magistrate and High Courts. The Lands Tribunal, under the Agricultural (Commercial) Land Reform Act 6 of 1995 (ACLRA), handles specific land-related cases.

27 Amoo (2020: 30-31).

28 De Villiers et al. (2019: 18-19).

29 Ruppel & Ruppel-Schlichting (2011).

30 Parker (2019: 4-5); Art 81 of the Constitution.

1.4.2 Competence of legislation

The Legislature, responsible for making laws, operates through Parliament, comprising two chambers: the National Assembly (Chapter 7 of the Constitution) and the National Council (Chapter 8 of the Constitution). Article 63(1) of the Constitution establishes the National Assembly as the primary legislative body, granting it the authority, within constitutional bounds, to enact and rescind laws for peace, order, and good governance, prioritising the welfare of the Namibian people. The primary function of the National Council is to review legislation approved by the National Assembly (Article 74 of the Constitution). It consists of three members from each of Namibia's fourteen regions, totalling 42 members (Article 69 of the Constitution).

Bills, and proposals for laws, can be initiated by Ministers or members of Parliament. The process involves drafting, Cabinet approval, and finalisation by legal drafters to ensure alignment with the Constitution. After discussion and amendments in the National Assembly, bills are sent to the National Council for review. Presidential approval is then required for them to become law (Article 56 of the Constitution). After approval, laws are published in the Government Gazette, a vital step in ensuring accessibility to the public.

Namibia follows a unitary system where the central government holds most legislative powers. The regional and local governments serve administrative purposes.³¹ However, per Articles 101 and 102(3) of the Constitution, they may adopt by-laws and regulations on local governance matters.

1.4.3 Competence of law enforcement

The Namibian Police Force is the primary law enforcement agency responsible for maintaining public safety and enforcing the law.³² The Namibian Correctional Services is tasked with the custody, care, and rehabilitation of offenders sentenced by the courts.³³ The Office of the Ombudsman in Namibia (Chapter 10 of the Constitution) plays a crucial role in safeguarding and upholding the rights of individuals, promoting the rule of law, and advancing democracy and good governance. It serves as an independent and impartial entity tasked with investigating complaints of maladministration, abuse of power, violations of human rights, and other injustices committed by public authorities.³⁴

Namibia does have various government agencies and departments responsible for environmental protection and enforcement (discussed further below). The Namibia

31 Helao & Naidoo (2016: 247 & 251).

32 Police Act 19 of 1990.

33 Correctional Service Act 9 of 2012.

34 Ruppel-Schlichting (2008: 272-273).

Defence Force also plays a role in environmental protection through its participation in anti-poaching operations.³⁵

1.4.4 The Constitution, statutory, and customary law³⁶

The Constitution safeguards fundamental rights such as language (Article 3), equality (Article 10), culture (Article 19), and religious freedom (Article 21). Article 66(1) upholds the validity of customary and common law from independence, provided they align with the Constitution and statutory laws. Article 22 allows limiting rights only under non-discriminatory laws that specify the extent and constitutional basis of the limitation.

The Traditional Authorities Act 25 of 2000 (TAA) defines customary law as norms, rules, traditions, and usages within traditional communities, covering marriage, inheritance, and land tenure.³⁷ Historically marginalised during colonial rule, customary law remains vital, especially in dispute resolution and land management.

Traditional authorities gained formal recognition at independence, growing from 36 authorities in 1990 to 51 by 2017.³⁸ Leadership structures vary:³⁹ kingdoms with powerful kings (Ovambo), chieftainships led by chiefs (Kavango, Herero), and headmanships (Himba, Nama).⁴⁰ The Damara have chief-like leaders, while the San use consensus-based decision-making. Traditional authorities enforce customary law and promote sustainable development.⁴¹ Customary laws often address environmental issues, such as the Mashi laws regulating livestock to prevent overgrazing and erosion, reflecting a commitment to conservation.⁴²

2 Soil degradation

2.1 The state of the environment

Namibia faces significant climate challenges, with rising temperatures and increased rainfall variability projected by 2065.⁴³ These changes are expected to cause heat-

35 Ministry of Environment, Forestry, and Tourism, National Report: Wildlife Protection and Law Enforcement in Namibia (2022).

36 On customary law and the environment see Hinz (2022).

37 Ruppel & Ruppel-Schlichting (2011: 39).

38 Chlouba (2019: 6); Ruppel & Ruppel-Schlichting (2011: 40).

39 For detailed information see Hinz (2010, 2013 and 2015).

40 Hitchcock et al. (2021: 269).

41 Ruppel (2022a: 107).

42 Ruppel & von Finckenstein (2016: 334).

43 Ministry of Environment, Forestry, and Tourism, Second National Integrated State of the Environment Report for Namibia (2021: xxiv).

related stress, impacting health and surpassing thresholds seen in neighbouring countries. Limited surface water and heavy reliance on groundwater worsen water scarcity, especially during recurring droughts and increased demand. Although groundwater quality is generally good, contamination from untreated wastewater and nitrates from cattle farming poses risks in populated areas.

Extensive crop cultivation and livestock farming, covering over 70% of Namibia's land, heighten vulnerability to desertification and land degradation. Shifting land use patterns show reductions in forestland, grassland, and cropland, alongside increases in wooded areas and settlements, driven by population growth, bush encroachment, urbanisation, and agricultural challenges.⁴⁴ Notably, over 43% of Namibia's land is under conservation management, with around 17% formally protected.

However, biodiversity and ecosystems are declining primarily due to human activities. Habitat loss from offshore mining, land-based pollution, invasive species, and fluctuations in the Benguela upwelling system threaten aquatic life. Wildlife crimes involving high-value species are also on the rise, complicating conservation efforts.

On a positive note, aquaculture is growing, contributing to food security, poverty reduction, and job creation, though it poses environmental management challenges. Current data shows only 17% of monitored sites in Namibia are free from soil erosion, with long-term degradation costing families on communal lands around ND 80 million annually.⁴⁵ Declining rangeland carrying capacity could lead to an annual income loss of approximately ND 1.4 billion.⁴⁶

Land degradation results from factors such as rural poverty, population pressure, poor land management, unsustainable water use, limited collaboration, and climate change.⁴⁷ Vulnerable groups are particularly at risk, threatening food security and exacerbating deforestation, erosion, and bush encroachment, especially during ongoing droughts. Protecting soil is critical for agriculture, yet communal farmers often lack resources for conservation efforts, highlighting the need for nationwide initiatives.

2.2 Different types of soil and their vulnerability in terms of degradation

Namibia has eleven primary soil types influenced by parent material, landscape position, substance accumulation, and age.⁴⁸ Arenosols, prevalent in the Namib Sand Sea and Kalahari, are deep, sandy, quartz-rich soils with low water and nutrient retention.⁴⁹ Less common soils include Vertisols, which are nutrient- and water-rich due to

44 Ibid.: xxv.

45 Minister of Agriculture, Water, and Forestry, National Rangeland Management Policy (Part 1) & Strategy (Part 2) (2012: 8-10).

46 Ibid.

47 Ruppel & von Finckenstein (2016: 312-313).

48 Jarvis et al. (2022: 149).

49 Ibid.: 150.

swelling clays; Leptosols, shallow rocky soils prone to erosion and unsuitable for crops; Regosols, young, undeveloped soils prone to erosion; Fluvisols, layered sediments from periodic flooding in riverbeds and floodplains; and Gleysols, waterlogged soils found in rivers and coastal zones with distinct grey and yellow hues.⁵⁰ Other types include Calcisols, with calcium carbonate layers in arid areas; Cambisols, early-stage soils with minimal horizon development in arid climates; and Durisols and Gypsisols, forming hardened layers or gypsum accumulations in stable, arid landscapes.⁵¹ Saline soils such as Solonchaks and Solonetztes occur in coastal areas and poorly drained inland zones.

Namibia's soils pose challenges for agriculture due to low fertility, arid conditions, and variable rainfall.⁵² Issues such as limited organic matter, erosion, salinity, and nutrient imbalances further degrade soil health, restricting plant and livestock productivity.⁵³ Improved soil depth and water retention could enhance agricultural yields, making understanding these soils essential for sustainable land use.

2.3 Main drivers of soil degradation

2.3.1 Agriculture⁵⁴

Namibia's land ownership trends (1902–2018) highlight shifts, with significant growth in freehold and communal land post-1964.⁵⁵ Freehold agricultural land spans 39.7 million hectares (48% of total land), communal land 28.7 million hectares (35%), and state land 13.9 million hectares (17%).⁵⁶ Parks and restricted areas cover 13.1 million hectares of state land, with the Namib Desert accounting for 67% and Etosha National Park making up the remainder. Communal land, vital for grazing, firewood, and water, supports many households but suffers from overstocking and resource mismanagement, leading to environmental degradation. Subsistence farming provides income for 19.8% of households, mostly in rural areas (41.6%).⁵⁷

Agriculture is crucial to Namibia's economy, supporting 70% of the population and contributing 4% to GDP (6.6% in 2019).⁵⁸ Livestock farming accounts for two-thirds of agricultural output, with crop farming and forestry comprising the rest.

50 Ibid.: 149.

51 Ibid.: 151.

52 Ibid.: 147.

53 Ibid.: 159.

54 On land, soil and agriculture see Ruppel & von Finckenstein (2022).

55 Ministry of Environment, Forestry, and Tourism, Second National Integrated State of the Environment Report for Namibia (2021: xxvii).

56 Ibid.: 59.

57 Ibid.: 121.

58 GIZ (2022: 1).

Namibia exports 77% of agricultural products while importing 23%, yet domestic production meets only 43% of food demand.⁵⁹ Overgrazing, overstocking, deforestation, and unsustainable resource harvesting drive land degradation, causing soil erosion, bush encroachment, salinisation, and reduced grasslands, particularly in rural, poverty-stricken areas.⁶⁰

2.3.2 Mining

Mining is Namibia's leading primary economic sector, employing 16,342 individuals and supporting 114,394 downstream jobs in 2019, representing 15.5% of the workforce.⁶¹ Minerals dominate exports, contributing over half of the ND 31.2 billion export value in 2019, mainly from diamonds, uranium, and metal ores. However, mining significantly impacts biodiversity, especially in areas with rare species and ecosystems.

The sector's high water usage—13.13 million cubic meters in 2018/2019 (9.9% of NamWater's demand)—and the presence of 157 registered and over 250 abandoned mine sites raise concerns about groundwater and soil contamination, dust pollution, and illegal sand mining, particularly in northern regions.⁶² Environmental impacts, particularly from uranium production (Namibia is the world's fourth-largest producer), have worsened.⁶³ Land-mined diamonds, gemstones, and growing offshore diamond mining add to these challenges, intensifying threats to soil and ecosystem health.⁶⁴

2.3.3 Deforestation⁶⁵

Between 2001 and 2023, Namibia lost 1.23 million kilo hectares of tree cover, resulting in 281 kilotons of CO₂ emissions.⁶⁶ In 2024, the Ministry of Environment, Forestry, and Tourism (MEFT) emphasised how deforestation and industrial emissions are harming wildlife habitats and intensifying climate change.⁶⁷ Economic development is

59 Ibid.: 2.

60 Ruppel & von Finckenstein (2022: 380); Ruppel-Schlichting (2016: 24).

61 Ministry of Environment, Forestry, and Tourism, Second National Integrated State of the Environment Report for Namibia (2021: xxvi).

62 Ibid.

63 See <https://www.trade.gov/country-commercial-guides/namibia-mining-and-minerals>, accessed 26 May 2024.

64 Wesgro (2021).

65 On forestry see von Doderer et al. (2022).

66 See <https://www.globalforestwatch.org/dashboards/country/NAM/>, accessed 26 May 2024.

67 See [https://english.news.cn/africa/20240303/b6f0764739844b709c26dfad957ac3ae/c.html#:~:text=2%20\(Xinhua\)%20%2D%2D%20Namibia's%20Ministry,hindering%20efforts%20to%20sustainably%20manage](https://english.news.cn/africa/20240303/b6f0764739844b709c26dfad957ac3ae/c.html#:~:text=2%20(Xinhua)%20%2D%2D%20Namibia's%20Ministry,hindering%20efforts%20to%20sustainably%20manage), accessed 26 May 2024.

driving forest and woodland loss, threatening endangered species' habitats, while greenhouse gas emissions are increasing the frequency of droughts and floods, undermining sustainable resource management.

Namibia's forests face threats from agriculture, wood cutting, infrastructure projects, wildfires, logging, and habitat destruction by elephants.⁶⁸ These forests are vital for soil stability, biodiversity, and socio-economic resources including fuelwood and medicinal plants. However, population growth and unsustainable timber use exacerbate deforestation and land degradation.

Namibia's participation in the Africa Forest Landscape Restoration Initiative (AFRO 100) reflects its commitment to restoring degraded landscapes by 2030, supporting climate resilience, biodiversity, and sustainable development. This proactive effort aligns with global goals to combat climate change and strengthen ecosystem resilience.

2.3.4 Weather and climate factors⁶⁹

Namibia's vulnerability to climate change is a pressing concern due to its already arid conditions and the projected impacts of increasing temperatures, variable rainfall, and sea-level rise.⁷⁰ The country's reliance on agriculture and natural resources makes it particularly susceptible to these changes, with implications for water availability, food security, and livelihoods, especially for rural populations. Even without the additional stress of climate change, water demand is expected to outstrip supply, posing a significant challenge for water management.

2.3.5 Water scarcity⁷¹

Namibia's water scarcity is a significant challenge, driven by its arid climate and low precipitation rates.⁷² With most of the country classified as desert, arid, or semi-arid, water resources are inherently limited. The high rates of evaporation further exacerbate this scarcity, with only a small fraction of precipitation contributing to surface runoff or groundwater recharge.

The reliance on perennial rivers, ephemeral river storage, and groundwater aquifers highlights the importance of sustainable water management. However, population growth and industrial development pose significant threats to water availability and

68 Ruppel-Schlichting (2016: 25).

69 On Namibia's climate change situation see Mapaure (2022).

70 Ruppel-Schlichting (2022: 70-71).

71 On Namibia's water environment see Heyns & Bethune (2022).

72 Ibid.: 69-70.

quality. The statistics from the Ministry of Agriculture, Water, and Land Reform (MAWLR) paint a concerning picture, indicating a near doubling of water demand by 2025 and a projection to reach 772 million cubic meters per year by 2030.⁷³

Namibia's Cabinet has taken proactive steps to address the impending water crisis. However, severe water shortages are expected within the next four to seven years if a viable long-term solution is not promptly implemented.⁷⁴

2.3.6 Urbanisation and infrastructure development

Namibia's urbanisation rate has experienced significant growth, reaching 52.03% from just 28% in 1991.⁷⁵ This rapid urbanisation trend reflects a shift in population distribution towards urban areas, driven by various factors such as economic opportunities, access to services, and social amenities. Projections indicate that Namibia's population is expected to continue growing, with an estimated increase of 3.98 million people by 2050.⁷⁶

The phenomenon of informal settlements is a significant aspect of urbanisation in Namibia, characterised by uncontrolled growth in many urban areas.⁷⁷ This form of urbanisation occurs through two main mechanisms: the expansion of existing urban settlements and the establishment of new ones.

Rapid urbanisation, particularly in regions such as Khomas and Erongo, brings forth two major challenges: poverty and environmental degradation. With over 90% of the population residing in urban areas in these regions, the influx of people into cities exacerbates existing issues.⁷⁸ Urban growth leads to concentrated poverty in informal settlements lacking basic services and increases environmental pressures. Air and water pollution, inadequate waste management, and habitat loss become prominent, posing health hazards and threatening biodiversity.

The escalating demand for timber as fuel and for domestic use, alongside infrastructure development, strains Namibia's environment.⁷⁹ Walvis Bay serves as a pertinent case study of a small city experiencing rapid urbanisation, leading to strains on existing infrastructure.⁸⁰

73 See <https://english.news.cn/africa/20240301/42cae2ca368a43ba9fbd1fb2b3b5a2c0/c.html#:~:text=Namibia's%20geographical%20and%20climatic%20characteristics,the%20impacts%20of%20climate%20change.,> accessed 26 May 2024.

74 Ibid.

75 Venditto et al. (2022: 2).

76 Ibid.

77 Ministry of Environment, Forestry, and Tourism, Second National Integrated State of the Environment Report for Namibia (2021: 215-216).

78 Ibid.

79 Ibid.: 82.

80 Savelle et al. (2020: 50).

2.3.7 Invasive alien species

Invasive species are organisms introduced deliberately or inadvertently from one part of the world to another, where they can outcompete, prey upon, or parasitise native species.⁸¹ Namibia faces a significant challenge with invasive alien plants, with 38 trees or large shrubs, 62 flowering plants (forbs), and several grasses considered invasive.⁸² Among these, fifteen species pose serious economic and ecological threats. Many invasive shrubs are cactus species that thrive in Namibia's arid environments, while aquatic weeds can obstruct the few permanent water sources in the country. Dry riverbeds and other disturbed areas are especially susceptible to invasion, leading to diminished groundwater resources.

2.3.8 Topographic constraints

Key factors influencing soil erosion include land use (43%), topography (24%), and vegetation cover (23%).⁸³ Namibia's rugged terrain, steep slopes, and arid conditions worsen erosion, especially during intense rainfall, while sparse vegetation offers little protection.⁸⁴ This leads to fertile topsoil loss, reduced agricultural productivity, and degraded land and water resources.

A 2016 study in Windhoek highlighted severe water erosion, with 56% of the urban area affected, particularly in informal and semi-formal settlements.⁸⁵ The city's hilly topography accelerates runoff, contributing to rill and gully formation. Windhoek, hosting over 50% of Namibia's manufacturing and 80% of its finance and business services, also faces social and environmental challenges.⁸⁶

Approximately 60% of Windhoek's population are migrants, with many residing in informal settlements on steep terrain.⁸⁷ These areas often clear vegetation for housing, hygiene, and firewood, further worsening soil erosion. Population pressure and unregulated land use create a cycle of environmental degradation.

81 Hinz & Ruppel (2022: 234).

82 See <https://conservationnamibia.com/articles/invasive-alien-species-2022.php>, accessed 26 May 2024.

83 Ibid.: 29.

84 Ibid.: 8.

85 Shikangalah (2016: 44).

86 Ibid.: 14.

87 Ibid.

2.3.9 Other causes or drivers of soil degradation

Land degradation, especially desertification, threatens Namibia's communal semi-arid rangelands, home to half the population, primarily reliant on livestock farming.⁸⁸ Contributing factors include poverty, poor infrastructure, overstocking, and cultural norms valuing cattle ownership for status. A 1997 risk map identified population pressure, livestock density, rainfall, and erosion as key indicators.⁸⁹ Namibia's National Action Programme to Combat Desertification (NAP3) cites rural poverty, unsustainable water use, and weak cross-sector collaboration as major drivers.⁹⁰

Overstocking and overgrazing are critical issues in communal areas such as Northern Namibia, the Okavango River region, and the Zambezi floodplains.⁹¹ In some areas, stocking density exceeds carrying capacity by over 40%, reducing productivity and increasing erosion risk, especially during droughts.⁹² Open land access and uneven watering point distribution worsen the problem. While commercial farmers often practice rotational grazing, communal farmers face resource and infrastructure constraints.⁹³

A four-year community-based rangeland management program in communal rangelands showed mixed outcomes.⁹⁴ Though improving social and behavioural indices, it had little or no negative effects on rangeland health, cattle productivity, and household economics. Uncontrolled grazing by non-participants and unresponsive rangelands hindered results, highlighting challenges in achieving sustainable socio-economic and environmental goals.

2.4 Key actors in soil degradation

Both commercial and communal farmers contribute to soil degradation through overgrazing, poor land management, and deforestation. Government bodies including MAWLR, MEFT, and local authorities oversee soil conservation policies and programs. NGOs support these efforts through education, capacity building, and projects.

The Sustainable Environmental Education for Development (SEED) Programme, launched in 2022 with support from the Namibian Chamber of Environment, targets 500 learners across ten schools in Kunene and Erongo to foster a connection with

88 Schwieger & Mbidzo (2020: 1-2).

89 Ministry of Environment and Tourism, Land Degradation Neutrality National Report (2015: 8).

90 Ministry of Environment and Tourism, Third National Action Programme for Namibia to Implement the United Nations Convention to Combat Desertification (2014-2024: 23-27).

91 Ibid.: 28.

92 Ibid.

93 Ruppel et al. (2021: 455).

94 Coppock et al. (2022).

nature.⁹⁵ About 9% of Namibians live in communal conservancies, which sustainably manage natural resources.⁹⁶ By 2021, 86 conservancies were established.⁹⁷ The Namibian Nature Foundation (NNF) supports sustainable agriculture in Kavango and Zambezi regions, collaborating with partners to enhance food security and habitat protection for subsistence farmers in Bwabwata National Park.⁹⁸

Academic institutions such as the Desert Research Foundation of Namibia (DRFN) and the Namibia University of Science and Technology (NUST) contribute research and expertise to inform soil conservation. International agencies including the UN Development Programme (UNDP), the Food and Agriculture Organization (FAO), and the Global Environment Facility (GEF) provide funding, technical support, and expertise to bolster Namibia's soil conservation initiatives.

2.5 Conclusion

Soil degradation poses significant challenges to Namibia's agricultural productivity, environmental sustainability, and socio-economic development. Factors such as overgrazing, deforestation, inadequate land management, and climate change contribute to soil erosion, desertification, and loss of soil fertility across the country. While various actors are involved in soil conservation efforts, addressing soil degradation requires holistic approaches that integrate sustainable land management practices, policy interventions, capacity building, and community engagement. By prioritising soil conservation and adopting proactive measures to mitigate soil degradation, Namibia can safeguard its valuable natural resources, enhance food security, and promote resilient and sustainable development for current and future generations.

3 General information on public soil legislation

3.1 Policy frameworks, government strategies, action plans, etc.

3.1.1 International policies relevant to soil protection

3.1.1.1 Revised World Soil Charter

The Revised World Soil Charter (2015) is a pivotal document outlining principles and guidelines for the sustainable management and conservation of soils worldwide.

95 See <https://conservationnamibia.com/articles/seed-programme.php>, accessed 26 May 2024.

96 Conservation and the Environment in Namibia (2023: 43).

97 Hitchcock et al. (2021: 271).

98 See <https://www.nnf.org.na/>, accessed 26 May 2024.

Rooted in soils' critical role in food security, ecosystem health, and climate regulation, it underscores the urgency of protecting, restoring, and sustainably managing soils for long-term productivity and resilience. While non-binding, Namibia's endorsement of this Charter as an FAO member holds significant symbolic and political weight, signalling a commitment to global soil conservation and sustainable development efforts.

3.1.1.2 Voluntary Guidelines to Support the Progressive Realisation of the Right to Food

The Voluntary Guidelines to support the Progressive Realisation of the Right to Food were endorsed by the Committee on World Food Security at its 30th Session and adopted by the FAO Council in November 2004.⁹⁹ The Guidelines were the outcome of two years of intergovernmental negotiations involving the participation of civil society. Although they are not legally binding, the Guidelines offer policy recommendations to states and other stakeholders on various issues related to ensuring access to adequate food, including access to natural resources, education, legislation, and markets.

3.1.1.3 The 2030 Agenda for Sustainable Development instituting the Sustainable Development Goals

The global 2030 Agenda for Sustainable Development, spearheaded by the UN General Assembly, lays out seventeen Sustainable Development Goals (SDGs) with 169 associated targets.¹⁰⁰ Goal 15 takes centre stage in safeguarding terrestrial ecosystems, promoting sustainable forest management, combating desertification, and halting land degradation and biodiversity loss. Target 15.3 stands out as it aims for a land degradation-neutral world by 2030, underscoring the paramount importance of soil protection in achieving this goal. The Land Degradation Neutrality National Report on Namibia (2015) was published considering this goal.¹⁰¹ The Report states that the NAP3 already incorporates elements related to Goal 15, aiming to achieve land degradation neutrality.¹⁰² Additionally, other SDGs, such as Goal 12 for sustainable consumption and production, Goal 13 for climate action, and Goal 17 for partnership and implementation support, are also pertinent to soil conservation efforts.

99 See <https://www.fao.org/right-to-food/guidelines/en/>, accessed 26 May 2024.

100 See <https://sdgs.un.org/goals>, accessed 8 May 2024.

101 Ruppel & von Finckenstein (2016: 319).

102 National Planning Commission, Namibia's Second Voluntary National Review Report on the Implementation of the Sustainable Development Goals Towards Agenda 2030 (2021).

3.1.1.4 The land degradation neutrality initiative

Decision 36/COP.11, adopted in 2013, integrated the Namib Declaration, highlighting Namibia's commitment to strengthening the UN Convention to Combat Desertification (UNCCD) for a land degradation-neutral world.¹⁰³ The declaration emphasises enhancing UNCCD leadership, prioritising drought mitigation, improving the science-policy interface, empowering local communities, engaging the private sector, and promoting women's roles in land management. These elements collectively guide global actions to combat desertification and land degradation.

Land Degradation Neutrality (LDN), defined during the UNCCD's 12th Conference of the Parties, seeks to maintain or enhance land resources for ecosystems and food security, focusing on protecting and enhancing natural land and soil services.¹⁰⁴ Sustainable land management practices, including prevention and restoration, are vital for LDN, which requires integrated land-use planning to prevent further loss of natural capital. Namibia participated in the LDN pilot project in 2014/2015, implementing the LDN target-setting approach.¹⁰⁵

Namibia has, for instance, secured USD 150,000 from the Global Environment Facility, in collaboration with the UN Development Programme, to implement the Great Green Wall Innovation Programme aimed at combating desertification and creating productive landscapes across Africa.¹⁰⁶ Additionally, the country received USD 20,000 from the UN Convention on Biological Diversity for a bio-bridge project in the Ohangwena and Kunene regions, highlighting its commitment to LDN through targeted knowledge management and conservation efforts to promote sustainable land use and biodiversity in arid and semi-arid areas.¹⁰⁷

103 Ministry of Environment and Tourism, Concise Strategy and Action Plan for Namibia's Presidency of the 11th Conference of the Parties to the United Nations Convention to Combat Desertification (2014).

104 See <https://www.unccd.int/land-and-life/land-degradation-neutrality/overview>, accessed 8 May 2024; UNCCD-SPI Technical Series No. 01, Scientific Conceptual Framework for Land Degradation Neutrality. A Report of the Science-Policy Interface (2017).

105 See <https://www.isric.org/projects/developing-baselines-land-degradation-neutrality-target-setting-namibia>, accessed 8 May 2024; Erlewein & Hecheltjen (2018).

106 See, e.g., <https://www.namibian.com.na/namibia-making-strides-in-global-environment-agreements/>, accessed 26 May 2024; <https://www.unccd.int/our-work/ggwi#:~:text=The%20GGW%20initiative's%20ambition%20is,precious%20natural%20assets%3A%20fertile%20land>, accessed 26 May 2024.

107 See <https://www.namibian.com.na/namibia-making-strides-in-global-environment-agreements/>, accessed 26 May 2024.

3.1.1.5 Global Soil Partnership

Established in 2011, the Global Soil Partnership (GSP), under the leadership of the FAO, is committed to addressing global soil challenges.¹⁰⁸ Through collaboration among countries, international organisations, academia, civil society, and the private sector, the GSP promotes sustainable soil management practices, data collection, and awareness-raising initiatives. One of its key efforts is the development and implementation of the Voluntary Guidelines for Sustainable Soil Management (VGSSM), offering structured guidance to policymakers and stakeholders to enhance soil health and productivity while strengthening ecosystem resilience.¹⁰⁹

3.1.1.6 International Code of Conduct for the Sustainable Use and Management of Fertilisers

The International Code of Conduct for the Sustainable Use and Management of Fertilisers (2019) plays a vital role in promoting responsible fertiliser use in agriculture. It focuses on sustainable soil management, addressing nutrient imbalances, and mitigating soil pollution. The Code underscores the importance of regulations governing fertiliser products' sale, distribution, and labelling, alongside capacity development and education programs for stakeholders across the fertiliser value chain. Endorsed by the 41st Session of the FAO Conference, this Code aligns with global initiatives for sustainable agriculture and environmental preservation, including efforts such as the VGSSM.

3.1.1.7 African Union Agenda 2063

Agenda 2063, also known as 'the Africa We Want', serves as a visionary roadmap within the African Union (AU), guiding the continent's development and transformation.¹¹⁰ Adopted in 2015, it reflects Africa's collective aspirations for achieving inclusive and sustainable growth, emphasising unity, self-determination, freedom, progress, and collective prosperity. Although soil protection may not be explicitly mentioned, it is inherently tied to key components, particularly within the aspiration for inclusive growth and sustainable development (Aspiration 1).

108 See <https://www.fao.org/global-soil-partnership/en/>, accessed 8 May 2024.

109 For more information see <https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1027927/>, accessed 8 May 2024.

110 See also the Comprehensive African Agricultural Development Programme (CAADP), which is an Agenda 2063 continental initiative designed to promote agricultural development and food security across Africa. It was established by the AU in 2003 as part of the New Partnership for Africa's Development (NEPAD) and is endorsed by African heads of state and government.

This aspiration underscores the importance of valuing and protecting Africa's natural environment and ecosystems. Additionally, the Agenda commits to ensuring effective territorial planning and land tenure, use, and management systems. It promotes techniques such as agroforestry, conservation agriculture, and land-use planning.¹¹¹

3.1.1.8 The Regional Implementation Plan for the African Soil Partnership

The African Soil Partnership (AfSP), established in 2015, aims to unlock the potential of African soils for sustainable development, with a primary focus on food security and agricultural productivity.¹¹² Representing member nations from Sub-Saharan Africa, the AfSP recognises the diversity of African soils and seeks to promote sustainable land management practices to achieve broader development goals.

The Regional Implementation Plan for the AfSP (2016) underscores the pivotal role of soil for rural communities in Sub-Saharan Africa, particularly given the projected significant population increase by 2030. To address these challenges, the implementation plan prioritises enhancing food production and security, restoring land, and bolstering agricultural resilience to climate change. It delineates specific activities, budgets, and timelines for achieving sustainable soil management, calling for collaborative efforts from national governments and entities involved in natural resource management.

3.1.1.9 Framework and Guidelines on Land Policy in Africa

The Framework and Guidelines on Land Policy in Africa, established in 2010 through collaboration between the AU, the UN Economic Commission for Africa, and the African Development Bank (AfDB), are designed to advance Africa's socio-economic development by addressing land policy challenges comprehensively. This Framework offers a thorough examination of the historical, political, economic, and social dimensions of land in Africa, underlining its significance for economic growth and poverty alleviation.

While not explicitly centred on soil management, the Framework and Guidelines indirectly promote soil conservation and sustainable land use practices. By advocating for secure land tenure, it creates an enabling environment for soil management and conservation endeavours.

¹¹¹ See Sheppard et al. (2020).

¹¹² See <https://www.fao.org/global-soil-partnership/regional-partnerships/africa/en/>, accessed 8 May 2024.

3.1.1.10 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods

The Malabo Declaration, ratified by the AU in 2014, represents a significant policy initiative delineating agricultural objectives to be achieved by 2025. It highlights the central importance of agriculture in driving economic growth, reducing poverty, and ensuring food security throughout Africa. With a focus on sustainable agricultural practices, the Declaration seeks to enhance productivity, increase food accessibility, and elevate livelihoods across the continent.

3.1.1.11 Sirte Declaration on the Challenges of Implementing Integrated and Sustainable Development on Agriculture and Water in Africa

The Sirte Declaration on the Challenges of Implementing Integrated and Sustainable Development of Agriculture and Water in Africa, originating from the 2004 AU Summit in Libya, stands as a seminal policy document. It underscores the critical interdependence of agriculture and water for ensuring food security, driving economic growth, and maintaining environmental sustainability. Advocating for holistic approaches, the Declaration emphasises the need to leverage scientific research in agricultural planning to address challenges such as desertification, soil and water conservation, and environmental preservation.

3.1.1.12 African Union Climate Change and Resilient Development Strategy and Action Plan

The AU Climate Change and Resilient Development Strategy and Action Plan (2022-2032) stands as a pivotal framework to address climate change challenges and promote sustainable development throughout Africa. Centred on bolstering the resilience of African communities, ecosystems, and economies, the Strategy supports regional adaptation efforts. It delineates key strategic intervention axes, including strengthening governance and policy, adopting transformative climate-resilient development pathways, enhancing means of implementation, and leveraging regional flagship initiatives. One proposed action entail promoting soil biodiversity and managing soil organic carbon, essential for maintaining land productivity, water storage, erosion control, stability during extreme weather events, and carbon mitigation.

3.1.1.13 Soil Initiative for Africa

In 2020, during the Alliance for a Green Revolution in Africa Forum (AGRF), the AU proposed the establishment of the Soil Initiative for Africa (SIA), aiming to systematically enhance the health and productivity of Africa's soils over the long term.¹¹³ The initiative entails implementing policies, programs, and institutional structures to establish an effective soil management system across the continent. Both the SIA Framework Document, which outlines the long-term vision, and the Africa Fertiliser and Soil Health Action Plan, covering a ten-year horizon, are set to be officially endorsed and launched at the Africa Fertiliser and Soil Health Summit in 2024.¹¹⁴

3.1.1.14 Africa Fertiliser and Soil Health Summit

During the Africa Fertiliser and Soil Health Summit in Nairobi, Kenya, on 9 May 2024, AU heads of state and government tackled crucial issues concerning fertiliser use and soil health. The Summit concluded with the Nairobi Declaration, committing African leaders to enhance agricultural sustainability, improve smallholder farmer livelihoods, and boost local fertiliser production across the continent. The Summit's theme, "Listen to the Land", emphasised the importance of combating soil degradation to increase agricultural productivity and ensure food security. The ten-year Action Plan, detailing specific steps for leaders and stakeholders over the next decade, is a key aspect to monitor.

3.1.1.15 Other regional and sub-regional commitments of South Africa relevant to sustainable soil management

The Southern African Development Community (SADC) has crafted Vision 2050 as a strategic roadmap to realise a peaceful, inclusive, competitive, and industrially developed region by 2050. Under the pillar of Industrial Development and Market Integration, the aim is to cultivate a revitalised agricultural sector that prioritises sustainable management of the environment and its natural resources. Within the pillar of Social and Human Capital Development, a central objective is to bolster food and nutrition security to advance socio-economic prosperity across the region. Moreover, there is a dedicated focus on mitigating and adapting to the impacts of climate change.

The SADC Climate Change Strategy and Action Plan (2020-2030) serves as a comprehensive framework designed to tackle climate change challenges within the

113 See <https://faraafrica.org/soil-initiative-for-africa/>, accessed 8 May 2024.

114 See <https://au.int/en/AFSH-2024>, accessed 8 May 2024.

region.¹¹⁵ Emphasising the significance of collective action, capacity-building, and innovative strategies, the strategy aims to effectively address climate change impacts and build resilience across SADC member states.

The SADC Protocol on Forestry, initiated in 2002, functions as a regional policy framework aimed at enhancing collaboration in forestry activities across the region. Through the promotion of sustainable forestry practices, the protocol indirectly contributes to soil health. Healthy forests serve as vital components in preserving soil integrity and fertility by mitigating erosion, maintaining soil structure, and facilitating nutrient cycling.

The Regional Agricultural Policy of SADC ratified in 2014, acts as a strategic blueprint to standardise and improve agricultural methods throughout the region. In combating soil degradation, the policy suggests several interventions. These include advocating for integrated soil fertility management programs customised to diverse soil conditions, encouraging collaboration between the private and public sectors to optimise fertiliser production and distribution, and aligning regulations for the responsible use and disposal of fertilisers and agrochemicals.

3.1.2 National policies relevant to soil protection

3.1.2.1 Third National Action Programme for Namibia

The Namibian Program to Combat Desertification (NAPCOD) was implemented from 1994 to 2005 with a strategic focus on fostering collaboration across sectors, particularly between the environment and agriculture sectors.¹¹⁶ It aimed to raise awareness about the causes and effects of land degradation at national and local levels. NAPCOD also enhanced information on the location and rate of land degradation through a national indicator-based monitoring system. At the local level, NAPCOD activities included establishing Forums for Integrated Resource Management (FIRMs) and implementing the Local Level Monitoring (LLM) tool. These participatory approaches were designed for use by local resource managers.

Following NAPCOD, the Country Pilot Partnership (CPP) Programme was launched in 2007 as a comprehensive initiative to reverse land degradation in Namibia. The CPP aimed to address the root causes of land degradation through integrated cross-sectoral approaches.

The NAP3 is the framework for implementing the UNCCD between 2014 and 2024. Focused on sustainable land management, NAP3 addresses key challenges exacerbated by Namibia's arid climate. Identified issues include overgrazing,

¹¹⁵ See <https://www.sadc.int/pillars/environment-climate-change>, accessed 8 May 2024.

¹¹⁶ Ministry of Environment and Tourism, Third National Action Programme for Namibia to Implement the United Nations Convention to Combat Desertification (2014-2024).

overstocking of land, and water and soil degradation. NAP3 outlines practical steps to tackle these challenges, including awareness-raising and education initiatives, ensuring the availability of reliable data to inform policymaking, and establishing an effective monitoring system.

3.1.2.2 National Agricultural Policy

In 1995, Namibia's first National Agricultural Policy was introduced to guide the agricultural sector's development. It aimed to boost food production by smallholder farmers, enhancing employment, incomes, food security, and nutrition. While avoiding long-term subsidies, the policy allowed targeted subsidies for short-term goals.¹¹⁷ It emphasised the need to address land degradation, limited water resources, and the environmental impacts of agriculture, encouraging Environmental Impact Assessments (EIA) and reviewing agrochemical legislation.

In 2015, following a review and consultation process, a new National Agricultural Policy was launched. It encompasses various aspects, including land use, natural resource management, and sustainable farming practices. The Policy emphasises the importance of promoting agricultural productivity while ensuring environmental sustainability and resilience to climate change. Additionally, the Policy stipulates that the government will support research on technologies for enhancing soil fertility and enforce soil conservation through the implementation of relevant legislation.

3.1.2.3 National Drought Policy and Strategy

The National Drought Policy and Strategy of 1997 includes provisions to reduce long-term vulnerability to drought by improving soil fertility and moisture retention, necessitating sustainable farming methods. Similarly, the Regional Planning and Development Policy of 1997 promotes strategies such as controlled grazing cycles to mitigate soil degradation. However, some measures outlined in the Drought Policy, such as subsidies on fodder, have been found to contradict this objective.¹¹⁸

The National Drought Policy and Strategy shifts the responsibility for drought management from government-aided relief to empowering farmers with appropriate farming techniques to better cope with droughts. However, responses to crop failures in the north and northeast have reverted to relief programs.¹¹⁹ Drought preparedness is a crucial aspect of sustainable resource use, and conservancies throughout the country strongly advocate it.

117 Ruppel & von Finckenstein (2016: 324).

118 Ruppel & von Finckenstein (2022: 394).

119 Ibid.: 389.

The successful implementation of the Dry Land Crop Production Programme by the MAWF has contributed to increased food production and security in Namibia.¹²⁰ The Dry Land Crop Production Programme (DCPP) aims to enhance crop production, bolster food security, generate employment, and alleviate poverty and income disparities.

3.1.2.4 National Biodiversity Strategy and Action Plan

Namibia's Second National Biodiversity Strategy and Action Plan 2013-2022 (NBSAP) is a comprehensive framework aimed at conserving and sustainably managing the country's rich biodiversity. The Plan outlines strategies and actions to address key biodiversity challenges and promote the sustainable use of natural resources. Intact and healthy ecosystems, with their diverse array of plant and animal species, provide a wide range of essential benefits that support human well-being and the functioning of the planet. Clean air, clean water, and fertile soils are just a few of the critical ecosystem services that biodiversity helps to provide.

3.1.2.5 National Climate Change Policy

Namibia's National Policy on Climate Change, launched in 2011, provides a coherent, transparent, and inclusive framework for climate risk management. It aligns with Namibia's national development agenda and legal framework, acknowledging environmental constraints and vulnerabilities.¹²¹ The Policy aims to support sustainable development in line with Vision 2030 by enhancing national capacities to reduce climate change risks and build resilience. It also guides the government in developing climate-specific legislation for policy implementation.

The National Climate Change Strategy and Action Plan 2013-2020 (NCCSAP) of Namibia is a comprehensive framework designed to address the challenges posed by climate change. The NCCSAP outlines strategic interventions and actions to enhance Namibia's resilience to climate change impacts, mitigate GHG emissions, and promote sustainable development. The NCCSAP also provides an overview of the various regions in the country and their unique soil status.

120 See <https://afriagrimgazine.com/namibia-implements-dry-land-crop-production-program/>, accessed 26 May 2024.

121 Ruppel & von Finckenstein (2016: 325-326).

3.1.2.6 Forestry Strategic Plan

The Forestry Strategic Plan of Namibia 1996 is a crucial document outlining the country's forestry development goals at that time.¹²² The Forest Policy 2001 prioritises both conservation and sustainable utilisation of forests to improve the economic well-being of rural communities, contributing to the national poverty reduction plan. This is achieved through the Forest Act 12 of 2001.

Key elements of the Policy include effective property rights, a supportive regulatory framework, extension services, community forestry, and education.¹²³ In 2005, the Community Forestry Guidelines were introduced to help stakeholders establish and manage community forests, detailing legal procedures, organisational arrangements, and the roles of government officials and communities.

3.1.2.7 Wildlife Management, Utilisation, and Tourism in Communal Areas Policy

The Wildlife Management, Utilisation, and Tourism in Communal Areas Policy was approved by the Namibian Cabinet in 1995. This Policy aimed to grant rights over wildlife and tourism to residents of communal land. It facilitated the formation of common property resource management institutions known as conservancies. The Promotion of Community-Based Tourism Policy (1995) aimed to involve local communities, provide conservation incentives, address historical inequities, and promote sustainable utilisation.

3.1.2.8 National Policy on Community-Based Natural Resource Management

Namibia's Community-Based Natural Resource Management Programme (1996) is a combination of policy and legal reforms. It includes granting resource rights to local members of communal conservancies. These reforms empower communities to manage wildlife and benefit from tourism on communal land, fostering sustainable conservation and economic opportunities.

The 2013 version aims to provide a framework for the sustainable use of Namibia's natural resources. It promotes integrated land and natural resource planning and decision-making, considering land capability, economic return, and environmental, and human needs.¹²⁴ The Policy seeks to incentivise and provide economic benefits to rural communities for sustainable resource management. Key objectives include conserving

122 See <https://www.fao.org/4/AC917E/AC917E05.htm>, accessed 26 May 2024; Ministry of Agriculture, Water, and Forestry, Strategic Plan (2017/2018-2021/2022).

123 Ruppel (2022a: 89).

124 Ibid.: 86-87.

biodiversity using traditional knowledge, protecting communities' intellectual property rights related to natural resource management and commercialisation, and supporting rural communities in sustainable resource management.

3.1.2.9 National Policy on Sub-Division and Consolidation of Agricultural Land

The National Policy on Subdivision and Consolidation of Agricultural Land in Namibia aims to prevent land subdivision, promote land consolidation for agricultural entrepreneurs, and provide a harmonised legal framework. Issued in 2018, this Policy manages the use and distribution of agricultural land to balance agricultural productivity with sustainable land management practices, ensuring optimal use of agricultural resources for national development goals.

3.1.2.10 Land-use planning: Towards sustainable development

In 1994, a policy document was drafted outlining five physiographic landforms: communal state land, privately-owned commercial farmland, proclaimed state land, urban areas, and wetland systems, along with their catchment areas. The Policy emphasises sustainability, preserving natural resources, biodiversity, and essential ecological processes.

The Regional Planning and Development Policy, drafted in 1997, acknowledges the increasing degradation of pastures, rangelands, and woodlands. It emphasises soil, water, and forest management as critical development tools, promoting strategies such as soil conservation and controlled grazing cycles.

3.1.2.11 Environmental Assessment Policy

The Environmental Assessment Policy (1995) aims to achieve sustainable development and environmental conservation. It recognises the importance of economic development, poverty alleviation, and addressing historical inequities while safeguarding ecosystems and natural resources.

3.1.2.12 National Land Policy

The National Land Policy, formulated in 1998, aligns with constitutional principles and addresses historical social and economic injustices stemming from Namibia's colonial era. Central to this Policy is the establishment and proclamation of urban areas

as townships and municipalities, aiming to foster decentralisation and community involvement. It advocates for financial and tax incentives to encourage protecting and rehabilitating natural environments, including initiatives such as planting indigenous trees and adopting alternative energy sources to curb deforestation and pollution. One aim of this Policy is to establish a Land Use and Environmental Board (LUEB) to promote environmental protection and support coordinated planning and management at national and regional levels.¹²⁵ The LUEB will ensure that environmental protection is upheld to guarantee environmental, social, and economic sustainability.

The National Land Use Planning Policy was drafted in 2002. It provides a framework for implementing regionally integrated land use plans.¹²⁶

3.1.2.13 National Resettlement Policy

The National Resettlement Policy (2001) allows for the subdivision of large-scale commercial farms into smaller portions (1,500 to 3,000 hectares) to enhance productivity for resettled individuals, who are often better suited to manage small-scale farms.¹²⁷ The program, overseen by the MAWLR, seeks to resettle poor and landless Namibians on state-acquired commercial land, addressing unequal land distribution alongside the Resettlement Policy.¹²⁸

The Revised National Resettlement Policy (2023-2033), implemented in 2024, aims to support previously disadvantaged Namibians without sufficient agricultural land, focusing on those impacted by past discriminatory practices.¹²⁹ It classifies beneficiaries into three groups—commercial farmers on leased land, communal farmers, and non-farming individuals—and establishes three resettlement models based on economic value. The policy also grants freehold rights to beneficiaries meeting lease conditions and provides tailored support to promote agricultural productivity and sustainable land management. Successful implementation will depend on regional resettlement committees and community involvement, supported by an educational campaign.

Lawmakers highlighted challenges faced by farmers, including limited access to capital and training, water scarcity, and difficulties securing loans.¹³⁰ In response, the Deputy Minister of Agriculture, Water, and Land Reform mentioned a ND 30 million revolving fund since 2009 that offers no-collateral loans of ND 200,000, although 48%

125 Ruppel & von Finckenstein (2016: 323).

126 Ruppel (2022a: 85).

127 Shigwedha (2004).

128 Haimbili (2024: 36-37).

129 See <https://economist.com.na/86459/community-and-culture/updated-national-resettlement-policy-to-be-implemented-from-april/>, accessed 3 August 2024.

130 See <https://namibianfarming.com/resettlement-boost-government-mulls-bumping-up-loans-for-farmers/>, accessed 3 August 2024.

remain unpaid.¹³¹ Discussions are underway to potentially double the loan amount to ND 500,000 to enhance support for resettled farmers.¹³²

3.1.2.14 National Land Tenure Policy

The National Land Tenure Policy encompasses all land tenure systems in urban, communal, commercial (freehold), and resettlement areas, aiming to guide land tenure rights across Namibia.¹³³ It promotes the sustainable use of land and resources, regulates different land tenure systems, provides secure tenure for informal urban settlers, farm workers, and occupiers (those employed less than ten years on a single farm without secure tenure elsewhere), and outlines compensation guidelines for occupiers of expropriated land.

3.1.2.15 Green Scheme Policy

The Green Scheme Policy (2003) provisions several irrigation projects in Namibia. Conducted by the MAWF, the Green Scheme aims to boost irrigation-based agronomic production, thereby, increasing agriculture's contribution to Namibia's GDP. The initiative seeks to promote social development and uplift communities in suitable irrigation areas, enhance human resource and skills development within the irrigation sub-sector, and encourage cross-border investment and resource exchange with neighbouring countries.

However, the Policy's implementation has been inconsistent, facing several challenges.¹³⁴ A major concern is the potential biodiversity loss if the project expands as planned.¹³⁵ Additionally, the GSP has been criticised for overly focusing on irrigation schemes as the main driver of agricultural production, despite Namibia's status as one of the driest countries.

3.1.2.16 National Rangeland Management Policy and Strategy

The National Rangeland Management Policy and Strategy, established in 2012, aims to address the degradation of Namibia's rangelands. It focuses on sustainable

131 Ibid.

132 Ibid.

133 Ruppel & von Finckenstein (2016: 323).

134 Mughongora (2018); Subasubani (2012).

135 Ministry of Environment and Tourism, Policy Review on Issues Pertinent to the Improvement of Land Management and Biodiversity Conservation (2005: 11-12).

management practices to improve rangeland health and productivity. Key strategies include implementing controlled grazing cycles, enhancing soil conservation efforts, and promoting water management practices. The policy seeks to ensure the long-term viability of rangeland ecosystems, supporting both environmental sustainability and the livelihoods of those dependent on these resources.

3.1.2.17 Country Strategic Plan

The Namibia Country Strategic Plan (CSP), from 2017 to 2024, focuses on enabling vulnerable populations to meet their food and nutrition needs and informing policy through evidence and knowledge. The CSP acknowledges that food and livestock production in communal areas has remained significantly low, due to limited access to modern farming technologies and practices, poor soil fertility, overgrazing, and prolonged dry spells.

3.1.2.18 Vision 2030

Namibia's Vision 2030, launched in June 2004, aims to guide the country's development up to 2030 through sequential five-year National Development Plans (NDPs). Addressing challenges such as low land capability, water scarcity, variable grazing availability, and low livestock carrying capacity, Vision 2030 aims to ensure equitable access to land and natural resources for all Namibians, promoting sustainable and efficient use while maximising the country's comparative advantages.

The NDP5, from 2017 to 2022, serves as Namibia's five-year development framework. It aims to achieve inclusive, sustainable, and equitable economic growth, build capable and healthy human resources, ensure a sustainable environment, and promote good governance through effective institutions. NDP5 also states that the overall production scale of smallholder farmers is lower due to limited access to inputs and poor soils, restricted access to land, frequent natural disasters such as droughts and floods, and limited access to sustained technological progress. NDP5 was recently extended for two years beyond its original end date.

3.1.2.19 Green Plan

Namibia's Green Plan, introduced at the Rio Conference in 1992, is a cornerstone of the country's environmental strategy. Developed through collaboration between governmental and non-governmental organisations, it outlines policies, legislation, and strategies for sustainable management of wildlife, tourism, and fisheries, as well as

environmental education.¹³⁶ One of its significant outcomes is the Environmental Management Act 7 of 2007 (EMA), which enables environmental protection through assessments and strategic planning. Additionally, the Green Plan has led to the establishment of Integrated Regional Land Use Plans, Community-based Natural Resource Management initiatives, a thriving nature-based tourism sector, and various water management and renewable energy projects. The Plan also facilitated the creation of the Environmental Investment Fund of Namibia,¹³⁷ highlighting the country's commitment to environmental conservation and sustainable development.

3.2 Relevant international law for the protection of soils

Article 144 of the Namibian Constitution incorporates the general rules of public international law and binding international agreements into Namibian law unless specified otherwise by the Constitution or Act of Parliament. Namibian national authorities and the judiciary can, thus, apply international law directly at the national level, reducing the need to resort to regional or international judicial bodies. International agreements automatically become Namibian law upon their entry into force, regulated by Articles 32(3)(e), 40(i), and 63(2)(e) of the Constitution. Importantly, the Constitution does not mandate the promulgation of an international agreement for it to be legally binding within Namibia.¹³⁸

While international conventions recognise the importance of soil conservation, there is currently no overarching, global, and binding framework specifically dedicated to soil conservation. Despite this absence, Namibia's incorporation of international law into its legal system underscores its commitment to addressing global challenges, including soil conservation, within its national context.

3.2.1 Relevant international soft law commitments

While not legally binding, soft law instruments often serve as influential precursors to binding international agreements. Namibia has signed several pertinent international soft law instruments related to soil protection, including the Universal Declaration of Human Rights (1948),¹³⁹ the Stockholm Declaration (1972),¹⁴⁰ the Rio Declaration on

136 Ruppel & von Finckenstein (2022: 77-79).

137 See <https://www.eif.org.na/>, accessed 26 May 2024.

138 Ruppel & von Finckenstein (2016: 381).

139 UNGA, Universal Declaration of Human Rights, 10 December 1948, Resolution 217 A (III).

140 UNEP, Declaration of the UN Conference on the Human Environment. Report, Stockholm, 5-16 June 1972, A/CONF.48/14/Rev.1.

Environment and Development (1992),¹⁴¹ Agenda 21,¹⁴² the Future We Want outcome document of the UN Conference on Sustainable Development (Rio+20 Conference) (2012),¹⁴³ the 2030 Agenda for Sustainable Development, instituting the SDGs (2015),¹⁴⁴ and the Johannesburg Declaration on Sustainable Development (2002).¹⁴⁵

These soft law instruments offer guiding principles and frameworks for promoting sustainable development and environmental conservation, indirectly contributing to soil protection efforts.

3.2.2 Relevant international hard law instruments¹⁴⁶

Namibia is a signatory to various international hard law instruments related to protecting soil, including:

- The UN Convention to Combat Desertification, 1994 (ratified in 1994).
- The Convention on Biological Diversity, 1992 (ratified 1992).
- The UN Framework Convention on Climate Change, 1992 (ratified in 1992).
- The Kyoto Protocol to the UN Framework Convention on Climate Change, 1997 (acceded to in 2003).
- The Paris Climate Change Agreement, 2015 (ratified in 2016).
- The Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1998 (acceded to in 2005).
- The Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, 1989 (acceded to in 1995).
- The Stockholm Convention on Persistent Organic Pollutants, 2001 (ratified in 2005).
- The African Convention on the Conservation of Nature and Natural Resources, 1968 (revised by the Maputo Convention in 2003) (signed in 2003).
- The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and their Destruction, Geneva, 1993 (ratified in 1993).

141 UNCED, Rio Declaration on Environment and Development. Report, Rio de Janeiro, 3-14 June 1992, A/CONF.151/26 (Vol. I).

142 UN, Agenda 21: Programme of Action for Sustainable Development. A/CONF.151/26 (Vol. I). New York: United Nations, 1993.

143 UN, The Future We Want: Outcome of the UN Conference on Sustainable Development (Rio+20). Rio de Janeiro, Brazil, 20-22 June 2012.

144 UN, Transforming Our World: The 2030 Agenda for Sustainable Development. A/RES/70/1, 2015.

145 UN, Johannesburg Declaration on Sustainable Development. Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 2-4 September 2002, A/CONF.199/20.

146 See Ruppel (2022b).

- The Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat, 1971 (acceded to in 1995).
- The Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Montreal, 2000 (signed in 2000).
- The Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, 1981 (acceded to in 2016).
- The Protocol Concerning Co-operation in Combating Pollution in Cases of Emergency, 1981 (ratified in 1993).
- The International Plant Protection Convention, 1951 (acceded to in 2007).
- The International Covenant on Economic, Social, and Cultural Rights, 1966 (ratified in 1994).
- Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa, 2003 (ratified 2004).
- The African Charter on Human and Peoples' Rights, Banjul, 1981 (ratified in 1995).

These international agreements provide a framework for cooperation and action to address various aspects of environmental conservation on a global scale.

3.3 Relevant national legal provisions for the protection of soil

3.3.1 Constitution

Article 100 of the Constitution vests all natural resources in the state, unless otherwise legally owned. Thus, unless legal ownership in a specific locality is proven, such natural resources are owned by the state. This provision implies that natural resources can be legally owned as private property.¹⁴⁷

Additionally, Article 95(1) obliges Namibia to protect its environment and promote the sustainable use of its natural resources. This provision compels state organs to be guided by the environmental principle of state policy.

¹⁴⁷ Ruppel & von Finckenstein (2022: 392).

3.3.2 Legislation on land tenure (land ownership, access, and users' rights), as an anchor point for soil protection

3.3.2.1 Historical overview of landownership

Before Namibia's independence, land management in communal areas was shaped by traditional authorities and colonial rulers, creating a skewed land tenure system that still influences the country today.¹⁴⁸ In pre-colonial times, land use was organised communally, with pastoralists in southern Namibia practising high mobility and northern agro-pastoralists having permanent household landholdings alongside shared pastures.¹⁴⁹

Land appropriation began in the 1880s with German colonisation, peaking during the German-Nama and German-Herero wars (1904-1908).¹⁵⁰ After 1919, Namibia came under South African administration, leading to further displacement of indigenous peoples. The mid-1890s saw the establishment of a "veterinary border" to contain rinderpest, which evolved into the "Red Line," creating significant socio-political and economic divisions in Namibia.¹⁵¹ Most areas south of this border became the Police Zone, aimed at developing a settler farm economy under strict police control.

Two land allocation systems emerged: within the Police Zone, land was allocated authoritatively under colonial regulations, while outside, traditional leaders maintained some influence.¹⁵² Colonial proclamations further entrenched racial segregation in land ownership.¹⁵³ The Odendaal Commission in the 1960s established "homelands" for various ethnic groups, yet land ownership remained ambiguous, with land vested in the state.¹⁵⁴

Upon independence, communal lands were recognised but remained state-owned. Today, Namibia's land tenure comprises freehold in urban areas and commercial farms, alongside customary tenure in rural communal land.¹⁵⁵ Freehold land is primarily privately owned. At independence, 40.8% of Namibia's land was allocated to

148 Werner (2021: 6-8).

149 Nghitevelekwa (2022: 156).

150 Mundia & Haimbili (2023: 2-4).

151 Lenggenhager et al. (2021: 1).

152 Werner (2021: 6-8); Native Reserves Regulations, Government Notice 68 of 1924.

153 Treaty of Peace and South West Africa Mandate Act 49 of 1919; Crown Lands Disposal Proclamation 13 of 1920; Reservation of State Land for Natives Ordinance 35 of 1967; Native Administration Proclamation 11 of 1922; Native Administration Proclamation 15 of 1928; Native Reserve Regulation 68 of 1924; Development Trust and Land Act 18 of 1936.

154 Werner (2021); Development of Self-Government for Native Nations Act 54 of 1968, Section 2 of the Act specifically listed Damaraland, Hereroland, Kaokoland, Okavangoland, Eastern Caprivi, and Ovamboland as native areas. The Representative Authorities Proclamation, AG. 8 of 1980 established second-tier representative authorities for eleven "population groups". These authorities were granted legislative powers over communal land matters, including acquisition, alienation, and occupation, as well as powers to appoint traditional leaders.

155 Mendelsohn et al. (2012: 3).

indigenous homelands, 43% to predominantly white commercial farmers, 14% for conservation, and a small portion unallocated.¹⁵⁶ Rights on communal land include customary land rights, leasehold rights, and occupation rights.¹⁵⁷

3.3.2.2 Modern landownership

Until 1990, the Native Administration Proclamations of 1922 and 1928 continued to regulate the allocation and management of land.¹⁵⁸ However, significant changes occurred with the repeal of the former by the Local Authorities Act 23 of 1992.

In 1991, the Namibian government organised a National Conference on Land Reform and the Land Question, adopting a policy of national reconciliation. This marked the beginning of legal and land reform policies based on principles such as sovereignty and the right to property derived from international law. A second National Land Conference was convened in 2018 to review and deliberate on land-related matters. It aimed to accelerate land reform and propose contemporary reforms in various aspects of land governance.

Article 16(1) of the Constitution protects the right of all persons to acquire, own, and dispose of immovable and movable property in any part of Namibia, either individually or in association with others. It also allows individuals to bequeath their property to anyone they wish after death. However, this property right is constrained by Article 16(2), which grants the state the authority to expropriate private property in the public interest, if compensation is paid.¹⁵⁹ Article 21(1)(h) states that every person has the right to reside and settle in any part of Namibia. However, Article 21(2) allows the state to enact laws that impose reasonable restrictions on this right. Article 23 of the Constitution provides Parliament with the authority to create legislation aimed at improving the conditions of individuals who have been disadvantaged due to past discriminatory laws or practices.

156 Jones (1999: 1).

157 Lenggenhager et al. (2021: 2).

158 Werner (2021: 13).

159 See *Namibia Grape Growers and Exporters Association v Ministry of Mines and Energy* 2004 NASC 6 (25 November 2004); *Ongwediva Town Council v Jonas* 2018 NAHCNLD 22 (12 March 2018).

3.3.2.3 Acquiring land under statutory law

3.3.2.3.1 Acquiring land from the state¹⁶⁰

The Minister of Finance is empowered under Section 64 of the Public Procurement Act 15 of 2015 to prescribe methods for the disposal of state property, which may include various contracting methods such as open bidding, public auctions, restricted bidding, or direct negotiations.

Initiated in 1990, the Land Reform Programme comprises four main components: redistributive land reform (including the Resettlement Scheme), tenure reform, development of unutilised communal land, and the Affirmative Action Loan Scheme (AALS).¹⁶¹

The Agricultural Commercial Land Reform Act (ACLRA) was the initial legislation aimed at addressing the unequal distribution of agricultural land.¹⁶² It provides a framework for the Resettlement Scheme and AALS. The National Resettlement Programme (NRP) allows the state to purchase large-scale commercial farms on a “willing seller-willing buyer” basis.¹⁶³ Section 17(1) gives the state a preferential right to acquire agricultural land offered for sale. Once purchased, these farms are subdivided and allocated to small-scale farmers or previously disadvantaged Namibians, who lease the land for 99 years (Section 42(2)). Between 1990 and May 2019, 6,100 farms covering 19.7 million hectares were offered for sale, with usage regulated by legislation.¹⁶⁴

The AALS, established in 1992, aims to support full-time indigenous farmers with access to subsidised loans through AgriBank to purchase land, subject to certain conditions, including ownership of livestock and capital requirements.¹⁶⁵ Unlike NRP beneficiaries, AALS participants secure ownership of their farms.

Leasehold rights granted under the ACLRA are rarely registered, which often leads to instances where the same parcel of land is allocated to multiple parties.¹⁶⁶ A notable example of such double allocation occurred in the case of *Kandombo v The Minister of Land Reform*.¹⁶⁷

Customary tenure on communal land is regulated by the (Agricultural) Communal Land Reform Act 5 of 2000 (CLRA), which was enacted to address the allocation of

¹⁶⁰ On land-use planning see Owoses (2022).

¹⁶¹ Haimbili (2024: 26-30).

¹⁶² Mundia & Haimbili (2023: 9-10).

¹⁶³ Werner & Kruger (2007: 12).

¹⁶⁴ Lendelvo et al. (2020: 39).

¹⁶⁵ Haimbili (2024: 38); The program was introduced through the Agricultural Bank Amendment Act 27 of 1991 and the Agricultural Bank Matters Amendment Act 15 of 1992.

¹⁶⁶ De Villiers et al. (2020: 25).

¹⁶⁷ 2016 NAHCMD 3 (18 January 2016).

land rights in communal areas and curb the power of traditional leaders.¹⁶⁸ The CLRA establishes Communal Land Boards (CLBs) and defines two primary categories of land rights (Section 19): customary land rights for farming and residential use, and leasehold rights for business and commercial agriculture.¹⁶⁹

Leasehold rights replace the Permission to Occupy (PTO) system established before independence, granting rights for a maximum of 99 years, with longer leases requiring Ministerial approval.¹⁷⁰ A PTO conveys no ownership rights but includes an option for the holder to obtain secure title to the land if such title becomes available during the currency of the PTO.¹⁷¹ While the Deeds Registries Act 47 of 1937 governs the registration of land titles, the CLRA recognises existing rights under the PTO system and allows for their conversion to leasehold rights.¹⁷²

Under the CLRA, customary land rights are protected but cannot be mortgaged or transferred, whereas leasehold rights can be.¹⁷³ Thus, despite the state's view that customary land rights offer similar security to freehold ownership, they cannot be used as collateral, which limits their value compared to freehold rights.¹⁷⁴

Group tenure on communal land allows for commonage grazing and wildlife management, although these rights may conflict with leasehold arrangements, leading to resource management challenges.¹⁷⁵

The Flexible Land Tenure Act 4 of 2012 aims to provide security of tenure for informal settlement residents. It establishes a system offering starter and land-hold title schemes. Starter titles grant rights to occupy and build but cannot be mortgaged, while land-hold titles confer full ownership rights, including the ability to mortgage the land. This system facilitates the transition from informal settlements to legally recognised communities. While the Flexible Land Tenure Act allows residents with land hold titles to use them as collateral for loans (Section 10(5)(b)), most residents in low-income urban areas are effectively excluded from securing bank loans with their property due to unstable income.¹⁷⁶ Consequently, a vibrant informal land market persists in some informal settlement areas.

168 De Villiers et al. (2020: 25); Haimbili (2024: 39).

169 Nghitevelekwa (2022: 157-158).

170 Amoo (2023: 25)

171 Ibid.: 27.

172 The Deeds Registries Act 47 of 1937 governed the registration of land titles for the entire country except for Rehoboth, for which there was the Registration of Deeds in Rehoboth Act 93 of 1976. The Deeds Registries Act 14 of 2015, which came into force in 2021, replaced and consolidated both the previous Deeds Registries and the Rehoboth Acts.

173 De Villiers et al. (2020: 26-27).

174 Ibid.: 37-38.

175 Werner (2021: 33); NAHCMD 250 (A 276/2013), *The N#jagna Conservancy Committee v The Minister of Lands and Resettlement*, 13 September 2016.

176 Ibid.: 37.

3.3.2.3.2 Acquiring the private land of an individual

Acquiring private land in Namibia involves several legal steps. The buyer and seller must agree on terms, including the price and conditions, formalised in a signed agreement. The buyer should investigate the property, checking the Title Deed at the Deeds Registry for ownership and encumbrances such as unpaid taxes or disputes.

Under Section 58(1)(a) of the ACLRA, foreign nationals need written MAWLR consent to acquire agricultural land.¹⁷⁷ For such land, the state has a preferential right, thus, it must be offered to the state before private sale.

A conveyancer handles the transfer process, preparing documents including the Deed of Transfer and ensuring sale conditions are met. Buyers must pay transfer duty, which depends on property value. The conveyancer registers the property at the Deeds Registry, officially transferring ownership and issuing a new Title Deed. The purchase price is typically held in a trust account until registration is complete.

3.3.2.4 Traditional law

Before the introduction of the CLRA, traditional leaders in communal areas primarily held an informal role in land management.¹⁷⁸ The introduction of the CLRA aimed to address longstanding land issues such as conflicts over land rights, illegal fencing off communal land for private use, arbitrary decisions by traditional leaders, and the sale of communal land by traditional leaders. By centralising control over communal land and establishing accountability mechanisms, the CLRA sought to mitigate these challenges and ensure more equitable and transparent land management practices.

The CLRA recognises the role of traditional authorities in communal land administration by granting traditional authorities the power to allocate customary land rights, under the supervision of CLBs (Section 20). This does not threaten traditional leaders' rights under Article 102(5) of the Constitution, which establishes a Council of Traditional Leaders to advise the President on communal land control and utilisation.¹⁷⁹

The TAA establishes the framework for recognising and appointing traditional leaders in Namibia. It defines communal areas as territories habitually inhabited by specific traditional communities, excluding local authority areas (Section 1). Each community can form a traditional authority consisting of its chief or head and senior councillors (Section 2). These authorities have jurisdiction over their communities and are tasked with promoting peace, preserving culture, and advising on traditional matters (Section 3). According to Section 3(2)(c), a member of a traditional authority must ensure that the members of their traditional community use natural resources

177 Confirmed in *Wohlfart v Bergh* 2019 NAHCMD 264 (28 May 2021).

178 Behr et al. (2015: 456).

179 Amoo (2023: 263).

sustainably, conserving the environment and maintaining ecosystems for the benefit of all persons in Namibia. Traditional authorities must align with government policies and refrain from actions that undermine governmental institutions (Section 16).

3.3.2.5 Conflicts and means of conflict resolution

In communal land administration, challenges arise when only recognised traditional leaders can perform CLRA functions, leaving areas without such leaders unable to implement procedures.¹⁸⁰ Overlapping jurisdictions among traditional authorities complicate land governance, especially in the Omaheke and Otjozondjupa Regions, where multiple authorities claim the same areas, hindering CLB approval processes and excluding communities such as the Ovaherero from land allocation.¹⁸¹ Investigations in the Kunene Region revealed disputes over land parcels allocated by different authorities, highlighting the need to amend the TAA to clarify territorial jurisdiction and empower CLBs.¹⁸²

Ambiguity regarding the roles of traditional authorities complicates efforts to enforce equity and gender equality in land allocations.¹⁸³ Traditional authorities administer customary laws while adhering to constitutional principles of equality, yet neither the CLRA nor the TAA provides clear guidelines for reconciling customs with statutory requirements.¹⁸⁴ This leaves vulnerable groups, particularly widows, at risk of eviction and land grabbing justified by customary practices.

In regions such as Tsumkwe West and Kavango East and West, traditional authorities have sold land with customary rights to investors, displacing residents.¹⁸⁵ Instances of granting land rights in exchange for favours or money, as seen in Nꞁa Jaqna, have also occurred.¹⁸⁶ The CLRA lacks timelines for processing applications and does not require accountability from traditional authorities or CLBs regarding land allocations, resulting in undisclosed agreements between investors and traditional authorities.¹⁸⁷

To address these issues, clear guidelines for transparent and accountable land allocation processes that align customary laws with constitutional principles are necessary.¹⁸⁸ Legislative amendments, clarification of jurisdictional issues, and legal training for dispute resolution are essential.

180 Werner (2021: 19-20).

181 Ibid.: 23; Hinz (2008: 81).

182 Werner (2020: 261).

183 Werner (2021: 20).

184 Ibid.: 22.

185 Mendelsohn & Nghitevelekwa (2017: 16).

186 Hitchcock et al. (2021: 279).

187 Chiari (2004: 9); Thiem & Muduva (2015: 23).

188 Werner (2021: 22).

Dispute resolution management varies by land tenure system but follows consistent principles. Initially, disputes are resolved by the authority that allocated or registered the rights, such as traditional authorities or CLBs. Appeals are handled by an arbitrator or the Lands Tribunal for communal land rights, with unresolved matters overseen by Namibia's civil courts.

Effective conflict management relies on accessible dispute resolution mechanisms. Legislation such as the Flexible Land Tenure Act and CLRA facilitates access, while informal internal dispute resolution offers cost-effective alternatives. However, without specific legislative mechanisms, disputes often end up in the civil court system, which may be inaccessible to vulnerable groups including farm workers and informal settlers. For example, in 2013, many people were unaware of the Lands Tribunal, indicating ineffective land reform and a disconnect between the state and landowners.¹⁸⁹ As of 2024, little is known about the Tribunal's status, raising questions about its effectiveness in adjudicating land disputes.

3.3.3 Public environmental law

3.3.3.1 Environmental law, relevant provisions concerning soils

The EMA is vital for environmental protection in Namibia, promoting sustainable resource use and enforcing constitutional principles. It aims for integrated environmental management and mandates Environmental Impact Assessments (EIAs) for projects affecting the environment.¹⁹⁰ While the EMA encompasses land and materials, it does not specifically address soil protection. However, it requires environmental clearance certificates (ECCs) for land use activities, which are essential for soil management.¹⁹¹

The EMA empowers the Minister to introduce regulations aligned with international agreements, but as of 2024, no specific soil-related regulations have been enacted.¹⁹² Public access to environmental information is limited; while the EMA allows state organs to access environmental data (Section 47), it does not mandate full transparency in information sharing. The Access to Information Act 8 of 2022 requires public entities to disclose certain environmental information (Section 33(1)(h)), but this only applies to information produced by government bodies.

189 Ibid.

190 Environmental Impact Assessment Regulations are contained in GN 30/2012 (GG 4878).

191 A list of activities that may not be undertaken without an ECC is contained in GN 29/2012 (GG 4878) and GN 34/2016 (GG 5962); notice listing waste disposal sites is contained in GN 282/2018 (GG 6753); declaration of waste disposal sites is contained in GN 324/2023 (GG 8223).

192 Ruppel & von Finckenstein (2022: 399).

Namibia has an Environmental Information Service (EIS), a platform for accessing environmental data, which supports public access to information.¹⁹³ However, public participation in the EIA process has been scrutinised due to incidents such as ReconAfrica's oil exploration and illegal mining allegations, leading to community distrust in the EIA's effectiveness.¹⁹⁴

To address transparency issues, the Namibian Environment and Wildlife Society (NEWS) and the Namibian Chamber of Environment (NCE) launched the EIA Tracker in 2023, improving access to project information.¹⁹⁵ Despite this progress, challenges remain, such as potential gaps in tracking smaller projects, limited internet access in rural areas, and the overwhelming nature of technical data. Meaningful community engagement requires more than just data access; it necessitates opportunities for active participation in decision-making processes.

3.3.3.2 Nature conservation

3.3.3.2.1 Soil

The Soil Conservation Act 76 of 1969, still applicable in Namibia, grants extensive powers to the Minister, including issuing directives on land cultivation, water management, and soil protection (Section 3(1)). The Act includes provisions for preventing and controlling soil erosion, as well as for protecting, improving, and conserving soil, vegetation, and water supply sources and resources.¹⁹⁶

Originally limited to commercial land, the Act now applies to communal areas, following the CLRA (Section 45(1)(i)). The Minister has discretion over soil conservation works, with costs shared by the state or landowners (Part II and Section 7(2)). The Act allows for soil conservation research or demonstrations with landowner consent (Section 8). Soil Conservation Committees, outlined in Part III, are advisory bodies to the Minister (Sections 9(1) and 10), although none are currently active.¹⁹⁷ The Act grants the Minister wide expropriation powers for soil erosion prevention and land stabilisation, along with drift sand prevention and catchment area protection (Section

193 See <http://the-eis.com/>, accessed 29 July 2024.

194 See <https://news.mongabay.com/2021/03/growing-concern-over-okavango-oil-exploration-as-community-alleges-shutout/>, accessed 29 July 2024; [https://www.namibian.com.na/govt-ac-cuses-xinfeng-of-illegal-drilling-on-resettlement-farms/#:~:text=The%20company%20also%20started%20mining,its%20activities%20were%20above%20board.](https://www.namibian.com.na/govt-ac-cuses-xinfeng-of-illegal-drilling-on-resettlement-farms/#:~:text=The%20company%20also%20started%20mining,its%20activities%20were%20above%20board.,), accessed 29 July 2024; <https://www.un-igrac.org/stories/plans-uranium-situ-leach-mining-namibias-largest-trans-boundary-aquifer>, accessed 29 July 2024; <https://conservationnamibia.com/blog/eia-tracker.php>, accessed 29 July 2024.

195 See <https://eia-tracker.org.na/>, accessed 29 July 2024.

196 Ruppel & von Finckenstein (2022: 401).

197 Ruppel & von Finckenstein (2016: 330).

18). Penalties for non-compliance are detailed in Section 21, criminalising offences with fines or imprisonment.

However, effective soil conservation is impeded by fragmented responsibilities among directorates and ministries, with Conservation Committees inactive and duties delegated inconsistently.¹⁹⁸

3.3.3.2.2 Water

The Water Resources Management Act 11 of 2013, effective since 29 August 2023, repeals both the 2004 and 1956 water laws and aims to ensure equitable access to safe water, protect water quality, and support sustainable development.¹⁹⁹ The Act declares the state as a trustee of Namibia's water resources, requiring it to manage them for public benefit (Section 4).

The Act establishes a Water Advisory Council to advise the Minister, a Water Regulator to set tariffs and oversee providers, and Basin Management Committees to promote integrated management. The Minister has broad authority over water resource planning, domestic supply, and international negotiations. Certain powers can be delegated for efficient management, and the Minister can make regulations on various water issues (Section 129).

Licensing is required for water abstraction (Section 44), except for domestic use or private wells, and effluent discharge (Sections 38-39). The Act also addresses groundwater protection and pollution control, applying the precautionary principle. Water Protection Areas may be designated to protect resources at risk from degradation (Section 85).

The Act outlines offences (Section 127) for unlicensed water use and pollution, with a Water Tribunal established to handle appeals on licensing and Ministerial decisions (Section 120).

3.3.3.2.3 Forests

The Forest Act regulates tree harvesting to combat deforestation and reduce natural risks, emphasising sustainable forest management (Section 10).²⁰⁰ It promotes tree planting, soil and water conservation, and biodiversity preservation, supporting forests' environmental roles. The Act allows for protected areas (Section 21) and regulations for soil protection (Section 48) to safeguard natural resources.

198 Ibid.: 331.

199 Regulations in GN 269/2023 (GG 8187).

200 Regulations in GN 170/2015 (GG 5801).

While natural fires can benefit ecosystems, uncontrolled fires harm soil health, causing erosion and fertility loss. In 2021, fires destroyed 2.5 million hectares in Namibia.²⁰¹ The Act permits fire management areas around forests (Section 36), implementing plans for controlled burning and fire prevention. Temporary fire hazard declarations (Section 39) aim to protect Namibia's vegetation and promote sustainable forest management.

3.3.3.2.4 Air

The Atmospheric Pollution Prevention Ordinance 11 of 1976 aims to prevent air pollution with a focus on public health, covering noxious gases, smoke, dust, and vehicle emissions. However, it has had limited practical impact.²⁰²

The EMA, emphasising pollution control, mandates choosing options that minimise environmental harm (Section 3). The polluter-pays principle ensures those causing damage to bear the costs of rehabilitation. Activities requiring an ECC, published by the Ministry, include energy, waste management, mining, agriculture, and hazardous substances.²⁰³

Efforts to finalise the Pollution Control and Waste Management Bill, initiated in 1999, remain stalled.²⁰⁴ With amendments to the EMA, the adoption of the National Solid Waste Management Strategy (2017), and the enactment of the Public and Environmental Health Act 1 of 2015 in 2020, the Bill may potentially become obsolete.²⁰⁵

3.3.3.2.5 Biodiversity

The Nature Conservation Ordinance 4 of 1975 is Namibia's main legislation on wildlife conservation and protected areas. It consolidates laws to establish game parks, and nature reserves, and manage problem animals. A key 1996 amendment introduced communal conservancies, allowing rural communities to form conservancies and gain use rights over wildlife.²⁰⁶ These conservancies enable communal and commercial landholders to manage resources collectively and share conservation benefits.²⁰⁷

201 See <https://www.farmersweekly.co.za/agri-news/africa/over-two-million-hectares-destroyed-by-wildfires-in-namibia/>, accessed 26 July 2024.

202 Ruppel-Schlichting (2022: 217).

203 GN 29/2012 (GG 4878).

204 Ruppel-Schlichting (2022: 220-221).

205 Ibid.

206 Hinz & Ruppel (2022: 241).

207 Sec 1(b) of the Amendment Act defines a conservancy to mean any area declared a conservancy in terms of Sec 24A.

The Nature Conservation Amendment Act 3 of 2017 updated the Ordinance, establishing a framework for tourism concessions on protected and state lands, regulating the import/export of live animals, and increasing penalties for violations. The Ordinance's chapters cover topics from the Nature Conservation Board (Chapter I) to hunting regulations (Chapter III), problem animals (Chapter IV), indigenous plant protection (Chapter VI), and general procedural matters including permits and penalties (Chapter VII).

3.3.4 Environmental monitoring

The EMA establishes key bodies for environmental governance, including the Sustainable Development Advisory Council (Sections 6-15), which coordinates with state agencies, NGOs, community groups, the private sector, and funding bodies on sustainable development. Established in 2013, the Council advises the Minister on policies for environmental management, biodiversity conservation, and sustainable resource use, and prepares an annual report on its activities.²⁰⁸ The Environmental Commissioner (appointed in 2012, per Section 16), whose responsibilities include advising on environmental plans, overseeing ECC applications, and whose decisions may be appealed to the Minister and, subsequently, the High Court.²⁰⁹ Environmental Officers (Section 18) support the Commissioner by enforcing the EMA through inspections, investigations, and compliance orders.

Namibia's EIA system has supported sound decision-making and environmental protection but faces challenges such as limited funding, awareness, expertise, and monitoring.²¹⁰ Additionally, the Sustainable Development Advisory Council faces constraints such as resource limitations, narrow focus, weak partnerships, and insufficient advocacy capacity.²¹¹

3.3.5 Access to environmental justice²¹²

Article 5 of the Namibian Constitution enforces the protection of fundamental rights, while Article 25(2) allows individuals to seek court protection if they believe their rights are threatened. Article 18 ensures individuals aggrieved by administrative acts can seek redress, while Article 12 guarantees a fair, public hearing by an impartial

208 Ruppel-Schlichting (2022: 196).

209 GN 30/2012 (GG 4878).

210 Junias & Nakwaya-Jacobus (2024: 46).

211 Sustainable Development Advisory Council Annual Report (2020/2021).

212 See Ruppel (2022c); on investigating the options for an environmental court see Shakalela (2022).

court for civil and criminal matters alike. Article 10 emphasises equality before the law, and Article 80(2) grants the High Court authority over civil disputes, including constitutional matters. Article 24(3) prohibits derogation from rights and access to courts, even in emergencies.

However, Namibia's standing laws are restrictive, requiring plaintiffs to show direct interest, and limiting environmental litigation to individual cases or environmental organisations acting on their own behalf.²¹³ Legislative reform for broader standing, including public interest and class action options, would enhance access to justice. Specialised environmental courts could support justice in this area, offering expertise and innovative procedures and ensuring consistent rulings.²¹⁴ Local environmental tribunals, similar to Community Courts, could improve access for affected communities and address cases efficiently.²¹⁵ Establishing these courts would strengthen enforcement of environmental laws and enhance protection against issues relating to soil degradation.

3.3.6 Cross-cutting issues: Green hydrogen

Namibia is attracting multibillion-dollar investments in its oil, gas, mining, and green hydrogen sectors, with plans for infrastructure development, including ports, roads, railways, and pipelines for water and hydrogen.²¹⁶ The Ministry of Mines and Energy (MME) highlights that Namibia's solar and wind resources make it ideal for low-cost green hydrogen production.

Green hydrogen, produced by electrolysis powered by renewable energy, is seen as an eco-friendly alternative to fossil fuels.²¹⁷ Namibia's green hydrogen plan involves using solar power from the Namib Desert to split water into hydrogen and oxygen, then converting hydrogen into green ammonia for export to Europe.²¹⁸ This industry could boost Namibia's economy, create jobs, and reduce carbon emissions, supported by evolving legal frameworks and partnerships with the EU and other stakeholders.²¹⁹

However, green hydrogen production poses potential risks to soil health. Large renewable installations may lead to land clearing, soil erosion, contamination, and

213 Hinson & Hubbard (2012: 10-11); Clarified in *Tsumib v Government of Republic of Namibia* 2022 NASC 6 (16 March 2022); Ruppel (2022c: 664); Legal Assistance Centre (2023).

214 Shakalela (2022: 686-687).

215 Ibid.: 681.

216 See <https://www.energize.co.za/article/namibia-develop-new-infrastructure-bolster-energy-sector#:~:text=The%20envisioned%20infrastructure%20developments%20necessary,outlined%20by%20the%20Namibian%20Presidency.,> accessed 26 May 2024.

217 Ruppel & Katoole (2023: 3-4).

218 Aikins (2024: 13).

219 Ruppel & Katoole (2023: 1); See <https://www.climatechangenews.com/2023/11/15/green-hydrogen-namibia-europe-japan-tax-biodiversity-impacts/>, accessed 29 July 2024.

biodiversity loss.²²⁰ Increased hydrogen levels from potential leaks could also disrupt soil's natural hydrogen uptake process.²²¹ Addressing these concerns through careful planning and research is crucial to ensure that green hydrogen's benefits do not come at the cost of soil health.

3.4 Relevant ministries and state institutions and their responsibilities

3.4.1 Ministry of Agriculture, Water, and Land Reform

The MAWLR is tasked with promoting, developing, managing, and sustainably utilising agriculture, water, and land resources. While MAWLR holds the primary responsibility for soil management in Namibia, it is essential to acknowledge the complex and fragmented legal and policy framework surrounding soil conservation issues. Due to this complexity, various government bodies may also become involved in soil conservation efforts, leading to potential overlaps in terms of authority and competence.

3.4.2 Ministry of Environment, Forestry, and Tourism

The MEFT is responsible for overseeing environmental protection, conservation, and sustainable development in Namibia. It indirectly contributes to soil protection by safeguarding ecosystems and natural habitats.

3.4.3 Ministry of Mines and Energy

The MME plays a crucial role in managing and regulating the country's mineral, geological, and energy resources. It is responsible for resource extraction practices, which can impact soil quality.

3.4.4 Ministry of Industrialisation and Trade

The Ministry of Industrialisation and Trade (MIT) focuses on promoting economic growth, reducing income inequality, and increasing employment. Responsible industries minimise soil pollution and degradation.

²²⁰ Chigbu & Nweke-Eze (2023).

²²¹ Buzzard et al. (2022); Ocko & Hamburg (2022); See <https://cmi.princeton.edu/annual-meetings/annual-reports/year-2020/the-key-role-of-soils-in-the-future-of-atmospheric-hydrogen/#research-highlight>, accessed 29 July 2024.

3.4.5 Ministry of Urban and Rural Development

The Ministry of Urban and Rural Development (MURD) is responsible for regional governance through Regional Councils and local governance through Local Authorities. Proper land management practices can prevent soil erosion and degradation.

3.4.6 Ministry of Education, Arts, and Culture

The Ministry of Education, Arts, and Culture (MEAC) plays a pivotal role in providing quality inclusive education and training for national development.

3.4.7 Directorate of Agricultural Research and Training

The Directorate of Agricultural Research and Training (DART) is a department within the MAWLR. It plays a critical role in the development of the agricultural sector in Namibia. The Directorate is comprised of two divisions: The Agricultural Research Division focuses on researching crops, livestock, and natural resources. The Agricultural Training Division provides training and extension services to farmers throughout Namibia.

3.4.8 Namibia Agronomic Board

The Namibia Agronomic Board (NAB) is a statutory body governed by the Agronomic Industry Act 20 of 1992 to regulate and promote the country's agronomic and horticultural industry. This involves encouraging investment and facilitating the production, processing, storage, and marketing of controlled products. Their mission is to promote both the agronomic and horticultural sectors through market regulations and facilitation measures.

3.4.9 Non-government organisations

The Desert Research Foundation of Namibia (DRFN), founded in 1990, focuses on sustainable land management, climate change, water, renewable energy, and livelihood support, working with local communities, government, and private sectors. Currently, DRFN is developing a Bio-Cultural Protocol for the San communities in Omaheke and Otjozondjupa to preserve their heritage and promote sustainable practices.

The Namibian Non-Timber Forest Products Association (NAFTPA) partners with communities to manage natural resources sustainably, with a focus on soil health. These initiatives show how partnerships between donors, NGOs, government, and communities can support soil conservation and environmental sustainability in Namibia.²²²

3.5 Conclusion

Soil protection in Namibia is vital due to its significant social and economic impacts. However, current soil management is inadequate, with fragmented policies and dispersed responsibilities across various ministries, resulting in limited collaboration.²²³ While some legislative elements address soil protection, their implementation and enforcement need improvement.

The Third National Action Programme (NAP3)²²⁴ integrates soil protection with SDGs, particularly Goal 15 on land degradation neutrality. Community-based natural resource management is emphasised to empower farmers, especially in communal and redistributed farmland areas. Efforts to promote sustainable farming and environmentally friendly practices among urban residents also contribute to soil conservation.

To achieve effective soil protection, an integrated approach involving collaboration among government, non-state actors, and civil society is essential. Concerted efforts from all stakeholders are needed to tackle current challenges and address future climate change threats.

4 Legislation on main drivers of soil degradation: Strengths and weaknesses

4.1 Agriculture

4.1.1 Relevant legal provisions

4.1.1.1 Agricultural (Commercial) Land Reform Act 6 of 1995

Approximately 36.2 million hectares in Namibia, accounting for 44% of the total land area or 52% of agriculturally usable land, is held under freehold title, known as the commercial farming sector.²²⁵ This sector is primarily regulated by the ACLRA, which

²²² Davies et al. (2020).

²²³ Ruppel & von Finckenstein (2016: 342-343).

²²⁴ <https://www.unccd.int/sites/default/files/naps/Namibia-2014-2024-eng.pdf>, accessed 8 March 2025.

²²⁵ See <https://www.fao.org/family-farming/countries/nam/en/>, accessed 26 May 2024.

aims to acquire agricultural land for land reform purposes and allocate it to Namibian citizens who lack adequate agricultural land, particularly those disadvantaged by past discriminatory laws. It grants the state preferential rights to purchase agricultural land and allows compulsory acquisition for land reform purposes. Additionally, the Act regulates the acquisition of agricultural land by foreign nationals and establishes a Lands Tribunal to resolve land disputes. While crucial for land distribution, the Act primarily addresses land use and distribution rather than soil protection.²²⁶

4.1.1.2 Communal Land Reform Act 5 of 2002

While commercial farming, particularly cattle farming, contributes to Namibia's GDP, communal farming practices significantly impact soil quality and resources. To foster sustainable farming, it is essential to adequately address communal methods and promote educational programs on sustainable techniques. Ongoing support for emerging commercial farmers benefiting from land redistribution is also crucial.

The CLRA governs communal land allocation and administration, requiring the establishment of CLBs to manage customary land rights and maintain a land rights registry. Communal areas, declared by the President, are held in trust by the state for traditional communities to foster economic and social development, especially for the landless. Customary land rights are allocated for limited periods and specific purposes recognised by customary law.

The CLRA aids biodiversity conservation by addressing land degradation. It permits the cancellation of land rights not used according to customary law and empowers traditional authorities to regulate sustainable grazing (Section 27). The Minister is also authorised to enforce regulations on soil erosion, pastoral resource protection, and grazing control (Section 45(1)(i)).

Under current regulations, residents can graze a maximum of 300 large stock units on communal land.²²⁷ Regulation 10 prohibits non-residents from bringing livestock onto commonages without permission from local authorities. Despite established procedures, disputes over double allocations, illegal fencing, and unauthorised land extensions continue in communal areas.²²⁸

226 Ruppel & von Finckenstein (2016: 328).

227 General Regulations GN 37/2003 (GG 2926).

228 De Villiers et al. (2019: 18-19).

4.1.1.3 A Single Land Act?

In 2007, Namibia began a comprehensive review to merge the ACLRA and the CLRA into a single Land Act.²²⁹ This process, completed with stakeholder collaboration, led to the presentation of the Land Bill by the MAWLR to the National Assembly in 2016. The Bill aims to consolidate and revise existing land reform acts but faces challenges in reconciling statutory and customary land rights. After being withdrawn to address resolutions from the 2018 National Land Conference, a revised version was circulated in September 2020 and is expected to be tabled in Parliament during the 2024/2025 financial year.²³⁰

A contentious issue is the proposal allowing foreigners to lease communal lands.²³¹ The current ACLRA prohibits foreign acquisition of agricultural land without ministerial consent. The 2022 Bill suggested permitting such leases, raising concerns about potential land loss versus the benefits of foreign investment. The latest draft of the Bill has not yet been made public.

4.1.1.4 Agricultural Pests Act 3 of 1973

The Agricultural Pests Act 3 of 1973 addresses agricultural pest management by regulating nurseries, controlling plants, insects, and diseases, and managing exotic animals and plants infected by pests or diseases. Inspectors are empowered to enforce the Act's provisions, aimed at preventing the introduction and spread of harmful agents. Section 9 covers the destruction of exotic animals and infected plants, while Sections 11 and 12 regulate the importation of plants, insects, and biological control agents.

Considering evolving challenges, amendments to the Act may be necessary to address a broader range of invasive species and enhance inspection and enforcement mechanisms.²³² The Plant Quarantine Act 7 of 2008 has replaced this legislation, although existing permits under Section 11(1) will remain valid until their expiry.

4.1.1.5 Plant Quarantine Act 7 of 2008

The Plant Quarantine Act aims to prevent, monitor, control, and eradicate plant pests while regulating the movement of plants, plant products, and other articles within, into, and out of Namibia. Effective in 2012, the Act includes provisions related to soil,

229 Ruppel & von Finckenstein (2022: 402).

230 See <https://www.namibian.com.na/over-7-000-customary-land-rights-issued-last-year/>, accessed 29 July 2024.

231 Legal Assistance Centre (2020).

232 Ruppel & von Finckenstein (2016: 333).

defining it as material from the earth's upper crust capable of supporting plant life, excluding sterile mediums (Section 1).

Importing soil requires a specific permit or exemption (Section 4). Plant quarantine officers may inspect any land or premises related to plants, examine soil, and remove samples for testing. They can also inspect vehicles suspected of transporting regulated materials (Section 14(1)).

Individuals who grow, possess, sell, or distribute soil imported in violation of the Act commit an offence (Section 21(1)(a)). The Minister is empowered to establish regulations for the inspection of soil and other articles intended for export and the issuance of phytosanitary certificates (Section 22(1)(h)).

4.1.1.6 Fertilisers, Farm Feeds, and Agricultural Remedies Act 36 of 1947

In Namibia, the use of agrochemicals is governed by the Fertilisers, Farm Feeds, and Agricultural Remedies Act 36 of 1947. The Registrar, appointed by the MAWLR, oversees the registration of all agricultural remedies used in Namibia, excluding those regulated by the Medicines and Related Substances Control Act of 1965 or the Hazardous Substances Act of 1973. The Namibian Medicines Regulatory Council handles the registration of veterinary pharmaceuticals used in agriculture.

It is illegal to import unregistered agrochemicals, possess unlabelled agrochemicals, misuse agrochemicals, or sell products without a Namibian registration number.²³³ Fertilisers, crucial for crop production, enhance plant growth and replenish depleted soil nutrients.²³⁴ However, high production costs and reliance on imported fertilisers pose significant challenges for Namibian farmers.

This dependence can lead to nutrient deficiencies, soil degradation, and imbalances in soil chemistry as farmers may resort to cheaper, less effective fertilisers. Over-reliance on organic alternatives can also cause soil issues such as acidification or salinisation.

The country has abundant resources to improve soil fertility, such as organic fertilisers from animal manure and compost, as well as inorganic fertilisers from local quarries or seawater.²³⁵ Locally sourced materials could be processed for soil application, and fertiliser labels should include nutrient breakdowns to help farmers optimise application rates based on soil tests.

233 Regulations in GN 112/2007 (GG 3863).

234 Namibian Agronomic Board (2022: 1).

235 Zimmermann et al. (2017: 7).

4.1.2 Enforcement issues

Namibia's first Agriculture Joint Sector Review (JSR) validation meeting in Windhoek in 2023 noted improvements in sector assessments but revealed significant gaps. The review pointed out deficiencies in data and information, highlighting a need for more resources and time to address these issues.²³⁶ It also identified weak coordination among ministries, the private sector, and development agencies, which has hampered effective agricultural policy implementation.

Research by Mwilima indicates that while the MAWLR excels at policy formulation, it struggles with implementation and monitoring.²³⁷ The National Drought Policy of 1997, for example, lacks clear institutional responsibilities, resulting in ineffective execution.²³⁸ Despite the significant impacts of climate change over the past decade, the policy has not been updated to address current challenges. Although it included a provision for a drought fund, this was never established, and no follow-ups occurred. In 2024, Namibia finally approved the Drought Relief Program for the 2024/2025 financial year to tackle the imminent drought and its effects on livelihoods and food security.²³⁹

4.1.3 Monitoring

According to the Agricultural Policy (2015), the MAWLR is tasked with developing a five-year Sectoral Execution Plan (SEP) based on priority areas from the National Development Plans (NDPs). Annual Sectoral Execution Plans (ASEPs) break down yearly implementation, including programs, projects, and budgets. The SEP serves as a tool for executing and evaluating the Agriculture Policy, requiring bi-annual progress reports to the Cabinet that assess execution rates and their impact on sectoral targets and national development goals. Monitoring and evaluation occur every six months, with a comprehensive review every five years.

Despite these frameworks, Namibia's agriculture sector faces several challenges, including limited human and institutional capacity, weak policy implementation, and poor inter-agency coordination on food security.²⁴⁰ Access to agricultural data is limited, leading to low crop productivity and constraints in managing water, land, forests,

236 See <https://aims.sadc.int/namibia-agriculture-joint-sector-review-unveils-growth-and-collaboration-opportunities>, accessed 26 May 2024.

237 Mwilima (2016).

238 Ibid.: 80-81.

239 See [https://english.news.cn/20240426/26a3a616894648cd91360c7c5dde9c50/c.html#:~:text=Namibia%20approves%20drought%20relief%20program%20to%20tackle%20food%20insecurity,-Source%3A%20Xinhua&text=WINDHOEK%2C%20April%202025%20\(Xinhua\),on%20livelihoods%20and%20food%20security.](https://english.news.cn/20240426/26a3a616894648cd91360c7c5dde9c50/c.html#:~:text=Namibia%20approves%20drought%20relief%20program%20to%20tackle%20food%20insecurity,-Source%3A%20Xinhua&text=WINDHOEK%2C%20April%202025%20(Xinhua),on%20livelihoods%20and%20food%20security.), accessed 29 July 2024.

240 Kaupa et al. (2022: 2).

and rangelands. The sector also suffers from inadequate land use management, weak processing and marketing capabilities, and vulnerability to droughts, floods, and trans-boundary pests. Additionally, gender inequality remains a pressing issue. A 2018 assessment indicated that Namibia had only two soil scientists in the Ministry working on soil classification and mapping.²⁴¹

4.1.4 What is more?

The Future Okavango Project (TFO)²⁴² examined the impact of small-scale farming in Namibia's Kavangos region, focusing on Mashare as a case study.²⁴³ Despite CLRA regulations to reduce deforestation and protect arable land, enforcement is weak.²⁴⁴ Unsustainable practices including slash-and-burn agriculture, deforestation, and overgrazing harm soil quality.²⁴⁵ Many farmers lack resources such as oxen, delaying field maintenance and exacerbating soil degradation on converted forest lands.²⁴⁶

Challenges such as poverty, limited education, and erratic rainfall hinder soil conservation adoption, compounded by the region's sandy, nutrient-poor soils.²⁴⁷ National soil policies are slow to implement, leaving communities without the knowledge of sustainable practices.

Bush encroachment affects over 45 million hectares, driven by poor livestock management and fire suppression, reducing agricultural productivity and impacting wildlife and tourism.²⁴⁸ While de-bushing shows potential as a business, it requires permits under the Forestry Act and EMA, overseen by the MAWLR. The National Strategy on Sustainable Bush Management (2022-2027) highlights the role of bush encroachment in land degradation and climate challenges. Sustainable thinning can boost biodiversity, and productivity, and create economic gains of ND 76 billion over 25 years for rehabilitating 15.8 million hectares. However, communal land management faces barriers including insufficient resource rights and a lack of formal plans. Community-based organisations could address these issues, promoting sustainable practices, equitable benefits, and employment through selective harvesting and land restoration.

241 Rozanov & Wiese (2018: 33).

242 See Hinz & Ruppel (2010).

243 See <https://www.future-okavango.org/>, accessed 26 March 2024.

244 Pröpper et al. (2015: 80).

245 Ruppel & von Finckenstein (2016: 339).

246 Pröpper et al. (2015: 43); Ruppel & von Finckenstein (2016: 339).

247 Pröpper et al. (2015: 80, 95 & 102); Ruppel & von Finckenstein (2016: 340).

248 Corry (2022: 8); Shikangalah & Mapani (2020: 2).

4.2 Mining

4.2.1 Relevant legal provisions

In Namibia, mineral rights generally belong to the state unless privately owned, as confirmed in *Namibia Grape Growers and Exporters Associations v Ministry of Mines and Energy*.²⁴⁹ The Minerals (Prospecting and Mining) Act 33 of 1992 governs the sector, requiring licenses for activities such as prospecting and mining. Environmental safeguards include pollution control (Section 41), EIAs before mining (Section 50), and EMPs as prerequisites for mining licenses (Section 48). The Act mandates adherence to good mining practices for environmental protection and resource conservation, requiring licence holders to notify the Minister upon ceasing activities and take measures to prevent environmental damage (Section 54).

Although these provisions exist, the framework lacks comprehensive mine closure regulations, adequate financial assurances, and routine assessment requirements, with low penalties discouraging proper site rehabilitation.²⁵⁰ The Minister has the authority to restrict mining on environmental grounds and require damage remediation at the expense of license holders (Sections 122 and 130). Larger operations often require guarantees to ensure compliance.²⁵¹

Environmental safeguards are also mandated under the EMA, where an ECC is required for listed activities, including mining (Sections 29 and 31).²⁵² Applications involve a Scoping Report and EMP, with the Environmental Commissioner deciding if an EIA is needed.

Petroleum activities are regulated under the Petroleum (Exploration and Production) Act 2 of 1991, with environmental emphasis (Section 71), and the Diamond Act 13 of 1999 controls diamond mining, requiring permits for resource removal (Section 55).

4.2.2 Monitoring

According to the IGF Mining Policy Framework Assessment for Namibia (2018), EMA and its regulations, including requirements for EIAs, environmental management plans, and the ECC process, are robust. However, several key pieces of

249 2004 NASC 6 (25 November 2004) para 209.

250 Lipinge et al. (2021: 11).

251 Ruppel & von Finckenstein (2016: 336).

252 See *Confederation of Namibian Fishing Associations v Environmental Commissioner Teofilus Nghitila* 2021 (3) NR 817 (HC).

legislation and policy on water and waste management are outdated, and its enforcement is poorly resourced, *ad hoc*, and uncoordinated.²⁵³

Geological data derived from exploration companies is seen as incomplete and poorly archived, representing a lost resource for Namibia.²⁵⁴ The permitting process should be timely, unambiguous, and consistent, but in practice, it can experience significant delays and lack transparency.

There are no requirements for capacity-building programs to help communities understand the potential environmental and socio-economic impacts identified during the EIA process.²⁵⁵ The Environmental Commissioner has limited ability to enforce fines or penalties for non-compliance with the law, with cases requiring legal enforcement being handed over to the police.

Finally, there is a general lack of coordination among government ministries regarding support services for the mining sector. There is also a limited understanding among miners of mining legislation, including environmental management and occupational health and safety. Despite efforts to enforce environmental regulations, enforcement agencies still face significant capacity challenges.²⁵⁶ These challenges are further complicated by overlapping roles and responsibilities in administering various environmental-related acts, which fall under different line ministries.

These issues highlight the need for comprehensive legislative updates, improved coordination among government agencies, enhanced transparency, and stronger regulatory enforcement to ensure sustainable and responsible mining practices in Namibia.

While many policies address the environmental impacts of mining, they focus on water and air protection rather than soil. Most soil-related policies aim to prevent contamination and rehabilitate mined areas post-activity, often emphasising water resource protection more than soil.²⁵⁷ It is recommended that both new and existing policies be updated to prioritise soil protection and management. Despite its lower visibility, soil is a critical environmental resource, and its contamination can have severe, long-term effects on biodiversity and food security.

4.2.3 The role of foreign investors

Namibia ranks 104th in the ease of doing business index and holds significant untapped reserves of lithium, copper, and uranium, positioning it as a key player in the transition

253 Crawford et al. (2018: vi).

254 Ibid.: vii.

255 Ibid.: ix.

256 Musiyarira et al. (2017: 107).

257 Ruppel & von Finckenstein (2016: 335).

to a net-zero carbon world.²⁵⁸ This, combined with consistent power availability and progressive policies, creates an attractive investment climate in the mining sector.

The Sandpiper Project, focused on marine phosphate extraction, highlights foreign investment's potential to boost Namibia's economy through job creation and advanced mining technologies.²⁵⁹ However, it has faced opposition, particularly from the fishing industry concerned about environmental impacts.²⁶⁰ The project was paused in 2012 for further environmental assessments and has undergone revisions to address concerns.²⁶¹

Similarly, Namibia's green hydrogen sector presents growth opportunities, aiming to position the country as a leader in sustainable energy.²⁶² Despite its potential, this sector faces challenges such as environmental impacts, water scarcity, and pressure on land and resources for mining the necessary materials for renewable infrastructure.²⁶³

In 2019, Namibia approved a Chinese-invested tobacco project on communal land, but it was cancelled after the investor refused conditions such as local partnerships and tobacco processing.²⁶⁴ Additionally, Asian companies have been involved in illegal logging, causing environmental damage while providing limited benefits to local communities.²⁶⁵

These examples underscore the importance of balancing economic growth with environmental protection and social equity. The Investment Promotion Act (2016) requires foreign investors to consider environmental impact and ensure local community benefits. All investors, foreign or local, must comply with Namibia's environmental laws.

4.2.4 And what is more?

Per Section 1(1) of the Prospecting and Mining Act, the term "mineral" refers to any substance occurring naturally in, on, or under land, formed by geological processes. It

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- 258 See <https://archive.doingbusiness.org/en/rankings>, accessed 26 May 2024; <https://www.crown.co.za/africa-updates/28193-riding-the-green-wave-the-future-of-mining-in-namibia>, accessed 29 July 2024.
- 259 See <https://www.miningweekly.com/article/marine-phosphate-project-being-progressed-in-line-with-court-ruling-2022-02-08>, accessed 29 July 2024.
- 260 See <https://neweralive.na/posts/marine-phosphate-project-moves-full-steam-ahead>, accessed 29 July 2024.
- 261 See <https://nbcnews.na/index.php/node/103206>, accessed 29 July 2024.
- 262 See <https://www.engineeringnews.co.za/article/namibias-audacious-plan-to-become-a-global-green-hydrogen-hub-2024-06-06#:~:text=The%20European%20Investment%20Bank%20has,%241%20billion%20Namibian%20hydrogen%20fund,> accessed 29 July 2024.
- 263 Chigbu & Nweke-Eze (2023).
- 264 Nghiteveleka (2022: 160); See <https://www.namibian.com.na/chinese-tobacco-investor-rejects-cabinet-conditions/>, accessed 3 August 2024.
- 265 Nghiteveleka (2022: 160-161).

excludes certain materials such as soil, sand, clay, gravel, or stone (unless specified otherwise) if they are legitimately needed for specific purposes such as agriculture, construction, or infrastructure development. However, if these excluded materials are extracted for profit or business purposes, the Minister can declare them as minerals through a Gazette notice (Subsection (2)). Under EMA quarrying is considered a listed activity that requires an EIA and subsequent ECC. However, there is no specific licensing procedure in place for sand, aggregate, and gravel mining in Namibia.²⁶⁶ Instead, proponents must obtain various permits, including permission from the landowner (such as a local authority or private owner) and approvals from authorities such as the MEFT (for ECC), MME (for mining licences), and MAWLR (for mining approvals related to watercourses). In Windhoek, aggregate quarrying within municipal boundaries is regulated under the City of Windhoek's Policy Towards Sustainable Sand Mining (2017).

Abandoned mine sites in Namibia, such as Berg Aukas, pose significant environmental and socio-economic challenges due to soil contamination from historic mining activities.²⁶⁷ The legal framework for mine rehabilitation in Namibia is fragmented and inadequate, failing to provide sufficient environmental protection from mining impacts.²⁶⁸ Key legislation governing mineral exploration lacks provisions for mine closure, financial assurance, and systematic oversight of closure plans.²⁶⁹ Limited resources, skills, and cooperation further hinder effective rehabilitation efforts.²⁷⁰

A significant challenge is that some organisations responsible for these abandoned mines no longer exist and are unknown to current government regulators.²⁷¹ Consequently, there is limited information about the environmental and physical hazards posed by these abandoned mine sites. Additionally, the impact on ecological and biological hazards for nearby communities remains unknown.

Namibia's Minerals Policy, established in 2002, aims to foster sustainable mining practices but is considered outdated. Similarly, the Policy for Prospecting and Mining in Protected Areas and National Monuments (1999) stresses responsible mining within these sensitive zones but lacks robust enforcement mechanisms.

The Chamber of Mines in Namibia has introduced the Namibian Mine Closure Framework (2010), setting standards for medium to large-scale mines. However, this framework lacks statutory authority and independent auditing, limiting its effectiveness.

Addressing these challenges requires a comprehensive approach, integrating mining and environmental laws, enhancing expertise in mine rehabilitation, implementing

266 Ministry of Mines and Energy, Best Practice Guide: Environmental Principles for Mining in Namibia (2019: 34).

267 Ruppel & von Finckenstein (2016: 336-338).

268 Salom & Kivinen (2019).

269 Lipinge et al. (2021: 11).

270 Salom & Kivinen (2019).

271 Lipinge et al. (2021: 12-13).

long-term monitoring of mining impacts, and establishing binding financial mechanisms for rehabilitation efforts.²⁷²

4.3 Deforestation

According to MAWLR's Strategic Plan (2017/2018-2021/2022), Namibia's forestry sector faces challenges, including illegal harvesting and wildfires, which accelerate deforestation. Key legal instruments include the Forest Policy (1992), the Development Forestry Policy (2001), and the Forest Act, which governs forest management and conservation. The Forest Act categorises protected areas and outlines regulations for tree planting, vegetation clearing, and forest produce removal. Activities such as deforestation require approval and EIAs.

The Act also mandates licensing for forest produce use, with restrictions in classified forests, and allows limited harvesting without a license for personal use. The EMA requires environmental clearance for activities such as timber harvesting,²⁷³ and the Forest Regulations of 2015 list protected species and define permit requirements.²⁷⁴

The Community Forestry Guidelines (2005) promote sustainable practices and empower local communities in forest management. Customary laws also influence forest protection, such as prohibiting the cutting of fruit-bearing trees.²⁷⁵

However, the Forest Act has limitations, including vague harvesting definitions, unclear permit issuance guidelines, weak monitoring, and enforcement, and limited community revenues.²⁷⁶ There is a lack of integration between conservancies and community forests, highlighting the need for improved regulations and management.

4.4 Invasive alien species

Over 300 alien plant species have been introduced to Namibia, creating significant environmental challenges.²⁷⁷ According to a Review of Legislation on Invasive Alien Species by the Namibian Invasive Alien Species Working Group (2024), there is a clear need for a comprehensive and proactive legal framework in Namibia. The review extensively analysed Namibia's legislative approach to invasive alien species and found that while Namibia has numerous laws, bylaws, and regulations addressing invasive species, the current legal landscape is characterised by fragmentation. This

272 Salom & Kivinen (2019).

273 Activity No. 4 in Regulations GN 29/2012 (GG 4878).

274 GN 170/2015 (GG 5801).

275 von Doderer et al. (2022: 438-439).

276 Busch (2021: 21-23).

277 See <https://botsoc.org.na/alien-plants#:~:text=Over%20300%20alien%20plants%20have,do%20not%20cause%20any%20problems.,> accessed 29 July 2024.

fragmentation, although well-intentioned, leads to regulatory gaps, overlaps, and inconsistencies. As a result, the effectiveness of the legislative regime in combating invasive alien species is diminished.

4.5 Industrial development

Namibia's Industrial Policy (2012) supports Vision 2030 by promoting industrialisation, small business development, and environmentally responsible practices. It aims to protect soil health by addressing the impact of waste, emissions, and land use in industrial activities.

The EMA promotes waste reduction and reuse (Section 3(2)(i)) and requires waste disposal at designated sites (Section 5). It also mandates ECCs for activities that may harm the environment (Section 27).

The Public and Environmental Health Act ensures water and food safety and mandates local authorities to manage waste collection, disposal, and recycling (Sections 51-55). It also empowers the Minister to regulate waste management and public health (Sections 68 and 77).

The Hazardous Substances Ordinance (1974) controls toxic substances, supporting pollution control efforts. The National Solid Waste Management Strategy (2018-2028) aims to improve waste management standards, address illegal dumping, and strengthen the legal framework for waste disposal.²⁷⁸

Local and regional authorities are responsible for waste management, with urban areas showing improvements, though rural areas still face challenges due to limited resources. Tailored solutions are needed to ensure environmental sustainability and public health.

4.6 Demographic growth, urban sprawl, and land-planning regulatory frameworks

Namibia is experiencing rapid urbanisation, with 75% of the population expected to live in urban areas by 2050.²⁷⁹ Much of this growth is informal, leading to challenges such as environmental degradation, increased pollution, and soil erosion. Currently, 40% of Namibia's population lives in 228,000 informal shacks, with projections showing this will become the dominant housing form by 2025.²⁸⁰

278 Ruppel-Schlichting (2022: 221).

279 See <https://www.bmz.de/en/countries/namibia/core-area-climate-and-energy-just-transition-162628#:~:text=Namibia%20is%20currently%20undergoing%20a,living%20in%20cities%20by%202050.,> accessed 29 July 2024.

280 Van der Merwe & Simha (2023).

Informal settlements contribute to deforestation, waste management issues, and pollution.²⁸¹ The courts have ruled that developments must align with town planning schemes, highlighting the need for integrated urban planning.²⁸² Namibia's spatial development framework faces a gap between design and practice, with rural planning receiving less attention than urban areas.²⁸³

The National Land Policy, though weak, assigns responsibilities for land use to various bodies, but they often lack effectiveness. The Town Planning Ordinance 18 of 1954 and the Township Ordinance 11 of 1963 guided town planning and township establishment. These were replaced by the Urban and Regional Planning Act 5 of 2018, which established a new Planning Board and updated spatial planning regulations. The Act aims to improve spatial planning through stakeholder participation, but its implementation remains fragmented and inconsistent.²⁸⁴ The effectiveness of planning tools such as Integrated Regional Land Use Plans (IRLUPs) and Town Planning Schemes (TPSs) is limited, often not aligning with socio-economic realities.²⁸⁵

There is a call for a centralised hub or national database to streamline land-use management, improve coordination, and promote sustainable development across all governance levels.²⁸⁶

4.7 Climate change law and soil degradation

Climate change is expected to worsen water scarcity and agricultural challenges in Namibia, amplifying issues such as land degradation, soil erosion, bush encroachment, and deforestation.²⁸⁷ Extreme weather events, especially droughts and floods, will intensify soil erosion and crop destruction, underscoring the need for proactive climate adaptation measures.

Conservation agriculture offers a solution, promoting minimal soil disturbance, crop rotation, and soil cover.²⁸⁸ Namibia's Comprehensive Conservation Agriculture Programme, launched in 2015, aims to combat land degradation and improve food

281 Ministry of Justice, Responses to the Questionnaire on Informal Settlements and Human Rights (2018), <https://www.ohchr.org/sites/default/files/Documents/Issues/Housing/InformalSettlements/Namibia.pdf>, accessed 20 August 2024.

282 *Auas Valley Residents Association v Minister of Environment and Tourism* 2022 (3) NR 758 (SC).

283 De Villiers et al. (2020: 44-49).

284 Owoses (2022: 420).

285 De Villiers et al. (2020: 51).

286 Owoses (2022: 420).

287 Ruppel & von Finckenstein (2016: 341).

288 For further information see <https://www.giz.de/en/worldwide/34175.html>, accessed 29 July 2024.

security.²⁸⁹ Additionally, Community-Based Natural Resource Management (CBNRM) supports indigenous land rights while addressing climate impacts.²⁹⁰

Namibia's Intended Nationally Determined Contribution (INDC) stresses the need for proactive adaptation strategies, including drought-resistant crops and livestock, but calls for stronger legal and policy frameworks for soil conservation to enhance resilience.²⁹¹

The Disaster Risk Management Act 10 of 2012 addresses climate change risks, emphasising prevention, mitigation, and recovery. The 2011 National Policy on Climate Change, although aligned with national development goals, needs updates to meet the ambitious NDC targets, including green hydrogen, and attract private sector investments for climate action.²⁹²

4.8 Land tenure insecurity

At independence, Namibia inherited a highly unequal land distribution.²⁹³ The government initiated a land reform program, acquiring farms between 2001 and 2010, but environmental factors were not fully considered, leading to unsustainable farming practices, overgrazing, and poor land management. The lack of secure land tenure in communal areas also hinders sustainable land management.

The removal of apartheid laws allowed indigenous people to settle anywhere, sparking migration to urban areas, where many settled on unplanned land, creating informal settlements. Local authorities struggled with inadequate land supply systems, and most low- and middle-income individuals cannot afford to buy or register land.²⁹⁴

Challenges in land tenure persist. By 2019, only 14% of beneficiaries had finalised lease agreements, hindered by unclear terms, poor coordination, and financial constraints.²⁹⁵ Many leaseholders fail to register their land, leading to unpaid fees and under-utilisation of farms.²⁹⁶ Approximately 60%-70% of farms are unprofitable and burdened by debt.²⁹⁷ The “willing seller, willing buyer” policy also limits land acquisition for resettlement.

The Namibian Communal Land Administration System (NCLAS) integrates freehold and non-freehold registration but faces challenges with up-to-date information,

289 Ruppel & von Finckenstein (2016: 341).

290 Dieckmann et al. (2013).

291 Ruppel & von Finckenstein (2016: 342).

292 Ruppel (2022a: 90); Green Climate Fund (2022: 4).

293 Ministry of Environment and Tourism, Third National Action Programme for Namibia to Implement the United Nations Convention to Combat Desertification (2014-2024: 25).

294 De Villiers et al. (2020: 65).

295 Lendelvo et al. (2020: 41).

296 Ibid.: 42; Odendaal (2005: 7).

297 Amoo (2023: 246).

especially in remote areas.²⁹⁸ In urban areas, freehold titles are available, but rapid population growth has led to more informal settlements.²⁹⁹ The Local Authorities Act formalises urban areas but struggles with weak management, inadequate funding, and outdated regulations, preventing low-income settlers from securing formal land tenure.³⁰⁰

4.8.1 Traditional law

With the promulgation of the Namibian Constitution, customary law was formally recognised as one of the sources of law in Namibia.³⁰¹ Section 17 of the CLRA upholds the stance that communal lands are held by the state in trust for the benefit of traditional communities living in those areas. The CLRA reaffirms customary usufruct rights (Section 21) for communal land occupiers, giving statutory recognition to this tenure system without extending beyond usufruct rights.³⁰² It specifies the duration of customary land rights (Section 26) and provides for their registration (Section 25) and upgrading to the status of leaseholds to encourage and promote the development of communal lands. However, registration only serves as publicity or proof of title and does not grant additional powers, such as using the title as collateral.

Section 22 of the CLRA specifies that an application for a customary land right on communal land must be submitted in writing using the prescribed form to the chief of the traditional community where the land is located. Applicants must provide the requested information and submit the required documents for the chief or traditional authority's consideration. When reviewing applications, the chief or traditional authority may conduct investigations, consult relevant individuals, and hold hearings if objections arise. They can approve or reject the application, with the option to allocate the right on the specific land applied for or another agreed-upon portion.

The power to grant leasehold rights is vested in the CLBs (Section 30(1)), not the MAWLR. While the CLBs can grant leasehold over designated communal land, they must obtain the consent of the relevant traditional authority to maintain harmonious relationships (Section 30(4)). The powers and functions of traditional authorities, particularly concerning the grant of leasehold rights, are prescribed by the CLRA, specifically Section 30. In the case of *Chaune v Ditshabue*, it was emphasised that the exercise of these powers is neither private nor personal.³⁰³ Instead, these powers are given

298 Amoo (2020: 29).

299 Ibid.: 18.

300 Amoo (2023: 28-29); De Villiers et al. (2020: 67).

301 Ruppel (2022a: 107).

302 Amoo (2020: 23).

303 2013 NAHCMD 111.

to traditional authorities to ensure the proper conduct of traditional community affairs.³⁰⁴

4.8.2 Conflicts and means of resolution

Local authorities, in collaboration with the central government, play a key role in developing settlement areas within communal lands governed by traditional chiefs. Settlement areas are declared through Gazette notices under Section 31(1) of the Regional Councils Act 22 of 1992 and upgraded to local authority status, allowing for land transfer and service provision. However, fiscal constraints and tensions with traditional authorities limit the autonomy of these settlements, as budgets must pass through the regional council.³⁰⁵

Residents face challenges with tenure rights, which are restricted to leasehold titles, limiting investment and development. Legislative amendments are needed to grant settlement areas access to land alienation and disposal provisions similar to those of local authorities. Proclaiming settlement areas to village councils promptly would allow residents to secure ownership rights, boosting investment prospects.³⁰⁶ The Supreme Court clarified that land within communal areas does not become urban when designated for local authorities, highlighting the need for clarity on communal land tenure in urban development.³⁰⁷

A 1990-1991 socio-economic survey found strong support for tribal authorities allocating land, though opinions varied by region.³⁰⁸ Conflicts arise when traditional authorities allocate land in urban areas, creating jurisdictional overlaps with local authorities.³⁰⁹ This issue is further complicated by unclear land allocation processes and overlapping responsibilities.

Despite the registration of 119,227 customary land rights—representing about 49% of existing rights, many landholders in regions such as Kavango lack statutory recognition.³¹⁰ Women and marginalised groups face additional challenges, and land disputes often hinder the registration process. Informal land markets and inadequate governance of communal land exacerbate these issues.³¹¹ For example, farmers in the Uukwangali region were forced to pay high fees for access to communal land, with some facing expulsion for refusal to pay.

304 Amoo (2023: 263).

305 Ibid.: 284.

306 Amoo (2020: 31-33).

307 *Agnes Kahimbi Kashela v Katima Mulilo Town Council* 2018 NASC 409 (16 November 2018); Amoo (2020: 25-26).

308 Werner (2021: 14).

309 De Villiers et al. (2020: 19-20).

310 Ibid.: 69-70.

311 Werner (2021: 31).

4.8.3 Land tenure legislation and associated land-grabbing

Illegal grazing and fencing in Namibia are major contributors to land conflicts and tenure insecurity.³¹² Illegal grazing occurs when livestock graze on communal land without permits, while illegal fencing restricts access to communal resources, often benefiting those with economic power. Communal rangelands lack formal grazing regulations, leading to the overuse of resources.³¹³ In areas such as Aminuis, privatisation of common land and water resources has caused conflicts, breaking down community cooperation.³¹⁴

Namibia's land accumulation is shaped by two paths: open-access communal lands and leasehold-managed areas. Leasehold areas often operate as *de facto* private property, with some lands acquired through illegal means, creating tension between communities and elites.³¹⁵ The CLRA's restrictions on land allocations (initially 20 hectares, later increased to 50 hectares) have caused confusion and insecurity, especially in livestock-dependent regions.³¹⁶

Despite laws governing grazing and fencing, illegal practices persist, as seen in areas including Nꞑa Jaqna and Nyae Nyae.³¹⁷ These issues are compounded by external invasions, jurisdictional overlaps between traditional authorities and land boards, and weak enforcement.³¹⁸ The decentralisation of governance has resulted in fragmented authority, complicating conflict resolution.³¹⁹ Legal reforms, strengthened enforcement, and dialogue on equitable land governance are crucial to resolving these challenges and protecting communal land for marginalised groups.

4.8.4 Relationship between landownership and environmental responsibility

Land ownership in Namibia plays a critical role in shaping environmental responsibility, as balancing economic development, community needs, and environmental protection remains a complex challenge. On freehold land, owners are accountable for sustainable management; however, issues such as overgrazing and resource depletion persist. In communal areas, traditional knowledge fosters sustainability, but population growth and increasing resource competition place significant strain on the system. Resettled farmers, in particular, require targeted support to adopt sustainable practices and prevent land degradation. To address these challenges, the government must

312 Hebinck (2021: 358).

313 Kahumba & Tefera (2023: 2).

314 Tjiharuka (2023: 70).

315 Hebinck (2021: 358).

316 Werner (2021: 29-30).

317 Van der Wulp & Hebinck (2021: 418); Hitchcock et al. (2021: 280-281).

318 Hebinck (2021: 360-361).

319 Ibid.: 357.

implement and enforce effective regulations, enhance education on sustainable land use, and promote inclusive dialogue among stakeholders to ensure responsible land management.

Traditional laws, such as Mbunza customary law, promote resource conservation by emphasising sustainable land use. However, growing land pressure in the Kavango Region threatens long-term sustainability.³²⁰ While the Mbunza uphold principles of responsible land management, limited access to education on modern best practices presents challenges to effective implementation.

The 2019 National Environmental Education and Education for Sustainable Development Policy (NEEESDP) aims to strengthen environmental education and integrate sustainable development principles.³²¹ However, without secure property rights, communities have little incentive to invest in conservation efforts. Secure tenure fosters a sense of ownership and responsibility, encouraging sustainable land management and ensuring long-term environmental and socio-economic benefits.

4.9 Conclusion

The legislative frameworks addressing the main drivers of soil degradation in Namibia reveal both strengths and weaknesses across various sectors. In agriculture, while relevant legal provisions exist to regulate practices, enforcement remains a significant challenge, often compounded by inadequate monitoring mechanisms. Mining operations are governed by robust legal provisions, yet issues persist with monitoring and the role of foreign investors in environmental stewardship. Deforestation, invasive alien species, and industrial development are similarly governed by laws that struggle with effective enforcement and monitoring; risking continued environmental degradation.

The complexities of demographic growth and urban sprawl further strain land-planning regulatory frameworks, highlighting the need for more cohesive and proactive legislation. In addressing the challenge of climate change, Namibia faces significant gaps in its legislative framework and outdated policy measures.

Land tenure insecurity remains a critical issue, exacerbated by traditional and statutory laws that often conflict, impeding effective resolution of disputes and contributing to land grabbing. Illegal fencing on communal land poses significant challenges, particularly for smaller farmers and marginalised communities.³²² Illegal fencing restricts access not only to grazing land but also to essential resources such as firewood, building materials, and water. The process to remove illegal fences is often slow and complex, leading to delays in justice.

320 Koita (2008: 68-74).

321 Ruppel (2022a: 91).

322 De Villiers et al. (2020: 70).

Addressing these challenges demands not only stronger legal frameworks but also enhanced enforcement, robust monitoring systems, and greater integration of environmental responsibility into land ownership practices.

5 Lessons learnt and recommendations

Namibia's legislative framework for soil management and protection is extensive, encompassing broad cross-sectoral laws and specific sectoral legislation.³²³ The EMA addresses overarching environmental concerns, including contamination and pollution control. In contrast, laws such as the Soil Conservation Act focus directly on preserving soil health. The ACLRA and the CLRA influence soil management practices across different land ownership types. Additionally, sector-specific laws such as the Minerals (Prospecting and Mining) Act, Forest Act, Fertilisers Act, Agricultural Pests Act, and Plant Quarantine Act address issues such as mining impacts, forest conservation, pest control, and plant quarantine measures, all significantly impacting soil quality and ecosystem health.

Major drivers of land degradation in Namibia—such as rural poverty, population pressure, and unsustainable land practices—highlight significant challenges. Inadequate water management, limited cross-sectoral collaboration, and insufficient resources exacerbate these issues, compounded by climate change. Fragmented responsibilities for soil-related matters pose a critical obstacle to effective conservation efforts, lacking a cohesive policy framework to optimise existing laws and regulations and, thereby, reducing overall impact.

Addressing these challenges necessitates integrated approaches to bridging policy gaps, enhancing sector collaboration, and mobilising resources effectively. A comprehensive policy framework could streamline efforts, improve monitoring, enforce sustainability practices, and promote soil management practices across Namibia, safeguarding vital natural resources for future generations.

Namibia currently lacks specific climate laws or regulatory frameworks concerning green hydrogen and its potential soil impacts. This gap underscores the need for regulations assessing and mitigating adverse effects from hydrogen production, managing water use sustainably, and properly handling by-products. Integrating soil protection into emerging technologies such as green hydrogen is crucial for meeting global sustainable development goals across economic sectors.

Effective soil maintenance and protection in Namibia require robust legislation, policy frameworks, and effective enforcement measures. Incentives and deterrents for sustainable land use practices, such as subsidies and regulations, align private land use with societal and environmental objectives. Cross-sectoral involvement—from

323 Ruppel & von Finckenstein (2022: 403)

environment and climate change to land rights, gender equality, traditional affairs, health, economy, and trade—is crucial for sustainable agriculture, rural development, and community empowerment.

Namibia does have dedicated soil legislation, but one of the biggest obstacles to effective soil conservation is the fragmentation of responsibilities. There is no cohesive policy to coordinate the effectiveness of existing laws and regulations regarding soil protection. This lack of coordination hampers the overall impact of soil conservation efforts. To improve soil conservation in Namibia, several key steps can be taken: Establish a central authority to oversee and coordinate all soil conservation activities, ensuring all efforts are aligned and effective. Create a unified policy framework that harmonises existing laws and regulations, reducing overlap and confusion. Foster better collaboration and communication among different agencies and institutions involved in soil management to streamline efforts and share resources.

The land question in Namibia remains unresolved, with ongoing challenges and complexities.³²⁴ Although agricultural land reform is a key political priority, the financial resources allocated are insufficient relative to the scale of the rural land challenges. Progressing land tenure rights is essential for soil protection and mitigating tenure impacts on soil health.³²⁵ Namibia implemented various post-independence land tenure systems to ensure security for all citizens. However, customary laws still prevail in some areas.³²⁶ Although communal land rights were formalised through the CLRA, challenges persist, including reports of illegal land fencing and administrative overlaps.³²⁷ Addressing these issues requires harmonising and formalising land tenure practices across diverse regions, improving transparency, and combating corruption in land allocation processes. Offering incentives to prevent overgrazing on communal lands in Namibia could be an effective strategy to promote sustainable land management and improve environmental outcomes. Providing subsidies or financial rewards to communal farmers who implement sustainable grazing practices, such as rotational grazing, resting periods for pastures, or fencing off sensitive areas.

In Namibia and throughout Africa, integrating customary law and indigenous knowledge into soil policies is essential for improving their effectiveness.³²⁸ Educating legal professionals in soil law is also crucial to ensure adherence to protection measures. Additionally, legislation on foreign land investment must prioritise national interests, social responsibilities, and environmental standards to sustainably manage soil resources. This is particularly important given the growing global interest in land investments, such as those in green hydrogen projects.

324 De Villiers et al. (2020: 71).

325 Ruppel & von Finckenstein (2022: 403).

326 Mazambani & Chigbu (2023: 2); Nakanyete et al. (2020).

327 Ibid.: 9.

328 Ruppel & von Finckenstein (2022: 404-405).

Namibia faces a pressing need to urgently address access to justice for environmental cases. With environmental degradation increasingly impacting communities and ecosystems, specialised environmental courts or tribunals can play a pivotal role in ensuring fair and timely adjudication of these complex issues. These institutions would not only enhance legal standing and procedural fairness but also foster expertise among judges, leading to more consistent application of environmental law, and in turn, the protection of soil resources. Also, ultimately, effective community participation is about empowering communities to influence decisions that affect their lives and environments. It requires commitment from government agencies, developers, civil society, and communities themselves to foster an environment where participation is meaningful, informed, and equitable.

Enhancing soil governance demands coordinated efforts domestically and internationally across sectors and institutions. Soil protection is pivotal for achieving climate and food security objectives, reflecting the public trust doctrine that emphasises our shared interest in critical resources such as soil.

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Country report for South Africa¹

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Abstract

This chapter focuses on soil conservation and land management in South Africa. It highlights the challenges of soil degradation and the country's efforts to address these issues, particularly emphasising the fragmented policy landscape and the complex land tenure systems, including communal land under traditional authorities. The chapter explores the implications of soil degradation on food security, ecosystem health, and the broader agricultural sector, noting how ineffective soil management exacerbates the nation's reliance on imports and hampers sustainable development.

An analysis of the existing legal frameworks and policies reveals several shortcomings, including limited enforcement capacity, insufficient resources for research and innovation, and inadequate integration of soil protection measures into broader environmental and agricultural policies. Specific attention is given to the Conservation of Agricultural Resources Act (CARA) and its implementation challenges, as well as the complexities arising from the coexistence of formal municipal and traditional land management systems.

The chapter also presents key findings, such as the need for greater stakeholder education, better integration of soil scientists into policymaking, and enhanced support for smallholder farmers. Recommendations are offered to improve soil protection, including strengthening legal frameworks, securing land rights, and promoting sustainable farming practices. It concludes by emphasising the urgent need for a dedicated soil protection law in South Africa, particularly considering the country's projected population growth and the critical role of soil health in achieving food security and national development goals.

1 This chapter partly draws from the book chapter authored by Ruppel, Ruppel-Schlichting, Houston & Afua (2021). See also Ruppel et al. (2020).

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Summary

South Africa faces significant challenges related to soil degradation, but it has also made considerable progress in addressing these issues. The country has introduced comprehensive policies and legislation recognising the importance of soil health. Monitoring systems are in place, and efforts are underway to develop a national soil health database. Integrated land use planning offers an opportunity to prioritise soil health, and sustainable agricultural practices such as conservation agriculture and agroforestry can improve soil quality and reduce erosion. Empowering stakeholders through training and technical support is crucial for effective soil conservation.

However, South Africa's efforts to combat soil degradation also reveal several key shortcomings. A lack of awareness and education about soil conservation among key stakeholders hampers effective mitigation. Smallholder farmers face challenges such as low soil fertility, limited access to equipment, and insufficient income. In addition, they often struggle to access climate information and lack basic agronomic knowledge. Insufficient investment in research and innovation limits the development of new soil conservation technologies, and fragmented land management prioritises short-term economic gains over long-term soil health. Policy fragmentation isolates soil

conservation from broader environmental and agricultural policies, weakening the holistic approach needed. Incentive mechanisms to encourage soil-friendly practices are also lacking, and farmers often must take the initiative without sufficient support. Limited capacity among managers, farmers, and extension workers hinders the successful implementation of conservation practices. The insecure tenure system, particularly in communal land areas, exacerbates soil degradation, with unregistered land tenure rights and land grabbing posing significant challenges.

Looking ahead, several recommendations are put forward to enhance soil conservation in South Africa. With the projected growth in population, the country faces diminishing arable land per person, which will increase its reliance on food imports and foreign aid. Sustainable land management, which can transform soils into carbon sinks, is essential for aligning with national development goals and the Sustainable Development Goals (SDGs). However, soil degradation continues due to inadequate legislation and challenges surrounding land tenure. Strengthening policies to reduce emissions, expand carbon sinks, and enforce soil protection measures is critical. Legal education on soil protection, formalising communal land rights, and improving land tenure systems are key steps towards creating a more effective framework for soil management.

South Africa's land management system is complex, with multiple systems in place. The formal municipal system, which is primarily urban-focused, often neglects areas under traditional authority, where land is allocated by traditional leaders. Tensions between traditional leaders and local government persist, with challenges in ensuring compliance with the Spatial Planning and Land Use Management Act (SPLUMA) in areas under traditional management. This complexity highlights the need to address the parallel land management systems in the country.

Historically, Soil Conservation Committees played a vital role in promoting agricultural resource conservation and implementing the Conservation of Agricultural Resources Act (CARA). Their success was dependent on skilled staff and knowledgeable farmers who could identify land degradation and apply appropriate conservation measures. Reintroducing these committees with appropriate funding could strengthen the implementation of soil protection strategies. Reinstating dedicated soil legislation might help integrate soil issues more effectively into broader land management policies.

To enhance soil conservation, it is essential to secure clear rights to communal land by working with traditional authorities and communities. Support for sustainable farming practices, particularly for small-scale farmers, should be prioritised. Inclusive land use planning, with input from local communities, farmers, and leaders, is also vital. A nuanced approach to land tenure, such as issuing title deeds for agricultural fields and grazing land while establishing separate tenure arrangements for homesteads, could help balance the benefits of secure land rights with the risk of displacement.

Finally, integrating soil scientists into policymaking, conducting comprehensive land surveys, and establishing a centralised, accessible soil and land use database are vital steps forward. Municipalities should develop detailed land use plans for various land types, and the enforcement of existing laws should be strengthened. Promoting sustainable land use practices and incorporating climate change adaptation measures will be essential for safeguarding soil health and ensuring long-term sustainability in South Africa.

1 Country information

South Africa, situated at the southern tip of the African continent, is a land of remarkable diversity, rich in natural resources, cultural heritage, and historical significance.

1.1 Geography and climatic conditions

South Africa borders Namibia, Botswana, Zimbabwe, Mozambique, Eswatini, and Lesotho, with coastlines on the Atlantic and Indian Oceans. Key boundary landmarks include Beitbridge (Zimbabwe), the Orange River (Namibia), the Limpopo River (Zimbabwe), the Drakensberg Mountains (Lesotho), and Rooiberg Mountain (Botswana). Strategically, South Africa serves as a trade hub for landlocked countries in Southern Africa.²

Spanning 1,221,037 square kilometres, South Africa's geography includes plateaus, the Drakensberg Mountains, Highveld grasslands, the Lowveld wildlife reserves, and coastal plains.³ Its climate is diverse, ranging from Mediterranean in the Western Cape to arid in the Karoo and Kalahari.⁴ Seasons vary, with warm summers, mild autumns, cooler winters, and blooming springs.⁵ Rainfall varies, with the Western Cape receiving winter rain and the eastern coast getting year-round rainfall.⁶ Droughts in the interior affect agriculture and winds such as the Berg winds influence soil erosion rates. Coastal areas are cooler and more humid due to ocean proximity.

2 Lesotho Country Profile Report (2017: 8-9); Ministry of Finance: Policy and Planning Unit: Eswatini Financial Inclusion Refresh (2020: 11); See <https://www.tralac.org/news/article/16255-tralac-daily-news-19-december-2023.html>, accessed 8 May 2024.

3 See <https://southafrica-info.com/land/how-big-is-south-africa/#:~:text=South%20Africa's%20total%20surface%20area,a%20region%20of%2055%20states>, accessed 8 May 2024; <https://www.thornybush.com/lure-of-the-lowveld/>, accessed 8 May 2024; <https://www.capenature.co.za/land-and-freshwater-ecosystems>, accessed 8 May 2024.

4 See Herbert & Fitchett (2022).

5 Minister of Science and Technology, South African Risk and Vulnerability Atlas 2 ed (2017: 9-12).

6 Ibid.: 9.

1.2 Economy

South Africa wields significant influence in Africa and globally through its leadership in the African Union (AU), the Southern African Development Community (SADC), and BRICS. As one of Africa's largest economies, it leads regional diplomacy, and peacekeeping, and represents African interests in forums on trade, climate change, and development.⁷ South Africa promotes African integration initiatives such as the African Continental Free Trade Area (AfCFTA) and the New Partnership for Africa's Development (NEPAD).⁸

Its economy, the continent's most industrialised, is diversified across mining, manufacturing, agriculture, finance, and services.⁹ Rich in resources including gold, platinum, and coal, South Africa has shifted towards a service-based economy, emphasising retail, tourism, finance, and technology.¹⁰ Ranked 84th for ease of doing business, it faces challenges in bureaucracy and infrastructure but remains a key investment destination, hosting the continent's largest stock exchange (Johannesburg Stock Exchange).¹¹

The economy, valued at ZAR 6.64 trillion (USD 363 billion), has faced recent disruptions from global conflicts, natural disasters, and infrastructure issues, notably electricity shortages.¹² Inflation and high interest rates add to these challenges.¹³ In December 2023, South Africa's gross national income (GNI) stood at USD 95.5 billion, with an external debt of USD 158.1 billion.¹⁴ Public debt, at 71.1% of gross domestic product (GDP) in 2022, poses long-term risks, impacting government spending and economic stability.¹⁵

7 Zondi (2012: 17); Ruppel & Borgmeyer (2018: 284); Jordaan (2012).

8 Soko & Qobo (2021: 419).

9 South Africa Investment Conference Booklet (2023: 1).

10 See Department of Science and Technology, *Innovation Towards a Knowledge-Based Economy: Ten-Year Plan for South Africa (2008-2018)*.

11 See <https://archive.doingbusiness.org/en/data/exploreeconomies/south-africa>, accessed 8 May 2024; <https://www.weforum.org/organizations/johannesburg-stock-exchange/#:~:text=JSE%20offers%20the%20investor%20a,terms%20of%20market%20capitalization%20worldwide.,> accessed 8 May 2024.

12 South Africa Investment Conference Booklet (2023: 2-3); <https://www.worldbank.org/en/country/southafrica/overview>, accessed 8 May 2024.

13 See <https://www.worldbank.org/en/country/southafrica/overview>, accessed 8 May 2024.

14 For respective data see <https://databank.worldbank.org/metadataglossary/world-development-indicators/series/NY.GNP.MKTP.KD>, accessed 8 May 2024; <https://www.ceicdata.com/en/indicator/south-africa/gross-national-product>, accessed 8 May 2024; <https://databank.worldbank.org/metadataglossary/international-debt-statistics/series/page/5>, accessed 8 May 2024; <https://www.ceicdata.com/en/indicator/south-africa/external-debt#:~:text=South%20Africa%20External%20Debt%20reached,bn%20in%20the%20previous%20quarter.,> accessed 8 May 2024.

15 See <https://www.cia.gov/the-world-factbook/field/public-debt/country-comparison/>, accessed 8 May 2024; <https://www.focus-economics.com/country-indicator/south-africa/public-debt/#:~:text=Public%20debt%20in%20South%20Africa%20averaged%2054.1%25%20of%20GDP%20in,information%2C%20visit%20our%20dedicated%20page.,> accessed 8 May 2024.

1.3 Society

As of 2022, South Africa's population exceeds 62 million, with a density of around 50 people per square kilometre.¹⁶ Gauteng and KwaZulu-Natal are the most populous provinces, while the Northern Cape has the fewest residents. By 2023, 69% of the population (41.7 million) lived in urban areas.¹⁷

Known as the "Rainbow Nation," South Africa is culturally diverse, with twelve official languages and communities of indigenous African, European, Indian, and Asian descent.¹⁸ The 1996 Constitution (amended to 2023) guarantees freedom of religion, with Christianity, Islam, Hinduism, and traditional African religions widely practised.¹⁹

The literacy rate was 95.33% in 2021, though rural education faces challenges.²⁰ Education is compulsory up to grade nine, with upper secondary enrolment at 46% for 15–19-year-olds, but 50% of adults aged 25–34 lack secondary qualifications.²¹ Education spending accounted for 17% of government expenditure in 2021.

Unemployment stood at 32.4% in 2023, with informal employment common.²² Employment was distributed as 21.3% in agriculture, 17.3% in industry, and 61.5% in services in 2021, while skills shortages remain a challenge.²³

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- 16 See <https://www.worldometers.info/world-population/south-africa-population/>, accessed 8 May 2024; See <https://www.gov.za/about-sa/south-africas-people>, accessed 8 May 2024.
 - 17 See <https://www.worldometers.info/world-population/south-africa-population/>, accessed 8 May 2024.
 - 18 Turok et al. (2021: 71); Buqa (2015); See https://www.sa-venues.com/sa_languages_and_culture.htm, accessed 8 May 2024.
 - 19 See <https://www.gov.za/about-sa/south-africas-people>, accessed 8 May 2024.
 - 20 See <https://www.globaldata.com/data-insights/macro-economic/literacy-rate-in-south-africa/#:~:text=Literacy%20Rate%20in%20South%20Africa%20Overview&text=The%20literacy%20rate%20reached%2095.33,South%20Africa%20decreased%20by%203.3%25.,> accessed 8 May 2024; <https://www.amnesty.org/en/latest/news/2020/02/south-africa-broken-and-unequal-education-perpetuating-poverty-and-inequality/>, accessed 8 May 2024; International Monetary Fund, *Struggling to Make the Grade: A Review of the Causes and Consequences of the Weak Outcomes of South Africa's Education System* (2019).
 - 21 See <https://gpseducation.oecd.org/CountryProfile?primaryCountry=ZAF&tresh-old=5&topic=EO>, accessed 8 May 2024.
 - 22 See <https://www.worldbank.org/en/country/southafrica/overview#:~:text=The%20achievement%20of%20progress%20in,already%20high%20pre%20pandemic%20levels.,> accessed 8 May 2024.
 - 23 See <https://www.statista.com/statistics/578944/employment-by-economic-sector-in-south-africa/#:~:text=In%202021%2C%2021.3%20percent%20of,percent%20in%20the%20service%20sector.,> accessed 8 May 2024; See <https://www.statssa.gov.za/?p=16848>, accessed 8 May 2024.

Poverty affects 18.2 million South Africans, with the poverty line set at ZAR 1,058 (USD 57.85) per month in 2023.²⁴ Rural poverty (81.3%) is far higher than urban poverty (40.7%), highlighting stark inequalities.²⁵

1.4 Information on the organisational structure of South Africa

South Africa's government comprises three branches: the executive, led by the President, who appoints ministers; the legislature, consisting of the National Assembly (NA) and National Council of Provinces (NCOP) in Parliament, which oversees the executive and represents provincial interests; and the judiciary, headed by the Constitutional Court, with the Supreme Court of Appeal and High Courts handling general cases, and Magistrates' and Regional Courts managing minor offences. Specialised courts include the Competition Appeal Court, Electoral Court, and Labour and Labour Appeal Courts. The new Land Court and its Court of Appeal, established by the Land Court Act 6 of 2023, address land reform cases and aim to resolve a 30-year backlog.²⁶

The Constitution ensures supremacy and accountability (Section 1), with the Bill of Rights obligating the state to uphold rights (Section 7(2)). South Africa is divided into nine provinces, each with legislatures and executive councils overseeing services including education and health, while local governments manage municipal services. Operating under a multi-party system (Section 1(d)), South Africa's new (2024 onwards) national unity government includes the African National Congress (ANC), the Democratic Alliance (DA), the Inkatha Freedom Party (IFP), the Pan Africanist Congress (PAC), the GOOD party, the Freedom Front Plus, the Patriotic Alliance (PA), the United Democratic Movement, Al Jama-ah, Rise Mzansi, and the United Africans Transformation.

1.4.1 Legal system and legal tradition

South Africa's legal system blends Roman-Dutch civil law, English common law, and customary law, reflecting its colonial history and indigenous customs. The Constitution, which emphasises fundamental rights and freedoms, including equality and the rule of law, guides the legal framework. Section 8(1) mandates that the Bill of Rights

24 See <https://www.statista.com/statistics/1263290/number-of-people-living-in-extreme-poverty-in-south-africa/#:~:text=As%20of%202023%2C%20around%2018.2,into%20poverty%20compared%20to%202022.,> accessed 8 May 2024.

25 Department of Statistics South Africa, National Poverty Lines (2023: 3); EDWRG Working Paper Series (2022: 3).

26 Land Court Act 6 of 2023; Moosa (2024).

applies to all laws and entities of the state, while Section 8(2) ensures that rights apply to individuals and entities according to their nature and obligations.

1.4.2 Competence of legislation

In South Africa, Parliament holds the authority to enact laws under the Constitution (Section 43(a)), following the separation of powers among the executive, legislative, and judicial branches. Parliament includes two houses, the NA and the NCOP (Section 42(1) of the Constitution), which legislate on various national matters, including agriculture, housing, environment, and public transport (Section 44 and Schedule 4 Part A of the Constitution). Provincial legislatures can also make laws on specific regional issues, provided they align with national laws (Sections 104(1), 114(1), 146-148, and Schedules 4 Part A and 5 Part A of the Constitution).

Municipal councils govern local matters such as water, sanitation, and municipal planning (Sections 151(2), 156(1), and Part B of Schedules 4 and 5 of the Constitution). The legislative process requires public participation, with opportunities for public input and consultation to ensure transparency and accountability (Sections 59(1)(a), 72(1)(a), 116(1)(b), 118(1)(a), and 160(4)(b) of the Constitution). Once a bill is passed, the President or provincial Premier signs it into law, and all acts are published in the Government Gazette for public access in one or more of the main languages spoken (Afrikaans, English, Xhosa) (Sections 79(1), 84(2), and 121(1) of the Constitution).

1.4.3 Competence of law enforcement

In South Africa, enforcing laws is a collaborative effort among various government agencies. The South African Police Service (SAPS) maintains public order and investigates crime, while the National Prosecuting Authority (NPA) prosecutes criminal cases. The South African Revenue Service (SARS) enforces tax laws,²⁷ and the Department of Labour oversees workplace standards. The Competition Commission promotes fair competition,²⁸ and the Department of Forestry, Fisheries, and the Environment (DFFE) enforces environmental regulations, with support from the Environmental Management Inspectorates (EMIs), or “Green Scorpions.”²⁹

27 South African Revenue Service Act 34 of 1997.

28 Competition Act 89 of 1998.

29 See <https://www.dffe.gov.za/fighting-environmental-crimes>, accessed 8 May 2024. As per Sec 31D of the National Environmental Management Act 107 of 1998 (NEMA), EMIs are empowered to oversee various environmental sectors. These include protecting biodiversity-rich areas, managing pollution, waste, and Environmental Impact Assessments (EIAs), and ensuring the sustainable management of coastal resources and ecosystems.

The judiciary plays a key role in interpreting laws and ensuring legal consistency.³⁰ Chapter 9 institutions, such as the Public Protector³¹ and Human Rights Commission,³² uphold democracy and citizens' rights. However, challenges persist, including corruption, resource shortages, and judicial backlogs.³³

1.4.4 The Constitution, statutory, and customary law

Customary law, prevalent in South Africa's rural areas and among indigenous communities, governs crucial aspects such as marriage, inheritance, and conflict resolution, drawing from community customs and traditions.³⁴ The Constitution recognises and protects the rights of individuals under customary law, prohibiting discrimination based on culture (Section 9(3)), affirming the right to language and cultural participation (Section 30), and acknowledging the rights of cultural communities (Section 31). Courts must interpret legislation and develop common law in line with the Bill of Rights (Section 39(2)), resolving conflicts between public and customary law by aligning both with the Constitution. Customary law rights are upheld if they adhere to constitutional principles (Section 39(3)), and Section 211(3) mandates its application when relevant while ensuring compliance with the Constitution and relevant legislation.

Traditional leaders and structures, operating under Chapter 12 of the Constitution, have defined roles in upholding cultural, religious, and linguistic rights. These entities, including leaders and councils, manage traditional communities, preserving customs and mediating disputes. The White Paper on Traditional Leadership and Governance (2003) sets out the national framework, norms and standards that define the role and place of the institution of traditional leadership in South Africa. The Traditional Courts Act 9 of 2022 governs traditional courts, which operate under customary law to resolve disputes, including family matters and minor criminal offences. However, this Act has not yet entered into force.

30 Ruppel (2022b: 663); van Coller (2023).

31 Sec 182 of the Constitution read with Act 23 of 1994.

32 Ibid.: Sec 184 read with the corresponding Act 40 of 2013.

33 See <https://www.corruptionwatch.org.za/the-terrible-consequences-of-police-corruption/>, accessed 8 May 2024; <https://www.corruptionwatch.org.za/police-corruption-an-ongoing-problem/>, accessed 8 May 2024; Civilian Secretariat for Police Service, Analysis of Resource Allocation in the South African Police Service (2017); https://www.businesslive.co.za/bd/national/2024-04-22-courts-not-always-to-blame-for-backlogs-says-deputy-justice-minister/#google_vignette, accessed 8 May 2024.

34 See Moore & Himonga (2018).

2 Soil degradation

2.1 The state of the environment

South Africa faces serious environmental challenges, including pollution, water scarcity, biodiversity loss, and climate impacts.³⁵ Industrial activities, poor waste management, and acid mine drainage heavily pollute air, soil, and water.³⁶ Ranked as the 14th largest emitter of greenhouse gases (GHG), South Africa faces significant environmental challenges, with more than 75% of its drinking water resources threatened by droughts and insufficient wastewater treatment.³⁷

Biodiversity loss is severe, with threats to 22% of terrestrial ecosystems and over 50% of marine ecosystems.³⁸ Climate change is exacerbating issues with rising temperatures and more frequent extreme weather, especially in vulnerable areas.³⁹

Economic activities such as urbanisation, mining, and agriculture strain land resources, leading to widespread erosion and land degradation.⁴⁰ About 25% of soil is severely degraded, particularly in communal areas where overgrazing and erosion affect local farmers.⁴¹ Limited government support has worsened soil erosion, affecting food production in some regions.⁴²

35 See <https://www.greenpeace.org/africa/en/blog/54600/air-pollution-in-south-africa-the-silent-killer-that-demands-urgent-action/#:~:text=The%20vast%20majority%20of%20South,South%20Africans%20are%20exposed%20to.,> accessed 8 May 2024; Shezi et al. (2022); <https://www.greenpeace.org/africa/en/blogs/51757/water-crisis-in-south-africa/>, accessed 8 May 2024.

36 Laker (2023).

37 See <https://gitnux.org/air-pollution-in-south-africa-statistics/#:~:text=South%20Africa%20ranks%2030th%20in,largest%20contributor%20in%20the%20world.,> accessed 8 May 2024; Haywood et al. (2021); See <https://gitnux.org/water-pollution-in-south-africa-statistics/#:~:text=More%20than%2075%25%20of%20the,water%20deficit%20of%20around%2017%25.,> accessed 8 May 2024.

38 See <https://www.greenpeace.org/africa/en/blogs/53486/threats-to-biodiversity-biodiversity-loss-climate-change/#:~:text=Habitat%20destruction%20renders%20entire%20habitats,true%20in%20South%20Africa%20also.,> accessed 8 May 2024; Skowno et al. (2021: 3); Department of Forestry, Fisheries, and the Environment, South African Environment (2023: 45).

39 University of Cape Town, Climate Change Impacts in South Africa (2024); World Bank Group, Climate Risk Country Profile: South Africa (2021: 3); See <https://pta-gis-2-web1.csir.co.za/portal/apps/GBCascade/index.html?appid=b161b2f892194ed5938374fe2192e537>, accessed 8 May 2024.

40 Byaro et al. (2023); Mani et al. (2021); See <https://mg.co.za/the-green-guardian/2021-06-14-over-exploitation-has-degraded-billions-of-hectares-of-land/>, accessed 8 May 2024; Department of Forestry, Fisheries, and the Environment, South African Environment (2023: 98).

41 du Preez & van Huyssteen (2020: 2); Ebhuoma et al. (2022).

42 Hoffman & Ashwell (2012: 89).

2.2 Different types of soil and their vulnerability in terms of degradation

2.2.1 Types of soil

Geography and climate shape South Africa's diverse soil types, each with distinct characteristics and vulnerabilities.⁴³ Organic soils in wetlands, drained for farming, face ecological risks, including peat mining.⁴⁴ Humic soils in high-rainfall areas support crops but may lack nutrients.⁴⁵ Vertic soils, with swelling properties, challenge agriculture due to dry-wet extremes.⁴⁶ Fertile Melanic soils need irrigation and are unsuited for commercial forestry.⁴⁷ Silicic soils, requiring mechanical treatment, support agriculture but complicate post-mining restoration.⁴⁸ Calcic soils in arid zones suit grazing, while Duplex soils need careful management to prevent degradation.⁴⁹ Podzolic soils, acidic but useful for forestry, require irrigation for farming.⁵⁰ Plinthic soils, with limited productivity, support specific crops, while red Oxidic soils face compaction and drainage issues.⁵¹ Gleyic soils in wetlands need artificial drainage for farming, though conservation is preferable.⁵² Cumulic soils, nutrient-rich but difficult to till, are suitable for cultivation.⁵³ Lithic soils on slopes support ranching and conservation with precise irrigation.⁵⁴ Anthropic soils, altered by human activity including mining, pose unique land-use challenges.⁵⁵

2.2.2 Forms of soil degradation

Soil erosion poses a significant global environmental threat, with different regions facing distinct challenges. Coastal areas contend with wind erosion, where loose particles are carried away by strong winds, while regions with heavy rainfall and steep terrain are susceptible to water erosion, dislodging soil particles and leading to significant soil loss.⁵⁶ This reduction in crop yields exacerbates the impacts of drought. Additionally, silt entering watercourses leads to the siltation of storage dams and damages pumps

43 Soil Classification Working Group (1991).

44 Fey et al. (2012: 19-24).

45 Ibid.: 25-34.

46 Ibid.: 35-44.

47 Ibid.: 45-52.

48 Ibid.: 53-62.

49 Ibid.: 63-82.

50 Ibid.: 83-92.

51 Ibid.: 93-114.

52 Ibid.: 115-122.

53 Ibid.: 123-134.

54 Ibid.: 135-142.

55 Ibid.: 143-146.

56 du Preez & van Huyssteen (2020: 5-6).

and other infrastructure. Estimates indicate that the cost of addressing siltation-related issues in South Africa exceeds ZAR 850 million (USD 46 million) annually.⁵⁷

In South Africa, water erosion affects over 70% of the surface area, exacerbated by factors such as overgrazing, which concentrates livestock and leads to soil compaction, reducing water infiltration and increasing runoff.⁵⁸ Croplands, especially bare land, are highly vulnerable to water erosion, as seen in the pineapple industry of the Eastern Cape province.⁵⁹

Wind erosion rates are elevated by disturbances such as grazing, fire, and tillage, particularly in arid and semi-arid regions with limited soil cover.⁶⁰ In South Africa, areas such as the western parts of the summer rainfall cropped fields, and the sandy coastal belt are highly susceptible to wind erosion.

Soil compaction, exacerbated by machinery use and intensive cropping, is widespread, particularly in regions with low soil organic matter content and high soil moisture.⁶¹ This issue affects rainfed grain-producing regions in the Western Cape, high-potential cropland areas of Mpumalanga, and forestry areas across the region, reducing water and nutrient storage, increasing fertiliser requirements, and diminishing plant growth.

Soil acidification, a result of prolonged cultivation and excessive nitrogen fertiliser use, is widespread across South Africa, especially in regions with mining activities such as KwaZulu-Natal.⁶² Salinisation, caused by salt accumulation in poorly drained soil exacerbated by irrigation, affects approximately 10% of irrigated land in South Africa, impacting soil quality and crop productivity.⁶³ Soil organic matter loss, due to various land use activities, is a concern, as it is crucial for soil health, water retention, nutrient storage, and erosion control.⁶⁴

2.3 Main drivers of soil degradation

2.3.1 Agriculture

Section 27(1)(b) of the Constitution guarantees South Africans the right to sufficient food and water. With 96 million hectares of agricultural land, the country's fertile soils

57 Hoffman & Ashwell (2012: 82).
 58 du Preez & van Huyssteen (2020: 11-12).
 59 Ibid.: 5.
 60 Ibid.: 5-6.
 61 Ibid.: 2-5.
 62 Ibid.: 7; Helberg (2019: 26).
 63 du Preez & van Huyssteen (2020: 7).
 64 Ibid.: 8.

and diverse climates support a thriving sector.⁶⁵ South Africa has two main farming types: subsistence farmers in rural areas and large-scale commercial farmers.⁶⁶ The nation produces grains, fruits, sugar, nuts, vegetables, and livestock, contributing USD 14.98 billion to the economy in 2023, with exports reaching USD 2.8 billion in Q1 2023.⁶⁷

However, agriculture faces challenges. Over the past century, up to 50% of soil carbon has been lost, with erosion removing thirteen tons of topsoil per hectare annually.⁶⁸ Over 61% of the landscape is moderately to highly degraded.⁶⁹ Expansion into low-potential areas leads to crop failures, while commercial farmers struggle with rising costs and debt, prioritising short-term survival over soil conservation.⁷⁰ Unsustainable practices reduce soil fertility, biodiversity, and water management efficiency.⁷¹

Due to high inorganic fertiliser costs, manure and wastewater are increasingly being used as fertilisers, but they risk soil and food chain contamination.⁷² Climate change and water scarcity are pushing farmers toward alternative irrigation methods, with some Western Cape boreholes becoming too saline for use.⁷³

Commercial farmers benefit from better resources for soil conservation, unlike small-scale farmers, who face barriers such as limited training, invasive plants, illegal grazing, and wildfires.⁷⁴ Mentorship programs and skills development are urgently needed to help these farmers adopt sustainable soil management practices.

2.3.2 Mining

South Africa boasts abundant mineral resources, including precious metals, base metals, coal, and industrial minerals.⁷⁵ The mining sector plays a significant role,

65 Ministry of Foreign Affairs and Trade and the New Zealand Government, South Africa: Agriculture Opportunities (2023: 1).

66 Lidzhegu & Kabanda (2022: 1).

67 See <https://www.trade.gov/country-commercial-guides/south-africa-agricultural-sector>, accessed 8 May 2024; See <http://www.investsa.gov.za/key-sectors/agribusiness/>, accessed 8 May 2024; Ministry of Foreign Affairs and Trade and the New Zealand Government, South Africa: Agriculture Opportunities (2023: 1).

68 See <https://www.farmersweekly.co.za/agri-news/south-africa/sa-soils-extremely-degraded-by-unsustainable-farming/>, accessed 8 May 2024.

69 See <https://mg.co.za/article/2019-09-24-00-repairing-ecosystems-is-costly-but-doing-nothing-is-criminal/>, accessed 8 May 2024.

70 Ruppel et al. (2020: 311); Department of Forestry, Fisheries, and the Environment, South African Environment (2023: 89); Hoffman & Ashwell (2012: 84).

71 Ruppel et al. (2020: 311); Mani et al. (2021: 983).

72 Bhattacharyya et al. (2015); Bogunovic et al. (2019); Moswetsi et al. (2017: 55); Rusănescu et al. (2022).

73 Ruppel et al. (2020: 316); Pili & Ncube (2022: 102).

74 Baade et al. (2024: 358-359).

75 Pocket Guide to South Africa (2012/2013: 150).

contributing over 40% of global production in ferrochromium, platinum group metals, and vanadium.⁷⁶

Mining is pivotal to South Africa's economy, dating back almost two centuries. In the first half of 2023, exports of mined materials totalled ZAR 575 billion (USD 31.50 billion), making up 58% of total exports.⁷⁷ The sector is a significant employer, with 477,000 people formally employed in 2023, contributing R 425.6 billion (USD 23.32 billion) to the GDP and ZAR 89.9 billion (USD 4.92 billion) in taxes.⁷⁸

Mining activities contribute to soil pollution and habitat destruction, primarily through topsoil removal, toxic substance use in processing, and landscape disruption.⁷⁹ Mining often contaminates soil, as chemicals from mineral processing seep into the soil, endangering vegetation and wildlife.⁸⁰ Soil erosion and degradation are also common, particularly in regions with open-cast mining.⁸¹ Poor mine closure practices worsen soil degradation, leaving landscapes unsuitable for productive use.⁸²

Over 200,000 hectares of South African land are covered by mine wastes, notably in Gauteng, Mpumalanga, Limpopo, the North West, and the Northern Cape.⁸³ These wastes diminish soil productivity by reducing fertility and causing contamination, with the annual cost of neutralising acid rain effects estimated at around ZAR 25 million (USD 1.37 million) in Mpumalanga alone.⁸⁴

2.3.3 Deforestation

Forests are vital for capturing carbon dioxide, mitigating climate change, and providing habitats for diverse species.⁸⁵ When trees are cleared, the soil is exposed to drying conditions, reducing its water retention capacity and increasing the risk of erosion and surface runoff.

Forests in South Africa encompass natural forests, woodlands, and plantation forests, covering a vast area of over 40 million hectares.⁸⁶ The forestry sector contributes significantly to the economy, with an export value of around ZAR 38.4 billion (USD

76 Ibid.: 151.

77 PWC, SA Mine: Adapt to Thrive (2023: 4).

78 Minerals Council South Africa, Facts and Figures: Pocketbook (2023: 1).

79 Laker (2023).

80 Thomas et al. (2023).

81 Ramli et al. (2020).

82 HRW, The Forever Mines (2022).

83 Department of Forestry, Fisheries, and the Environment, South African Environment (2023: 99).

84 Ibid.: 100.

85 Alemu (2014); See <https://mg.co.za/the-green-guardian/2023-06-05-unpacking-deforestation-forest-loss-and-carbon-sinks/#:~:text=From%202015%20to%202021%2C%20South,Tsitsikamma%20forests%20over%2012%20days.,> accessed 8 May 2024.

86 Department of Forestry, Fisheries, and the Environment, State of the Forests Report (2018: 14).

2.10 billion).⁸⁷ This includes timber harvesting, processing, trade, and non-timber forest products such as medicinal plants and eco-tourism. Moreover, the forestry sector creates employment for approximately 85,900 people and supports rural development and income generation.⁸⁸

Deforestation is a pressing issue in South Africa, with a loss of 12.3 kilo hectares of tree cover recorded in 2023.⁸⁹ From 2015 to 2021, South Africa lost about 5% of its total primary forest area—over 6,000 hectares, which is equivalent to approximately 6,373 rugby fields.⁹⁰ Agricultural expansion, urbanisation, infrastructure development, mining, and unsustainable logging practices are the main drivers of deforestation.⁹¹ Additionally, wood harvesting for energy in areas without electricity, such as Bushbuckridge in Limpopo, KwaZulu-Natal, and the Eastern Cape, contributes to this problem.⁹²

2.3.4 Weather and climate factors

South Africa generally experiences a semi-arid to arid climate, with an average annual precipitation of around 460 mm, considerably lower than the global average of 860 mm.⁹³ There is significant variation in rainfall distribution across the country, with southern and eastern regions receiving more rain compared to western and northern areas, leading to fluctuating soil moisture levels and vegetation cover.⁹⁴

Water scarcity in South Africa is a significant issue influenced by climate variability, population growth, urbanisation, and inefficient water management, exacerbating soil degradation, especially in arid regions.⁹⁵ Natural hazards, such as floods and wildfires are common, worsening soil erosion and degradation. The peak fire season typically spans 22 weeks starting in mid-June, with wildfires burning over two million hectares in 2021 in provinces such as the Free State, North-West, Northern Cape, and Eastern Cape.⁹⁶ South Africa experiences distinct wind patterns, with southeasterly

87 See <https://www.forestrysouthafrica.co.za/economic-contribution/>, accessed 8 May 2024.

88 Department of Forestry, Fisheries, and the Environment, State of the Forests Report (2018: 14).

89 See <https://www.globalforestwatch.org/dashboards/country/ZAF/>, accessed 8 May 2024.

90 Gatticchi (2023).

91 See <https://earth.org/deforestation-in-africa/>, accessed 8 May 2024.

92 Department of Forestry, Fisheries, and the Environment, South African Environment (2023: 94).

93 du Preez & van Huyssteen (2020: 9).

94 Ibid; Naorem et al. (2023).

95 See <https://www.greenpeace.org/africa/en/blogs/51757/water-crisis-in-south-africa/#:~:text=South%20Africa%20is%20already%20a,are%20distributed%20in%20the%20country.https://earth.org/water-crisis-in-south-africa/>, accessed 8 May 2024; Donnenfeld et al. (2018: 15).

96 See <https://www.globalforestwatch.org/dashboards/country/ZAF/?category=fires&location=W yJb3VudHJ5IiwkFGIl0%3D>, accessed 8 May 2024; <https://www-dailymaverick-co-za.web pkgcache.com/doc/-s/www.dailymaverick.co.za/article/2021-10-04-the-burning-season->

trade winds bringing moisture and rainfall during summer from the Indian Ocean to the east and southeast, while westerly winds from the Atlantic Ocean lead to dry conditions in the interior during winter.⁹⁷

Climate change exacerbates existing challenges by altering rainfall patterns and increasing the frequency of extreme weather events. Reports such as the Intergovernmental Panel on Climate Change's Global Warming of 1.5°C (2018) and Climate Change and Land (2019) highlight human-induced land use changes that store atmospheric carbon in plants and soil, distinct from natural carbon dioxide storage. Climate change disrupts natural ecosystems, reducing freshwater availability, species loss, biodiversity decline, and landscape degradation.⁹⁸ Rising temperatures can desiccate soil, reduce organic matter content, and diminish fertility, while changes in precipitation affect soil moisture, leading to salinisation, erosion, and reduced fertility.⁹⁹ Additionally, climate change exacerbates wind erosion and dust emissions.

2.3.5 Urbanisation and infrastructure development

Urbanisation and infrastructure development are significant factors shaping South Africa's socio-economic landscape, as it ranks among the most urbanised nations in Africa.¹⁰⁰ With administrative, legislative, and judicial capitals in Tshwane, Cape Town, and Bloemfontein, respectively, the country has witnessed rapid urbanisation, with over 68.34% of its population residing in urban areas by 2022.¹⁰¹ This trend is expected to persist, straining urban infrastructure and services. Rapid urban expansion also leads to the conversion of natural habitats, loss of vegetation, ecosystem fragmentation, and heightened pressure on land resources.¹⁰²

Johannesburg, positioned as the 26th largest urban agglomeration globally, is the nucleus of South Africa's largest economic hub in the Gauteng province, which still maintains 52.5% of its natural or semi-natural cover.¹⁰³ In contrast, the predominantly arid Northern Cape province conserves a significantly higher proportion, with 98.6%

wildfires-sweeping-across-south-africa-and-namibia-have-left-devastation-in-their-wake/, accessed 8 May 2024.

97 Reason (2017).

98 Muluneh (2021: 2).

99 Ibid.: 7.

100 Turok (2012).

101 See <https://www.statista.com/statistics/455931/urbanization-in-south-africa/#:~:text=Urbanization%20in%20South%20Africa%202022&text=In%202022%2C%20over%2068.34%20percent,total%20population%20of%20a%20country.,> accessed 8 May 2024.

102 Gillson et al. (2012).

103 See <https://www.statssa.gov.za/?p=13821>, accessed 8 May 2024; <https://www.urbanet.info/in-fographics-urbanisation-in-south-africa/>, accessed 8 May 2023.

of its natural or semi-natural cover intact.¹⁰⁴ This contrast reflects diverse environmental characteristics and land use patterns.

The DFFE highlights urban and rural sprawl, housing demand, transportation, and basic service infrastructure as the most significant environmental impacts.¹⁰⁵ Urbanisation and infrastructure development frequently entail land clearing, soil compaction, and alteration of natural drainage patterns, causing soil degradation and fertility loss.¹⁰⁶

2.3.6 Invasive alien species

Alien plant invasion stands as a major environmental challenge in South Africa, causing vegetation degradation and land productivity loss.¹⁰⁷ In 2021, South Africa witnessed a 15% rise in established alien species, reaching 1,880, posing a significant ecosystem threat.¹⁰⁸ The ecological toll of invasive plants and animals exceeds ZAR 6.5 billion (USD 356 million) yearly, mainly due to decreased water availability, grazing land, and agricultural crop losses. Invasive species often create dense monocultures, deplete soil moisture, and diminish biodiversity, leading to soil erosion, nutrient depletion, and habitat loss.¹⁰⁹

2.3.7 Topographic constraints

South Africa's diverse landscape encompasses flat high plateaus, steep mountains, and varied coastlines. Despite this diversity, long-term erosion rates remain consistent.¹¹⁰ Interestingly, these erosion rates do not show a straightforward correlation with topography. For instance, steep mountains in the Cape erode at similar rates to the lowlands in Kruger National Park, which have a much gentler slope. This discrepancy suggests that differences in rock type and erodibility are balanced by other factors.

104 Ibid.

105 Department of Forestry, Fisheries, and the Environment, 2nd South Africa Environment Outlook (2016: Chapter 5).

106 See <https://eos.com/blog/soil-degradation/>, accessed 8 May 2024.

107 Department of Forestry, Fisheries, and the Environment, South African Environment (2023: 98).

108 See <https://www.sanews.gov.za/south-africa/sa-sees-increase-alien-species>, accessed 8 May 2024.

109 Rai (2022).

110 Baade et al. (2024: 338).

2.3.8 Other causes or drivers of soil degradation

Various other drivers contribute to soil degradation in South Africa, including industrial activities across sectors such as food and beverage, tanneries, and pharmaceuticals. These industries can significantly impact soils through pollution, with air pollution being one avenue.¹¹¹ Chemical emissions such as sulphate and nitrate aerosols can result in acid rain, affecting the pH of sandy or loamy soils.¹¹² Industrial effluents present significant challenges to soil health. Effluents from metal and certain chemical industries are non-biodegradable and toxic, directly polluting soils. They inhibit plant growth and degrade soil quality, posing serious environmental concerns.¹¹³

In South Africa, brownfields are abandoned or underutilised industrial or commercial properties with potential environmental contamination.¹¹⁴ These sites, remnants of past activities, may pose risks to public health and the environment due to hazardous soil, groundwater, or air substances. While brownfields are seen as vital for managing urban sprawl, improving infrastructure, and fostering sustainable development, their exact number and associated risks are unclear.¹¹⁵

Soil degradation, primarily caused by poor land management practices, is a pressing global issue surpassing the soil formation rate.¹¹⁶ In South Africa, pre-1994 land policies concentrated people into rural ‘homelands’, communal areas characterised by shared land access.¹¹⁷ Over time, neglect and mismanagement led to overgrazing, overharvesting, and soil erosion, exacerbating degradation.¹¹⁸ Almost seventeen million people, roughly a third of South Africa’s population, reside in the former homelands (communal areas).¹¹⁹ Land reform in South Africa aims to rectify historical injustices and promote equitable access to land, but it can inadvertently contribute to soil degradation.¹²⁰ Redistribution of land may lead to changes in land use practices, such as converting natural habitats to agriculture, resulting in soil erosion and loss of fertility.¹²¹ Restitution efforts may cause land fragmentation and inefficient land use, further degrading soils and ecosystems. Insecure land tenure arrangements discourage soil conservation practices and can lead to conflicts, exacerbating degradation.¹²²

111 Ruppel et al. (2020: 312); Stockholm Environment Institute & the University of York (2020: 33).

112 Ibid; Yadav et al. (2020).

113 Ibid; Chhonkar et al. (2000).

114 Venter (2020: 44-45).

115 Potts & Cloete (2012).

116 Gomiero (2016).

117 Kloppers & Pienaar (2014); Strauss (2019).

118 See <https://theconversation.com/17-million-south-africans-live-on-communal-land-new-study-of-a-rural-valley-offers-insights-on-how-to-manage-it-222107>, accessed 8 May 2024; Hoffman & Ashwell (2012: 84).

119 Clark & Luwaya (2017: 3).

120 Mfuné (2022: 247-248).

121 Pienaar (2004: 278).

122 Manjunatha et al. (2012).

Land grabbing in South Africa encompasses two distinct scenarios. The initial scenario involves individuals grappling with pressing issues such as poverty and lack of shelter, resorting to seizing land for residential purposes out of urgent necessity.¹²³ However, this action inadvertently leads to soil degradation as unsustainable land management practices ensue, including deforestation, haphazard construction of informal settlements lacking adequate infrastructure or planning, and improper waste disposal. The second scenario pertains to governmental entities, local elites, and foreign corporations progressively acquiring extensive agricultural land holdings.¹²⁴ Although noteworthy, this situation carries less urgency in contrast to the immediate and frequent challenges experienced in the previous scenario.

Furthermore, several behavioural practices have contributed to soil deterioration, including a lack of public awareness, inadequate enforcement of environmental legislation, a shortage of skilled labour, and insufficient funding for soil conservation. To illustrate, a survey of schoolchildren aged thirteen to fifteen in Ghana, South Africa, and Zimbabwe highlighted significant soil illiteracy.¹²⁵

2.4 Key actors in soil degradation

Soil degradation in South Africa involves key actors, such as investors, government entities, and farmers, each with distinct roles:

Investors in agriculture, mining, and infrastructure can contribute to soil degradation through land conversion, deforestation, and intensive land use. However, they can also invest in sustainable land management practices and technologies that promote soil conservation and restoration.

Responsible for developing and implementing policies and regulations related to land use and environmental protection, government entities play a crucial role. Effective governance and enforcement of these policies are vital for addressing soil degradation.

Small and large-scale farmers directly impact soil health through agricultural practices. Overgrazing, monocropping, excessive tillage, and improper irrigation can degrade soil quality. However, farmers can also adopt sustainable practices such as crop rotation, conservation tillage, agroforestry, and organic farming to improve soil quality and resilience.

123 See <https://dullahomarinstitute.org.za/multilevel-govt/local-government-bulletin/archives/volume-17-issue-4-november-2022/land-grabbing-municipalities-must-uphold-the-constitution-when-dealing-with-unlawful-occupiers>, accessed 8 May 2024.

124 Stenberg & Rafiee (2018); Lazarus (2013).

125 Johnson et al. (2023).

2.5 Conclusion

Soil degradation presents a critical environmental challenge in South Africa, driven by agricultural activities, mining operations, urbanisation, deforestation, and unsustainable land management practices. This degradation threatens food security, water quality, biodiversity, and ecosystem services.

Addressing soil degradation requires concerted efforts from various stakeholders, including government agencies, industries, urban planners, landowners, researchers, civil society organisations, and local communities. Additionally, robust policies, regulations, and enforcement mechanisms are needed to prevent further soil degradation, mitigate existing damage, and restore degraded soils. Integrated approaches that consider social, economic, and environmental dimensions are essential for achieving long-term soil conservation goals and ensuring the well-being of present and future generations.

3 General information on public soil legislation

3.1 Policy frameworks, government strategies, action plans, etc.

3.1.1 International policies relevant to soil protection

3.1.1.1 Revised World Soil Charter

The Revised World Soil Charter (2015) is a comprehensive document that outlines principles, guidelines, and recommendations for the sustainable management and conservation of soils globally. Building upon the original World Soil Charter established by the Food and Agriculture Organization (FAO) in 1981, the revised version underscores the critical importance of soils for food security, ecosystem health, climate regulation, and sustainable development. It emphasises the need for urgent action to protect, restore, and sustainably manage soils to ensure their long-term productivity and resilience. While non-binding, South Africa's endorsement of the revised Charter as an FAO member carries significant symbolic and political weight.

3.1.1.2 The 2030 Agenda for Sustainable Development instituting the Sustainable Development Goals

The global 2030 Agenda for Sustainable Development, adopted by the United Nations (UN) General Assembly, comprises seventeen Sustainable Development Goals (SDGs) with 169 associated targets. Goal 15 focuses on protecting terrestrial

ecosystems, managing forests sustainably, combating desertification, and halting land degradation and biodiversity loss. Target 15.3 aims for a land degradation-neutral world by 2030, making it crucial for soil protection. Other relevant goals include Goal 12 for sustainable consumption and production, Goal 13 for climate action, and Goal 17 for partnership and implementation support. Soil conservation aligns with climate change mitigation efforts, as soil serves as a carbon sink. South Africa is committed to achieving targets related to land degradation neutrality, biodiversity conservation, and ecosystem restoration.

3.1.1.3 The land degradation neutrality initiative

During its 12th Conference of the Parties (COP), the UN Convention to Combat Desertification (UNCCD) defined land degradation neutrality (LDN) as maintaining or improving the quantity and quality of land resources to support ecosystem functions, enhance food security, and maintain stable or increasing levels within specified temporal and spatial scales and ecosystems.¹²⁶ The primary goal of LDN is to preserve and enhance natural land and its associated ecosystem services, including soil protection. The UNCCD serves as the international framework for LDN, with efforts to operationalise it through the Scientific Conceptual Framework for Land Degradation Neutrality, offering a model for planning, implementing, and monitoring LDN initiatives.¹²⁷ Sustainable land management practices, such as preventing degradation and restoring degraded lands, are crucial for LDN achievement. Implementation occurs through integrated land-use planning at the landscape level, aiming to avoid further net loss of land-based natural capital. South Africa began a national LDN target-setting process in 2017/2018 in response to the UNCCD's call for countries to commit to LDN voluntarily.¹²⁸

3.1.1.4 Global Soil Partnership

The Global Soil Partnership (GSP), led by the FAO, is dedicated to addressing global soil-related challenges by promoting sustainable soil management practices, enhancing soil data collection and monitoring, and raising awareness about soil health's critical role in ensuring food security, ecosystem services, and climate change

126 See <https://www.unccd.int/land-and-life/land-degradation-neutrality/overview>, accessed 8 May 2024.

127 See <https://www.unccd.int/resources/reports/scientific-conceptual-framework-land-degradation-neutrality-report-science-policy>, accessed 8 May 2024.

128 von Maltitz et al. (2019); See <https://biodiversityinvestment.co.za/land-degradation-neutrality>, accessed 8 May 2024.

adaptation.¹²⁹ Established in 2011, the GSP provides a voluntary platform for countries, international organisations, academia, civil society, and the private sector to collaborate on improving governance and promoting sustainable soil management practices globally. Through knowledge exchange and collaborative initiatives, the GSP facilitates efforts to tackle soil degradation and loss of fertility. A key initiative of the GSP is the development and implementation of the Voluntary Guidelines for Sustainable Soil Management (VGSSM), which offers structured guidance for policymakers, land managers, and stakeholders to promote soil health, enhance productivity, and strengthen resilience within soil ecosystems.¹³⁰

3.1.1.5 International Code of Conduct for the Sustainable Use and Management of Fertilisers

The International Code of Conduct for the Sustainable Use and Management of Fertilisers (2019) serves as a crucial framework for responsible fertiliser use in agriculture, aiming to promote sustainable soil management, address nutrient imbalances, and mitigate soil pollution. It also emphasises the need for regulations governing fertiliser products' sale, distribution, and labelling, as well as capacity development and education programs for stakeholders in the fertiliser value chain. Endorsed by the 41st Session of the FAO Conference, this Code supports global efforts toward sustainable agriculture and environmental preservation, complementing initiatives such as the VGSSM.

3.1.1.6 African Union Agenda 2063

Agenda 2063, known as 'the Africa We Want', serves as a visionary roadmap within the AU, guiding the continent's development and transformation.¹³¹ Adopted in 2015, it reflects Africa's collective aspirations for achieving inclusive and sustainable growth, emphasising unity, self-determination, freedom, progress, and collective prosperity. While soil protection may not be explicitly mentioned, it is inherently tied to key components, particularly within the aspiration for inclusive growth and sustainable development (Aspiration 1). This aspiration underscores the importance of valuing and protecting Africa's natural environment and ecosystems, recognising that healthy soils

129 See <https://www.fao.org/global-soil-partnership/en/>, accessed 8 May 2024.

130 See <https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1027927/>, accessed 8 May 2024.

131 See also the Comprehensive African Agricultural Development Programme (CAADP), which is an Agenda 2063 continental initiative designed to promote agricultural development and food security across Africa. It was established by the AU in 2003 as part of the New Partnership for Africa's Development (NEPAD) and is endorsed by African heads of state and government.

are vital for agricultural productivity, biodiversity conservation, and climate resilience. Additionally, the Agenda commits to ensuring effective territorial planning and land tenure, use, and management systems, promoting techniques such as agroforestry, conservation agriculture, and land-use planning to minimise soil degradation and erosion.¹³²

3.1.1.7 The Regional Implementation Plan for the African Soil Partnership

The African Soil Partnership (AfSP), established in 2015, aims to maximise the potential of African soils for sustainable development, focusing on food security and agricultural productivity.¹³³ With member nations from Sub-Saharan Africa, the AfSP acknowledges the diversity of African soils and aims to enhance agricultural productivity, promote sustainable land management practices, and achieve broader development goals.

The Regional Implementation Plan for the AfSP (2016) highlights the critical role of soil for rural communities in Sub-Saharan Africa, especially as the region's population is projected to increase significantly by 2030. To address these challenges, the implementation plan focuses on enhancing food production and security, restoring land, and building agricultural resilience to climate change. It outlines specific activities, budgets, and timelines for achieving sustainable soil management, calling for collaboration from national governments and entities involved in natural resource management.

3.1.1.8 Framework and Guidelines on Land Policy in Africa

The Framework and Guidelines on Land Policy in Africa, introduced in 2010 through collaboration between the AU, the UN Economic Commission for Africa, and the African Development Bank (AfDB), aim to drive Africa's socio-economic development by addressing land policy issues. It provides a comprehensive overview of the historical, political, economic, and social context of land in Africa, stressing its importance for economic growth and poverty reduction.

While not directly focused on soil management, the Framework and Guidelines indirectly contribute to soil conservation and sustainable land use practices. By promoting secure land tenure and recognising soil as a vital natural resource crucial for ecosystem health and socio-economic development, it fosters an environment conducive to soil management and conservation efforts.

132 See by Sheppard et al. (2020).

133 See <https://www.fao.org/global-soil-partnership/regional-partnerships/africa/en/>, accessed 8 May 2024.

3.1.1.9 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods

The Malabo Declaration, ratified by the AU in 2014, is a pivotal policy initiative outlining agriculture goals to attain by 2025. It underscores agriculture's pivotal role in fostering economic growth, poverty reduction, and food security across Africa. Emphasising sustainable agricultural practices, the declaration aims to elevate productivity, improve food accessibility, and uplift livelihoods continent-wide.

3.1.1.10 Sirte Declaration on the Challenges of Implementing Integrated and Sustainable Development on Agriculture and Water in Africa

The Sirte Declaration on the Challenges of Implementing Integrated and Sustainable Development of Agriculture and Water in Africa, originating from the 2004 AU Summit in Libya, is a seminal policy document. Highlighting the interdependence of agriculture and water for food security, economic growth, and environmental sustainability, the declaration advocates for holistic approaches. Moreover, it acknowledges the importance of leveraging scientific research in agricultural planning to tackle challenges such as desertification, soil and water conservation, and environmental preservation.

3.1.1.11 African Union Climate Change and Resilient Development Strategy and Action Plan

The AU Climate Change and Resilient Development Strategy and Action Plan (2022-2032) is a pivotal framework aiming to address climate change challenges and foster sustainable development across Africa. The strategy focuses on enhancing the resilience of African communities, ecosystems, and economies while supporting regional adaptation efforts. It outlines key strategic intervention axes, including strengthening governance and policy, adopting transformative climate-resilient development pathways, enhancing means of implementation, and leveraging regional flagship initiatives. One suggested action involves promoting soil biodiversity and managing soil organic carbon, crucial for ensuring land productivity, water storage, erosion control, stability during extreme weather events, and carbon mitigation.

3.1.1.12 Soil Initiative for Africa

In 2020, at the Alliance for a Green Revolution in Africa Forum (AGRF), the AU proposed the establishment of the Soil Initiative for Africa (SIA) as a comprehensive, long-term effort to systematically enhance the health and productivity of Africa's soils.¹³⁴ The initiative involves implementing policies, programs, and institutional structures to establish an effective soil management system across Africa. Both the SIA Framework Document, focusing on the long-term vision, and the Africa Fertiliser and Soil Health Action Plan, covering a ten-year horizon, were officially endorsed and launched at the Africa Fertiliser and Soil Health Summit in 2024.

3.1.1.13 Africa Fertiliser and Soil Health Summit

During the Africa Fertiliser and Soil Health Summit held in Nairobi, Kenya, on 9 May 2024, the heads of state and government of the AU addressed crucial issues related to fertiliser use and soil health. The Summit concluded with the endorsement of the Nairobi Declaration, which outlines key commitments by African leaders to enhance agricultural sustainability, improve smallholder farmer livelihoods, and increase local fertiliser production across Africa. The Summit's theme, "Listen to the Land", highlighted the importance of combating soil degradation to boost agricultural productivity and ensure food security. The implementation of the ten-year Action Plan, which details specific steps for leaders and stakeholders to take over the next decade, is a critical aspect to watch.

3.1.1.14 Other regional and sub-regional commitments of South Africa relevant to sustainable soil management

The SADC has developed Vision 2050 as a strategic framework to achieve a peaceful, inclusive, competitive, and middle-to high-income industrialised region by 2050. Under the pillar of Industrial Development and Market Integration (1), the goal is to cultivate a transformed agricultural sector that embraces sustainable management of the environment and its natural resources. Within the pillar of Social and Human Capital Development (3), a key objective is to enhance food and nutrition security to promote socio-economic well-being throughout the region. Additionally, there is a focus on addressing climate change impacts.

The SADC Climate Change Strategy and Action Plan (2020-2030) is a comprehensive framework aimed at addressing climate change challenges in the region. The

¹³⁴ See <https://faraafrica.org/soil-initiative-for-africa/>, accessed 8 May 2024.

strategy underscores the importance of collaborative efforts, capacity-building, and innovative approaches to effectively address climate change challenges.

The SADC Protocol on Forestry, established in 2002, serves as a regional policy framework for fostering cooperation in forestry within the region. By promoting sustainable forestry practices, the protocol indirectly addresses soil health. Healthy forests play a crucial role in maintaining soil health and fertility by preventing erosion, preserving soil structure, and facilitating nutrient cycling.

The Regional Agricultural Policy of SADC, adopted in 2014, serves as a strategic framework to harmonise and enhance agricultural practices across the region. To address soil degradation, proposed interventions include promoting integrated soil fertility management programs tailored to soil diversity, facilitating private and public sector initiatives to optimise fertiliser production and distribution, and harmonising guidelines for the appropriate use and disposal of fertilisers and agrochemicals.

3.1.2 National policies relevant to soil protection

3.1.2.1 Conservation Agriculture Policy

In 2017, the Department of Agriculture, Land Reform, and Rural Development (DALRRD) drafted a Conservation Agriculture (CA) Policy to promote sustainable soil management practices. Grounded in principles of farmer empowerment and sustainable agriculture, CA encourages minimum or no tillage practices, which reduce mechanisation and input costs for commercial farmers.¹³⁵ Recognising soil as a dynamic ecosystem vital for sustaining life, the Policy aims to establish ecologically and economically sustainable agricultural systems to enhance food security and mitigate national security risks. As part of South Africa's UNCCD LDN Targets, 60,000 km² of cultivated land must be converted to CA systems by 2030.

3.1.2.2 Policy on Agriculture in Sustainable Development

The Policy on Agriculture in Sustainable Development (eighth draft) is a comprehensive framework designed to guide agricultural practices toward sustainability, covering production, environmental conservation, socio-economic development, and climate resilience.¹³⁶ It emphasises integrating sustainable agriculture principles into policy development and fostering collaboration between government agencies, stakeholders, and the private sector. Recognising the critical role of effective soil management,

135 Baade et al. (2024: 345).

136 See <https://www.dalrrd.gov.za/index.php/publications/34-policies>, accessed 8 May 2024.

the Policy aims to mitigate substantial soil degradation, salinity, and acidity issues in South Africa. Approved for public consultation, the draft Policy aligns strategically with the Strategic Plan for South African Agriculture (2020-2025), a blueprint for the sector.

3.1.2.3 Climate Smart Agriculture Strategic Framework

The Draft Climate Smart Agriculture Strategic Framework (2018) outlines strategies for climate-smart agriculture, covering adaptation and mitigation in sectors such as agriculture, aquaculture, forestry, and fisheries. It recommends practical techniques such as mulching, intercropping, conservation agriculture, and improved water management to enhance sustainable productivity, reduce GHG emissions, and promote carbon sequestration. These practices are closely linked to soil health and quality, supporting soil conservation and resilience while mitigating climate change impacts.

3.1.2.4 National Water Resource Strategy

The National Water Resource Strategy Third Edition (2023) primarily focuses on water resource management and ensuring water security for socio-economic growth and development. However, its implementation can indirectly contribute to maintaining healthy soil ecosystems by promoting sustainable water use and conservation practices.

3.1.2.5 White Paper on Environmental Management Policy

The White Paper on Environmental Management Policy (1998) is a crucial national government policy outlining the strategic framework for environmental management in South Africa.¹³⁷ It aims to integrate environmental considerations across sectors, promote sustainable development, and address environmental challenges while balancing economic growth with conservation. Recognising soil health as integral to ecosystem sustainability, the Policy emphasises the importance of maintaining soil fertility for long-term environmental health.

137 GN R 395 in GG 18894 of 15-05-1998.

3.1.2.6 National Framework for Sustainable Development

The National Framework for Sustainable Development (2008) is a strategic blueprint guiding sustainable development efforts in South Africa. It underscores stakeholder engagement, research investment, capacity building, and rural infrastructure development to promote sustainable agricultural development. Regarding soil, the Framework underscores the importance of sustainable land management practices to preserve soil health and quality. It acknowledges soil as vital for economic development, poverty alleviation, and environmental sustainability. It advocates for decoupling unsustainable resource use from material consumption growth and poverty alleviation strategies, prioritising soil conservation and sustainable land use practices in South Africa's development journey.

3.1.2.7 Nationally Determined Contribution of South Africa

South Africa's First Nationally Determined Contribution (NDC) was submitted in 2015 ahead of the UNFCCC's 21st Conference of the Parties (COP 21) and formally adopted upon ratifying the Paris Agreement in 2016. An updated NDC was submitted in 2021¹³⁸, outlining objectives for mitigating GHG emissions and adapting to climate change impacts. The mitigation component focuses on reducing emissions by 2030 compared to business-as-usual scenarios. South Africa aims to maintain annual emissions within a range of 398-510 Mt CO₂-eq from 2021-2025 and further reduce them to 350-420 Mt CO₂-eq by 2030. Implementation is planned in five-year periods, with a peak expected between 2020 and 2025, followed by a plateau for about a decade, then a decline.

Healthy soils play a crucial role in carbon sequestration, biodiversity conservation, and sustainable agriculture, aligning with climate change strategies.¹³⁹ Therefore, the successful implementation of South Africa's INDC supports soil health by promoting sustainable land management practices, soil conservation, and agricultural resilience.

3.1.2.8 National Action Plan for the Fight Against Desertification

The Second National Action Programme for South Africa to Combat Desertification, Land Degradation, and the Effects of Drought (2018-2030) is a strategic framework

138 <https://unfccc.int/sites/default/files/NDC/2022-06/South%20Africa%20updated%20first%20NDC%20September%202021.pdf>, accessed 8 March 2025.

139 De Gama (2023).

addressing desertification, land degradation, and drought.¹⁴⁰ It identifies contributing factors and implements measures to combat desertification while mitigating its effects, with a focus on government, local communities, and land users. Objectives include strengthening policy frameworks, supporting research, enhancing communication among stakeholders, and restoring degraded ecosystems to contribute to ecosystem services and climate change adaptation.

3.1.2.9 National Biodiversity Framework and Action Plan

The National Biodiversity Framework (2019-2024) is a crucial document that coordinates efforts to conserve and manage biodiversity in South Africa. Aligned with the National Biodiversity Strategy and Action Plan (2015-2025), it prioritises conservation actions and protected area establishment. Notably, the Framework's focus on biodiversity conservation directly benefits soil health by safeguarding soil ecosystems and promoting ecosystem restoration.

3.1.2.10 National Climate Change Response White Paper

The National Climate Change Response White Paper (2011) outlines South Africa's vision for addressing climate change by transitioning to a climate-resilient, lower-carbon economy. It focuses on two main objectives: managing climate change impacts to enhance resilience and contributing to global efforts to stabilise GHG concentrations.

The White Paper highlights the importance of sustainable agriculture and acknowledges agriculture's vulnerability to climate change. It proposes small-scale, labour-intensive farming methods to preserve soil quality and biodiversity while ensuring food security. Research investment in water, nutrient, and soil conservation technologies is emphasised. Additionally, urban management challenges exacerbated by climate change are addressed. Vulnerabilities in small-scale and subsistence farming are recognised, with a focus on monitoring climate impacts and implementing adaptation measures.

3.1.2.11 National Adaptation Strategy

The draft National Climate Change Adaptation Strategy (2018) aims to address the challenges posed by climate change, particularly focusing on increased temperatures

140 See Department of Environment and Tourism, *Building on the National Action Programme Combating Land Degradation to Alleviate Rural Poverty* (2004).

and rainfall variability. It covers sectors such as agriculture and forestry, which are closely tied to soil health and management. As a foundational framework for adaptation efforts, the strategy guides government departments, sectors, and stakeholders in integrating climate change adaptation priorities into development initiatives.

3.1.2.12 Mine Water Policy

The Mine Water Management Policy (2022) focuses on mitigating challenges related to mine water impacts, including acid mine drainage, and their risks to water resources. While not explicitly addressing soil, it is crucial to acknowledge the connection between soil health and water quality, especially regarding contamination from mining. Contaminated mine water can harm soil quality, hinder vegetation growth, and compromise overall ecosystem health.

3.1.2.13 Strategic Framework and Overarching Implementation Plan for Ecosystem-Based Adaptation

The Strategic Framework and Overarching Implementation Plan for Ecosystem-Based Adaptation (2016) aims to bolster climate resilience through ecosystem-based approaches. Recognising the vital role of healthy soils in supporting biodiversity, water retention, and carbon sequestration, the Plan indirectly influences soil health. It advocates for sustainable land management practices, restoration of critical ecosystems such as rangelands and wetlands, and integration of biodiversity considerations into development planning.

3.1.2.14 Other relevant national policy instruments for soil protection in South Africa

The Soil Protection Strategy (2005), though pending completion, aims to identify priority areas for integrated soil rehabilitation programs. These programs are determined through extensive modelling and mapping exercises focused on land capability and predicted soil erosion.

The Draft Policy on the Preservation and Development of Agricultural Land (2016) aims to ensure sustainable use of agricultural land for long-term food security. It focuses on preserving, developing, and sustainably using agricultural land to safeguard food production. The policy addresses land subdivision, changes in land use, and overall management of agricultural land to support the agricultural sector and food security.

South Africa is in the process of developing a National REDD+ Strategy. A commissioned study titled 'Addressing Specific Elements of REDD+ in South Africa' (2020) outlines key components necessary for establishing a robust national program for REDD+ (Reducing Emissions from Deforestation and Forest Degradation). This global initiative aims to combat deforestation and forest degradation to reduce GHG emissions.

The National Development Plan (2012) is a comprehensive strategy addressing environmental sustainability and natural resource management. It recognises soil degradation, such as erosion and loss of fertility, as significant threats compromising soil health and productivity. The plan outlines DFFE's initiative to establish a standardised framework for assessing soil quality, aiming to issue annual reports on soil conditions.

The National Policy on Food and Nutrition Security (2014) is vital for addressing food security challenges by prioritising access to safe and nutritious food. Healthy soils are crucial for sustainable food production. Thus, implementing the policy indirectly promotes soil health through sustainable agricultural practices and land management strategies.

The White Paper on Land Policy (1997) outlines principles and strategies for land reform to address historical injustices and promote equitable access to land resources. It emphasises sustainable land use practices, community participation, and protecting vulnerable groups' land rights to rectify apartheid-era land dispossession and foster social cohesion. The Policy recognises that land degradation and soil erosion in South Africa stem from landlessness, overcrowding in former homeland areas, and inappropriate farming methods.

The National Spatial Development Framework (NSDF) (2022) is a strategic planning document that charts a long-term vision and spatial development plan for South Africa. Through its recommendations on land use patterns, urbanisation, rural development, and natural resource management, the NSDF indirectly impacts soil health and sustainability.

The Working for Water (WfW) program, launched in 1995, focuses on poverty alleviation by providing work to marginalised groups and rehabilitating wetland systems. By removing invasive plants, WfW contributes to biodiversity conservation, improves soil health, reduces soil erosion, and restores ecological balance. However, the program's strict employment criteria limit its monitoring and evaluation due to high potential costs, despite ample funding.¹⁴¹ Reviews note the absence of a clear strategy and advise assessing the project's viability.

The Implementation Framework for the LandCare program (1999) establishes LandCare South Africa as a community-driven initiative supported by public and private sectors through partnerships. By raising awareness and providing education, LandCare aims to instil a conservation ethic and address rural poverty by generating

141 van Wilgen & Wannenburgh (2016: 11-12).

sustainable job opportunities, fostering economic empowerment, and promoting environmental stewardship in local communities. However, the program has seen mixed applications across the provinces. For example, in Gauteng, only two officials were assigned to this program, leading to poor implementation.¹⁴² Similarly, in Limpopo, there were issues with service delivery and job creation, with a common trend of poor spending across the board.

3.2 Relevant international law for the protection of soils

National legislation and policies in South Africa are crafted to align with the country's international commitments, spanning global, regional, and subregional levels. These commitments encompass a range of environmental, social, and economic issues, shaping domestic laws and policies accordingly.

Soil governance has historically received less international attention compared to other environmental concerns.¹⁴³ This has led to fragmented efforts in addressing soil-related challenges, with initiatives spread across various institutions and processes, each with limitations. In South Africa, the transposition of international law into the national legal framework involves incorporating international legal principles, treaties, agreements, and norms into domestic legislation.

Section 232 of the Constitution affirms that customary international law applies unless it conflicts with the Constitution or an Act of Parliament, requiring no further implementing statute for its legal effect. Regarding international treaties, Section 231(2) mandates ratification by both the NA and NCOP, except for technical, administrative, or executive agreements, without specific criteria provided for these exceptions. However, parliamentary ratification alone does not ensure domestic applicability. Section 231(4) of the Constitution requires additional national legislation to transform treaty provisions into municipal law unless the treaty is self-executing. Incorporation methods may include embodying provisions in the legislation, scheduling the agreement to a statute, or authorising executive action via publication in the Government Gazette, granting treaty provisions equal legal status to domestic laws.

Moreover, Section 39(1)(b) of the Constitution directs courts to consider international law when interpreting the Bill of Rights. Although courts are not obligated to apply international law, they must prefer interpretations consistent with it over those inconsistent, as per Section 233 of the Constitution.

142 See <https://pmg.org.za/committee-meeting/35429/>, accessed 8 May 2024.

143 Ruppel (2022a); Bodle (2022).

3.2.1 Relevant international soft law commitments

While not legally binding, soft law instruments often serve as influential precursors to binding international agreements. South Africa has signed several pertinent international soft law instruments for soil protection, including the Stockholm Declaration (1972),¹⁴⁴ the Rio Declaration on Environment and Development (1992),¹⁴⁵ Agenda 21,¹⁴⁶ the Future We Want outcome document of the UN Conference on Sustainable Development (Rio+20 Conference) (2012),¹⁴⁷ the 2030 Agenda for Sustainable Development, instituting the SDGs (2015),¹⁴⁸ and the Johannesburg Declaration on Sustainable Development (2002), to name a few.¹⁴⁹

These soft law instruments offer guiding principles and frameworks for promoting sustainable development and environmental conservation, indirectly contributing to soil protection efforts.

3.2.2 Relevant international hard law instruments¹⁵⁰

South Africa is a signatory to various international hard law instruments aimed at protecting soil, including:

- The UN Convention to Combat Desertification, 1994 (ratified in 1997).
- The Convention on Biological Diversity, 1992 (signed in 1993).
- The UN Framework Convention on Climate Change, 1992 (ratified in 1997).
- The Kyoto Protocol to the UN Framework Convention on Climate Change, 1997 (acceded to in 2002).
- The Paris Climate Change Agreement, 2015 (ratified in 2016).
- The Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1998 (acceded to in 2002).
- The Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, 1989 (acceded to in 1994).
- The Stockholm Convention on Persistent Organic Pollutants, 2001 (ratified in 2002).

144 Held 5-16 June 1972, A/CONF.48/14/Rev.1.

145 Held 3-14 June 1992, A/CONF.151/26 (Vol. I).

146 A/CONF.151/26 (Vol. I). New York: United Nations, 1993.

147 Rio de Janeiro, Brazil, 20-22 June 2012.

148 A/RES/70/1, 2015.

149 Held 2-4 September 2002, A/CONF.199/20.

150 Ruppel (2022b).

- The African Convention on the Conservation of Nature and Natural Resources, 1968 (revised by the Maputo Convention in 2003) (acceded to in 2013).
- The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and their Destruction, Geneva, 1992 (ratified in 1995).
- The Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat, 1971 (signed in 1975).
- The Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Montreal, 2000 (acceded to in 2003).
- The Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, 1981 (ratified in 2002).
- The Protocol Concerning Co-operation in Combating Pollution in Cases of Emergency, 1981 (ratified in 2002).
- The International Plant Protection Convention, 1951 (ratified 1956).
- The African Charter on Human and Peoples' Rights, Banjul, 1981 (ratified 1996).

These international agreements provide a framework for cooperation and action to address various aspects of soil protection and environmental conservation on a global scale.

3.3 Relevant national legal provisions for the protection of soil

3.3.1 Constitution

While not explicitly addressing soil protection, the Constitution emphasises environmental rights, sustainable development, and cooperative governance, providing a framework for policies and regulations promoting soil conservation and sustainable land management.¹⁵¹ Soil protection falls within the broader environmental context addressed by Section 24 of the Constitution, part of the Bill of Rights. Subsection (a) establishes the environmental right, ensuring individuals an environment free from harm. Subsection (b) places responsibility on the government to protect the environment for present and future generations through legislative and other measures. These measures include preventing pollution, promoting conservation, and securing

151 Secs 152(1)(c) and 153(a) stipulate that municipalities are mandated to prioritise the basic needs of the community and promote social and economic development. Sec 184(1)(b) provides that the SAHRC is tasked with promoting the protection and development of human rights. Sec 195(1)(b)-(c) states that public administration must adhere to democratic values, including the efficient and effective use of resources, and must be development-oriented.

ecologically sustainable development, and natural resource use while fostering justifiable economic and social development.

These provisions highlight the multifaceted approach necessary for environmental protection and sustainable development, including soil resource conservation and responsible management. NEMA serves as a cornerstone of South Africa's environmental legal framework, establishing regulations and standards to safeguard the environment and promote sustainable practices.

Various clauses in South Africa's Bill of Rights, such as those addressing access to courts (Section 34), just administrative action (Section 33), access to information (Section 32), property rights (Section 25), and limitations (Section 36), can be invoked in environmental matters, albeit indirectly. Section 36 of the Constitution specifies that fundamental rights may only be restricted by a law applicable to all, and such restrictions must be reasonable and justifiable in a democratic society founded on human dignity, equality, and freedom. When evaluating the reasonableness and justifiability of a limitation, factors such as the nature of the right, the purpose's significance, the restriction's scope, the connection between the limitation and its aim, and less restrictive alternatives that still achieve the objective must all be considered.

Section 41 of the Constitution underscores the importance of cooperative governance among the national, provincial, and local spheres of government, as well as with traditional leadership institutions. This provision promotes collaboration and coordination in implementing environmental policies and regulations, including those related to soil protection and management.

Local governments are mandated by the Constitution and relevant legislation to ensure environmental protection, including soil management, as outlined in Sections 152(1)(b) and (d). This responsibility is further articulated in the Local Government: Municipal Systems Act 32 of 2000, Sections 4(2)(d) and (i), and 73(1)-(2).

3.3.2 Legislation on land tenure (land ownership, access, and users' rights), as an anchor point for soil protection

3.3.2.1 Historical overview of landownership

The land holds immense significance in Africa beyond its economic value, encompassing cultural, spiritual, and symbolic importance for communities.¹⁵² It sustains livelihoods, agricultural production, and social structures, influencing identity and social status. Traditionally, land rights were governed by communal stewardship and

¹⁵² Mailula (2011: 73-74).

customary practices, allocating land based on needs and contributions to the community.¹⁵³

In South Africa, land tenure laws reflect a complex history shaped by colonialism, apartheid, and racial segregation. Understanding this historical context is vital for grasping the current socio-economic landscape.

Before European colonisation, indigenous African communities in South Africa governed land ownership according to diverse systems. Some practised communal ownership, while others recognised individual or family ownership.¹⁵⁴

Communities were governed by traditional chiefs hailing from specific lineages, and their influence was established by providing security to attract followers.¹⁵⁵ Control was based on loyalty rather than fixed boundaries, leading to diverse leadership structures. Some households recognised multiple leaders. In areas without centralised authority, homesteads enjoyed autonomy, with local councils playing crucial roles in decision-making.

European colonisation, starting with the Dutch East India Company in 1652 and later British colonisation, introduced significant changes to land ownership.¹⁵⁶ During colonial and apartheid periods, traditional leaders assumed governmental roles, diverting accountability away from the people.¹⁵⁷ Traditional structures were co-opted by the apartheid regime to regulate land and labour. The Black Authorities Act 68 of 1951 formalised traditional authorities' functions, reinstating chiefly control. Land allocation within households followed generational lines, often with subordinate leaders' consent. Traditional authorities, especially after the enactment of the Black Authorities Act, wielded significant influence over land allocation.

The Natives Land Act 27 of 1913 prohibited indigenous Africans from occupying or acquiring land outside designated areas (homelands).¹⁵⁸ Sharecropping contracts between white landowners and indigenous farmers were also banned.

The Development Trust and Land Act 18 of 1936 established the South African Native Trust to manage land for indigenous Africans, replacing individual ownership with trust tenure.¹⁵⁹ It transferred specific land, including areas from the Natives Land Act to the Trust. The Act limited indigenous Africans to approximately 13% of total land, comprising former homelands (Ciskei, Gazankulu, Kangwane, KwaNdebele, KwaZulu, Lebowa, Qwaqwa, Transkei, Venda, and Bophuthatswana).¹⁶⁰

153 du Plessis (2011: 49).

154 Mailula (2011: 78-80).

155 du Plessis (2023: 3-5).

156 Oliver & Oliver (2017).

157 du Plessis (2023: 6-8).

158 Beinart & Delius (2014).

159 Hay (2012); The Trust was dissolved in 1994 after the end of apartheid. Its land holdings were transferred to the DALRRD for the land reform program.

160 Kloppers & Pienaar (2014: 683).

The Act introduced a permission to occupy (PTO) system for land use, where magistrates could grant permission if allocated by traditional authorities. PTOs were granted for one residential unit with arable land, primarily to married individuals under customary law. This granted the holder the right to stay on the land until their death and to nominate someone to receive the site after their passing. However, failure to occupy the land within a year or demonstrate beneficial use for two years could result in forfeiting this right. Despite aiming to secure rights, PTO holders were vulnerable to government withdrawal, often for development projects.¹⁶¹ These PTOs are not registered in the Register of Deeds. Thus, it does not confer full ownership rights but only the right to occupy the land.¹⁶²

The Group Areas Act 41 of 1950 segregated residential areas and regulated property acquisition by classifying people into ethnic groups. Each group was allocated designated areas for exclusive use and ownership.¹⁶³ The Group Areas Act 36 of 1966 continued the segregation of residential areas and property acquisition based on ethnic classification.¹⁶⁴

The Abolition of Racially Based Land Measures Act 108 of 1991 abolished apartheid-era laws, allowing all South Africans to own and occupy land across the country regardless of race.¹⁶⁵

3.3.2.2 Modern landownership

In the post-apartheid era, South Africa has pursued significant reforms to address historical injustices and promote equitable access to land, guided by various laws and policies. The Constitution affirms the property right (Section 25(1)), stating that property can only be expropriated for public purposes or in the public interest, with compensation (Section 25(2)). The public interest includes land reform and equitable access to natural resources (Section 25(4)), mandating the state to enact measures to facilitate such access (Section 25(5)).

The South African government's land reform policy, adopted in 1994, comprises three key components. First, the Restitution of Land Rights Act 22 of 1994 aims to restore land rights to those forcibly dispossessed due to racial discrimination. It established the Commission on Restitution of Land Rights and the Land Claims Court. Over

161 du Plessis (2023: 8).

162 See *Maduna v Daniel* (2001) JOL 9186 (TK). In this case, the court upheld the notion that PTOs confer rights akin to real rights, despite their personal nature.

163 Mabin (1992).

164 Kloppers & Pienaar (2014: 685-686).

165 Ibid.: 687.

83,000 land claims have been settled to date.¹⁶⁶ A lesser-known fact is that 57.8% of these claims were for urban land rather than rural areas.¹⁶⁷ Additionally, 93% of those who filed land claims expressed a preference for monetary compensation over owning agricultural land.

Second, land redistribution aims to provide land to those forcibly removed or dispossessed. The goal in 1994 was to redistribute 30% of the land within five years, however, by 2011, only 4.1% of the land had been redistributed, primarily state-owned.¹⁶⁸ Progress in redistributing productive land has been slower, with only 3.7% of agricultural land redistributed since 1994.

Third, laws such as the Land Reform: Provision of Land and Assistance Act 126 of 1993 ensure the security of tenure for farm workers, labour tenants, and rural residents. The Land Reform (Labour Tenants) Act 3 of 1996 and the Extension of Security of Tenure Act 62 of 1997 (ESTA) protect tenure rights and regulate eviction procedures. The Prevention of Illegal Eviction from and Unlawful Occupation of Land Act 19 of 1998 prohibits unlawful eviction and outlines eviction procedures.

Other relevant laws include: The Expropriation Act 13 of 2024, which repeals the Expropriation Act 63 of 1975 and allows for land expropriation in the public interest, including cases where nil compensation may be deemed just and equitable, aiming to redress historical land inequalities. Assented to on 24 January 2025, the Act has not yet commenced but has already reignited intense debates over land reform, property rights, and economic stability. While the South African government insists that expropriation will be carried out responsibly to support land reform and economic growth, critics warn of potential risks to investor confidence, property rights, and food security.¹⁶⁹ Internationally, the Act has contributed to strained US-South Africa relations, with President Donald Trump cutting foreign aid to South Africa at the start of 2025, citing concerns over property rights and US business interests. The aid freeze has had tangible impacts, particularly on South Africa's healthcare sector, which has long relied on US funding for critical programs such as HIV treatment.¹⁷⁰ The broader implications of the Act will also intersect with South Africa's soil governance framework,

166 See <https://www.sanews.gov.za/south-africa/over-83-000-land-claims-settled#:~:text=Agriculture%2C%20Land%20Reform%20and%20Rural,Programme%20in%201995%20to%202023.,> accessed 8 May 2024.

167 AfriForum, *Land in South Africa: A Geospatial Perspective* (2018: 30).

168 National Planning Commission, *Our Future Make It Work: National Development Plan 2030* (2012: 140).

169 See <https://www.sanews.gov.za/features-south-africa/sas-land-expropriation-act-constitutional>, accessed 3 March 2025; <https://agrisa.org.za/media-releases/private-property-is-the-corners-tone-of-agricultural-sustainability-and-food-security/>, accessed 3 March 2025; <https://mg.co.za/politics/2025-02-10-unconstitutional-and-procedurally-flawed-says-zille-in-expropriation-act-court-challenge/>, accessed 3 March 2025.

170 See <https://www.bbc.com/news/articles/c77887npl2mo>, accessed 3 March 2025; <https://www.aljazeera.com/news/2025/2/28/africa-hiv-deaths-to-mount-as-trump-stops-funding-heres-why>, accessed 3 March 2025; https://www.unaids.org/en/resources/presscentre/featurestories/2025/february/20250225_south-africa-fs, accessed 3 March 2025.

as equitable land redistribution must be accompanied by strong policies to prevent degradation, promote sustainable land use, and ensure long-term soil health.

The Upgrading of Land Tenure Rights Act 112 of 1991 facilitates the conversion of certain land tenure rights, particularly within customary or informal systems, into full ownership. The Upgrading of Land Tenure Rights Amendment Act of 2021, which came into effect on 1 June 2024, introduces regulations governing the conversion of a land tenure right into an ownership right.¹⁷¹ This amendment addresses a 2018 Constitutional Court ruling that found subsection 2(1) of the original statute violated women's rights.¹⁷² The original statute operated under the assumption that a man headed any affected household, automatically holding any deed of grant or right of leasehold to be converted into ownership, thus, excluding women from these rights.

The Land Titles Adjustment Act 111 of 1993 resolves disputes and adjusts land titles where multiple parties claim ownership without registered deeds. The Land Administration Act 2 of 1995 delegates land administration to provinces, aiming for effective regional management. The Transformation of Certain Rural Areas Act 94 of 1998 transfers land to municipalities and legal entities, empowering them for local development.

The Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA) establishes a comprehensive framework for spatial planning and land use. It promotes inclusive, equitable, and efficient planning, addressing past imbalances and ensuring consistency in land use decisions. The establishment, functions, and operations of municipal planning tribunals are also defined, along with provisions for the facilitation and enforcement of land use and development measures. The legal framework for land issues in South Africa allows provinces and municipalities significant autonomy to customise land use planning policies and regulations to their unique circumstances. This includes laws such as Spatial Development Frameworks, regulations, and policies such as Integrated Development Plans, tailored to each province and municipality.

3.3.2.3 Acquiring land under statutory law

3.3.2.3.1 Acquiring land from the state

The South African government oversees various properties, including national parks, administrative buildings, and state-owned enterprises. The Department of Public Works and Infrastructure manages government immovable assets across all levels, ensuring their effective use to support operations and public services. State land can be

171 Upgrading of Land Tenure Rights Act (112/1991): Regulations relating to the Conversion of Land Tenure Rights GN R4886 in GG 50705 of 24-05-2024.

172 *Rahube v Rahube* 2019 2 SA 54 (CC).

transferred according to the Deeds Registries Act 47 of 1947 when it is no longer needed for its intended purpose.

Acquisition of state land is regulated by statutes such as the State Land Disposal Act 48 of 1961, which prohibits acquisition through prescription. The Distribution and Transfer of Certain State Land Act 119 of 1993 facilitates land redistribution to eligible beneficiaries. National parks land can only be leased or transferred with Parliament's consent under the National Parks Act 57 of 1976.

The Government Immovable Asset Management Act 19 of 2007 standardises immovable asset management. Municipal land sales are governed by the Local Government: Municipal Finance Management Act 56 of 2003 (MFMA), allowing sales if surplus to basic service needs. Acquisition methods include direct negotiation, public auction, tendering, and public/private partnerships under Section 120 of the MFMA.

3.3.2.3.2 Acquiring the private land of an individual

In South Africa, private land transactions primarily involve the transfer of ownership or subdivision processes. The transfer of ownership begins with negotiation and agreement on terms, documented in an agreement of sale. A conveyancer manages the legal aspects, submitting transfer documents and obtaining necessary clearances. Once verified, the Deeds Registry office registers the transfer, making the buyer the new owner upon payment to the seller.

Subdivision divides larger land into smaller portions, subject to approval from the local authority. The landowner applies, and if approved, the land is divided into portions with individual title deeds. The SPLUMA certificate certifies compliance with relevant regulations. Agricultural land subdivision follows the Subdivision of Agricultural Land Act 70 of 1970 (SALA), requiring ministerial approval and meeting specified conditions. Both processes adhere to laws such as the Alienation of Land Act 68 of 1981 and municipal by-laws.

3.3.2.4 Traditional law

In South Africa, customary law has gained constitutional recognition as a fundamental legal source alongside legislation and common law.¹⁷³ It distinguishes between 'living' customary law, practised by the people, and 'official' customary law, established by the state through legislation and court interpretation.¹⁷⁴

173 *Alexkor Ltd v Richtersveld Community* 2004 5 SA 460 (CC) para 51.

174 Customary law, as defined in Sec 1 of the Recognition of Customary Marriages Act 120 of 1998, encompasses the "customs and usages traditionally observed among the indigenous

Section 25(6) of the Constitution grants individuals or communities affected by past discriminatory laws the right, as determined by Parliament, to secure land tenure or receive compensation. Similarly, Section 25(7) ensures those dispossessed of property after 19 June 1913, due to discriminatory laws, the right to reclaim property or receive compensation. Subsection (8) permits legislative measures to address land reforms, subject to Section 36(1) conditions. Parliament is mandated to enact such legislation as per Section 25(9).

The Interim Protection of Informal Land Rights Act 31 of 1996 (IPILRA) aims to safeguard informal land rights, particularly in former homelands. It acknowledges rights such as occupancy, usage, or access to land previously held by entities such as the Native Trust. It also recognises beneficiaries under specific parliamentary trusts, such as the Ingonyama Trust. The IPILRA covers individuals living on the land since 1993 continuously and those with rights under the Upgrading of Land Tenure Rights Act. However, it excludes tenants, labour tenants, sharecroppers, and those with temporary permissions.

The Ingonyama Trust, covering about three million hectares (40%) in KwaZulu-Natal, was established in 1994 through an agreement between the former KwaZulu leader and the then-state President. Initially, the Zulu King was the sole trustee, but this proved impractical.¹⁷⁵ The KwaZulu-Natal Ingonyama Trust Amendment Act 9 of 1997 established the Trust Board, chaired by the King or his nominee, and exempted the Trust from private trust legislation.¹⁷⁶

The KwaZulu Land Affairs Act 11 of 1992 governs land-related matters in KwaZulu-Natal. It addresses issues such as land tenure, allocation, and administration, particularly focusing on rural areas. This legislation plays a crucial role in regulating land rights and management within the province, including provisions for the issuance and revocation of PTOs and other forms of land tenure. A PTO grants the right to use rural, un-surveyed land.

The Communal Land Rights Act 11 of 2004 aimed to secure communal land ownership, including the significant Ingonyama land in KwaZulu-Natal, through either land transfer or compensation for historical injustices. However, it was declared unconstitutional by the Constitutional Court in 2010 and has not been replaced.¹⁷⁷ The Draft Communal Land Tenure Bill (2016) is the latest attempt to address communal land governance.

The Communal Land Tenure Policy (2014) seeks to reform communal land tenure to ensure land rights and production relations security for residents. It proposes

African peoples of South Africa”, which are integral to the culture of those peoples; Moore & Himonga (2018: 61).

175 Lynd (2021).

176 See KwaZulu-Natal Ingonyama Trust Board Annual Report (2022/2023).

177 *Tongoane v National Minister for Agriculture and Land Affairs* 2010 6 SA 214 (CC).

institutionalised use rights administered by traditional councils or communal property institutions.

The Communal Property Associations Act 28 of 1996 (CPA Act) enables communities to form legal entities called Communal Property Associations (CPAs) to collectively acquire, hold, and manage property.

The White Paper on Traditional Leadership and Governance (2003) outlines the role of traditional leaders, emphasising their accountability to communities rather than to the government.¹⁷⁸ It guides land tenure reform policies in communal areas and defines the responsibilities of traditional councils, including community engagement for development planning, conveying community needs to government bodies, promoting indigenous knowledge systems, and participating in local policy development.

The Traditional Leadership and Governance Framework Act 41 of 2003 recognised traditional communities, established and recognised traditional councils, provided a statutory framework for leadership positions within traditional leadership, defined the functions and roles of traditional leaders, established houses of traditional leaders, and provided mechanisms for dispute resolution through the Commission on Traditional Leadership Disputes and Claims. It also established a code of conduct for traditional leaders. The Traditional and Khoi-San Leadership Act 3 of 2019, which replaced it, was deemed unconstitutional in 2023 due to the lack of community input during its drafting process.¹⁷⁹ Communities were dismayed because the legislation empowered traditional leaders to exert control over communal land, leading to abuses of power. Parliament has been tasked with drafting new legislation within a two-year period.

The Protection, Promotion, Development, and Management of Indigenous Knowledge Act 6 of 2019 safeguards, advances, nurtures and oversees indigenous knowledge. It outlines the roles of the National Indigenous Knowledge Systems Office, governs the rights of indigenous knowledge communities, defines the duties of the Advisory Panel on Indigenous Knowledge, regulates access to indigenous communities' knowledge, recognises prior learning, and facilitates innovation rooted in indigenous knowledge.

3.3.2.5 Conflicts and means of conflict resolution

According to the most recent land audit, about 24.5% of land in South Africa is state-owned.¹⁸⁰ The majority, approximately 75.95%, is privately owned, with significant holdings by individuals, companies, and trusts.¹⁸¹

178 GN R 459 in GG 25438 of 10-09-2003.

179 *Mogale v Speaker of the National Assembly* 2023 6 SA 58 (CC).

180 Department of Rural Development and Land Reform, Land Audit Report (2017); AfriForum, Land in South Africa: A Geospatial Perspective (2018).

181 Ibid.

The challenges in communal areas arise from the interplay of population growth, unclear land use systems, and unregulated livestock ownership. The increasing population, particularly among young people, has heightened the demand for land to build homes. Communal land offers security and a sense of belonging, with many viewing urban migration as temporary while maintaining strong connections to their ancestral lands.¹⁸² This land holds profound spiritual and cultural importance, especially for first-born males who feel a responsibility to preserve their family legacy.

At the same time, the lack of clarity in allocating grazing areas and cultivated fields often leads to conflicts between farmers and those seeking land for shelter. While these areas fall under municipal planning, customary law frequently governs land use, creating overlapping authority and potential disputes between municipal bodies and traditional chiefs.

Additionally, unrestricted livestock ownership exacerbates the problem of overgrazing, as the available land cannot support the growing number of animals. Chiefs, who are often tasked with mediating these issues, face significant challenges due to limited resources and insufficient training. These difficulties hinder their ability to plan settlements, designate agricultural fields, and establish sustainable grazing practices.

Grazing rights in South Africa involve a complex interplay of land ownership, legislation, and court rulings. While the landowner retains the ultimate authority to permit grazing on their property, the ESTA provides security of tenure to qualifying occupiers in rural and communal areas. A significant 2022 development in *Moladora Trust v Mereki* suggested ESTA rights might extend to grazing rights based on historical use with tacit consent.¹⁸³ However, the Supreme Court of Appeal clarified in 2024 its earlier rulings, including *Adendorff's Boerdery v Shabalala*, and *Loskop Landgoed Boerdery (Pty) Ltd v Petrus Moeleso*, that the right to graze livestock on another's land is not inherently derived from ESTA.¹⁸⁴ Instead, it is considered a personal right arising from consent or agreement between the occupier and the landowner or person in charge.¹⁸⁵ ESTA ensures the security of tenure in various contexts but specific grazing rights depend on mutual consent between the parties involved. Overgrazing happens when the number of livestock introduced into a field exceeds what the land can naturally support. This issue is often exacerbated by overstocking cattle in poorly managed agricultural practices, making it a primary cause of overgrazing.

The current state of land tenure in South Africa highlights a legislative gap, especially in rural areas where communities still face historical injustices. The lack of comprehensive legislation leaves these communities vulnerable, leading to land degradation.¹⁸⁶ Incorporating African indigenous land tenure into the formal registration

182 Sihlobo (2018).

183 2023 3 SA 209 (LCC).

184 2017 ZASCA 37 (29 March 2017); 2022 ZASCA 53 (12 April 2022).

185 2024 ZASCA 37 (3 April 2024).

186 Mani et al. (2021).

system poses a significant challenge due to the differences between ownership concepts.¹⁸⁷

Municipalities are responsible for managing land use, from planning new developments to regulating existing ones, as directed by SPLUMA. Oversight of these tasks, including development application approval, falls under municipal planning tribunals established by SPLUMA. While the role of traditional authorities in these tribunals remains unclear despite their previous land management roles, Section 23(3) mandates their involvement in areas with traditional councils. SLUMA Regulations allow for service-level agreements between municipalities and traditional councils, defining agreed-upon functions.¹⁸⁸

However, the situation is multifaceted. In cases such as *Baleni v Minister of Mineral Resources* and *Council for the Advancement of the South African Constitution v The Ingonyama Trust*, the courts highlighted the complexities of land ownership and management under customary law.¹⁸⁹ While residential and agricultural land is allocated to individuals, entities such as the Ingonyama Trust do not hold unrestricted rights over such land; it becomes family property, necessitating their involvement in decisions.¹⁹⁰ Under customary law, these rights are safeguarded and not easily revocable by traditional leaders, demanding land management practices that respect them. Traditional leaders often rely on natural landmarks for boundary demarcation, and land rights follow a social hierarchy, complicating management, especially in rural areas where both traditional authorities and local governments assert control. This dual system of land management, with traditional and local authorities involved, lacks uniformity across the country, contrary to SPLUMA's mandate for standardised spatial planning and land use management.

The power disparity between traditional leaders and councillors poses a challenge to local government's developmental focus.¹⁹¹ Despite the urgent need for service delivery, municipalities and traditional authorities often struggle to reach a consensus. Since the country's independence, the relevance and importance of indigenous authority in South Africa have been hotly debated. Traditional leaders, according to critics, are remnants of colonial and apartheid systems and tools for indirect authority, making them incompatible with a contemporary democratic society. However, scholars in favour thereof argue that traditional leaders should be recognised as a special interest group that must be included in democratic governance. Furthermore, traditional leaders should be acknowledged as a special interest group deserving of consultation and active involvement in local administration, rather than being treated as ordinary citizens under a uniform democratic system.

187 du Plessis (2011).

188 Spatial Planning and Land Use Management Regulations: Land Use Management and General Matters, 2015 GN R 239 in GG 38594 of 23-03-2015 Reg 19.

189 2019 2 SA 453 (GP) para 10; 2021 8 BCLR 866 (KZP) para 80.

190 du Plessis (2023: 19-20).

191 Ramolobe (2023).

Resolving the complexities of traditional leadership requires clarifying their roles, powers, and functions, especially concerning land matters within communities. Without clear decision-making guidelines, traditional councils navigate compliance with customary law independently. A potential solution involves legislative mechanisms enabling communities to hold leaders accountable and ensuring transparent decision-making processes.¹⁹² Clear guidelines should also be established if local governance functions are delegated to traditional leaders.

3.3.3 Public environmental law

3.3.3.1 History of soil protection

South Africa has a history of soil conservation laws dating back to the early 20th century.¹⁹³ Initial steps were influenced by the Drought Investigation Commission reports (1922-1923) and the 1929 Soil Erosion Conference, emphasising the urgent need to conserve soil.¹⁹⁴ Early regulations addressed forest management, fencing, and loans for agricultural improvements, with the government providing extension services and loans tied to erosion prevention.¹⁹⁵

In 1939, South Africa established the Division of Soil and Veld Conservation within the Department of Agriculture, leading to the Forest and Veld Conservation Act 13 of 1941, the country's first comprehensive anti-erosion law.¹⁹⁶ This Act enabled land expropriation for erosion control and created Conservation Areas. Efforts to curb soil erosion included field surveys, research on soil and vegetation, and public mobilisation through initiatives including the National Veld Trust.¹⁹⁷

The Soil Conservation Act 45 of 1946 introduced a National Soil Conservation Board and local committees to enforce conservation. Programs such as the Grass Ley Crop Scheme and the Stock Reduction Scheme provided subsidies for soil conservation measures.¹⁹⁸ By the end of March 1971, 3,356 farmers participated in the latter scheme, covering an area of 11,681,000 hectares. In all these cases, the recovery of the veld was notable, with treated areas withstanding severe droughts much better and responding more rapidly to rain compared to the untreated veld. The Act was amended multiple times, ultimately leading to the creation of the National Division of Soil Protection in 1969.

192 du Plessis (2023: 19-20).

193 For the history, refer to Rabie (1974).

194 Beinart (1984: 58-60); Dodson (2004: 49); Union of South Africa, Final Report of the Drought Investigation Commission (1923: 12).

195 Beinart (1984: 60); Penzhorn (1972: 179); Dodson (2004: 50).

196 Ibid.: 51-52.

197 Penzhorn (1972: 179).

198 Baade et al. (2024: 343-344).

The Conservation of Agricultural Resources Act 43 of 1983 (CARA) replaced the Soil Conservation Act in 1983, initially applying only to white-owned agricultural land but later expanding to include former homeland areas.¹⁹⁹ Other laws, such as the Mountain Catchment Areas Act 63 of 1970, support soil conservation in sensitive areas by authorising government actions to control erosion and protect vegetation.

3.3.3.2 Environmental law, relevant provisions concerning soils

The National Environmental Management Act 107 of 1998 (NEMA) has replaced the Environment Conservation Act 73 of 1989 (ECA) and, alongside CARA, serves as the primary legislation for soil conservation in South Africa. CARA remains the sole agricultural legislation governing natural resource use and protection of agricultural land (until the new statute is signed into law, as discussed further on). NEMA offers a comprehensive framework with precise guidelines and enforceable regulations for sustainable environmental management. It establishes principles of cooperative environmental governance and procedures for administering and enforcing environmental laws.

In Section 1, NEMA expansively defines the environment, covering land, water, atmosphere, microorganisms, plant and animal life, and their interrelationships. It includes their physical, chemical, aesthetic, and cultural properties that affect human health and well-being. Section 2 outlines principles for all state organs significantly affecting the environment. These principles, considered with other relevant factors, guide environmental management plans, state decision-making, conciliation recommendations, and the interpretation of NEMA and related laws.

Section 2 of NEMA emphasises prioritising people and their diverse needs, ensuring equitable consideration of their physical, psychological, developmental, cultural, and social interests. Development must be sustainable across social, environmental, and economic dimensions, with environmental justice ensuring fair distribution of impacts, especially among vulnerable groups. Equitable access to environmental resources is essential, with measures to address discrimination.

Moreover, Section 2(4)(o) establishes that the environment is held in the public trust, requiring its beneficial use to serve the public interest and safeguarding it as the shared heritage of the people.

Section 24 details principles and procedures for obtaining environmental authorisation to mitigate negative impacts and environmental degradation, addressing pollution or degradation by responsible parties. The EIA regime, governed by Chapter 5 of NEMA and its regulations, is pivotal in mitigating the environmental impacts of new

199 Ruppel et al. (2021: 470-471); Baade et al. (2024: 344); Falayi et al. (2022); For the history see Cooper (1996: 67 & 116); Seneque (1982); McAllister (1991: 116).

developments.²⁰⁰ The EIA Regulations of 2014, amended in 2017, govern Basic Assessment (BA) and EIA processes. These regulations identify various activities requiring environmental authorisation, classified in three listing notices. Activities include clearing indigenous vegetation over specific areas, altering virgin soil for agricultural or afforestation purposes, extracting peat or peat soils, and clearing vegetation within critically endangered ecosystems or conservation areas.²⁰¹ These regulations ensure thorough identification and management of potential environmental impacts during development processes. Failure to obtain required authorisations is an offence under the NEMA (Section 49A), with penalties specified in Section 49B.

Chapter 3 of NEMA outlines procedures for cooperative governance, mandating national and provincial government departments to create and enforce environmental implementation and management plans for activities impacting the environment. These plans aim to coordinate environmental policies, programs, and decisions across departments to foster sustainable environmental practices.

3.3.3.3 Nature conservation

3.3.3.3.1 Water

The National Water Act 36 of 1998 (NWA) provides a framework for sustainable water management, aiming to balance development and ecological preservation. The national government, through the Minister of Water and Sanitation, acts as the public trustee to ensure equitable and sustainable water use. The Act manages water resources, defines rights and responsibilities, regulates licensing, and establishes managing institutions.²⁰² Landowners must prevent and remediate water pollution, with Catchment Management Agencies (CMAs) able to issue directives and recover costs for non-compliance.

CMAs, established under Chapter 7 of the NWA, manage water resources at the catchment level, overseeing planning, implementation, and management. Initially, 19 CMAs were planned, but only two were set up by 2000.²⁰³ By 2024, plans were made

200 Environmental Impact Assessment Regulations GN R 982 in GG 3822 of 04-12-2014, amended by GN R 326 in GG 40772 of 07-04-2017.

201 Environmental Impact Assessment Regulations Listing Notice 1 GN R 983 in GG 38282 of 04-12-2014, amended by GN R 327 in GG 40772 of 07-04-2017; Environmental Impact Assessment Regulations Listing Notice 2 GN R 984 in GG 38282 of 04-12-2014, amended by GN R 325 in GG 40772 of 07-04-2017; Environmental Impact Assessment Regulations Listing Notice 3 GN R 985 in GG 38282 of 04-12-2014, amended by GN R 324 in GG 40772 of 07-04-2017.

202 See Regulations for the Establishment of a Water Resource Classification System GN R 810 in GG 33541 of 17-09-2010.

203 Munnik (2020: iii).

to create an additional six CMAs.²⁰⁴ Agricultural and mining operations requiring water licenses must comply with regulations, as failure can lead to penalties under Section 151 of the Act.²⁰⁵

Although primarily focused on water, the NWA indirectly addresses soil concerns, particularly concerning irrigation. Soil suitability assessments are needed for irrigation licenses, and the Department of Water and Sanitation (DWS) works with soil scientists to develop relevant guidelines.²⁰⁶ The Water Services Act 108 of 1997 also ensures equitable access to water services, with municipalities responsible for delivery and quality standards.

3.3.3.3.2 Biodiversity

The National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA) focuses on environmental conservation and biodiversity management, aiming to protect species, ecosystems, and habitats of ecological significance. It promotes sustainable use of indigenous resources and fair benefit-sharing from bioprospecting. The Act establishes the South African National Biodiversity Institute for Research and Conservation and designates the state as a trustee of biodiversity. The Minister can publish a national list of threatened ecosystems and impose duties on landowners to control invasive species, with penalties for non-compliance.²⁰⁷

While not directly addressing soil, NEMBA's focus on ecosystem health supports soil fertility and conservation. The National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA) complements NEMBA by protecting ecologically significant areas including national parks and nature reserves, indirectly benefiting soil quality.²⁰⁸ It regulates the extraction of soil from protected areas, with penalties for violations.

204 See <https://www.sanews.gov.za/africa-south-africa/new-catchment-management-agencies-ensure-good-water-governance>, accessed 3 August 2024.

205 Water Use Licence Application and Appeals Regulations GN R 267 in GG 40713 of 24-03-2017; Regulations on Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources GN R 704 in GG 20119 of 04-06-1999.

206 Department of Water Affairs and Forestry, *A Practical Field Procedure for Identification and Delineation of Wetlands and Riparian Areas* (2005); Water Research Commission, *Hydropedological Assessment Guidelines: Theory and Application in the Context of Wetland Management in South Africa* (2023).

207 National List of Ecosystems Threatened and in Need of Protection GN R 1002 in GG 34809 of 09-12-2011; Alien and Invasive Species Regulations GN R 1020 in GG 43735 of 25-09-2020.

208 Department of Environmental Affairs, *National Protected Areas Expansion Strategy for South Africa* (2016).

3.3.3.3.3 Forestry

The National Forests Act 84 of 1998 governs forest conservation and sustainable use, establishing the South African National Forests Advisory Council to advise the Minister.²⁰⁹ It outlines management procedures for state forests, including activities such as plantation management and infrastructure.²¹⁰ Some state forests are designated to prevent soil erosion or sand drift (Section 2(b)(iv)).

The Act promotes sustainable forest management, emphasising the conservation of natural forests and woodland types, as well as preserving soil and water. The Minister determines conservation areas based on scientific advice.²¹¹

Challenges in enforcement include resource limitations, inadequate personnel, and lack of awareness among law enforcement.²¹² Despite issuing thousands of licenses and conducting training, compliance remains a challenge, particularly in remote areas.

3.3.3.3.4 Climate change

The key objectives of the Climate Change Act 22 of 2024 include facilitating a just transition to a climate-resilient, lower-carbon economy and society (Section 2). It mandates adaptation objectives in Section 16, integrated into national planning instruments. Section 17 outlines the development of adaptation scenarios, and Section 18 establishes a National Adaptation Strategy and Plan, to be created in consultation with relevant Ministers. Section 20 empowers the Minister of the Environment to compile data for the National Climate Change Response White Paper and publish a Synthesis Adaptation Report. Sections 23 and 24 require the publication of a list of specific GHGs, allocate carbon budgets to activity operators, and mandate the submission of mitigation plans. Section 27 empowers the Minister to formulate regulations for the Act's implementation, while Section 28 outlines consultation requirements.

While the Act may not explicitly focus on soil protection, it is relevant to soil health and resilience within the broader context of climate change adaptation and mitigation efforts.

209 Department of Agriculture, Forestry, and Fisheries, *Forestry 2030 Roadmap: Forestry Strategy (2009-2030)*.

210 Regulations Under the National Forests Act GN R 466 in GG 32185 of 29-04-2009.

211 See Ministry of Water Affairs and Forestry, *Sustainable Forest Development in South Africa: The Policy of the Government of National Unity White Paper (1997)*.

212 Department of Forestry, Fisheries, and the Environment (2018: 54-55).

3.3.3.4 Waste

The National Environmental Management: Waste Act 59 of 2008 (NEMWA) focuses on waste management to protect the environment and promote sustainable development. It sets standards for land remediation and landfill waste disposal (Sections 7(2)(d) and 7(1)(c)) and outlines responsibilities, prohibitions, and penalties for non-compliance (Sections 16, 17, 21-22, 26, and 67-68).²¹³ NEMWA complements NEMA's duty of care provisions to prevent environmental harm. It also provides guidelines for hazardous waste classification and handling through South African National Standards (SANS) 10234.²¹⁴

Exemptions from NEMWA include radioactive waste and residue regulated by the Hazardous Substances Act 15 of 1973; the National Nuclear Regulatory Act 47 of 1999 and the Nuclear Energy Act 46 of 1999; residue deposits and residue stockpiles regulated under the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA); and the disposal of explosives regulated by the Explosives Act 15 of 2003. Waste management activities are classified as requiring different levels of oversight, from BA processes to ministerial norms.²¹⁵

In 2020, South Africa generated 12.7 million tonnes of waste, with significant amounts being dumped illegally, posing challenges for municipalities.²¹⁶

3.3.3.5 Air pollution

Air pollution, caused by chemicals or compounds in the air at unsafe levels, leads to environmental issues such as acid rain and crop damage.²¹⁷ In South Africa, major pollution sources include industry, mining, vehicles, and biomass burning.

The National Environment Management: Air Quality Act 39 of 2004 (NEMAQA) mandates air quality monitoring, emission measurements, and annual reports (Chapter 2). Section 21 sets emission standards and requires licenses for activities with significant atmospheric emissions.²¹⁸ Sections 32-33 focus on dust control and mining

213 National Norms and Standards for Remediation of Contaminated Land and Soil Quality GN R 331 in GG 37603 of 02-05-2014; National Norms and Standards for Disposal of Waste to Landfill GN R 636 in GG 36784 of 23-08-2013; National Norms and Standards for the Assessment of Waste for Landfill Disposal GN R 635 in GG 36784 of 23-08-2013.

214 Waste Classification and Management Regulations GN R 634 in GG 36784 of 23-08-2013.

215 List of Waste Management Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment GN R 718 in GG 32368 of 03-07-2009, amended by GN R 1094 in GG 41175 of 11-11-2017; National Norms and Standards for the Remediation of Contaminated Land and Soil Quality GN R 467 in GG 36447 of 10-05-2013.

216 UNEP, South African Municipal Waste Management Systems: Challenges and Solutions (2020: 5).

217 Tshehla & Wright (2019: 1).

218 See GN R 893 in GG 37054 of 22-11-2013, amended by GN R 421 in GG 43174 of 27-03-2020.

operations, while Sections 36–42 govern atmospheric emission licenses for municipalities.²¹⁹

Despite these regulations, air quality management is poorly implemented, with many local authorities failing to integrate air quality management plans (AQMPs) into their development plans.²²⁰ Regulatory authorities often neglect compliance oversight, root-cause analysis, and trend analysis.

3.3.4 Environmental monitoring

Environmental monitoring is crucial for managing and protecting soil, involving regular soil sampling to assess ecological health, evaluate hazardous impacts, ensure regulatory compliance, and support policymaking. In South Africa, environmental monitoring is guided by EIA Regulations under Chapter 5 of NEMA, which establish procedures for environmental authorisations.²²¹ Activities listed in Notices 1 and 3 follow a Basic Assessment (BA),²²² while those in Notice 2 require full Scoping and EIA processes.²²³

A BA Report (BAR) is required for smaller-scale activities with manageable impacts, involving public participation, impact assessment, and mitigation measures. For activities specified in Listing Notice 2, a comprehensive Scoping and Environmental Impact Report (EIR) is necessary. These activities pose higher risks due to their scale or nature and may lead to increased pollution and environmental degradation. The Scoping Report includes a detailed description of the proposed activity, an assessment of the affected environment, an identification of environmental issues, and a Plan of Study for the EIA, which includes a comprehensive soil study report. This report covers soil types, land capability, present land use, and rehabilitation considerations, following standard procedures outlined in the published soil classification system for South Africa.²²⁴

In 2014, South Africa introduced a unified system, requiring activities such as mining or waste management to undergo the EIA process under NEMA, overseen by the Minister of Environment or Mineral Resources and Energy. *The State v Stefan Frylinck* case highlights the importance of thorough EIA procedures; an overlooked wetland

219 See GN R 827 in GG 36974 of 01-11-2013.

220 Tshela & Wright (2019: 2).

221 Environmental Impact Assessment Regulations GN R 982 in GG 3822 of 04-12-2014, amended by GN R 362 in GG 40772 of 07-04-2017.

222 Environmental Impact Assessment Regulations Listing Notice 1 GN R 983 in GG 38282 of 04-12-2014, amended by GN R 327 in GG 40772 of 07-04-2017; Environmental Impact Assessment Regulations Listing Notice 3 GN R 985 in GG 38282 of 04-12-2014, amended by GN R 324 in GG 40772 of 07-04-2017.

223 Environmental Impact Assessment Regulations Listing Notice 2 GN R 984 in GG 38282 of 04-12-2014, amended by GN R 325 in GG 40772 of 07-04-2017.

224 Soil Classification Working Group (1991).

during an EIA led to construction issues, underscoring the need for science-based soil studies.²²⁵

A 2018 study found 205 government soil scientists available to cover local municipalities, with more needed in the private sector and research to support soil assessment and management.²²⁶

3.3.4.1 Execution of the law

Enforcement bodies can act under Chapters 5 and 7 of NEMA to address environmental non-compliance, imposing penalties and mandating corrective actions. Chapter 5, especially Section 23, mandates Integrated Environmental Management (IEM) to ensure decisions with significant environmental impacts align with principles in Section 2 of NEMA.

The Promotion of Administrative Justice Act 3 of 2000 (PAJA) promotes fair and transparent decision-making, requiring explanations for actions, hearing opportunities, and judicial review options for those affected by NEMA-related non-compliance. Access to information is crucial for resolving environmental conflicts; Sections 2(4)(k), 24(4), and 31 of NEMA support information accessibility, though challenges in obtaining data persist. After Section 31's partial repeal in 2009, access is now primarily governed by Section 2(4)(k) and supported by Section 24(4), which mandates public participation and transparency in environmental authorisations.

The Promotion of Access to Information Act 2 of 2000 (PAIA) provides additional channels for accessing environmental data. Open data initiatives are suggested to enhance public participation and accountability in environmental management.²²⁷ Creating a dedicated open data framework for South Africa would require a political commitment to ensure transparency.

EIA regulations require consulting affected parties for EIA report approval, though communities report instances of limited public participation. Barriers to effective public engagement include time, funding, literacy, language, and presentation modes.²²⁸ In some cases, companies consult only traditional leaders, risking bias. Addressing these challenges is essential to achieving inclusive soil protection.

225 Case no 14/1740/2010 of 11 April 2011 (North Gauteng Regional Court).

226 Rozanov & Wiese (2018: 34).

227 Adams & Adeleke (2016).

228 Maphanga et al. (2023).

3.3.4.2 Enforcement issues

Environmental monitoring and enforcement in South Africa face challenges, including limited follow-up on EIAs and compliance monitoring.²²⁹ Government agencies struggle to effectively implement legal mandates.

Enforcement falls under the authority of EMIs, known as the Green Scorpions, who require expertise in environmental law and compliance enforcement.²³⁰ Established under NEMA, they consolidate efforts across various sectors into a unified compliance and enforcement framework.

In the 2022/2023 financial year, there was a significant increase in inspections conducted.²³¹ Most were related to illegal dumping, waste, water pollution, and poaching incidents. Conviction results also showed a positive trend, with an increase in successful convictions.²³² The total number of non-compliances identified during inspections rose from 4987 to 5421, and 4128 inspection reports were finalised.²³³ However, there was a decrease in the overall number of EMIs nationally, with South Africa having 3215 EMIs (386 municipal and 2829 national and provincial).²³⁴

Additionally, the focus on government institutions and departments in inspections and directives raises questions about the effectiveness of internal environmental management systems and compliance with regulations within these entities.²³⁵

Per the 2023 report, 328 sites, which constitute 60% of operational landfill sites, have been inspected.²³⁶ However, in three provinces—Eastern Cape, Northern Cape, and Free State—less than 50% of the landfill sites have been inspected. Additionally, most of the inspected sites were non-compliant with legislative requirements. Sand mining is prevalent in the Eastern Cape and KwaZulu-Natal, leading to considerable ecological harm to local ecosystems. Along the Wild Coast, there are more than 150 illegal sand mining sites.²³⁷

3.3.5 Cross-cutting issues

The EIA Regulations under Sections 24(2) and 24D of NEMA mandate EIAs for certain listed activities, requiring environmental authorisation. Section 24 specifies that

229 Chigwanhire (2021); Botha (2018); Nortje (2017); Dyers (2022).

230 See <https://www.dffe.gov.za/environmental-management-inspectorate-emi-basic-training>, accessed 8 May 2024.

231 Department of Forestry, Fisheries, and the Environment, National Environmental Compliance & Enforcement Report (2023: 4).

232 Ibid.: 5.

233 Ibid.: 4.

234 Ibid.: 8.

235 Ibid.: 61–62.

236 Ibid.: 61.

237 Ibid.: 74.

such activities, including coal-fired power stations, need approval from the Minister of the Environment. In *Earthlife Africa Johannesburg v Minister of Environmental Affairs*,²³⁸ environmental authorisation for a power station was suspended pending climate impact review, underscoring the importance of aligning domestic decisions with climate goals.²³⁹

Environmental authorisation is complex, influenced by political factors and often leaning toward economic development.²⁴⁰ Public participation, required by NEMA's EIA Regulations, is key to addressing public concerns. The *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province* case highlights the role of public input.²⁴¹

The National Appeal Regulations give a 20-day appeal period for environmental authorisations.²⁴² However, public participation is often limited, especially in marginalised communities that face resource constraints and power imbalances.²⁴³ Customary land rights are frequently overlooked, with traditional leaders endorsing extractive projects for economic gain without genuine community involvement.²⁴⁴ In Xolobeni, activists opposed a titanium mine supported by traditional leaders but resisted by locals, highlighting conflicts between traditional authority and community rights.²⁴⁵

The government emphasises poverty reduction through agricultural expansion, though economic growth often overshadows environmental concerns.²⁴⁶ Integrating

238 2017 2 All SA 519 (GP).

239 Ruppel (2022b).

240 See <https://www.dailymaverick.co.za/article/2023-06-16-deep-dives-into-the-underworld-our-dysfunctional-capital-city-and-the-karpowership-saga/>, accessed 8 May 2024; <https://www.iol.co.za/news/environment/wild-coast-seismic-survey-saga-shell-impact-africa-and-mantashe-look-to-appeal-judgment-6cc34c88-dbee-4e10-a217-45c80a6caaca>, accessed 8 May 2024; <https://groundup.org.za/article/constitutional-court-rejects-coal-mining-companys-attempt-appeal/>, accessed 8 May 2024.

241 2007 6 SA 4 (CC).

242 National Appeal Regulations GN R 993 in GG 38303 of 08-12-2014, amended by GN R 205 in GG 38559 of 12-03-2015.

243 See <https://www.theafricareport.com/309464/south-africa-supreme-court-of-appeal-to-consider-eskom-richards-bay-gas-case/>, accessed 8 May 2024; See <https://www.dailymaverick.co.za/article/2023-12-05-first-isizulu-environmental-impact-assessment-guide-a-public-participation-game-changer-for-rural-communities/>, accessed 8 May 2024; Maphanga et al. (2023). *Baleni v Regional Manager: Eastern Cape DMR* 2021 1 SA 110 (GP) confirmed that mining-affected communities can access information about mining projects affecting them. Specifically, it grants these communities or their representatives access to the content of mining rights applications concerning the land where they live and work.

244 Buthelezi & Yeni (2016); See <https://news.mongabay.com/2023/08/community-members-decry-traditional-leaders-power-amid-south-african-mine-plans/>, accessed 8 May 2024.

245 See <https://amabhungane.org/xolobeni-the-mine-the-murder-and-the-dg/>, accessed 8 May 2024.

246 Department of Environmental Affairs, South African National Carbon Sink Assessment: Review of Existing Policy Section Three (2015: 85-86).

sustainable practices with job creation is essential for resource protection, while a focus on food security risks soil depletion.

The Protection of Investment Act 22 of 2015 seeks to balance the interests of both the public and investors by ensuring compliance with South African laws, though it does not include specific environmental provisions. South Africa's taxation system, which is based on source-based income tax, and the Carbon Tax Act 15 of 2019, are key tools supporting the country's commitment to achieving net-zero emissions by 2050.²⁴⁷ Foreign investments in renewable energy and sustainable agriculture have the potential to contribute significantly to improving soil health and promoting conservation efforts.²⁴⁸

3.3.6 Access to justice

Section 34 of the Constitution guarantees fair resolution of disputes about rights and violations by independent courts or dispute resolution bodies. This ensures access to justice and due process for individuals and organisations facing threats to their rights. Section 38 grants expansive rights to seek judicial recourse for constitutional violations, allowing individuals, representatives, groups, entities acting in the public interest, and associations to approach courts. These provisions empower diverse stakeholders to enforce environmental standards effectively.

Section 32 of NEMA provides broad legal standing for enforcing environmental laws. It allows individuals to act against direct violations, represent others unable to do so, advocate for affected groups, and challenge actions for broader societal benefit. This framework aims to safeguard and preserve the environment.

Despite these provisions, instances of non-compliance with environmental laws, leading to issues such as water contamination and questionable mining authorisations, persist. While legal standing is broad, the necessary tools are underutilised.²⁴⁹ Environmental litigation faces challenges due to the complexity of scientific and legal issues, high costs, lengthy procedures, lack of awareness about environmental rights, and limited expertise among legal practitioners and potential plaintiffs. These factors, compounded by limited accessibility to courts in rural areas, contribute to the infrequency of environmental cases in South Africa and could also hinder future soil protection efforts.

247 See <https://www.climatechangenews.com/2020/09/16/south-africa-aims-reach-net-zero-emissions-2050-still-burning-coal/#:~:text=The%20South%20African%20cabinet%20has,net%20zero%20economy%20by%202050%E2%80%9D.,> accessed 8 May 2024; South Africa's Low-Emission Development Strategy 2050 (2020).

248 Bathaiei & Štreimikienė (2023); Majeed et al. (2023).

249 Kidd (2010).

The Hermanus Environmental Court, established in 2003, successfully prosecuted abalone poaching and other environmental crimes.²⁵⁰ However, it was inexplicably closed in 2006. Potential reasons for its closure include political interference, insufficient funding, and a limited understanding of environmental law at the time. The increased prominence of environmental law since then suggests that specialised environmental courts or tribunals could effectively address critical issues such as soil protection. These entities would provide focused expertise and expedite complex environmental cases. By dedicating resources to such institutions, South Africa could enhance environmental law enforcement and protect vital natural resources.

3.4 Relevant departments and state institutions and their responsibilities

3.4.1 Department of Agriculture, Land Reform, and Rural Development

The DALRRD oversees policies and programs concerning agricultural practices, land use, and rural development, which impact soil management and protection. The Minister supervises entities such as the Agricultural Research Council (ARC), the National Agricultural Marketing Council, Onderstepoort Biological Products, the Perishable Products Export Control Board, and Ncera Farms.

As of July 2024, the DALRRD will be separated into distinct departments: one focusing on agriculture and another on land reform and rural development. Despite this restructuring, for clarity and ease of reference, the term DALRRD may still be used to encompass their previous combined responsibilities until fully transitioned.

3.4.2 Department of Environment, Forestry, and Fisheries

The DFFE is responsible for environmental protection, including soil and biodiversity conservation, and promoting sustainable land management practices.

3.4.3 Department of Water and Sanitation

The DWS plays a crucial role in managing South Africa's water resources. While its primary focus is on water resource management, the department also addresses soil erosion, sedimentation control, and water quality issues related to soil management practices.

250 Chohan (2013).

3.4.4 Department of Mineral Resources and Energy

The DMRE oversees mining activities in South Africa, regulating an industry that can profoundly affect soil quality and land rehabilitation post-mining.

As of July 2024, the DMRE will be split into two separate departments: one focusing on mineral and petroleum resources, and another on electricity and energy. Despite this restructuring, for ease of reference, the term DMRE may still be used to refer to their previous combined responsibilities until fully transitioned.

3.4.5 Department of Cooperative Governance and Traditional Affairs

The DCGTA oversees the coordination of cooperative governance and traditional leadership in South Africa.

3.4.6 Department of Higher Education, Science, and Innovation

The DHESI oversees higher education, scientific research, and technological advancements. As of July 2024, the Department will be split into two separate departments: one focusing on higher education and another on science, technology, and innovation.

3.4.7 Department of Trade, Industry, and Competition

The DTIC oversees policies related to commerce, industry, and competition, impacting economic growth and industrial development.

3.4.8 Department of Public Works and Infrastructure

The DPWI manages infrastructure projects involving soil-related activities such as land development and construction.

3.4.9 Department of Human Settlements

The DHS plans and implements housing policies, impacting soil management in urban development projects.

3.4.10 Council for Scientific and Industrial Research

The CSIR, under the Department of Higher Education, Science, and Innovation, drives scientific and technological innovation for socio-economic growth.²⁵¹ It conducts research across sectors, including agriculture and environmental science.

3.4.11 Agricultural Research Council

The ARC, under the DALRRD, conducts research, collaborates with partners, and fosters innovation to strengthen South Africa's agricultural sector.²⁵²

3.4.12 Council for Geoscience

The Council for Geoscience, under the DMRE, is a national science council with origins dating back to 1912.²⁵³ Its mandate includes promoting research and providing specialised geoscientific services.

3.4.13 Soil Society of South Africa

The SSSSA provides a platform for soil scientists to share research and information.²⁵⁴

3.4.14 Non-governmental organisations

NGOs are crucial partners alongside governments, particularly where governments face limitations in fulfilling their mandates. In South Africa, there are 200,000 NGOs actively contributing to bridging gaps left by government shortcomings, thereby, helping to fulfil the social contract with citizens.²⁵⁵ Their role remains pivotal in ensuring comprehensive service delivery and societal development, as well as supporting parties in litigations.

251 Scientific Research Council Act 46 of 1988.

252 Agricultural Research Act 86 of 1990.

253 Geoscience Act 100 of 1993.

254 See <https://soils.org.za/>, accessed 8 May 2024.

255 Tshiyoyo (2022).

3.5 Provincial and local levels

South Africa consists of nine provinces, encompassing forty-four districts, 205 local municipalities, and eight metropolitan municipalities. The eight metropolitan municipalities are as follows: Buffalo City (Eastern Cape); City of Cape Town (Western Cape); Ekurhuleni Metropolitan Municipality (Gauteng); City of eThekweni (KwaZulu-Natal); City of Johannesburg (Gauteng); Mangaung Municipality (Free State); Nelson Mandela Metropolitan Municipality (Eastern Cape); and the City of Tshwane (Gauteng).

Besides national public environmental law, the primary regulatory instruments for environmental conservation in the respective regions are the provincial conservation ordinances/acts:

The Transvaal Nature Conservation Ordinance 12 of 1983 is implemented in the Gauteng, Limpopo, North West, and Mpumalanga provinces. Supplemented by the Gauteng Draft Nature Conservation Bill of 2014; Limpopo Environmental Management Act 7 of 2003; Gazankulu Nature Conservation Act, 5 of 1975; Venda Nature Conservation Act 10 of 1973; Mpumalanga Nature Conservation Act 10 of 1998; and the North West Biodiversity Management Act 4 of 2016.

The Nature and Environmental Conservation Ordinance 19 of 1974 (Cape Ordinance): Implemented in the Western Cape, Eastern Cape, Northern Cape, and North West provinces. Augmented by: Western Cape Biodiversity Act 6 of 2021 (not yet fully in force); Northern Cape Nature Conservation Act 9 of 2009; Draft Eastern Cape Environmental Management Bill of 2019; Nature Conservation Act 10 of 1987 (Ciskei); and the Environmental Conservation Decree 9 of 1992 (Transkei).

The Natal Nature Conservation Ordinance 15 of 1974 was implemented in the KwaZulu-Natal province and supplemented by: the KwaZulu-Natal Nature Conservation Management Act 9 of 1997 and the KwaZulu-Natal Nature Conservation Act 8 of 1975.

The Free State Nature Conservation Ordinance 8 of 1969 was implemented in the Free State province and supplemented by the Boputhatswana Nature Conservation Act 3 of 1973 and the QwaQwa Nature Conservation Act 5 of 1976.

These laws govern activities affecting the environment and wildlife, promoting collaboration among government bodies to meet environmental responsibilities. While they do not specifically address soil conservation, they cover offenses related to wildlife, land trespassing, and specimen possession. Additionally, they regulate hunting practices, conservation measures, wildlife management, delegation of responsibilities, appeals procedures, and the establishment of recreational sites.

Additionally, municipal by-laws cover topics ranging from air quality to land use planning, contributing to comprehensive environmental regulation.

3.6 Conclusion

In South Africa, arable land comprises only 11-15% of the total land area, with about a quarter classified as high potential.²⁵⁶ Soil degradation is a significant issue driven by natural and human factors, including agricultural practices, deforestation, mining, urbanisation, invasive species, water scarcity, and climate variability. These factors, combined with socio-economic dynamics, exacerbate soil erosion, nutrient depletion, and salinisation, threatening agricultural productivity and ecosystem resilience.

National policies, legislation, and institutional frameworks guide soil management and conservation in South Africa, aligning with global commitments. Tailored approaches are needed for both commercial and small-scale farming sectors to ensure sustainable land use and agricultural productivity. Collaborative efforts involving government, research institutions, civil society, communities, and stakeholders are essential to address soil degradation effectively. Integrated approaches focusing on soil conservation, sustainable land use, and ecosystem resilience promote social equity, economic development, and environmental sustainability. Investing in soil protection, restoration, and rehabilitation is crucial for securing soil resources, ensuring food security, and sustainable national development.

4 Legislation on main drivers of soil degradation: Strengths and weaknesses

4.1 Agriculture

4.1.1 Relevant legal provisions

4.1.1.1 Subdivision of Agricultural Land Act 70 of 1970

SPLUMA provides some protection to agricultural land, even extending to areas under traditional authorities' control. It prioritises spatial sustainability, emphasising the safeguarding and sustainable use of prime agricultural land (Section 7(b)). SPLUMA repealed several parallel planning legislations upon enactment but did not revoke SALA. This leads to conflicts between SPLUMA's requirement for comprehensive land use schemes and SALA's prohibition on imposing such schemes on agricultural land (Section 24(2)(a)).²⁵⁷

SALA defines agricultural land under Section 1 as all land in South Africa, with certain exclusions such as land under local councils or boards, townships, state-owned land, or land excluded by the Minister. It aims to prevent the fragmentation of

256 FAO, Status of the World's Soil Resources (2015: 266).

257 Barichievsky (2022: 13).

agricultural land by regulating its subdivision, thereby, promoting efficient land use and enhancing agricultural productivity.

The SALA Repeal Act 64 of 1998 received assent on 16 September 1998, but a commencement date has not been established. Consequently, the Preservation and Development of Agricultural Land Act (discussed further on) has been introduced to address this issue.

4.1.1.2 Conservation of Agricultural Resources Act 43 of 1983

Defined in Section 1, “natural agricultural resources” encompass soil, water sources, and vegetation, excluding weeds and invasive plants. CARA is designed to address erosion, protect water sources, preserve vegetation, and manage invasive plants through a range of measures outlined in Section 3.²⁵⁸

Section 2 of CARA outlines its scope across various types of land and areas. Subsection (1) specifies exceptions, urban areas, land vested in the Native Trust, and land designated as mountain catchment areas under the Mountain Catchment Areas Act. However, subsection (2) expands CARA’s coverage by applying provisions regarding weeds and invader plants to urban areas. It also clarifies that veld burning regulations do not encompass private forests defined by the Forest Act, subject to specific conditions. Subsection (3) grants the Minister authority to designate plants as weeds or invader plants through regulations, enabling adaptive responses to ecological changes or emerging threats from invasive species.

Specific regulations govern the cultivation of virgin soil, land utilisation, and irrigation (Section 6). Virgin soil, defined as uncultivated or inactive for ten consecutive years, requires official approval for cultivation, which entails a review process, including soil observation pit assessments. Restrictions on cultivation extend to maximum permissible slopes, typically ranging from 12% to 20%, contingent on locality and soil properties.²⁵⁹

CARA facilitates financial assistance schemes for land users affected by natural disasters (Sections 8-9), prohibiting soil degradation and mandating erosion mitigation measures (Section 12).²⁶⁰ It mandates the establishment of local and Regional Conservation Committees (Sections 15-16), with members appointed by the Minister. CARA also creates a Conservation Advisory Board (Section 17) to secure support from the farming community and Organised Agriculture. Additionally, the executive officer is

258 Conservation of Agricultural Resources Act Regulations GN R 1048 in GG 9238 of 25-05-1984, amended by GN R 280 in GG 22166 of 30-03-2001.

259 Ibid.: Regulation 3.

260 Weed Control Scheme GN R 1044 in GG 9238 of 25-05-1984; Flood Relief Scheme for Flood Disaster Areas GN R 47 in GG 11097 of 15-01-1988; Irrigation Improvement Scheme: Establishment GN R 1487 in GG 16686 of 29-09-1995; Soil Conservation Scheme: Establishment GN R 1047 in GG 9238 of 25-05-1984.

empowered to issue directives to non-compliant landowners, with penalties including fines and/or imprisonment (Sections 7 and 23).

Section 29 of CARA introduced the Regulations: Declared Weeds and Invader Plants in 1984, focusing on soil protection, erosion prevention, and weed management.²⁶¹ These regulations address cultivating land, especially on slopes (Regulation 3), protecting cultivated land from erosion (Regulations 4-5), preventing waterlogging and salination of irrigated land (Regulation 6), and managing grazing on veld (Regulations 9-11). They also cover preventing wildfires (Regulation 12), restoring eroded land (Regulations 13-14), combating declared weeds and invader plants (Regulation 15), and designating biological control reserves (Regulation 15D).

After 1994, many sections of CARA became inactive, and funding for soil Conservation Committees ceased, although some committees remain semi-active through farmers' initiatives.²⁶²

4.1.1.3 White Paper on Agriculture 1995

The White Paper on Agriculture (1995) underscores sustainable agriculture's importance, defining it as a system balancing productivity with environmental conservation. It highlights shared responsibility between national and provincial governments in agriculture policy and resource stewardship. Fragile soils and erosion are acknowledged, with government support pledged for rehabilitation and responsible land management. Soil moisture and rainfall variability are noted as critical factors in land suitability. Secure land tenure is deemed essential for long-term investment and sustainability. Environmental damage concerns from incorrect practices and invasive species are addressed, with laws to protect biodiversity promised. The Paper also advocates for nationwide data systems, integrating provincial and national databases, to monitor food security and establish an Early Warning System for Food and Water Security, aiding planning and disaster response.

4.1.1.4 Preservation and Development of Agricultural Land Act 39 of 2024

The Preservation and Development of Agricultural Land Act 39 of 2024 (PDAL), signed into law in January 2025, introduces a comprehensive framework for regulating agricultural land management in South Africa. The Act implements progressive measures to promote agricultural development while ensuring the preservation of valuable farmland.

261 Declared Weeds and Invader Plants Regulations GN R 1048 in GG 9238 of 25-05-1984, amended by GN R 280 in GG 22166 of 30-03-2001.

262 Baade et al. (2024: 344-345).

Key provisions include the establishment of evaluation and classification systems to assess agricultural land capability, suitability, potential, and use at national, provincial, and local levels. This initiative aims to support sustainable agricultural development and conservation. Additionally, agricultural areas will be spatially delineated based on shared characteristics such as capability, suitability, potential, use, and location (Section 5 and Chapter 5).

The Act mandates the Minister to prescribe criteria for provincial agricultural sector plans, ensuring that they are science-based, promote sustainable agriculture, enhance food security, preserve agricultural land, foster synergy between provincial plans, and are developed through a participatory process (Chapter 2, Part 3). These provincial plans will coordinate and harmonise agricultural land-use policies, plans, and decisions across government entities, reducing duplication and ensuring consistency in governance.

To further safeguard agricultural land, the Minister may declare specific geographic areas as nationally protected agricultural areas via notice in the Government Gazette and other media. Such areas will be designated to protect high-value agricultural land that supports high-yield and sustainable production, including land with above-moderate capability and potential, unique agricultural land, and irrigated farmland (Chapter 2, Part 4).

The Act enhances governance and enforcement by allowing the Minister to establish an Advisory Appeal Panel for appeals related to agro-ecosystem authorisations (Chapter 6, Part 1). It also empowers authorities to appoint inspectors for compliance inspections and issue directives for corrective action when violations are found or anticipated. Failure to comply may result in direct intervention, cost recovery, or legal action, ensuring effective land protection (Chapter 6, Part 2).

Under Section 4(1), the Act establishes core principles for agricultural land management, focusing on agro-ecosystem productivity, stability, resilience, viability, and equity. These principles will guide agro-ecosystem authorisations, the setting of norms and standards, the development of provincial agricultural plans, and the declaration of protected agricultural areas.

The Act also strengthens the DALRRD by ensuring that provincial governments provide the necessary resources and comply with prescribed norms and standards, while local governments align their policies to support the Department's mandate.

Finally, the Act addresses deficiencies in SALA, which has historically been administered solely by the DALRRD, failing to uphold constitutional principles of cooperative governance by excluding provincial and local governments.²⁶³ Moreover, SALA's applicability is limited to privately owned agricultural land, limiting its applicability to state-owned and communal agricultural land. The new Act seeks to rectify these gaps, ensuring a more inclusive and sustainable approach to agricultural

263 Olivier (2024).

land governance. However, while the PDAL Act provides a foundational framework for protecting agricultural land, it does not address the specific requirements for soil management and restoration.²⁶⁴ This gap highlights the need for dedicated soil legislation to ensure the long-term health and productivity of South Africa's soils.

4.1.1.5 Additional complementary statutes

The Fertilisers, Farms Feeds, Agricultural Remedies, and Stock Remedies Act 36 of 1947 regulates the registration and control of agricultural products and services such as fertilisers, farm feeds, and remedies for agricultural and stock use. Misuse of these substances can lead to pollution and health issues, making the Act's standards and regulations vital for environmental and public health protection. Sections 2, 3, and 7(1) outline that only individuals registered under the Act are authorised to sell fertilisers, farm feed, agricultural or stock remedies. Additionally, the Minister is mandated to appoint a registrar within the Department responsible for registering pest control operators and pesticides. Section 23 grants extensive regulatory powers to the Minister concerning fertilisers, farm feeds, and agricultural and stock remedies. This includes the authority to establish regulations covering various aspects related to these products. Moreover, any application for registering a remedy, including pesticides, must be submitted to the registrar before it can be sold. The registrar is required to evaluate applications based on specific criteria outlined in the Act before granting registration.

There is a pressing need to modernise the Act to incorporate new technological advancements and prioritise sustainability. The current administrative system is plagued by delays and significant backlogs in processing applications.²⁶⁵

The Agricultural Pests Act 36 of 1983 aims to prevent the introduction and spread of pests in South Africa by regulating the importation of controlled goods. It protects agricultural production from the negative impacts of pest infestations and diseases, with implications for environmental conservation and economic stability.

The Genetically Modified Organisms Act 15 of 1997 promotes responsible development, production, and use of genetically modified organisms (GMOs) in South Africa. It addresses environmental, economic, and social concerns associated with GMOs, aiming to ensure their safe introduction and minimise negative environmental impacts.

264 Ibid.

265 Sihlobo (2023).

4.1.2 Enforcement issues

CARA and its accompanying regulations provide substantial protection for agricultural resources, but their effectiveness relies on implementation and enforcement. Unfortunately, operational Conservation Committees and Resource Auditors are scarce, resulting in infrequent penalties for non-compliance.²⁶⁶ CARA is one of the most neglected statutes, facing strategic planning and enforcement challenges.²⁶⁷ Policies to improve agricultural practices often originate from the DALRRD rather than the DFFE. The DALRRD focuses primarily on land reform and food security, with environmental concerns often sidelined.²⁶⁸ Enhanced collaboration between departments is necessary to address environmental concerns within agriculture, including improved reporting and enforcement measures within DALRRD. Consequently, compliance with agricultural laws, particularly those protecting soil, faces challenges such as limited resources and competing priorities.²⁶⁹

Under NEMA, EMIs are authorised to investigate various offences related to environmental regulations. However, the National Environmental Compliance and Enforcement Report (NECER), published annually by DFFE, primarily focuses on the activities of environmental authorities such as the DWS, offering limited insight into compliance and enforcement efforts in other sectors such as agriculture. While the NECER mentions criminal arrests made in collaboration with DALRRD, it lacks specific details. Additionally, DALRRD's annual reports do not include information on enforcement activities.

The *Eloff Landgoed (Pty) Ltd v Minister of Forestry, Fisheries, and the Environment* case highlights the complexities of environmental decision-making, particularly regarding the interaction between mining activities and agricultural resources.²⁷⁰ Despite concerns raised during the EIA process, DFFE granted environmental authorisation and a mining right to Eloff Mining Company. The court ruled against the granted mining right, emphasising the importance of comprehensive agronomic assessments in understanding the impact of mining on surrounding farmland. This case underscores the need for robust EIAs and thorough consideration of agricultural impacts in environmental decision-making to protect soil health and local communities.

While existing legislation such as CARA provides a framework for environmental protection, ongoing efforts are necessary to strengthen the legal framework and ensure effective implementation. Transparent reporting of enforcement measures by DALRRD is crucial for accountability and effective enforcement of environmental

266 Barichiev (2022: 11).

267 Department of Environmental Affairs, South African National Carbon Sink Assessment: Review of Existing Policy Section Three (2015: 99).

268 See Department of Agriculture, Land Reform, and Rural Development, Annual Performance Plan (2022/2023).

269 Tsheko (2020).

270 2023 ZAGPPHC 434 (19 June 2023).

regulations. Currently, challenges in accessing scattered policies and documents hinder efforts to promote sustainable agricultural practices effectively.²⁷¹

4.1.3 Monitoring

The ARC's mission revolves around conducting research, forming partnerships, nurturing talent, and fostering innovation in the agricultural sector to promote sustainability, aligning with the objectives of the Agriculture and Agro-Processing Master Plan (2020) led by the DALRRD. By providing scientific solutions, the ARC contributes to growth, transformation, employment generation, and other developmental challenges in the agri-food environment.²⁷²

While the DALRRD and DFFE oversee compliance, the ARC assists with scientific monitoring in South Africa. However, the absence of a national soil database poses a challenge, as soil data is scattered, outdated, and not readily accessible.²⁷³ Currently, only the DALRRD and the ARC have access to this data, and there is no communication between the two.

4.2 Mining

To manage the environmental and social impacts of mining effectively, South Africa has established a robust framework of laws and regulations. These include the NEMA, the NWA, the NEMAQA, and the MPRDA, which govern various aspects of mining operations such as EIAs, water usage, air quality management, and rehabilitation.

4.2.1 Relevant legal provisions

The MPRDA prioritises the sustainable development of mineral and petroleum resources to promote economic and social progress (Section 2), granting the state, through the DMRE, control over these resources (Section 3). Environmental authorisation is mandatory for all mining and petroleum operations (Section 5A(a)), with Chapter 6 detailing the processes for obtaining exploration and production rights, as well as permits. Sections 70-71 empower the Minister to manage application reviews and evaluate environmental reports.

Applications for exploration and production rights must include consultation outcomes and comply with NEMA guidelines (Chapter 5). Environmental authorisation

271 Khwidzhili & Worth (2017).

272 See ARC, Annual Performance Plan (2023/2024); ARC, Annual Report (2022/2023).

273 van der Westhuizen (2024).

must be granted by the Minister before rights are issued (Section 80(1)(c)). Renewal of rights requires evidence of compliance with authorisation conditions (Section 81(2)(c)), and rights holders must meet Environmental Management Plan (EMP) standards (Section 82(2)(d)).

Section 43 mandates closure certificates for operations, holding rights holders responsible for environmental obligations until certification confirms adherence to health, safety, and pollution management standards. The Minister can intervene in activities causing environmental harm (Section 46) and suspend or revoke rights for non-compliance (Section 47).

Rights holders must submit operational reports (Section 88), while Sections 91-92 provide authorities with inspection powers. Sections 98-99 establish penalties for non-compliance, ensuring accountability under the Act.

The One Environmental System (OES) introduced in 2014 aims to integrate planning and enforcement between DFFE, DWS, and DMRE. DFFE establishes the regulatory framework, while the DMRE implements it. Mining companies must now submit an EMP to the DMRE for environmental authorisation under NEMA Section 24C(2A) and 24N. OES mandates consultation with stakeholders, EIAs, and EMP submissions.²⁷⁴

Financial provisioning under the MPRDA has been replaced by NEMA Section 24P, requiring mining rights holders to ensure adequate funds for rehabilitating environmental impacts. This covers various aspects such as pollution treatment and closure of operations. In 2015, the Regulations for Financial Provision for Mining were introduced, which the DMRE implements while DFFE oversees.²⁷⁵ This Regulation mandates three plans per mine/permit: rehabilitation, final rehabilitation, decommissioning, and closure, along with an environmental risk assessment. These plans require financial provision, which can be fulfilled through a guarantee, deposit, or contribution to a trust fund. An independent expert must compile, review, and assess these reports to ensure adequate environmental rehabilitation and remediation funds.

4.2.2 Monitoring

Mining activities directly impact soil quality, making strong enforcement of environmental laws crucial to prevent degradation.²⁷⁶ In 2016, the Centre for Environmental Rights (CER) exposed the lack of oversight by mining and water authorities in

274 Amendments to the Mineral and Petroleum Resources Development Regulations for Implementation GN R 420 in GG 43172 of 27-03-2020 Part III; Regulations for Petroleum Exploration and Production GN R 466 in GG 38855 of 03-06-2015 Chap 7.

275 Financial Provisioning Regulations GN R 1147 in GG 39425 of 20-11-2015.

276 Laker (2023).

Mpumalanga, where 239 active and 788 abandoned mines exist.²⁷⁷ Regulatory bodies had minimal staff, with only five officials monitoring compliance at the DMRE and two overseeing water management at the DWS.

This lack of enforcement extends across South Africa. The SAHRC raised concerns about nationwide mining compliance and monitoring, noting municipalities' exclusion from mining license processes, leaving them unaware of potential local impacts.²⁷⁸ The *Maccsand (Pty) Ltd v City of Cape Town* case highlighted the tension between local and national governments over mining regulation, reinforcing the need for respect of both levels of authority in municipal planning.²⁷⁹ The SAHRC also reported mining starting before land use agreements are in place and inadequate protection for strategic environmental areas.²⁸⁰ Mining continues in protected zones, posing environmental risks.²⁸¹

Post-closure planning for derelict and ownerless mines is also problematic, with unclear restoration plans and inconsistent rehabilitation costs.²⁸² The DMRE has initiated a rehabilitation program for Derelict and Ownerless Mines, with around 6,000 mines currently undergoing continuous rehabilitation.²⁸³ To date, only 0.7% of them have been rehabilitated.²⁸⁴

Soil contamination near gold mine tailings has led to dangerous levels of heavy metals in school gardens and residential areas, posing health risks.²⁸⁵ For example, high soil lead levels were linked to increased blood lead levels in children in Johannesburg.²⁸⁶

Practical challenges in implementing OES include pending regulatory amendments, capacity issues within the DMRE, and disputes over departmental responsibilities.²⁸⁷ The *Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal, Kroutz NO* case highlighted confusion over jurisdiction between the DMRE and

277 CER, Zero Hour: Poor Governance of Mining and the Violation of Environmental Rights in Mpumalanga (2016).

278 SAHRC, National Hearing on the Underlying Socio-economic Challenges of Mining-affected Communities in South Africa (2016).

279 2012 4 SA 181 (CC).

280 SAHRC, National Hearing on the Underlying Socio-economic Challenges of Mining-affected Communities in South Africa (2016: 14-15 & 23).

281 See Blackmore (2022).

282 SAHRC, National Hearing on the Underlying Socio-economic Challenges of Mining-affected Communities in South Africa (2016: 26).

283 Ibid.: 28.

284 See <https://law.uct.ac.za/mineral-law/articles/2022-11-10-rehabilitation-and-closure-mines-fail-ure-protection-human-rights>, accessed 8 May 2024; <https://www.dailymaverick.co.za/article/2022-06-08-6000-health-and-environmental-time-bombs-still-to-be-defused-govt-decades-behind-schedule/>, accessed 8 May 2024.

285 Kootbodien et al. (2012).

286 Mathee et al. (2018).

287 SAHRC, National Hearing on the Underlying Socio-economic Challenges of Mining-affected Communities in South Africa (2016: 44).

DFFE.²⁸⁸ Despite both departments conducting compliance inspections at the Tormin Mine, legal disputes arose over jurisdiction for environmental monitoring and enforcement. The court invalidated the warrant issued to DFFE for inspecting the mine due to procedural irregularities, sidestepping the broader issue of jurisdiction.

4.2.3 The role of foreign investors

Foreign investors are key players in South Africa's mining sector, bringing capital, technology, and expertise. While South Africa boasts robust mining legislation, implementation challenges persist due to corruption and mismanagement.²⁸⁹ The DMRE's Exploration Implementation Plan, released in 2022, aims to increase exploration activity to boost the sector's contribution to the GDP, aligning with national economic objectives.²⁹⁰

In contrast, the issue of foreign investment in South Africa's agricultural sector has been less pressing. While global land grabbing involves significant foreign acquisition of arable land across Africa, foreign ownership in South Africa amounts to a mere 2% of total farms and agricultural holdings.²⁹¹ Despite this, the government attempted to address land distribution and ownership issues through the Regulation of Land Holdings Bill of 2017. This Bill aimed to ensure equitable land distribution to rectify colonial and apartheid legacies, set a land ownership ceiling of 12,000 hectares, restrict foreign ownership to long-term leases, establish a public register of land holdings, and create the Office of the Land Commission to manage this register. However, due to changing political priorities favouring economic growth, the Bill was scrapped in 2023, shifting the focus back to encouraging foreign investment.²⁹²

4.2.4 What is more?

The National Norms and Standards for the Remediation of Contaminated Land in South Africa provide guidelines for managing polluted sites, but inconsistencies in contamination thresholds, particularly for copper and manganese, can lead to natural soils being wrongly classified as polluted.²⁹³ This imposes remediation costs on

288 2017 2 All SA 599 (WCC).

289 Corruption Watch, Research Report on Mining for Sustainable Development (2017).

290 GN R 2026 in GG 46246 of 14-04-2022; South African Economic Reconstruction and Recovery Plan (2020).

291 Department of Rural Development and Land Reform, Land Audit Report (2017: 2).

292 See <https://www.iol.co.za/mercury/news/bill-on-land-ownership-by-foreigners-mooted-5ef66baf-6d70-46f8-a433-9963ae37ac48>, accessed 3 August 2024.

293 GN R 331 in GG 37603 of 02-05-2014; Pienaar-Blaauw, 2024, *Soil Governance in South Africa and Beyond*. DROP Workshop.

landowners and developers. Challenges also arise in analysing sulphate levels, as the threshold may not reflect true salt pollution, and commercial labs lack standardised methods. South Africa processes 400,000 to 600,000 soil samples annually across 60 labs.²⁹⁴

The MPRDA's definition of topsoil may not fully reflect soil complexities, as it only considers the upper layer for seed germination and water penetration, overlooking variations in soil properties during mining.²⁹⁵ The Land Rehabilitation Guidelines for Surface Coal Mines (2019) recommend salvaging usable soil, but the 60 cm salvage depth may not meet restoration needs. Stockpiles, while intended to maintain biological activity, are often higher than recommended.

Oversimplified land classifications, such as those in the Chamber of Mines Guidelines, categorise land by soil depth, but international standards consider additional factors including climate and topography, leading to potential misuse of land and further soil degradation.²⁹⁶ These issues highlight the need for standardised soil management practices and comprehensive rehabilitation guidelines to ensure soil preservation and environmental stability.

4.3 Industrial development

Industrialisation involves shifting from agrarian to manufacturing economies, driving employment and global market presence. The South African Economic Reconstruction and Recovery Plan (2020) addresses economic challenges heightened by COVID-19 and structural issues. Environmental considerations are central, with investments in climate-resilient infrastructure, a shift toward a green economy, and efforts to conserve natural resources and biodiversity, aligning with SDGs.

The Industrial Development Act 22 of 1940 establishes industrial development corporations to promote industrialisation and provide financial assistance. The Broad-Based Black Economic Empowerment Act 53 of 2003 advances economic transformation. The Special Economic Zones (SEZs) Act 16 of 2014 governs SEZs, which aim to attract foreign investment, promote exports, and generate employment through incentives and streamlined regulations.

However, South Africa lacks specific legislation solely for regulating the industrial sector, relying instead on various laws and regulations governing other sectors.

294 Rozanov & Wiese (2018: 27).

295 GN R 331 in GG 37603 of 02-05-2014; Pienaar-Blaauw, 2024, *Soil Governance in South Africa and Beyond*. DROP Workshop; Feng et al. (2019).

296 Namugize (2017: 64); Rethman (2006: 6-7); Chamber of Mines of South Africa, Guidelines for the Rehabilitation of Mined Land (2007: Appendix 3); Pienaar-Blaauw, 2024, *Soil Governance in South Africa and Beyond*. DROP Workshop; Barichievy (2022).

Compliance with NEMWA is essential to ensure proper management and disposal of hazardous waste, preventing environmental harm.²⁹⁷

4.4 Demographic growth, urban sprawl, and land-planning regulatory frameworks

Urban population growth accelerates environmental degradation, including soil erosion, as human activities intensify. In South Africa, 60% of the population lives in urban areas, a number expected to rise to 70% by 2030.²⁹⁸ This rapid urbanisation leads to the conversion of forests and wetlands into residential, industrial, and agricultural zones, stressing ecosystems and increasing soil vulnerability.

In the *Philippi Horticultural Area Food & Farming Campaign v MEC for Local Government, Environmental Affairs and Development Planning: Western Cape* case, the Philippi Horticultural Area Food and Farming Campaign (PHA Campaign) challenged urban development plans in Cape Town, citing concerns over an aquifer crucial for irrigation.²⁹⁹ The court ruled for reconsideration, emphasising the need for updated studies on water and climate impact.³⁰⁰

Urban planning laws such as SPLUMA and the NDP guide municipalities to develop Spatial Development Frameworks (SDFs) for sustainable growth.³⁰¹ Local governments are empowered to enact by-laws and regulations on land use and development, with a focus on safeguarding soil and environmental resources. Provincial Spatial Development Frameworks (PSDFs) align provincial priorities with national and municipal plans.

Despite progress, funding constraints and a lack of proactive government involvement hinder effective urban planning, which often favours physical design over addressing socio-economic factors.³⁰² The River Club development in Cape Town exemplifies the tension between development, heritage, and community rights, highlighting the influence of private developers and the complexities of balancing environmental and societal concerns.³⁰³

297 See National Waste Management Strategy (2020).

298 National Planning Commission, *Our Future Make It Work: National Development Plan 2030* (2012: 29).

299 2020 3 SA 486 (WCC).

300 Ruppel (2022b).

301 See Spatial Planning and Land Use Management Regulations: Land Use Management and General Matters GN R 239 in GG 38594 of 23-03-2015; National Planning Commission, *Our Future Make It Work: National Development Plan 2030* (2012: 34).

302 Ruhiiga (2014: 619).

303 Rahl-Botha (2023); See <https://www.news24.com/news24/community-newspaper/peoples-post/river-club-development-saga-ends-with-out-of-court-settlement-20230704>, accessed 8 May 2024.

4.5 Climate change law and soil degradation

The Climate Change Act 22 of 2024 aims to establish a comprehensive legal framework to regulate the impacts of climate change, aligning with international agreements such as the UNFCCC and the Paris Agreement. While the Act primarily focuses on mitigating climate change and adapting to its impacts, it does not directly address soil health. However, some strategies proposed therein, such as sustainable land management practices, may indirectly contribute to soil health (Chapter 4).

Under existing regulations, industries such as coal mining in South Africa are required to submit annual progress reports on approved pollution prevention plans to the Minister of the Environment. This mandate applies to industries emitting GHG specified in the Declaration of Greenhouse Gases as Priority Air Pollutants under NEMAQA.³⁰⁴

South Africa has formulated various policies and strategies concerning climate change, energy, waste management, and agriculture. These include the White Paper Energy Policy (1998), the National Waste Management Strategy (2010), the National Climate Change Response Strategy (2004), the Renewable Energy Policy White Paper (2004), the Electricity Regulation Act 4 of 2006, the Carbon Tax Act 15 of 2019, the Disaster Management Act 57 of 2002, the National Disaster Management Framework (2005), the Long-Term Mitigation Scenarios (2007), the National Adaptation Strategy (2019), and the Bio-fuels Industry Strategy (2007).

Recognising the importance of soil health goes beyond its agricultural benefits; it also plays a significant role in addressing climate change. Unfortunately, current climate laws in South Africa do not explicitly acknowledge the critical role of soil health in climate change mitigation.

4.6 Land tenure insecurity: Relevant legal provisions and associated problems

In South Africa, around 25% of the population still resides in former homeland areas, with 78% acquiring land from traditional authorities.³⁰⁵ Approximately 18 million hectares of communal land are government-owned but managed by traditional

304 Declaration of Greenhouse Gases as Priority Air Pollutants GN R 6 in GG 39578 of 08-01-2016; See also National Pollution Prevention Plans Regulations GN R 712 in GG 40996 of 21-07-2017; National Greenhouse Gas Emission Reporting Regulations GN R 275 in GG 40762 of 03-04-2017.

305 See <https://www.businesslive.co.za/bd/life/2022-08-30-big-read-however-we-try-to-wish-them-away-the-homelands-are-still-very-much-with-us/>, accessed 8 May 2024.

authorities.³⁰⁶ The Constitution's Section 25 and the IPILRA safeguard land rights in these areas, though critics argue that tenure insecurity remains unaddressed.³⁰⁷

The CPA Act allows communities to collectively own and manage land but faces challenges including internal conflicts, poor governance, and misuse of funds.³⁰⁸ The White Paper on Land Policy emphasises tenure reform to rectify past injustices, but previous laws such as the Land Rights Bill (1998) and the Communal Land Rights Act faced setbacks due to concerns over tenure security and power imbalances.³⁰⁹

The Communal Land Tenure Bill proposes a system where communities can choose management by traditional councils, CPAs, or the Ingonyama Trust, but critics highlight flaws, including its treatment of women's land rights and insufficient land administration.³¹⁰

Despite efforts to improve tenure security, legislative confusion and overlapping land claims from apartheid-era policies continue to fuel conflicts, overcrowding, and land invasions. These invasions, such as those in Bloemfontein and Tugela, often involve illegal occupation of land driven by housing shortages and economic inequality, further complicating land management and legal authority in communal areas.³¹¹

4.6.1 Traditional law

Traditional law in South Africa is complex, reflecting the nation's historical and cultural challenges. As of June 2018, the country recognises fourteen kingships and 844 senior traditional leaders.³¹² In 2018, the government spent around ZAR 250 million annually on their salaries, with kings and queens receiving nearly ZAR 1.4 million per year in 2024.³¹³ In November 2023, ZAR 55 million was spent on vehicles for traditional leaders.³¹⁴

Environmental rights in the Constitution have created tensions between property rights and environmental protection, as seen in the *Diepsloot Residents' and*

306 See <https://www.wylie.co.za/Articles/Read/144/Current-status-of-permission-to-occupy>, accessed 8 May 2024; <https://www.foodformzansi.co.za/the-curse-of-farming-on-communal-land/>, accessed 8 May 2024.

307 Mfune (2022: 219).

308 Communal Property Associations, Annual Report (2022/2023: 22-25).

309 Clark & Luwaya (2017: 10-12).

310 Weinberg (2014).

311 See <https://www.iol.co.za/thepost/community-news/land-grabs-tugela-farms-under-attack-d346da43-4d32-437d-90a1-797c50a77c67>, accessed 3 August 2024; Delius & Beinart (2021: 90).

312 See <https://businesstech.co.za/news/government/263191/south-africa-has-a-huge-number-of-traditional-leaders-heres-how-much-they-get-paid/>, accessed 3 August 2024.

313 See <https://businesstech.co.za/news/government/783805/this-is-what-kings-queens-and-traditional-leaders-get-paid-in-south-africa-in-2024/>, accessed 3 August 2024.

314 See <https://irr.org.za/media/government-spending-on-traditional-leaders-sparks-controversy-biznews>, accessed 3 August 2024.

Landowners' Association v Administrator Transvaal case.³¹⁵ Traditional authorities in South Africa manage land through user rights, with chiefs distributing land to headmen.³¹⁶ While grazing and hunting areas remain communal, individuals' land entitlements depend on their social and political community membership.

Land administration varies, with some areas, such as KwaZulu-Natal and the Eastern Cape, relying on local leadership. Chiefs, however, have faced criticism for abuses, such as Chief Matlala's control over land and its use for political gain.³¹⁷ In regions including the North West and Limpopo, land under customary tenure has been alienated for mining, with local chiefs transferring land for state-granted mining licenses.³¹⁸

Concerns have also arisen about the financial management of the Ingonyama Trust, with allegations of corruption and mismanagement.³¹⁹ The Trust's conversion of PTOs into rental agreements has led to insecurity in land tenure, with residents now required to pay rent.³²⁰ The *Council for the Advancement of the South African Constitution v Ingonyama Trust* case affirmed that customary land rights are protected by the Constitution.³²¹ The Trust's actions, by converting PTOs into leases, infringed upon residents' customary, statutory, and constitutional property and tenure rights.³²²

Public trust in traditional leaders has declined, with only 14% of South Africans contacting a traditional leader, and only 31% expressing trust in them.³²³ Many believe traditional leaders are involved in corruption, and public support for their political involvement is limited. This raises questions about the high salaries and the effectiveness of traditional leadership amidst mixed public perception.

4.6.2 Conflicts and means of resolution

The role of traditional leaders in South Africa's land governance is unclear in both the Constitution and policy documents, complicating land allocation in communal

315 1994 2 All SA 299 (A).

316 Mhlongo (2021: 75); Weideman (2004: 308-309).

317 Claasens (2001: Chapter 2); Weideman (2004: 315).

318 Delius & Beinart (2021: 90).

319 Bellamy (2024).

320 See <https://www.dailymaverick.co.za/article/2023-06-04-the-battle-between-the-zulu-king-and-his-prime-minister-over-the-ingonyama-trust-is-likely-to-divide-kzn-voters-in-2024/>, accessed 8 May 2024; <https://www.businesslive.co.za/bd/opinion/2023-09-25-ingonyama-trust-has-misconstrued-customary-communal-land-tenure/>, accessed 8 May 2024; <https://www.businesslive.co.za/fm/features/cover-story/2019-11-07-how-communities-are-defying-the-ingonyama-trusts-land-grab/>, accessed 8 May 2024; https://www.timeslive.co.za/ideas/2023-09-23-ingonyama-trust-furore-highlights-insecure-land-tenure-for-millions-in-rural-areas/#google_vignette, accessed 8 May 2024.

321 2022 1 SA 251 (KZP).

322 See Manona & Kepe (2023).

323 Nkomo & Kambule (2023: 2).

areas.³²⁴ While traditional leaders have authority over land distribution, their effectiveness is hindered by insufficient state support, particularly in enforcing land rights over communal resources such as rangeland. This lack of support diminishes their local legitimacy and leads to resistance from some communities.

Democratically elected institutions, such as ward councillors and farmers' organisations, also influence agrarian development but must seek approval from traditional leaders for land use projects. Disputes often arise between traditional councils and local government over land allocation, especially when traditional land is located in municipal boundaries.³²⁵

A study in Thulamela Municipality highlights ineffective land use management.³²⁶ Traditional authorities oversee rural land under customary tenure, but the municipality controls spatial planning, which can misclassify agricultural land for development, risking exploitation and loss of high-potential arable land.³²⁷

The Limpopo High Court's ruling in the *Lepelle Nkumpi Local Municipality v the Bakgaga Ba Ga-Mphahlele Traditional Authority* case reinforced the need for coordination between traditional authorities and local governments in land allocation.³²⁸ While traditional leaders are key in regions without local government, there are calls to integrate traditional authorities into the state structure to improve service delivery and development.³²⁹

Policymakers must address socio-economic disparities, engage diverse legal systems, and update laws to better align with the Constitution and resolve conflicts between customary and statutory law.³³⁰

4.6.3 Land tenure legislation and associated land-grabbing

In South Africa, land remains a contentious issue, with private land ownership governed by well-established legislation, while customary land law in rural areas lacks regulation. Political leaders struggle to implement effective policies within secure legal frameworks.³³¹ Land-grabbing, the unlawful occupation of state-owned and private land for housing, has led to conflicts between authorities and residents, reminiscent of

324 Ramolobe (2023); Mhlanga (2012: 36); SAHRC, National Hearing on the Underlying Socio-economic Challenges of Mining-affected Communities in South Africa (2016: 34).

325 Ramantsima (2022).

326 Lidzhegu & Kabanda (2022: 6-7); Thulamela Local Municipality, Spatial Development Framework (2019).

327 Lidzhegu & Kabanda (2022: 6-7).

328 2021 ZALMPPHC 42 (5 August 2021).

329 Weideman (2004: 312); Rautenbach & Ferreira (2023).

330 Ubink & Duda (2021).

331 See <https://www.dailymaverick.co.za/article/2019-05-19-anxious-wait-continues-for-district-six-claimants-as-minister-nkoana-mashabane-appears-before-land-claims-court/>, accessed 8 May 2024.

apartheid-era displacements.³³² Land grabbers, often facing poverty and homelessness, seek urgent housing solutions.³³³

To illustrate, in 2022, an opposition political party took to social media, announcing the availability of free land in Olievenhoutbosch, City of Tshwane Metropolitan Municipality.³³⁴ This led to over 3,000 people flocking to the area and promptly erecting informal housing. Many of the land occupants cited the high cost of rent in the area as a reason for their actions, stating that they were unable to afford it due to unemployment.³³⁵ Despite initial evictions, some individuals returned to the area, resulting in illegal land occupation. In response to their subsequent eviction, these illegal occupants staged protests.³³⁶ Legal cases, such as the *South African Human Rights Commission v City of Cape Town*, highlight municipalities' legal recourse, such as counter-spoliation, but also underscore the importance of upholding the rule of law when repossessing property.³³⁷

The Constitution guarantees secure land tenure under Section 25, emphasising the importance of land ownership for economic development and social cohesion. However, the prevalence of land-grabbing underscores the inadequacy of current land reform policies in addressing the land needs of marginalised communities and ensuring equitable access to land resources.³³⁸

4.6.4 Relationship between landownership and environmental responsibility

In South Africa, historic conservation practices marginalised communities from protected areas, leading to displacement and limited involvement in decision-making. As a result, conservation is often seen as an elite concern.³³⁹ According to the 2021 South African Social Attitudes Survey, environmental issues rank lower in national priorities, with few willing to make personal sacrifices for environmental protection.³⁴⁰

332 Sauti & Lo Thiam (2018: 91); See <https://dullahomarinstitute.org.za/multilevel-govt/local-government-bulletin/archives/volume-17-issue-4-november-2022/land-grabbing-municipalities-must-uphold-the-constitution-when-dealing-with-unlawful-occupiers>, accessed 8 May 2024.

333 See <https://www.france24.com/en/live-news/20240306-land-grab-underlines-housing-crisis-ahead-of-south-africa-poll>, accessed 8 May 2024.

334 See <https://www.timeslive.co.za/news/south-africa/2022-12-29-land-grab-in-tshwane-high-lights-challenges/>, accessed 8 May 2024.

335 See <https://www.timeslive.co.za/news/south-africa/2022-08-31-tshwane-municipality-condemns-olievenhoutbosch-land-invasions/>, accessed 8 May 2024.

336 See <https://www.iol.co.za/pretoria-news/news/protesting-illegal-land-occupiers-in-olievenhoutbosch-burn-school-to-ashes-89a7d121-0820-4b4e-a10a-10c5908aa223>, accessed 8 May 2024.

337 2021 2 SA 565 (WCC).

338 See <https://www.news24.com/news24/community-newspaper/bloemnuus/lourierpark-land-grab-more-people-arrested-20240307-2>, accessed 8 May 2024.

339 van der Sijde (2020: 165-166).

340 HSRC, SASAS Attitudes to the Environment (2021).

South African law requires landowners to practice environmental stewardship, but enforcement often occurs only during property changes, such as sales or rezoning.³⁴¹

Farmers in the Free State report soil degradation, with barriers in traditional and government systems hindering soil management.³⁴² A 2022 study in the Macubeni catchment found that nearly half of the land was either abandoned or underused, and much of it was highly degraded, increasing erosion.³⁴³ Misapplication of land tenure in KwaZulu-Natal under the Ingonyama Trust also undermines communal land rights, affecting sustainable land use.³⁴⁴

Youth participation in agriculture is limited due to poor pay, low productivity, and barriers such as land ownership, access to credit, and infrastructure.³⁴⁵ Agricultural extension services are inadequate, with many farmers unaware of their extension officers. South Africa has only one-third of the required extension officers, and most lack sufficient training.³⁴⁶

4.7 Wildfires

Uncontrolled wildfires exacerbate soil erosion by removing vegetation, leaving soil vulnerable to wind and water erosion.³⁴⁷ South Africa is highly susceptible to wildfires, worsened by alien vegetation and climate change-driven hot, dry weather.³⁴⁸ In 2021, wildfires damaged over one million hectares of grazing land,³⁴⁹ and in 2023, fires in multiple regions caused losses exceeding ZAR 1 billion (USD 55 million).³⁵⁰

The National Veld and Forest Fire Act 101 of 1998 outlines fire management responsibilities, requiring landowners to create firebreaks to prevent fire spread and soil erosion. The Act also includes penalties for offences including igniting fires against warnings or failing to control fires.

The Fire Brigade Services Act 99 of 1987 and the Disaster Management Act ensure coordinated firefighting services and disaster response. Despite regulations, human

341 van der Sijde (2020: 165).

342 Baade et al. (2024: 346).

343 Sibiya et al. (2023).

344 See <https://theconversation.com/zulu-land-dispute-ingonyama-trust-furore-highlights-the-problem-of-insecure-land-tenure-for-millions-of-south-africans-in-rural-areas-211365>, accessed 8 May 2024; <https://www.farmersweekly.co.za/agri-business/empowerment/smallholders-can-help-to-regenerate-farming/>, accessed 8 May 2024.

345 Finca et al. (2023: 57).

346 Ibid.

347 Santin & Doerr (2016).

348 See <https://theconversation.com/the-table-mountain-fire-what-we-can-learn-from-the-main-drivers-of-wildfires-159477>, accessed 8 May 2024.

349 See <https://www.farmersweekly.co.za/agri-news/south-africa/one-million-hectares-of-grazing-destroyed-by-wildfires/>, accessed 8 May 2024.

350 See <https://www.news24.com/news24/southafrica/news/many-farmers-are-devastated-fires-cost-sa-farmers-over-r1bn-of-livestock-says-agri-sa-20230925>, accessed 8 May 2024.

error causes 99% of wildfires, and some rural communities continue to burn vegetation outside safe periods, intensifying the risk of wildfires.³⁵¹

4.8 Conclusion

South Africa's soil governance framework lacks comprehensive, dedicated legislation, relying instead on agricultural and environmental laws. This fragmented approach creates gaps in soil protection and management. While CARA remains relevant, it requires updating to align with new philosophies such as holistic management, carbon sequestration, and conservation agriculture.³⁵² While the DALRRD bears primary responsibility for soil conservation, other sectors indirectly influence soil governance, highlighting the need for a comprehensive set of soil-related laws.

To advance knowledge of sustainable land use practices, tangible partnerships between research institutes, farmers, and government are crucial. Embracing a holistic approach is essential, i.e., viewing soil degradation within the broader context of agricultural and non-agricultural activities. Effective soil conservation and sustainable agricultural practices are intertwined with preserving high-potential agricultural land, conserving natural ecosystems such as wetlands, practising good catchment management, and safeguarding water resources.³⁵³

Overall challenges encompass inconsistent enforcement, inadequate monitoring, institutional fragmentation, land tenure issues, urban sprawl, and industrial development. Shortages in soil conservation expertise, differential treatment of landowners, land use mismatches, and conflicting interests.

5 Lessons learnt and recommendations

5.1 Positive lessons learnt and opportunities for soil protection

South Africa grapples with soil degradation challenges, yet it also presents positive strides and opportunities for soil protection. The nation has enacted comprehensive policies and laws recognising soil's significance. Stringent monitoring measures are prevalent, while efforts to establish national soil health databases are in progress.³⁵⁴ Integrated land use planning can prioritise soil health, while sustainable agricultural practices such as conservation agriculture and agroforestry can bolster soil health and

351 Zvomuya (2012: 6); See <https://www.foodformzansi.co.za/fire-farmers-regenerative-tool-for-livestock-grazing/>, accessed 8 May 2024; Kepe (2005).

352 Baade et al. (2024: 348).

353 Ibid.: 361.

354 Colette, 2024, *Soil Governance in South Africa and Beyond*. DROP Workshop.

minimise erosion. Empowering stakeholders through training and technical support can facilitate effective soil conservation measures.

5.2 Negative lessons learnt

South Africa's efforts to address soil degradation also reveal several shortcomings. Key stakeholders lack awareness and education about soil conservation, hindering effective mitigation efforts. Smallholder farmers cultivate in soils with low fertility, possess insufficient farm equipment, and face limited income.³⁵⁵ They encounter challenges in accessing climate information and frequently lack fundamental agronomic knowledge. Insufficient investment in research and innovation limits the development of new soil conservation technologies. Fragmented land management prioritises short-term economic gains over long-term soil health, perpetuating degradation. Policy fragmentation isolates soil conservation from broader environmental and agricultural policies, undermining holistic approaches. Inadequate incentive mechanisms fail to promote soil-friendly practices among landowners and farmers. Farmers who are eager to enhance soil health must take the initiative themselves.³⁵⁶ Limited capacity among managers, farmers, and extension workers hampers the successful implementation of conservation practices. Continued reliance on unsustainable agricultural methods worsens soil degradation. Communal land in South Africa, mostly rural and administered by traditional leaders, is often registered in the state's name or remains unregistered, making the state the legal owner.³⁵⁷ The insecure tenure system, characterised by unregistered land tenure rights, is protected by the Interim Protection of Informal Land Rights Act. Rights holders may receive a PTO, leases, or receipts, but many rights are undocumented. Additionally, land grabbing by illegal occupants seizing privately owned agricultural land is a significant issue.

5.3 Recommendations

South Africa's projected population growth rate indicates that by 2050, there will be an average of only 0.2 hectares of arable land available per person.³⁵⁸ This falls well below accepted international norms and diminishes the country's prospects for achieving food security. With declining self-sufficiency in food production, South Africa's reliance on costly imports and foreign aid is expected to rise. Sustainable land

355 Myeni & Moeletsi (2020: 1).

356 See <https://www.farmersweekly.co.za/agri-business/empowerment/smallholders-can-help-to-regenerate-farming/>, accessed 8 May 2024.

357 Ramantsima (2022).

358 Hoffman & Ashwell (2012: 81).

management in South Africa can transform soils into carbon sinks, aligning with national development goals and SDGs. However, challenges such as soil degradation persist due to inadequate legislation and land tenure issues. Enhancing existing policies to reduce emissions and expand carbon sinks is crucial, but enforcement lacks manpower and expertise. Legal education on soil protection is vital, alongside formalising communal land rights for comprehensive land management.

South Africa's land management landscape is complex, comprising multiple systems. The formal municipal system, primarily urban-focused and governed by constitutional and provincial laws, often neglects areas under traditional authority.³⁵⁹ The Ingonyama Trust independently manages land for its purposes, often marginalising local municipalities. Meanwhile, traditional land allocation, rooted in customary law, persists alongside formal management, where individuals request land from local leaders, pay fees for PTO certificates, and sustain traditional leaders financially.³⁶⁰

Tensions between traditional leaders and local government are longstanding, with SPLUMA potentially exacerbating them. While SPLUMA allows traditional leaders to continue land allocation, compliance remains a challenge, with some municipalities disregarding SPLUMA in areas under the Ingonyama Trust.³⁶¹

This highlights the complexities and challenges surrounding soil protection in South Africa. It underscores the importance of recognising and addressing the parallel land management systems administered by traditional leaders and local governments.

Soil Conservation Committees played a crucial role in promoting agricultural resource conservation and implementing CARA.³⁶² While their success varied, clear legislative guidelines were in place, requiring farmers to take responsibility for interventions and ideally share the costs. Effective implementation relied on capable staff and knowledgeable farmers to swiftly identify land degradation and apply appropriate soil conservation measures. Historically, there was significant emphasis on training a skilled workforce, encompassing technical, academic, and managerial aspects. Such measures could be reintroduced with appropriate funding. While soil protection is currently fragmented, reinstating dedicated soil legislation might improve integration and harmonisation, bringing soil issues out of agriculture and land management's shadow.

To enhance soil protection, it is essential to secure clear rights to communal land by involving traditional authorities and communities. Support and incentives for sustainable farming practices should be provided, particularly for small-scale farmers. Inclusive land use planning with input from local communities, farmers, and leaders is vital. While granting title deeds could unlock credit markets, it also risks potential

359 Dubazane & Nel (2016: 229-230).

360 See <https://dullahomarinstitute.org.za/multilevel-govt/local-government-bulletin/archives/volume-14-issue-2-december-2019/land-use-management-where-traditional-and-municipal-governance-meet-in-rural-areas>, accessed 8 May 2024.

361 Ibid; eThekwin Municipality Spatial Development Framework (2022-2023).

362 Baade et al. (2024: 347).

displacement if people lose their homes to banks, leading to increased homelessness.³⁶³ A more nuanced approach might involve issuing title deeds for fields and grazing land while establishing separate tenure arrangements for homesteads. This could promote positive attitudes towards land management and minimise displacement risks.

To improve soil protection, it is crucial to integrate soil scientists into policymaking, addressing the current lack of scientific input in South Africa's environmental legislation.³⁶⁴ Implement comprehensive land surveys and establish a centralised, accessible database for soil and land use information. Municipalities should develop clear, detailed land use plans for various land types. Additionally, enhancing the enforcement of existing laws, promoting sustainable land use practices, and incorporating climate change adaptation measures are essential. These actions highlight the need for collaborative efforts and robust legislative frameworks to safeguard soil health and support sustainable management practices across South Africa.

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363 Sihlobo (2018).

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Country report for Uganda¹

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Abstract

This chapter focuses on soil governance and protection in Uganda. It highlights the challenges related to inadequate access to soil-related information, fragmented policies, and the complexities of land tenure systems. The chapter explores the implications of these issues on agricultural productivity, food security, and environmental sustainability, particularly in the context of ongoing land degradation and unsustainable farming practices.

An analysis of the existing legal framework reveals significant gaps in soil protection laws and weak enforcement mechanisms, despite the existence of broader environmental policies. Specific attention is given to the lack of dedicated soil legislation and the complexities of customary land ownership, which undermine effective soil governance.

The chapter also presents key findings on the limitations of current agricultural extension services, the absence of integrated policies, and the need for capacity building in soil management. It offers recommendations aimed at establishing comprehensive soil legislation, improving public awareness, and fostering partnerships at local, national, and international levels. It concludes by emphasising the urgent need for dedicated soil protection laws and the integration of soil health into national policies, particularly considering the increasing pressures of climate change and population growth.

¹ This chapter in parts draws from a book chapter authored by Ruppel, Ruppel-Schlichting, Houston & Afua (2021) and from the thesis submitted by Naluzze in 2024 in partial fulfilment of the requirements for the Master of Laws (LLM) degree at Stellenbosch University.

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Summary

In Uganda, despite the constitutional right to access information, soil protection remains a significant challenge due to the lack of comprehensive, up-to-date, and accessible data on soil resources. Much of the existing information is outdated, fragmented, or inconclusive, making it difficult for stakeholders to make informed decisions. This lack of reliable data leads to a lack of awareness and understanding about soil health and its critical role in agricultural productivity, environmental sustainability, and climate resilience. As a result, practices that degrade the soil, such as poor agricultural methods, deforestation, and unsustainable urban development, continue to be prevalent. The chapter emphasises the urgent need for a comprehensive framework for documenting, assessing, and distributing soil-related information to support effective soil governance.

Soil protection is further complicated by human activities, including agriculture, industrialisation, urban and rural development, and infrastructure projects. These activities not only threaten soil health but also make it challenging to regulate how landowners use and exploit soil resources. Although Uganda has introduced reforms such as the Single Spine Extension System to improve agricultural extension services, there is a lack of empirical studies assessing the performance of extension managers, whose role is critical in promoting soil conservation practices.

The chapter also highlights the complexities surrounding soil ownership, as land is owned by individuals, private companies, or communities. This diverse ownership structure often fosters a perception that land and soil are the exclusive property of the owner, which can hinder collaborative efforts in soil protection. Insecure land tenure rights, particularly in Uganda's customary and private land systems, complicate restoration efforts. Customary land systems, while possessing both strengths and weaknesses, require reform to ensure the protection of communal land rights, particularly for vulnerable groups including women and minorities.

The high economic value of soil—through sectors such as agriculture, construction, and infrastructure—often leads to conflicts between soil governance and the economic interests of landowners. This is further exacerbated by the fact that many African countries, including Uganda, focus their legislation on land rather than soil, leaving gaps in the effective management and protection of soil resources. Without comprehensive soil-specific legislation, the development of sustainable soil management practices is hindered.

Several recommendations are presented to address the soil governance challenges in Uganda. These include the establishment of comprehensive soil protection laws, the strengthening of domestic and regional laws related to soil and land use, and the creation of partnerships at local, national, regional, and international levels. By collaborating with countries that have successfully implemented soil governance, Uganda can enhance its soil protection efforts. Partnerships with key entities such as the National

Environmental Management Authority (NEMA), National Forestry Authority (NFA), and National Planning Authority (NPA) are crucial for creating an integrated approach to enforcing environmental laws and promoting public awareness about the dangers of soil degradation.

Furthermore, the chapter stresses the importance of integrating soil health into national policy. It suggests identifying opportunities to prioritise soil health in climate agendas, Nationally Determined Contributions (NDCs), and Land Degradation Neutrality (LDN) initiatives. Supporting sustainable land management practices such as agroecology through long-term subsidies and embedding these practices in national policies will also enhance soil governance. The inclusion of Soil Organic Carbon (SOC) in national policies will help encourage investment in soil health and support farmers in adopting soil-conserving practices.

In terms of capacity-building, the chapter advocates for the establishment of specialised educational institutions focused on soil conservation and management. These institutions would equip future professionals with the necessary skills to address soil degradation and promote sustainable environmental practices. The country's existing laboratories and soil testing services must be modernised to ensure they provide accurate and reliable results for soil management, as current facilities are outdated.

The chapter also stresses the need to raise awareness among Uganda's youth about the importance of soil conservation. Integrating sustainable soil management practices into school curricula would cultivate a generation of environmentally conscious individuals who are committed to soil protection and sustainability.

Women's involvement in soil-centred research, decision-making, and policy development is another key recommendation. Women, especially in rural areas, play a significant role in land and soil management, yet their contributions are often overlooked. By including women in the soil governance process, Uganda can benefit from their perspectives and ensure a more inclusive approach to soil management that considers the needs of all stakeholders, including marginalised groups.

NGOs and civil society organisations (CSOs) also play a critical role in advancing soil governance. These entities often have extensive local networks and a deep understanding of the issues at hand, which allows them to raise awareness, advocate for soil protection, and mobilise communities. The government should actively collaborate with these organisations to enhance soil protection efforts.

Lastly, the chapter calls for strengthening public access to soil protection and conservation information. Ensuring the public's right to access official records and environmental data is crucial for promoting transparency and accountability in soil management decisions. Enacting and improving access to information legislation will enable the public to participate more effectively in soil governance and help ensure that soil conservation efforts are implemented and monitored.

While Uganda has made progress in addressing soil degradation through policies such as the National Environment Act and Uganda Vision 2040, significant gaps

remain in legislation, enforcement, and public awareness. To strengthen soil governance, Uganda must develop a more comprehensive legal framework, improve coordination between government agencies, and invest in capacity-building for farmers and relevant professionals. Integrating soil conservation into broader climate change strategies and fostering public participation in soil protection are key to securing long-term ecological stability, food security, and sustainable agricultural productivity in the country.

1 Country information

Uganda, located in East Africa, shares borders with Kenya to the east, South Sudan to the north, the Democratic Republic of Congo to the west, and Tanzania to the south. The country spans an area of 241,555 km², situated on the East African Plateau between latitudes 4°N and 2°S, and longitudes 29°E and 35°E. Open water bodies cover 45,786 km², wetlands account for approximately 8,773 km², and the remaining land area is 195,769 km².² As of 2024, Uganda's population was estimated at 45.9 million, with a population density of 227 people per square kilometre.³

1.1 Country's climatic conditions

Uganda predominantly enjoys a tropical climate with two rainy seasons: March to May and September to December. However, the northern region, accounting for a quarter of the country, lies outside the tropical belt and experiences a single rainy season from March to October. Some areas experience an equatorial climate, characterised by annual rainfall exceeding 1,250 mm, high humidity, and temperatures ranging from 22°C to 30°C, depending on altitude.⁴ Uganda's weather and seasons are influenced by large-scale systems such as the Indian monsoon, the Congo air mass, the Indian Ocean Dipole (IOD), and the Inter-Tropical Convergence Zone (ITCZ).⁵

In recent years, Uganda has faced various climate-related shocks, including droughts, erratic rainfall, floods, and hailstorms, which pose significant challenges to community sustainability.⁶

2 UBOS (2023).

3 Ibid.: 2.

4 See <https://www.ubos.org/wp-content/uploads/publications/National-Population-and-Housing-Census-2024-Preliminary-Report.pdf>, accessed 13 February 2024.

5 See <https://climateknowledgeportal.worldbank.org/country/uganda/climate-data-historical>, accessed 26 May 2024.

6 Ibid.: 6.

1.2 Nature of Uganda's economy

Uganda has the third-largest economy in East Africa, following Kenya and Tanzania. Despite slower growth compared to its counterparts, the country has demonstrated sustained and impressive economic performance over the last decade. Between 1992 and 2010, Uganda achieved an average economic growth of 8%, tripled its gross domestic product (GDP) per capita, and reduced its poverty rate by half.⁷

In the fiscal year 2022/2023, Uganda's economy grew by 5.2%, recovering strongly from the COVID-19 pandemic.⁸ This resilience reflects macroeconomic stability, infrastructure investments, and improved trade prospects.⁹ Growth accelerated to 6% in the 2023/2024 fiscal year, outpacing the global average of 2.9%.¹⁰ Key drivers included the manufacturing, construction, and mining sectors. Additionally, a stable exchange rate supported investment planning and enhanced export competitiveness.¹¹

1.3 National debt

Uganda's public debt has been rising, but the central government maintains that it remains sustainable, citing the positive returns from investments financed through borrowing.¹² The government is optimistic that continuous GDP growth, driven by an ambitious target to grow the economy tenfold, will further bolster debt sustainability.

However, the debt outlook remains vulnerable to risks, including slow export growth and a growing debt service burden. Debt servicing costs, excluding domestic debt redemptions, are projected to consume 40.3% of domestic revenue in the financial year 2025, up from 33.4% in 2024. This upward trend is attributed to high domestic interest rates and the increasing costs of external debt amid tightening global financing conditions.

To address these challenges, the government has introduced a Medium-Term Debt Management Strategy (2024/2025–2027/2028) aimed at optimising the balance between domestic and external borrowing. The strategy targets sourcing 60% of debt domestically while prioritising concessionary loans to reduce borrowing costs. The budget also reflects a deliberate focus on domestic fiscal stability, with a comparatively smaller allocation for foreign debt payments.

Moving forward, Uganda must carefully balance funding growth-driven initiatives with effective debt servicing to maintain economic resilience and development. Robust

7 See <http://www.tradecub.standardbank.com/portal/en/market-potential/uganda/economical-context>, accessed 29 August 2024.

8 Ibid.: 8.

9 See <https://www.pwc.com>, accessed 29 August 2024.

10 Ibid.: 10.

11 Ibid.: 11.

12 MOFPED, Debt Sustainability Report (2023).

budgetary management will be critical to preventing debt distress while ensuring resources are directed toward sustainable development.

1.4 Population

Uganda has conducted eleven national population censuses, with the sixth post-independence National Population and Housing Census completed in May 2024. The government funded 98% of the project, with support from development partners including the United Nations Population Fund (UNFPA), United Nations High Commission for Refugees (UNHCR), United Nations Children's Fund (UNICEF), World Food Programme (WFP), and United Nations Development Programme (UNDP).

Mandated by Section 13 of the Uganda Bureau of Statistics Act of 1998, the census was directed by the Minister responsible for planning. Notably, the 2024 exercise marked Uganda's first-ever digital census, enhancing efficiency and accuracy in data collection. Preliminary findings revealed that Uganda's total population reached 45.9 million, a substantial increase from the 34.6 million recorded in the 2014 census.¹³ Population distribution remained uneven, with the Buganda sub-region registering the largest population at 11.1 million, followed by Busoga with 4.4 million, while the Karamoja sub-region had the smallest population at 1.5 million.

Population density also surged, reaching 227 persons per square kilometre in 2024, compared to 173 persons per square kilometre in 2014. This increase highlights the need for strategic planning to address demographic pressures and resource allocation across Uganda's regions.

1.5 Information on the organisational structure of Uganda

Uganda's legal system is rooted in the English legal tradition, reflecting its history as a British protectorate until independence on 9 October 1962. It combines common law with customary law, which reflects indigenous customs and traditions, as recognised in *John Nsereko v George Gitta*.¹⁴ The Constitution of the Republic of Uganda, 1995 (as amended), serves as the supreme law, with Article 2(1) asserting that any inconsistent law or custom is void.¹⁵ Uganda has had three Constitutions: the 1962 Constitution adopted at independence, the 1967 Constitution introducing reforms, and the 1995 Constitution, revised in 2005, which forms the current legal framework.

13 UBOS, NPHC, Preliminary Report, Kampala (2024).

14 [1975] HCB 152.

15 Art 2(2) of the Constitution of the Republic of Uganda, 1995 (as amended by Constitution Amendment Act No. 2 of 2005).

Uganda's legal system originated in 1884 under British control, formalised by the 1902 Uganda Order in Council, which established courts including the High Court.¹⁶ However, it suffered under Idi Amin's regime (1971–1979), marked by judicial erosion, before being restored under President Yoweri Kaguta Museveni in 1986 through reforms such as the Constitution (Amendment) Bill, 1987, and the Judicature Act (Amendment) Bill, 1987, which introduced the Court of Appeal, later becoming the Supreme Court.

The judiciary's mandate is enshrined in Chapter Eight of the Constitution, with Article 126(1) affirming that judicial power derives from the people and is exercised in their name, aligning with their values and aspirations. Article 128(1) guarantees judicial independence, while Articles 130, 134, 137, and 138 establish the Supreme Court, Court of Appeal, Constitutional Court, and High Court, respectively, defining their roles and jurisdictions.¹⁷

Despite past challenges, Uganda's judiciary remains resilient, with reforms under President Museveni restoring its integrity and independence, ensuring it continues to serve justice and uphold the rule of law in alignment with the people's aspirations.

2 Soil usage in Uganda

Uganda, a landlocked country located astride the equator in the Great East African Rift Valley, has a diverse land cover predominantly occupied by agricultural land (44.2%), followed by grasslands (21.2%), and water bodies (15.5%).¹⁸ While grasslands and water bodies have remained stable over the past seven years, forest cover has significantly decreased due to deforestation, infrastructural development, human settlement, and industrialisation. Uganda's soils are classified using the Food and Agriculture Organization of the United Nations (FAO) system, with ferritic soils being the most dominant, covering two-thirds of the country.¹⁹ Other soil types include ferrisols and eutrophic soils, which are highly productive, and ferruginous soils, which are less productive and require careful management to protect their poorly developed topsoil.²⁰

Soil usage in Uganda is largely determined by soil type and topography, further classified by the World Bank in 1993 into regions. The Central region, covering 42,200 km², consists of loam, clay, and sandy soils with medium to high productivity, supporting agriculture, sand mining, bricklaying, and infrastructural development. The North-Eastern region, particularly Karamoja, spans 16,400 km² and features sandy clay loams and black clays of low productivity, limiting agriculture mainly to cereals

16 Oloka-Onyango (2015: 1).

17 See <https://judiciary.go.ug/>, accessed 29 August 2024.

18 UBOS, Statistical Abstract (2021).

19 Kamanyire (2000).

20 Ibid.: 23.

while supporting livestock rearing and pastoralism in its arid climate. The Rift Valley soils, covering 12,500 km² in the West and Northern areas, consist of sandy clay loams with highly productive parent rock. The Eastern region, especially Mount Elgon, and the South-Western region boast volcanic soils covering 5,000 km² with high productivity, ideal for growing crops such as Arabica and Robusta coffee. Lastly, alluvial soils, covering 27,400 km² in the Central and Northern regions, are sandy and of low productivity. This diverse soil profile highlights the varying agricultural and land-use potential across Uganda's regions.

2.1 Soil vulnerability in terms of degradation

Soil degradation is defined as a change in soil health resulting in diminished ecosystem capacity to provide goods and services.²¹ It encompasses the physical, chemical, and biological decline in soil quality, manifesting as organic matter loss, reduced fertility, erosion, or adverse changes in salinity, acidity, or alkalinity.²² The revised World Soil Charter highlights ten threats to soil functions, including soil organic carbon loss, nutrient imbalance, soil acidification, contamination, waterlogging, compaction, sealing, salinisation, and biodiversity loss. Soil degradation is a global issue, disproportionately affecting developing countries where livelihoods heavily depend on the soil. Degradation reduces soil productivity, often worsening until active restoration measures are taken.

In Uganda, the National Environment Management Authority (NEMA) identifies two fragile ecosystems at significant risk: the highlands and the rangelands.²³ The highlands, located in the Southwestern, Eastern, Western, and Northeastern regions, are unique ecosystems with fertile soils and favourable climates. These attributes have led to dense populations and intensive soil use, contributing to degradation. The rangelands, forming about 43% of Uganda's total area and encompassing the cattle corridor from the Northeast to the Southwest, are predominantly used for livestock production. These areas are prone to desert-like conditions due to improper land use, erratic and low rainfall, and severe droughts. Unstable land-use practices in the rangelands exacerbate soil degradation, reduce ecological and social resilience, and disrupt ecosystem services.²⁴ This includes habitat fragmentation, loss of biodiversity, reduced soil fertility, and declining productivity, threatening both the environment and livelihoods.

21 FAO (2020).

22 Kasimbazi et al. (2018: 27).

23 Kamanyire (2000).

24 Kasimbazi et al. (2018).

2.1.1 Soil erosion

Soil erosion, while a natural process, is significantly accelerated by unsustainable human activities. Practices such as intensive agriculture, deforestation, overgrazing, and other forms of improper land use greatly exacerbate erosion rates. According to the Status of the World's Soil Resources Report, soil erosion is one of the most pressing threats to soil health globally.²⁵ The Global Assessment of Human-Induced Soil Degradation underscores this by noting that water erosion affects 56% of all land used, while wind erosion impacts 28%.²⁶

Soil is a finite resource, and its loss due to erosion is irreversible within a human lifespan.²⁷ This degradation reduces agricultural productivity, impacts essential ecosystem functions, and causes widespread harm, including damage to infrastructure, loss of life, and increased hydrogeological risks including landslides and floods. Additionally, soil erosion contributes to the decline in biodiversity by disrupting habitats and food sources for many species.

Principle 6 of the revised World Soil Charter emphasises the importance of locally tailored soil management decisions, recognising the diverse socio-economic contexts of different regions.²⁸ Effective soil management requires the collaboration of multiple stakeholders across disciplines, ensuring that solutions are suitable for the specific conditions and needs of each community.²⁹ Engaging local decision-makers in the development and implementation of these measures is crucial for sustainable soil conservation and restoration efforts.

2.1.2 Desertification

Desertification is the persistent degradation of dryland ecosystems, primarily driven by climate variability and human activities.³⁰ This process is often exacerbated by rising temperatures and decreasing precipitation, both of which are accelerated by climate change. These changes lead to the replacement of plant communities with species more suited to hotter and drier conditions, diminishing the land's ability to sustain its original ecosystem.

Extreme weather events, such as prolonged droughts and dry spells, contribute significantly to desertification by depleting soil nutrients and hindering the regeneration of vegetation.³¹ As vegetation disappears and surface cover dries up, the soil's

25 Ibid.: 27.

26 Bridges & Oldeman (1999: 319 & 325).

27 FAO (2020).

28 Ibid.: 45.

29 Ibid.: 48.

30 See <https://www.greenfacts.org/en/desertification/index.htm/>, accessed 28 August 2024.

31 See <https://www.ipcc.ch/>, accessed 28 August 2024.

productivity declines, which not only leads to environmental hazards such as increased erosion and dust storms but also disrupts the broader ecosystem.

This degradation reduces the land's capacity to absorb and store greenhouse gases, altering the natural cycles of carbon and water. Furthermore, the loss of vegetation and biodiversity further compounds the problem, threatening ecosystem stability and diminishing vital ecosystem services.

If desertification is left unchecked, it will continue to lower the health of dryland ecosystems, leading to a vicious cycle of reduced agricultural productivity, increased vulnerability to extreme weather, and further biodiversity loss.³² Combined with the impacts of climate change, these processes will undermine the resilience of both the environment and the communities that depend on it for survival.

2.2 Main drivers of soil degradation

2.2.1 Agriculture

Agricultural use in Uganda, while essential for food security and economic growth, significantly contributes to long-term soil degradation if not accompanied by proper soil conservation measures.³³ Uganda's reliance on pesticides to control pests and boost crop production has led to excessive use and improper management, negatively impacting soil sustainability and fertility.³⁴ This imbalance depletes essential nutrients, reducing crop yields over time.³⁵ The Annual Agricultural Survey 2020 highlights agriculture's critical role in Uganda's economy, with about 7.18 million households engaged in activities such as crop production and livestock keeping.³⁶ This is an increase from 6.9 million households in 2019.³⁷ The South Buganda (11.8%) and North Buganda (11.6%) subregions have the highest agricultural activity, while Karamoja records the least (2.7%).

Approximately 34% of Uganda's land is arable, with about 13% consisting of wetlands, many of which have been reclaimed for large-scale rice cultivation.³⁸ The replacement of natural vegetation with agricultural fields exposes topsoil to drying, reduces micro-organism diversity, and washes out nutrients.³⁹ Cropping systems, particularly perennial cropping, are inefficient in preserving soil nutrients, with one-third of

32 Ibid.: 51.

33 Steiner (1996).

34 Uganda Environment Performance Index Report (2020). See also Yahyah et al. (2024) for a detailed discussion of the implications of pesticide use regulation on soil sustainability.

35 Sanchez-Bayo (2011).

36 UBOS, AAS (2020).

37 Ibid.: 28.

38 Tumuhairwe et al. (2003).

39 Ibid.: 36.

them lost to erosion⁴⁰ and leaching.⁴¹ Processes including slashing, burning, shifting cultivation, and intensive cropping exacerbate this degradation.

Pesticides, although crucial for pest control and increased agricultural productivity, have short-lived benefits and long-term adverse effects on soil health. Indiscriminate and unregulated use, especially by small-scale farmers, has proven harmful, posing risks to a country heavily reliant on agriculture for its economic stability and food security.⁴² While agriculture is key to poverty alleviation, its contribution to soil and land degradation is driven by efforts to increase production to meet the demands of a growing population.⁴³ Without sustainable practices and effective regulation, these challenges threaten the very resources on which Uganda's agriculture depends.

2.2.2 Industrialisation

Industrialisation, as part of broader modernisation efforts, brings technological advancements but also introduces significant environmental challenges, particularly for soil health.⁴⁴ In Uganda, industries contribute to soil contamination through inadequate waste management, production processes, and the transportation and emission of pollutants. These industrial activities negatively impact soil fertility, soil carbon levels, and biodiversity, which are critical for sustainable agricultural practices.⁴⁵

Most industries in Uganda lack effective waste disposal and management systems, resulting in pollutants being released into the environment. This, in turn, exposes the soil to harmful substances, which can affect both the land and human health. A clear example of this is the growing number of artisan processing industries specialising in sand mining in Lwera, Kalungu district.⁴⁶ These industries often dispose of industrial waste improperly, particularly in wetlands, despite the existence of regulatory frameworks designed to address these issues. This mismanagement not only threatens the local ecosystem but also poses significant health risks to the communities that rely on the soil and wetlands for their livelihoods, especially for food production. The lack of proper waste management in these industries highlights the need for stricter enforcement of environmental regulations to prevent further soil degradation and protect public health.

40 Ibid.: 38.

41 Steiner (1996).

42 Yahyah et al. (2024).

43 AAS (2020).

44 See <https://www.eea.europa.eu/publications/92-9157-202-0/3.6.pdf>, accessed 29 August 2024.

45 Ruppel & Ginzky (2021).

46 Sumama (2024).

2.2.3 Deforestation

Forests in Uganda encompass approximately 7% of the country's total area, with 700,000 hectares of tropical high forests, 632,000 hectares of savanna forests, and 24,300 hectares of plantation forests.⁴⁷ However, forest cover has significantly declined over the years, dropping from 18% in 2005 to 13% in 2019. Woodlands have also diminished, from 28,347 km² in 2000 to just 17,399 km² by 2019. Overall, Uganda saw a 6.4% reduction in total forest cover between 2010 and 2019.⁴⁸

Deforestation is a major driver of soil degradation, as trees and their roots act as anchors for the soil, protecting it from erosion and helping to maintain its fertility.⁴⁹ When trees are cut down, the topsoil becomes exposed and vulnerable to erosion by wind and rain, leading to a loss of soil productivity and biodiversity.

A significant portion of the deforestation is driven by the need for land for activities such as large-scale cash crop production and charcoal burning. Charcoal, an inexpensive cooking fuel, is especially in demand in rural and peri-urban areas, where population growth has led to an increased need for this resource.⁵⁰ These activities contribute to reduced rainfall and exacerbate issues including soil erosion, desertification, and droughts, which threaten both the environment and the livelihoods of those dependent on the land.

2.2.4 Mining

In Uganda, small-scale or artisanal mining is a significant driver of soil degradation.⁵¹ This type of mining is widespread, especially in developing countries, and often operates illicitly, without regulation.⁵² Artisanal mining leads to substantial soil disturbance and pollution, notably from the use of harmful chemicals such as cyanide and mercury in gold extraction.⁵³ These chemicals contaminate both surface and underground soils, exposing workers and local communities to serious health risks.

Both surface and underground mining produce large quantities of waste, known as “spoils,” which are often left in mounds on the land.⁵⁴ These waste materials have varying compositions, but they typically include both chemically inert and reactive components. During the initial phases of mining, land clearing and the removal of vegetation and soil are inevitable, leading to the disruption of local ecosystems. As mining

47 Kamanyire (2000).

48 Statistical Abstract (2023).

49 Barlow et al. (2007).

50 Ibid.: 49.

51 Ibid.: 53; European Commission Joint Research Centre (2018: 1).

52 Pulles et al. (1990).

53 See <https://wad.jrc.ec.europa.eu/mining/>, accessed 29 August 2024.

54 See <https://education.nationalgeographic.org/resource/mining/>, accessed 28 August 2024.

operations continue, the extensive removal of materials, such as overburden, waste rock, and valuable minerals, further degrades the soil. This results in the loss of biodiversity and the disturbance of critical ecosystem functions, including water retention, filtration, and erosion control.⁵⁵

A notable example of the detrimental effects of mining on soil in Uganda is the Lwera wetland in Kanungu district. Despite regulations from NEMA to prevent sand mining, illegal mining continues in the area, further degrading the wetland.⁵⁶ Approximately 12% of Uganda's wetlands have been degraded due to illegal activities such as sand mining, which are pursued for short-term economic benefits but result in long-term environmental harm.⁵⁷

2.2.5 Urbanisation and infrastructural development

Urbanisation and peri-urbanisation have significant environmental impacts, one of the most notable being soil degradation. As urban settlements concentrate in certain areas, the soil is increasingly exposed to processes such as sealing, compaction, and erosion. In these urban areas, soil sealing occurs when natural surfaces are covered by impermeable materials such as asphalt or concrete, limiting the soil's ability to absorb water and perform other vital ecosystem functions. Additionally, soil compaction, caused by heavy vehicular traffic, construction, and human activity, reduces the soil's porosity and disrupts its structure. Poor waste disposal practices also contribute to soil contamination and erosion, further degrading the land's ability to provide essential services.⁵⁸

Kampala, the capital of Uganda, serves as a prime example of the consequences of rapid urban growth. Over the years, the city has expanded from its original seven hills to about 25 hills, a testament to its unprecedented population growth.⁵⁹ This expansion has led to increased demand for land for housing, infrastructure, and social services. As more people move from rural areas, about 55% of Uganda's population now resides in urban areas, placing immense pressure on the city's soil. The growing urban footprint has led to the degradation of the land, reducing its capacity to support healthy ecosystems and livelihoods. The continued spread of urban development exacerbates these environmental challenges, especially as Kampala's population continues to rise.

Solid waste management remains one of the most pressing environmental challenges globally, especially in rapidly urbanising countries such as Uganda.⁶⁰ As urban populations rise and consumption patterns shift, the demand for waste management

55 Ibid.: 38.

56 Davis et al. (2024: 338-342).

57 Ibid.: 341.

58 Oonyu & Esaete (2012: 1).

59 Ibid.: 51.

60 Mukama et al. (2016).

infrastructure increases, often overwhelming local authorities and governments. In Uganda, this challenge is particularly evident due to the country's annual urban growth rate of 5.1%, which has led to the expansion of slums that lack proper infrastructure and services, resulting in significant environmental and health risks, including soil pollution and greenhouse gas emissions from the anaerobic decomposition of waste.⁶¹

The rapid urbanisation has caused major waste management issues in cities, particularly in Katanga and Namuwongo, which house between 20,000 and 30,000 people each.⁶² Kampala, the capital, generates approximately 2,100 tons of solid waste daily, a figure projected to rise by 60% to 3,400 tons by 2030 due to continued population growth.⁶³ Despite this alarming increase in waste, municipal solid waste collection is severely lacking, particularly in slum areas, creating a public outcry for more effective waste management solutions.⁶⁴

Several authorities, including the Kampala Capital City Authority (KCCA) and the Mukono Municipal Council, are responsible for waste management in their respective areas, but they have faced significant challenges in keeping up with the growing waste volumes.⁶⁵ A major concern is that the only landfill in Uganda, located in Kiteezi, reached its capacity years ago and recently collapsed, burying an unreported number of people.⁶⁶ This landfill, situated in an environmentally sensitive area, posed serious risks to surface water, soil, and the atmosphere, making conservation efforts difficult. Despite the Kiteezi landfill having been in operation for over two decades, expanding the site was not feasible due to limited land availability.⁶⁷ It continued to operate, receiving around 39,000 tons of waste annually, even though it had already exceeded its capacity by 2012.⁶⁸

The National Environment (Waste Management) Regulations, 2020, including Regulation 68, govern waste management in Uganda, but implementation has been limited. The collapse of the Kiteezi landfill serves as a stark reminder of the need for more sustainable, scalable, and effective waste management solutions to protect public health, soil quality, and the broader environment.

3 International legislation applicable to soil protection in Uganda

Soil degradation has increasingly gained international attention, but despite the UN's recognition of soil in the 2030 Agenda and the 2015 International Year of Soils,

61 MWE, Joint Sector Review Report (2010); Judd et al. (2002: 104 & 113).

62 See <https://www.sonbt.org>, accessed 29 July 2024.

63 Aryampa et al. (2019: 5523).

64 Nyakaana et al. (2009).

65 Ibid.: 58.

66 Bagala (2024); Nabukeera et al. (2015); Samilu (2024).

67 Tukahirwa (2012).

68 Ibid.: 57.

regulatory progress under international law remains limited. Key international initiatives such as the World Soil Charter (1981), updated in 2015, and the FAO's Voluntary Guidelines on Sustainable Soil Management remain non-binding. Although the UN Convention to Combat Desertification (UNCCD) requires National Action Programmes for affected countries, most international treaties on soil protection are narrow in scope and only apply to specific regions or conditions, such as drylands or the Alps.⁶⁹

International efforts are fragmented, with various treaties and institutions covering different soil-related aspects. The FAO promotes sustainable soil management, while the United Nations Environment Programme (UNEP) focuses on pollution. Regional instruments such as the Maputo Convention play a significant role, especially in Africa, by tailoring soil provisions to regional needs.⁷⁰ However, international soil governance is still voluntary unless countries ratify and implement these frameworks into national laws.⁷¹

Section 287 of the Ugandan Constitution stipulates that international treaties cannot be directly applied in domestic courts unless they are domesticated through enabling legislation. Despite many treaties being ratified by Uganda, they are often not domesticated, which limits their direct application in domestic legal proceedings.⁷²

In addition to treaties, international customary law may impose obligations, though it is often not codified. Decisions by bodies including the UN General Assembly are considered "soft law," influencing policy without being legally binding.⁷³ Regional soil governance is reflected in numerous policies and action plans, particularly in Africa, though challenges remain in creating binding global regulations.

3.1 United Nations Convention to Combat Desertification

Uganda signed the UNCCD on 21 November 1994 and ratified it on 25 June 1997. While the Convention applies to all parties, its actions are directed primarily at arid, semi-arid, and dry sub-humid areas, aiming to combat desertification and mitigate drought effects. Desertification, within the UNCCD context, refers to land degradation caused by climatic variations and human activities, which leads to the loss of productivity in various ecosystems such as croplands, pastures, forests, and woodlands.⁷⁴ This degradation results from processes such as soil erosion, deteriorating soil properties, and the long-term loss of vegetation.⁷⁵

69 Bodle et al. (2020).

70 Ibid.: 67.

71 Ibid.: 68.

72 Mujuzi (2009: 581).

73 Bodle et al. (2020: 69).

74 Adopted 17 June 1994, entered into force 26 December 1996, Art 1(a).

75 Ibid.: Art 1(f).

The core obligation for all parties is to adopt an integrated approach to desertification, though specific actions are not prescribed.⁷⁶ For affected countries, particularly in dryland areas, the Convention requires them to prioritise desertification in policies, allocate resources, and establish strategies to address underlying causes, including legislation and long-term policies.⁷⁷ One of the key obligations under the UNCCD is for affected countries to prepare, publish, and implement National Action Programmes (NAPs).⁷⁸ This is a core obligation for affected developing countries and is also voluntarily undertaken by other parties. NAPs are designed to promote governance and international cooperation in combating desertification.

In Uganda, desertification is particularly relevant as rangelands, which cover about 43% of the country, are critical for livestock farming in the cattle corridor. Uganda has embraced the UNCCD by establishing a multi-sectoral National Coordinating Body (NCB) and developing a functional partnership through its NAP process to address soil protection and combat desertification.

3.2 United Nations Convention on Biodiversity

The Convention on Biological Diversity (CBD) is a key international treaty aimed at conserving biological diversity, ensuring its sustainable use, and promoting the fair and equitable sharing of benefits from genetic resources.⁷⁹ Adopted in 1992 and coming into force in 1993 as part of the UN Conference on Environment and Development (the Rio Summit), Uganda ratified the CBD on 8 September 1993.

The CBD includes two main protocols: the Cartagena Protocol on Biosafety, which entered into force in 2003 and regulates the handling, transport, and use of genetically modified organisms (GMOs), and the Nagoya Protocol on Access and Benefit Sharing, which entered into force in 2014 to ensure fair sharing of benefits arising from the use of genetic resources.

In 2002, the CBD parties adopted an international initiative for the Conservation and Sustainable Use of Soil Biodiversity, part of the Programme of Work on Agricultural Biodiversity. This initiative, formalised in 2006, recognises soil biodiversity as a cross-cutting issue. It encourages governments to integrate soil biodiversity conservation into national strategies and action plans, promoting sustainable soil management practices and the involvement of indigenous and local communities. Key activities include raising awareness about the importance of soil biodiversity for agricultural production, land management, and ecosystem health.

76 Ibid.: Arts 1(a) & 4(2)(c)(a).

77 Ibid.: Art 5(a)(e).

78 Ibid.: Arts 9-10.

79 Adopted 5 June 1992, entered into force 29 December 1993.

While the CBD's provisions are legally binding, their implementation can be influenced by economic and social conditions.⁸⁰ Despite being a binding treaty, not all CBD provisions impose strict obligations on states.

In Uganda, the government developed the National Biodiversity Strategy and Action Plan (NBSAP) in 2002. The CBD's provisions have also been incorporated into Uganda's National Environment Act, 2019, ensuring the country's commitment to biodiversity conservation and sustainable use.

3.3 The Paris Agreement

The Paris Agreement, adopted on 12 December 2015 under the UN Framework Convention on Climate Change, entered into force on 4 November 2016. Uganda signed it in October 2015 and ratified it on 21 September 2016. A key obligation for member states is to prepare and submit Nationally Determined Contributions (NDCs) every five years, outlining their contributions to global climate goals. As required by Article 4 of the Paris Agreement, Uganda submitted its first NDC in 2015, later updating it to align with Vision 2040, the third National Development Plan (NDP III), and other climate policies, including the National Climate Change Act of 2021.⁸¹

Soil use, degradation, and sustainable management are vital in the context of climate change, as land-based ecosystems act as major carbon sinks, while land-use changes contribute significantly to greenhouse gas emissions.

3.4 Maputo Protocol

The Maputo Protocol, adopted in 2003 and effective since 2016, addresses land degradation and soil conservation, emphasising the right to a sustainable environment and the active participation of women in managing natural resources.⁸² It also tackles land tenure conflicts, requiring policies that prevent degradation and promote soil conservation.⁸³ To improve international soil governance, several strategies can be pursued: strengthening international frameworks by advocating for soil as a global issue and encouraging political declarations from UN bodies, creating new binding instruments such as treaties for soil protection, enhancing existing governance mechanisms such as the UNCCD by increasing transparency and review, supporting capacity-building and political commitments to sustainable soil management, enhancing coordination between institutions including FAO, UNEP, and CBD to cover all drivers of soil

80 Ibid.: Art 6(b).

81 MWE, updated NDC (2022).

82 See <https://au.int>, accessed 31 August 2024.

83 Bodle et al. (2020: 19).

degradation, consolidating soil policy guidance to eliminate duplication and address gaps such as industrial and urban degradation, and conducting international assessments to explore ways to improve global soil governance.

3.5 The Revised African Convention on Nature and Natural Resources

Uganda signed the Revised African Convention on Nature and Natural Resources on 18 December 2003 but has yet to ratify it.⁸⁴ The Convention aims to enhance environmental protection and promote the conservation and sustainable use of natural resources. Article VI specifically addresses land and soil conservation, requiring parties to take effective measures to prevent land degradation and develop long-term strategies for the sustainable management of land resources, including soil. It mandates actions to conserve and improve soil, combat erosion, and address the misuse and deterioration of soil's physical, chemical, biological, and economic properties.⁸⁵

3.6 Treaty for the Establishment of the East African Community (1999)

The East African Community (EAC) is a regional intergovernmental organisation of eight partner states. It became fully operational in 2000 after Uganda, Kenya, and Tanzania completed the ratification process. Subsequent members include Rwanda and Burundi, which joined in July 2007, followed by South Sudan in April 2016 and the Democratic Republic of Congo in July 2022.⁸⁶

The Treaty, signed in Arusha on 30 November 1999, and entering into force on 7 July 2000, requires partner states to collaborate on environmental and natural resource management. Article 114 emphasises concerted efforts for the joint and sustainable management of natural resources to benefit all member states.

3.7 The Protocol on Environment and Natural Resources Management (2006)

This Protocol to the Treaty for the Establishment of the EAC, signed by Uganda, Kenya, and Tanzania on 3 April 2006, was ratified by Uganda in 2010. However, it remains unenforceable until ratified by all member states, including Tanzania, Rwanda, and Burundi. The Protocol aims to guide partner states in cooperating on environmental and natural resource management, including transboundary resources.

84 Adopted 11 July 2013, entered into force 23 July 2016.

85 Bodle et al. (2020: 85).

86 See <https://www.eac.int/history>, accessed 31 August 2024.

Article 21 focuses on soil and land management, requiring partner states to adopt common measures to prevent degradation and ensure sustainable use of soil and land resources. Measures include conserving and enhancing soil quality, preventing erosion, and addressing the deterioration of soil properties. The Protocol emphasises sustainable farming and agroforestry practices, incorporating indigenous knowledge where appropriate, to maintain soil productivity and control surface soil and vegetation loss caused by poor land use.

4 Land governance in Uganda

4.1 Organisational land structure in Uganda

Land tenure refers to the mode of landholding and the terms of occupancy, encompassing a “bundle of rights” associated with land as a resource.⁸⁷ This bundle of rights varies in terms of use, duration of occupancy, and transferability, such as leasing, sub-leasing, transferring, or bequeathing. Tenure systems are influenced by legal, socio-cultural, socio-economic, ecological, and institutional factors, both formal and informal, and define how rights, restrictions, and responsibilities over land are held. Land tenure can serve as a tool for soil protection and conservation, as empirical evidence shows that tenure type significantly influences compliance with soil protection laws.⁸⁸

Before the current Constitution, only three tenure systems existed: Mailo, freehold, and leasehold.⁸⁹ Customary landholding was not formally recognised; tenants on customary land were deemed tenants at sufferance and could be evicted by the state.⁹⁰ In 1975, President Idi Amin Dada’s Land Reform Decree (Decree No. 3 of 1975) declared all land public and vested in the state, effectively abolishing the previous tenure systems.⁹¹

The promulgation of the Constitution brought transformative changes, including the restoration of Mailo, freehold, and leasehold tenure systems, as well as the introduction of the customary tenure system. Chapter 15 of the Constitution addresses land and the environment, offering clarity on the forms of tenure and their applications.

A robust land tenure system should meet certain key criteria. It must support agricultural development by facilitating a functional land market, enabling landholders to dispose of land voluntarily. It should safeguard people’s rights to land, ensuring that individuals are not forcibly displaced without recourse or fair compensation.

87 Tukahirwa (2002: 2).

88 Kasimbazi et al. (2018: 317).

89 Busingye (2005).

90 Ibid.: 130.

91 Okuku (2006: 10).

Additionally, the system should be uniformly applicable across the country, ensuring equity and consistency in land rights and administration.

4.1.1 Mailo land tenure

The Mailo land tenure system is predominantly associated with Uganda's central region, particularly Buganda and parts of Bunyoro. It originated from the 1900 Buganda Agreement between the British colonial government and the Kingdom of Buganda. To solidify ties with traditional leaders, the colonial administration allocated large tracts of land to individuals of high rank within the Kingdom, granting them ownership in perpetuity.⁹² These land parcels were measured in miles, giving rise to the term "Mailo." Collectively, the land allocated to the King, his family, and the chiefs amounted to approximately 9,000 square miles, popularly referred to as "Mailo Akenda."⁹³

4.1.2 Customary land tenure

Under the customary land tenure system, land is owned communally and typically managed by the community or an individual such as a clan head or elder.⁹⁴ This system is prevalent in many parts of Uganda, especially in the northern and northeastern regions.⁹⁵ Article 237(4) of the Constitution grants Ugandan citizens owning land under customary tenure the right to acquire certificates of ownership and allows for the conversion of this land to freehold tenure through registration.⁹⁶ Access to land under this system is regulated by the customs, rules, and traditions of the respective community.⁹⁷ The Land Act acknowledges that land held under customary tenure conveys legitimate rights and provides for the issuance of Customary Certificates of Ownership.⁹⁸ These certificates enable individuals, families, or communities to formalise their rights and were introduced to support the evolution and development of the customary tenure system.⁹⁹

92 Kasimbazi (2018: 319).

93 Mukwaya (1953).

94 Cotula (2007).

95 Kiggundu et al. (2022).

96 Ibid.: 76.

97 Kyomugisha (2008: 1).

98 Sec 4(1) of the Land Act, Cap 227.

99 See https://www.landnet.ug/landwatch/wp-content/uploads/2022/02/LandRegistration_IssuesPaper.pdf, accessed 1 October 2024.

4.1.3 Leasehold land tenure

Under the leasehold land tenure system, the landowner (lessor) grants the tenant (lessee) exclusive use of the land, typically for a specific period, in exchange for payment of rent.¹⁰⁰ Both Ugandan citizens and foreigners can acquire land under this system, as provided by Article 237(2)(c) of the Constitution, which permits non-citizens to obtain leases per prescribed laws. Leases may be granted by the government, individuals, local authorities, organisations, or institutions and generally run for durations ranging from 49 to 99 years, depending on the agreed terms and the intended use of the land.¹⁰¹

4.1.4 Freehold land tenure

The freehold land tenure system in Uganda allows landowners to possess their land in perpetuity, granting them full ownership rights. Historically, institutions such as churches, schools, and hospitals gained freehold ownership under the Crown Ordinance of 1803. In the current constitutional era, landowners under freehold tenure have extensive rights, including the ability to lease, let, sublet, sell, mortgage, transfer, or subdivide their land. However, this tenure is exclusively available to Ugandan nationals, as non-citizens are restricted to acquiring leases on such land, rather than full ownership.¹⁰²

4.2 State of land tenure security in Uganda

Customary tenure accounts for 80% of Uganda's land, governed by traditional practices and recognised under Article 237(3)(a) of the Constitution.¹⁰³ While tenants can obtain Customary Certificates of Title and convert them to freehold, most customary land remains unregistered, exposing communities to disputes and expropriation.¹⁰⁴

Mailo tenure covers 14% of the land and features dual ownership rights, with tenants recognised as lawful or *bona fide* occupants, possessing rights to transact similarly to landlords.¹⁰⁵ Freehold tenure, representing 4%, allows individual ownership in perpetuity, while leasehold, at 2%, is predominantly utilised by non-nationals barred from

100 Kyomugisha (2008: 1).

101 Kasimbazi (2018: 320).

102 See <https://justicecentres.go.ug/glossary/freehold-tenure>, accessed 29 August 2024.

103 See <https://documents1.worldbank.org/curated/fr/585071468000009216/pdf/99060-WP-P155327-Box393200B-OUO-8-V2-UEU6-Fact-sheet-final.pdf>, accessed 29 August 2024.

104 Secs 4 & 9 of the Land Act, Cap 227.

105 See <https://documents1.worldbank.org/curated/fr/585071468000009216/pdf/99060-WP-P155327-Box393200B-OUO-8-V2-UEU6-Fact-sheet-final.pdf>, accessed 29 August 2024, 150.

owning land under other tenures.¹⁰⁶ However, challenges persist, including low land registration rates—only 15-20% of the land is registered—and the systemic exclusion of women, who, despite heading 26% of rural households and contributing significantly to agriculture, face barriers to land ownership due to cultural norms and practices, contravening constitutional guarantees.¹⁰⁷

Customary landowners, especially impoverished communities, are further vulnerable to displacement by the government, private entities, and individuals. Compulsory land acquisition for public purposes, as provided under the Land Acquisition Act, Cap 226, mandates compensation, but disputes over procedural lapses are frequent, with courts as in *Sheema Cooperative Ranching Society v Attorney General* emphasising due process and fair redress.¹⁰⁸ To address tenure insecurity, organisations such as LANDnet Uganda promote systematic land demarcation, protecting rights, and enabling access to credit by increasing the collateral value of land, which fosters investment and development.¹⁰⁹

Uganda's legal framework, including the Constitution, Land Act, Cap 227, Registration of Titles Act, Cap 230, the Succession Act, Cap 162 (as amended), and Land Acquisition Act, seeks to balance tenure security with public interest, but procedural inefficiencies and inadequate support systems remain barriers.¹¹⁰ Simplifying and scaling up land registration, empowering women to own and inherit land, reinstating effective land dispute resolution mechanisms, protecting customary land from expropriation, and enhancing community awareness of land rights are critical to reducing disputes, promoting equitable access, and encouraging sustainable development.

4.3 Conflicts between the different tenures systems in Uganda

Uganda's land tenure system has been a major source of land-related conflicts, particularly concerning the use and ownership of land.¹¹¹ This system has facilitated land

106 Ibid.: 92 & 152.

107 See Nafula (2008); https://www.land-links.org/wp-content/uploads/2016/09/USAID_Land_Tenure_Uganda_Profile.pdf, accessed 29 August 2024; <https://documents1.worldbank.org/curated/en/58507146800009216/pdf/99060-WP-P155327-Box393200B-OUO-8-V2-UEU6-Fact-sheet-final.pdf>, accessed 29 August 2024.

108 HCCS No. 103 of 2010. The court in the case of *Onegi Obel & Anor v Attorney General & Gulu District Land Board* HCCS No. 66 of 2002 has also emphasised the importance of following due process as stipulated in the Constitution and the Land Act before the government can take over land for public works and, as such, has played a pivotal role in ensuring there is adequate compensation for compulsory acquisition of land in Uganda as a way of redress. See Nakayi et al. (2017).

109 LANDnet Uganda is a network formed in 2012 engaged in research, capacity development, and policy advocacy on land, gender and natural resource management. See <https://www.land-net.ug/security-tenure-rural-lands>, accessed 29 August 2024.

110 Tumushabe (2009: 161).

111 Owaraga (2012).

alienation, threatened livelihoods, and contributed to food insecurity.¹¹² The lack of effective dispute resolution mechanisms further fuels these conflicts, especially after the abolition of land tribunals, leaving land disputes to be handled by Magistrates Courts and the High Court's land divisions, which are not designed for such matters.¹¹³

Most of the land in Uganda is under customary tenure, which typically involves communal ownership and use.¹¹⁴ However, government policies encouraging individual land ownership, granting permanent use rights and allowing land transfer or sale, have led to tensions.¹¹⁵ The individualisation of land often results in alienation, as people under customary tenure fear losing their land to outside parties.¹¹⁶

A prominent example of such conflict occurred in northern Uganda, where Madhvani Group attempted to acquire over 20,000 hectares of land, sparking a legal battle with the Acholi Land Forum.¹¹⁷ The conflict highlighted the risks of land alienation and the harm caused by government-backed land acquisitions for corporate interests, often resulting in soil degradation and displacement.¹¹⁸

Another example is the displacement of locals in Amuru District, where the government forcibly relocated people during Uganda's civil war (1986-2006) and repurposed their land for foreign investments.¹¹⁹ When the displaced people returned after the war, they faced further evictions, leading to protests, including a notable incident in 2015 where women protested government evictions in Apaa village.¹²⁰

These conflicts are particularly evident on customary land, where tenure insecurity and lack of formal documentation make it easier for authorities and powerful elites to exploit land for development purposes.¹²¹ The absence of formal records allows decisions to be made based on biased interests, often at the expense of local communities.¹²²

The insecurity surrounding land tenure undermines soil and water conservation efforts and exacerbates conflict. To address these issues, Uganda must revise its land policies to ensure secure land tenure and improve land registration systems to reduce conflicts and promote sustainable land use.

112 Ibid.: 109.

113 See <https://ulii.org/judgments/UGHCLD/2023>, accessed 29 August 2024.

114 Ault & Rutman (1979).

115 Ibid.: 176.

116 Mpanga (2011).

117 Wachu & Joe (2011).

118 Ibid.: 180.

119 Branch (2009).

120 See <https://www.refworld.org/reference/countryrep/unhcr/2010/en/90722>, accessed 20 October 2024; <https://www.monitor.co.ug/News/National/Women--undress---Migereko-Gen-Aronda/688334-2689156-y46f4c/index.html>, accessed 17 October 2024.

121 Winfield (2020).

122 Ibid.: 28.

4.4 Conclusion

Soil protection in Uganda is referenced in various environmental and natural resource laws, such as the Constitution,¹²³ the Land Act, and the National Environment Act. However, these scattered pieces of legislation lack explicit or implicit provisions dedicated to soil protection.¹²⁴ This gap can be attributed to factors including legislative multiplicity, institutional complacency, political patronage, weak institutional frameworks, and internal conflicts within agencies responsible for soil-related policies.¹²⁵ As a result, Uganda lacks a cohesive policy to coordinate and enhance the effectiveness of existing laws, regulations, and government initiatives aimed at soil protection.

There is a pressing need for the harmonisation and consolidation of scattered laws related to soil. Elevating soil-related laws to equal status across the legal framework would reduce legislative multiplicity and enable focused, express attention to soil as a critical resource. Moreover, integrating soil protection into existing legislation should involve clear institutional arrangements, both vertically and horizontally, to address and mitigate conflicts between agencies. Institutional discord remains a significant barrier to sustainable soil management and effective governance.

Uganda's land tenure systems can play a pivotal role in promoting soil governance, as they are rooted in legislative rules that historically contribute to conservation efforts. While elements of soil protection are present in Uganda's laws, particularly environmental legislation, their implementation and enforcement remain inadequate. The absence of a unified policy to coordinate and streamline these laws undermines their effectiveness.¹²⁶ Developing a comprehensive soil governance framework that integrates land tenure, harmonised legislation, and robust institutional mechanisms is essential for ensuring sustainable soil management in Uganda.

5 Regulatory framework relevant to soil governance in Uganda¹²⁷

5.1 Domestic legislation applicable to soil governance in Uganda

5.1.1 The Constitution

The Constitution contains several provisions aimed at protecting the environment and natural resources. National Objective XIII emphasises the state's responsibility to protect vital natural resources, while National Objective XXVII mandates the state to

123 Ibid.: 18.

124 Kasimbazi et al. (2018).

125 Ibid.: 330.

126 Ibid.: 315.

127 For a detailed discussion of soil control and management see Chapter 4 in Kasimbazi (2023).

promote sustainable development and public awareness regarding the balanced management of land, air, and water resources.

Chapter Fifteen of the Constitution specifically details land ownership under Article 237 and the various tenures, such as customary, leasehold, mailo, and freehold. This chapter also tasks the government with the responsibility of protecting natural resources, including lakes, rivers, wetlands, forests, game reserves, national parks, and any other lands dedicated to nature preservation. Additionally, Article 242 requires the government to regulate land use through laws enacted by Parliament, and Article 245 mandates Parliament to implement laws and measures to protect the environment from abuse, pollution, and degradation.

To uphold these constitutional directives, several laws have been enacted, including the Land Act, Cap 227, the National Environment Act, Cap 153, and the National Forestry and Tree Planting Act, all of which provide the legal framework for environmental and land protection in Uganda.

5.1.2 National Environment Act, Cap 153

The National Environment Act, Cap 153 of Uganda provides a comprehensive framework for sustainable environmental management, with specific provisions for soil protection. The Act establishes NEMA as the body responsible for coordinating environmental efforts, including soil conservation. NEMA is tasked with appointing technical committees, such as the one on soil conservation, and setting standards for soil quality through criteria for measurement and determination. The Act mandates NEMA to issue guidelines on soil utilisation, conservation practices, and the prohibition of activities that degrade soil and requires the preparation of District State of Environment Reports (DSOER) to monitor environmental conditions. Additionally, the Act gives NEMA the power to issue Environmental Restoration Orders, compelling landowners to restore degraded land, including soil replacement and replanting.¹²⁸

Several regulations under the Act further guide soil management, including the National Environment (Minimum Standards for Soil Quality) Regulations, 2001, which prescribe standards for maintaining soil productivity, and the National Environmental (Wetlands, Riverbanks, and Lakeshores) Regulations, 2000, which also address soil preservation in sensitive areas. The National Environment (Waste Management) Regulations, 2020 play a significant role in soil protection by requiring waste handlers to prevent contamination of soil through proper disposal practices, including the management of contaminated soils. The regulations also mandate that landfills be operated to prevent hazardous substances from leaking into the soil and groundwater. The National Environment (Environmental and Social Assessment) Regulations, 2020 ensure

128 Section 67(4) of the National Environment Act, Cap 153.

that projects in sensitive areas undergo environmental and social assessments before approval, preventing detrimental impacts on soil and other environmental resources.

5.1.3 Environmental impact assessment in Uganda and its role in the protection of soils

Uganda has a national environmental and social impact assessment (EIA) system that includes assessments, monitoring, evaluation, and auditing.¹²⁹ EIA studies cover factors such as weather, soil, health, biodiversity, and social, economic, and cultural impacts. The EIA process helps identify and mitigate potential environmental harm before a project begins, reducing future costs associated with damage.¹³⁰

EIA has become a vital tool for local and foreign developers to improve environmental performance. Initially conducted by foreign consultants at the developer's cost, NEMA now provides technical expertise for all projects. The main goal of EIA is to allow both developers and authorities, such as NEMA and town planners, to make informed decisions about projects' environmental impacts, balancing them with economic considerations.¹³¹

The EIA process is governed by laws including the National Environment Act (NEA), 2019. It consists of three phases:

Phase 1: Screening - The developer submits a preliminary report describing the project's potential impacts. NEMA decides whether a full EIA is needed. If no significant impact is found, the project is approved.

Phase 2: Environmental Impact Study (EIS) - This phase identifies and evaluates potential impacts, involving community consultations, scoping, baseline studies, and impact assessment. The aim is to explore alternatives and develop mitigation measures to reduce negative impacts.

Phase 3: Decision-Making - A decision is made on whether to approve the project, based on whether appropriate mitigation measures are incorporated. If approved, the project proceeds with conditions to manage environmental impacts.

After the EIA process, a post-assessment audit ensures that mitigation measures are followed and verifies compliance with new laws.¹³² While the EIA system is well-legislated, challenges remain, such as limited public participation and political interference.¹³³ These issues can be addressed by improving access to information, enhancing public involvement, and better training for environmental officers.¹³⁴

129 Kakuru et al. (2001).

130 Ibid.: 3.

131 Kahangwire & Vancley (2021: 3).

132 Kakuru (2001: 22).

133 See Dienel et al. (2017); Joseph et al. (2015); Glucker (2013); ECLAC (2018).

134 Dokeniya (2014); Edema et al. (2020).

Strengthening EIA follow-up, judicial capacity to handle environmental cases, and integrating EIA with economic incentives (e.g., carbon tax) could further enhance its effectiveness in promoting sustainable development.

Despite legislative improvements, ongoing environmental degradation, including soil and lake pollution, suggests that good practice is crucial.¹³⁵ Only by addressing these challenges can Uganda maximise the potential of EIA to protect the environment and achieve sustainable development.

5.1.4 National Climate Change Act, 2021

The National Climate Change Act, 2021 was enacted to implement Uganda's commitments under international climate agreements, including the UNFCCC, Kyoto Protocol, and the Paris Agreement. This Act provides a legal framework for Uganda's response to climate change, focusing on mitigation, adaptation, and institutional arrangements to coordinate and execute climate change measures.¹³⁶

Soil protection is a key component in the Act's overarching goals, particularly in carbon sequestration. Healthy soils play a critical role in reducing greenhouse gas emissions, making soil management an essential element in Uganda's climate change mitigation strategy. Furthermore, the Act supports the adoption of sustainable agricultural practices, such as agroforestry, which directly contribute to improving soil health, reducing soil erosion, and enhancing soil fertility. By integrating soil protection into climate change response strategies, the Act highlights the interconnection between healthy soils, climate change mitigation, and sustainable agricultural practices.

5.1.5 Land Act, Cap 227

The Land Act, Cap 227 in Uganda governs land tenure, ownership, and management, addressing critical aspects of land utilisation. Section 43 of the Act stipulates that land use must align with other relevant statutes, such as the Forest Act, Mining Act, National Environment Act, Water Act, and the Uganda Wildlife Act. This interlinking of laws ensures that soil conservation measures outlined in these Acts are effectively implemented to protect land resources, including soil health.

Furthermore, Section 45 of the Act emphasises that land use should comply with the provisions of the Physical Planning Act, 2010, ensuring that land is used in a way that promotes sustainable development and environmental protection. These sections collectively encourage integrated land management practices, reinforcing the importance of soil conservation and sustainable land use practices in Uganda. The Act,

135 Wool-bridge (2015).

136 Section 4 of the National Climate Change Act, 2021.

thus, plays a key role in safeguarding land resources and ensuring that soil management is addressed in the broader framework of national environmental laws.

5.1.6 National Forestry and Tree Planting Act, 2003

The National Forestry and Tree Planting Act, 2003 in Uganda plays a key role in the conservation, sustainable management, and development of forests in the country. The Act emphasises the sustainable use of forest resources, enhances the productive capacity of forests, and promotes tree planting as an essential practice.

Under Section 6(b)(ii), the Act designates Central Forest Reserves as strict nature reserves, specifically for soil protection, slope stabilisation, and environmental conservation. This provision highlights the critical role forests play in maintaining soil integrity and preventing soil erosion. Additionally, Section 13(b)(v) mandates that forests should be developed and managed in a way that preserves natural resources, particularly soil, air, and water quality, ensuring their contribution to environmental sustainability.

The Minister, under Section 13(2)(c), is granted the authority to declare trees in private forests as protected, with the primary goal of preventing soil erosion. This enables a more proactive approach to safeguarding soil health by preventing deforestation and encouraging the preservation of vegetation that holds the soil together, preventing erosion and degradation. Thus, this Act is crucial for both soil governance and broader environmental protection in Uganda.

5.1.7 Prohibition of the Burning of Grass Act, Cap 33

The Burning of Grass Act in Uganda prohibits the burning of grass across all areas of the country without explicit authorisation from a county chief, veterinary officer, agricultural officer, or forest officer. This regulation is intended to address concerns about soil degradation caused by bush burning, which has become a growing issue, particularly in the West Nile region.

Bush burning negatively impacts the soil's ability to absorb and retain water, contributing to soil erosion. Fire damages several soil properties, including nutrient cycling, physical structure, and biological composition.¹³⁷ Specifically, the combustion of organic matter, such as litter, can reduce aggregate stability, disrupt macropore space, limit infiltration, and harm soil microorganisms. These changes reduce soil fertility and water retention capacity, which are crucial for maintaining soil health and supporting agriculture.

137 DeBano (1990).

To mitigate these effects, prescribed burning programs should emphasise the replenishment of nitrogen and ensure proper rehabilitation of the soil following wildfires or unauthorised burns. However, there is little enforcement of this Act, leading to the widespread burning of grass, which often exacerbates soil erosion and worsens environmental degradation, undermining the objectives of the law.¹³⁸

5.1.8 Cattle Grazing Act, Cap 42

The Cattle Grazing Act, Cap 42 regulates the grazing of cattle on land to prevent overgrazing and degradation of land resources. Section 2 of the Act prohibits individuals from allowing their cattle to graze on land where there is an order from a veterinary officer or district administration prohibiting grazing. The veterinary officer is authorised to prescribe the maximum number of cattle that can graze on a specific area of land, helping to manage and prevent the overuse of grazing areas. The Act aims to ensure that grazing is done sustainably and does not lead to soil degradation.

When managed correctly, pastoralism can significantly contribute to biodiversity and soil health. Selective grazing, where animals graze in a controlled manner, promotes the regeneration of vegetation. The spread of seeds consumed by animals and excreted as manure, along with activities such as burning brush, supports new growth and enhances soil fertility.¹³⁹ These practices help maintain the health of soil and ecosystems. However, improper management of grazing can lead to soil erosion, compaction, and loss of vegetation, highlighting the importance of adhering to grazing guidelines under the Cattle Grazing Act.

5.1.9 Physical Planning Act, 2010

The Physical Planning Act was enacted to align physical planning with Uganda's contemporary governance system, decentralising planning and related processes, including environmental management. The Act designates the entire country as a planning area and establishes district and urban physical planning committees responsible for creating and approving physical development plans, as well as managing applications for development permissions.¹⁴⁰ Section 4 creates the National Physical Planning Board (NPPB), tasked with advising the government on physical planning, approving development plans at regional, urban, and district levels, and overseeing the implementation of these plans. The Board also monitors and supervises lower planning

138 Kasimbazi et al. (2018).

139 Byakagaba et al. (2018).

140 See Sec 3 of the Physical Planning Act of 2010.

committees to ensure that planning activities promote orderly and sustainable development in both rural and urban areas.¹⁴¹

The Act also provides guidelines to standardise the physical planning process, emphasising environmental and ecologically sensitive areas, as well as socio-economic, topographical, and hydrological data. These guidelines require that district physical planning committees approve development applications that could harm the environment, such as housing estates, industrial areas, petrol stations, dumping sites, and sewage treatment plants. These committees must integrate social, economic, and environmental factors into physical development plans.

The Physical Planning Act plays a critical role in soil governance, offering safeguards to protect soil and the broader environment from degradation due to inappropriate physical developments. It ensures that land use is carefully planned, taking into consideration the long-term sustainability of natural resources including soil.

5.1.10 Mining and Minerals Act, 2022

The Mining and Minerals Act, 2022 was enacted to consolidate and reform the laws governing mineral resources in Uganda, in line with Article 244 of the Constitution, which mandates Parliament to regulate mineral exploitation, the sharing of royalties, and indemnity payments arising from such activities.¹⁴² This Act governs the acquisition, management, and dissemination of geological information, regulates licensing for commercial mining entities, and provides for the involvement of the government in mining operations. It also includes provisions for the regulation of artisanal and small-scale mining and geothermal resources. Section 4 of the Act emphasises the need for those involved in mining to comply with environmental management principles and safeguards prescribed under the National Environment Act (NEA) and other relevant laws. It mandates the Department of Mines to establish internationally recognised standards for health, safety, environmental protection, and human rights within the mineral sector.¹⁴³ This Act plays a crucial role in soil governance, as it aims to regulate and control the exploitation of mineral resources in a way that minimises environmental damage, including preventing soil degradation. The Act outlines how mining operations should be conducted to avoid causing irreparable harm to soil quality, promoting a more sustainable approach to mineral extraction. However, its success in protecting soil health depends on the proper enforcement of these provisions.

141 See <https://mlhud.go.ug/wp-content/uploads/2015/10/NPPB-Guidelines.pdf>, accessed 1 October 2024.

142 Sec 3 of the Mining and Minerals Act of 2022.

143 Ibid.: Sec 19(3)(i).

5.1.11 The Agricultural Chemicals (Control) Act, 2007

The Agricultural Chemicals (Control) Act of 2007 regulates the importation, distribution, sale, and use of agricultural chemicals, including pesticides, to ensure their safe and responsible use. The Act establishes the Agricultural Chemicals Board and grants inspectors the authority to monitor and regulate agricultural chemicals, helping to protect human health, the environment, and agricultural produce. While the Act plays a significant role in soil protection by controlling pesticide use, it has notable limitations, particularly the lack of provisions for minimum standards for chemical waste disposal, which contributes to soil contamination.¹⁴⁴ To address this, the Control of Agricultural Chemicals (Registration and Control) Regulations SI 29-1 require that all agricultural chemicals be registered and approved before use, storage, or distribution. These regulations promote the use of environmentally friendly pesticides and encourage proper application techniques to reduce pesticide residues in soil, thus, preserving soil fertility and microbial activity.¹⁴⁵ Additionally, they support sustainable farming practices by encouraging alternative pest control methods such as crop rotation, intercropping, and biological control. These measures not only reduce reliance on harmful pesticides but also contribute to soil sustainability.¹⁴⁶ However, there is still a need for more comprehensive regulations that address chemical waste disposal to fully safeguard soil health and ensure long-term sustainability.

5.2 Policy framework applicable to the protection of soils in Uganda

Characterising the policies and institutions that affect soil management in Uganda is essential for understanding the factors driving soil degradation and the country's responses to it. The Law Reform Commission has been established to review, harmonise, and update existing laws, ensuring they align with the government's goals of decentralisation, liberalisation, and privatisation.¹⁴⁷ This initiative aims to create a legal framework that supports sustainable soil management practices and addresses soil degradation effectively across the country.¹⁴⁸

144 Yahyah et al. (2024).

145 Ssemugabo et al. (2022).

146 Ashour et al. (2019).

147 Jagger et al. (2001).

148 Ibid.: 84.

5.2.1 Uganda Vision 2040

Uganda's Vision 2040 aims to transform the country from a peasant society to a modern, prosperous nation within 30 years. The vision emphasises principles such as ownership, political will, good governance, resource availability, balanced development, and sustainable use of resources including land and soil to meet human needs while preserving the environment. It acknowledges the past focus on economic, social, and political advancement at the expense of environmental preservation. The Vision also addresses historical socio-economic challenges such as weak infrastructure, a struggling private sector, and poor democracy. In Chapter 4, Uganda aspires to shift agriculture from subsistence to commercial, reforming the extension system to improve access to information and technology for farmers and reversing land fragmentation to support mechanised agriculture. Additionally, it emphasises the need for environmental control measures to stop soil fertility decline.

5.2.2 National Land Policy, 2013

The goal of the National Land Policy is to ensure efficient and equitable use of Uganda's land resources for poverty reduction, wealth creation, and socio-economic development. Section 2(5) highlights principles such as reversing soil quality decline and mitigating environmental degradation. Section 6(6) focuses on institutionalising mechanisms to restore and monitor land quality, promoting sound land use and soil conservation practices. Section 6(9) outlines the government's role in regulating land and water use for agriculture. The policy also aims to protect the rights of pastoral communities affected by conservation projects, ensuring that pastoral lands are held as common property under customary tenure, supporting reclamation projects, and resolving conflicts. Successful implementation of the policy relies on active participation from all stakeholders, including government, development partners, and civil society.

5.2.3 National Agricultural Policy, 2013

The National Agricultural Policy's overall objective is to achieve food and nutrition security and improve household incomes through interventions that enhance sustainable agricultural productivity, value addition, employment opportunities, and promote trade.¹⁴⁹ Section 3(1) emphasises the sustainable use of key agricultural resources, including soils. Objective 5 focuses on the sustainable management of agricultural

149 MAAIF, National Agriculture Policy (2013: 148).

resources, with a strategy to regulate the exploitation of resources within ecologically sustainable limits, including addressing land fragmentation issues.¹⁵⁰

5.2.4 Uganda Forestry Policy, 2001

The Uganda Forestry Policy aims to sustainably increase the economic, social, and environmental benefits from forests and trees, particularly benefiting the poor and vulnerable. Policy Statement 8 emphasises watershed management and soil conservation by promoting the rehabilitation and conservation of forests that protect soil and water in key watersheds and river systems. The policy is implemented through the Joint Water and Environment Sector Support Program (JWESSP), which started in 2013-2018 and continues with its second phase (2018-2023). The program focuses on minimising adverse environmental and social impacts and adopts a gender-sensitive approach. Implementation involves the Ministry of Water and Environment (MWE), including its Water Development and Environment Affairs directorates, semi-autonomous agencies such as NEMA and the National Forestry Authority (NFA), and local governments.¹⁵¹ A key strategy is the rehabilitation of degraded forests in water catchment areas through private, community, and forestry initiatives.

5.2.5 National Environment Management Policy for Uganda, 1994

The policy aims for sustainable social and economic development by maintaining and improving environmental quality and resource productivity in the long term. Its objective focuses on promoting agriculture and farming systems that conserve and enhance land productivity sustainably. The draft National Environment Management Policy (2016) reinforces these principles of soil management. Strategies include conducting a national soil survey, developing a national soil policy, and providing tax incentives for soil and water conservation, as well as for proper land management practices. Various economic incentives have been introduced to encourage farmers to adopt soil conservation techniques.¹⁵²

5.2.6 Environment and Social Safeguards Policy, 2018

The Environment and Social Safeguards Framework ensures the integration of environmental and social concerns throughout all stages of project development, from

150 Ibid.: 149.

151 Kasimbazi et al. (2018).

152 Gebremedhin (2004).

national to local levels, with full community participation to minimise negative impacts. Principle 4.1.14 of the policy mandates the Ministry to design and implement projects that promote soil conservation and prevent land degradation or the conversion of productive lands and valuable ecosystem services. This framework is crucial for ensuring that projects funded by the Adaptation Fund, or those implemented by the Ministry or its partners, do not harm the environment, public health, or vulnerable communities. It aims to address environmental and social issues in a coordinated manner, minimising adverse impacts on the environment and beneficiary communities during and after project implementation.

5.3 Ministries and state institutions relevant to soil governance in Uganda

Article 245 of the Constitution mandates Parliament to enact laws for the protection and preservation of the environment, aiming to prevent abuse, pollution, and degradation, while promoting sustainable development and environmental awareness. The government acknowledges the critical importance of land and soil and has established various ministries and state institutions to ensure the effective management and conservation of these vital resources.

5.3.1 Ministry of Lands, Housing, and Urban Development

The Ministry of Lands, Housing and Urban Development (MLHUD) has three directorates: Land Management, Physical Planning, and Housing. It is responsible for ensuring the sustainable and effective use of land, as well as the orderly development of urban and rural areas. The Ministry provides policy direction, and national standards, and coordinates land, housing, and urban development matters. Through its mandate, MLHUD can implement legal measures to conserve and manage soil, preventing and restoring soil degradation across the country.

5.3.2 Ministry of Water and Environment

The Ministry of Water and Environment, established in 2007, is responsible for managing and regulating water and environmental resources in Uganda.¹⁵³ It is committed to promoting soil conservation and protection by minimising and mitigating environmental and social impacts. Key roles include developing legislation, policies, and

¹⁵³ See <https://www.mwe.go.ug/>, accessed 28 August 2024.

standards for resource management, as well as promoting the sustainable use of natural resources through the restoration of degraded ecosystems.

5.3.3 Ministry of Energy and Mineral Development

The Ministry of Energy and Mineral Development (MEMD) in Uganda is responsible for promoting the sustainable development and management of energy and mineral resources for economic growth.¹⁵⁴ It provides policy guidance, creates an enabling environment to attract investment, and acquires and interprets technical data to assess the country's resource potential. The Ministry regulates and monitors private companies in these sectors to ensure that energy and mineral resources are developed and used rationally and sustainably.

5.3.4 Ministry of Agriculture, Animal Industries, and Fisheries

The Ministry of Agriculture, Animal Industries, and Fisheries (MAAIF) in Uganda regulates agricultural chemicals, monitors sector activities, and promotes soil protection and sustainable farming practices.¹⁵⁵ It oversees several agencies, including the National Agricultural Research Organisation (NARO),¹⁵⁶ which was established in 1992 to conduct research on crops, livestock, forestry, and natural resources through its sixteen institutes,¹⁵⁷ including the National Forestry Resources Research Institute (NaFORRI), focusing on sustainable forest management.¹⁵⁸ The Ministry also oversees the National Agricultural Advisory Services (NAADS), established in 2001, which provides agricultural advisory services and supports agricultural input distribution, commodity interventions, value chain development, and farmer access to financing.¹⁵⁹ These agencies play a crucial role in promoting sustainable agriculture, improving productivity, and ensuring effective soil governance in Uganda.

5.3.5 National Environment Management Authority

NEMA is a semi-autonomous agency established in May 1995, deriving its mandate from the National Environment Act of 2019.¹⁶⁰ NEMA is the principal body

154 See <https://memd.go.ug/>, accessed 28 August 2024.

155 See <https://www.agriculture.go.ug/>, accessed 28 August 2024.

156 See <https://naro.go.ug/>, accessed 28 August 2024.

157 NARO was made a body corporate by the National Agricultural Research Act of 2005.

158 See <https://naro.go.ug/naris/naforri>, accessed 28 August 2024.

159 NAADS Act, 2001; See <https://naads.or.ug/about-us/>, accessed 28 August 2024.

160 See https://www.nema.go.ug/new_site/, accessed 28 August 2024.

responsible for coordinating, regulating, monitoring, and supervising environmental management across Uganda. Its core functions include spearheading the development of environmental policies, laws, regulations, standards, and guidelines, as well as guiding the government on best practices in environmental management.

In addition to NEMA, there are other independent institutions involved in land management in Uganda. One such body is the Uganda Land Commission, which is responsible for holding and managing land vested in or acquired by the government under Articles 238 and 239 of the Constitution. The Commission also maintains records of all leases on state land and oversees the acquisition and allocation of public land for investment purposes.

At the district level, District Land Boards play a crucial role in land management. These boards hold and allocate land that is not privately owned within the district, as well as facilitate the registration and transfer of land interests. They also manage land that is not owned by any specific person or authority. Through their functions, the boards help ensure the effective use and transfer of land at the local level, contributing to the overall governance and management of land resources across the country.

5.4 Role of traditional leaders

Traditional leaders in Uganda have long been recognised as custodians of culture, values, and land within their communities.¹⁶¹ A recent study found that these leaders are often more trusted than politically elected officials.¹⁶² The role of traditional leaders in Uganda is formalised under the Institution of Traditional and Cultural Leaders Act of 2011, which outlines their responsibilities in promoting and preserving cultural values, norms, and practices that enhance the dignity and well-being of their people (Section 9). They are also tasked with fostering development and the enrichment of the community.¹⁶³

In terms of land, traditional leaders hold significant influence, especially in areas where land tenure is not formalised or where citizens rely on customary land ownership. They oversee property rights, particularly for those without titled land, and are often responsible for land allocation and usage, especially for communal lands. Given their involvement in land matters, traditional leaders play a crucial role in promoting soil governance by ensuring that land is used sustainably and that any disputes over land use are resolved.¹⁶⁴

161 Baldwin & Raffler (2019: 61-90).

162 The 2019 Afrobarometer survey revealed that 70% of Ugandans trust traditional leaders more than elected leaders, reflecting a significant reliance on traditional authority within communities. In contrast, only 20% of Ugandans expressed little or no trust in traditional leaders.

163 ILO (2011).

164 See <https://dlib.bc.edu/islandora/object/bc-ir:109560/datastream/PDF/view>, accessed 28 August 2024.

Traditional leaders are still deeply involved in resolving land disputes, particularly those involving communal or customary land.¹⁶⁵ They mediate conflicts by acting as neutral parties, offering a trusted forum for settling disputes. This mediation can extend to issues of soil degradation, where traditional leaders have the authority to revoke or reallocate land if it is misused or degraded.¹⁶⁶ Their role as intermediaries between their communities and the government allows them to voice local concerns and interests in land management to the state, ensuring that the needs of the people are communicated effectively.¹⁶⁷

However, the authority of traditional leaders has been somewhat undermined in recent years, particularly with the establishment of Area Land Committees, which often include large landowners who align themselves with government interests, disqualifying traditional leaders from their role as land custodians.¹⁶⁸ Additionally, traditional leaders have occasionally been involved in illicit practices, such as selling communal land to non-group members or to the state, which contributes to landlessness and further land conflicts.¹⁶⁹ The problem is compounded by legal pluralism, undocumented customary tenure, and competing state agencies with overlapping mandates, leading to double allocation of land and disputes over ownership.

Civil society organisations, such as the Uganda Land Alliance (ULA), play a crucial role in advocating for soil governance by promoting fair land laws and policies, particularly for marginalised groups including women, the disabled, and widows.¹⁷⁰ These organisations also help establish communal land associations (CLAs), which assist communities in securing land tenure rights and managing their land sustainably. ULA and similar bodies work to empower communities by identifying land, resource, and environmental challenges and developing impactful solutions.

The Buganda Land Board (BLB) is another important institution in soil governance. Established by the Kabaka of Buganda to manage land returned under the Restitution of Assets and Properties Act of 1993, the BLB plays a significant role in land management in Uganda.¹⁷¹ By supporting land restitution and providing a formal structure for land administration, the BLB helps to improve land governance, ensuring that land use is sustainable and that land rights are protected.

165 Leeuwen (2014).

166 *Ibid.*: 215.

167 *Ibid.*: 216.

168 *Ibid.*: 217.

169 Otim (2019).

170 ULA is a membership consortium of national, regional, and international civil society organisations lobbying and advocating for fair land laws and policies for the disadvantaged.

171 See <https://bugandalandboard.or.ug/>, accessed 28 August 2024.

5.5 Agricultural extension services in Uganda

Agricultural extension services are crucial in supporting those engaged in agricultural activities by providing them with the information, skills, and technologies needed to improve their livelihoods.¹⁷² The goal is to increase the efficiency of family farms, boost production, and improve the standard of living for farm families.¹⁷³

In many developing countries, including Uganda, agricultural extension services face significant challenges in establishing a well-managed and effective system.¹⁷⁴ To address these challenges, governments have implemented reforms aimed at improving service delivery. In Uganda, these reforms began in the 1990s with the decentralisation of public extension services, followed by the privatisation and outsourcing of services through the National Agricultural Advisory Services (NAADS) in 2001.¹⁷⁵ In 2015, Uganda adopted a pluralistic approach to extension service delivery, which integrates the public extension system into the Single Spine Extension System.¹⁷⁶ Several advisory methods, such as the coercive approach, progressive farmer approach, training and visit approach, Farmers' Field Schools approach, and other participatory methods, have also been introduced.¹⁷⁷

Despite these reforms, there remains a gap in the literature regarding the performance of managers of agricultural extension services, even though their performance is vital to the success of the system. Extension service managers play a central role in ensuring effective coordination, as they must oversee both private and public service providers. A recent study highlighted the poor performance of these managers, noting that only a small percentage were able to submit their annual work plans on time, with many failing to submit them altogether. This points to the limited capacity for coordination in the system, especially in a pluralistic environment where numerous organisations are involved.¹⁷⁸

Another significant weakness in Uganda's agricultural extension service is the shortage of human resources, which impedes the effectiveness of the system.¹⁷⁹ A study revealed that only half of the required staff were available, limiting extension managers' ability to plan, coordinate, and report on activities effectively.¹⁸⁰ This shortage of personnel, combined with weak institutional coordination, remains a major constraint to the success of Uganda's agricultural extension services.

172 Davis et al. (2020).

173 See <https://www.fao.org/4/t0060e/T0060E03.htm>, accessed 10 November 2024.

174 Birner & Anderson (2007).

175 Barungi et al. (2016).

176 MAAIF (2016a).

177 MAAIF (2016b).

178 Davis (2020).

179 Olatunji et al. (2015).

180 Namyanya et al. (2021).

5.6 Challenges to the implementation of soil governance in Uganda

Despite access to information being a constitutional right in Uganda, it remains a significant challenge, particularly regarding soil.¹⁸¹ The lack of comprehensive and up-to-date data on soil resources makes it difficult to find relevant material, as much of the existing information is scattered, outdated, or inconclusive. This limited access leads to a lack of awareness and understanding among stakeholders, who continue to engage in activities that degrade the soil.¹⁸² Therefore, soil-related information must be assessed, documented, and distributed within a comprehensive framework.

Human activities, such as agriculture, urban and rural development, industrialisation, and infrastructure projects, complicate soil protection. It is challenging to regulate how soil owners use and exploit their land. Although Uganda has implemented reforms to improve agricultural extension services, such as the new Single Spine Extension System, no empirical studies have fully examined the performance of agricultural extension managers, whose work is critical for an effective system.¹⁸³

Additionally, soil ownership remains a challenge, as land is often owned by individuals, private companies, or communities. This ownership structure often leads to the perception that land and soil belong exclusively to the owner, which can hinder soil protection efforts.¹⁸⁴ Insecure tenure rights, especially in Uganda's customary and private land systems, complicate restoration efforts.¹⁸⁵ Customary land systems, while having both strengths and weaknesses, need reform to protect communal land rights, particularly for women and minorities.¹⁸⁶

Soil's high economic value—through activities such as agriculture, construction, and infrastructure development—often leads to conflicts between soil governance and the economic interests of landowners. Many African countries' soil legislation focuses on land rather than soil, leaving gaps in the effective management and use of soil resources. This lack of comprehensive soil-focused legislation hinders the development of proper soil management practices.¹⁸⁷

6 Recommendations

Uganda has yet to achieve success in formal soil protection due to gaps in effective implementation and enforcement, with traces of soil concerns found in broader

181 Art 41(1) Constitution of the Republic of Uganda, 1995.

182 Ginzky (2022).

183 MAAIF (2016a); Barungi et al. (2016).

184 Ginzky (2023).

185 Ajala (2017).

186 Windfuhr (2016).

187 Kasimbazi (2018: 330).

environmental and natural resource instruments.¹⁸⁸ While there are general environmental and agricultural policies, soil-related laws and policies remain virtually non-existent.¹⁸⁹

Most environmental management strategies include legal requirements aimed at addressing degradation and harm to natural resources, including soil. However, these requirements are only the initial step. The next essential step is ensuring compliance by effectively implementing these regulations. Without enforcement, these laws and policies will not achieve the desired outcomes. Compliance does not happen automatically—it requires continuous efforts to encourage and enforce the necessary behavioural changes.¹⁹⁰

Countries that have successfully implemented substantial soil protection, including the world's top economies, have applied a range of law and policy measures, such as zoning, taxation, and incentives.¹⁹¹ However, a lack of a holistic and consistent approach can lead to intense economic pressure, conflicting laws, and weak enforcement, particularly in transitioning middle-income states.¹⁹²

To enhance soil governance in Uganda, it is urgent to develop a comprehensive soil policy that brings together all stakeholders to define principles, policies, and actions to ensure effective soil protection.

6.1 Implementing laws for soil protection

Given the lack of specific laws addressing soil protection, it is essential to establish comprehensive legislation to ensure proper regulation and enforcement. The absence of such laws creates a gap in civil and criminal sanctions, particularly for illegal activities that degrade soil, such as artisanal mining, where rudimentary tools are used to strip soil layers, leaving the land exposed and overexploited. In crafting this new law, it is crucial to ensure that it explicitly addresses soil protection, outlines clear regulations, and establishes mechanisms for enforcement. Provisions for penalties and compliance measures should be incorporated to address violations effectively and deter activities that harm soil health.

188 Ibid.: 323.

189 Kakuru (2013: 116).

190 Ibid.: 211.

191 Ibid.: 210.

192 Shen et al. (2019: 80, 205 & 213).

6.2 Strengthening domestic and regional laws on soil and land use

At the 2024 Africa Fertiliser and Soil Health Summit, Uganda committed to reversing land degradation and restoring soil health on at least 30% of degraded soil by 2034. Key initiatives were outlined such as repurposing existing subsidy programs to encourage smallholder farmers to invest in soil health, promoting integrated soil and water conservation practices across agricultural sectors, watersheds, and landscapes, and investing in irrigation as part of an integrated soil and water resource management strategy to enhance nutrient use efficiency and climate resilience.¹⁹³

6.3 Creating partnerships at community, national, regional, and international levels

The Ugandan government should consider forming partnerships with countries that have successfully embraced soil governance to enhance soil protection efforts. Such collaborations could provide valuable access to information, promote public awareness, ensure compliance with laws, and support soil restoration and conservation.

Key entities including NEMA, NFA, and NPA should work together to develop an integrated approach to enforcing environmental laws while launching public awareness campaigns on the dangers of soil over-exploitation and methods for restoring damaged soils.

Furthermore, regional and international governments should collaborate on research initiatives to address soil health issues and improve access to funding and support for smallholder farmers.¹⁹⁴

6.4 Integrating soil health into policy to enhance soil governance in Uganda

Integrating soil health into policy is essential for enhancing soil governance in Uganda.¹⁹⁵ This can be achieved by identifying opportunities to incorporate soil health into key policies, prioritising it within climate agendas, Nationally Determined Contributions (NDCs), and Land Degradation Neutrality (LDN) initiatives. Supporting sustainable land management practices, such as agroecology, through long-term subsidies and embedding them in policy will further improve soil governance.¹⁹⁶ Additionally, including Soil Organic Carbon (SOC) in national policies, as recommended

¹⁹³ Ibid.: 215.

¹⁹⁴ Ibid.: 216.

¹⁹⁵ Guidance Note: Soil Health – critical to addressing climate change and realising Africa’s agricultural potential (2024).

¹⁹⁶ Ibid.: 242.

by the Accelerating Impacts of CGIAR Climate Research for Africa project, will help governments support farmers in investing in soil health.

6.5 Establishing educational institutions for training in soil conservation and management

Establishing specialised institutions for soil conservation and management is crucial for strengthening soil governance in Uganda. These institutions can equip future professionals with the knowledge and skills needed to address soil degradation and promote environmental sustainability. By offering courses on sustainable soil practices, they can develop a skilled workforce to enforce soil protection policies and monitor soil health. Additionally, training in eco-friendly practices such as agroforestry, afforestation, and agroecology will foster a holistic approach to soil management, enhancing biodiversity and climate resilience. This initiative will contribute to long-term soil health and align with Uganda's broader environmental goals.¹⁹⁷

The critical need for well-equipped soil laboratories and adequately trained staff has been emphasised, as the country currently lacks a dedicated research institution for soil and plant nutrition.¹⁹⁸ This gap has hindered the effectiveness of soil-related services, and national laboratories have become outdated, leading to widespread concern over the quality of soil testing. To address this, Uganda must modernise its laboratory testing services by incorporating advanced techniques and equipment that are widely used in global soil science, rather than relying solely on traditional wet chemistry methods. The country faces significant gaps in various areas of soil management, including the need for 200 professionals in soil fertility and plant nutrition, 70 specialists for soil surveys and mapping, 121 government officials or policy advisors to cover all districts, 50 consultants, 100 experts for extensive large farms, 100 professionals for private businesses involved in soil management, and 90 functional soil laboratories. Strengthening these areas will enable Uganda to improve its soil management capacity and effectively address the growing concerns regarding soil health.

6.6 Raising awareness on soil protection among Uganda's younger generation

Integrating sustainable soil management into school curricula is vital for fostering environmental stewardship in Uganda's youth. By teaching children about soil health, its role in food security, climate resilience, and sustainability, Uganda can cultivate a generation dedicated to soil protection. Early education on soil conservation and

197 See <https://www.soilassociation.org/causes-campaigns/a-ten-year-transition-to-agroecology/what-is-agroecology/>, accessed 29 August 2024.

198 Romanov & Wiese (2018).

sustainable practices will encourage responsible behaviours and advocacy, influencing families and communities. This approach ensures the long-term preservation of soil as a resource, empowering young people to contribute to environmental sustainability and community well-being.¹⁹⁹

6.7 Women's involvement in soil-centred research, decision-making, and legislation

Involving women in all stages of soil-centred research, policy development, decision-making, and implementation is crucial for strengthening soil governance in Uganda. Women, especially in rural areas, play a vital role in land and soil management, yet their contributions are often overlooked. To address this, the Ugandan government should mainstream gender into development planning and decision-making, ensuring the enforcement of international conventions that prohibit discrimination against women and children.²⁰⁰

By engaging women in soil governance, Uganda can foster a more inclusive and equitable approach, benefiting from their unique perspectives on issues relating to land tenure and sustainable management practices. Their participation will empower women, promote better soil conservation, and contribute to a more resilient and sustainable approach to soil governance.²⁰¹

6.8 Role of NGOs and CSOs in promoting soil governance

Private entities, such as NGOs and civil society organisations (CSOs), can be valuable allies in advancing soil governance. These organisations often have extensive networks and a deep understanding of local issues, which allows them to effectively raise awareness and advocate for soil protection. Their influence can play a crucial role in mobilising communities, shaping public opinion, and fostering the necessary support for soil conservation initiatives. To maximise the impact of these efforts, the government should actively collaborate with them, leveraging their expertise and outreach capabilities. By working together, both the public and private sectors can strengthen the protection and preservation of soils in Uganda, ensuring long-term environmental sustainability and agricultural productivity.

199 Kameri-Mbote et al. (2021).

200 Revised Gender Strategy for National Land Policy Implementation (2016).

201 Ibid.: 2.

6.9 Enhancing access to soil protection and conservation information

The public's right to access official records is a cornerstone of liberal democracy, playing a crucial role in promoting accountability and transparency, especially in decisions that affect the environment.²⁰² This principle is particularly important for soil protection and conservation, as it ensures that decisions regarding the appropriation, management, and utilisation of natural resources are made openly and responsibly. To strengthen this right, Uganda must focus on enacting and improving access to information legislation, ensuring that the public has unhindered access to environmental data. This includes securing the right to environmental information as outlined in the National Environment Act, which is key to fostering public participation, enhancing accountability, and ensuring that soil conservation efforts are effectively implemented and monitored.

7 Conclusion

The current regulatory framework for soil governance in Uganda has seen limited success in addressing the key drivers of soil degradation, such as agriculture, industrialisation, deforestation, mining, urbanisation, soil erosion, and poor waste management. As a result, soil, a vital natural resource, has received inadequate protection. Effective soil governance is essential for ensuring sustainable agricultural productivity, environmental conservation, and climate resilience.

While Uganda has made progress through policies such as the National Environment Act and Uganda Vision 2040, significant gaps remain in legislation, enforcement, and public awareness. Soil degradation, fuelled by deforestation, poor farming practices, and population pressures, continues to threaten food security and environmental sustainability.

To tackle these challenges, Uganda needs to strengthen its legal frameworks, improve coordination among government agencies, and invest in capacity-building for smallholder farmers. Policies on land use, soil conservation, and sustainable agriculture must be integrated into broader climate change strategies. Moreover, fostering public participation and collaboration with local communities is crucial for ensuring ownership and long-term stewardship of soil resources. Strengthening soil governance is not just a policy priority but a critical step toward the country's future prosperity, food security, and ecological stability.

202 Tumushabe (2009: 159).

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Country report for Zambia¹

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Abstract

This chapter examines soil sustainability legislation in Zambia. It highlights the gaps in the existing legal framework, particularly emphasising the absence of dedicated soil laws. The chapter explores the implications of these gaps, especially in terms of their impact on soil conservation efforts and broader consequences for sectors such as agriculture, food security, and ecosystem health.

An analysis of the existing legal framework reveals that while provisions in the Environmental Management Act (EMA) are progressive, they fail to treat soil as a distinct natural resource. Specific attention is given to the Constitution, the EMA, mining laws, and post-2010 sectoral legislation, with a focus on the complexities of integrating soil management within these various legal structures. The chapter also critiques the fragmented approach to soil governance and the absence of a coordinated institutional framework.

The chapter presents key findings, including the need for dedicated soil legislation, enhanced data sharing, and the establishment of a national soil information system. Recommendations are made to improve soil management practices by integrating soil conservation into land, agriculture, and climate policies. It concludes by emphasising the urgent need for dedicated soil legislation, particularly considering emerging climate change challenges and the need to balance economic development with environmental sustainability.

¹ This chapter is an update of the one authored by Sambo, Nkunika & Zulu (see Reference List).

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Summary

This chapter outlines a comprehensive set of recommendations to improve soil sustainability legislation in Zambia, recognising both the challenges and opportunities within the current legal and policy framework. The analysis reveals that while Zambia has some progressive provisions within its Environmental Management Act (EMA), these provisions fail to treat soil as a distinct natural resource. This oversight limits the effectiveness of soil conservation efforts, as soil health is not adequately addressed in a focused, standalone legal context.

The chapter suggests that there are untapped opportunities within the existing legal structure, including the Constitution, EMA, mining laws, and post-2010 sectoral legislation, to create a more coordinated and comprehensive framework for soil sustainability. This could be achieved through amendments and integration of soil-specific provisions into these laws. For example, the National Climate Change Policy offers a significant opportunity to introduce climate-specific legislation that could align with soil conservation goals, considering the interconnectedness of climate change, land degradation, and soil health.

A key recommendation is the establishment of dedicated soil legislation, which could either take the form of a separate Act of Parliament or subsidiary legislation under the EMA. Such legislation would aim to protect soil across various sectors, including agriculture, land management, and mining. The chapter highlights the importance of integrating conservation farming practices into this legal framework while discouraging unsustainable practices such as shifting cultivation (*chitemene*), which leads to significant soil degradation. This would align with the ongoing initiatives to overhaul the agricultural and land sectors, creating a crucial window for legislative reform.

The chapter also emphasises the need for a national soil information system that consolidates fragmented data on soil health and its degradation. Currently, various ministries, including Agriculture and Lands and Natural Resources, operate their own soil mapping systems, but these remain disconnected, making it difficult for policy-makers to access relevant information for effective decision-making. A centralised system would improve soil management and facilitate better alignment of national policies with soil sustainability objectives.

Political buy-in is identified as essential for pushing soil sustainability to the forefront of Zambia's political agenda. Effective environmental governance depends on reducing bureaucratic barriers and fostering collaboration between communities and decision-makers. Without strong community representation, the potential for effective soil management remains limited. Additionally, the chapter calls for the control of foreign investment to ensure that land-use projects adhere to sustainable practices and comply with national laws, addressing the risks posed by large-scale projects that may lead to soil degradation.

Another significant recommendation is the inclusion of soil impact assessments within broader environmental assessments. This would ensure that soil considerations are integrated into all developmental activities, from infrastructure projects to agricultural practices. Moreover, it suggests the need for soil-specific standards to be prescribed, ensuring that all projects respect soil health and sustainability goals.

To incentivise sustainable practices, the chapter recommends linking access to Zambia's Environment Fund with adherence to sustainable soil management practices. The fund, established under the EMA, could be used to promote soil conservation efforts and provide financial support for initiatives that protect soil health. This includes environmental audits, monitoring, and enforcement mechanisms that are already part of the EMA's provisions.

The chapter also highlights the importance of raising public awareness about soil conservation, noting that many farmers have already adopted sustainable practices, but these efforts are not well-coordinated. Increased educational initiatives and community engagement will help build support for soil sustainability and foster a culture of environmental stewardship at the grassroots level.

Finally, the chapter stresses the importance of a constitutional framework for environmental protection, which would enshrine the right to a clean and healthy environment, including the right to sustainable soil management. This legal foundation would provide the necessary support for implementing policies that address soil degradation and ensure the long-term health of Zambia's soil resources.

In summary, the chapter advocates for a holistic approach to soil sustainability, one that involves legislative reform, political commitment, improved data management, enhanced public awareness, and strong institutional frameworks. By addressing the current gaps in Zambia's soil governance system, the country can ensure that its soil resources are protected and managed sustainably for future generations.

1 Introduction

1.1 Geographic and climatic information

Zambia, a landlocked country in Southern Africa, spans 752,972 km² and is bordered by eight countries: the Democratic Republic of Congo, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibia, and Angola. Its location, between latitudes 8° and 18° south, and its altitude (900–1,500 m above sea level) give Zambia sub-tropical vegetation and climate.²

2 Japan Association for International Collaboration of Agriculture and Forestry (2008); Plisnier et al. (2018).

The country experiences three seasons: a rainy season (November to April), a cool dry season (May to August), and a hot dry season (September to October). Annual rainfall averages around 1,000 mm but varies regionally, with 900 mm in the south and over 1,400 mm in the north.³ Temperatures in Lusaka range from 9°C to 23°C in July and 17°C to 26°C in January.

As with most of sub-Saharan Africa, Zambia faces climate change challenges, including droughts, rising temperatures, and erratic rainfall.⁴ These impacts threaten livelihoods and food security.⁵ In February 2024, a severe drought was declared a national disaster under the Disaster Management Act No. 13 of 2010, significantly affecting smallholder farmers and national food supplies.⁶

1.2 Historical background, demographic information, and level of education

Zambia gained independence from Britain in 1964 and transitioned through multiparty democracy (1964–1972), one-party rule (1972–1990), and a return to multiparty democracy in 1991.⁷ The country is divided into ten provinces, further split into districts, constituencies, and wards.⁸ Zambia played a strategic role in Southern African liberation movements post-independence but lost global significance with shifting economic and geopolitical dynamics.⁹ Long-standing ties with China and India have supported key projects such as the Tanzania–Zambia (TAZARA) railway.¹⁰

Population censuses were conducted periodically, with the first e-census in 2022 recording 19.6 million people.¹¹ By mid-2024, the population reached 21.1 million, growing at 2.8% annually. Urban growth (3.5%) outpaces rural growth (2.4%), with Lusaka hosting the largest population.¹² Zambia's population density averages 20.6 persons/km², with Lusaka having the highest density (126.8 persons/km²).

3 Resilience and Economic Inclusion Team (2016).

4 Ministry of National Development Planning (2016: 2–3).

5 Plisnier et al. (2018); Sintayehu (2018: 225–227); Ministry of National Development Planning (2016: 4).

6 See https://estatements.unmeetings.org/estatements/14.0485/20230305140000000/582jnvwN MplH/stkqtBAAqGrd_en.pdf, accessed 18 September 2024; www.oxfam.org/en/press-releases/over-six-million-people-face-hungermalnutrition-and-water-scarcity-zambia-oxfam, accessed 18 September 2024.

7 Phiri (2006: 1–5).

8 Central Statistical Office (2015: 1).

9 Prizzon (2013: iv).

10 Monson (2013: 52).

11 Zambia Statistics Agency (2022: 1–2); See <https://www.unfpa.org/data/world-population/ZM>, accessed 18 September 2024.

12 Zambia Statistics Agency (2022: 8); Ministry of Finance (2017: 31–33); Central Statistical Office (2013: 1).

The Vision 2030 plan aims for Zambia to become a middle-income nation, emphasising quality education.¹³ The education system spans early childhood, primary, secondary, and tertiary levels.¹⁴ Notable achievements include increased early childhood education (ECE) participation, rising from 20.3% in 2005 to 24.4% in 2015, though the target is 30%.¹⁵ Education receives 15–17% of the national budget, below SADC’s recommended 20%.¹⁶ Adult literacy stands at 68%, highlighting gaps in awareness, including environmental and soil-related issues.¹⁷

1.3 Main economic activities

The Eighth National Development Plan (2022–2026) focuses on economic transformation and job creation, aiming to boost trade, investment, value addition, and diversification. The main sectors driving this growth are agriculture, mining, tourism, and manufacturing, with support from energy, transport, and water development.¹⁸ Mining has the highest environmental impact, while tourism contributes positively by promoting biodiversity conservation. As Zambia pursues economic transformation, the increased exploitation of natural resources will likely put significant pressure on soil resources.

1.3.1 Mining

Zambia is the seventh-largest copper producer globally,¹⁹ with mining accounting for over 75% of exports, contributing an average of 12.9% to the gross domestic product (GDP) from 2006–2015. The sector created 56,227 jobs in 2005, growing to 82,725 by 2014.²⁰ In 2022, mining contributed 11.1% to GDP but only 2% of total employment.²¹ Recognising mining’s economic importance, Zambia is working to diversify beyond copper, focusing on minerals such as gemstones, cobalt, coal, and gold. However, output has generally been lower than projections, such as the 2015 copper production of 710,560 metric tonnes, below the target of 800,000 metric tonnes.²² Copper

13 Ministry of National Development Planning (2006: 1–2).

14 Ministry of General Education (2017); Ministry of Finance and National Planning (2022:16).

15 Ministry of General Education (2017).

16 OSISA (2015: 10–18); Ministry of Finance (2022: 15–17).

17 Ibid; Fadjukoff (2015: 127).

18 Ministry of Finance (2022:1–3).

19 See <https://www.statista.com/statistics/264626/copper-production-by-country/>, accessed 12 April 2019.

20 Mining Partnerships for Development (2014: 11).

21 Ministry of Mines and Minerals Development, National Three Million Tonnes Copper Production Strategy By 2031 (2024: 1).

22 Ministry of National Development Planning (2017: 26).

production is expected to increase to three million metric tonnes per year by 2031, but this expansion's environmental and soil impacts must be carefully considered.²³

1.3.2 Agriculture

Due to fluctuating copper prices, Zambia has focused on diversifying its economy to reduce reliance on copper. The Zambian agricultural sector comprises crops, livestock, and fisheries.²⁴ A sharp drop in copper prices during the Fifth National Development Plan (2007-2009) caused a 28% fall in copper prices and a 47% decline in foreign direct investment (FDI). FDI has remained concentrated in mining, while agriculture, manufacturing, and tourism have received minimal investment.²⁵

Although 58% of Zambia's land is suitable for agriculture,²⁶ only 15% is cultivated. The government has prioritised agriculture to diversify the economy, with agriculture contributing 9.8% of GDP from 2006 to 2015.²⁷ Despite good rainfall and arable land, the sector faces challenges due to limited irrigation and fluctuating rainfall patterns, worsened by climate change.²⁸ While the country enjoys 40% of sub-Saharan water resources, there is very little mechanical irrigation, and most farms are dependent on rain-fed growing cycles.²⁹ In the 2015-2016 season, maize production fell by 21.9%, and in 2023-2024, the country experienced a maize deficit of over 2 million metric tonnes due to drought.³⁰

This decline in agricultural production impacts the rural economy, where most farming activities occur, and could lead to increased rural-urban migration. Mitigating climate change effects is essential to addressing these challenges.³¹

23 Ministry of Mines and Minerals Development, National Three Million Tonnes Copper Production Strategy By 2031 (2024: vii).

24 See <http://www.zda.org.zm/index.php/agriculture/>, accessed 2 February 2021; Chapoto & Chisanga (2016: 30–42).

25 ZDA (2017: 3).

26 ZEMA (2017: 46); Chapoto & Chisanga (2016: 7–10); Nawiko et al. (2022: 4).

27 Ministry of Agriculture (2016: 1–3).

28 Central Statistical Office (2015: 1); Japan Association for International Collaboration of Agriculture and Forestry (2008: 36).

29 See <http://www.fao.org/3/t0800e/t0800e0a.htm>, accessed 2 February 2021.

30 See <https://www.pdu.gov.zm/blog/zambia-in-21-million-metric-tonnes-maize-deficit#:~:text=In%20the%202023%2F2024%20farming%20season%2C%20the%20country%20produced%20a,the%20entire%20Southern%20African%20Region>, accessed 18 September 2024.

31 Ministry of Finance (2017: 25).

1.3.3 Manufacturing

The manufacturing sector contributed 7.8% to Zambia's GDP, with an average annual growth rate of 3% from 2006 to 2015. Employment in the sector increased from 166,143 in 2005 to 223,681 in 2014. The sector plays a key role in driving economic growth through its backward and forward linkages. However, during the latter years of the Sixth National Development Plan (2011–2015), the sector experienced slow growth due to constraints including the energy deficit and high production costs, resulting in a 60–70% drop in output.³²

The sector is mainly driven by agro-processing (food and beverages), textiles, leather, and metal processing, including copper smelting and refining. It also benefits from the emerald mining industry, producing ornaments for export. Other activities include the production of fertilisers, chemicals, explosives, cement, wood and paper products, vehicle parts, petroleum refining, and light engineering.³³

1.3.4 Energy

As of August 2024, Zambia's power generation was 1,019 MW, while demand stood at 2,400 MW, creating a deficit of 1,381 MW, leading to load management schedules limiting supply to under three hours per day.³⁴ The country's reliance on hydroelectricity has been impacted by El Niño-induced droughts, affecting water levels in the Zambezi and Kafue River Basins.³⁵ In 2015, the electricity deficit was 668 MW due to underinvestment and non-cost-reflective tariffs.³⁶ Demand is projected to grow by 150–200 MW annually. The mining, construction, agriculture, and services sectors are the largest consumers of electricity.

In 2016, Zambia's installed energy capacity was 2,493 MW, with 97% from hydro sources.³⁷ By 2030, non-hydro energy sources such as solar, wind, geothermal, and coal are expected to contribute 15%.³⁸ Expanding energy generation could reduce rural use of charcoal, decreasing deforestation and greenhouse gas emissions.³⁹ The Rural Electrification Authority completed fourteen projects in 2017, helping to improve rural electrification.

32 Energy Regulation Board (2017: 1).

33 BoZ (2017a: 5).

34 Ministry of Energy, Media Update on Energy Situation in the Country (2024: 1-3).

35 Ministry of Energy, Ministerial Statement on the Power Supply Deficit in the Country (2024: 1-4); Ministry of National Development Planning (2016: 7).

36 Ministry of Finance (2017: 27); ZDA (2017: 1).

37 Energy Regulation Board (2017: 1-3).

38 Ministry of Energy (2008: 3-8).

39 Ministry of Finance (2017: 26).

However, energy generation impacts soil sustainability, as persistent organic pollutants (POPs) from equipment such as transformers pose environmental hazards.⁴⁰ As of 2016, Zambia had 16,000 transformers, 326 of which were identified as potentially containing PCBs. Without proper disposal facilities, this poses risks to soil and human health. Furthermore, reduced hydropower generation has hampered Zambia's economic growth and led to increased costs from climate-related diseases, infrastructure damage, and biodiversity loss.⁴¹ Adaptation and mitigation strategies are essential for reducing environmental risks and promoting social well-being and economic growth.⁴²

1.3.5 Construction

The construction industry continues to play an integral part in the development of the economy and is one of the important catalysts for growth. Activities in the subsector are driven by public and private projects, such as roads, stadiums, hospitals, schools, and residential and commercial property. As noted in the section on mining, the construction industry has fuelled illegal quarrying, which, in turn, has severe impacts on soil sustainability. The construction industry continued to grow over the past twelve years at a steady annual average rate of 17.5%. This growth can be directly attributed to increased public and private sector investment in infrastructure development.⁴³ With inadequate safeguards, the growth of the construction sector is projected to cause further strain on soil sustainability.

1.3.6 Tourism

The Zambian government has prioritised tourism, with international tourist arrivals increasing from 668,862 in 2005 to 931,782 in 2015, a 39% rise.⁴⁴ Despite the impact of COVID-19, tourist arrivals grew steadily, reaching 554,290 in 2021 and about 1.5 million in 2023. The sector is projected to attract two million visitors by 2024.⁴⁵ Tourism contributed an average of 1.76% to GDP from 2010–2014, rising to 9.8% in 2019 and 5.8% in 2021. The number of accommodation establishments increased by 25.6% from 2012 to 2015, driven by high local demand.⁴⁶ However, Zambia still faces stiff competition, holding just a 1.63% share of Africa's 55.8 million tourist arrivals in 2013. Despite this, tourism earnings rose from USD 441 million in 2012 to USD 540

40 ZEMA (2017: 113).

41 Sintayehu (2018: 225–227).

42 Ministry of National Development Planning (2016: 7).

43 ZDA (2017).

44 Ministry of Finance (2017: 27–28).

45 See <https://www.mot.gov.zm/?m=20231210>, accessed 18 September 2024.

46 Ministry of Tourism (2016: 12–17).

million in 2013, creating more jobs in the sector. Africans represented 79% of Zambia's tourists in 2013.⁴⁷

1.4 Gross national product

Zambia's economy has experienced notable growth over the years. From 2000 to 2005, the country's economy grew at an annual average rate of 5.8%. This growth accelerated in the following decade (2006–2015), with an average annual growth rate of 6.9%. By December 2017, Zambia's GDP had reached USD 25.81 billion. The country's economic structure is heavily reliant on the agricultural and mining sectors, with copper being a major export product. The bulk of Zambia's exports are directed towards countries outside the European Union, notably Switzerland, China, and other members of the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA).⁴⁸ Copper is particularly sought after by both Switzerland and China.

The forestry sector, although smaller, plays a significant role in Zambia's economy, contributing at least 3.7% to the GDP. A substantial portion of this is derived from wood fuel, which includes commercial charcoal production (2.2%) and subsistence wood collection (0.8%). Fuelwood is crucial in Zambia, with approximately 90% of the population depending on it for energy. However, the productivity of Zambia's forestry industry is hindered by challenges in infrastructure development, particularly in roads and communication. This underdevelopment increases transaction costs throughout the stages of production, processing, and distribution. Addressing these infrastructure gaps and improving the efficiency of the forestry industry, especially among small-scale enterprises, could lead to substantial benefits for both the economy and the environment.⁴⁹

1.5 National debt

Zambia is currently facing significant economic challenges, particularly due to a severe drought that has affected both agriculture and electricity generation, leading to a downward revision of growth projections for 2024 from 4.7% to 2.3%.⁵⁰ In response, the 2024 national budget has been adjusted accordingly.

47 Ministry of Finance (2017: 28).

48 BoZ (2017b: 3).

49 Japan Association for International Collaboration of Agriculture and Forestry (2008: 39).

50 See <https://www.cabinet.gov.zm/wp-content/uploads/2024/09/Key-Highlights-Parley-Speech.pdf>, accessed 23 September 2024.

The country's external debt has been rising steadily since 2012. By the end of 2014, Zambia's external debt had increased to USD 4.81 billion, representing 24% of GDP. This figure continued to grow in subsequent years, reaching USD 6.7 billion (35% of GDP) by 2016, and surged to 72% of GDP by 2018.⁵¹ The International Monetary Fund (IMF) predicted that without fiscal adjustments, Zambia's debt would rise to 84% of GDP by 2021, far exceeding the sustainability threshold of around 60%.⁵²

To address this growing debt burden, Zambia has been actively working on debt restructuring agreements. In October 2023, the country entered a Memorandum of Understanding reflecting the restructuring agreement with the Official Creditor Committee (OCC), and a restructuring deal was reached with Eurobond holders.⁵³ Negotiations with commercial private creditors are ongoing, with an aim for a final agreement by the end of the year.

Historically, Zambia's debt has been a persistent issue. In 1991, the country transitioned from a single-party state to a multiparty democracy, inheriting significant debt from the former UNIP government. The MMD government, which came to power after 1991, initially struggled to determine the full extent of the debt. By 2000, Zambia had calculated its debt and joined the Jubilee 2000 global debt relief campaign.⁵⁴ In 2004, Zambia reached the Highly Indebted Poor Country (HIPC) completion point, leading to significant debt relief, reducing the debt burden from 130% of GDP in 2004 to just 25% by 2005.⁵⁵

However, after attaining lower middle-income status in 2011, Zambia's borrowing increased significantly, particularly through Eurobonds and non-concessional loans from China.⁵⁶ The debt-to-GDP ratio climbed from 21% in 2011 to 62% in 2015, largely due to infrastructure projects financed by borrowing.⁵⁷ Despite a slowing economy and rising debt, the government continued to increase borrowing, which has now contributed to Zambia's current high debt burden and the negative economic outlook. The IMF has linked the rising debt to the country's development strategy, which has prioritised large-scale infrastructure spending, resulting in large fiscal deficits financed by non-concessional debt.⁵⁸

51 Ministry of Finance (2017: 19).

52 Personal communication with Ministry of Finance Economists (2019).

53 See <https://www.imf.org/en/News/Articles/2024/06/26/pr-24242-zambia-imf-completes-3rd-review-under-ecf-and-approves-augmentation>, accessed 23 September 2024.

54 See <https://www.oecd.org/countries/zambia/2497663.pdf>; https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Zambia_Country_Profile.pdf, accessed 2 February 2021; <https://jubileedebt.org.uk/countries/zambia>, accessed 2 February 2021.

55 IMF (2005).

56 AFRODAD (2003: 11–15); Hinfelaar & Sichone (2019: 6).

57 Nalishebo (2015).

58 Hinfelaar & Sichone (2019: 5–6).

1.6 Foreign investments

Foreign investments in Zambia, particularly in natural resource extraction, are central to its economic growth but can have negative environmental impacts, especially on soil quality in the mining sector. FDI is crucial for development, providing access to international markets, skilled jobs, and technological advances.⁵⁹

Research by the central bank revealed that Zambia's net FDI inflows declined by 58.7% from USD 1,177.4 million in 2015 to USD 486.1 million in 2017.⁶⁰ This was largely due to a 49.2% drop in FDI liabilities, but net acquisition of FDI assets rose by 38.6%. The mining sector remains the primary recipient of foreign investments, with the British Virgin Islands being the largest source of inflows.⁶¹

Zambia has also explored leveraging Chinese FDI for diversification, focusing on sectors such as agriculture and manufacturing. By investing in agricultural processing, such as canning and oil-processing plants, and developing large-scale farming blocks with infrastructure support, Zambia aims to reduce its reliance on mining.⁶² Meanwhile, the mining sector, including gold, zinc, and gemstones, continues to attract significant foreign interest, presenting opportunities for future growth.⁶³

1.7 Information on government organisational structure

Zambia's constitutional structure is crucial for understanding the enforcement of soil-related laws and policies. The Constitution establishes Zambia as a sovereign republic under a constitutional form of governance (Article 4). It outlines the basic framework of government and guarantees the principles of a free society.⁶⁴ The country experienced a peaceful transition of power in August 2021, with the United Party for National Development (UPND) assuming office, promising reforms and the promotion of the rule of law.⁶⁵

Zambia is a unitary, multiparty democracy with a clear separation of powers among the executive, legislative, and judicial branches.⁶⁶ The President, elected by the people, appoints cabinet ministers from the elected and nominated members of Parliament.⁶⁷ Zambia has a unicameral Parliament, presided over by the Speaker of the National

59 UNCTAD (2017: 3); Mabey & McNally (1999: 3–8).

60 BoZ (2015: 3–6); BoZ (2017a: 1–10).

61 Ndaba (2015: 7).

62 Abdelghaffar et al. (2016: 10).

63 ZDA (2017).

64 Ndulo & Kent (1996: 256).

65 Hinfelaar et al. (2022: 558–561 & 572–575); Siachiwena (2023: 32–35).

66 Art 4(3) of the Constitution of 2016.

67 Ibid.: Art 47(1).

Assembly, and the judiciary is led by the Chief Justice.⁶⁸ This organisational structure is key to enforcing soil-related policies and laws in the country.

1.8 Legal system/tradition

Zambia operates a dual legal system, where written law and customary law coexist.⁶⁹ Customary laws are not codified and, as such, the phrase ‘customary law’ does not refer to a single system but instead a set of rights, liabilities, and duties across diverse ethnic groups.⁷⁰ The Constitution of Zambia (Amendment) Act, No. 2 of 2016 outlines that the laws of Zambia include the Constitution, parliamentary laws, statutory instruments, and customary law consistent with these.⁷¹ Customary law primarily governs personal matters such as marriage, inheritance, and land under customary tenure. Soil sustainability issues are typically addressed under written environmental laws, even when the land is governed by customary tenure.

Zambia’s legal system, influenced by its colonial past, differs from French colonies in that English law did not entirely replace indigenous customary law. Common law, based on judicial precedent, is applied in superior courts, which handle both civil and criminal cases and appeals.⁷² However, most Zambians, especially the 60% living in rural and peri-urban areas, rely on customary law through local courts, making statutory courts less relevant for much of the population.⁷³

The judiciary, created under the Constitution, is independent and neutral, consisting of superior courts (Supreme Court, Constitutional Court, Court of Appeal, and High Court) and subordinate courts, as outlined in Articles 120(1) and 121.⁷⁴

1.9 Competence of legislation and enforcement

Zambia has a unicameral Parliament consisting of the President and members of Parliament. According to Article 61 of the Constitution, legislative authority is derived from the people and is exercised to protect the Constitution and promote democracy. Parliament enacts laws through bills passed by the National Assembly and assented to by the President, with the power to introduce bills vested in members of Parliament or Ministers (Article 64(1)).⁷⁵

68 The Commonwealth (2019).

69 Munalula (2004: 54); Gloppen (2003: 11); Ige (2015: 59).

70 See <https://issafrica.org/chapter-6-customary-justice>, accessed 5 February 2021.

71 Art 7 of the Constitution of 2016.

72 Gloppen (2003: 113); Church (1974: 2).

73 AFRONET (1998).

74 Art 122(1) of the Constitution of 2016.

75 Ibid.: Art 62(2)-(3).

The Supreme Court has affirmed Parliament's legislative power in cases such as *Zambia Democratic Congress v Attorney-General*,⁷⁶ asserting that Parliament's authority to make laws is not subordinate to anybody. Law enforcement in Zambia is carried out by various agencies, including the Zambia Environmental Management Authority (ZEMA), which enforces soil-relevant legislation under the Environmental Management Act (EMA), (2011).

1.10 Role of traditional entities

Traditional leaders in Zambia play a critical role in land rights and the administration of customary law, both of which are central to the discussion of soil sustainability. The current Constitution of Zambia recognises and guarantees the role of traditional institutions, including chieftaincy, in national affairs. According to Article 165(1), these institutions exist based on the culture, customs, and traditions of the people they represent. The Constitution also ensures that no legislation can diminish the honour and dignity of chieftaincy, nor confer the authority to recognise or withdraw recognition of a chief.⁷⁷

The Constitution (Article 166) further provides that the institution of chieftaincy is a "corporation sole with perpetual succession," granting chiefs the capacity to own property in trust for their subjects and to participate in public affairs, provided they abdicate their chieftaincy if they hold public office, except in the case of becoming a councillor.⁷⁸ Chiefs have the responsibility to manage natural resources, which includes overseeing soil sustainability within their territories.⁷⁹

In Zambia, land and natural resources management by chiefs remains one of the primary challenges. Chiefs are expected to exercise leadership in ensuring the sustainable use of land, which directly affects soil preservation. However, challenges arise when large-scale investments occur, particularly when land is acquired and resold at high prices, often without being developed. This situation has been a point of contention for traditional leaders, who have proposed strengthening the Ministry of Lands with more personnel to conduct regular land inspections, ensuring that land is developed within specified periods.⁸⁰

The Chiefs Act and other legislative provisions, such as the Local Government Act and the Registration and Development of Villages Act, enable traditional leaders to manage natural resources in rural areas where they have jurisdiction. However,

76 SCZ Judgment No. 37 of 1999.

77 Article 165(2) of the Constitution of 2016.

78 Ibid.: Art 167.

79 Ibid.: Art 68(3); Munyinda & Habasonda (2013: 24–27).

80 Zambia Environmental Management Agency (2017: 41–57); Ministry of Lands and Natural Resources (2017); World Bank (2016: 7–10).

traditional leaders have often felt that their authority in land transactions is overlooked, particularly when dealing with large-scale investments.

Another concern of traditional leaders is the high poverty levels in rural districts, which hampers sustainable development.⁸¹ Chiefs have advocated for policies that would promote the development of rural areas by ensuring access to essential services such as electricity, transport, schools, and healthcare. Addressing these issues is key to improving both soil sustainability and the socio-economic conditions in rural Zambia.

1.11 Religious considerations

Article 4(3) of Zambia's Constitution defines the country as a multi-ethnic, multi-religious, and multi-cultural state. The Zambian population is predominantly Protestant (75.3%), followed by Roman Catholics (20.2%), with a small percentage of other religions (Muslims, Buddhists, Hindus, Baha'i), and 1% non-religious.⁸²

Each religion in Zambia has its approach to environmental protection. In 2016, the Zambian government emphasised the need for more organisations to promote organic farming to protect the environment from the harmful effects of chemical fertilisers.⁸³ Organic farming, which supports the natural regeneration of soil, was encouraged as a means of improving yields while maintaining soil health.

At a conference on environmental management, the government praised the Catholic Church's work in promoting organic farming among small-scale farmers. The Church was even recommended to run the Kasisi Agricultural Research Institute, which teaches farmers sustainable farming practices. This initiative aligns with Pope Francis' 2015 call for dialogue on environmental management to protect Earth's common home.⁸⁴

In addition to supporting organic farming, the Catholic Church in Zambia also launched the "Prayer for the Year of the Environment, 2018," urging community awareness of the need to preserve the environment. The Church's stance on soil conservation and environmental protection is consistent with Hansjürgens' view that soil is crucial for food security, combating climate change, and protecting biodiversity.⁸⁵

The religious belief that a higher being created the Earth and its resources underpins the responsibility of humans to care for the environment. This perspective is shared by other Christian denominations and other religious groups, all emphasising the role of humans as custodians of the Earth.

81 See Ministry of Chiefs and Traditional Affairs (2016).

82 See <https://www.indexmundi.com/zambia/religions.html>, accessed 5 February 2021.

83 Tembo (2016).

84 Pope Francis (2015); van Tine (2017: 141–178).

85 Hansjürgens et al. (2018: 1–9).

2 Main drivers of soil degradation

Zambia's primary drivers of soil degradation are mainly soil erosion, degradation, and deforestation. The country's significant energy deficit has also increased pressure on wood fuel, affecting sustainable soil management.

Soil erosion, a natural process, occurs when soil is removed by wind, water, or tillage at a faster rate than it is replenished.⁸⁶ While erosion has been part of agricultural history, recent human activities have accelerated the process, intensifying land degradation.⁸⁷ Erosion leads to the loss of topsoil, which negatively impacts crop production.⁸⁸

Other sectors, such as manufacturing, contribute to soil degradation through chemical processes and ineffective waste management, leading to contamination.⁸⁹ Additionally, foreign investments in various industries may further exacerbate land and soil degradation. Tourism, though beneficial for conservation, can also stress soil health through land-use changes, pollution, and habitat loss. However, tourism can also promote environmental awareness and the economic value of natural resources.⁹⁰

2.1 Mining and soil sustainability

Despite the economic benefits of mining, it has significant negative impacts on land and soil resources in Zambia. Mining contributes to soil and vegetation contamination through dust from smelters, crushers, and tailing impoundments, especially from illegal small-scale mining.⁹¹ Quarrying, driven by demand for construction materials, has also increased, bringing both socio-economic benefits and environmental harms.⁹² Uncontrolled quarrying, particularly in urban areas, leads to soil contamination, water pollution, erosion, deforestation, and loss of biodiversity. Additionally, sulphur dioxide emissions from mining can create acid rain, reducing soil fertility and crop production.⁹³

86 Ul Zaman et al. (2018: 1114).

87 Stanchi et al. (2015: 403–408).

88 Ul Zaman et al. (2018: 1116); Pimentel & Kounang (1995: 1117).

89 Alori & Nwapi (2014: 98–114).

90 Sunlu (2003: 263–270).

91 Křibek et al. (2008: 24–26).

92 ZEMA (2017: 84); Dymond, et al. (2007: 19–22).

93 ZEMA (2017: 84).

2.2 Unsustainable agricultural practices

Soil degradation in Zambia is worsened by non-sustainable practices such as cultivation along slopes, which leads to water concentration and erosion. Traditional methods such as shifting cultivation or ‘slash and burn’ also degrade the soil, as new areas are cleared when yields decline, leaving old sites fallow.

Soil acidity, particularly in northern Zambia’s leached soils, is another major issue. High acidity makes phosphates insoluble and unavailable to plants.⁹⁴ Fertiliser-induced acidification has led to the loss of up to 15% of arable land in 20 years.⁹⁵ While nitrogen fertilisers increase soil organic matter, prolonged use can destabilise clay soils, impair root growth, and cause significant organic matter loss.⁹⁶

2.3 Overstocking and overgrazing of animals

Soil degradation in Zambia is caused by bushfires, overgrazing, and overstocking of livestock.⁹⁷ While bushfires are a traditional practice in parts of central and northern Zambia, local communities often overlook their long-term harm to soil sustainability.⁹⁸ The presence of both domestic and wild herbivores places pressure on grazing lands, with human activities such as crop farming and mining further intensifying land use.⁹⁹ As livestock numbers rise, rural land becomes overused, leading to soil degradation.

In addition to natural factors including water and wind, human activities, particularly the *chitemene* system of shifting cultivation, contribute significantly to soil erosion and degradation.¹⁰⁰ This traditional practice, which involves slashing and burning vegetation, has led to the loss of large areas of the Miombo woodlands and deforestation.¹⁰¹ It has been estimated that northern Zambia has lost over 35% of its biomass due to *chitemene*, contributing to biodiversity loss, soil erosion, and fertility depletion.¹⁰² While it provides short-term benefits, such as nutrient-rich ash, the long-term environmental damage makes it unsustainable.¹⁰³ The practice is accelerating deforestation, soil degradation, and ecosystem destruction in the region.

94 Chidumayo (1987: 15–18).

95 Blackwell et al. (1991).

96 Ibid; ZEMA (2017: 47).

97 Eriksen (2007: 242–249).

98 ZEMA (2017: 84).

99 Ibid.: 48; Zaman (2018: 1114).

100 Eriksen (2007: 243–248).

101 ZEMA (2017: 51); See <http://www.bailiffafrica.org/the-extent-of-slash-and-burn-agriculture-in-zambia-by-clifford-malambo/>, accessed 15 April 2019.

102 Engel et al. (2017: 13); Ministry of Lands and Natural Resources (2017: i–iii & 1–5); Young (1989: 11–17).

103 Chidumayo (1987: 15–18); Neubert et al. (2011: 91–100); Gumbo et al. (2018: 12–21).

2.4 Incorrect use of fertilisers and pesticides

In Zambia, agriculture is divided into traditional subsistence farming and commercial farming, a structure rooted in the colonial era. The reliance on non-organic fertilisers has led to environmental damage and soil degradation.¹⁰⁴ To improve agricultural practices, Zambia is shifting from excessive chemical fertiliser use to conservation farming. This approach focuses on soil and water conservation, reducing fertiliser dependency, and restoring soil fertility damaged by years of intensive ploughing and fertiliser use. While conservation farming techniques are not yet legislated, there are plans to review agricultural laws to align them with Zambia's 2030 development agenda, incorporating international best practices.¹⁰⁵

2.5 Deforestation

Zambia's forests cover 45,610 hectares, about 60% of the country's land area. These forests are mainly composed of closed forests with evergreen and deciduous trees and open forests such as the Miombo woodlands, which make up 60% of Zambia's forest area.¹⁰⁶ Charcoal production, a key energy source for urban households, is a major cause of deforestation.¹⁰⁷

Reforestation efforts started in the 1960s, covering over 55,000 hectares with Pine and Eucalyptus trees, though these efforts are insufficient to meet demand, leading to a decline in commercial reforestation.¹⁰⁸ Deforestation is exacerbated by charcoal use, poor farming practices, bushfires, illegal logging, and overgrazing.¹⁰⁹ It is estimated that Zambia loses 250,000 hectares of forest annually, contributing to biodiversity loss, reduced ecosystem services, and drying water sources.¹¹⁰

Soil degradation is further worsened by poor water and land management, leading to soil erosion, reduced fertility, and water retention.¹¹¹ Compacted soils cause rain-water runoff, taking valuable topsoil and nutrients, resulting in poor crop yields and water shortages.

104 Shitumbanuma et al. (undated); Sharma & Singhvi (2017: 677).

105 Engel et al. (2017: 13); Neubert et al. (2011: 87); Ayub (2020: 31–33).

106 Ministry of National Development Planning (2016: 5–6); Gumbo et al. (2018: 10–11); Japan Association for International Collaboration of Agriculture and Forestry (2008: 21).

107 Chidumayo & Gumbo (2013: 86–89).

108 Chileshe (2001: 20); Ministry of Agriculture (2017: 1).

109 Japan Association for International Collaboration of Agriculture and Forestry (2008: 25); Chileshe (2001: 20–23).

110 UNEP (2015: 12–25); Mudenda (2010: 6); Ministry of National Development Planning (2016: 6); Gumbo et al. (2018: 2, 35 & 44–48).

111 Mudenda (2010: 7).

2.6 Climate change effects

Climate change is a growing challenge worldwide, and in Zambia, it has led to droughts, floods, and extreme temperatures, impacting food and water security, energy, and livelihoods. These events have contributed to land degradation and desertification, posing a serious threat to soil and ecosystems.¹¹² Despite this, Zambia's climate policies, including the National Policy on Climate Change, do not directly address soil sustainability.

Zambia's Ministry of Finance and Ministry of Environment previously had differing approaches to climate change.¹¹³ However, the creation of the Ministry of Green Economy and Environment in 2021 marked a shift towards green growth, with the inclusion of environmental sustainability in the 8th National Development Plan (2022-2026).¹¹⁴ The ministry has overseen the development of several climate strategies and plans, including the National Adaptation Programme of Action (NAPA) and the Nationally Determined Contribution (NDC). Despite these efforts, none of Zambia's climate frameworks specifically address soil sustainability or its link to food security.

2.7 Poverty and demographic growth

Since gaining independence, Zambia's economic fortunes have been mixed, with steady growth from 1990 to 2015 but persistent poverty.¹¹⁵ Income poverty decreased by 24.6% overall between 1991 and 2015, with more significant reductions in urban areas, where it fell from 49% to 23.4%. In rural areas, it dropped from 88% to 76.6%.¹¹⁶

Population growth in Zambia is closely linked to soil sustainability, as most land (90%) is under customary law. Increased urbanisation puts pressure on land and exacerbates harmful agricultural and industrial practices. Settlements in ecologically sensitive areas such as wetlands and game management zones contribute to waste and pollution, leading to health issues including cholera and dysentery, as well as infrastructure damage.¹¹⁷

112 Ministry of National Development Planning (2016: 2).

113 Ministry of Finance and National Planning (2011), this Ministry has now been split into two, namely the Ministry of Finance and the Ministry of National Development Planning; Ministry of Tourism Environment and Natural Resources (2010: ii), which was also split into Ministry of Tourism and Arts, Ministry of Water Development, Sanitation and Environmental Protection and Ministry of Lands and Natural Resources.

114 See https://www.mgee.gov.zm/?page_id=197#:~:text=His%20Excellency%2C%20Mr%20Hakainde%20Hichilema,to%20a%20green%20growth%20pathway, accessed 18 September 2024.

115 Ministry of National Development Planning (2017: 13).

116 Central Statistical Office (2016: 9).

117 ZEMA (2017).

In 2015, 40.8% of Zambia's population was extremely poor, with 13.6% moderately poor.¹¹⁸ Despite economic growth, poverty reduction has been slow, particularly in rural areas.¹¹⁹ Growth has been concentrated in capital-intensive industries such as mining and construction, benefiting urban areas more than rural ones, and has not translated into growth in agriculture, where most of the poor work.¹²⁰

2.8 Urbanisation

Zambia is one of the most urbanised countries in sub-Saharan Africa, with 42.1% of the population living in urban areas, mainly along the rail line.¹²¹ Major urban centres such as Lusaka, Ndola, and Kitwe offer better access to public services and infrastructure than rural areas, creating a clear divide between urban and rural settlements.¹²² Rapid urbanisation puts pressure on the government to find land for new settlements, often at the cost of ecological areas including forests and protected zones.

Water scarcity is already a major issue, affecting 1.7 billion people, and is expected to impact five billion by 2025. Climate change will worsen this, especially in the subtropics, increasing evaporation and altering rainfall patterns. By 2021, nearly two million more Africans may lack access to clean water, exacerbating poverty and health issues such as malaria and cholera, while further stressing natural resources including water and soil.¹²³

2.9 Weak governance systems

Weak governance systems across all sectors are a major challenge to environmental well-being in Zambia.¹²⁴ Key deficiencies in the environmental and soil governance framework include gaps in policy, institutional weaknesses, and poor coordination between grassroots stakeholders and state institutions that enforce laws.¹²⁵

In the forestry sector, weak policy implementation is a significant issue, contributing to deforestation and soil degradation.¹²⁶ Similar challenges are present in other sectors, including inadequate institutional capacity, lack of intersectoral coordination, corruption, political influences, insecure land tenure, and poor funding.

118 See www.stats.gov.zm for this and further information.

119 Ministry of National Development Planning (2017: 11); Central Statistical Office (2016: 23).

120 Ministry of Finance (2017: 5).

121 Mususa (2012: 571–573); Osei-Hwedi (1996); Huth (1984: 1–16).

122 Ministry of Finance (2017: 35).

123 Mudenda (2010: 5–7); Addaney et al. (2018: 182–184).

124 Republic of Zambia (2009: 7).

125 Madzudzo et al. (2013: 10–11).

126 Kalaba (2016: 42–43).

Research highlights the difficulties in implementing climate change laws, which contribute to soil and land degradation.¹²⁷ While sector-specific efforts are underway, a more coordinated approach, such as the National Climate Change Policy, is hoped to address these challenges and improve soil management through better monitoring and enforcement.

3 Relevant legislative framework on the main drivers of soil degradation

This section analyses the legislative framework relating to the main drivers of soil degradation in Zambia. This section starts by recapping that there are no legislative provisions dedicated to sustainable soil management in Zambia. However, many legislative provisions relate to the conservation of biological diversity and environmental well-being and are therefore relevant, by implication. The section specifically analyses relevant constitutional provisions and legislation related to mining, agriculture, land tenure, the environment, and natural resources.

3.1 Constitutional provisions on soil sustainability

The current *Zambian Constitution*, enacted in 2016, is relatively new, and most environmental provisions that could enhance soil sustainability have not yet been fully implemented. Article 147 provides for a devolved governance system, where soil erosion prevention is a shared responsibility between national and provincial levels.

Part XIX of the Constitution addresses land, environment, and natural resources.¹²⁸ Article 253 outlines key principles for land use, including equitable access, tenure security, sustainable land management, and public access to ecologically sensitive areas for conservation. These principles aim to ensure that land, including soil, is used sustainably for current and future generations, though it is unclear how effectively this is enforced.

Article 255 focuses on environmental management, emphasising the value of natural resources and the need to prevent and repair environmental damage. It calls for sustainable resource use, rehabilitation of degraded areas, and equitable sharing of benefits from natural resources.

Article 256 stresses the responsibility of citizens to contribute to environmental protection, with a focus on sustainable development and soil management. These principles are being integrated into the *Solid Waste Management Act*.

127 Christoplos et al. (2016: 55–56).

128 This covers Arts 253–257 of the Constitution; See also Sambo (2019: 655–656) analysing these constitutional provisions in the light of their relevance in creating an ‘environmental ethos’ in Zambia.

Finally, Article 257 outlines state responsibilities for protecting biodiversity, minimising waste, and promoting public participation in environmental governance, including measures to address climate change.

3.2 Mining legislation

The mining industry in Zambia is primarily governed by the Mines and Minerals Development Act (MMDA)¹²⁹ and its amendments, which focus on mineral exploration, mining, and environmental protection. Key provisions relevant to soil sustainability include Sections 80-87, which address safety, health, and environmental safeguards. The MMDA requires mining applicants to consider soil conservation, environmental impact assessments (EIA), and specific environmental protection measures before obtaining mining rights. Mining operations can be suspended or closed for failing to comply with environmental conditions, including those related to soil health. Since the enactment of the MMDA, several mining companies have been held accountable for ongoing pollution, through court prosecutions.¹³⁰

The Act mandates that mining rights holders are liable for any harm, including soil contamination, caused by their operations, with compensation requirements for rehabilitation and clean-up. It also introduces the principle of strict liability for environmental damage, ensuring accountability even without intent or negligence.

Further, Section 87 broadens the right to bring legal actions for environmental damage, allowing various stakeholders, including NGOs, to advocate for soil protection in mining areas.¹³¹ While some provisions may be vague, the MMDA, in combination with the Environmental Management Act, provides a strong framework for advancing soil sustainability in Zambia's mining sector.

129 Some of the subsidiary legislation include, but are not limited to Mines and Minerals Development (Application for Mining Rights) Regulations SI No. 123 of 1996; Mines and Minerals (Application for Mining Rights) (Amendment) Regulations SI No. 29 of 1997; Mines and Minerals Development (Environment Protection Fund) Regulations SI No. 102 of 1998; Mines and Mineral (Environment) (Exemption) (Amendment) Order, SI No. 31 of 2000; Mines and Minerals Development (General) Regulations SI No. 84 of 2008; Mines and Minerals Development (Prospecting, Mining and Milling of Uranium ores and other Radioactive Mineral Ores) Regulations, SI No. 85 of 2000; Mines and Minerals Development (Mining Rights and Non- Mining Rights) Order, SI No. 27 of 2009; and Mines and Minerals Development (General) Regulations SI No. 7 of 2016.

130 Mulenga (2019): 3 & 12–15).

131 *Rylands v Fletcher* (1868) LR 3HC 330; See also Sec 3(a) of the Law Reform (Limitation of Actions) Act, chapter 72 of the laws of Zambia.

3.3 Agricultural legislation

The projected development trajectory of the country rests on agriculture. It is expected that there will be further strain on agriculture to achieve the country's SDG targets. Despite this expectation, most of the sector legislation does not specifically address soil-related issues that have been pointed out as driving soil degradation. One reason for this is that the sector is still addressing one of its policy targets by reviewing its legislative and policy framework. Further, it is important to point out that the provisions of the Environmental Management Act (EMA), 2011 take precedence over other laws concerning environmental matters. To this end, the shortcomings of legislation in agriculture can be remedied by the EMA, 2011, where necessary. From the current legal framework, it is only possible to discuss two pieces of legislation.

3.3.1 Fencing Act, Chapter 190

The erection and maintenance of dividing fences are regulated by this piece of legislation. By implication, the Fencing Act may be relevant to soil sustainability in so far as environmental assessments may be necessary to undertake such developments.

3.3.2 Agriculture (Fertilisers and Feed) Act, Chapter 226

The Preamble to the Agriculture Act provides that it is purposed to regulate and control the manufacture, processing, importation and sale of agricultural fertilisers and farm feed as well as provide for minimum standards of effectiveness and purity of such fertilisers and feed and other connected matters. The Act does not provide for standards relevant to soil quality or the impact of fertilisers on the soil.

3.4 Public environmental legislation and soil sustainability

Public environmental law in the context of Zambia refers to the framework and sectoral natural resources legislation. These pieces of legislation are relevant in the quest for sustainable soil management. First and foremost, it is important to understand the Zambian land tenure system before focusing on the environmental and natural resources legislation. The discussion in the next section will progress under the ambit of the relevant overarching constitutional provisions.

3.4.1 Land tenure system

The legal framework on land in Zambia is governed by the Constitution and Acts of Parliament. Article 254 of the Constitution classifies land as state, customary, and other types, and grants the President, through the Lands Commission, authority to allocate land. The Constitution also protects land from deprivation (Article 16), ensuring the security of tenure, whether under customary or state land tenure, indirectly supporting soil sustainability.

Zambia's land tenure system is dualist, combining traditional and Western models. Traditionally, land was held on a usufructuary basis, with access granted through community membership. Customary tenure was based on social relationships rather than property rights, with land controlled as a source of wealth.¹³² The British introduced freehold land tenure in 1911, but indigenous people were not allowed to own land, leading to inequalities in land distribution.¹³³

Post-independence, land reforms in 1975 nationalised land and converted freehold tenure to leasehold, limiting private land ownership.¹³⁴ In 1991, Zambia adopted market-oriented policies and passed the Lands Act in 1995, which established the current land tenure system.¹³⁵ Leasehold tenure applies to state land and registered customary land, while customary tenure covers most of the country's area and is home to protected areas.

There were about 200,000 leaseholds on seven million hectares, about 9% of the country in 2016.¹³⁶ There are four different types of state-registered leases: first, a ten-year renewable Land Record Card issued on municipal land; second, a fourteen-year interim lease based on a sketch pending a registered boundary survey; third, a 30-year Land Occupancy License in municipal areas and settlement schemes; and fourthly, ten- and 30-year leases which the local authorities give without requirement for legally approved boundaries. A 99-year leasehold period is typical for all surveyed land.¹³⁷

Approximately 40% of the country's population is on state land and it has been noted that this is a considerable proportion of the population to be on less than 10% of the country's available land.¹³⁸ Customary land occupation accounts for a little less than 60% of the population, covering 90% of the country's area. Customary tenure is also home to the country's protected areas, wildlife estates, national parks, game management areas, and about 74% of protected forest areas.¹³⁹

132 Loenen (1999: 3-5); Mvunga (1980: 17).

133 See Mvunga (1978: 12, 39 & 54); Loenen (1999: 2& 9); Chinene et al. (1998: 9); Mudenda (2007: 351-358); Bull (2014: 27).

134 Mudenda (2007: 377).

135 Mudenda (2007: 405-407); Loenen (1999: 7).

136 Ministry of Lands and Natural Resources (2017: 1).

137 Chinene et al. (1998: 4).

138 Ministry of National Development Planning (2006: 7).

139 Chinene et al. (1998: 7).

Public land in Zambia includes land managed by the government, while common lands are reserved for community use. Key legislative acts shaping land tenure include those governing state and customary land.

3.4.1.1 Lands Act, Chapter 184

The Lands Act provides for the continuation of leaseholds and leasehold tenure and the continued vesting of land in the President and alienation of land by the President. The Act further provides for the statutory recognition and continuation of customary tenure, and conversion of customary tenure into leasehold tenure. The Lands Act, as with the other pieces of legislation on land matters, does not expressly make any reference to soil sustainability matters. As noted earlier, the legal and policy framework relating to land is earmarked for revision. It is hoped that the soil sustainability discourse can be incorporated into the ongoing consultations.

3.4.1.2 Lands and Deeds Registry Act, Chapter 185

The Lands and Deeds Registry Act provides for the registration of documents and the issuance of Provisional Certificates of Title and Certificates of Title, as well as the transfer and transmission of registered land.

3.4.1.3 Land (Perpetual Succession) Act, Chapter 186

The Land (Perpetual Succession) Act provides for perpetual succession to land and allows for the holding of land in trust as a body corporate.

3.4.1.4 Land Survey Act, Chapter 188

The Land Survey Act makes comprehensive provision for the registration and licensing of land surveyors, how land surveys should be carried out and diagrams and plans connected with land surveys should be prepared. The Act does not have any direct soil-relevant provisions.

3.4.1.5 Lands Acquisition Act, Chapter 189

The Lands Acquisition Act provides for the compulsory acquisition of land and other property. The Act ensures that adequate and prompt compensation is paid where it is liable to be paid, or alternative land is provided as a replacement for the land compulsorily acquired. By implication, this piece of legislation might be relevant if the purpose for compulsory acquisition is about or related to soil conservation.

3.4.2 Environmental Management Act, No. 12 of 2011

The Environmental Management Act (EMA) 2011 is Zambia's main environmental legislation, aiming for integrated environmental management and the sustainable use of natural resources. It provides for public participation in decision-making and mandates strategic environmental assessments for policies and plans with potential environmental impacts. The EMA emphasises the protection of soil and ecosystems, defining "sustainable management" as safeguarding the life-supporting capacity of air, water, soil, and ecosystems.¹⁴⁰

Key provisions relevant to soil include Section 75, which calls for identifying areas at risk of degradation, such as those prone to erosion, and Section 76, which ensures that natural resource management, including soil, aligns with sectoral legislation. The Act also mandates environmental restoration orders for land degradation, including soil restoration.

The 2023 amendment introduced new terms related to waste and green economy, empowering the Zambia Environmental Management Agency (ZEMA) to reject projects with adverse impacts, including soil degradation, and to enforce stricter regulations on environmental assessments, reinforcing soil sustainability in Zambia.

3.4.3 Forests Act, No. 4 of 2015

The Forests Act No. 4 of 2015 governs the establishment of various forest areas, including national, local, community, and private forests. It emphasises the participation of local communities, authorities, and stakeholders in sustainable forest management and supports international environmental agreements such as the UN Framework Convention on Climate Change and the Convention on Biological Diversity.

Although the Act is new, it has not yet led to significant legal developments. A notable instance of this is the degazetting of a forest reserve in Lusaka in 2019 for

140 Sambo (2019: 647–664).

infrastructure projects, highlighting a lack of understanding and political support for natural resource management in Zambia.¹⁴¹

Section 2 of the Act recognises soil as a “forest produce” and includes it as part of forest resources, along with vegetation and ecological services such as soil quality maintenance and erosion control. Section 45 empowers the Minister to enforce conservation measures for natural resource protection, making the Act relevant to soil sustainability.

3.4.4 Urban and Regional Planning Act, No. 3 of 2015

The Urban and Regional Planning Act No. 3 of 2015 provides a framework for urban and regional planning in Zambia, emphasising democratic, transparent, and inclusive processes. It promotes broad-based participation from communities, the private sector, and other stakeholders, which, by implication, should include considerations for soil sustainability due to the geographical sensitivity of areas. However, the Act does not explicitly address soil sustainability.

The Act ensures integrated urban and regional planning within a devolved governance system, supporting environmentally, socially, and economically sustainable development. It references other regulatory instruments such as the Environmental Management Act and the Public Health Act, highlighting the interconnected nature of settlement issues. While it allows for locational prerequisites to protect area characteristics, the inclusion of soil sustainability in environmental impact assessments (EIAs) remains uncertain.

3.4.5 Local Government Act, No. 2 of 2019

Section 16(2) of the Local Government Act outlines the functions of local authorities. This provision shows that local authorities, first and foremost, have responsibilities in environmental management as also outlined in the Constitution. Further, these responsibilities extend to the conservation of natural resources and particularly to the prevention of soil erosion. It, however, remains unclear whether the local authorities carry out these functions.

141 See <https://tizambia.org.zm/transparency-international-zambias-statement-on-leaders-acquisition-of-land-on-forest-27/>, accessed 2 February 2021.

3.4.6 Solid Waste Regulation and Management Act, No. 20 of 2018

The Solid Waste Regulation and Management Act No. 20 of 2018 governs the sustainable management of solid waste, excluding hazardous, e-waste and healthcare waste regulated under the EMA, 2011. Key principles include restricting landfills near sensitive areas such as wetlands and floodplains and ensuring consumer participation in waste management decisions.

Section 6(5) empowers local authorities to manage solid waste, determine landfill locations in consultation with the ZEMA, and adhere to international best practices. Impact assessments must include soil management measures to prevent environmental harm.

Sections 33 and 34 prohibit burning and burying non-organic waste to avoid soil contamination, though no detailed explanation is provided. Section 78(2) emphasises soil evaluation as essential for monitoring waste's environmental and health impacts. As the Act is recent, evidence of soil evaluations under this provision is yet to be established.

3.4.7 Green Economy and Climate Change Act, No. 18 of 2024

This piece of legislation governs climate change adaptation and disaster risk reduction, climate change mitigation, low emission development, green economy and related actions, regulation of carbon markets, and environmental and social safeguards in climate change actions. It also establishes the Climate Change Fund and domesticates the United Nations Framework Convention on Climate Change and the Paris Agreement and other related issues. In line with the provisions of the Environmental Management Act No. 8 of 2023 which creates a green economy, within which sustainable soil management needs to be prioritised. This piece of legislation has immense potential for sustainable soil management, although none of its provisions make soil-specific references.

4 Relevant policy framework on the main drivers of soil degradation

The legal and policy framework in Zambia does not directly address soil sustainability issues per se but rather focuses on land tenure and usage systems, agriculture, forests, water and environmental protection generally. In examining the relevant legislation, a particular focus is directed at the soil-relevant provisions, their enforceability and any applicable subsidiary legislation. This section starts by examining the policy framework concerning the overall developmental agenda of the country. This is followed by a consideration of policies as they relate to the main drivers of soil degradation, namely

land, environment, climate change, agriculture and mining, before examining the applicable legislative framework.

4.1 Vision 2030

Zambia's Vision 2030 aims to transform the country into a prosperous middle-income industrial nation by 2030, fostering socio-economic justice and improving well-being. It focuses on three priority areas: economic growth and wealth creation, social investment and human development, and creating an enabling environment for sustainable development.¹⁴²

The Vision is implemented through five-year national development plans, with the current Seventh National Development Plan (SNDP) covering 2017–2021. Stakeholders, including the government, private sector, civil society, and communities, are integral to its success. Medium-term expenditure frameworks and annual budgets support its execution.

Vision 2030 promotes decentralised governance and sets sector-specific goals, such as reducing wood fuel use to 40% in the energy sector by 2030 and contributing to sustainable natural resource management. While Zambia's abundant land is seen as a growth asset, it also poses risks to soil protection, emphasising the need for environmental assessments to safeguard natural resources.

The Vision envisions equitable access to basic needs such as shelter and titled land and aims to ensure fair and sustainable land use by 2030. The SNDP integrates the UN Sustainable Development Goals (SDGs) and Agenda 2063, providing a framework for achieving these objectives.¹⁴³

4.2 Sustainable Development Goals

The seventeen SDGs stem from the 2012 UN Conference on Sustainable Development (UNCSD) and its outcome document, *The Future We Want*.¹⁴⁴ These goals, building on the Millennium Development Goals (MDGs), include 169 targets addressing issues such as poverty, gender inequality, land degradation, and climate change.¹⁴⁵ The SDGs, though non-binding, have gained global acceptance since 2015, with countries incorporating them into national plans.

142 Ministry of National Development Planning (2006).

143 See <https://au.int/en/agenda2063/overview>, accessed 3 February 2021; Stevens (2019: 470–472).

144 See <https://bit.ly/2YWbJVj>, accessed 3 February 2021.

145 Stevens & Kanie (2016: 393–396).

Healthy soils are essential to achieving several SDGs, particularly those on food security, water, climate change, biodiversity, and land management.¹⁴⁶ SDG 15, especially Target 15.3, focuses on achieving land degradation neutrality (LDN) by 2030, aiming to restore degraded soils and combat desertification, drought, and floods. LDN seeks to maintain or enhance land resources to support ecosystems and food security.¹⁴⁷

Africa, facing severe land degradation, must leverage the SDGs and LDN to implement indigenous interventions.¹⁴⁸ Zambia, alongside UNCCD and IUCN, has engaged women farmers, policymakers, and NGOs to mainstream gender in LDN projects.¹⁴⁹ However, Zambia lacks specific legal provisions addressing LDN, highlighting the need for targeted laws and policies to meet its LDN goals.

4.3 Seventh National Development Plan

The SNDP highlights Zambia's advantage in renewable and natural resources, emphasising potential in tourism, renewable energy, green housing, forestry, and fisheries. However, it lacks a dedicated focus on soil sustainability, despite recognising the pressures placed on soil by economic and developmental activities.

The plan calls for policy shifts to achieve Vision 2030, particularly in food security and diversification, but fails to address measures to mitigate soil degradation. Economic diversification is prioritised to reduce dependence on mining and promote other sectors. Additionally, the plan advocates for a strong manufacturing and industrial base to boost exports, stabilise the economy and create jobs.

While these initiatives hold promise for economic growth, they also risk soil contamination if sustainability measures are not integrated into implementation strategies.

4.4 Draft National Land Policy, 2017

Land evaluation is essential for understanding soil components, yet Zambia's National Land Policy (2017) remains in draft form after prolonged stakeholder discussions. The draft policy acknowledges declining soil quality and fertility, emphasising the need for measures to curb harmful practices.

146 Orr et al. (2017: 72–73).

147 See Metternicht et al. (2019: 189–191); Gilbey et al. (2019: 230–237); Von Malitz et al. (2019: 54–62); <https://knowledge.unccd.int/knowledge-products-and-pillars/ldn-target-setting-building-blocks/land-degradation-neutrality-ldn>, accessed 3 February 2021; Orr et al. (2017: 15); Smith (2018: 285–287).

148 Kibugi (2018: 387–390).

149 See <https://www.unccd.int/news-events/ldn-projects-zambia-amplifying-gender-dimension>, accessed 3 February 2021.

A key challenge in finalising the policy is resistance from traditional leaders, who fear losing authority over land administration.¹⁵⁰ Customary land rights are often undefined or contradictory, and the roles of traditional and local authorities lack clear guidelines. Resolving these issues requires a consultative and consensual approach to balance traditional authority with environmental sustainability goals.

4.5 National Policy on Environment, 2009

Zambia's National Policy on Environment highlights two key soil-related challenges: natural disaster risks and climate change effects. Extreme weather events such as droughts and floods threaten food security, public health, and natural resources, worsening land degradation and water issues. Climate change has intensified droughts, rising temperatures, and erratic rainfall, with increasing frequency and severity expected, negatively impacting the economy and livelihoods.¹⁵¹

Climate change is projected to cost Zambia 0.4% of annual economic growth, with rainfall variability potentially reducing GDP growth by 0.9% over the next decade, deepening poverty.¹⁵² Recent hydropower losses of about 600 MW, linked to poor rainfall, have slowed growth in agriculture, manufacturing, mining, and services. Other impacts include higher healthcare costs, infrastructure damage, and biodiversity loss.

Adapting to and mitigating climate change will boost economic growth, improve health, and reduce risks including water shortages and pollution, fostering overall social and environmental well-being.¹⁵³

4.6 National Climate Change Policy, 2016

Zambia's National Climate Change Policy (NCCP), launched in March 2017, aims to address climate change impacts, including crop failure and reduced energy production, which threaten economic growth. Developed by the Ministry of National Development and Planning, the NCCP emphasises collaboration among ministries and prioritises vulnerable groups including rural women, children, and youth. It aligns with the UNFCCC's objectives, promoting sustainable land use to reduce GHG emissions and integrating climate change into policies and plans.¹⁵⁴

150 Ministry of Lands and Natural Resources (2018: 1–3).

151 Ministry of National Development Planning (2016: 2–8 & 34–36).

152 See https://www.climatelearningplatform.org/sites/default/files/resources/zambia_climate_risk_screening_report_-_final.pdf, accessed 3 February 2021.

153 Ministry of National Development Planning (2017: 54).

154 Ministry of National Development Planning (2016: 3).

The NCCP ensures coherence between National Development Plans and climate programs through a multisectoral approach.¹⁵⁵ Complementary legislation includes the and laws on forestry, wildlife, agriculture, and urban planning. The EMA Amendment Act No. 8 of 2023 strengthens Zambia's green economy focus, incorporating low-carbon development, resource efficiency, and climate resilience into national planning.

Key NCCP measures include climate program coordination,¹⁵⁶ advancing climate-specific legislation, disaster risk reduction, and promoting sustainable land use.¹⁵⁷ These initiatives are crucial for building a low-carbon economy, reducing environmental risks, and supporting Zambia's climate change goals. Proper implementation of these policies could significantly enhance environmental regulation and foster sustainable development.

4.7 National Agricultural Policy, 2016

The First National Agricultural Policy (FNAP) 2004–2015 laid a foundational framework for Zambia's agricultural sector, emphasising liberalisation, commercialisation, public-private sector collaboration, and efficient service provision.¹⁵⁸ It aimed to secure food supplies and develop a competitive and sustainable agricultural sector contributing to GDP. Five key objectives underpin this policy: ensuring national and household food security, supporting industrial development, increasing agricultural exports, generating income and employment, and preserving the agricultural resource base. Among the nineteen strategies devised, several are directly related to soil sustainability, such as ensuring product quality for export, strengthening support for small-scale farmers, reforming institutional and legal frameworks, improving land access, and promoting sustainable agriculture.

The Second National Agricultural Policy (SNAP) 2016–2020, though building on FNAP's goals, prioritised overhauling Zambia's agricultural legislative framework, a task that remains unfulfilled. This lack of legislative reform has hampered SNAP's ability to meet its aspirations fully. However, positive advancements such as conservation farming have emerged, offering crucial benefits for sustainable soil management. Conservation farming, for instance, enhances water infiltration, root development, and targeted fertilisation, restoring fertility to overexploited soils and increasing yields with moderate inputs.¹⁵⁹

155 Ibid.: 18–25.

156 Dupuy et al. (2019: 1).

157 Personal communication with officers at the Disaster Management and Mitigation Unit.

158 Ministry of Agriculture and Cooperatives (2004: 1–4).

159 Shitumbanuma et al. (undated); See <http://www.fao.org/conservation-agriculture/en/>, accessed 3 February 2021.

SNAP's objectives relevant to soil sustainability include promoting the efficient use of inputs such as fertilisers and water, ensuring sustainable natural resource management, improving food and nutrition security through diversified production, and increasing private sector involvement via a strengthened legal framework. Operationalised by the Ministry of Agriculture and local authorities, SNAP encourages sustainable land management technologies, such as conservation agriculture and optimal stock densities. Conservation farming has proven particularly impactful, addressing soil degradation caused by excessive ploughing and reliance on chemical fertilisers, while also enhancing farmer incomes and transitioning away from inefficient traditional methods such as hand-hoe farming.

5 Relevant international soil commitments

Zambia is engaged in various regional and global initiatives that require compliance with international law. Under Zambia's legal system, international treaties do not automatically become part of domestic law due to the country's dualist approach.¹⁶⁰ This means that international agreements must be approved and domesticated by the National Assembly before they can be implemented. According to the *Zambian Constitution*, while the Executive, led by the President, handles the negotiation and signing of international agreements, the National Assembly oversees and must approve their ratification.

To facilitate this process, the *Ratification of International Agreements Act*, No. 34 of 2016, was enacted. The Act mandates that the Minister responsible for the subject matter of the agreement must undertake a due diligence process to determine if ratification is in the country's best interest. If the National Assembly approves the ratification, the agreement must be domesticated, which could involve enacting local legislation or incorporating the agreement's provisions into an Act.

In the context of environmental agreements relevant to soil sustainability, the EMA is crucial. Section 84 of the EMA outlines Zambia's sovereignty over its environment and natural resources and commits the government to cooperate with other nations and organisations in protecting the environment. When Zambia signs international agreements on environmental protection, the Minister is responsible for ensuring ratification and implementing the agreement, potentially delegating implementation to relevant institutions such as ZEMA.

Thus, international commitments related to soil sustainability can be domesticated into *Zambian law* following the constitutional and procedural requirements outlined above.

160 Munalula (2004: 89–90).

6 Regional commitments

At the subregional level (i.e., SADC), Zambia is a signatory to agreements and protocols on forests, wildlife, water, energy, agriculture, and others that fall under trade through COMESA. Some of these are relevant to soil sustainability and are analysed below.

6.1 Common Market for Eastern and Southern Africa

COMESA is a regional organisation of independent states, including Zambia, committed to cooperation in developing natural and human resources for the benefit of their people.¹⁶¹ The primary goal of the COMESA Treaty is to enhance trade and economic cooperation among member states, with specific undertakings in agriculture, economic, and social development.

In agriculture, COMESA member states commit to cooperating in agricultural development, adopting a common agricultural policy, ensuring regional food sufficiency, enhancing rural development, and supporting agricultural research and extension. These goals rely heavily on soil sustainability, as soil is fundamental to agricultural production and food security. Additionally, COMESA's commitment to the development and management of natural resources, energy, and the environment (Article 4(1)(6)(h)) highlights the importance of natural resource conservation for environmental well-being, with soil playing a central role in this process.

However, while the treaty emphasises agriculture and environmental cooperation, there is no specific focus on soil health. Despite this gap, there are opportunities for COMESA member states to integrate soil sustainability into their regional development frameworks. Effective enforcement and implementation of soil sustainability initiatives may face challenges, including economic, political, and institutional constraints.¹⁶² Furthermore, soil sustainability might not be immediately viewed as a priority for enhancing trade, which could hinder its integration into regional policies.

6.2 Southern African Development Community

The SADC is a regional economic community of which Zambia is a member. The objectives of SADC include the promotion of sustainable and equitable economic growth and socio-economic development as a way of alleviating poverty through regional integration.¹⁶³ Additionally, the sustainable utilisation of natural resources and

161 See <https://www.comesa.int/comesa-treaty/>, accessed 3 February 2021.

162 Geda & Kebret (2008: 357–360).

163 Zongwe (2011: 12).

effective protection of the environment are among the other main objectives of SADC (Article 5(1)). At this point, it is noteworthy that there is no dedicated focus on soil sustainability in the SADC objectives. It must, however, be mentioned that “effective protection of the environment” can be interpreted to mean that. In achieving its objectives, SADC gives priority to improved utilisation and stewardship of natural resources, by focusing on key areas, namely forests, wildlife, fisheries, trans-frontier conservation areas, and water.¹⁶⁴

6.3 African Union

The African Union (AU), established in 2002 as the successor to the Organisation of African Unity (OAU), is a 55-member continental body.¹⁶⁵ Zambia is among its member states. The AU aims to accelerate continental integration, enabling Africa to assert its role in the global economy while addressing social, economic, and political challenges, particularly those exacerbated by globalisation. This builds on the OAU’s Pan-Africanism, which emphasised African unity, socialism, communal practices, and the promotion of Africa’s culture and heritage.

Key AU objectives relevant to sustainable soil management in Zambia and Africa include promoting sustainable development, integrating African economies, fostering cooperation to improve living standards, advancing research, especially in science and technology, and defending Africa’s collective interests. The AU’s Agenda 2063, a strategic framework for inclusive and sustainable development, aligns with the global 2030 Agenda for Sustainable Development.¹⁶⁶ Both agendas focus on social, economic, and environmental sustainability, offering African countries an opportunity to collaborate on advancing soil conservation as part of their broader development goals.

7 Multilateral environmental treaties

Zambia has ratified or signed several conventions relevant to enhancing soil sustainability both domestically and internationally. Key legislation, such as the EMA, along with laws related to water, fisheries, forests, and wildlife, help implement these multilateral environmental agreements (MEAs). Notable conventions include the Convention on Biological Diversity (CBD) (1993), aimed at conserving biodiversity and promoting sustainable development through habitat conservation, restoration, and protection; the United Nations Convention to Combat Desertification (UNCCD) (1994),

¹⁶⁴ Ibid.: 17.

¹⁶⁵ See <https://au.int/en/overview>, accessed 3 February 2021.

¹⁶⁶ See <https://www.un.org/en/africa/osaa/pdf/au/agenda2063-presentation.pdf>; <https://bit.ly/3txZPip>, accessed 3 February 2021.

focused on improving living conditions in arid and semi-arid areas; the Convention on International Trade in Endangered Species (CITES) (1975), regulating trade in endangered species to ensure their survival; the Ramsar Convention (1971), promoting international cooperation to protect wetlands and waterfowl habitats; and the United Nations Framework Convention on Climate Change (UNFCCC) (1992), working to stabilise greenhouse gas concentrations and mitigate climate change. Other international agreements, such as the Montreal Protocol, Basel Convention, and Stockholm Convention, address environmental concerns, though none are specifically dedicated to soil sustainability. However, their provisions can be adapted to support soil conservation efforts.

8 Cross-cutting issues

This section analyses cross-cutting issues that have an impact on the achievement of soil sustainability in Zambia.

8.1 Environmental impact assessments

The EMA mandates the conduct of EIAs to evaluate whether activities or projects may have adverse effects on the environment. Section 117 of the EMA makes it mandatory for EIAs to be conducted before undertaking any prescribed activity, and failure to comply with this requirement results in criminal liability. However, the regulations that govern EIAs under the EMA, specifically the 1997 Environmental Protection and Pollution Control Act (EPPCA) regulations, were issued under the now-repealed EPPCA of 1990. Although technically repealed, these regulations remain in force because statutory instruments issued under a repealed law continue to apply unless they conflict with the new law.¹⁶⁷ As such, the 1997 EIA regulations remain valid until challenged for inconsistency with the EMA.

These outdated regulations are relevant to sustainable soil management in Zambia because they include considerations for soil fertility as a potential adverse environmental impact under Regulation 8(3). This regulation requires that ecological factors, including soil fertility, be considered when assessing the environmental effects of development projects. While this provision acknowledges the importance of soil to ecosystems, it limits the scope of protection to soil fertility rather than considering broader soil sustainability. This is a significant limitation, as it overlooks the broader role of

¹⁶⁷ Statutory Instrument No. 28 of 1997, the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, 1997; Sec 15 of the Interpretation and General Provisions Act, chapter 2 of the Laws of Zambia.

soil in sustaining ecosystems, particularly in the face of challenges such as soil erosion, degradation, and nutrient depletion.

Given the outdated legal framework, the 1997 regulations should be replaced with more comprehensive, modern provisions that reflect current environmental priorities and global trends in sustainability. Such updated regulations could play a crucial role in promoting sustainable soil management in Zambia, ensuring that soil health is adequately protected as part of broader environmental protection efforts.

On technical legalities, the regulations have the force of law on the basis that where any Act of Parliament is repealed, any statutory instrument issued thereunder remains in force if it is not inconsistent with the repealing written law. As the current regulations have not yet been challenged for being inconsistent with the aspirations of the EMA, they remain in force for the time being.

8.2 Public participation

Public participation in environmental decision-making in Zambia is constitutionally guaranteed and further strengthened by provisions in the EMA, the Water Resources Act, and other natural resource legislation enacted after 2011.¹⁶⁸ Articles 255(1) and 257(d) of the Zambian Constitution emphasise the importance of public participation in the management and utilisation of natural resources, including soil sustainability, although the Constitution does not explicitly define “public participation.” These constitutional principles are elaborated on in the EMA.

The EMA, particularly Sections 91-94, provides specific mechanisms for public participation in environmental decision-making. Section 91 affirms that the public has the right to be informed about decisions affecting the environment, including soil, and to participate in the development of environmental policies, strategies, plans, and regulations. It requires authorities including ZEMA to establish mechanisms for collecting and responding to public input, which may include public debates and hearings. Section 91(3) further empowers the public to review documents related to environmental issues and participate in public hearings on any document under review.¹⁶⁹

However, while these provisions aim to promote soil sustainability by involving the public, their effectiveness is hindered by a lack of awareness and publicity about such participatory opportunities. Despite the legal framework in place, public access to information and engagement with the process remains limited, as there are no widespread campaigns or efforts to inform the public about these rights and opportunities.¹⁷⁰ Therefore, while the legal provisions exist, the low levels of awareness and

168 Munyinda & Habasonda (2013: 10–28).

169 Munyinda & Habasonde (2013: 20–28); Sambo (2019: 653).

170 Sambo (2019: 658).

engagement with these mechanisms undermine their full potential for advancing soil sustainability in Zambia.

8.3 Access to information

The EMA contains progressive provisions for accessing environmental information, which are relevant to sustainable soil management in Zambia, even though soil sustainability is not explicitly mentioned. Sections 86-90 of the EMA outline the responsibilities of ZEMA in managing and disseminating environmental information. Section 86 mandates ZEMA to gather, analyse, and disseminate data related to the environment and natural resources, which includes soil-related information. ZEMA must also carry out public education campaigns on environmental issues, which could include soil conservation. Section 87 requires ZEMA to establish a Central Environmental Information System to store environmental data, including soil-related information. Section 88 empowers ZEMA to integrate environmental matters, including soil, into educational programs, thus, raising public awareness about sustainable soil management. Section 89 requires ZEMA to conduct surveys, research, and studies to inform policy development, which could support more effective soil protection strategies. Section 90 mandates ZEMA to create and maintain an environmental information registry that includes various environmental documents, which must be publicly accessible. These provisions enable the public to access and review soil-related data, although there is currently limited use of the environmental information registry by local communities.

In addition to the EMA, the Access to Information Act (ATI), passed in June 2024, supplements these provisions by providing further legal grounds for accessing environmental information, including soil-specific data. While these laws promote transparency and public access to environmental information, their implementation, particularly concerning soil management, remains underutilised, as there is minimal engagement with the environmental information registry by local communities.

In Zambia, soil science primarily focuses on agronomic aspects, particularly food production, but there is a need to broaden its scope to include environmental management and climate change mitigation.¹⁷¹ Limited investment in research hampers critical studies and innovation and strengthening support for research and development is essential. The Soil Research Team under the Zambia Agriculture Research Institute (ZARI) coordinates fragmented efforts across soil physics, chemistry, microbiology, fertility (including agroforestry), and mapping. Key priorities include boosting capacity in soil surveys (300 professionals), mapping (50), research (100), advisory services (50), consulting (100), education (300), and other areas (50). Addressing these gaps is crucial for sustainable agriculture and climate resilience.

171 Rozanov & Wiese (2018).

8.4 Law concerning foreign investors

Zambia's legal and institutional framework for managing foreign investments includes the Constitution, sectoral and tax legislation, the Zambia Development Agency Act, and related policies.¹⁷² A study conducted between 2013 and 2015 found that while investments in key sectors including energy, forestry, mining, and agriculture—sectors that are closely tied to land and soil—were increasing, challenges remain in ensuring these investments contribute to sustainable development.¹⁷³ The study identified several issues, including a lack of incentives for sustainable land-use investments, insecure customary land tenure with limited legal protections for land users, low institutional capacity to enforce social and environmental safeguards, and limited access to information, which hinders public participation and scrutiny.¹⁷⁴ The research concluded that strengthening Zambia's legal and institutional framework, especially its enforcement mechanisms, is essential to effectively regulate investments that adhere to sustainable development principles and contribute to achieving the SDGs.

8.5 Competence of environmental enforcement

The enforcement of laws generally in Zambia has not been without administrative and other challenges. In many country reports on access to justice, it has been noted generally that inadequacy of expertise in specialised legal areas and inadequate staffing levels have continued to hamper the competence of enforcement. With specific reference to enforcement of environmental matters, and soil sustainability in particular, the EMA makes provision for the establishment of the Environmental Fund, as well as several other enforcement mechanisms, discussed below.

8.6 The Environment Fund

Section 95 establishes the Environment Fund, which is funded by Parliament appropriations, voluntary contributions, levies from developers, grants, and other sources. This fund aims to mitigate and restore environmental degradation, including soil sustainability, by supporting research and environmental management efforts. It does not apply to industries covered by the Environmental Protection Fund under the Mines and Minerals Development Act, 2015, or the Petroleum (Exploration and Production) Act, 2008. ZEMA manages the fund and maintains a register of activities that could harm the environment. Additionally, the EMA includes several enforcement mechanisms,

¹⁷² Sambo et al. (2015: 7–9).

¹⁷³ *Ibid.*: 2–3.

¹⁷⁴ *Ibid.*: 10–54.

such as audits, orders (compliance, protection, prevention, restoration), and civil or criminal prosecutions, which can be used to ensure soil sustainability.

8.7 Environmental audits

Section 101(1) requires property owners or project developers to take reasonable measures to mitigate adverse effects not covered in the environmental impact assessment (EIA) and to submit an annual environmental audit report to ZEMA. This provision can enhance soil protection by ensuring that soil sustainability is considered after a project's initiation, especially when it may have been overlooked in the original EIA. ZEMA inspectors can enter premises to verify compliance with the EIA, and accurate records must be kept to monitor the project's impact on the environment, including soil sustainability. This provides an opportunity to report and address any negative effects on soil health.

8.8 Environmental monitoring

Section 102(1) provides that environmental monitoring can be extended to “any possible changes in the environment”, which include changes in soil composition, fertility, and sustainability. This enforcement mechanism can be used to ensure that soil matters are also given priority as they contribute towards sustaining a clean and healthy environment. Further, ZEMA inspectors may enter any land or premises to monitor the effects upon the environment of any activities carried out on that land or premises.

8.8.1 Prevention orders

Section 103(1) allows the Director-General to issue a prevention order if there are reasonable grounds to believe that a person is or will be conducting an activity, or in possession of a substance, that may cause an adverse effect. The order can require compliance by a specified date, or immediately if no date is given. Failure to comply can result in a fine, imprisonment, or both. While there is no available jurisprudence on this provision, it could be used as a deterrent for severe breaches in soil management.

8.8.2 Protection orders

Protection orders under the EMA are another enforcement mechanism available for environmental conservation. Under Section 104, the Director-General of ZEMA can issue a protection order to the owner, manager, or person in control of the premises, vehicle, vessel, aircraft, or equipment involved in the activity, or to anyone who caused or permitted the activity. The order may require compliance by a specified date, or immediately if no date is given. Violating this order is an offence, punishable by a fine, imprisonment for up to one year, or both. There is currently no specific jurisprudence on the use of protection orders for sustainable soil management.

8.8.3 Restoration orders

Environmental restoration orders can be served on the owner, manager, or person in control of the premises, vehicle, vessel, aircraft, or equipment involved in a discharge, or on anyone who caused or permitted it (Section 105(1)). These orders are crucial for sustainable soil management, including land restoration and soil replacement. However, enforcing this provision is challenging due to the need for scientific evidence of degradation and the lack of skilled manpower in relevant institutions. Additionally, there is no existing case law on its enforcement. As with other environmental orders, violations can lead to fines, imprisonment, or both upon conviction.

8.8.4 Compliance orders

Section 106 empowers the ZEMA Director-General to issue a compliance order if there are reasonable grounds to believe a licensee has breached the conditions of their EMA licence. The order may require the licensee to remedy the breach within a specified period, suspend the licence to prevent environmental or human health risks or take measures to mitigate adverse effects, including those related to soil. If the licensee fails to comply, ZEMA can take corrective action, recover costs, adjust licence conditions, or revoke the licence. Non-compliance with a compliance order is an offence punishable by a fine, imprisonment, or both.

8.8.5 Cost orders

Where a person fails to comply with a requirement in an order, licence or approval issued under the EMA, ZEMA may issue a cost order requiring that person to reimburse ZEMA for the cost of taking the measures, as provided for under Section 107(1).

A cost order is enforced as if it were an order of court if no application for the review of the cost order is made.

8.8.6 Civil and criminal prosecution

Section 109 of the EMA allows any person to request ZEMA to investigate a suspected environmental contravention, including those related to soil contamination or other harmful practices. However, this requirement to submit a written request may be inaccessible to illiterate or semi-literate individuals. Once a request is made, ZEMA's Director-General must decide within 30 days whether to initiate an investigation. If the Director-General declines, the requesting person can take legal action independently, with assistance from others if needed. This provision empowers citizens to participate in environmental protection without fear of legal repercussions, promoting a culture of soil sustainability.

Section 110 grants individuals the right to sue for damages if an act or omission under the EMA causes harm or potential harm, including to soil quality. Section 111 allows courts to order offenders to take corrective action to remedy environmental damage, which could include measures to preserve soil health.

Sections 117 and 119 address environmental crimes, with Section 119 penalising individuals who violate environmental standards or misuse natural resources. While this section does not specifically address soil degradation, it could help deter harmful practices including slash-and-burn farming, which negatively impact soil sustainability. Penalties under this section can include fines or imprisonment, providing a legal deterrent against practices contributing to soil degradation in Zambia.

9 Lessons learnt and recommendations

This section presents recommendations for improving Zambia's soil sustainability legislation. Despite some positive provisions in the EMA, no other legislation specifically addresses soil issues. While the EMA includes progressive provisions, it does not treat soil as a distinct natural resource, which limits its effectiveness in soil conservation. The analysis reveals that there are opportunities within the Constitution, EMA, mining laws, and post-2010 sectoral legislation to create a more coordinated and comprehensive legal framework for soil sustainability. The National Climate Change Policy presented an opportunity for the introduction of climate-specific legislation, which could have supported national soil conservation efforts. The Green Economy and Climate Change Act, No. 18 of 2024 (Climate Change Act, 2024) was enacted in December 2024, without any provisions directly relevant to sustainable soil management. For instance, while the preambular section highlights that the Climate Change Act of 2024

provides *inter alia* for climate change mitigation, low emission development, green economy, and regulation of carbon markets, there is no reference to soil carbon sequestration and other processes that are soil related.

Foreign investment control is needed to ensure that land-use projects are sustainable and aligned with national laws. Zambia must strengthen regional cooperation and implement findings from international research, such as the 2019 IPCC Report, which links climate change, land degradation, and soil health. Political buy-in is crucial to ensure that soil sustainability becomes a priority, and reducing bureaucratic barriers between communities and decision-makers is essential for effective environmental governance.

Although the current legal framework includes provisions for environmental well-being, there are no clear provisions on soil sustainability. It is recommended that dedicated soil legislation be established to complement existing laws such as the EMA, with provisions for soil management across various sectors. Additionally, integrating soil conservation into Zambia's land and agricultural reforms, including conservation farming practices and discouraging unsustainable practices, could yield significant benefits.

The need for a national soil information system and a centralised institutional framework for soil management is crucial for improving decision-making and ensuring sustainable soil practices.¹⁷⁵ Enhancing public awareness through educational initiatives and community engagement is also vital. The agricultural, environmental, land, and mining sectors should collaborate to improve data sharing and research on soil sustainability.

Finally, integrating soil impact assessments into existing environmental assessments and incorporating soil management as a prerequisite for accessing the Environment Fund will strengthen Zambia's soil governance. Establishing a constitutional human rights framework for environmental protection, including the right to a clean and healthy environment, is also critical for promoting sustainable soil management and addressing soil-related human rights issues.

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Soil protection under African Union law: Status quo and developmental perspectives based on a comparative analysis with European Union law¹

Linda Kaßner & Oliver C. Ruppel

Abstract

This chapter examines the African Union's (AU) efforts to establish a comprehensive soil protection framework in the face of ongoing challenges related to land degradation and climate resilience. While AU treaties address environmental issues broadly, few specifically prioritise soil health, with the African Convention on the Conservation of Nature and Natural Resources being a notable exception. Current efforts, such as the Draft Framework for the SIA and the ten-year SIA Action Plan, reflect the AU's commitment to soil management, promoting integrated soil management and regenerative agriculture. However, funding constraints, capacity gaps, and the absence of a concrete monitoring and evaluation system impede effective implementation.

The chapter compares the AU's approach with that of the European Union (EU), highlighting shared challenges, such as the variability in member states' capacities and insufficient soil health data. The AU's unique challenges, including linguistic diversity, security concerns, and limited financial resources, make direct comparisons with the EU difficult. Despite these challenges, the chapter suggests that transforming soft law policies into binding regulations, incorporating clear definitions, soil health indicators, and a robust monitoring system, is essential for effective implementation, involving all relevant stakeholders, particularly local communities.

The chapter advocates for the development of a dedicated legal instrument for soil protection, building on existing AU soft law. It highlights the need for effective coordination among initiatives and partners, emphasising stakeholder involvement, collaboration, and balancing sustainability with economic growth. Ultimately, it concludes that a legally binding protocol would strengthen AU soil protection efforts, ensuring long-term sustainability and aligning with broader environmental and development goals.

1 This chapter is partly drawn from the thesis submitted by Kaßner in 2024 in partial fulfilment of the requirements for the Master of Laws (LLM) degree at Stellenbosch University.

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Summary

This chapter finds that while the African Union (AU) has shown an increasing awareness of environmental issues, soil protection remains insufficiently addressed in its treaties and conventions. Among its legislative instruments, the revised African Convention on the Conservation of Nature and Natural Resources emerges as the only one explicitly focused on soil protection, revealing a significant gap and highlighting the pressing need for a comprehensive soil protection framework. Other AU environmental treaties and conventions, although not primarily targeting soil issues, provide valuable insights and inspiration for shaping such a framework, particularly through stakeholder involvement, youth participation, and effective monitoring systems.

The AU recognises the pivotal role of sustainable soil management in Africa’s development, as reflected in initiatives such as the Draft Framework for the Soil Initiative for Africa (SIA) and the accompanying Action Plan. However, as a developing continent, Africa faces the ongoing challenge of balancing sustainability with economic growth. The capacity to implement actionable steps towards this balance remains uncertain, given the complexities of development and environmental stewardship.

It further finds that while the AU has demonstrated commitment to soil health through soft law instruments, the absence of legally binding frameworks presents a significant obstacle. The revised African Convention on the Conservation of Nature and Natural Resources is the sole treaty explicitly addressing soil protection, leaving substantial gaps in binding obligations. This raises the question of whether soil protection provisions should evolve from policy statements to enforceable commitments. The chapter examines research suggesting that although compliance with legally binding agreements is generally high, their practical impact on behaviour may be limited. Conversely, non-binding agreements often see lower compliance rates but exert a more substantial influence on behaviour due to their flexibility and adaptability. This dynamic challenges the traditional preference for binding frameworks and suggests that non-binding instruments, while reliant on voluntary adherence, may allow for

innovative and locally tailored approaches. However, the lack of mechanisms to ensure adherence risks reducing even the most ambitious non-binding policies to mere statements of intent without tangible impact.

To enhance the legal framework for soil protection, the AU should consider developing a dedicated protocol or convention that comprehensively addresses soil protection. Such an instrument should build on existing soft law instruments, incorporating stakeholder engagement, youth participation, and robust monitoring systems. Effective implementation also requires a clear institutional setup. The AU Commission (AUC) leads the SIA, providing strategic direction while adhering to the principle of subsidiarity, delegating responsibilities to the appropriate levels of authority. The AU also relies on a wide network of partnerships, such as CA4SH and TerrAfrica, which operate at both continental and national levels. These partnerships facilitate resource mobilisation and ensure that the diverse needs of African populations are integrated into soil protection strategies. However, the chapter notes that the broad spectrum of partners introduces complexity in coordination, with success dependent on establishing effective communication mechanisms. Without these, a streamlined approach may become necessary to optimise financial resources and reduce oversight demands.

This chapter finds that while the AU has integrated its soil protection agenda into broader priorities such as Agenda 2063, it faces significant challenges in transitioning from soft law to binding regulations, implementing these regulations effectively, and ensuring coordination across diverse initiatives. The AU's inability to bind member states and its lack of supranational authority exacerbate these challenges. Establishing specialised courts for environmental and land matters could address gaps in legislation and enforcement, though such initiatives would require substantial funding. Lessons from the European Union (EU), which also primarily focuses on aspirational goals rather than comprehensive frameworks, offer some guidance. The EU's proposed soil protection directive, particularly its soil monitoring provisions, provides a useful reference, though its success remains uncertain. Recommendations for the AU are, therefore, drawn from shared principles in the soft laws of both unions, such as cross-sectoral soil management and stakeholder engagement.

The chapter emphasises that the AU faces an urgent and complex task in establishing a robust soil protection framework. Healthy soils are fundamental to food security and climate resilience, yet land degradation continues to pose a critical threat. While the AU's treaties and conventions broadly address environmental concerns, few prioritise soil protection specifically. The African Convention on the Conservation of Nature and Natural Resources is a notable exception, but most efforts remain within the realm of non-binding policies such as the Draft Framework for the SIA and the ten-year Action Plan. These documents highlight the AU's dedication to integrated soil management, including regenerative agriculture, marking a shift from earlier strategies focused mainly on fertiliser use.

This chapter finds that the AU's strength lies in its long-term vision and its ability to collaborate with non-governmental organisations and international bodies, which are vital for resource mobilisation and knowledge sharing. Nevertheless, significant challenges persist, including funding limitations, capacity constraints, and the absence of a robust monitoring system, all of which hinder the ability to evaluate and refine soil protection strategies. Lessons from the EU underscore the value of detailed frameworks, even as both unions share a vision for cross-sectoral soil management and stakeholder engagement. However, the AU's unique context, marked by linguistic diversity, security concerns, and financial limitations, necessitates tailored solutions distinct from those of the EU.

The chapter concludes that the AU must prioritise transforming soft law policies into binding regulations with clear definitions, soil health indicators, and inclusive monitoring systems to ensure effective implementation and adaptability. By building on its existing initiatives and learning from international best practices, the AU can make soil protection a cornerstone of its environmental and development agenda, securing a sustainable future for Africa.

1 Introduction

Fertile soils are essential for securing food supplies and play a key role in mitigating climate change. Soil degradation, however, poses serious threats, leading to challenges such as hunger, famine, migration, and, in some cases, even conflict. Sustainable soil management is, therefore, vital for humanity's future.² Yet, land-use practices and climate change continue to place an enormous strain on soils. Hazards including sealing, erosion, compaction, pollution, salinisation, and loss of organic matter impair soil's ability to store nutrients and absorb water.³ Despite the soil's crucial role, it has historically received limited attention as a standalone environmental asset within the European Union (EU) and the African Union (AU).⁴

Recently, however, both the EU and AU have shown greater interest in coordinated soil protection efforts. Nonetheless, neither region has established a cohesive soil protection framework, and this gap is compounded by limited literature on the subject. Addressing these challenges involves identifying the current state of soil protection within the AU, analysing the EU's approach, and exploring how AU policies can evolve. This perspective not only connects environmental law, agricultural policy, and science but also offers valuable insights for policymakers in the AU and its member states.

2 Ruppel & Ginzky (2021: 17).

3 Regarding soil threats and functions see Glæsner, Helming & De Vries (2014).

4 Häusler (2022: 22-23).

2 The African Union

The AU was established in 2002 as a successor to the Organisation of African Unity. It comprises 55 member states dedicated to promoting unity across the continent advancing socio-economic integration and fostering sustainable development.⁵

2.1 Functions, institutions, and legal systems

To fully understand the roots of the shortcomings of the current soil protection framework, one needs to look at the general layout of the AU.

2.1.1 Functions

The objectives of the AU, as laid out in Article 3 of the Constitutive Act, include the promotion of greater unity and solidarity between African countries, the defence of sovereignty, and the acceleration of political and socio-economic integration. In terms of soil protection, the goals of sustainable development (Article 3 [j]), the protection of human and peoples' rights (Article 3 [h]), the promotion of good health (Article 3 [n]), raised living standards (Article 3 [k]), and advancement in science and technology (Article 3 [m]) are especially pertinent.

2.1.2 Institutions

The supreme policy and decision-making organ of the AU is its Assembly.⁶ The Assembly consists of heads of state and government from all member states. It determines the AU's policies and monitors their implementation. Besides, it elects AU Commission officials and other key officeholders. The decision-making process typically involves consensus building among member states through dialogue, negotiation, and compromise. When consensus cannot be achieved, voting will take place. Usually, a two-thirds majority is necessary, but matters of procedure are decided by a simple majority.⁷

The AU Commission serves as the AU's administrative arm, responsible for implementing AU policies and programs. The Commission is composed of the Chairperson (elected by the Assembly), Deputy Chairperson, and six Commissioners. One of

⁵ See <https://au.int/en/overview>, accessed 14 September 2024.

⁶ Ruppel (2022: 133).

⁷ African Union Handbook (2023: 32-35).

the functions of the Commission is to implement policies of the AU's policy organs. It also coordinates AU projects and represents the AU in external engagements.⁸

The Pan-African Parliament (PAP) is the legislative body of the AU, representing the African people. It is intended as a platform for people from all African states to be involved in discussions and decision-making on the problems and challenges facing the continent. The PAP members are all members of their domestic legislatures, rather than being elected directly by the people. The election mechanisms are determined by the national legislatures of AU member states. Typical election processes are direct election by national parliaments, appointment by national governments or nomination by political parties or civil society organisations. The aim is for the Parliament to be an institution with full legislative powers, whose members are elected by universal suffrage. Until such time, the PAP only has consultative, advisory, and budgetary oversight powers within the AU.⁹

In terms of soil protection, the Economic, Social, and Cultural Council (ECOSOCC) is also worth mentioning, since it advises on economic, social, and cultural issues, including those related to soil management.¹⁰

A comprehensive overview of all institutions is provided in the current version of the AU handbook.¹¹

2.1.3 Legal instruments

The AU has several types of legal acts that govern its operations. Treaties and conventions are commonly used in the AU.¹² The signature of a state creates an obligation, but a binding agreement is only created once ratification takes place.¹³ Mechanisms to enforce these treaties and conventions include the African Court of Justice and Human Rights, the Peace and Security Council, and other international dispute-resolution mechanisms established by treaties.

Furthermore, the AU can enact protocols. These are supplementary agreements that add to or amend existing treaties. Examples include the Protocol on the Statute of the African Court of Justice and Human Rights and the Protocol on the Pan-African Parliament.¹⁴

8 Ibid.: 92-94.

9 Ibid.: 116-118.

10 Ibid.: 120-121.

11 Ibid.: 32-198.

12 The terms “treaty” and “convention” are synonymous in their generic meaning, see https://treaties.un.org/Pages/overview.aspx?path=overview/definition/page1_en.xml#conventions, accessed 31 May 2024.

13 See https://treaties.un.org/doc/source/events/2010/Press_kit/fact_sheet_5_english.pdf, accessed 2 June 2024.

14 See <https://africanlii.org/legal-instruments/>, accessed 2 June 2024.

Charters, on the other hand, are formal documents outlining the rights and responsibilities of the AU and its member states.¹⁵ An example is the African Maritime Transport Charter.

While these are all binding agreements, the AU is also capable of issuing non-binding decisions and resolutions, which provide guidance and set standards for member states.¹⁶ The same goes for soft law instruments, including declarations, guidelines, and plans of action.¹⁷

This shows that the AU, theoretically, has a vast set of legal instruments to choose from to establish a comprehensive soil protection framework.

2.1.4 Legal system

To later compare the AU approach to soil protection with comparable issues in EU law, the preliminary question arises, in how far the legal system of the AU and the EU are comparable.

The EU is by far predominantly categorised as a supranational organisation.¹⁸ One key feature in this regard is the shared sovereignty. EU member states have given up their sovereignty to a certain extent while delegating decision-making powers to EU institutions. Thus, the EU can make decisions that bind all member states, even if they do not agree on every issue.¹⁹ Common institutions such as the European Parliament, the European Commission, and the Council of the EU complement this structure. Furthermore, the supranational jurisdiction of the European Court of Justice can make decisions binding on all member states, which enables the EU to enforce its laws and regulations.²⁰ Other attributes of the supranational character include a common market and a single currency.²¹

Similar to the EU, the AU also promotes unity and cooperation among its member states (see Article 3 of the Constitutive Act). It, moreover, mirrors the institutional structure of the EU with institutions such as the Assembly, Commission, and the PAP. This suggests that the AU was influenced by the EU model when it was established.

On the other hand, the AU also shows major differences from the EU. Despite the similar institutional layout, the AU has a weaker legal and institutional framework with less supranational authority and enforcement mechanisms. Contrary to the vision articulated in its Constitutive Act, the AU's legislative, judicial, and technical organs

15 See <https://www.britannica.com/topic/charter-document>, accessed 2 June 2024.

16 See <https://au.int/decisions/assembly>, accessed 2 June 2024.

17 See <https://achpr.au.int/en/category/soft-law>, accessed 2 June 2024.

18 Lopez-Claros, Dahl & Groff (2020: 65-78).

19 See <https://www.cfr.org/background/how-does-european-union-work>, accessed 2 June 2024.

20 See https://european-union.europa.eu/institutions-law-budget/institutions-and-bodies/search-all-eu-institutions-and-bodies/court-justice-european-union-cjeu_en, accessed 2 June 2024.

21 Usherwood & Pinder (2018: 56-69).

remain weak, especially relative to the Assembly. The PAP and the ECOSOCC—designed to give civil society organisations a voice within AU institutions—remain consultative bodies with no power.²² Rather than granting the Parliament the ability to make binding laws, the amended PAP Protocol only gave it the powers to make “model laws”, which are no more than recommendations. The same applies to the AU Commission, which cannot compel member states to comply with its decisions. Thus, the AU cannot bind its member states and has no way to exercise supranational powers.²³

Regarding the establishment of a soil protection framework, these findings suggest, that enforcement mechanisms in the AU will likely be less effective than in the EU already because of the more limited powers of its institutions. Compliance with soil protection regulations, therefore, relies more on the will of each state. This also infers that the actual soil protection standard may vastly differ from state to state, whereas the standard across the EU might be more homogenous. Furthermore, enforcement mechanisms of the EU will only be limitedly transferrable to the AU, due to the different extent of institutional powers.

2.2 African soil: Main challenges?

Africa’s economy largely depends on the agricultural sector.²⁴ This is why soil is a very important resource on the continent, which makes it even more important to identify the most important challenges for the soil to find targeted solutions.

One challenge of a continental soil protection framework is that one can find very differing local climates throughout Africa, such as an equatorial climate, tropical climate, arid and semi-arid conditions and subtropical conditions in the highlands.²⁵ Furthermore, economies in the different African countries have developed differently. While in some countries, industrialisation is already relatively well-established, others are still under development. Yet, most of them have in common that their gross domestic product (GDP) is mainly based on agriculture and most farmers practise on a small scale, which makes them vulnerable to external shocks. Foreign investments are also an important economic factor all over the continent, whereas high levels of debt hinder the ability of states to advance economic development on their own.²⁶

The main drivers of soil degradation are primarily agriculture, secondly mining, industrialisation and infrastructure, thirdly urbanisation. Furthermore, the rural poor in Africa often rely heavily on natural resources for survival but lack the financial funds

22 Nantulya (2024).

23 See <https://theconversation.com/the-african-union-is-weak-because-its-members-want-it-that-way-experts-call-for-action-on-its-powers-224191>, accessed 2 June 2024.

24 Ginzky & Ruppel (2022: 2).

25 See <https://kids.britannica.com/students/assembly/view/228153>, accessed 2 June 2024.

26 Ginzky & Ruppel (2022: 2).

to invest in sustainable practices. That is why poverty, as well as population growth, are among the contemporary drivers of increased soil erosion.²⁷

2.3 Soil protection: Law and policy

2.3.1 Relevant African Union law and policy

2.3.1.1 Constitutive Act

The basis of the AU is its Constitutive Act. While it does not specifically mention “soil”, it does outline some key objectives that are relevant to soil management. As seen above, Article 3, which regulates the objectives of the AU, aims for sustainable development (Article 3 [j]), the protection of human and peoples’ rights (Article 3 [h]), and the promotion of good health (Article 3 [n]), raised living standards (Article 3 [k]), and advancement in science and technology (Article 3 [m]). These goals are all at least indirectly tied to healthy soils.

Article 13(1)(c) of the Constitutive Act names “food, agriculture and animal resources, livestock production and forestry” as an area of common interest to the member states. These sectors are closely related to the topic of soil protection. Yet, “soil”, as such, remains unmentioned. This may reflect broader legislative priorities that emphasise immediate economic and agricultural outputs over the intrinsic value of soil as a resource. It also suggests that member states were more focused on the possible uses of soil (food, agriculture, animals) rather than the medium itself while drafting the Act. This may encourage sectoral approaches to soil protection rather than comprehensive soil management strategies.

Sectoral approaches can be insofar problematic as they may lead to fragmented efforts, lacking overall coherence. Furthermore, they may cause specific issues within a sector to be overemphasised, while potentially neglecting broader soil concerns.

On the other hand, sectoral approaches can provide tailored solutions to specific soil protection challenges within each sector. This would also be more cost-effective since solutions could be provided in a more targeted manner.

Overall, both sectoral and comprehensive approaches have their advantages and disadvantages. Thus, an ideal soil protection framework would combine both elements to ensure targeted sectoral strategies within an overarching comprehensive framework. Therefore, it would have been advisable to explicitly mention “soil” as an area of interest in Article 13 of the Constitutive Act, especially because “water” is specifically mentioned in Article 13(1)(d).

27 Wynants et al. (2019: 1915).

2.3.1.2 Agenda 2063

Agenda 2063 is a strategic framework adopted by the AU in 2015 to guide the continent's development over the next 50 years.²⁸ It aims to achieve several goals such as economic development and political integration. It acknowledges “soil erosion” as a threat and “soil fertility” as a good worth protecting but does not determine a goal specifically aimed at soil protection. Yet, other goals touch on soil protection in a wider sense.

These are goal 1.1 “a high standard of living, quality of life and well-being for all citizens”, especially its priority area 1.1.2 “poverty, inequality and hunger”, goal 1.3 “healthy and well-nourished citizens”, priority area 1.4.1 “sustainable and inclusive economic growth”, goal 1.5 “modern agriculture for increased productivity and production”, and goal 1.7 “environmentally sustainable and climate resilient economies and communities”.

Agenda 2063 is not binding in a classical sense and is more akin to a strategic framework for Africa's development. The implementation is supposed to be achieved through the execution of ten-year plans, for whose adaptation the Regional Economic Communities (RECs) and member states are mainly responsible.²⁹ For soil protection efforts, Agenda 2063 can only serve as a guideline, yet should be taken into consideration, to ensure that soil protection regulations fit into the broader vision, that the AU has developed for Africa.

2.3.2 Soil relevant environmental conventions

2.3.2.1 Phyto-Sanitary Convention

The Phyto-Sanitary Convention for Africa was introduced in 1967 as the first comprehensive regional attempt to address environmental concerns.³⁰ It deals with the prevention of diseases, insect pests, and other enemies of plants, which may become a danger within Africa.

The Convention explicitly mentions “soil” but only as a good, against which measures such as quarantine, certification or inspection can be taken to protect Africa's agriculture. Yet, measures against contaminated soil serve the protection of so far uncontaminated soil. Thus, the Convention somewhat aims for soil protection in a broader sense. Article II allows member states to take measures of quarantine, certification, inspection, or other measures as necessary to prevent the introduction and spread of pests and diseases that threaten agriculture in any part of Africa. This

28 AU Agenda 2063 – The AFRICA We Want – Framework Document (2015).

29 Ibid.: 120.

30 Negm (2024: 9).

provision can be applied to soil protection by ensuring that soil is free from pests and diseases. The same goes for Article IV, which grants member states the right to prohibit the importation of any living organisms, plants, plant material, seeds, soil, compost, or packing material that could introduce pests or diseases into Africa. Furthermore, Article V demands member states to take action to deal effectively with diseases, insect pests, and other enemies of plants in its territory.

Yet, it is questionable, whether soil protection is in the spirit of the creators of the Convention as it seems to focus on plant protection and not soil protection. This can be concluded from the preamble of the Convention. Moreover, it recognised the cooperation amongst African states in controlling “pests and diseases of plants and plant products”. Furthermore, Article VII regulates the establishment of a panel of scientific consultants, which shall advise the AU on various technical problems related to “plant health and protection”. This suggests that the term “agriculture” used in the Convention mainly refers to plants.

Another limitation is that the terms under the Convention are general and do not contain specific measures that should be undertaken to ensure the implementation of the Convention.³¹ This makes it challenging to implement measures to specifically address soil protection concerns.

Overall, the wording of the Convention allows for indirect measures for soil protection. The *ratio* of the Convention, however, seems to be geared more towards the protection of agricultural produce, specifically plants.

2.3.2.2 African Convention on the Conservation of Nature and Natural Resources

The African Convention on the Conservation of Nature and Natural Resources of 1968 (Algiers Convention) regulates the conservation, utilisation, and development of soil, water, flora, and faunal resources according to Article II. Article IV specifically focuses on the protection of soil. According to it, the contracting states shall take effective measures for the conservation and improvement of the soil and shall combat erosion and misuse of the soil. To do so, states shall establish land-use plans based on scientific investigation. Besides, soil conservation measures to combat erosion and sustainable farming measures to ensure the long-term productivity of the land are foreseen.

The Convention can serve as a model for a comprehensive soil protection framework insofar as it takes a holistic approach to conservation by covering soil, water, flora, and faunal resources, which all are essential for maintaining ecological balance. It also emphasises the importance of scientific principles in conservation and, thus, encourages targeted solutions rather than scattered general measures.

31 Ibid.: 6-7.

On the other hand, the holistic approach to the conservation of natural resources may not fully address the complexities of soil protection. It also does not provide specific guidelines for soil protection, which can make it challenging for member states to develop effective soil conservation strategies. Besides, it relies on member states to implement its provisions (Article XV), thus, opening the possibility of inconsistent enforcement.

Other shortcomings include that parties to the Conventions are not required to submit regular reports on implementation. It also lacks financial mechanisms for the implementation of the Convention and does not establish an administrative body, most likely due to the financial implications. Hence, the Convention is criticised for failing to provide effective means of implementation.³²

Finally, it must also be considered that the Convention was adopted over 50 years ago. Since then, our understanding of soil science and conservation has significantly advanced, and the Convention may not fully reflect these advancements. Therefore, it was replaced by a revised version.³³

2.3.2.3 Revised version of the African Convention on the Conservation of Nature and Natural Resources

The revised version was adopted in 2003 and entered into force in 2016. It developed the initial version (Algiers Convention) by further detailing conservatory measures. Moreover, it imposes more obligations on member states and establishes institutional structures and mechanisms to facilitate its implementation and encourage the state parties' compliance and enforcement.³⁴

Similar to the Algiers Convention, the revised version dedicates a provision explicitly to "land and soil" (Article VI). However, the scope of the revised version is broader, covering not only soil but also other land resources, such as vegetation and hydrological processes (Article VI 1.).

Furthermore, it provides for more specific measures for soil conservation, which not only include preventative but also rehabilitation measures (Article VI 3. d). This aspect has not been taken into regard by the Algiers Convention. The same goes for the consideration of the rights of local communities (Article VI 4.). The Algiers Convention was criticised for duplicating the policies of previous colonial treaties, as well as Western ideas about the environment and the means of its protection. Thus, emphasising utilitarianism as against protectionist preservationist conceptions of the environment.³⁵ Yet, it is important to take the rights of local communities into account when

32 Ibid.: 19-20.

33 Ibid.: 12 & 20.

34 Ibid.: 21.

35 Ibid.: 19.

designing a soil protection framework for the AU. Local communities have traditional knowledge and practices that have been developed over generations, which are essential for understanding the local soil conditions, climate, and ecosystem.³⁶ This knowledge can be used to develop effective soil conservation strategies. Furthermore, local communities are the primary stakeholders in soil protection, as they are directly affected by soil degradation and erosion. If their needs are addressed, they are more likely to adopt and implement soil conservation practices. This, in turn, leads to long-term sustainability.

Unlike the Algiers Convention, the revised version provides for strong institutional mechanisms for its implementation. This includes the creation of the Conference of the Parties in Article XXVI, which will be its decision-making body. Furthermore, the Convention emphasises state cooperation, which is important for the implementation of national measures since actions undertaken in one state may have an impact on the natural resources of another state.³⁷

Overall, the revised version shows good approaches to soil protection. Especially its comprehensive approach to environmental protection, monitoring mechanisms, and the inclusion of local communities, might serve as a model for a future soil protection framework.

2.3.2.4 Convention for the Establishment of the African Centre for Fertiliser Development

The Convention for the Establishment of the African Centre for Fertiliser Development was adopted in 1985. According to Articles I and II, the general objective of the Convention is to create an African Centre for Fertiliser Development. To achieve the specific objective mentioned in Article II, the Centre has the functions regulated in Article II(2). Although the Centre was established, it has been lying dormant for years.³⁸

The Convention does not address soil protection directly. It even gives little regard to the protection of the environment in general, as there is no mention of “environment” or “sustainable development”. It only focuses on the development of the fertiliser industry while overlooking the damage it may cause to the environment, which may include soil degradation.³⁹

Yet, the Convention has the potential to indirectly contribute to soil protection. If the fertilisers developed and promoted by the Centre are environmentally friendly this helps to maintain soil health. Besides, the Centre could research sustainable soil

36 Mustonen et al. (2022).

37 Scholtz & Pallangyo (2016: 5-10).

38 Mugiyo (2024).

39 Negm (2024: 46).

management practices, which could support soil protection efforts. This would be following its objectives and functions (Article II) since research on soils goes hand in hand with research on fertilisers. This possible synergy may be taken into regard when developing research facilities for soil protection.

2.3.2.5 Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa

The Bamako Convention was adopted in 1991 and entered into force in 1998. It was created out of fear of the shipment of hazardous wastes from industrialised nations for cheap disposal in inadequately prepared sites in developing countries.⁴⁰ For this reason, it unconditionally prohibits the transboundary movement of hazardous wastes into Africa. On the other hand, it allows the transboundary movement of hazardous wastes within Africa and exports from African countries.⁴¹ Article 2 regulates the scope of the application.

The Convention does not specifically regulate soil protection but can indirectly contribute to soil protection by preventing soil pollution through hazardous waste.

2.3.2.6 African Maritime Transport Charter and the Revised African Maritime Transport Charter

The original Maritime Transport Charter was adopted in 1993, whereas the revised version was adopted in 2010. Similar to the original Charter, which was ratified by only thirteen member states, the Revised Charter has not yet entered into force since only ten member states have ratified it even though 23 have signed it.⁴² Article 3 of the Revised Charter aims at developing and promoting mutual assistance and cooperation between state parties in maritime safety, security, and protection of the marine environment. It does not regulate soil protection.

2.3.2.7 The African Nuclear-Weapon-Free Zone Treaty (Pelindaba Treaty)

The African Nuclear-Weapon-Free Zone Treaty was adopted in 1996. Its main purpose is to establish Africa as a nuclear-weapon-free zone (Article 2(1) in conjunction with Annex 1). While it does not have any direct provisions related to soil protection, it

⁴⁰ Negm (2024: 47).

⁴¹ Ibid.: 50-51.

⁴² Ibid.: 68.

indirectly protects soil health by prohibiting nuclear weapons, which would potentially contaminate soils.

2.3.2.8 African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa

The AU Convention for the Protection and Assistance of Internally Displaced Persons in Africa was adopted in 2009 and entered into force in 2012. It primarily deals with the protection and assistance of internally displaced persons and does not regulate soil protection. Yet, it contains some provisions regarding the general protection of the environment.⁴³ Article 3(1)(i) obliges state parties to ensure the accountability of non-state actors involved in the exploration and exploitation of economic and natural resources leading to displacement, and Article 9(2)(j) obliges state parties to take necessary measures to safeguard against environmental degradation in areas where internally displaced persons are located.

2.3.2.9 Agreement for the Establishment of the African Risk Capacity (ARC) Agency

The Agreement for the Establishment of the African Risk Capacity (ARC) Agency was adopted in 2012. Since then, it has been applied provisionally but has not entered into force.⁴⁴ The Agreement establishes the ARC as a specialised agency of the AU, intending to assist member states in reducing the risk of loss and damage caused by extreme weather events and natural disasters (Article 3). Article 1 defines “natural disasters” as a sudden calamitous event caused by natural forces that result in serious disruption of the functioning of a community or a society causing widespread human, material, economic and/or environmental losses that exceed the ability of the affected community or society to cope using its level of resources. “Extreme weather event” is defined as a weather phenomenon that is at the extreme of historical distribution.

Thus, the question arises as to whether ground-related events are also covered. Common soil threats include desertification, erosion, wildfires, and floods. While wildfires and floods are usually sudden events and, therefore, “natural disasters”, desertification and erosion happen over a longer period and can, therefore, neither be qualified as “natural disasters” nor “extreme weather events” in the sense of the Agreement. Thus, the Agreement does not provide for comprehensive risk management in terms of soil threats. Furthermore, the basic concept of the Agreement is not aimed at

⁴³ Negm (2024: 74).

⁴⁴ African Union Handbook (2020: 185).

environmental “protection” but rather at managing and reducing the financial impact of natural disasters and extreme weather events (Article 4). Hence, it is mostly unrelated to soil protection.

2.3.2.10 African Charter on Human and Peoples Rights (ACHPR)

The African Charter on Human and Peoples Rights was adopted in 1981. It does not directly regulate soil protection but foresees general provisions for environmental protection. According to Article 16(1), every individual shall have the right to enjoy the best attainable state of physical and mental health. Soil degradation can lead to reduced crop yields and malnutrition,⁴⁵ while soil contamination causes increased health risks.⁴⁶ Thus, efficient soil protection mechanisms help to safeguard this right. Article 24 regulates the right to a generally satisfactory environment, which includes soils. Therefore, together these provisions should suffice to acknowledge the right to healthy soils and, hence, establish a legal basis and obligation to protect soils as a fundamental right. This also highlights that soil conservation is to be pursued not only as a technical or economic issue but also as a matter of human rights and environmental justice.

2.3.2.11 Protocol to the African Charter on Human and Peoples’ Rights on the Rights of Women in Africa (Maputo Protocol)

The Maputo Protocol was adopted in 2003 as a supplement to the ACHPR. It calls for the protection of women’s rights, which had not been included in the ACHPR.⁴⁷ According to Article 18(1), women shall have the right to live in a healthy and sustainable environment, which includes healthy soils.

2.3.2.12 African Charter on the Rights and Welfare of the Child

The African Charter on the Rights and Welfare of the Child was adopted in 1990 and sets out the criteria that govern the status of children.⁴⁸ In the present context, Article 11.2(g) is particularly relevant as it states that the education of the child shall be directed to the development of respect for the environment and natural resources. Thus,

45 Santillán (2022).

46 See <https://openknowledge.fao.org/server/api/core/bitstreams/fe5df8d6-6b19-4def-bdc6-62886d824574/content/src/html/chapter-04-3.html>, accessed 20 June 2024.

47 Negm (2024: 66).

48 Negm (2024: 72).

states are required to provide children with sufficient knowledge of the environment. This implies the need for environmental protection.

2.3.2.13 The African Charter on the Values and Principles of Decentralisation, Local Governance, and Local Development

The African Charter on the Values and Principles of Decentralisation, Local Governance, and Local Development was adopted in 2014. Although it primarily deals with centralisation, local governance, and local development in Africa, it also contains provisions relating to environmental protection. According to Article 10(5), local governments and local authorities must have regard to sustainable development. Article 16(4a) states that state parties shall adopt national legislation and establish mechanisms which include, *inter alia*, sustainable use of natural resources at the local level. Provisions directly related to soil protection are not included.

Stakeholder participation in environmental matters is important to ensure effective implementation of regulations and to increase transparency. Different to other environmental mediums, such as air and water, soil can be divided into regional sections, which, in turn, are allocated to local communities or private owners. Thus, soil protection depends on their willingness and cooperation. Moreover, stakeholder participation provides opportunities for knowledge sharing, especially regarding local issues related to soil protection, which is essential for building a robust and effective soil protection framework.

2.3.2.14 The African Youth Charter

The African Youth Charter was adopted in 2006. Article 19 contains provisions for sustainable development and protection of the environment. In terms of soil protection, Article 19(2)(c) obliges state parties to support youth organisations in instituting environmental preservation programs such as tree planting programs. Article 19(2)(e) refers to the regeneration of forests and Article 19(2)(f) states that state parties shall initiate intensive actions to prevent the expansion of deserts. The Charter does not only foresee obligations for state parties but also responsibilities of the youth, which include the protection of the environment and conservation of nature (Article 26 [o]).

Soil protection is also a matter of intergenerational equity.⁴⁹ As a precondition for high-yield agriculture, healthy soils provide food security and, therefore, are necessary for the survival of future generations. Soils also play a crucial role in the preservation of healthy ecosystems, which safeguard long-term environmental sustainability.

49 See Brown Weiss (2008).

Furthermore, intergenerational equity is also a matter of sustained economic prosperity. Thus, soils not only need to be protected due to environmental reasons but also to offer future generations the same economic opportunities since soil degradation can undermine the economic potential of the land.

The consideration of the youth and future generations seems to be recent in the environmental context since older environmental treaties have not considered intergenerational equity as a reason for environmental protection. When drafting a comprehensive soil protection framework they should be considered, to increase its acceptance among the population and to ensure a sustained implementation of its provisions.

2.3.2.15 The African Charter on Democracy, Elections, and Governance

The African Charter on Democracy, Elections, and Governance was adopted in 2007. It primarily deals with democracy, elections, and governance. However, it contains several provisions relating to sustainable development and environmental protection. According to Article 9, state parties need to adopt policies and programmes that promote sustainable development and human security. According to Article 42, they, furthermore, need to protect the environment to achieve sustainable development for the benefit of the present and future generations. The latter picks up the idea of the African Youth Charter that the environment is a good, which needs to be preserved for future generations.

Good governance and sustainable development go hand in hand.⁵⁰ Good governance is necessary to prioritise sustainable management of resources over short-term profit. This requires clear responsibilities when it comes to the implementation of regulations for environmental protection. Weak enforcement and lack of accountability could enable corrupt practices that undermine protection efforts. By establishing participatory governance mechanisms, a soil protection framework would increase transparency and, thus, promote good governance. Furthermore, monitoring and evaluation systems would serve the same purpose.

2.3.2.16 The Agreement Establishing the African Continental Free Trade Area (AfCFTA)

The Agreement Establishing the African Continental Free Trade Area (AfCFTA) was adopted in 2018 and entered into force in 2019. The main document of the Agreement deals with trade in goods, trade in services, investment, intellectual property rights,

⁵⁰ Negm (2024: 105).

and competition policy. The Agreement also includes annexes and protocols regarding each sector. Paragraph 8 of the Preamble notes the protection of the environment, while Article 3(e) embeds the concept of sustainable development. Furthermore, the protocols contain some environmental provisions. For example, Article 3(2-b) of the Protocol on Trade in Services incorporates the concept of sustainable development. “Soil” is not mentioned in the Agreement.

Trade in general is known to negatively impact soil through increased soil degradation due to intensive agricultural practices, such as monoculture farming and the use of pesticides, which farmers use to achieve high yields. This also causes a loss of biodiversity.⁵¹ Furthermore, trade requires the movement of goods and services from one country to another, causing soil pollution.⁵²

On the other hand, trade can positively influence soil protection. Increased economic activity can increase investment in sustainable agriculture practices and soil conservation. Moreover, trade can facilitate the exchange of technologies and innovations that can help improve soil health.⁵³

A soil protection framework for the AU should, therefore, promote sustainable trade practices by encouraging trade in sustainably produced agricultural commodities, and environmentally friendly technologies and promote fair trade practices that have regard to the needs of small-scale farmers. Tariff and non-tariff measures that promote the import and use of sustainable agricultural inputs would also be beneficial, although provisions such as these might be more appropriately regulated in trade-specific legislation and not within the soil protection framework itself. Besides, such a framework should include mechanisms to monitor the potential effect on soil health of large-scale agricultural projects or infrastructure development.

2.3.2.17 Conclusion

Many treaties and conventions within the AU consider environmental matters. Yet almost none of them directly address soil protection. The (revised version) of the African Convention on the Conservation of Nature and Natural Resources is the only piece of legislation that explicitly deals with soil protection. Thus, the need for a comprehensive soil protection framework in the AU is evident.

Although the other conventions and treaties mentioned do not mainly address soil issues, they can serve as inspiration, when drafting a soil protection framework. As seen above, it would be advisable to include regulations that, *inter alia*, deal with stakeholder involvement, participation of the youth, and monitoring systems.

51 Balogh (2021).

52 Athanaspoulou et al. (2014: 393).

53 See <https://www.oecd.org/trade/topics/trade-and-the-environment/>, accessed 23 June 2024.

2.3.3 Soft law

Although it does not provide for any binding regulations, soft law is crucial for soil protection as it provides a framework for guiding the actions of states and other stakeholders.⁵⁴

2.3.3.1 Decision on the High-Level Work Programme on Climate Change Action in Africa

The Decision on the High-Level Work Programme on Climate Change Action in Africa was adopted by the Assembly in 2014. According to Article 9(1-a) of the Constitutive Act, the Assembly can take decisions to determine the common policies of the AU, which it made use of here.

The Decision does not explicitly mention soil protection. However, it does address climate change and sustainable development, which are closely related to soil protection. It reiterates that international support for means of implementation, in particular finance and technology, in the context of the Climate Change Convention is key for Africa (Nr. 3) and confirms continued participation in global efforts for climate change mitigation actions that support sustainable development on the continent (Nr. 8). Finally, it urges member states to complete the development of their National Adaptation Plans (NAPs) and put in place systems and structures for Africa to take full advantage of the global mechanisms in support of climate change mitigation and adaptation measures (Nr. 13).

2.3.3.2 Draft AU Strategy on Climate Change

The Draft AU Strategy on Climate Change outlines the AU's approach to addressing climate change in Africa. It is designed to support the realisation of Africa's Agenda 2063 by providing Africa and its stakeholders with a single source of strategic guidance that enables them to address the climate-caused challenges that may hinder the attainment of Agenda 2063 goals. Specifically, the strategy aims to contribute to the attainment of SDG 13 'Take urgent action to combat climate change and its impacts,' the goal of less than 2°C global temperature rise by the year 2100, and the seven targets of the Sendai Framework on Disaster Risk Reduction.⁵⁵

It aims to achieve five key outcomes: effective institutional capacities to implement climate change strategies, harmonised climate change strategies, a unified voice for

⁵⁴ Ahmed & Mustofa (2016).

⁵⁵ AU Draft AU Strategy on Climate Change 2020-2030 (2020: 48).

Africa, enhanced resilience and reduced vulnerability, and increased access to finance. These goals will be pursued through activities such as education and research.⁵⁶ Responsible for doing so are the stakeholders and partners that the Strategy addresses. This shall be achieved through consultative, validation, and approval processes.⁵⁷

The Strategy mentions “soil” twice. The first time it recognises that climate change is projected to decrease biodiversity and wetland regions leading to loss of soil and trees, which mostly affects poor and vulnerable communities.⁵⁸

The second time it is mentioned in the context of “Result 4: Resilience built; vulnerability reduced”. In this context, the Strategy acknowledges that droughts are a result of climate change and, *inter alia*, soil protection as part of a well-managed natural environment. Thus, the interdependency between climate change and ecosystem degradation shall be further investigated and an integrated approach to climate change adaptation and ecosystem management developed.⁵⁹

Furthermore, the Strategy aims at defeating hunger and improving food security through climate-smart sustainable land and water use, agricultural practices, and ecosystem management.⁶⁰ For this, the five designated Regional Climate Centres shall be networked into a continental early warning system and inform the appropriate agricultural systems to adopt for food and livelihood security.⁶¹

The Strategy also states the need to securitise land tenure because guaranteed security of tenure gives an incentive to implement sustainable agricultural practices as farmers can be sure of reaping benefits over the longer term.⁶²

Although the proposed activities remain vague, the Strategy succeeds at pointing out soil-related issues and, thus, hopefully triggers more concrete initiatives.

2.3.3.3 Climate Change and Resilient Development Strategy and Action Plan for Africa

The Climate Change and Resilient Development Strategy and Action Plan for Africa (2022-2032) also serves the realisation of Agenda 2063’s aspirations. Its goal is to provide a continental framework for collective action and enhanced cooperation in addressing climate change issues. This way livelihoods and well-being shall be improved, adaptation capacity promoted, and low emission, as well as sustainable economic growth, achieved.⁶³

56 Ibid.: 48-74.

57 Ibid.: 49.

58 Ibid.: 27.

59 Ibid.: 64.

60 Ibid.: 32 & 68.

61 Ibid.: 62.

62 Ibid.: 73.

63 AU Climate Change and Resilient Development Strategy and Action Plan (2022) III, IV.

The Plan recognises land degradation as a major constraint to raising the continent's agricultural productivity and food insecurity as another challenge.⁶⁴ In terms of concrete actions, it dedicated intervention area 8 of the section “managing and protecting land-based ecosystems” to food security, land-use rights, and protection of biodiversity in projects for ecosystem-based approaches to carbon removal. For this, it strives to integrate full community impact assessments into projects for afforestation, soil enhancement, coastal wetland expansion, and others, which are driven by goals of carbon dioxide removal for either credits or payment (suggested action 8a).⁶⁵ Within the section “building low-emission, resilient urban areas”, suggested action 1g calls for the promotion of soil biodiversity and soil organic carbon management as vital elements to ensure the land's ability to produce food, store water, control soil erosion and dust, maintain soil stability during extreme rainfall events, reduce carbon losses, among other benefits.⁶⁶

The implementation of the strategy shall be accompanied by a monitoring and evaluation (M&E) Plan, which is yet to be developed. It will, *inter alia*, track schedules and timelines, level of success, and monitor key indicators.⁶⁷

The Plan is guided by different principles. One of them is the “whole of economy approach”. It applies an integrated, cross-sectoral and holistic approach to climate change.⁶⁸ Applied to the topic of soil protection, the advantages of such an approach lie within the comprehensive coverage of soil issues and the usage of synergies. A cross-sectoral approach can also facilitate the integration of soil protection consideration into broader policy frameworks, such as national development plans and climate change strategies. Furthermore, drawing on expertise from different sectors can help understand soil-related challenges and mobilise financial resources from a wider array of sources.

On the other hand, a cross-sectoral approach can make decision-making processes complex and, thus, slow down the implementation of soil protection measures. Besides, it can be challenging to define clear roles and responsibilities. When designing a soil protection framework for the AU, these advantages and disadvantages should be weighed to decide on/against a cross-sectoral approach.

Another guiding principle of the Plan is “intersectionality”, meaning that the Plan recognises that vulnerabilities overlap in multiple ways (climate, gender, poverty, age groups, etc.).⁶⁹ The prioritisation of vulnerable groups is also necessary in the context of soil protection as it is often vulnerable communities, such as small-scale farmers and indigenous groups, that directly depend on soils for their livelihoods.

64 Ibid.: 12.

65 Ibid.: 43.

66 Ibid.: 50.

67 Ibid.: 74.

68 Ibid.: 9.

69 Ibid.: 9.

Despite the sound basis of the framework, there is still a lot of work that needs to be done, especially around translating the commitments and priority areas outlined in the Strategy into tangible and meaningful actions.⁷⁰ One of the challenges is the need to further coordinate the continent's climate strategies. Furthermore, sensitisation and communications regarding its goals are urgently needed. The document needs to be made more accessible to the public and other relevant actors so that they can understand their responsibilities in the implementation. Besides, an emerging technical gap remains between the continent's climate agenda and the efforts to improve and conserve soil health. Both are intrinsically connected, and Africa needs to explore how to align soil health more closely with the UNFCCC processes.

2.3.3.4 Nairobi Declaration on Climate Change

The Nairobi Declaration on the African Process for Combating Climate Change was adopted in 2023 by the African Heads of State and Government. It was adopted to be the basis for Africa's common position in the global climate change process to COP 28 and beyond.⁷¹

While it mainly refers to decarbonisation, it also has regard to soil-specific issues. In Nr. 27 of the Declaration the African leaders commit to strengthening actions to halt and reverse biodiversity loss, deforestation, and desertification, as well as restore degraded lands to achieve land degradation neutrality. Nr. 31 calls for redoubling efforts to boost agricultural yields through sustainable agricultural practices, to enhance food security, while minimising negative environmental impacts. In Nr. 44 the African leaders recognise the need to enhance drought resilience systems to shift from crisis management to proactive drought preparedness and adaptation, to significantly reduce drought vulnerability of people, economic activities, and ecosystems.

Overall, the declaration emphasises the importance of climate protection but also highlights the need to balance this with economic growth and development goals. It refers to "climate-positive growth",⁷² "climate-positive investments",⁷³ "green growth",⁷⁴ "green production and supply chains",⁷⁵ and "green industrialisation".⁷⁶ This highlights that Africa is still a developing continent and still needs to pursue economic growth to reduce poverty and improve living standards. For this, it relies on

70 See <https://aiccra.cgiar.org/news/making-africa-climate-strategy-reality-through-strategic-partnerships-and-investment>, accessed 25 September 2024.

71 See <https://www.un.org/africarenewal/magazine/september-2023/africa-climate-summit-nairobi-declaration-makes-strong-push-accelerated>, accessed 25 June 2024.

72 AU Nairobi Declaration on Climate Change (2023: Nr. 54).

73 Ibid.: Nr. 20 & Nr. 57.

74 Ibid.: Nr. 23 & 28.

75 Ibid.: Nr. 24.

76 Ibid.: Nr. 29.

external support, which is why the Declaration points out the need for technical and financial support.⁷⁷ On the other hand, developed nations have more flexibility to prioritise climate action over economic growth. This must be kept in mind for the subsequent comparison with EU law.

A soil protection framework should also consider the specifics of Africa as a developing continent. It should incorporate mechanisms that enable climate-positive economic growth, such as sustainable agriculture methods. In this context, the transfer of knowledge and technology is especially important. Furthermore, funding mechanisms to ease the transition to more sustainable farming mechanisms would need to be established.

As mentioned, the inclusion of vulnerable groups should not be neglected, when navigating climate change/soil protection efforts. The Declaration includes corresponding provisions. In Nr. 38 it highlights the need to support smallholder farmers, indigenous peoples, and local communities in the green economic transition. Nr. 42 emphasises the importance of embracing indigenous knowledge and citizen science in both adaptation strategies and early warning systems. Finally, Nr. 45 calls for an inclusive approach including engagement and coordination with the children, youth, women, persons living with disabilities, indigenous people, and communities in climate-vulnerable situations.

While the Declaration outlines clear goals and commitments, translating these into actionable plans at national levels remains a challenge. It urges world leaders “to rally behind the proposal for a global carbon taxation regime including a carbon tax on fossil fuel trade, maritime transport and aviation, that may also be augmented by a global financial transaction tax”.⁷⁸ Such mechanisms, including global carbon taxation, have not been put in place yet, which shows that the Declaration has only been of limited success so far.⁷⁹

2.3.3.5 African Fertiliser and Soil Health Action Plan

The African Fertiliser and Soil Health Action Plan (AFSH Action Plan) 2023-2033 establishes the vision of reversing soil degradation, increasing fertiliser consumption and efficiency, accelerating inclusive agricultural transformation, and ending hunger, malnutrition, and poverty on the continent.⁸⁰ This way, Africa’s agricultural production shall be increased without increasing the area of land under cultivation. According to the Plan, this requires an improvement of soil health across all agricultural sub-sectors through a combination of sustainable agricultural practices and the use of

77 Ibid.: Nr. 48 & Nr. 49 iii.

78 Ibid.: Nr. 57.

79 le Roux & Ciliers (2024).

80 AU African Fertiliser and Soil Health Action Plan (2023: 1).

fertilisers.⁸¹ In terms of the latter, the Plan aims at improving markets for fertilisers, access and affordability of fertilisers, greater efficiency and sustainable use of fertilisers.⁸² Although, the Plan highlights the general need for “sustainable soil management practices”⁸³, it focuses on the use of fertilisers to achieve soil health.

This might be criticised as quite a one-dimensional approach and even counterproductive. The use of fertilisers risks further endangering food security and biodiversity by depleting seed diversity. It often requires the use of hybrid seeds, which are specially designed to perform in enhanced soil conditions. Seed variety does, however, form the cornerstone of food sovereignty and ecological resilience. Thus, the use of fertiliser causes dependency.⁸⁴ Farmers might not be able to cope with the price of fertilisers and might not withstand competition in the agricultural market. The need to support vulnerable groups, as demanded by the Nairobi Declaration, is subsequently not met. Moreover, the purchase of fertilisers diverts funds from more sustainable, local agricultural investments.

On this basis, the focus on fertilisers appears to be rather short-term thinking. Once again, Africa is working to surpass its status as a developing continent by focusing on economic growth.

Furthermore, the formulation of the Plan has largely excluded farmers, civil society organisations, and agroecology practitioners, who are essential to sustainable agriculture in Africa. This is also not following the Nairobi Declaration on Climate Change, which emphasises the need to rely on indigenous knowledge.

In terms of a soil protection framework, it would be better to focus on alternative means to sustainably increase food security. Accordingly, research efforts and funding in this regard would need to be intensified, while following a participatory approach.

2.3.3.6 Draft framework document of the Soil Initiative for Africa

While the African Fertiliser and Soil Health Action Plan has a ten-year horizon, the Framework document of the Soil Initiative for Africa (SIA) establishes a long-term horizon.⁸⁵ It aims at improving the health and productivity of Africa’s soils by scaling locally adapted technologies, and fertiliser application and putting in place policies, programs, and institutional structures needed to improve and maintain soil fertility.

To serve this goal, the document identifies four priority areas for investment. Priority Area 1 calls for an optimisation of integrated soil health and water management

81 Ibid.: 4.

82 Ibid.: 1-2.

83 Ibid.: 11.

84 Tadele (2024).

85 AU Draft framework document of the Soil Initiative for Africa (2024: i).

planning and implementation.⁸⁶ Priority Area 2 emphasises the importance of research, development, education, and institutional capacity in terms of sustainable soil management.⁸⁷ Per the vision of the Climate Change and Resilient Development Strategy and Action Plan for Africa and the Nairobi Declaration on Climate Change, it encourages the use of indigenous knowledge and feedback mechanisms for farmers and local communities.⁸⁸

Priority Area 3 focuses on the optimisation of data and information for effective planning and monitoring. It proposes the development of standards for soil information systems, national soil information systems, regional institutions, a continental soil information centre, and indicators for tracking the implementation of the SIA.⁸⁹ According to the Food and Agriculture Organization of the United Nations (FAO), the main soil health indicators are nutrient availability, workability, oxygen availability to roots, nutrient retention capacity, toxicity, salinity, and rooting conditions.⁹⁰ In the interest of a harmonisation of global standards, the AU could use these indicators as a guideline as well. Such harmonisation is important because it enables meaningful comparison of soil data across different regions and enhances knowledge sharing and collaboration worldwide.⁹¹ This way, the AU could benefit from research on soil health conducted by other nations, as it currently lacks curated, easily accessible, and findable information on soil health. This is made worse by weak financial support and investments in the soil health sector.⁹²

Harmonisation is important not only on a global level but also across different sectors. This is emphasised by Priority Area 4 of the framework document, which ensures the enabling of policy, legal, and regulatory frameworks.⁹³

For its implementation, the SIA, *inter alia*, aims to support farmers and communities to be agents of change and wants to build on existing planning systems and processes.⁹⁴ Overall, the AU Commission will have the leadership of the SIA, but a coordination mechanism as support may be considered.⁹⁵

In terms of financing, the document acknowledges that the public budgets to improve soil health are insufficient. Thus, smallholder farms often do not have the financial resources to make investments in soil health.⁹⁶ This is especially problematic since

86 Ibid.: 7.

87 Ibid.: 8.

88 Ibid.: 9.

89 Ibid.: 10–11.

90 See <https://www.fao.org/soils-portal/soil-degradation-restoration/global-soil-health-indicators-and-assessment/global-soil-health/en/>, accessed 26 June 2024.

91 See <https://www.fao.org/global-soil-partnership/pillars-action/5-harmonization/en/>, accessed 26 June 2024.

92 AU Draft framework document of the Soil Initiative for Africa (2024: 5).

93 Ibid.: 11.

94 Ibid.: 13.

95 Ibid.: 15.

96 Ibid.: 17.

the framework regards farmers and local communities as a major factor for its implementation. It remains vague on how to solve the financial issue, only stating that “investment from a variety of funding sources” is necessary and “concrete funding areas” need to be defined.⁹⁷ The African Fertiliser and Soil Health Action Plan has a more concrete approach in this regard. It suggests the operationalisation of a soil health fund within the existing Africa Fertiliser Financing Mechanism (AFFM).⁹⁸

Regarding the question of whether the SIA (draft framework document and Action Plan) has achieved its goals, it is too early to form a conclusion since the Plan has only been established in 2023 and is set out for a ten-year timeframe.

2.3.3.6 Draft Nairobi Declaration on Africa Fertiliser and Soil Health Summit

The Draft Nairobi Declaration on Africa Fertiliser and Soil Health Summit was adopted at the Africa Fertiliser and Soil Health Summit organised by the AU and the Government of Kenya in May 2024. It endorses the Fertiliser and Soil Health Action Plan and the SIA Framework as key guiding documents and requests the development of an implementation roadmap for the Action Plan conforming with the SIA.⁹⁹

In line with the above criticism of the focus on fertilisers, the Declaration recognises that focusing on fertilisers alone cannot stop land degradation nor boost the productivity of Africa’s soils and their agricultural yields.¹⁰⁰

Otherwise, it mainly takes up points that were already addressed in the Action Plan and the Draft framework document of the SIA. This includes the call for increased fertiliser use,¹⁰¹ development of tools for assessing soil health,¹⁰² general research in this area,¹⁰³ the creation of a soil health fund within the AFFM,¹⁰⁴ and the formulating and harmonisation of policies and regulations.¹⁰⁵

Furthermore, it highlights the importance of subsidies to encourage soil health investments¹⁰⁶ and to enlarge access to fertilisers.¹⁰⁷ This point has not been included in the Draft framework document of the SIA but has been raised in the Action Plan. The Action Plan recognises that input subsidies have been adopted by several African countries to supply fertilisers to farmers at reduced prices. However, the viability of

97 Ibid.: 17.

98 AU Fertiliser Plan (2023: 12).

99 AU Draft Nairobi Declaration on Africa Fertiliser and Soil Health Summit (2024: 4 & 7).

100 Ibid.: 2.

101 Ibid.: 4.

102 Ibid.: 5.

103 Ibid.: 5-6.

104 Ibid.: 5.

105 Ibid.: 6.

106 Ibid.: 5.

107 Ibid.: 3.

most subsidy programs has been limited due to poor planning and implementation.¹⁰⁸ Thus, it requests the improvement and repurposing of existing subsidy programs.¹⁰⁹

Before implementing new subsidies, it would be advisable to thoroughly analyse the shortcomings of already existing subsidy mechanisms to ensure a targeted approach to the implementation of new subsidies. Moreover, periodic review mechanisms should be established, so that the effectiveness of subsidies can be regularly checked and ineffective expenditures avoided.

2.3.3.7 Conclusion

The AU increasingly recognises the importance of sustainable soil management for the continent's development. Especially the Draft framework document for the SIA and the Action Plan demonstrate the AU's commitment to addressing soil degradation. Yet, it remains clear that Africa is still a developing continent and, thus, aims at striking a balance between sustainability and ongoing economic growth. How the implementation of actionable steps will advance in this regard is yet to be seen.

While the soft law instruments demonstrate the AU's commitment to addressing soil protection, the lack of legally binding frameworks remains a concern. Only the revised version of the African Convention on the Conservation of Nature and Natural Resources explicitly deals with soil protection.

This raises the question of whether the legal quality of the soil protection provisions should be moved from mere policy towards more legal impact. Studies have shown that compliance with legally binding agreements has been high, but oftentimes the influence of binding commitments on behaviour is low. On the other hand, compliance with non-binding agreements has been low, but the influence on behaviour is higher. This challenges the traditional view that focuses on the need for legally binding agreements.¹¹⁰ Although the non-binding nature of policies may limit the effectiveness in ensuring consistent implementation among member states due to relying heavily on voluntary adherence to its principles, it also provides certain flexibility since stakeholders can modify approaches based on evolving scientific understanding or local conditions without the constraints of legal obligations.¹¹¹ Moreover, non-binding agreements typically require fewer resources for compliance monitoring and enforcement compared to legally binding regulations, making them more accessible for financially weak institutions such as the AU.¹¹² Besides, non-binding agreements are often

108 AU Fertiliser Plan (2023: 10).

109 Ibid.: 4-6, 9 & 15.

110 Victor (1997: 241).

111 Ecologic (2017: 76).

112 Victor (1997: 243).

more ambitious, which might contribute to a higher standard of soil protection.¹¹³ Yet, the higher ambition is not of much value if it does not translate into measurable outcomes on the ground. Without mechanisms to ensure adherence, even the most well-intentioned policies risk becoming mere statements of intent rather than catalysts for meaningful change. Ultimately, the challenge lies in finding a middle ground that encourages innovative practices while ensuring that soil protection goals are met effectively and consistently across all member states.

To strengthen the legal framework for soil protection in Africa, it would, therefore, be advisable for the AU to consider developing a dedicated protocol or convention that addresses soil protection comprehensively. This instrument should incorporate the approaches outlined in the soft law instruments, such as stakeholder involvement, youth participation, and robust monitoring systems.

2.4 Soil institutions and stakeholders

2.4.1 Continental level: African Union Commission as the main actor

The African Union Commission (AUC), through its Department of Agriculture, Rural Development, Blue Economy, and Sustainable Environment, has ownership and leadership of the SIA.¹¹⁴ However, the SIA will involve a wide variety of actions, so that the relevant authorities at each level will ultimately have responsibility for leadership of each action. This serves the principle of subsidiarity.¹¹⁵ However, the involvement of many different actors requires effective coordination mechanisms, which shall be established during the implementation of the Action Plan.¹¹⁶

2.4.2 Local level: Inclusion of beneficiaries

The direct beneficiaries of soil health initiatives include farmers and communities. The inclusion of these key stakeholders is a critical success factor, which will enhance awareness, ownership, and knowledge of the SIA objectives and strengthen collective commitments.

113 Ibid.: 241.

114 AU Draft framework of the Soil Initiative for Africa (2024) 15.

115 Ibid.: 16.

116 Ibid.: 16.

2.4.3 National and regional level

The need for effective partnership is, however, not limited to the local level. It also requires the involvement of institutions on a national level, such as governments, interest organisations, and community groups.

On a regional level, the RECs play a crucial role in translating continental frameworks such as the SIA and the Africa Fertiliser and Soil Health Action Plan into regionally tailored strategies and policies.¹¹⁷

2.4.4 Private sector

Furthermore, the Draft framework document of the SIA and the Action Plan highlights the importance of private-sector investments.¹¹⁸ The private sector can contribute expertise on soil management and aid in financing the initiative.¹¹⁹ Although, public and private partnerships can provide benefits, such as increased economic efficiency,¹²⁰ the AU needs to make sure that the collaboration considers the social interest in healthy soils and ensures the integration of marginalised groups. It should regularly assess whether the collaboration serves the goal of sustainability.

2.4.5 AUDA-NEPAD

The AU Development Agency–New Partnership for Africa’s Development (AUDA-NEPAD) has taken the lead in developing the SIA framework document and worked closely with the AUC, particularly the Department of Rural Economy and Agriculture, in developing the Action Plan. Its mandate is to coordinate and execute priority regional and continental projects to promote regional integration towards the accelerated realisation of Agenda 2063 and to support AU member states and regional bodies.¹²¹

The AUDA-NEPAD has partnered with the Government of Norway to launch a three-year program, which is designed to support AU member states in implementing the resolutions of the Africa Fertiliser and Soil Health Summit.¹²² Besides, it will

117 Ibid.: 17.

118 AU Draft framework of the Soil Initiative for Africa (2024: 16-17); AU Fertiliser Plan (2023: 5, 7 & 16-17).

119 AU Fertiliser Plan (2023: 7).

120 FAO Public-private partnerships for agribusiness development – A review of international experiences (2016: 127).

121 See <https://www.nepad.org/microsite/who-we-are-0>, accessed 27 June 2024.

122 Akolo (2024).

coordinate the different stakeholder organisations within and outside the continent to ensure effective implementation of the Action Plan.¹²³

2.4.6 Partnerships

Numerous partnerships have been launched to promote soil health. The Global Soil Partnership is a voluntary partnership established in 2012 under the FAO to improve soil governance. It is open to governments, regional organisations, institutions, and other stakeholders at various levels.¹²⁴ One of the regional soil partnerships established under the Global Soil Partnership is the African Soil Partnership, which was launched during two sub-regional workshops, the Western and Central Africa Soil Partnership (WCASP) and the Eastern and Southern Africa Soil Partnership (ESASP).¹²⁵ Another regional partnership is the Near East and North Africa Soil Partnership.¹²⁶ The overall goals of the Global Soil Partnership remain relevant and have informed the development of the SIA Framework.¹²⁷

The Coalition of Action 4 Soil Health (CA4SH) is another initiative that brings together various partners to improve soil health globally by addressing critical implementation, monitoring, policy, and investment barriers that constrain farmers from adopting and scaling healthy soil practices. Its members include governments, the private sector, research and academia, farmers, and international organisations.¹²⁸

Furthermore, the TerrAfrica partnership between FAO, the World Bank, the New Partnership for African Development (NEPAD), and other implementing agencies develops tools and learning materials for scaling up and mainstreaming sustainable land management on the ground in Africa. Based on assessments of land degradation, it aims to provide incentives through targeted financing and policies.¹²⁹ The Draft Framework Document for the SIA recognises the TerrAfrica Partnership as a key program to learn from and build on. Despite its successes, it failed to turn around Africa's declining soil health. Thus, the Draft Document identifies the following lessons learned: 1) the need for adequate human resources and systems within the Secretariat to support the program in achieving its objectives; 2) the importance of effective monitoring and evaluation systems; and 3) the necessity of investments that are aligned

123 AU Fertiliser Plan (2023: 18).

124 Hannam (2022: 8).

125 See <https://www.fao.org/global-soil-partnership/en/>, accessed 27 June 2024; <https://openknowledge.fao.org/server/api/core/bitstreams/53fccd94-b001-412d-b803-474724057b6c/content>, accessed 24 July 2024.

126 See <https://www.fao.org/global-soil-partnership/en/>, accessed 27 June 2024.

127 AU Draft framework (2024: 3).

128 See https://static1.squarespace.com/static/62333c8fff349d7ad5226804/t/660ece6d8cf0cc68e47f0410/1712246389887/CA4SH+Flyer_03_04_24.pdf, accessed 29 June 2024.

129 See <https://www.fao.org/land-water/land/sustainable-land-management/terrafrica/en/>, accessed 29 June 2024.

with the program's objectives.¹³⁰ Evaluation of other already existing partnerships and their achievements before creating new policies and regulations would be advisable to ensure a targeted and effective approach to soil protection.

2.4.7 African Minerals and Development Centre

Although not involved in soil protection in a strict sense, the African Minerals and Development Centre deals with minerals as a component of soil. Its purpose is to promote good governance in mineral resources and implement environmentally and socially responsible mining practices.¹³¹

2.4.8 African Observatory for Science, Technology, and Innovation (AOSTI)

AOSTI was established as a Specialised Technical Office of the AU. Among its specific objectives are the monitoring of AU science, technology, and innovation (STI) policymaking and support for evidence-based STI policymaking.¹³² It does not seem to be involved in the soil protection efforts of the AU, since neither the Draft Framework Document of the SIA nor the Action Plan mention the Observatory in any way. It could be useful to consider its implementation in the SIA to avoid redundancies and use synergies, thus, saving costs. Furthermore, the collaboration between research facilities and governmental decision-makers could be strengthened this way, which is important to develop efficient, up-to-date soil conservation strategies.

2.4.9 Conclusion

To truly realise the AU's vision for soil protection, a well-performing institutional setup is required. The AUC has ownership and leadership of the SIA, therefore, providing the overall vision and strategic direction. Yet, the principle of subsidiarity is applied, which means that authorities at the appropriate level take responsibility for the implementation of specific actions. Furthermore, the AU aims to promote soil protection through collaboration with a wide spectrum of partners. These partnerships act on a continental/national level (such as CA4SH, which promotes the implementation of policies) and on a local level (such as TerrAfrica, which interacts more closely with local farmers). This diverse partnership network recognises that land degradation is

130 AU Draft framework (2024: 2).

131 See <https://au.int/en/amdc>, accessed 29 June 2024.

132 Statute of the African Observatory for Science, Technology, and Innovation, Art 3.

overall a global challenge, but the sustainable management of soils needs to be achieved at a local level.¹³³

Another advantage of having a broad array of partners is that the AU can build upon the gathered knowledge of these partners and ensure that the diverse needs and interests of African people will be reflected in its soil protection efforts. Besides, numerous partners also provide higher financial support.

On the other hand, the broad spectrum of partners increases the complexity of co-ordination and decision-making processes. Hence, the successes of the soil protection endeavours will significantly depend on, whether the AU manages to establish effective communication and coordination mechanisms. Otherwise, a more streamlined approach to collaboration on soil protection matters might save financial resources by causing less need for oversight.

2.5 Role of AU courts

Although specific soil-related case law is absent, AU courts can potentially play a significant role in addressing soil protection issues. Currently, the AU has one principal judicial organ, which is the African Court on Human and Peoples' Rights (AfCHPR). It is tasked with interpreting and applying AU treaties and ensuring the protection of human rights in Africa. Its decisions are binding and can include orders for compensation or other forms of reparations.¹³⁴ It exercises two main jurisdictions: contentious and advisory. The contentious jurisdiction extends to all cases concerning the interpretation and application of the African Human Rights Charter, the Protocol to the African Human Rights Charter, and other relevant human rights instruments ratified by AU member states (Article 3). Direct access to the court is only granted to the African Commission on Human and Peoples' Rights, state parties, and African inter-governmental organisations. NGOs and individuals can bring cases directly to the court only against state parties that have deposited a declaration accepting the jurisdiction of the court (Article 5).

Courts are important for the strong enforcement of soil protection legislation. By enforcing rights, such as access to information and participation, courts can improve public involvement in soil-related decision-making, which is crucial for identifying local soil challenges and creating solutions that are accepted by the local communities. The AfCHPR primarily focuses on the protection of human rights. It can, therefore, adjudicate cases where soil degradation affects human rights, such as the right to health, food, or a healthy environment. Especially cases of soil contamination are

133 Ginzky & Ruppel (2022: 1).

134 AU Handbook (2023: 126).

closely linked to human health and are, thus, of human rights relevance and could be judged by the AfCHPR.¹³⁵

However, the court's effectiveness in directly enforcing soil protection laws may be limited. It does not have jurisdiction over environmental law per se unless it is linked to human rights violations. Additionally, only twelve out of 34 member states have allowed individuals and NGOs direct access to the court under Article 34(6) of its Protocol, which restricts broader public participation in environmental justice.¹³⁶ As a solution, specialised courts on environment and land matters have been suggested to improve access to justice, as well as strengthen the expertise of judges on soil and land topics.¹³⁷ Even in the absence of a coherent soil protection framework, these courts could interpret existing legal frameworks (such as the revised version of the African Convention on the Conservation of Nature and Natural Resources) in a manner that could recognise the right to healthy soils. This way, courts could hold governments and corporations accountable for soil degradation and accelerate the creation of more comprehensive policies aimed at soil conservation.

2.6 Conclusion

The analysis of AU law on soil protection has shown that little binding regulations on soil protection exist. Yet, the AU has recently developed many soft law regulations on soil protection (Draft framework document for the SIA, Action Plan). This not only shows an increasing awareness of the matter within the AU but also suggests that the current institutional setup is sufficient to promote policy changes in terms of soil protection. Furthermore, the AU successfully integrated its soil protection agenda within its broader priorities, such as Agenda 2063.

Major challenges will be the conversion of soft law into binding regulations, the implementation of these regulations, and the coordination among the various initiatives and institutions working on soil protection in Africa. The fact that the AU cannot bind its member states and has no way to exercise supranational power is especially problematic in this regard. The creation of specialised courts on environment and land matters could help bridge gaps in legislation and enforcement. However, the financing of soil protection efforts remains taxing.

135 See <https://www.eea.europa.eu/publications/zero-pollution/health/soil-pollution>, accessed 19 September 2024.

136 AU Handbook (2023: 127).

137 Ginzky & Ruppel (2022: 4).

3 Comparative analysis of EU law on selected issues

The comparison of the AU and EU is particularly interesting because of the different governance structures and developmental contexts. While the EU represents a region with well-established environmental regulations and robust enforcement mechanisms, the AU comprises diverse African nations with varying levels of economic development and environmental governance.¹³⁸ The aim is to highlight the similarities and differences, while the focus lies on the frameworks for soil protection, institutional structures, monitoring, and stakeholder approaches.

3.1 Comparability of AU and EU

The AU and the EU are not directly comparable in all aspects, as they have distinct levels of economic and political integration. The AU consist of extremely diverse regions, being composed of low, lower-middle, upper-middle, and high-income countries.¹³⁹ While the EU currently has 27 member states, the AU has 55 member states.¹⁴⁰ Generally, the EU has greater economic stability than the AU and can, therefore, prioritise environmental protection to a greater extent. African countries, on the other hand, often face development issues including poverty and food insecurity, which they need to address at the same time.

Furthermore, the AU's total land area is approximately 30.365.000 km², while the EU covers only 4.000.000 km².¹⁴¹ Being a larger geographical region, the AU exhibits a more diverse range of climate types. This requires the AU to show greater flexibility in the implementation of soil protection regulations so that member states can tailor strategies to their specific needs and soil conditions. However, this will also cause monitoring to be more complex.

Moreover, debt is a major challenge for Africa.¹⁴² This affects the ability of AU member states to invest in enforcement mechanisms compared to the generally wealthier EU member states.

138 Trivedi (2003: 49).

139 See <https://www.worldbank.org/en/region/afr/overview>, accessed 30 June 2024.

140 See https://www.destatis.de/Europa/EN/Country/EU-Member-States/_node.html, accessed 30 June 2024; https://au.int/en/member_states/countryprofiles2, accessed 30 June 2024.

141 McMaster (2024); See https://european-union.europa.eu/principles-countries-history/key-facts-and-figures/life-eu_en, accessed 30 June 2024.

142 de Kluiver (2024).

3.2 Legal and policy frameworks

The AU has only a few binding regulations on soil protection and no “hard law”, which is exclusively dedicated to soil protection. Yet, it has established a few soft law instruments on soil protection over the recent years.

The EU also has a relatively wide net of soft law instruments in terms of soil protection with the Resolution on Soil Protection,¹⁴³ the EU Action Plan “Towards Zero Pollution for Air, Water and Soil”,¹⁴⁴ and the EU Soil Strategy 2030.¹⁴⁵ Furthermore, it has proposed a Directive on Soil Monitoring and Resilience in 2023.¹⁴⁶ It had already proposed a directive on soil protection in 2006, which was, however, formally withdrawn due to a blocking minority.¹⁴⁷

The Resolution on soil protection, *inter alia*, calls for the establishment of a legal framework with a robust monitoring system and stakeholder engagement.¹⁴⁸ The EU Action Plan stipulates the broader vision of zero pollution for 2050 with the main objective of providing a compass for including pollution prevention in all relevant EU policies. To serve this goal, it sets out zero pollution targets for 2030.¹⁴⁹ It, furthermore, calls for a framework to regularly assess the status of EU soils and act at all levels to address soil pollution and degradation.¹⁵⁰

The EU Soil Strategy 2030 provides a framework for the protection, restoration, and sustainable use of soils. It sets out the long-term vision that all soils should be in a healthy condition by 2050.¹⁵¹ Besides the long-term objectives for 2050, it includes medium-term objectives for 2030.¹⁵² To achieve these aims, it proposes voluntary as well as legislative actions.¹⁵³ Furthermore, the Strategy announces that the Commission would propose a Soil Health Law.¹⁵⁴

143 European Parliament resolution of 28 April 2021 on soil protection (2021/2548(RSP)).

144 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Pathway to a Healthy Planet for All EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil' {SWD(2021) 140 final} - {SWD(2021) 141 final}.

145 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, EU Soil Strategy for 2030, Reaping the benefits of healthy soils for people, food, nature and climate (SWD(2021) 323 final).

146 Proposal for a directive of the European Parliament and of the Council on Soil Monitoring and Resilience (Soil Monitoring Law) {SEC(2023) 416 final} - {SWD(2023) 416 final} - {SWD (2023) 417 final} - {SWD(2023) 418 final} - {SWD(2023) 423 final}.

147 See <https://www.lexisnexis.co.uk/blog/built-environment/why-was-the-soil-framework-directive-withdrawn>, accessed 1 July 2024.

148 Resolution on soil protection, Nr. 10-11 & 49.

149 EU Zero Pollution Action Plan (2021: 3).

150 Ibid.: 8.

151 EU Soil Strategy 2030 (2021: 2).

152 Ibid.: 3.

153 Ibid.: 2.

154 Ibid.: 5.

The proposal for a directive is the first step towards that commitment. It outlines the objective, scope, and definitions. Furthermore, it focuses on the monitoring and assessment of soil health (chapter II), sustainable soil management (chapter III), contaminated sites (chapter IV), and financing (chapter V). It does not include any legally binding targets. In terms of sustainable soil management, the proposal leaves the member states a large margin of discretion by, *inter alia*, prompting them to define sustainable soil management practices, define practices that negatively impact soil health, promote awareness of the benefits of sustainable soil management, and promote research and implementation of holistic soil management concepts.¹⁵⁵ Thus, it leaves it up to the national legislatures to transform the proposal into an effective tool for change.¹⁵⁶ The intrinsic value of the proposal, therefore, lies mainly in its provisions for monitoring.

Moreover, soil protection provisions exist in other binding regulations of the EU. The Industrial Emissions Directive (2010/75/EU) regulates soil protection measures for industrial activities. Article 14(1)(b) requires member states to ensure that a permit includes all measures necessary for the appropriate protection of soil. Article 14(1)(e) further requires the permit to include the need for periodic monitoring of soil. The monitoring requirements can be found in Article 16. Moreover, it requires that in cases of activities, which involve hazardous substances, a baseline report needs to be created. According to Article 22(2)(b), this needs to include information on soil that reflects its state at the time of the report. After the cessation of the activities, the state of the soil needs to be assessed again (Article 22 [3]). An exchange of information, *inter alia*, on techniques, which have the least potential effect on soil, is regulated in Article 64. The Directive even provides for a definition of soil in Article 3(21).

Other binding regulations are the Water Framework Directive (2000/60/EC) and the Groundwater Directive (2006/118/EC), which indirectly address soil protection by regulating water quality. Furthermore, the Environmental Liability Directive (2004/35/EC) holds operators financially responsible for preventing and remedying environmental damage, including soil contamination.

This shows that the EU is one step ahead of the AU as it has more binding provisions on soil protection than the AU with ongoing efforts to develop a Soil Framework Directive. The EU expressly recognises that a legislative rather than a non-legislative approach is needed to meet the long-term objective of healthy soil in the EU. The AU's non-binding policies do not directly indicate that binding regulations are being pursued. However, this should also ultimately be the goal for the AU member states.

155 Proposal for a directive on soil monitoring and resilience, Art 10.

156 Heinzel (2023).

3.3 Consistency of policy provisions

Soil is a cross-cutting resource that is impacted by a wide range of sectors, including agriculture, water management, and urban development. Thus, it is important to align soil protection measures with policies in these related domains.

With the Proposal for a Directive on Soil Monitoring and Resilience, the EU aims at providing a comprehensive regulatory framework for soil protection by taking already existing provisions into regard.¹⁵⁷

In the AU, the Draft AU Strategy on Climate Change and the Climate Change and Resilient Development Strategy and Action Plan for Africa, are part of the bigger picture of Agenda 2063. The African Fertiliser and Soil Health Action Plan mentions that its implementation will need to align with future developments under Agenda 2063.¹⁵⁸ The Draft Framework Document for the SIA highlights that soil health is important to achieve the goals of Agenda 2063, CAADP, the Malabo Declaration, Africa's Climate Change Strategy, and more.¹⁵⁹

This shows that the EU, as well as the AU, aim to harmonise their soil protection efforts with other provisions. However, the EU also takes binding provisions into regard, while the AU only refers to other soft law policies, of which many have not yet been fully implemented. This might be because of a lack of analysis of hard law provisions but might also be because only a few hard laws in terms of soil law exists in the AU. It also highlights, once again, that the EU already has more binding provisions, which directly/indirectly serve soil protection, in place than the AU. Therefore, ensuring consistency is more complex for the EU.

3.4 Approach to soil protection

The Climate Change and Resilient Development Strategy and Action Plan for Africa (2022) applies an integrated, cross-sectoral, and holistic approach to climate change. On the EU level, the Proposal for a Directive on Soil Monitoring and Resilience does not directly address its approach to soil protection. However, Article 2 states that the Directive applies to all soils in the territory of the member states. Its scope, therefore,

157 In terms of soil contamination: the Industrial Emissions Directive, the Waste Framework and Landfill Directives, the Environmental Liability Directive and the Environmental Crime Directive. In terms of water: the Water Framework Directive, the Groundwater Directive, the Nitrates Directive, and the Environmental Quality Standards Directive. In terms of nature: the Habitats and Birds Directive. In terms of environmental impacts assessment: Environmental Impact Assessment Directive, the Strategic Environmental Assessment Directive. Other environmental policy initiatives considered are the EU Biodiversity Strategy 2030, the Zero Pollution Action Plan, the Circular Economy Action Plan, and the Chemicals Strategy for Sustainability. See the Proposal for a directive on soil monitoring and resilience 6.

158 AU Fertiliser Plan (2023: 19).

159 AU Draft framework (2024: 3).

covers all sectors. The Industrial Emissions Directive also proclaims an “integrated approach” to the prevention and control of emissions into air, water, and soil.¹⁶⁰ This shows that the EU and AU generally follow a similar approach to soil protection.

3.5 Dealing with diverse circumstances of member states

Although soil degradation has transboundary impacts, it is also partly a local issue, since soil—other than, for example, air—is generally an immobile medium. Therefore, soil protection requires an effective implementation on a national level. The AU, as well as the EU, consists of different member states, which have different struggles in terms of soil protection. Thus, both unions need to find regulations that balance the diverse circumstances of their member states.

The EU applies the principles of subsidiarity and proportionality (Article 5(1) Treaty on the European Union). The proposed directive is supposed to leave flexibility to the member states to identify the best measures for them and to adapt the approach to local conditions so that they can consider regional and local specificities, including soil variability, land use, climatological conditions, and socio-economic aspects.

The AU also applies the principle of subsidiarity to soil protection. It recognises that there are four layers—local, national, regional, and continental—for the implementation of the SIA and, at each layer, tasks need to be assigned and performed by whoever is the most efficient and effective at doing so.¹⁶¹ Thus, the AU and EU generally have the same approach to dealing with the different circumstances in their member states.

3.6 Monitoring

When following the principle of subsidiarity, robust monitoring becomes especially important to ensure an effective implementation of soil protection regulations across different member states. Akin to the AU, the EU struggles with a lack of comprehensive and harmonised data on soil health from soil monitoring. Some member states have soil monitoring mechanisms in place, but they are fragmented, not representative, and not harmonised. Member states apply different sampling methods, frequencies and densities, and use different metrics and analytical methods, resulting in a lack of consistency and comparability across the EU.¹⁶²

160 Directive 2010/75/EU of the European Parliament and the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast) (Text with EEA relevance) (OJ L 334, 17.12.2010, p. 17) 3.

161 AU Draft framework (2024: 13).

162 Proposal for a directive on soil monitoring and resilience 4.

The proposed directive strives for an “integrated monitoring system” based on EU level, member state, and private data.¹⁶³ Chapter II outlines the monitoring and assessment of soil health. It requires member states to establish soil districts throughout their territory. Based on these soil districts, member states must establish a monitoring framework and assess soil health based on the collected data. Both must happen at least every five years. For the monitoring and assessment, member states shall apply prescribed criteria. The methodology for determining sampling points is also outlined in the proposed directive. The Commission shall adopt methods for sharing and collecting the valuable data, that is being collected this way. Furthermore, the Commission shall also carry out regular soil measurements, which reflects the “integrated” approach to monitoring. Yet, the proposal leaves unaddressed how the private sector is to be integrated into the monitoring system.

The Industrial Emissions Directive also provides for regular monitoring of soil, however, only in relation to relevant hazardous substances (Articles 14(1)(e) and 16).

To effectively monitor and assess soil health, one needs to define when a soil is to be considered “healthy” or “unhealthy”. The EU Soil Strategy 2030 already outlined the attributes of healthy soil.¹⁶⁴ The proposed directive built upon this by providing definitions (Article 9). The analysed regulations and policies of the AU do not contain such definitions. The original and the revised version of the African Convention on the Conservation of Nature and Natural Resources only defines the term “natural resources”.¹⁶⁵ However, the AU will likely adopt similar provisions once it starts converting its soft law on soil protection into more binding regulations.

In terms of monitoring, the AU has not created any specific regulations but has outlined key features of a yet-to-create monitoring system. Ultimately, a digital soil monitoring database shall be established.¹⁶⁶ An AU secretariat will be responsible for establishing modalities for monitoring and evaluation.¹⁶⁷ National soil institutions shall then be established/mandated to track, monitor, and evaluate.¹⁶⁸ The soil health monitoring system shall be based on commonly agreed soil health indicators.¹⁶⁹ Of further importance is the setting of soil health targets, standardisation of data, sharing of data, and developing indicators to track the implementation of the SIA.¹⁷⁰ For these indicators, the AU could take inspiration from the monitoring and assessment criteria as listed in the proposed directive of the EU. It could further refer to the indicators under the Monitoring and Evaluation System for the Comprehensive Africa

163 Ibid.: 4.

164 EU Soil Strategy 2030 (2021: 3).

165 Original version: Article III(a); revised version: Article V(a).

166 AU Fertiliser Plan (2023: 2) 2.

167 Ibid.: 18.

168 Action Plan Matrix 4.

169 Ibid.: 3.

170 AU Draft framework (2024: 10-11).

Agriculture Development Programme (CAADP).¹⁷¹ The latter would also help to integrate the implementation of the AFSH Action Plan into the CAADP monitoring and evaluation system, as foreseen by the AFSH Action Plan.¹⁷²

In summary, the monitoring system of the proposed directive can serve as a model for the AU. Not only would the approach to monitoring, such as the setting up of soil districts be transferrable, but also criteria for soil health and definitions for the state of soil health could serve as inspiration.

3.7 Institutional structures and coordination

As with the AUC, the European Commission has played a central role in developing EU-level soil protection policies and strategies, such as the Soil Thematic Strategy and the proposal for a Directive on soil monitoring and resilience. Within the European Commission, the Directorate-General for Environment is mainly responsible.¹⁷³ Moreover, the member states play a key role in implementing and enforcing soil protection measures, given the principle of subsidiarity, which is also a guiding principle of soil protection in the AU.

To provide the Commission services and the soil user community with sufficient soil knowledge and data flows, the EU is, furthermore, in the process of establishing the EU Soil Observatory (EUSO).¹⁷⁴ A similar institution has not yet been established on the AU level. Thus, it may be advisable for the AU to closely monitor the establishment of the EUSO to assess whether it could serve as a model for a similar institution within the AU.

However, the AU has not been completely inactive in this regard. It has established the EU-funded Soils4Africa project, which aims to develop an open-access soil information system for Africa by the end of its four-year duration (2020-2024).¹⁷⁵ Although such a system has not been fully developed yet, the project has achieved several key results, including the creation of an agricultural land map for Africa, the collection of soil samples, and the development of use cases for a soil information system, along with supporting soil quality indicators.¹⁷⁶

171 See https://www.fao.org/fileadmin/user_upload/eufao-fsi4dm/doc-training/CAADP_ME_system_hendricks.pdf, accessed 4 July 2024.

172 AU *Fertiliser Plan* (2023) Action Plan Matrix 18.

173 See https://commission.europa.eu/about-european-commission/departments-and-executive-agencies/environment_en, accessed 22 July 2024.

174 See https://joint-research-centre.ec.europa.eu/eu-soil-observatory-euso_en, accessed 22 July 2024.

175 See <https://www.isric.org/projects/soils4africa>, accessed 22 July 2024.

176 See <https://www.isric.org/news/soils4africas-lessons-learned-3-years-continent-wide-implementation>, accessed 22 July 2024.

3.8 Stakeholder engagement and participation

Both the AU and EU emphasise the importance of multi-stakeholder engagement. The EU has implemented this by conducting stakeholder consultations on the potential Soil Health Law¹⁷⁷ and the AU has brought together a diverse range of stakeholders with its Africa Fertiliser and Soil Health Summit in May 2024.¹⁷⁸

3.9 Incentive mechanisms

Incentive mechanisms are important to ensure that soil protection legislation is effectively implemented. For this reason, the EU provides subsidies through the Common Agricultural Policy to incentivise farmers to adopt sustainable soil management practices.¹⁷⁹ The proposed directive also aims to ensure that farmers can receive financial support for certain practices, e.g. under the Common Agricultural Policy (CAP) or the proposal for an EU carbon removal certification framework.¹⁸⁰ Furthermore, the EU is exploring the potential of payments for ecosystem services to reward landowners for the environmental benefits their well-managed soils provide.¹⁸¹

The AU encourages the mobilisation and allocation of financial resources to sustainable soil management. However, the Fertiliser and Soil Health Action Plan leaves the development of adequate strategies at a regional and national level.¹⁸² The financial support on a national level has the advantage that it can be tailored to the specific needs of the country and offers more flexibility in adjusting the financing mechanisms. On the other hand, regulation on a continental level provides a more cohesive approach and may attract larger funding opportunities from international organisations and partnerships. This shows that a hybrid approach that combines financial incentives on both levels may be beneficial.

177 Proposal for a directive on soil monitoring and resilience 11.

178 See <https://www.ifad.org/en/web/latest/-/africa-fertilizer-and-soil-health-summit-a-catalyst-for-change-in-african-agriculture>, accessed 22 July 2024.

179 Approved 28 CAP Strategic Plans (2023-2027: 42).

180 Proposal for a directive on soil monitoring and resilience 2.

181 See https://environment.ec.europa.eu/economy-and-finance/ensuring-polluters-pay/payments-ecosystem-services_en, accessed 22 July 2024.

182 AU Fertiliser Plan (2023: 5).

3.10 Financing

The largest portion of the EU budget is derived from contributions made by its member states. These contributions are based on each country's gross national income.¹⁸³ With these contributions, the EU established environmental and climate funds to support soil protection initiatives, mainly the Common Agricultural Policy. Overall, the EU has established a climate spending target of 20% of the EU budget.¹⁸⁴

The AU also relies on contributions from its member states but faces significantly inadequate funding.¹⁸⁵ This shortfall has led the AU to strengthen its sanctions regime regarding the payment of dues.¹⁸⁶ Thus, the AU relies on partnerships to receive adequate funding. For example, the Soils4Africa project.

Therefore, it can be concluded that the EU has a more structured approach to financing soil protection, while the AU's financing mechanisms are often less formalised and rely heavily on partnerships and national initiatives. Yet, this is a matter that cannot easily be changed since it would require more financial strength from its member states and their increased will to contribute to the AU. Unfortunately, this enormously impairs the AU's capability to implement effective soil protection strategies.

3.11 Novelty aspect and lack of implementation

When comparing the AU and the EU it must be kept in mind that the EU (formerly the European Coal and Steel Community) was established in 1951,¹⁸⁷ while the AU was only launched in 2002.¹⁸⁸ Thus, it took the EU almost 70 years to become what it is today. Agenda 2063 is a strategic framework to guide the continent's development over the next 50 years.¹⁸⁹ From a temporal perspective, the AU can, therefore, only really be compared to the EU by the end of Agenda 2063. Considering that the AU is younger than the EU and, that its soft law on soil protection closely mirrors that of the EU, it has already made notable progress in addressing the issue.

The major challenge for the AU, as well as the EU, remains implementation. The EU has identified four pillars of action in terms of European soils. These are (1) a proposal for a legally binding instrument (Soil Framework Directive), (2) the

183 See https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/revenue/own-resources/national-contributions_en, accessed 22 July 2024.

184 See https://climate.ec.europa.eu/eu-action/eu-funding-climate-action/supporting-climate-action-through-eu-budget_en, accessed 22 July 2024.

185 Iyatse (2023).

186 See <https://au.int/es/node/36397>, accessed 22 July 2024.

187 See <https://eur-lex.europa.eu/DE/legal-content/summary/treaty-establishing-the-european-coal-and-steel-community-ecsc-treaty.html>, accessed 18 September 2024.

188 See <https://au.int/en/overview>, accessed 18 September 2024.

189 AU Agenda 2063 – The AFRICA We Want – Framework Document (2015).

integration of soil protection into related EU legislation, (3) research and innovation on soil-related topics, and (4) awareness-raising actions to promote soil protection within the EU.¹⁹⁰ Since the presentation of the EU Soil Thematic Strategy, the EU has achieved important progress, especially in the implementation of pillars two and four. However, the strategy has failed in the adoption of legally binding legislation.¹⁹¹ This has mostly proven to be difficult because of the strong relevance of soils to the EU member states' sovereignty. The principle of subsidiarity requires a strong justification that soils are a topic of transboundary relevance. Thus, the codification of soils within broader legal frameworks, such as the EU Biodiversity Strategy and the Common Agricultural Policy might be more realistic.¹⁹² Should the AU encounter similar difficulties when trying to adopt binding conventions on soil protection, it might also aim to embed soil protection within its existing legal frameworks, such as the environmental conventions mentioned. The fact that the AU cannot bind its member states and has no way to exercise supranational power makes it especially difficult for the AU to implement a soil protection framework.

Both continents face challenges in not only translating soft law policies into binding regulations but also in the on-the-ground implementation of initiatives. Research indicates that poorly trained farmers often struggle to understand soil conservation measures, leading to behaviours that contradict public policies. A potential solution is to create a comprehensive strategy that incorporates knowledge from various sources, such as local expertise and scientific research. This strategy can then be gradually introduced to farmers, ensuring a more uniform approach to soil conservation practices.¹⁹³

4 Recommendations

At present, it is difficult to formulate specific recommendations for the AU based on the EU soil protection legislation. This is because both unions have primarily agreed on aspirational goals, which, while an important first step, do not yet constitute a comprehensive soil protection framework. Although the EU's proposal for a soil protection directive offers valuable inspiration for the AU, particularly regarding the development of a soil monitoring system, it remains uncertain whether the EU will successfully achieve its goals or establish regulations that can serve as a concrete model. Consequently, the following recommendations are primarily based on the common principles found in the soft laws of both the EU and the AU.

190 Montanarella & Panagos (2021: 3).

191 Ibid.

192 Ibid.

193 Salhi et al. (2020: 13).

4.1 Transforming soft law into binding regulations

With its proposed directive, the EU is one step closer to establishing a binding soil protection framework compared to the AU. The AU should take inspiration from this and begin transitioning its soil protection soft law into binding regulations. Key to this transition are the AUC and the PAP. The Commission plays a crucial role at the continental level. However, the creation of binding regulations will require the Parliament to take a more active role in providing legislative guidance to civil society and sub-regional parliaments for implementing soil protection policies. At present, both institutions suffer from significant institutional deficits, and without reform, the effective implementation of policies remains unlikely. Therefore, addressing these institutional weaknesses is essential to fully harness the AU's enforcement capabilities and ensure the successful adoption of soil protection measures.¹⁹⁴

4.2 Establishing definitions and soil health indicators

As the EU has done in its proposed directive, the AU should establish clear definitions of soil, healthy soil, and soil health indicators. This is a critical step for creating an effective monitoring system, which is essential for optimising agricultural practices in a sustainable manner. Standardised definitions and indicators form the foundation of soil protection efforts. To align with global standards, the AU could draw on the soil health indicators developed by the FAO, as well as the monitoring and assessment criteria of the CAADP, as guiding frameworks. This would not only strengthen the AU's approach to soil protection but also promote consistency in global soil management practices.

4.3 Monitoring system

For the monitoring system itself, the AU can draw inspiration from the EU's proposed directive. An integrated monitoring system that combines data from various sources, including private data, enables a comprehensive soil data set. However, this approach also requires extensive coordination among these different sources, and, consequently, significant financial resources. Therefore, the AU should assess its capacity to implement such an integrated system.

To begin, the AU could start with a smaller-scale monitoring system, assigning the responsibility for soil sample collection and assessment to a single institution at the continental level. Over time, additional data sources, including private and national

194 Ekhatior (2022: 345).

data, could gradually be incorporated into the system. This approach would facilitate quicker implementation, as smaller-scale monitoring is more manageable, while also providing the AU with time to secure the necessary funding to expand the system. Moreover, it would give member states time to establish their national soil monitoring systems, in line with the principle of subsidiarity.

This phased approach would also allow for the evaluation of the system's effectiveness, providing opportunities for adjustments as the system expands. In terms of developing national soil monitoring systems, the AU would need to establish harmonised indicators, a standardised methodology for monitoring and reporting, clear targets, and measures, and secure financial resources. These would serve as essential guidelines for the member states, ensuring consistency and cohesion across the continent.

Considering the financial constraints of the AU, it would be prudent to thoroughly evaluate the capabilities of existing institutions to determine if one could take on the task of soil monitoring. By leveraging the expertise and infrastructure of an established institution, the AU could avoid the need to create a new, potentially costly monitoring body. This would not only save financial resources but also prevent unnecessary redundancies, streamlining efforts and maximising the effectiveness of the existing institutional framework. Identifying a suitable institution for this task would ensure a more cost-efficient and sustainable approach to soil monitoring across the continent.

4.4 Stakeholder engagement

When establishing a soil protection framework for the AU, it is crucial to involve stakeholders such as farmers, environmental NGOs, and other relevant groups at every stage of the process. Initial consultations should focus on identifying soil health challenges and specific needs, helping to shape the framework's objectives and priorities. During the development phase, dialogue platforms should be established to gather input on proposed policies and strategies, ensuring the framework aligns with the needs of those directly affected. Once the framework is in place, regular forums should be set up to collect feedback and suggestions for ongoing adaptations, fostering a dynamic, inclusive approach to soil protection that evolves based on real-world experience and input.

4.5 Inclusion of minorities and youth

Numerous studies indicate that if adaptation actions do not consider age and gender in their application, the loss of future livelihoods and educational opportunities will

occur.¹⁹⁵ Therefore, minorities and youth should be engaged in the same way as other stakeholders.

4.6 Implementation planning

The framework should clearly outline roles and responsibilities. This ensures that all stakeholders are clear about their contributions and facilitates coordinated action. The overarching timeline for soil protection is already outlined in soft law.¹⁹⁶ However, time goals should also be included in binding regulations with measurable intermediate and final targets. An example of this is Article 8(5) of the proposed EU directive, which stipulates that member states need to perform new soil measurements at least every five years and soil sealing indicators need to be updated annually.

4.7 Considering practical obstacles to soil protection

An aspect that has so far not been mentioned but is among the “lessons learned” of the Soils4Africa project, is that practical obstacles such as language differences and security constraints need adequate attention.¹⁹⁷ Four languages: English, French, Arabic, and Portuguese prove important for effective participation within the consortium, stakeholder engagement, and the field campaign. To adequately deal with this, multi-lingual resources should be provided. Furthermore, the involvement of local community leaders could help with the translation of materials and facilitate discussions. Security issues are harder to handle since this requires the strengthening of local governance, which is a matter different from soil protection. Yet, community engagement can increase the acceptance of the regulations and, thus, mitigate opposition to the implementation of a soil protection framework.

Furthermore, a soil protection framework should consider the specifics of Africa as a developing continent. It should incorporate mechanisms that enable climate-positive economic growth, such as sustainable agriculture methods. In this context, the transfer of knowledge and technology is especially important.

195 Climate Change and Resilient Development Strategy and Action Plan 17-18.

196 AU Fertiliser Plan (2023: 12).

197 See <https://www.isric.org/news/soils4africas-lessons-learned-3-years-continent-wide-implementation>, accessed 22 July 2024.

4.8 Incentive mechanisms

Already existing incentive mechanisms for farmers should be evaluated in terms of their effectiveness and sustainability. Besides, subsidies for sustainable farming practices should be considered. A hybrid approach of incentives on a continental, as well as national level, might be the most effective solution.

5 Conclusion

The AU faces an urgent and complex task in establishing a robust soil protection framework. Healthy soils are essential for tackling food security and climate resilience, yet land degradation remains a pressing issue across Africa. Current AU treaties and conventions address environmental issues broadly, but few specifically prioritise soil protection. The African Convention on the Conservation of Nature and Natural Resources stands as a notable exception in explicitly mentioning soil, but most existing efforts remain limited to non-binding policies, such as the Draft Framework for the SIA and the ten-year SIA Action Plan. These documents highlight the AU's commitment to soil health and promote integrated soil management, including regenerative agriculture—an approach that represents a shift from earlier strategies focused mainly on increasing fertiliser use.

The AU's strength lies in its comprehensive, collaborative approach to soil health. This includes a long-term vision and active partnerships with NGOs and international organisations, both essential for resource mobilisation and knowledge sharing. However, significant implementation challenges persist. Funding limitations and capacity gaps impede progress, and the absence of a concrete monitoring and evaluation system makes it difficult to assess and refine soil protection strategies. Lessons can be drawn from the EU, which, despite similar limitations, has proposed a directive that includes specific provisions for monitoring soil health. While both the EU and AU lack fully binding soil protection frameworks, they share a vision of cross-sectoral soil management and stakeholder engagement, indicating that core principles for soil protection are universal.

Challenges in soil policy implementation are also common to both unions. Variability in member states' capacity and commitment leads to inconsistent results, and insufficient soil health data complicates monitoring efforts. However, the AU's context adds unique challenges, such as diverse languages, security concerns, and limited financial resources, making direct comparisons with the EU difficult.

For the AU, transforming soft law policies into binding regulations is the next critical step. These should include clear definitions, indicators for soil health, and a monitoring system that engages all relevant stakeholders, including local communities, to ensure effective implementation and regional adaptability. Moving forward,

prioritising a comprehensive soil framework would not only protect Africa's vital soil resources but also align with broader goals of food security and climate resilience. By building on the lessons learnt of both the AU's past initiatives and the EU's evolving soil policies, the AU has an opportunity to address soil degradation as a fundamental component of its environmental and development agenda. The urgency is clear: safeguarding Africa's soils is essential for the continent's sustainable future.

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Positioning the Pan-African Parliament: Origins, legal authority, and its role in strengthening Africa's soil governance framework¹

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Abstract

Flowing from the previous chapter, this chapter examines the Pan-African Parliament (PAP), focusing on its origins, legal basis, composition, and mandate, particularly in promoting a model law on soil governance for Africa. Established under the African Union (AU) as outlined in the Abuja Treaty and Constitutive Act, the PAP aims to ensure African peoples' participation in development and economic integration.

The chapter analyses the PAP's structure, powers, and functions, including the impact of the 2014 amended Protocol, which aspires to enhance its role as a legislative body. It highlights the PAP's mandate to foster cooperation among regional economic communities (RECs), member states, and specialised organisations, positioning it to advance policies for sustainable development and effective soil governance.

Despite challenges in asserting authority, the PAP's initiatives in food security, climate change, and economic integration align with Agenda 2063. With reforms in infrastructure, funding, and legislative capacity, the PAP is poised to play a crucial role in advancing Africa's transformation, including the development of a soil model law essential for the continent's future.

1 This contribution is partly based on research published by Ruppel & Houston (2021) and a forthcoming publication by Ruppel & Murray.

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Summary

This chapter provides an in-depth analysis of the Pan-African Parliament (PAP), exploring its historical foundations, legal framework, structural composition, and the scope of its mandate. It particularly focuses on the PAP’s role in advancing soil governance in Africa, emphasising the development and promotion of a model law to address the continent’s pressing soil management challenges. Established under the African Union (AU) through the Abuja Treaty and the Constitutive Act, the PAP serves as a cornerstone institution aimed at fostering African unity, economic integration, and sustainable development, while amplifying the participation of African peoples in these processes.

The PAP was conceived as part of the AU’s vision to enhance democratic governance, integration, and development across member states. Its establishment is rooted in the Abuja Treaty of 1991, which laid the groundwork for economic and political cooperation across Africa. The Constitutive Act of the AU further entrenched the PAP as a critical institution for advancing the continent’s developmental aspirations. This legal foundation underpins the PAP’s legitimacy and outlines its primary goals, including promoting economic integration, harmonising policies, and representing the interests of African citizens.

The chapter outlines the PAP's organisational structure, which comprises representatives from the AU's member states. Each member state appoints five parliamentarians, ensuring representation of diverse political, social, and gender dynamics. The PAP's sessions provide a platform for debate, policy formulation, and the monitoring of AU programmes. However, its legislative powers have traditionally been limited, with its primary role being advisory and consultative. The 2014 amended Protocol on the PAP, often referred to as the Malabo Protocol, seeks to expand its legislative mandate, enabling it to pass binding laws in specific areas of continental significance.

Central to the PAP's mission is the promotion of cooperation among regional economic communities (RECs), member states, and specialised organisations. The chapter emphasises how this mandate positions the PAP as a critical actor in addressing cross-cutting issues such as soil governance, climate change, and food security. By fostering collaboration, the PAP has the potential to harmonise national policies and facilitate the adoption of regionally integrated strategies to combat soil degradation, enhance agricultural productivity, and mitigate climate impacts.

The chapter highlights the PAP's alignment with the AU's Agenda 2063, which outlines a blueprint for achieving a prosperous and sustainable Africa. Soil governance emerges as a priority, given its foundational role in food security, economic stability, and climate adaptation. The development of a model soil governance law is presented as a crucial step toward addressing the challenges of land degradation, nutrient depletion, and unsustainable agricultural practices across the continent. Such a law would establish standards, guidelines, and best practices for soil management, ensuring long-term ecological and economic benefits.

Despite its potential, the PAP faces significant challenges in asserting its authority and fulfilling its mandate. These include limited infrastructure, inadequate funding, and a lack of legislative capacity. The chapter underscores the need for comprehensive reforms to strengthen the PAP's institutional framework, enhance its resource base, and build its technical expertise. Additionally, the PAP must navigate the complexities of aligning diverse national policies and overcoming political resistance from member states that may view its initiatives as encroachments on sovereignty.

Nevertheless, the PAP's initiatives in food security, climate change, and sustainable development demonstrate its capacity to contribute meaningfully to Africa's transformation. By leveraging its mandate to foster cooperation and policy harmonisation, the PAP is well-positioned to lead the development of a model soil governance law. Such a law would not only address the continent's environmental challenges but also support broader goals of economic integration, social equity, and resilience to climate change.

In conclusion, the chapter paints a picture of the PAP as an institution with immense potential to shape Africa's future. While its journey toward becoming a fully empowered legislative body is ongoing, the PAP's focus on sustainable development, economic integration, and participatory governance underscores its relevance. With

targeted reforms and strengthened partnerships, the PAP can play a pivotal role in advancing soil governance, thereby, contributing to the achievement of Agenda 2063 and the broader vision of a united and prosperous Africa.

1 Introduction

The Pan-African Parliament (PAP) represents a groundbreaking initiative in Africa's journey towards political integration and democratic governance. Established during the transition from the Organisation of African Unity (OAU) to the African Union (AU), the PAP embodies the AU's commitment to providing a more inclusive platform for African voices in the continent's development process. This chapter explores the PAP's origins, legal foundation, and evolving role within the AU. The PAP's creation was driven by a desire to ensure that the diverse voices of Africa's people are reflected in the continent's political and economic strategies. The PAP's mandate aims to actively engage with and represent the interests of African citizens, ensuring that the AU's policies and programmes effectively address their needs and concerns.

A proposed Model Law on Soil Management in Africa is being developed by the PAP in consultation with Stellenbosch University and the German Environment Agency to highlight the need for effective soil management for food security and climate change mitigation. This initiative forms part of a process mandated by the PAP to address the continent's pressing soil degradation challenges and establish a unified legal framework for sustainable land use.

Recent amendments to the PAP Protocol, particularly those from 2014, mark a significant evolution in the Parliament's role and effectiveness. These changes reflect the ongoing efforts to enhance the PAP's legitimacy and operational capacity, aiming to transition it from a consultative body to a more powerful legislative institution. This chapter will assess the potential impacts of these amendments on the PAP's future and its contribution to Africa's political and economic integration, including its pivotal role in developing the Model Law on Soil Management.

2 The Pan-African Parliament

2.1 Genesis and formation

The PAP was conceived as part of the broader vision for African integration outlined in the 1991 Treaty Establishing the African Economic Community (AEC), commonly known as the Abuja Treaty.² The Treaty came into force in 1994 and, together with

² Sehen (2006: 2).

the Charter of the OAU, has since formed the foundation for the operation of the OAU. During the period of coexistence with the OAU, the AEC established seven organs, one of which was the PAP.³ The PAP was intended to be a key platform through which the voices of African citizens could influence the AU's decision-making processes, ensuring that the people's concerns were heard at the highest levels.⁴ The Treaty specified that a protocol would be adopted to define the PAP's powers, functions, and structure.⁵

The PAP was originally conceived as an institution of the AEC, with its establishment planned for the final stages of the AEC's implementation, around 2028.⁶ The Abuja Treaty outlined a phased approach to achieving continental economic and political integration, envisioned over six stages spanning 34 years.⁷ This process aimed to create a continental free trade area and establish key regional and sub-regional institutions. However, this initial plan was overtaken by the rapid evolution of Africa's integration agenda. The creation of the AU in 2002, which replaced the OAU, accelerated these regional integration efforts.⁸

The OAU, the precursor to the AU, was founded on 25 May 1963 in Addis Ababa, Ethiopia. Almost two decades later, following the establishment of the OAU Charter Review Committee, the OAU's Assembly of African Heads of State and Government convened in Sirte, Libya, on 9 September 1999, for its Fourth Extraordinary Summit. During this Summit, the Assembly adopted the Sirte Declaration, which called for the formation of an African Union, a re-envisioned version of the OAU aimed at addressing contemporary challenges.

African leaders recognised the need for stronger continental unity and cooperation in the face of globalisation, aiming to protect and leverage Africa's socio-economic and political potential in the international arena.⁹ Sideline discussions continued, culminating in a meeting of legal experts and parliamentarians in Addis Ababa, Ethiopia, to review the Draft Treaty on the formation of the AU and the Draft Protocol of the PAP.¹⁰ This led to the 36th Ordinary Session of the Assembly of the OAU, held in Lomé, Togo, from 10–12 July 2000. During this session, the Constitutive Act of the AU was adopted.

Article 5(1)(c) of the AU's Constitutive Act formally recognised the PAP as an organ of the AU.¹¹ Article 33 outlines the transitional provisions that marked the end of the independent existence of the AEC. This signified the formal merger of the OAU

3 Art 7(1)(c) of the Abuja Treaty.

4 Ibid.: Art 14(1).

5 Ibid.: Art 14(2).

6 Mngomezulu (2018: 47).

7 Art 6 of the Abuja Treaty.

8 Mngomezulu (2018: 47).

9 Art 8(i) of the Sirte Declaration.

10 Mngomezulu (2018: 48).

11 Art 17(1) of the Constitutive Act.

and the AEC into the AU, bringing together institutions that had coexisted separately for an extended period. Regarding the PAP, the Constitutive Act only stipulated that a protocol would be adopted to outline the specific objectives, functions, and powers of the PAP.¹²

2.2 The PAP Protocol

In March 2001, during the Fifth Extraordinary Session of the OAU Assembly, the Protocol to the Treaty Establishing the AEC Relating to the PAP was adopted. Within under three years, the Protocol received the necessary ratifications (24 member states) and came into force in December 2003. The PAP formally inaugurated its first parliamentarians in March 2004. The Protocol was adopted as part of the broader effort to implement the vision of the AU, which sought to create a more integrated and participatory governance structure for Africa.¹³ The Preamble of the Protocol strongly emphasises the promotion of popular participation, democracy, and the consolidation of institutions. Additionally, the promotion and protection of human and people's rights are central to its mandate, with explicit reference to the African Charter on Human and Peoples' Rights (ACHPR) as a guiding framework.

2.2.1 Composition and structure

The PAP Protocol outlines several critical aspects of the Parliament's operation. According to Article 2(2), the PAP, based in Midrand, South Africa, represents all the people of Africa. It comprises 275 parliamentarians representing the 55 AU member states, and its mandate is derived from these member states.¹⁴ Article 16 establishes that the seat of the PAP is to be decided by the Assembly and located in a state party, though the PAP may convene in other member states if invited. Rule 2 of the PAP Rules of Procedure designates South Africa as the host country.¹⁵

Each member state elects five representatives to the PAP, with at least one of them being a woman.¹⁶ Each member state's parliament selects PAP representatives, aiming to reflect diverse political viewpoints.¹⁷ Article 5 of the Protocol guides the election process. Additionally, PAP members are granted certain immunities and privileges across all member states while performing their duties.¹⁸

12 Ibid.: Art 17(2).

13 Art 4(c) of the Constitutive Act; Preamble of the PAP Protocol.

14 Art 4 of the PAP Protocol.

15 PAP Rules of Procedure 2004 (as amended to 2022).

16 Art 4(2) of the PAP Protocol.

17 Ibid.: Art 4(3).

18 Art 8 of the PAP Protocol; Rule 10 of the PAP Rules of Procedure.

The PAP consists of several key organs: the Plenary (formal sitting), the Bureau, the Secretariat, Committees, and regional groups. The Bureau, which includes a President, and four Vice Presidents elected for a three-year term, manages and administers the affairs of the PAP and represents each of Africa's five regions: Southern, Eastern, Western, Central, and North.¹⁹ The Permanent Committees support the PAP in carrying out its functions as outlined in the Protocol and Rules of Procedure.²⁰ Regional Caucuses represent the five regions and are responsible for nominating members to committees and leadership roles.²¹ Lastly, the Secretariat, headed by the Clerk and supported by two Deputy Clerks, oversees the implementation of the PAP's decisions and programs.²²

Per the Rules of Procedure, the PAP must hold ordinary sessions at least twice a year.²³ During these meetings, the Parliament debates motions and discusses matters approved by the Bureau.

In line with Rule 22(1) of the Rules of Procedure, the PAP operates through fifteen permanent committees, each focusing on specific issues: Permanent Committee on Agriculture, Rural Economic Development and Food Security; Permanent Committee on Monetary and Financial Affairs; Permanent Committee on Cooperation, International Relations, Peace and Security; Permanent Committee on Transport, Logistics and Infrastructure; Permanent Committee on Health; Permanent Committee on Education, Science, Technology and Innovation; Permanent Committee on Gender, Family, Youth, Sports and People with Disability; Permanent Committee on Justice, Human Rights and Immigration Matters; Permanent Committee on Rules, Privileges, Ethics and Discipline; Permanent Committee on Auditing and Public Accounts; Permanent Committee on Tourism, Arts, Culture and Heritage; Permanent Committee on Labour, Employment and Social Welfare; Permanent Committee on Economic Development, Mining and Energy; Permanent Committee of Natural Resources, Environment and Climate Change; and Permanent Committee on Trade, Customs, and Industry.

Under Rule 23, the Committees are empowered to receive evidence, summon witnesses, and request the production of documents and papers. This rule also outlines the process for presenting and debating reports in Parliament. Rule 24 details the procedures that enable Committees to perform their functions effectively. Specifically, Rule 25 states that the Chairpersons, on the advice of the Bureau, will determine the general business assigned to the Committees. Additionally, Committees are tasked with handling matters typically managed by the corresponding Specialised Technical

19 Part IV of the PAP Rules of Procedure.

20 *Ibid.*: Part V.

21 *Ibid.*: Part XVIII.

22 *Ibid.*: Rule 20.

23 *Ibid.*: Rule 28.

Committees responsible to the Executive Council, as outlined in Article 14 of the Constitutive Act.

Additionally, Parliament may assign any relevant issue to a committee as deemed necessary, as outlined in Rule 25(3). Rule 26 defines the specific functional domains for each Committee, ensuring that the Parliament can effectively oversee particular areas or departments.

A notable and proactive step taken by the PAP was adopting a resolution to align its committees with those of the AUC.²⁴ This alignment aims to enhance effectiveness, foster cooperation, and facilitate the oversight functions of the PAP.

2.2.2 Mandate and functions

The Constitutive Act and the Preamble to the PAP's Protocol clearly outline the vision African leaders had in mind when establishing the PAP. Article 17 of the Constitutive Act emphasises the PAP's role in ensuring the full participation of African peoples in the continent's development and economic integration. Similarly, the Preamble to the Protocol highlights the aim of creating a common platform for African peoples and grassroots organisations to engage more actively in discussions and decision-making on the continent's challenges.

Article 3 of the PAP Protocol articulates the objectives, reflecting the motivations behind its creation, including facilitating the effective implementation of the policies and objectives of the OAU/AEC and, ultimately, the AU; promoting human rights and democracy across Africa; encouraging good governance, transparency, and accountability among member states; increasing awareness among Africans about the objectives and policies aimed at integrating the continent within the framework of the AU; promoting peace, security, and stability; contributing to Africa's prosperity by advancing collective self-reliance and economic recovery; facilitating cooperation and development within Africa; strengthening continental solidarity and fostering a sense of common destiny among African peoples; and enhancing cooperation among Regional Economic Communities (REC's) and their parliamentary fora.

Regarding the PAP's powers and functions, Article 11 of the Protocol states that it shall be vested with legislative powers, the scope of which will be defined by the Assembly. During its initial term, the PAP is limited to exercising advisory and consultative powers.²⁵ In this capacity the PAP is empowered to examine, discuss, and offer recommendations on a wide range of issues, including human rights, democracy, governance, and the rule of law, either on its initiative or at the request of the Assembly or other policy organs.²⁶ It reviews its budget, as well as that of the AU, and makes

24 PAP/P(3)/RES/03(I).

25 Art 11 of the PAP Protocol.

26 Ibid.: Art 11(1).

recommendations before approval.²⁷ The PAP also aims to harmonise or coordinate the laws of member states, promote the objectives of the AU and AEC, and identify challenges in Africa's integration process.²⁸ Additionally, it can request officials to attend its sessions, promote coordination among RECs, adopt its procedures, elect its President, and propose staffing structures.²⁹ The PAP also performs other functions to meet its goals outlined in Article 3 of its Protocol.³⁰

In line with Article 11(8), the PAP has adopted its Rules of Procedure, which clarify and expand upon its advisory and consultative powers. Key provisions include Rule 4, which specifies that the PAP will carry out its functions per Articles 3, 11, and 18 of the Protocol. These Articles outline the PAP's objectives, powers, and relationship with RECs and national parliaments. Rule 5 details the powers of the PAP, including overseeing the development and implementation of AU policies and programs; organising debates on the objectives, policies, and activities of the AU and RECs; examining, discussing, or expressing opinions on issues related to the AU or at the request of AU organs, RECs, or member states; making recommendations and resolutions on matters concerning the AU, RECs, and member states; exercising legislative and other functions as shall be defined by the Assembly in conformity with Article 11 of the Protocol; inviting representatives from AU organs, RECs, or member states to provide explanations to the Plenary on issues affecting the AU; and exercising all other incidental or auxiliary powers necessary for the discharge of its functions.

Of relevance next is Rule 73, which requires that all decisions of the Assembly and Executive Council, as well as programs of AU organs, be submitted to the PAP. Rule 74 allows the President of the PAP, after consulting with the Bureau, to invite the Chairpersons of the Assembly, Executive Council, or Commission to address the Parliament after their meetings, explaining major decisions. A debate among members will then follow. Rule 75 outlines the procedure for handling annual and other reports from the AU organs, ensuring that the PAP can effectively perform its advisory and consultative roles. The rule specifies that annual reports and other reports from AU organs must be submitted to the PAP. The reports will be referred to the appropriate Permanent Committees within the PAP. These Committees are tasked with reviewing the reports, deliberating on their content, and providing recommendations to the Parliament. The reports reviewed by the Committees will be debated in the full Parliament. The Parliament will then pass resolutions on these reports for consideration by the Executive Council. Rule 76 further stipulates that the President of the PAP is responsible for presenting resolutions and reports to the Assembly.

27 Ibid.: Art 11(2).

28 Ibid.: Arts 11(3-4).

29 Ibid.: Arts 11(5-8).

30 Ibid.: Art 11(9).

Article 18 of the Protocol emphasises the need for the PAP to collaborate closely with the parliaments of RECs³¹ and national parliaments of member states. However, the exact meaning of ‘close cooperation’ remains somewhat ambiguous, typically interpreted as holding annual consultative meetings to address shared interests.³² Magliveras and Naldi explain that these meetings are between equal partners, meaning that the PAP’s ability to exert its influence is significantly diminished. The PAP has established an Annual Speakers Conference, which has enhanced the PAP’s connections with regional and national parliaments.³³ Its goals include raising awareness among speakers of national and regional parliaments about AU decisions, particularly legal instruments, and the importance of their prompt ratification, domestication, and implementation by member states. Many of these instruments focus on governance, democracy, and human rights, providing a strong foundation for peace and security across the continent. The Conference also reviews the PAP’s activities and assesses the state of integration within Africa.

2.3 Missions

As part of its oversight function, the PAP conducts fact-finding missions to conflict zones and areas with human rights or humanitarian issues.³⁴ These missions are initiated through a Plenary Resolution, either proposed by a committee or the Plenary itself. The aim is to gather firsthand information on the conflict through direct engagement with citizens and stakeholders, allowing Parliament to make informed decisions. Any Parliamentary Committee can undertake a fact-finding mission, depending on the issue at hand. These missions, which have taken place in numerous countries, are viewed as vital for understanding conflicts and raising awareness among Parliament members. Between 2006 and 2019, the PAP conducted fact-finding missions in conflict areas such as the Great Lakes region, Democratic Republic of Congo (DRC), Darfur (Sudan), Central African Republic, Chad, Saharawi Arab Democratic Republic, Mali, Libya, South Sudan, Burundi, and Niger. These missions delve into various issues, including education, environmental protection, gender, and human rights, as seen in countries such as Rwanda, Sierra Leone, and Ivory Coast.³⁵

31 The AU recognises eight RECs: the Arab Maghreb Union (UMA); the Common Market for Eastern and Southern Africa (COMESA); the Community of Sahel–Saharan States (CEN–SAD); the East African Community (EAC); the Economic Community of Central African States (ECCAS); the Economic Community of West African States (ECOWAS); the Intergovernmental Authority on Development (IGAD); and the Southern African Development Community (SADC).

32 Magliveras & Naldi (2016: 228).

33 Nwebo (2019: 147).

34 Abanno (2023: 44).

35 Jancic (2019: 220).

For example, in Sudan, the PAP's intervention in 2007 played a role in peace efforts before the emergence of South Sudan.³⁶ Similarly, PAP engaged with the US Congress in 2017 to lift sanctions on Sudan, improving the country's humanitarian situation.³⁷ Feedback from countries visited suggests that PAP's presence gives citizens a sense of inclusion and optimism, signalling that the continent recognises their struggles.³⁸

Fact-finding missions result in reports and recommendations presented to the Plenary, which are then debated and shared with relevant stakeholders, including concerned countries and AU bodies. In some cases, reports were officially sent to countries such as Rwanda, Niger, and Côte d'Ivoire, where they helped shape policy.³⁹

However, as Abanno rightly points out, these missions are just a tool—not an end in themselves.⁴⁰ To drive meaningful change in member states, PAP should invite and question state representatives when mission reports are presented to the Plenary.⁴¹ While Parliament may pass resolutions based on these reports, political obstacles often hinder their implementation. As a PAP staffer noted, follow-up on recommendations is challenging, particularly when national parliaments are dissolved during conflicts.⁴² Moreover, while the Plenary may recommend a fact-finding mission, the concerned state can refuse to allow PAP to conduct the mission on its territory, citing sovereignty.⁴³ This limitation, coupled with the absence of an enforcement mechanism, adds to the challenge. Since PAP's recommendations are non-binding, states are under no obligation to adopt or implement its decisions, which limits the effectiveness of its conflict intervention efforts.

In line with its oversight responsibilities, the PAP frequently conducts election observation missions to promote constitutionalism and democratic governance in Africa.⁴⁴ The findings from these missions are presented to the Parliament for debate, after which resolutions and recommendations are made and submitted to the AU for further action.

The PAP began its election observation efforts in 2006, starting with independent missions in Ghana. The Parliament continued this practice in Zimbabwe, Algeria, and Malawi in subsequent years. However, a decision by the Executive Council on 1 February 2010, transitioned these missions to joint observations with the AUC, which limited the PAP's independence in reporting but allowed it to form 40% of the AU

36 Abanno (2023: 45).

37 Jancic (2019: 219).

38 Abanno (2023: 46).

39 Ibid.: 47.

40 Ibid.

41 Ibid.

42 Ibid.

43 Ibid.: 47–48.

44 Rule 4(1)(i) of the PAP Rules of Procedure.

observer composition.⁴⁵ In 2022, the Parliament observed elections in Kenya, Angola, Lesotho, Equatorial Guinea, and Tunisia, ensuring adequate representation in monitoring delegations. During these missions, the PAP collaborates with the AUC to gather information and assess electoral processes.

However, budget constraints have led to a reduction in PAP representation, with only six parliamentarians participating in the 2022 missions.⁴⁶ The Parliament's involvement has often been *ad hoc*, resulting in inconsistent engagement with AUC missions. This situation, along with concerns about their limited influence and unclear reporting roles, has hindered the PAP's impact.

2.4 Partnerships

Given the PAP's role in fostering close cooperation among RECs, member states, and specialised organisations across Africa, several significant partnerships have been established and supported by the PAP. Despite some challenges, the PAP has successfully executed various projects and initiatives crucial to fulfilling its mandate. Notable resolutions include those from the 3rd Ordinary Session, addressing issues such as adherence to the African Peer Review Mechanism (APRM),⁴⁷ developing a continental code of conduct on resource use,⁴⁸ and addressing crises in Togo and Côte d'Ivoire, among others.⁴⁹

The APRM is a mutually agreed instrument voluntarily acceded to by the AU member states as an African self-monitoring mechanism.⁵⁰ It is often described as Africa's unique and innovative approach to governance, to improve governance dynamics at local, national, and continental levels.⁵¹ The APRM conducts governance reviews in specific countries and, after completion, prepares a country review report, which is presented before the PAP. This process complies with the APRM base document, which stipulates that six months after the country review report has been considered by the Heads of State and Governments of the participating member countries, it must be formally and publicly tabled in key regional and sub-regional structures such as the PAP.⁵²

Additionally, the Chairperson of the AU Peace and Security Council routinely presents reports to the PAP on security issues, with discussions and recommendations made on addressing these challenges. For example, Mr Osman Keh Kamara, Sierra

45 AU EX.CI/Dec.534 (XVI); Abanno (2023: 49).

46 Abanno (2023: 50).

47 PAP_Res.001/05.

48 PAP_Res.002/05.

49 PAP_Res.003/05; PAP_Res.004/05; PAP_Res.005/05; PAP_Res.006/05; PAP_Res.007/05.

50 Nwebo (2019: 95).

51 See <https://aprm.au.int/en/about/overview>, accessed 27 September 2024.

52 AU AHG/235(XXXVIII) Annex II para 25.

Leone's Ambassador to Ethiopia and Permanent Representative to the AU, presented on behalf of the AU Peace and Security Council at the 3rd Ordinary Session of the 4th sitting of the PAP, held on 13 October 2016 in Sharm-el-Sheikh, Egypt.⁵³ During these sessions, the PAP debates such reports and makes recommendations to address security challenges more effectively.⁵⁴

The PAP partners with the United Nations Food and Agriculture Organization (FAO) to advance food security and agricultural development across Africa.⁵⁵ Through this collaboration, PAP and FAO have worked together on several key initiatives designed to improve agricultural practices, enhance food systems, and address hunger on the continent. Their efforts focus on creating sustainable agricultural policies, supporting smallholder farmers, and promoting innovation in the agricultural sector to ensure long-term food security for Africa's growing population. The Pan-African Climate and Environmental Justice Alliance (PACJA) is also a key partner of the PAP. PACJA is a coalition comprising over 1,000 organisations from 51 African countries, dedicated to tackling climate change and environmental challenges across the continent.⁵⁶

The PAP's involvement extends beyond Africa through its partnership with the European Parliament (EU), national and regional parliaments, and civil societies. This includes the Joint Africa-EU Strategy (JAES), with the PAP and EU working together on monitoring and evaluation.⁵⁷

The PAP also has various memoranda of understanding (MoUs) for collaboration with organisations such as the Africa Capacity Building Foundation, the European Commission, and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).⁵⁸ These partnerships support advocacy, capacity-building, and monitoring efforts.

A notable development is the MoU signed on 10 October 2019 between the PAP, Stellenbosch University's Development and Rule of Law Programme (DROP),⁵⁹ and the German Environment Agency, Umweltbundesamt (UBA).⁶⁰ This agreement focuses on academic diplomacy and policy development related to sustainable development goals (SDGs), particularly land degradation neutrality and sustainable soil management. The partnership aims to address tensions between environmental sustainability, economic development, and human welfare, with a focus on the legal, political,

53 See <https://cocorioko.net/ambassador-kamara-addresses-the-pan-african-parliament-on-behalf-of-the-african-union-peace-and-security-council/>, accessed 25 September 2024.

54 Nwebo (2019: 134).

55 See <https://www.fao.org/africa/news-stories/news-detail/fao-and-pan-african-parliament-unveil-landmark-model-law-on-food-and-nutrition-security-in-africa/en#:~:text=The%20development%20of%20the%20Model,Pan%20African%20Parliament%20in%202016>, accessed 25 September 2024.

56 See <https://pacja.org/>, accessed 25 September 2024.

57 Onyilo & Halidu (2018).

58 Nwebo (2019: 185).

59 See <https://drop.sun.ac.za/>, accessed 25 September 2024.

60 See <https://bit.ly/3jQpn69>, accessed 25 September 2024.

economic, and social aspects of these issues. The resulting publication of a book,⁶¹ supported financially by the German Ministry for Development Cooperation (BMZ) and GIZ, aims to contribute toward developing model legislation for sustainable soil management in Africa.

2.5 Model laws

The PAP has played a significant role in the development of model laws, which serve as adaptable legislative frameworks for AU member states. These model laws promote legal consistency across the continent while allowing countries to tailor them to their specific contexts.⁶²

The PAP is authorised to endorse model laws, rooted in several foundational documents. Article 17 of the AU's Constitutive Act emphasises the PAP's role in facilitating full participation in continental development. Additionally, Article 3 of the PAP Protocol and Rule 4(a) of its Rules of Procedure empower the institution to promote regional cooperation and collective self-reliance, aligning with AU policies. Moreover, Article 11(3) of the PAP Protocol and Rules 4 and 5 support its mandate to harmonise member states' laws. This endorsement process is essential for ensuring legal coherence and advancing governance across Africa.

The model law development process involves three key stages: initiation, formulation, and approval. Proposals can originate from various sources, including PAP members, committees, AU institutions, and civil society organisations.⁶³ The PAP Secretariat provides essential technical support, while the Bureau assigns a relevant Permanent Committee to oversee the initiative. Each proposal must pass through a series of evaluations, including opportunity, legal, and capacity assessments before it can proceed.

Once a proposal is approved, a legislative drafting team, along with an advisory group, is established to manage the technical and political dimensions of the law's development. The drafting process begins with a comprehensive policy paper that serves as the foundation. This draft undergoes extensive review and consultation to incorporate feedback from diverse stakeholders. After revisions, the draft is vetted and approved by the Parent Committee before being submitted to the Plenary for final adoption. Once approved, the model law is forwarded to the AU Assembly for endorsement, and efforts are made to advocate for its implementation at the national level, alongside monitoring its effectiveness across member states.

Recent model laws adopted by the PAP include significant frameworks aimed at enhancing governance across various sectors. On 13 October 2019, the PAP adopted

61 Ruppel & Ginzky (2021).

62 See <https://pap.au.int/en/legislation>, accessed 10 December 2024.

63 See <https://pap.au.int/en/legislation>, accessed 25 September 2024.

a Model Police Law for Africa, intended to establish a comprehensive legal framework for policing throughout the continent.⁶⁴ This initiative is part of a broader effort to standardise law enforcement practices in line with human rights and regional standards. Furthermore, in 2024, the PAP adopted the Model Law on Cooperatives, aimed at supporting the creation of cooperative legislation and improving existing laws across the continent.⁶⁵ Collectively, the PAP's model laws reflect its commitment to fostering legislative harmonisation and addressing critical issues in Africa.

3 The Malabo Protocol

3.1 Background

According to Article 25 of the PAP Protocol, a conference of state parties is to be convened five years after the Protocol enters into force to assess its operation and effectiveness. This review aims to ensure that the Protocol's objectives are being met and that it addresses the evolving needs of the African continent.⁶⁶ The review will evaluate whether the Protocol effectively supports the PAP in fulfilling its mandate, based on the Parliament's experiences to date. Additionally, the results of this assessment will help member states identify areas for improvement and necessary adjustments.

Understanding the composition and governance structure of the PAP under the current Protocol is essential to appreciate the improvements introduced by the revised Protocol. Currently, PAP membership consists of representatives from AU member states that have ratified the Protocol. These members are elected or designated by their respective national parliaments or other deliberative bodies within member states.⁶⁷ After the selection, the national parliament or deliberative organ must notify the Clerk of Parliament of the newly appointed members.⁶⁸ The term of office for a member of the PAP begins once they have taken the oath of office or made a solemn declaration during a PAP Plenary session.⁶⁹ To qualify, the individual must already be a member of their national parliament or another deliberative body. The duration of their service as a PAP member is linked to their continued membership in their national parliament or deliberative organ.⁷⁰ There is no standardised process for electing or designating

64 See <https://apcof.org/wp-content/uploads/pap-model-police-law-for-africa.pdf>, accessed 25 September 2024.

65 See <https://pap.au.int/en/news/press-releases/2024-07-01/pan-african-parliament-adopts-model-law-cooperatives>, accessed 25 September 2024.

66 Art 25(1) of the PAP Protocol.

67 Rule 7 (1) of the PAP Rules of Procedure.

68 Ibid.: Rule 6(1).

69 Ibid.: Rule 7(2).

70 Nwebo (2019: 165).

members to the PAP; this process varies depending on the national constitution or the procedures of the respective deliberative organ in each member state.

By the end of its first term, the PAP faced substantial criticism due to its perceived lack of impact on the AU decision-making processes. Although it had the potential to influence AU affairs through consultative powers, the PAP's recommendations were often disregarded, leading to the perception that its limited influence was not merely a result of the Protocol's constraints but also the underutilisation of its non-legislative powers.⁷¹ The PAP Protocol also does not clearly define the extent to which AU bodies are required to engage the PAP or act on its advice.⁷² Theoretically, all AU organs (except the Court of Justice) fall under the PAP's oversight, investigative, and advisory functions.⁷³ However, the PAP has limited power over AU actions. Key areas such as budgetary decisions and the appointment of AU officials remain under the exclusive control of the AU Assembly. The PAP has frequently expressed frustration with such limited role, noting that it often ends up 'attending AU meetings' without any substantial input into decision-making processes.⁷⁴

The review process commenced in June 2009, involving the commissioning of a study, drafting of a revised protocol, preliminary brainstorming sessions, consultations, validation workshops, and meetings with government experts and Ministers of Justice/Attorneys General to refine the draft.⁷⁵ The revised Protocol (known as the Malabo Protocol) was adopted at the AU Assembly of Heads of State and Government meeting in June 2014, held in Malabo, Equatorial Guinea.

The revised Protocol is set to come into force 30 days after a simple majority (28) of member states deposit their instruments of ratification with the Chairperson of the AU.⁷⁶ Once it is in effect, it will replace the current Protocol.⁷⁷ As of 2024, fifteen member states have deposited their instruments of ratification for the revised Protocol. These countries are Benin, Cameroon, Chad, Equatorial Guinea, Gambia, Ghana, Madagascar, Mali, Morocco, Niger, Sahrawi Arab Democratic Republic, Sierra Leone, Somalia, Togo, and the Central African Republic.

3.2 Changes introduced

The revised Protocol introduces several significant changes: it officially designates the PAP as the legislative organ of the AU.⁷⁸ Specifically, Article 8 establishes the PAP's authority to propose draft model laws on subjects determined by the AU Assembly or suggested by the PAP, subject to Assembly approval. Harmonising or coordinating

71 Nzewi (2010: 4).

72 Sehen (2006: 32).

73 Ncube (2020: 106).

74 Ncube (2020: 106); PAP, Strategic Plan (2014-2017: 5).

75 Nwebo (2019: 168).

76 Art 23 of the Malabo Protocol.

77 Ibid.: Art 27(1).

78 Ibid.: Art 8(1).

member state laws through model legislation is a well-established practice within the AU, and the PAP has been engaged in such activities under the existing Protocol, as mentioned above.⁷⁹ What is new with the revised Protocol is that it explicitly grants the PAP the authority to propose draft model laws, albeit with a requirement for prior Assembly approval.

Article 8(2)(h) of the Malabo Protocol allows the PAP to receive, consider, and submit opinions on draft legal instruments, treaties, and other international agreements referred to it by the Council or Assembly. However, this involvement does not guarantee real influence. The Assembly or the Council may choose not to refer such documents to the PAP or to disregard its opinions.⁸⁰ As such, while the provision represents a step forward, it does not necessarily empower the PAP to play a substantive role in AU legislation without the proactive engagement of the Assembly or the Council.

Still, the revised Protocol significantly enhances the powers and functions of the PAP, particularly in the areas of oversight and liaison with other organs of the AU. For example, the PAP is explicitly empowered to receive and review reports from other AU bodies, including audit and activity reports, and to make recommendations based on these.⁸¹ Also, the inclusion of fact-finding, inquiry, and observer missions in the PAP's mandate further strengthens its oversight role.⁸² The revised Protocol also specifically states that the PAP can establish Parliamentary Committees and determine their functions and composition.⁸³ Furthermore, it grants the PAP the ability to engage in fundraising activities, while specifying that it cannot raise loans.⁸⁴

However, while these powers are more clearly defined, their practical impact remains limited. The PAP still lacks binding authority, as its oversight functions are not backed by enforceable powers. For instance, while the PAP can review reports from AU organs, it is only 'as may be referred to it' by the AU Assembly or Council.⁸⁵ This means that AU bodies are not required to submit reports to the PAP unless directed to do so. Similarly, while the PAP can request the presence of AU officials to assist in its work, there is no legal obligation for those officials to comply with the request.⁸⁶ Moreover, despite the increased emphasis on oversight, the PAP still has no direct control over the budget. It retains the power to debate and recommend changes to its budget and that of the AU, but final decisions remain with the policy organs.⁸⁷

79 Art 11(3) of the PAP Protocol; Abanno (2023: 54); Ncube (2020: 118-119).

80 Nwebo (2019: 177-178).

81 Art 8(2)(a) of the Malabo Protocol.

82 Ibid.: Art 8(3).

83 Ibid.: Art 8(2)(c).

84 Ibid.: Art 8(4).

85 Nwebo (2019: 176-177).

86 Nwebo (2019: 176-177); Art 8(2)(f) of the Malabo Protocol.

87 Nwebo (2019: 176-177); Art 8(2)(b) of the Malabo Protocol.

One of the significant challenges facing the PAP is the lack of continuity resulting from its membership structure.⁸⁸ Currently, members of the PAP are elected or designated from their respective national parliaments. Consequently, if these members lose their seats in their national parliaments, they automatically cease to be members of the PAP.⁸⁹ This structure leads to frequent turnover in the PAP due to the high rate of changes in national parliaments following elections.⁹⁰ The revised Protocol allows for members to be elected by national parliaments or other deliberative organs from outside their national parliament membership.⁹¹ This change aims to enhance the stability and continuity of the PAP by diversifying its membership base and reducing the impact of national parliamentary elections on PAP membership. While members of national parliaments or other deliberative bodies are still eligible to run for the PAP, they must resign from their national positions if elected.⁹²

It is important to note that the current system, where national parliaments or other deliberative bodies determine the election procedures for PAP members, is a temporary measure.⁹³ This interim arrangement will remain in place until a code for direct universal suffrage for electing PAP members is established. The revised Protocol does not specify when or by whom a code for universal adult suffrage will be developed, nor does it clarify how and when this code will come into effect.⁹⁴

The revised Protocol introduces a significant step towards promoting gender equality by mandating that at least two out of the five members of the PAP from each member state must be women.⁹⁵ Additionally, as is the case under the current Protocol, the representation of each state must reflect the diversity of political opinions in their national parliament or deliberative body, ensuring that opposition parties remain represented within the PAP.⁹⁶

The revised Protocol introduces several other improvements. For instance, Article 5(1)(d) mandates that the election of the PAP President be overseen by the Chairperson of the Assembly, promoting fairness and transparency. This is an improvement over the current internal process, which can be subject to influence by the incumbent president.⁹⁷ Additionally, the election of the Bureau is rotational, preventing disputes based on regional allegiances.⁹⁸

The revised Protocol outlines that each member country is responsible for paying allowances to its Parliament members and leadership, whereas the current provision

88 Nwebo (2019: 172).

89 Nwebo (2019: 172); Rule 8(1)(e)-(f) of the PAP Rules of Procedure.

90 Nwebo (2019: 172).

91 Art 5(1)(a) of the Malabo Protocol.

92 Ibid.: Art 5(6).

93 Ibid.: Art 5(3).

94 Nwebo (2019: 174).

95 Art 4(3) of the Malabo Protocol.

96 Ibid.: Art 5(1)(b).

97 Nwebo (2019: 176).

98 Nwebo (2019: 176); Art 12(1) of the Malabo Protocol.

mentions that members will receive allowances for expenses but does not specify who is responsible for paying them.⁹⁹ Another significant change is the appointment of the Secretary-General and Deputy Secretaries General,¹⁰⁰ replacing the titles of Clerk and Deputy Clerks,¹⁰¹ and clearly defining the Secretary-General as the accounting officer.¹⁰² This helps prevent conflicts between administrative roles that are a source of contention.¹⁰³

In terms of leadership accountability, Article 20(1) introduces a requirement for the Chairperson of the Assembly to deliver a speech on the state of the AU at each new term's inaugural session of the PAP. Additionally, the Chairperson of the Commission must present the Activity Report of the Commission at least once during each term.¹⁰⁴

Another major duty is to 'encourage National and Regional Parliaments to ratify and integrate treaties adopted by the AU into their legal systems.'¹⁰⁵ Importantly, the revised Protocol acknowledges the critical role of civil society and community-based organisations in Africa's integration and development.¹⁰⁶ It also emphasises the inclusion of the African diaspora, encouraging their full participation as a vital component in building the AU.¹⁰⁷

3.3 Ratification

Despite the positive changes introduced by the revised Protocol, its impact remains conditional on ratification by AU member states. Unfortunately, the AU has a track record of slow ratifications, and this historical challenge suggests that the road ahead will not be easy.¹⁰⁸ At the 8th Annual Conference of Speakers in Midrand, South Africa, with the theme 'Adoption of the African Union Treaties, in particular, the new Protocol of the PAP', then Prime Minister of Lesotho, Rt Hon Bethel Pakalita Mosisili, emphasised the importance of citizen participation and engagement in the ratification process. In his opening speech, he stressed that adopting the new Protocol should not be solely a government-driven effort but must involve the people at every stage.¹⁰⁹ He

99 Art 10 of the Malabo Protocol; Art 10 of the PAP Protocol.

100 Art 13(1) of the Malabo Protocol.

101 Art 12(5)-(6) of the PAP Protocol.

102 Art 13(5) of the Malabo Protocol.

103 Nwebo (2019: 176).

104 Art 20(2) of the Malabo Protocol.

105 Ibid.: Art 3(k).

106 Ibid.: Art 3(i).

107 Ibid.: Art 3(m).

108 Nwebo (2019: 180).

109 See <https://www.eac.int/press-releases/524-873-770-african-speakers-lobby-forstronger-continental-assembly-want-au-member-states-to-ratify-malabo-protocol>, accessed 25 September 2024.

stressed the importance of educating the populace on the significance of the revised Protocol and the broader AU treaties.

In response, the AU Executive Council urged the PAP to identify and address the challenges delaying ratification within the framework of existing follow-up mechanisms in collaboration with the AU Commission. Several factors have been identified as contributing to the poor state of ratifications, including many countries facing challenges in localising AU decisions due to insufficient coordination and alignment between continental and national priorities; most AU member states lack clear, structured processes for ratifying and implementing AU instruments, resulting in delays and inefficiencies; governments often have inadequate systems to monitor progress, leading to poor accountability; insufficient budget allocations further hinder implementation; the roles and responsibilities for implementing AU decisions are often fragmented and unclear, limiting effectiveness; a lack of capacity and resources hampers governments' ability to follow through; and key stakeholders, such as ministries, parliaments, the judiciary, and civil society, are frequently disconnected from the ratification process, impeding collective efforts to drive implementation.¹¹⁰

Generally, both the executive and the legislature play roles in the ratification and domestication of international legal instruments, with the executive typically taking the lead. The specific legislative procedures required may vary depending on the provisions of each national constitution. Consequently, the governments of AU member states are responsible for managing the ratification and domestication processes for AU legal instruments. Therefore, their willingness to cooperate and advance these instruments is crucial; without it, the instruments will not come into force.¹¹¹

One major challenge is that the executive branch often represents states at AU summits where legal instruments are adopted. Unfortunately, the executive rarely involves parliamentarians in negotiations or informs them about decisions and commitments made on behalf of the state. Sometimes, parliaments are not updated on summit decisions or provided with bills necessary for ratifying these instruments. Furthermore, there is often no dedicated government ministry or department for AU affairs, or existing ones may be ineffective. When parliaments have a constitutional role in ratifying or domesticating treaties, it frequently becomes a formality rather than a critical review due to executive dominance in African governance structures.

Additionally, citizens and stakeholders are often unaware of these instruments and their impact on their rights, leading to a lack of public pressure for their ratification and implementation. Currently, the AU lacks systematic structures to track and report on the progress of ratification and the implementation of its legal instruments. Commitments made at summits are often not fulfilled, creating a significant gap between norm-setting and implementation. This gap impedes progress towards AU's goals on constitutionalism and democratic governance. Addressing these issues requires

110 EX.CL/Dec. 979 (XXXI); Nwebo (2019: 181).

111 Nwebo (2019: 180-182).

vigorous advocacy and efforts to raise awareness among stakeholders about their role in promoting AU policies and programs.

4 Ongoing developments and challenges

The PAP has developed several strategic plans aimed at strengthening its role and effectiveness in advancing the AU's goals.¹¹² The PAP's 2018-2023 Strategic Plan is closely aligned with the AU's Agenda 2063, a comprehensive vision for Africa's transformation over the coming decades.¹¹³ In supporting AU member states, RECs, national and regional parliaments, and the AUC, the PAP is focused on advancing key flagship projects and priority areas outlined in Agenda 2063, including infrastructure development, economic integration, human capital development, and good governance.¹¹⁴ The PAP has called on all African nations and their legislatures to join the Association of Secretaries-General of African Parliaments (ASGAP). This initiative is seen as a strategic step toward realising the ambitious objectives outlined in Agenda 2063.¹¹⁵

The PAP Strategic Plan 2024-2028 was adopted in November 2024, marking a significant milestone in the institution's development. However, the details of the plan have not yet been publicly disclosed. The previous Strategic Plan (2019-2023) focused on bringing the voices of African people to the forefront of the PAP's functions, ensuring popular participation, good governance, and greater representation in decision-making.¹¹⁶ The plan set out specific and time-bound strategic objectives, which included: strengthening parliamentary functions of the PAP; enhancing partnership, coordination, outreach, and institutional capacity; promoting human rights and the shared values of the AU; and building research, and learning, knowledge management, communication, and advocacy capabilities within the PAP. The plan notes that PAP faces significant challenges regarding the slow ratification and domestication of its Malabo Protocol and other AU legal instruments.¹¹⁷ Key issues include low visibility, lack of political will among member states, and limited involvement of the PAP in AU governance activities. Centralised control by the AUC and inadequate funding further hinders the PAP's effectiveness.

Several other critiques have been raised regarding the PAP: Abanno observes that the PAP's programs and activities calendar is not aligned with the AU calendar. This misalignment limits PAP's impact on critical issues, as discussions in the Parliament

112 The PAP's first Strategic Plans covered the periods 2004-2007, 2009-2012 & 2014-2017.

113 AU EX.CL/Dec.886(XXVII).

114 Nwebo (2019: 119).

115 See <https://pap.au.int/en/news/press-releases/2024-09-17/pan-african-parliament-appeals-expanded-asgap-membership-propel>, accessed 25 September 2024.

116 PAP, Strategic Plan (2019-2023: 6).

117 Ibid.: 13.

often occur too late to influence AU decisions.¹¹⁸ Also, the PAP parliamentarians are non-residents in Midrand, South Africa, and meet only a few times per year for up to two weeks during ordinary sessions. This limits the time available for meaningful engagement and extensive deliberation, particularly on pressing issues.¹¹⁹ The Plenary, as the Parliament's decision-making organ, convenes for only a few sittings each year, restricting PAP's ability to exercise continuous influence. Once these sessions conclude, parliamentarians return to their national parliaments and constituencies, shifting their focus to domestic duties. This leaves the Secretariat in Midrand responsible for advancing the decisions, recommendations, and reports made during the sessions, which creates a disconnect in the continuity and follow-through on the PAP's objectives.

Mngomezulu underscores the hypocrisy inherent in the PAP's mandate to promote good governance amid widespread issues of free, fair, and credible elections in many African countries.¹²⁰ The pervasive election malpractices—including voter intimidation and manipulation of results—significantly undermine democratic practices.¹²¹ In several instances, Electoral Commissions are complicit with political leaders, releasing inauthentic results that distort the electoral landscape. Sesay further critiques the situation by arguing that numerous African nations fail to uphold true democratic values. He emphasises that when individuals gain parliamentary roles in their home countries through flawed electoral processes, their subsequent involvement in the PAP casts doubt on the Parliament's claim to represent the majority of Africans effectively.¹²² Ultimately, Sesay contends that the PAP's influence remains limited in a context where most citizens are disenfranchised and lack meaningful control over their leadership selection.

Nwebo adds that a modern parliament requires an adequate and conducive working environment with sufficient office space, infrastructure, and a state-of-the-art information technology unit to support its functions effectively. The South African government has made efforts to facilitate the Parliament's work per the host country agreement. However, Nwebo found that the PAP currently operates at Gallagher Estate in Midrand, South Africa, which is leased from the government as a temporary site.¹²³ Much of the equipment is outdated and insufficient to meet the demands of the Secretariat, let alone the members of Parliament during sessions and committee meetings. Although the South African government designated a permanent site for the PAP years ago, work on the new location has yet to begin.¹²⁴ Moreover, the PAP remains

118 Abanno (2023: 89-90).

119 Ibid.: 82.

120 See also Adeyeye & Adeyeye (2024).

121 Mngomezulu (2018: 57).

122 Sesay (2008: 22).

123 Nwebo (2019: 189).

124 Nwebo (2019: 189); See <https://mg.co.za/africa/2021-06-09-what-is-the-point-of-the-pan-african-parliament/>, accessed 25 September 2024.

understaffed, relying on temporary staff funded by development partners.¹²⁵ The PAP has also faced significant funding challenges since its inception because its budget is part of the AU's annual budget.¹²⁶

Another challenge is the lack of effective communication between the PAP and AU institutions.¹²⁷ Many AU bodies fail to understand the importance of PAP investigations, resulting in inadequate implementation of its recommendations. Additionally, on the note of visibility, despite being established to involve African peoples in decision-making, most Africans remain unaware of the PAP's existence and mission.¹²⁸ As Fagbayibo notes, PAP members are national legislators accountable primarily to their governments, not directly to citizens, diminishing their obligation to explain their actions to civil society.¹²⁹

Scholars and commentators have frequently questioned PAP's effectiveness, with many studies highlighting concerns about its structure and capacity.¹³⁰ This underscores the perception that the PAP has struggled to assert itself as a significant player in continental affairs. During the October 2017 session, several PAP members voiced their frustration with the slow pace of ratifying the revised Protocol. They questioned the purpose of their role, asking, "What are we for?" and lamented, "Every time we're here, we obsess over the same issues. If we are not making laws, then what's the point of being here?"¹³¹

Concerns about the PAP's lack of legislative authority are intensified by the longstanding scepticism toward African parliaments. Mpanyane highlights how many view these parliaments as powerless, ineffective, or merely symbolic.¹³² Magliveras and Huliaras echo this sentiment, arguing that post-colonial African parliaments have often served as extensions of the executive, functioning as 'rubber-stamping' institutions rather than independent legislative bodies.¹³³ This scepticism fuels fears that the AU has replicated this ineffective model at the continental level.

Despite facing challenges, the PAP is actively continuing its work. According to Magliveras and Naldi, the PAP provides a significant boost to the aspiration and vision of some Africans to establish a democratic foundation for the AU.¹³⁴ The 12th Annual Conference of Speakers of African National and Regional Parliaments, held in Midrand, South Africa, served as an important platform to evaluate the progress of the

125 Nwebo (2019: 190).

126 *Ibid.*: 191.

127 *Ibid.*: 193.

128 Dinokopila (2013: 323).

129 See <https://theconversation.com/why-the-pan-african-parliament-must-clean-up-its-act-if-it-wants-to-survive-97095>, accessed 25 September 2024.

130 Ncube (2020: 106).

131 See <https://www.news24.com/news24/pan-african-parliament-in-grip-of-existential-crisis-20171017>, accessed 25 September 2024.

132 Mpanyane (2009: 1).

133 Magliveras & Huliaras (2016: 276).

134 Magliveras & Naldi (2003: 233).

African Continental Free Trade Area (AfCFTA) Agreement. H.E. Chief Fortune Charumbira, incumbent President of the PAP, along with other leaders, highlighted the AfCFTA's potential to transform Africa's economic landscape, noting that 54 countries have signed the agreement, with 48 ratified.¹³⁵ Additionally, two key protocols—the Digital Trade Protocol and the Protocol on Women and Youth in Trade—were recognised as important advancements, providing a legal framework to promote digital and inclusive trade.

5 Model Law on Sustainable Soil Management in Africa

Although not publicly available at the time of writing, the PAP Strategic Plan 2024-2028 focuses on strengthening the institution's impact in several critical areas.¹³⁶ The plan highlights developing and promoting continental model laws, aimed at harmonising legislation across African nations to support economic development and integration. It also prioritises enhanced legislative oversight, empowering PAP to hold AU institutions accountable, and ensuring greater transparency and integrity among member states. Additionally, the plan reinforces the PAP's role in representation, solidifying its position as a key voice in continental decision-making. Finally, the plan focuses on building institutional capacity, and enhancing PAP's operational efficiency and financial sustainability, to support its role as the legislative arm of the AU.

To that end, a crucial ongoing initiative, as mentioned, is a proposed Model Law on Sustainable Soil Management in Africa, being developed by the PAP, DROP (from Stellenbosch University), and the UBA. This initiative aims to emphasise the critical need for effective soil management in supporting food security and mitigating climate change.¹³⁷

On 11 November 2022, the PAP already introduced a Model Law on Food and Nutrition Security to guide AU member states in developing national or sub-national legislation aimed at ensuring the right to adequate food and promoting food security.¹³⁸ While the Model Law includes provisions on the access to, and responsible management of, essential natural resources such as land, water, fisheries, forest resources, and biodiversity (Article 7(1)), the absence of “soil” from this framework is a significant oversight. Soil is not merely an agricultural medium, nor should it be treated as a synonym for “land”. It is a distinct and dynamic ecosystem crucial for food production,

135 See <https://pap.au.int/en/news/press-releases/2024-09-19/significant-progress-afcfta-implementation-highlighted-conference-s>, accessed 25 September 2024.

136 See <https://pap.au.int/en/news/press-releases/2024-11-12/pan-african-parliament-adopts-2024-2028-strategic-plan-fourth>, accessed 10 December 2024.

137 See <https://pap.au.int/en/news/press-releases/2024-07-04/pan-african-parliament-and-pacja-harmonize-voices-urge-climate>, accessed 25 September 2024.

138 See <https://pap.au.int/en/news/press-releases/2024-06-28/pan-african-parliament-unveils-land-mark-model-law-food-and-nutrition>, accessed 25 September 2024.

climate resilience, and overall environmental health. The degradation of soil undermines food security, hinders climate mitigation efforts, and compromises the broader goals of the Model Law. For instance, the definition of “food loss” in Article 3(iv) should explicitly include soil degradation, as soil plays a central role in food quality, availability, and sustainability across the supply chain.

The objectives outlined in Article 2 of the Model Law emphasise a comprehensive approach to food and nutrition security. This includes ensuring the availability, accessibility, stability, and utilisation of food while upholding the right to adequate food. The law also aims to define rights and responsibilities, create an enabling environment for all stages of the food supply chain—production, processing, distribution, and consumption—and establish governance structures and accountability mechanisms to support food and nutrition security. While soil is not directly involved in these stages, its fundamental role as the foundation of agricultural systems makes soil health integral to achieving the law’s objectives. Sustainable soil management is vital for ensuring the availability and stability of nutritious food; without it, efforts to achieve food security will be severely undermined. Thus, recognising soil as a critical resource is essential for the law’s success.

Although the Model Law mentions “land” three times, it fails to adequately address the unique and critical issues related to soil health, lumping soil together with broader land management. These include conflicts between state land ownership and customary systems, land commodification, agricultural expansion, and mining. Additionally, unsustainable practices such as overgrazing, pesticide misuse, and poor land management are significant contributors to soil degradation, further highlighting the need for soil-specific provisions.

While Article 7 addresses several key issues affecting agriculture and soil sustainability, such as equitable access to eco-friendly inputs, credit, insurance, and sustainable technologies, it does not fully address the challenges related to soil health. For example, the law overlooks gaps in soil data and public awareness, which hinders effective monitoring and intervention. Other critical issues include weak enforcement, corruption, inadequate legal oversight of foreign investments, and the limitations of Environmental Impact Assessments (EIAs) in addressing the long-term effects of land use changes on soil health.

Thus, the Model Law falls short of safeguarding the fundamental resource that supports food production—soil. Without a dedicated framework for soil protection, food security policies remain incomplete and vulnerable. Consequently, a dedicated soil model law is essential to complement the Model Law on Food and Nutrition Security, ensuring that soil health is fully integrated into the broader strategy for achieving sustainable food security.

On 3 July 2024, the PAP adopted another crucial Model Law on Climate Change to support member states in developing national legislation to effectively address the

impacts of climate change.¹³⁹ This initiative reflects PAP's commitment to establishing a unified legal framework that tackles climate-related challenges across Africa. However, the contents of the Model Law have not yet been publicly revealed. Should this law include provisions addressing the role of soil in mitigating climate change, it would be a significant step forward. Nevertheless, this would not diminish the need for a dedicated soil model law. Climate change is one of many sectors directly affecting soil health, impacting critical areas such as food security, agriculture, water management, and biodiversity. Therefore, a focused, dedicated approach to soil is vital to ensure comprehensive, long-term solutions to the complex challenges affecting, and being affected by, soil across the continent.

6 Conclusion

Overall, the PAP faces significant challenges, including the quest for legislative powers, inadequate budgets, and a lack of autonomy over AU funding, which impedes its functions and advocacy for ratifying the Malabo Protocol and other legal instruments. Granting the PAP legislative authority, as argued by Magliveras and Naldi, could enhance its credibility and promote democratic reforms across Africa.¹⁴⁰ While comparisons with the EU Parliament often highlight the PAP's shortcomings, they may be unfair given the differing political and financial realities in Africa.¹⁴¹

To fulfil its potential, the PAP must focus on leveraging its existing framework and capabilities. Despite limited direct legislative influence, it has issued numerous recommendations and resolutions on critical continental issues since its establishment in 2004. However, the risk remains that without further reforms, the PAP will continue to be underdeveloped. The 2022 update to the Rules of Procedure reflects some proposed changes, yet the lack of ratification of the Malabo Protocol creates governance inconsistencies.

The PAP's future success hinges on sustained political support from AU member states, effective implementation of its revised mandate, and meaningful engagement with African citizens. After 20 years, the question of the PAP's value remains critical. Its initial vision—as a forum to represent African unity and facilitate cooperation on issues such as governance, development, and regional integration—holds undeniable symbolic and practical importance. If the PAP were to function effectively, it could serve as a cornerstone for African democratic processes, accountability, and collective problem-solving. Yet, the institution is marred by significant challenges. Leadership

139 See <https://pacja.org/a-model-law-on-climate-change-adopted-what-is-next/#:~:text=On%20July%203%2C%202024%2C%20the,guide%20legislation%20at%20national%20levels.,> accessed 25 September 2024.

140 Magliveras & Naldi (2003: 233).

141 Mpanyane (2009: 7-9).

crises,¹⁴² corruption allegations,¹⁴³ limited legislative power, and minimal visibility have eroded its ability to function as a true legislative body. The perception that it mirrors the ineffectiveness of many national parliaments across Africa further undermines its credibility. These deficiencies, coupled with the considerable costs—around USD 15 million annually for the AU and additional expenses borne by member states and South Africa—raise questions about its significance, especially considering the socio-economic challenges many African countries face.¹⁴⁴

Thus, the PAP today stands at a crossroads. On the one hand, it has made significant strides in increasing its responsibilities and engaging with African citizens and AU organs. Regarding its model laws, the PAP holds value in spurring real change across the continent if member states domestically adopt these laws. In this context, a Model Law on Sustainable Soil Management would be a critical step toward addressing the foundational issue of soil health and its importance for food security, climate resilience, and environmental sustainability. By focusing on the soil as a vital natural resource, the PAP could catalyse stronger legal frameworks across African nations to protect and restore soils, ultimately strengthening the continent's agricultural and environmental policies. On the other hand, its potential remains constrained by political inertia, structural limitations, and the need for greater ratification and cooperation from member states. The future of the PAP will depend on whether these political aspirations can be realised through effective reforms, appropriate funding, enhanced public engagement, and stronger commitments from African leaders.

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142 See <https://issafrica.org/iss-today/pan-african-parliaments-woes-reflect-a-crisis-in-leadership>, accessed 27 September 2024.

143 See <https://theconversation.com/why-the-pan-african-parliament-must-clean-up-its-act-if-it-wants-to-survive-97095>, accessed 27 September 2024.

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Soil protection for sustainable food security: (New) role of the World Trade Organization?¹

Falk Matthies & Oliver C. Ruppel

Abstract

Achieving global food security is a critical challenge requiring urgent, coordinated action. This chapter explores how crises such as climate change and geopolitical tensions destabilise agricultural systems and threaten the right to food, highlighting the vital role of soil health in sustaining productivity amidst growing environmental pressures.

The chapter explores the critical relationship between international trade law, particularly under the World Trade Organization (WTO) and its Agreement on Agriculture (AoA), and soil protection. Current trade rules, while focused on market access, subsidies, and export measures, inadequately address the broader dimensions of food security: availability, access, utilisation, and stability. The influence of multinational corporations dominating agricultural markets further highlights the vulnerabilities of global supply chains and underscores the need for trade frameworks that promote sustainable practices.

The chapter calls for comprehensive WTO reform, including eliminating harmful agricultural subsidies, introducing green subsidies for sustainable practices, and establishing green trade agreements. It emphasises recognising and supporting smallholder farmers, whose vital contributions to sustainable food security are often overlooked in global trade negotiations.

The chapter calls for greater international collaboration to integrate soil health and sustainable development into trade policies. While initiatives such as the G7's Global Alliance for Food Security show promise, concrete actions are essential. Protecting soils and aligning trade policies with sustainability can foster resilient food systems that ensure food security and environmental health for future generations.

¹ This chapter is partly drawn from the thesis submitted by Matthies in 2024 in partial fulfilment of the requirements for the Master of Laws (LLM) degree at Stellenbosch University. It is further reliant on Ruppel (2021a and 2022b).

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Summary

This chapter discusses the urgent need for global food security, highlighting the inter-connected challenges of crises, conflict, climate change, and geopolitical tensions, all of which threaten agricultural trade and undermine efforts to achieve food security. These challenges not only exacerbate food insecurity but also threaten human rights, specifically the internationally recognised right to food, which is binding on states parties and their institutions.

The chapter underscores the vital role of agriculture, which is inherently tied to the health and fertility of soils. Climate change is increasingly threatening soil quality and agricultural productivity, with negative consequences for global food systems. It also highlights the often-overlooked connection between international trade law and soil

protection, particularly in the context of agricultural commodity trade. Changes in trade patterns—whether through increased, decreased, or altered trade flows—have significant impacts on agricultural activities, including soil usage and fertility. Consequently, the legal frameworks governing international agricultural trade must consider soil protection to ensure long-term food security.

International organisations such as the World Trade Organization (WTO) must evolve to promote sustainable development in light of these challenges. The chapter argues for the redesign of the WTO framework, particularly the Agreement on Agriculture (AoA), to better support food security by integrating sustainable agricultural practices and ensuring the right to food is a central concern in trade laws. Currently, the multilateral trade system lacks a comprehensive approach to food security that extends beyond market access, subsidies, and export measures.

The role of multinational corporations, especially those controlling the grain trading and food processing sectors, is also a critical area of concern. These corporations often wield significant market power, which can either support or hinder sustainable food security efforts. Their dominant position in agricultural markets can lead to profit-driven practices that undermine long-term food security and increase vulnerabilities in global supply chains. The chapter calls for the WTO to factor these market dynamics into its food security framework and to develop policies that balance corporate interests with those of vulnerable nations and smallholder farmers.

The WTO's framework must be holistic, incorporating sustainable development and the right to food in trade policies. A key recommendation is the introduction of green trade agreements that incentivise sustainable agricultural practices, protect the environment, and ensure food security as global food demand rises. The chapter also calls for an increasing multilateral coordination between the WTO and other international bodies including the Food and Agriculture Organization (FAO) to address the multiple dimensions of food security—availability, access, utilisation, and stability—through trade rules.

A major aspect of the chapter is the need for rethinking global food systems in relation to soil health. While awareness of the importance of soil protection for sustainable food security is growing, the chapter stresses that translating this awareness into concrete action is critical. International cooperation is essential to ensure soil health is prioritised in global food security efforts. For example, the G7's Global Alliance for Food Security demonstrates high-level discussions on food security, but it is the implementation of actionable policies that determine success.

In the WTO context, several regulatory issues should be addressed, including market access, subsidies, export restrictions, and food aid programmes. The chapter advocates for a review of agricultural subsidies, urging to eliminate harmful subsidies that distort trade and harm the environment. Instead, green subsidies should be promoted to support sustainable agricultural practices that increase food production while

protecting the environment. A revised “Green Box” under the AoA could channel support towards environmentally friendly agricultural practices.

The chapter further stresses the need for a more balanced global food distribution system, particularly for less-developed countries. Smallholder farmers, who play a crucial role in food security, should be better represented in international trade negotiations. The WTO should ensure that their interests are considered in reform processes, as their sustainable farming practices are integral to long-term food security.

The protection of fertile soils, a vital natural asset, also needs to find its way into global trade frameworks. The chapter calls for soil protection policies to be tailored to local contexts, recognising the socio-economic and ecological characteristics of different regions. Only through a more comprehensive, cooperative international effort can the global community address the challenges of sustainable food security and soil conservation.

The chapter concludes by emphasising that the WTO, as a central player in international trade, should reform its policies to support sustainable food security and soil protection. Dr Ngozi Okonjo-Iweala, Director-General of the WTO, has highlighted that trade is essential to solving food system problems. To achieve the necessary transformation in food systems, global trade policies should also align with environmental and sustainability goals. Through trade policy reform, the WTO can help secure global food security while protecting vital soil resources. Ultimately, a holistic approach to food security, incorporating sustainable development, the right to food, and soil protection, is essential for a sustainable future.

1 Introduction

1.1 The connection of international trade, food security, and soil protection

“One in five calories consumed around the world crosses an international border.”² This statement from Dr Okonjo-Iweala, Director General of the World Trade Organization (WTO), underscores a critical reality: food security is now a global endeavour. Local food production alone is insufficient to meet the nutritional needs of many populations worldwide. Without international trade in agricultural commodities, a significant portion of the global population would face severe food shortages and, potentially, famine.³ As food demand continues to rise, international trade is expected to play an even greater role, with an estimated 50% of the world population projected to depend on it for staple grains by 2050.⁴

2 See https://www.wto.org/english/news_e/news23_e/dgno_26jul23_e.htm, accessed 30 September 2024.

3 WTO (2023); Fader et al. (2013: 3–4).

4 Ibid.: 1.

The challenges of food insecurity and malnutrition are well-known and affect millions, particularly in parts of Asia, Africa, and the Caribbean.⁵ In 2022, around 700 million people—or 9.2% of the global population—faced chronic hunger across 59 countries.⁶ Factors such as unequal food distribution, inefficient local and regional agriculture, and limited access to productive land and healthy soils hamper progress toward ending hunger. Sustainable food systems are essential not only for feeding a growing global population but also for providing livelihoods and supporting environmental health.⁷

Agricultural trade is an economic cornerstone for many countries, generating substantial export revenue, but it also has a broader “non-commercial” value.⁸ The economic worth of food commodities does not capture their significance for public welfare and nutrition. For instance, cereals constitute 15% of food exports by value, yet they provide 44% of the world’s calories.⁹ The stability of the food supply is, thus, a matter of national and international concern. The dependence of countries on food imports, especially net-food-importing and other developing nations, underscores these global inequalities.¹⁰ These nations are particularly vulnerable to disruptions in agricultural trade, which can trigger food insecurity and even threaten national security.¹¹

The trade of agricultural goods connects production resources—such as land and soils—to the global food system.¹² About 40% of the world’s land is used for agriculture, and fertile soils are essential to sustaining this productivity.¹³ Protecting these soils is fundamental to ensuring food security, highlighting the need to integrate soil protection and sustainable land management into trade policies.¹⁴

International trade law, with the WTO at its centre, can play a pivotal role in advancing these goals. Given its oversight of global trade policies, the WTO is positioned to advocate for a holistic approach that aligns agricultural trade, soil conservation, and food security to foster a sustainable global food system.¹⁵

1.2 Soil protection

Soil management and protection have gained significant momentum in recent years as awareness grows around soil’s critical role in sustaining human life.¹⁶ International

5 FAO (2023: 9).

6 See https://www.wto.org/english/news_e/news24_e/agri_24may24_e.htm, accessed 30 September 2024; FAO (2023).

7 Calvo (2024).

8 Murphy & Manduna (2023: 14–15).

9 Ibid.: 5–6.

10 WTO, List of Net Food-Importing Developing Countries (2023) G/AG/5/Rev.12.

11 Murphy & Manduna (2023: 4).

12 Basset (2024: 3).

13 WTO (2020).

14 EU Commission (2021).

15 See also Ruppel & Dobers (2022).

16 Ruppel (2024).

efforts, such as the development of the World Soil Charter, seek to establish guidelines for better soil policies, reflecting the growing recognition of soil's importance.¹⁷ While international conventions acknowledge soil protection, there is still no comprehensive, interdisciplinary global framework.¹⁸ Some of the United Nations' Sustainable Development Goals (SDGs) directly and indirectly address soils.¹⁹ SDG 15, for instance, aims to "[p]rotect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss," with target 15.3 specifically calling for the restoration of degraded land and soil.²⁰

Soils are far more than just the ground beneath our feet—they are complex ecosystems that are essential to life on Earth.²¹ Healthy, fertile soils are invaluable natural resources, providing numerous ecosystem services that support biodiversity, act as carbon sinks, and enable food production. Maintaining soil health—encompassing chemical, biological, and physical integrity—is crucial for these functions. Healthy soils are also more productive, fostering sustainable agriculture, and enhancing crop yields. Conversely, declines in soil fertility jeopardise agricultural output, thereby, threatening food security on local, regional, and even global scales.²²

This discussion emphasises soil protection in the context of agriculture, yet soils play a variety of other essential roles that are often overlooked due to the socio-economic focus on maximising agricultural productivity.²³ Securing soil health is fundamental to global sustainability, providing critical services and benefits to the entire international community.²⁴

17 Ruppel (2022a: 1-2); cf. FAO Revised World Soil Charter (2015).

18 Ruppel (2022a: 1).

19 EEA (2023); Ruppel (2022a: 2).

20 UN, Transforming our World: The 2030 Agenda for Sustainable Development (2015) 15. & 15.3.

21 Ruppel (2021a: 57); Ruppel (2022a: 1).

22 EU Commission (2021: 4).

23 For detailed soil functions, trade-offs, and synergies cf.: Zhao et al. (2022); EU Commission (2021: 2 & 15).

24 Basset (2024: 2).

2 Trade in agricultural commodities and the relevance for soil

In the wake of globalisation, trade in agricultural commodities, as with other sectors, has increased rapidly. The past few decades have been pivotal in shaping this growth.²⁵ From 2000 to 2022, the value of global agricultural trade more than quadrupled.²⁶ More countries have become involved in trading agricultural goods, and the structure of the global agricultural trade network has shifted towards greater decentralisation.²⁷ According to the Food and Agriculture Organization (FAO), the value of global agricultural exports in 2020 reached USD 1.5 trillion, with high-income countries accounting for around 60% of this total.²⁸

To effectively analyse international trade law in the context of sustainable food security and soil protection, it is crucial to analyse the structure of global trade in agricultural commodities. This includes appreciating its complexity and significance. Key factors such as food supply chains, agricultural trade policies, and the impact of globally prevailing risk factors need to be considered to assess their relevance in the context of soil management.²⁹

2.1 Global trade in agricultural commodities

Agricultural supply chains involve a diverse array of actors, though the key players remain relatively consistent across various sectors.³⁰ While the number of individual producers in many agricultural sectors is substantial, most are small-scale farmers, particularly in developing countries.³¹ For instance, in 2012, up to 80% of farmland in sub-Saharan Africa and Asia was managed by small-scale farmers, typically working on parcels of land up to ten hectares.³² In the same year, approximately 500 million smallholder farms were operating in developing countries.³³ According to the FAO, these small-scale farmers account for over 70% of the world's food production.³⁴ The initial stages of many agricultural supply chains are situated in developing countries, which often act as raw resource exporters. Primary agricultural commodities are grown for export to higher-income or developed countries.³⁵ Therefore, the global demand

25 Ruppel & Dobers (2022).

26 See https://www.wto.org/english/tratop_e/agric_e/ag_imp_exp_charts_e.htm, accessed 30 September 2024.

27 FAO (2022: 1).

28 Ibid.: 3.

29 Ruppel (2021a: 62); Ruppel (2022a: 2).

30 Rudloff & Wieck (2020: 3).

31 Ibid.: 4.

32 FAO (2013: 1).

33 HLPE (2013: 28).

34 FAO (2020: 3).

35 Rudloff & Wieck (2020: 8).

for food can only be understood through the lens of small-scale farmers in these regions.

Production conditions and agricultural practices vary significantly around the world, leading to varying impacts on the environment, particularly on soil fertility and availability.³⁶ For example, highly productive black soils, often referred to as the food basket of the world, are primarily found in only a few countries, such as Russia and Kazakhstan, with more than half of the world's black soils located there.³⁷ In 2010, 66% of sunflower seeds, 30% of wheat, and 26% of potatoes were harvested globally from these soils, which cover approximately 7% of the world's ice-free land surface, with a third of this land used for crops.³⁸ These differential practices and institutional frameworks mean that trade can have varied effects on countries, including exacerbating soil degradation.³⁹

The agricultural commodity supply and value chain typically consists of four stages: inputs (including equipment), production, processing, and distribution (including retail).⁴⁰ A single state or geopolitical region can play multiple roles within the agricultural supply chain. For instance, more developed economies, with higher per capita income, consume more agricultural products and often have more diverse diets. However, economic development does not always correlate directly with increased agricultural productivity or activity.⁴¹ The European Union (EU) is both a major consumer of agricultural products, with significant imports, and a dominant producer of agricultural commodities for export.⁴² Similarly, China is the world's largest producer and importer of agricultural commodities.⁴³ Moreover, agricultural supply chains often become more concentrated over time, as certain products from specific regions establish themselves in importing countries or through long-standing trade relationships.⁴⁴ These varying positions within the supply chain result in differing powers and interests when it comes to agricultural trade discussions.

36 WTO & UN Environment (2018: 31); Ruppel (2021a: 62); Ruppel (2024).

37 FAO (2022: 5).

38 FAO (2022: 3 & 6); See <https://www.fao.org/global-soil-partnership/intergovernmental-technical-panel-soils/gsoc17-implementation/internationalnetworkblacksoils/more-on-black-soils/black-soils-in-the-world/en/>, accessed 30 September 2024.

39 Ruppel (2022a: 1).

40 Cucagna & Goldsmith (2018: 297-298).

41 Rask & Rask (2011: 186).

42 Rudloff & Wieck (2020: 2).

43 Jiang (2020); See <https://www.fao.org/china/fao-in-china/china-at-a-glance/en/>, accessed 30 September 2024.

44 Rudloff & Wieck (2020: 3-4).

2.2 Trade policies concerning agriculture and soil

Agriculture and its commodities are subject to a wide range of regulations and guidelines, reflecting the growing importance of improving quality of life and responding to increasing calls for enhanced safety standards and better quality control.⁴⁵ For this discussion, the focus is on international trade law as it pertains to agricultural commodities, without delving into the specific regulations or guidelines related to individual products, food safety standards, or regional agreements on agricultural trade. While these other frameworks certainly play a role in influencing agricultural trade, they are not the primary focus here.

The WTO plays a central role in international trade by providing a platform for governmental negotiations on trade agreements, establishing a binding legal framework for the implementation and monitoring of those agreements, and offering a dispute settlement system to resolve trade frictions. Agricultural trade has been a key issue within the WTO for decades, with the organisation successfully resolving disputes in this sector.⁴⁶

However, the WTO was not initially designed with an environmental focus, and its 1994 founding structure did not specifically address concerns such as soil protection.⁴⁷ The core tasks of the WTO are to open national markets, promote free and fair trade, increase global welfare, and ensure stability through a rule-based approach. While the organisation's primary focus is on trade, the WTO does have a mandate to promote sustainable development.⁴⁸ This mandate allows the organisation to address issues related to soil protection, but only to the extent that these issues are linked to trade.⁴⁹ The WTO's trade-related focus means that its ability to directly tackle environmental concerns such as soil protection is limited to those cases where soil issues intersect with its core mission of facilitating trade and promoting economic welfare.

This has significant implications for the WTO's decision-making processes and its ability to resolve conflicts.⁵⁰ While the organisation is not specifically tasked with environmental governance, its role in regulating trade can provide an avenue for addressing soil protection and related issues within the broader context of global trade policy.

45 Ruppel (2021a: 62).

46 The WTO Agreement on Agriculture came into force in 1995; See https://www.wto.org/english/tratop_e/agric_e/negoti_e.htm, accessed 30 September 2024. 89 cases cite the Agreement on Agriculture in the request for consultations: WTO (2024).

47 Ruppel (2021b: 512-513).

48 Preamble of the agreement establishing the WTO: "[...] while allowing for the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development."

49 Ruppel (2021a: 64).

50 Ibid.

The challenge lies in balancing the interests of sustainable development with the WTO's broader objectives of promoting free trade and economic growth.

2.2.1 General Agreement on Tariffs and Trade

The General Agreement on Tariffs and Trade (GATT) 1994 plays a crucial role in regulating global trade and addressing barriers to trade. One of the key principles of GATT is the prohibition of trade restrictions or bans. Article XI(1) states that trade restrictions or bans are generally prohibited; however, there is an exemption outlined in Article XI(2)(a), which allows member countries to impose temporary export bans or restrictions on foodstuffs during critical shortages of essential products.⁵¹ This creates a situation where such restrictions, even when applied for short periods, can disrupt international agricultural trade and leave countries that rely heavily on food imports vulnerable to supply risks.⁵²

For non-food agricultural products, the WTO applies stricter regulations regarding export restrictions and bans.⁵³ This disparity in treatment—where agricultural products are differently regulated than other goods—can put importing countries at a disadvantage, as they can be more susceptible to disruptions in supply caused by export restrictions from other countries.

The GATT also manifests the principle of non-discrimination in international trade law. Under this principle, members' national policies must not discriminate against like products from different trading partners (the “most favoured nation” or MFN principle),⁵⁴ nor should they discriminate between imported products and domestically produced products (the “national treatment” principle).⁵⁵ However, Article XXIV(5) provides an exception to the non-discrimination principle when it comes to regional trade arrangements (RTAs). These arrangements, which foster trade integration, can promote economic growth and contribute to food security by stabilising trade relationships within a specific region.⁵⁶

For countries implementing national policies related to agriculture, including soil protection policies, these policies must comply with the non-discrimination rules of the GATT. Any national agricultural legislation or practice must be designed in a way that does not favour domestic agricultural products over imports or discriminate between trading partners, ensuring that trade flows remain fair and consistent with WTO commitments. This underscores the importance of aligning policies with international

51 Wolff & Glauber (2023: 7); Ruppel (2022b: 5).

52 Rudloff & Wieck (2020: 6).

53 Ruppel (2022b: 5).

54 Art I of the GATT.

55 *Ibid.*: Art III.

56 Ruppel (2022b: 5-6).

trade rules to avoid trade conflicts and ensure a balance between national priorities and global trade obligations.

2.2.2 Agreement on Agriculture

Especially the WTO Agreement on Agriculture (AoA)⁵⁷ plays a crucial role in shaping global trade in agricultural products by regulating key restrictions and allowances. Its primary aim is to make agricultural trade fairer, more competitive, and less interventionist, addressing the longstanding distortions in agricultural trade.⁵⁸ The AoA serves as a *lex specialis*, or specialised set of rules, that takes precedence over the GATT and other WTO agreements.⁵⁹ According to Article 21(1) AoA, while the provisions of GATT and other WTO agreements in Annex 1A apply, they are subject to the specific provisions outlined in the AoA.⁶⁰ In principle, all WTO rules governing trade in goods apply to agriculture, though the AoA introduces exceptions and specific regulations in cases where they conflict with GATT rules, such as for instance special safeguard measures and agricultural subsidies.⁶¹ Notably, the preamble of the AoA acknowledges non-trade concerns, including food security and the need to protect the environment.

The AoA is built on three key pillars: market access, domestic support, and export subsidies.⁶² Market access is facilitated by converting import barriers into tariffs that are subject to reduction commitments. Special provisions allow certain programs to be excluded from obligations under Article 4.2 for primary agricultural products (Annex 5.1) and essential staples in the traditional diet of developing countries (Annex 5.7). Domestic support is categorised based on its impact on trade, with support measures placed into the amber, green, or blue boxes. Amber box measures directly affect trade and are subject to reduction commitments, while green box measures (those with minimal or no trade impact) and blue box measures (amber box measures with conditions to mitigate trade distortions).⁶³

A significant achievement of the 10th Ministerial Conference in Nairobi (MC10) in 2015 was the agreement to eliminate all export subsidies.⁶⁴ Developed countries were required to phase out subsidies immediately while developing countries had until

57 Entered into force on 1 January 1995.

58 Ruppel (2022b: 6).

59 Van den Bossche & Zdouc (2022: 952).

60 Ruppel (2022b: 6).

61 Van den Bossche & Zdouc (2022: 952).

62 Arts 4, 6 & 9 of the AoA.

63 See https://www.wto.org/english/tratop_e/agric_e/negs_bkgnd13_boxes_e.htm, accessed 30 September 2024; Dall'Agnola (2024: 164).

64 WTO, Ministerial Decision on Export Competition of 19 December 2015 (2015) WT/MIN(15)/45.

2018 to comply. However, least-developed countries and net-food-importing developing countries were allowed to continue using export subsidies until the end of 2030. Since then, agricultural negotiations at the WTO have seen limited tangible progress. At the 12th Ministerial Conference (MC12) held in Geneva, Switzerland in 2022, members adopted a ministerial declaration to address food insecurity, reaffirming the importance of trade in global food security.⁶⁵ One outcome was, for instance, a commitment to refrain from imposing export bans or restrictions on food purchased by the World Food Programme for non-commercial humanitarian purposes.⁶⁶ At the 13th Ministerial Conference in 2024 (MC13) held in Abu Dhabi, United Arab Emirates, members remained divided on key issues such as public stockholding and domestic support, with negotiations stalled.⁶⁷

Article 12 of the AoA plays a critical role in regulating the export of agricultural commodities and foodstuffs. If a WTO member imposes export prohibitions or restrictions on food under the exemption of Article XI(2)(a) GATT, it must comply with the requirements of Article 12. This mandates that the exporting country “give due consideration to the effects of such prohibition or restriction on importing Members’ food security.”⁶⁸ Additionally, Article 12(1)(b) obligates the exporting country to notify the WTO Committee on Agriculture in advance about the nature and duration of the restriction, as well as to consult with affected members, especially those with a vested interest as importing countries.⁶⁹

2.2.3 SPS Agreement

The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) also plays a key role in shaping trade in agricultural commodities, especially concerning food safety and public health. Agricultural commodities traded internationally must adhere to sanitary and phytosanitary standards to ensure food security.⁷⁰ While the SPS Agreement recognises the right of WTO members to implement measures essential for the protection of human, animal, and plant health, these measures can become non-tariff barriers to agricultural trade if they lack transparency or fail to align with international standards.

The SPS Agreement explicitly references the standards and recommendations set by the Codex Alimentarius, a collection of international food standards, guidelines,

65 WTO, Ministerial Declaration on the Emergency Response to Food Insecurity (2022) WT/MIN(22)/28.

66 WTO, Ministerial Decision on World Food Program Food Purchases Exemption from Export Prohibitions or Restrictions (2022) WT/MIN(22)/29.

67 Calvo (2024).

68 Art 12(1)(a) of the AoA.

69 Wolff & Glauber (2023: 7).

70 Ruppel (2022b: 3); Mwenda (2024: 4).

and codes of practice developed by the Codex Alimentarius Commission.⁷¹ This body, jointly established by the FAO and the WHO, sets food safety regulations based on scientific research and international expertise. The Codex provides a framework for ensuring the safety of food in international trade, impacting the trade of agricultural commodities by influencing food safety practices in production, processing, and supply chains.

Under the SPS Agreement, WTO members are encouraged to adopt Codex standards as the default benchmark for food safety. If a member wishes to impose stricter food safety measures than those established by Codex, it must justify these measures scientifically. This ensures that countries do not unnecessarily restrict trade through overly stringent or unsupported regulations.

2.3 Global risk factors for agricultural trade and soil

As various sources highlight, agricultural commodities continue to be central to global geopolitics.⁷² Wars and extreme weather events are increasingly threatening fragile food supply chains, disrupting grain production and exports. Additionally, demand shocks in key markets can lead to a decline in export earnings and increased price volatility for export crops.⁷³

The stability of food supply, distribution, and access is not uniform across all regions, as these systems are vulnerable to a range of factors. The interconnectedness of international trade in agricultural goods has far-reaching implications for soil health and the sustainability of agricultural systems. With varying production conditions and fluctuating food demand, crises, conflicts, and climate change play a central role in shaping global food systems. These challenges exacerbate vulnerabilities in agricultural production, trade, and soil health, further highlighting the need for resilient and sustainable systems that can withstand such pressures.

2.3.1 Crisis

The global COVID-19 pandemic was one of the most disruptive crises in recent history, affecting virtually every aspect of society and the economy. The impact of the pandemic was felt worldwide, from travel and social interaction restrictions to economic downturns, factory closures, and a crash in the financial markets.

71 E.g., Arts 3 & 5(8) read with the definition in Annex A (3)(a) of the SPS Agreement; Ruppel (2021b: 63); See <https://www.fao.org/fao-who-codexalimentarius/about-codex/en/>, accessed 30 September 2024.

72 Coface (2023); Barclays (2023).

73 Pais et al. (2020).

Unsurprisingly, the COVID-19 pandemic also had a profound effect on agricultural production and the trade of agricultural commodities, particularly as countries implemented national measures to protect public health and safeguard domestic supply.

The trade-restrictive measures adopted by several governments to contain the spread of the virus significantly disrupted food supply chains and hindered access to food.⁷⁴ Initially, the WTO forecasted a sharp decline in global trade. However, this downturn was not as severe as anticipated, and global trade in agricultural commodities even outperformed expectations, growing by 3.5% in 2020.⁷⁵ This resilience can largely be attributed to the recognition by governments of the essential nature of the food industry, which ensured that agricultural trade remained relatively stable.

Despite this, food systems were still deeply affected. The FAO estimated that over 100 million more people were facing hunger in 2020 compared to 2019, highlighting the disconnection between the growth of the international food trade and the actual nutritional needs of the global population.⁷⁶

Access to international markets plays a crucial role in national food security, and disruptions to these markets can have serious consequences. For many countries, the reliance on international markets to meet domestic food demand becomes especially critical during global economic shocks. The global financial crisis of 2007-2008, for example, led to price surges and food emergencies in 48 countries, causing widespread social instability.⁷⁷ These events underscore the vulnerability of countries that depend on global trade to secure their food supply, and how periodic global shocks can exacerbate food insecurity at the national level.

2.3.2 Conflict

Military conflicts, whether between states or within a state, have profound and far-reaching macroeconomic consequences, particularly for agricultural production and trade. In addition to the immense suffering and human rights violations experienced by local populations, such conflicts can severely disrupt agricultural exports. When countries involved in conflict experience damaged or destroyed infrastructure, including farming facilities, storage, and transportation routes, agricultural goods may become unviable for export.⁷⁸ This disruption can lead to shortages in global markets, especially if the country is a major exporter of essential products including grains, oilseeds, or fertilisers.

74 Espa (2021: 43).

75 Arita et al. (2022: 2).

76 FAO (2021: 10).

77 FAO (2009); Wolff & Glauber (2023).

78 UN Resolution 2417 (2018) S/RES/2417.

At present, we monitor more than 100 armed conflicts around the world. Some of these conflicts make the headlines, others do not. Some of them started recently, while others have lasted for more than 50 years. The most affected region: more than 45 armed conflicts are currently taking place throughout the Middle East and North Africa in the following territories: Cyprus, Egypt, Iraq, Israel, Libya, Morocco, Palestine, Syria, Turkey, Yemen and Western Sahara. Africa comes second in the number of armed conflicts per region with more than 35 non-international armed conflicts (NIACs) taking place in Burkina Faso, Cameroon, the Central African Republic (CAR), the Democratic Republic of the Congo, Ethiopia, Mali, Mozambique, Nigeria, Senegal, Somalia, South Sudan and Sudan. Asia is the theatre of 19 NIACs involving 19 armed groups. These are happening in Afghanistan, India, Myanmar, Pakistan and the Philippines. Two international armed conflicts – between respectively India and Pakistan, and between India and China – are also taking place in the region. The following military occupations constitute the majority of armed conflicts that are currently taking place in Europe: Russia is currently occupying Crimea and the self-proclaimed ‘People’s Republics’ of Donetsk and Luhansk in Ukraine, Transdniestria (Moldova), as well as South Ossetia and Abkhazia (Georgia), while Armenia is occupying parts of Nagorno Karabakh (Azerbaijan).⁷⁹

Any warfare activities alter soil not only during conflict, but also during peace times through firing facilities, military bases, manufacturing operations, open/burning and open detonation, and dumping of munition. Soil pollution mostly comes from the use of nitro aromatic explosive compounds. Manufacturing and testing of weapons are also responsible for soil pollution. The negative effects from the use of incendiary weapons containing white phosphorus comes from their co-contaminants and residues of combustion. Such weapons may result in soil polluted with trace elements, hydrocarbons, organic solvents, surfactants, synthetic phenols, cyanide, dioxins, and radionuclides. To a lesser extent other trace elements are released including antimony, arsenic, cadmium, chromium, copper, mercury, nickel and zinc. The recovery of these soils can take from years to centuries depending on the extent of soil pollution. The detonation of mines causes adverse effects on soil with metal and plastic fragments and explosives residues. Africa has the highest number of landmines, about 37 million, distributed in 19 countries. Among these countries Angola alone has 15 million landmines. From 1945 until 2006, the total number of nuclear explosions that took place in the world were 2 053. The threat from radionuclide pollution is due to their persistence in soils that can reach thousands of years. Following a nuclear explosion, fine particles with radionuclide contaminants are transported in air currents before deposition on the soil. There is a potential for wide scale pollution over long distances. Major concern is arising from the use in conflicts of depleted uranium (DU) armour piercing weapons and their long-term effect on the environment and human health.

79 Cf. <https://geneva-academy.ch/galleries/today-s-armed-conflicts>, accessed 5 March 2025.

The risk of soil pollution arises from the fine radioactive dust released during the impact of DU projectiles into armour. Chemical warfare agents (CWA) are compounds that incapacitate an enemy, through death or injury. An example of CWA are nerve agents, which were originally produced as insecticides, but used for military purposes because of the extent of their toxicity. While only few studies have focused on the effects and impact of nerve agents in soil, polluted soil is a threat for human health because it can easily be transferred into the food chain. Battlefields, bombed cities and military training areas are all sites of high levels of pollution by trace elements and organic contaminants. The sources are shells, bullets and bombs, unexploded mines, cartridge cases, damaged vehicles, leaking fuel and burning buildings. Battlefields and training areas where there has been intense use of weapons over extended periods are all sites of high levels of pollution by trace elements, and organic compounds. These areas remain polluted with lead, copper, zinc, nickel antimony, arsenic and bismuth. Strategic objectives in armed conflicts can include the incapacity of an enemy to fight through the destruction of their infrastructure and resources. Fuel manufacture and storage are often targeted with the consequence of leakage of large quantities hydrocarbons into the soil or their combustion with the release of hydrocarbon and other emissions to the atmosphere and subsequent deposition onto the soil.⁸⁰

Before the Russian aggression, Ukraine was the fourth largest corn exporter and fifth largest wheat seller in the world and a major supplier to poor countries in Africa and the Middle East that rely on grain imports. After Russia's invasion, grain prices soared worldwide as the Black Sea ports through which the Ukrainian harvest is normally shipped were closed, driving up inflation rates around the world. People and the environment in Ukraine have since been exposed to unimaginable suffering and Ukrainian soils, especially black earth, the most fertile soils in Ukraine (called Chernozem), have also suffered enormously from the destructive war. Hopefully, the war in Ukraine will come to an end at some point. But even when the deadly explosions of all those rockets, grenades and bombs finally cease, their destructive potential - and this applies accordingly to all areas affected by warlike activities - will remain imprisoned in the ground for a long time to come. Mines and other explosives have destroyed buildings, releasing asbestos into the environment. The Zaporizhzhia nuclear power plant was shelled and refineries were hit, spilling oil and other chemicals into the ground and water supply. Not to mention vast quantities of the munitions themselves, which contain toxic elements. These corrosive chemicals are here to stay. Millions of hectares of agricultural land in Ukraine have been contaminated with chemicals, impacting global food security. Once these chemicals enter the soil and groundwater, it may only be a matter of time before they enter the food chain via plants, animals and drinking water. In conclusion, these depressing developments should make it clear that the value of land urgently deserves its own

80 Cf. <https://openknowledge.fao.org/server/api/core/bitstreams/fe5df8d6-6b19-4def-bdc6-62886d824574/content/src/html/chapter-03-6.html>, accessed 9 March 2025.

price tag, even though it is actually priceless. The detrimental impacts of armed conflict situation on soils around the world need to be reconsidered, also in legal terms.⁸¹

Ukraine is richly endowed with fertile soil, abundant water resources, and diverse mineral and energy resources. The war on Ukraine, led to the imposition of martial law on 24 February 2022. Not only has the war inflicted severe human costs, substantial economic losses, and considerable environmental harm on Ukraine, it has also exacerbated several longstanding challenges that have hindered Ukraine's economic development and improvements in living standards, including low investment, a declining trade-to-GDP ratio, and weak productivity growth. Despite massive supply-side and other constraints imposed by the war, the economy has shown considerable resilience, even if output remains well below its pre-war level. Moreover, the authorities have taken important steps to build on Ukraine's largely open trade regime, driven by a strong commitment to integrate with the European Union. The ongoing war, led to a 33% collapse in the value of exports between 2021 and 2022, prompting concerns about global food security due to Ukraine's traditional role as a major exporter of agricultural products, especially cereals and sunflower oil. Such concerns have been partly assuaged by the continuation of some Ukrainian agricultural exports via the Black Sea and alternative river and land routes, albeit under precarious conditions. The global trading system also played a key role in avoiding a global food crisis in 2022, as it enabled countries dependent on food imports from Ukraine to find alternative suppliers and products to meet their demand for food. The latest estimates in the World Bank's Third Rapid Damage and Needs Assessment (RDNA3) put the war-related damage and losses incurred by Ukraine's agricultural sector at USD 80.1 billion. RDNA3 recommends that future investments focus on improving access to liquidity, fostering disaster- and climate-resilience, capturing synergies between food and energy production, and strengthening public entities with responsibilities in the agricultural sector, among other priorities. Ukraine's agricultural sector receives protection mainly through tariffs. The simple average applied MFN tariff rate on agricultural products (WTO definition), at 9.7%, has remained broadly unchanged since Ukraine's last Review in 2016 (9.6%). MFN tariffs applied on agricultural products range from 0% to 50% (with a rate of 54.5% corresponding to an ad valorem equivalent for certain wines). The product categories receiving the highest levels of tariff protection, on average, are sugars and sugar confectionery, animal fats and oils, and vegetables. About 14% of agricultural tariff lines exceed 15%, while another 15% of lines enter Ukraine duty-free. During martial law, Ukraine exempts from customs duty imports of products by the "industrial agricultural sector", including polymer sleeves and bags for storing agricultural products; plastic tubes, pipes, and hoses; textile bulk containers; and trailers and semi-trailers with self-loading or self-

81 Cf. Ruppel (2024).

unloading for the transportation of agricultural products. During the period under review, Ukraine implemented export bans on several agricultural products. Buckwheat was subject to a temporary export ban between 9 April 2020 and 1 July 2020. The stated purpose of this measure was “to prevent [a] critical shortage of foodstuff”. In addition, the Ministry of Agrarian Policy and Food has negotiated memoranda of understanding with participants in the cereals market specifying maximum export volumes. The purpose of these instruments was to avoid the introduction of export restrictions, safeguard food security, and provide stability and predictability to market participants.⁸²

The effects of these conflict related disruptions have been particularly severe in regions highly dependent on food imports.⁸³ Northern Africa, for instance, relies heavily on grain imports, with Ukraine and Russia being major suppliers.⁸⁴ The region, already facing a severe drought and financial constraints, saw food prices spike further due to the conflict, pushing food security to even more precarious levels.⁸⁵ Similarly, the Horn of Africa, already grappling with food insecurity and ongoing armed conflicts, experienced even worse consequences.⁸⁶ These regions, with limited domestic agricultural capacity, are particularly vulnerable to external shocks, resulting in dire consequences for their populations.⁸⁷

The political sensitivity surrounding the impact of conflict on global food security is evident, with leaders such as (former) US President Joe Biden publicly accusing Russian President Vladimir Putin of exacerbating the global food crisis by blocking Ukrainian grain exports.⁸⁸ This highlights the reciprocal relationship between food security and conflict, where disruptions in food supply can fuel political instability and exacerbate the humanitarian crisis.

In response to these disruptions, many countries have turned to export restrictions to protect their domestic food security. For example, the EU delayed new decommissioning obligations for agricultural land to boost domestic food production and secure its supply.⁸⁹ However, such measures often lead to a delayed increase in food quantities, as agricultural cycles require time to ramp up production.⁹⁰

82 See with further references, Report of the WTO Secretariat prepared for the second Trade Policy Review of Ukraine, WT/TRP/S/467, dated 18 December 2024, at https://www.wto.org/english/tratop_e/tpr_e/s467_e.pdf, accessed 9 March 2025; Rudloff & Götz (2022); Rudloff (2023); Dall’Agnola (2024); Welsh (2023); Albrecht et al. (2022); Wolff & Glauber (2023).

83 Rudloff (2023: 52).

84 Welsh (2023).

85 Albrecht et al. (2022: 3).

86 Ibid.: 4.

87 Welsh (2023).

88 Wolff & Glauber (2023: 4); See <https://www.politico.com/news/2023/02/21/biden-putin-russia-ukraine-00083786>, accessed 30 September 2024.

89 Rudloff (2023: 54–55); Landwirtschaftskammer Niedersachsen (2022).

90 Rudloff (2023: 50–51).

In line with the WTO's goal of facilitating trade, several international measures have been implemented to ease the flow of agricultural commodities, such as the facilitation of Ukrainian agricultural exports into the EU.⁹¹ While the WTO does provide exceptions for export restrictions in the case of emergencies, these measures still contradict the broader goals of free trade, creating long-term challenges for the global food system with ripple effects which can be felt worldwide, deepening the challenges of hunger and food insecurity in vulnerable regions.

2.3.3 Climate change

Agricultural sectors are also particularly vulnerable to the impacts of climate change due to their direct dependence on weather patterns and environmental conditions.⁹² Agriculture has always been susceptible to uncertainties such as varying weather conditions, which influence crop yields and the overall productivity of farming.⁹³ As the climate changes, the range of pests and diseases also shifts, further complicating agricultural production and food security.⁹⁴ This creates an increasing need for adaptive strategies, with international trade playing a crucial role in mitigating these effects.⁹⁵

International trade can help countries adapt to climate change by providing access to food supplies from areas with surplus production due to favourable weather conditions, balancing out deficiencies in other regions affected by extreme weather events.⁹⁶ For example, countries experiencing droughts or floods may rely on food imports from regions where conditions are more favourable, helping to stabilise domestic food supplies.⁹⁷ However, these benefits are not without challenges, as climate change also intensifies extreme weather events such as droughts, floods, and wildfires, all of which can have long-term detrimental effects on agricultural systems.⁹⁸

Soil health is particularly at risk from the effects of climate change.⁹⁹ Unpredictable rainfall patterns, for instance, can lead to soil erosion and pollution, which significantly reduces the fertility of agricultural land. This phenomenon is especially concerning in developing countries, where agriculture is a major contributor to the economy and livelihoods.¹⁰⁰ The loss of fertile soils not only hampers local agricultural production

91 Ibid.: 54.

92 See <https://www.fao.org/koronivia/topics/food-security-socio-economic-dimensions/en/>, accessed 30 September 2024.

93 Wolff & Glauber (2023: 4); FAO (2020: 3).

94 WTO, Communication from The United States: The World Trade Organization's Role in enhancing Food Security (2023) JOB/CTG/25; WTO & UN Environment (2018: 33).

95 Hufstader (2024).

96 WTO & UN Environment (2018: 33).

97 Ruppel (2022a: 3).

98 Hufstader (2024).

99 Oxfam (2022: 4-5); Hufstader (2024).

100 Ruppel (2022a: 3).

but also exacerbates food insecurity, particularly in regions already vulnerable to famine.¹⁰¹ According to UN humanitarian appeals, the number of people experiencing acute hunger in the world's top climate hotspots has doubled from 2016 to 2021, underscoring the urgent need for sustainable agricultural practices and enhanced food security.¹⁰²

To address these challenges, there is a growing need for more environmentally efficient agricultural production and distribution systems. By integrating agricultural trade internationally, production can shift to regions where environmental conditions are more favourable, allowing for greater efficiency in both food production and soil conservation.¹⁰³ Healthy, fertile soils are critical for sustaining agricultural production, and protecting these soils is essential to ensure long-term food security. Climate change may even present an opportunity for certain regions with healthy soils to serve as global suppliers, helping to mitigate the effects of climate-related agricultural disruptions elsewhere.

In this context, international trade can play a key role in enhancing soil protection and food security.¹⁰⁴ By allowing for the relocation of agricultural production based on both environmental and market needs, countries can adapt to the changing climate, while ensuring that soil resources are preserved and utilised as efficiently and sustainably as possible. Ultimately, fostering global collaboration and sustainable agricultural practices will be essential in addressing the dual challenges of climate change and food security.

3 Food security and the right to food

The FAO has been key in shaping the definition of food security since the mid-1970s.¹⁰⁵ The concept gained significant prominence during the World Food Summit in 1996 in Rome, where global attention was brought to the issue. Over time, this definition has been further refined through FAO and other international meetings on food security. According to the FAO's widely accepted definition, food security consists of four dimensions:¹⁰⁶

Food availability: This refers to always having enough food, which can come from domestic production, imports, food stocks, or, when necessary, food aid.

Food accessibility: Not only must food be available, but it must also be accessible to people, both physically and financially. This means that food should be affordable,

101 Rudloff & Wieck (2020: 5); Hufstader (2024).

102 Oxfam (2022: 3).

103 Ruppel (2022b: 2).

104 Ibid.: 3.

105 Peng & Berry (2019: 1-2).

106 FAO (2006); See <https://www.worldbank.org/en/topic/agriculture/brief/food-security-update/what-is-food-security>, accessed 30 September 2024; Peng & Berry (2019).

and socio-cultural factors (such as the cultural acceptance of the food) should also be considered.¹⁰⁷

Food utilisation: This dimension ensures that individuals can utilise food properly, which requires access to adequate facilities such as clean water for food preparation and the necessary healthcare for the body to digest and make use of the food consumed.¹⁰⁸

Stability: The food security system must be reliable and consistent over time. Any disruption, such as crises, conflicts, or the impact of climate change, can undermine food security. Stability refers to the ability to withstand such shocks and maintain a reliable food supply, even in the face of external stressors.

Food insecurity can be categorised into chronic food insecurity, where people are persistently unable to meet their basic food needs, and transitory food insecurity, where temporary setbacks cause a short-term decline in food security.¹⁰⁹

SDG 2 aims to address hunger and food security directly and indirectly by calling for the improvement of soil quality for sustainable food production.¹¹⁰ Soil health is critical, particularly in poor rural areas, for maintaining long-term agricultural productivity and food security.¹¹¹

International climate agreements, including the Paris Agreement (2015), also recognise the strong link between food security and the protection of ecosystems, including soils. Although the Paris Agreement does not explicitly mention soils, it acknowledges the importance of safeguarding food security and the vulnerability of food systems to climate change.¹¹² It highlights the need for climate mitigation and adaptation measures that also protect agricultural systems, which depend heavily on soil health.¹¹³

Similarly, the Koronivia Joint Work on Agriculture (KJWA) under the UN Framework Convention on Climate Change (UNFCCC) recognise agriculture's potential to address climate change.¹¹⁴ The KJWA covers topics such as soil carbon, soil health, and sustainable soil management. It emphasises that the protection and improvement of soils are essential for both mitigating climate change and ensuring food security, as soils serve as one of the largest carbon sinks and are foundational to agricultural production.

Through these frameworks, international trade and soil protection become more closely interconnected. Agricultural trade can serve as a means of addressing food

107 Peng & Berry (2019).

108 Rudloff (2023: 52); Peng & Berry (2019).

109 FAO (2008); Peng & Berry (2019); Webb et al. (2006: 1404-1408).

110 UN, *Transforming our World: The 2030 Agenda for Sustainable Development* (2015) 2.1 & 2.4; EEA *Soil and United Nations Sustainable Development Goals* (2023).

111 Ruppel (2022a: 3).

112 Ibid.: 4.

113 The Preamble, Arts 2(1)(b) & 4(1) of the Paris Agreement of 2015; EU Commission (2021); Ruppel (2021a: 58).

114 See <https://www.fao.org/koronivia/en/>, accessed 30 September 2024.

security challenges, especially in areas impacted by soil degradation or climate-induced events. Furthermore, international trade law has the potential to promote sustainable soil management practices, encouraging the protection of fertile soils and supporting agricultural production in the face of climate change. Thus, the integration of soil protection in global trade policies could play a pivotal role in enhancing food security while addressing the adverse effects of climate change.

The human right to food, which has been enshrined in international legal frameworks such as the Universal Declaration of Human Rights (UDHR) and the International Covenant on Economic, Social, and Cultural Rights (ICESCR), is closely linked to agricultural production and soil protection.¹¹⁵ This right is not only about the freedom from hunger, but also ensures that individuals have regular, reliable, and unobstructed access to sufficient and culturally appropriate food, which is essential for a dignified and healthy life. The right to adequate food, as outlined in ICESCR Article 11, is underpinned by four dimensions: availability, accessibility, utilisation, and stability.¹¹⁶

Agricultural trade, including both domestic production and international trade, plays a significant role in realising this right globally. However, for food security to be sustainable, the soil—the very foundation of agricultural production—must be preserved and managed sustainably. Without fertile soil, local food production becomes impossible, especially for rural communities in developing countries where self-sufficiency through farming is the primary means of securing food. Ensuring access to and protecting fertile soils can be considered an obligation to safeguard the right to food.

The WTO and the international trade regime have a critical role to play in addressing food security from a trade perspective.¹¹⁷ The inclusion of soil protection in agricultural trade policies, coupled with multilateral and bilateral trade agreements, can contribute to maintaining global food security. Sustainable agricultural practices should be promoted within these frameworks, recognising the interconnectedness of soil, food production, and the human right to food. Strengthening the legal framework around the right to food, including soil sustainability, would ensure reliable enforcement and contribute to broader global food security objectives, particularly under the UN's SDGs, such as SDG 2.4, which targets sustainable food production systems.¹¹⁸

In sum, ensuring the protection of fertile soils, as part of a sustainable agricultural policy, is central to realising the human right to food. Trade regulations, along with soil protection measures, can help maintain and enhance global food security, aligning with both human rights and environmental sustainability goals.¹¹⁹

115 Rudloff & Wieck (2020: 4); Kattau (2015: 324-325); Ziegler (2001); UN CESCR General Comment No. 12: The Right to Adequate Food (Art 11 of the Covenant) (1999).

116 Ziegler (2001: 16); See <https://www.worldbank.org/en/topic/agriculture/brief/food-security-update/what-is-food-security>, accessed 30 September 2024.

117 Rudloff & Wieck (2020: 4).

118 Ruppel (2021a: 58); De Schutter (2014).

119 Ruppel (2022b: 5).

Agriculture and international trade in agricultural commodities are central to ensuring global food security, particularly in developing countries where local agricultural production, often small-scale and livestock-based, plays a vital role in meeting food needs. Many households in these regions rely heavily on agriculture not only for food availability but also as a key source of income through local markets.¹²⁰ However, this is increasingly threatened by “land grabbing”, which reduces people’s access to land for food production, thus, endangering their self-sufficiency and food security.¹²¹

The global trade system is a double-edged sword for food security. While international trade enables countries to supplement domestic production through imports, particularly during times of low domestic output or when building stockpiles for crises, it also introduces vulnerabilities. For countries dependent on food imports, the risk of food insecurity increases if supply chains are disrupted due to political, economic, or military conflicts.¹²² The greater the concentration of food supply sources, especially if those sources are in regions prone to instability, the higher the potential risk of sudden food shortages.

This dependency on imports has been highlighted by recent global events. Armed conflicts, such as the ongoing wars, have displaced people from their land and livelihoods, disrupted markets, and increased food prices, which compounds existing food security challenges.¹²³ Similarly, the economic fallout from the COVID-19 pandemic and the Russian invasion of Ukraine has exacerbated food insecurity worldwide by disrupting food production and supply chains. These events have resulted in soaring food prices, making it difficult for many households—especially in developing countries—to afford nutritious food, thus, deepening malnutrition.¹²⁴

The rising food prices resulting from such crises disproportionately affect vulnerable populations, particularly in least-developed countries (LDCs) and net food-importing developing countries, where the cost of a healthy diet becomes prohibitively high. According to international organisations, these countries are among the “hunger hotspots,” with 24 countries identified globally, of which sixteen are located on the African continent.¹²⁵

In sum, while international trade can help address food shortages, it also exposes countries to external shocks. For many developing nations, especially those reliant on food imports, political instability, natural disasters, and global economic fluctuations can swiftly disrupt food access and availability, threatening food security. Therefore, a more resilient, diversified approach to agriculture and trade is needed, alongside efforts to safeguard the rights of small-scale farmers and protect local food systems.

120 Mwenda (2024: 2-3).

121 For the phenomena of land grabbing and its legal implications cf.: Baker-Smith & Attila (2016); Cochrane (2016); Ruppel (2022b: 4).

122 Rudloff (2023: 52).

123 WFP & FAO (2022).

124 Welsh (2023).

125 WFP & FAO (2022).

4 Role of the WTO in sustainable food security

4.1 Less trade: Self-sufficient agriculture?

While self-sufficiency in agriculture may seem to be a potential solution to food insecurity, especially given the vulnerability of countries relying on international trade, it is not necessarily a practical or sustainable answer in the current global context. Advocating for total self-sufficiency could lead to inefficiencies, environmental degradation, and missed opportunities for global cooperation. If every country focused solely on ensuring its agricultural interests without considering the global trade system, it could easily create chaos, undermining the achievements of international trade, cooperation, and progress in addressing global challenges such as climate change.¹²⁶

A trade-based, integrated global economy allows regions suffering from food insecurity to import food from areas where crises, conflicts, or climate impacts are less severe.¹²⁷ The FAO therefore emphasises that agricultural trade and market integration are essential for increasing food availability and accessibility.¹²⁸ Liberalised trade policies can stimulate trade flows, improve market efficiency, and provide consumers with a greater variety of affordable agricultural products, including livestock.¹²⁹

However, this does not mean that strengthening local food systems is irrelevant. The development of a country's agricultural system remains a sovereign right, and every nation should prioritise food security for its population.¹³⁰ At the same time, international obligations, including humanitarian needs, must be respected in a globalised world.¹³¹ While international trade brings undeniable benefits, such as promoting specialisation, competition, and innovation, it also carries risks—especially for countries that rely heavily on imports.¹³²

Therefore, the current global system requires reform, not retreat. The WTO's role in regulating trade law is essential to ensuring that food security is prioritised and that soil protection is considered in global trade agreements. A major gap in international trade rules is the handling of food sharing during times of scarcity.¹³³ Strengthening the legal framework under the WTO to address food security and soil protection through trade regulations is necessary to mitigate the risks of reliance on agricultural imports and ensure sustainable solutions to global food insecurity.

In summary, while self-sufficient agriculture may not be a viable or realistic solution, changes are urgently needed in how we approach global agricultural trade.

126 Wolff & Glauber (2023: 9).

127 WTO & UN Environment (2018: 33).

128 FAO (2020: 4).

129 Mwenda (2024: 4).

130 FAO (2020: 5).

131 Ruppel (2022b: 5).

132 WTO & UN Environment (2018: 34).

133 Wolff & Glauber (2023: 9).

Balancing international cooperation with local food system development and strengthening trade regulations to safeguard food security is critical in addressing the pressing challenges of today's interconnected world.

4.2 Adjusting existing WTO regulations

The connection between food systems and international trade policy, as highlighted by WTO Director-General Dr Okonjo-Iweala, is crucial in addressing global food security and sustainable agricultural practices.¹³⁴ The WTO plays a significant role in shaping food systems and indirectly influencing soil protection through its trade regulations, especially in times of crisis, conflict, and climate change. As trade and agriculture are inherently linked, the WTO's regulations also have the potential to improve food security and soil health on a global scale.¹³⁵

One of the most important elements of this relationship is the alignment between the WTO and the FAO, particularly regarding sustainable development and food security. Through agreements such as the SPS Agreement, which references the Codex Alimentarius Commission's standards and guidelines, the WTO and FAO work together to enhance sustainable agricultural practices.¹³⁶ This cooperation was further strengthened with an additional agreement in 2023. The FAO's annual report, the State of Food Security and Nutrition in the World, provides valuable insights into global food security, contributing to the WTO's policy work on agricultural issues.¹³⁷

However, despite this collaboration, there are calls for significant reforms within the WTO's legal framework to promote a more sustainable and holistic approach to food security.¹³⁸ The current rules, particularly under the AoA, are seen as inadequate in achieving the economic, social, and environmental goals necessary for a sustainable agricultural system.¹³⁹ A more comprehensive approach that integrates the UN's SDGs, such as SDG 2 (food security), SDG 12 (sustainable production), SDG 13 (climate action) and SDG 15 (ecosystem sustainability), is essential for addressing food insecurity in a way that also protects the environment, including soil health and biodiversity.¹⁴⁰

134 WTO (2023).

135 WTO, Communication from Argentina, Brazil, Chile, Paraguay and Uruguay: Principles and Values of the Region Regarding the Production of Food Within the Framework of Sustainable Development (2021) G/AG/GEN/187.

136 Preamble, Arts 3, 12 & Annex A of the SPS Agreement; WTO (2023).

137 WTO (2023).

138 Saner (2024).

139 WTO, Submission by Brazil: Joint Statement – The Contribution of International Agricultural Trade to Sustainable Food Systems (2021) G/AG/GEN/186.

140 WTO, Communication from Brazil (2022) WT/MIN(22)/W/5; Dall'Agnola (2024: 186).

One pressing issue is the regulation of food export bans, which can severely impact food security, particularly in LDCs and net-food-importing developing countries.¹⁴¹ Export restrictions can create significant disruptions in global food access, as seen during the COVID-19 pandemic and the early months of the Ukraine war when countries heavily reliant on food imports faced severe price volatility and shortages.¹⁴² WTO members did take steps at the MC12 in 2022 to limit export restrictions for World Food Program (WFP) purchases, which are vital for humanitarian efforts.¹⁴³ This decision, however, included exceptions that allowed members to restrict exports to ensure their national food security, thus, weakening the overall impact of the reform.¹⁴⁴

While the exemption for WFP purchases is a step forward, export bans and trade barriers remain a critical challenge.¹⁴⁵ These measures often lead to higher food prices, longer delivery times, and supply chain disruptions, which can exacerbate food insecurity.¹⁴⁶ A potential compromise could involve exempting LDCs from export restrictions to protect their domestic food supply, especially during global price surges.¹⁴⁷ However, this would not address the fundamental issue that many poor populations in these countries are unable to afford food, even when it is available.

In conclusion, while the WTO plays a vital role in shaping international trade and food security policies, its regulations need to evolve to address the interconnected challenges of food access, environmental sustainability, and equitable access to food. A more integrated, reform-oriented approach that balances the needs of vulnerable nations with global trade dynamics, and that ensures the protection of both food security and soil health, is crucial for achieving a more resilient and sustainable food system worldwide.

4.2.1 Asymmetry of the AoA

Export restrictions are often used as quick policy tools to safeguard national food security, particularly during crises, conflicts, or catastrophic climate events. These

141 Wolff & Glauber (2023: 5); Dall'Agnola (2024: 183-184).

142 Calvo (2024).

143 WTO, Ministerial Decision on World Food Program Food Purchases Exemption from Export Prohibitions or Restrictions (2022) WT/MIN(22)/29; See <https://www.wfp.org/procurement>, accessed 30 September 2024.

144 WTO, Ministerial Decision on World Food Program Food Purchases Exemption from Export Prohibitions or Restrictions (2022) WT/MIN(22)/29; Wolff & Glauber (2023: 5 & 9).

145 WTO, Summary Report of the Special Meeting of the Committee on Agriculture Held on 18 June 2020 (2020) G/AG/R/94; WTO, Summary Report of the Meeting of the Committee on Agriculture Held on 15-16 March 2022 (2022) G/AG/R/10; Dall'Agnola (2024: 178).

146 WTO, Summary Report of the Meeting of the Committee on Agriculture Held on 30 November - 1 December 2020 (2021) G/AG/R/97; See <https://www.wfp.org/procurement>, accessed 30 September 2024.

147 Calvo (2024).

measures, which include export bans, licensing, duties, and quantitative restrictions, allow countries to control the flow of foodstuffs in and out of their borders, ensuring adequate domestic supply and protecting their agricultural industries. The Russian invasion of Ukraine, for example, led to a significant number of export restrictions, which between February 2022 and October 2023 were estimated to cost USD 130 billion.¹⁴⁸ These measures, although essential for immediate food security, can have significant ripple effects on global agricultural production and distribution, highlighting the tension between national and global food security needs.

The AoA has also come under scrutiny for creating loopholes that disproportionately benefit developed countries,¹⁴⁹ enabling countries to maintain higher tariffs on “sensitive” agricultural products while reducing tariffs on less important ones, creating what is known as “tariff peaks.”¹⁵⁰ This obviously not only undermines the principle of free trade but has also been criticised for limiting market access for developing countries.¹⁵¹ Additionally, the AoA’s “green box” and “blue box” exemptions—designed to support environmental and rural development policies—have been seen as tools for developed nations to subsidise their agriculture in ways that may not align with fair trade or food security.¹⁵²

To address these issues, several reforms are being proposed for the AoA. One major goal is to achieve greater market access for agricultural producers in developing countries, particularly through product-specific tariff reductions in developed nations.¹⁵³ This could enhance the comparative advantage of agriculture in developing countries, especially those vulnerable to the impacts of climate change. Climate-smart agricultural support could help these countries adopt more sustainable practices, improve their competitiveness, and contribute to global food security, including soil protection.

Moreover, the AoA’s green and blue box measures could be redefined to focus more specifically on sustainability goals, particularly soil conservation and climate resilience.¹⁵⁴ This would involve clarifying what constitutes sustainable agricultural subsidies and introducing caps on the expenditures of such programs to ensure they promote real environmental benefits rather than protecting entrenched interests.

Despite ongoing negotiations to update the AoA, progress has been slow, and the urgency of reforming these regulations is growing.¹⁵⁵ The AoA plays a central role in

148 WTO (2023: 27).

149 Dall’Agnola (2024: 163).

150 See https://www.wto.org/english/thewto_e/glossary_e/glossary_e.htm, accessed 30 September 2024.

151 Dall’Agnola (2024: 163).

152 De Schutter (2014: 6).

153 Dall’Agnola (2024: 187).

154 *Ibid.*: 189.

155 Wolff & Glauber (2023: 2).

shaping global agricultural trade and, by extension, influencing food security and sustainable agricultural practices worldwide.

4.2.2 Public stockholding: Harmful or beneficial to food security?

It remains uncertain whether public stockholding programs alone can effectively ensure food security and how they should be managed within the framework of international trade law. Some experts argue that while public stockholding can boost food prices, it is less effective at stabilising them.¹⁵⁶ Others see global stockpiles as a potential safety valve in times of market pressure.¹⁵⁷

Public stockholding programs can either include price support or be designed without it, and this distinction is crucial for their legal evaluation under the AoA.¹⁵⁸ Programs that do not involve price support and are aimed purely at food security are generally seen as non-trade-distorting, and, therefore, can qualify for the green box under the AoA, allowing countries to implement them without financial limitations. In contrast, programs that involve price support, such as government procurement and distribution of food at fixed prices, fall under the amber box and are subject to strict financial limits. These procurement programs are only permitted within a *de minimis* limit, with the allowable volume determined by various factors.¹⁵⁹

For many developing countries, public stockholding schemes, particularly those that include price support, are a vital policy tool for enhancing national food security. These programs can help stabilise food availability and accessibility, particularly in countries with large populations. For example, China is estimated to hold half of the world's grain stocks but does not release them to alleviate market pressures.¹⁶⁰

As trade liberalisation has progressed, many countries have increasingly relied on international agricultural trade, which has become an essential element of global food security and market efficiency.¹⁶¹ Trading food grains to balance surpluses and deficits is seen as economically optimal and consistent with the WTO's trade principles.¹⁶² However, due to outdated calculation mechanisms and the lack of necessary updates to the AoA, policy space for developing WTO members to address food security is shrinking, even as global food insecurity, particularly in developing countries,

156 Ibid.: 6.

157 Rudloff (2023: 50).

158 Dall'Agnola (2024: 175); Sharma & Shajahan (2024: 322).

159 Ibid.: 321-328.

160 Cramon-Taubadel (2022).

161 Sharma & Shajahan (2024: 330).

162 WTO, Communication from The United States: The World Trade Organization's Role in enhancing Food Security (2023) JOB/CTG/25.

continues to rise.¹⁶³ The WFP advocates for strengthening public food reserves to tackle recurring food crises.¹⁶⁴

Alternatively, others suggest restricting the use of domestic support for public stockholding in countries that rely heavily on food imports or are not major food exporters.¹⁶⁵ Additionally, it has been proposed that countries with public stockholding programs commit to releasing stocks on the global market under specific conditions.¹⁶⁶ Another area for exploration is the role of private stockholding by exporters, which could provide regional food security during shortages without interfering with global price stabilisation, a strategy that has historically been ineffective in the long term.¹⁶⁷

4.2.3 Supply chain regulation

Regulating supply chain management is a key strategy for addressing the negative impacts of international trade, and soil protection could be a crucial issue to tackle within this framework.¹⁶⁸ By implementing legal provisions that prioritise sustainable outcomes, countries can better manage the environmental implications of agricultural trade while aligning with the requirements of WTO law.

Countries or geopolitical regions that play significant roles at multiple stages of agricultural supply chains can leverage their position to address critical challenges, such as food security and soil protection. A comprehensive approach that combines agricultural export measures with rules governing the imports of agricultural commodities may yield more favourable outcomes for food security and sustainable soil management.¹⁶⁹

One promising approach is to make market access contingent on adherence to transparent sustainability standards, such as internationally recognised good agricultural practices.¹⁷⁰ This could foster sustainable development, particularly in developing countries, by incentivising compliance with environmentally responsible farming methods.

However, while national or supranational governments have the authority to regulate supply chains and agricultural production, these regulations must align with WTO law to ensure their legitimacy in the context of global trade.¹⁷¹ Supply chain regulation, while necessary for promoting sustainability, must be carefully crafted to comply with

163 Sharma & Shajahan (2024: 322 & 325-327).

164 See <https://www.wfp.org/food-systems>, accessed 30 September 2024.

165 WTO, Communication from Brazil (2022) WT/MIN(22)/W/5.

166 Wolff & Glauber (2023: 10).

167 Ibid.: 3.

168 Ruppel (2021a: 62-63).

169 Rudloff & Wieck (2020: 2-3).

170 Dall'Agnola (2024: 188).

171 Ruppel (2022b: 2).

WTO requirements, balancing the goals of environmental protection, food security, and free trade.

4.2.4 Standards

“[I]f a country applies international standards, it is less likely to be challenged legally in the WTO than if it sets its own standards.”¹⁷² Recognising the food safety standards of different countries through agreements can help harmonise trade barriers, streamline customs procedures, and provide easier access to global markets, thus, enhancing trade.¹⁷³ These agreements could also include mutual recognition of criteria related to sustainable soil management and preservation.

Adherence to international standards and regulations is essential for accessing global markets and ensuring food safety.¹⁷⁴ However, such standards can present challenges for smallholder farmers, especially when stringent requirements prevent them from participating in international trade, potentially exacerbating food insecurity. While the WTO may not be the ideal platform for developing specific standards in areas such as soil management and sustainable agricultural practices, it still has an important role to play in fostering progress, strengthening international acceptance, and promoting compliance with such standards.

Specialised research organisations, as well as cooperation bodies in soil management, agricultural practices, and food systems, are better suited to develop and improve these standards. For instance, the FAO’s International Code of Conduct for the Sustainable Use and Management of Fertilisers can play a significant role in promoting sustainable food production and soil protection within agricultural activities.¹⁷⁵

4.2.5 Subsidies

Subsidies play a key role in shaping agricultural practices and influencing trade dynamics. In recent years, a shift away from market fundamentalism has increased the potential scope of subsidies as a policy tool, especially in agriculture.¹⁷⁶ With agricultural support in major economies reaching around USD 850 billion annually in 2020–2022, subsidies are a central mechanism for governments to achieve public

172 See https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm4_e.htm, accessed 30 September 2024.

173 Rudloff & Wieck (2020: 7).

174 Mwenda (2024: 7).

175 FAO (2019).

176 Trachtman et al. (2023: 42).

objectives.¹⁷⁷ However, while subsidies can foster certain desired behaviours, they often distort international trade, a widely accepted concern.

The WTO Agreement on Subsidies and Countervailing Measures (SCM Agreement) prohibits export subsidies under Article 3, although agricultural export subsidies can still be provided under certain conditions in the AoA, as per Article 9. Following the MC10 Ministerial Conference, WTO members have largely eliminated or are in the process of eliminating agricultural export subsidies, which is a positive step toward reducing trade distortion and promoting food security.¹⁷⁸ However, distinguishing between export and domestic subsidies is complex, as subsidies can take various forms and be presented in different ways.¹⁷⁹ This calls for increased transparency and stricter enforcement of MC10 decisions, particularly since notification obligations are often violated.¹⁸⁰

Export subsidies from developed countries, driven by coupled payments, can harm developing nations. In regions such as the US and the EU, subsidies encourage overproduction, leading to artificially low export prices that squeeze out producers in developing countries, both in the global and domestic markets.¹⁸¹ An example of this is the overproduction of cotton in the US, incentivised by subsidies, which depresses global prices and undermines African cotton farmers. While this might theoretically result in lower prices in importing countries, it can exacerbate poverty and food insecurity, as the agricultural sector often forms the backbone of developing economies.¹⁸² Such practices can harm the economic development of poorer countries, particularly through the distortion of global agricultural markets.¹⁸³

The disparity in subsidy-related spending between high-income and low-income countries further widens the gap in food security. While high-income countries spent USD 507.6 billion on food security measures, low-income countries spent only USD 4.3 billion.¹⁸⁴ This imbalance makes it harder for developing countries to compete and maintain food security. Furthermore, a global analysis suggests that increasing coupled subsidies can decrease the technical efficiency of agriculture, despite higher output levels.¹⁸⁵

Beyond economic trade concerns, agricultural subsidies have significant environmental consequences. Many subsidies encourage unsustainable practices, such as the overuse of agrochemicals, fuels, and fertilisers, as well as the expansion of agricultural

177 OECD (2023: 122).

178 WTO, Ministerial Decision on Export Competition of 19 December 2015 (2015) WT/MIN(15)/45.

179 Dall'Agnola (2024: 166).

180 Ibid.: 175; WTO, Summary Report of the Meeting of the Committee on Agriculture Held on 22-23 September 2020 (2020) G/AG/R/96.

181 Damania et al. (2023: 6); Rudloff & Wieck (2020: 5).

182 Dall'Agnola (2024: 190).

183 Rudloff & Wieck (2020: 5).

184 FAO (2023).

185 Damania et al. (2023); Pisulewski & Marzec (2022: 561).

land into biodiverse areas.¹⁸⁶ Particularly harmful are unrestricted variable input subsidies and coupled subsidies, which incentivise monoculture farming and excessive use of resources.¹⁸⁷ The difficulty in targeting these subsidies properly results in widespread inefficiency, damaging the environment and soils in the process. The WTO's current trade-distortion approach does not adequately address the environmental impacts, particularly in terms of soil protection.

Experts have called for a more nuanced approach to subsidies, including a proportionality approach that integrates sustainability concerns into trade law.¹⁸⁸ This would allow subsidies harmful to sustainable development to be prohibited if they distort trade or are not justified by sustainable benefits. One proposed framework for integrating sustainability into the WTO is a sustainability-trade distortion matrix, which would assess subsidies not just by their trade impact but by their environmental and social effects as well.¹⁸⁹

While current subsidies often harm the environment, they could also be used as a tool to support sustainable agriculture and thus also promote soil protection. "Green" subsidies targeting sustainability allow farmers to adopt more sustainable practices, offsetting the higher costs of using sustainable inputs and protecting soils.¹⁹⁰ For instance, subsidies could support soil conservation efforts, carbon sequestration through agricultural land, and resilience to natural disasters. These efforts could contribute to mitigating climate change and soil degradation, which would benefit global food security in the long run.¹⁹¹

El Salvador's direct grants for reforestation and fruit tree diversification projects serve as a positive example of how subsidies can support soil recovery and preservation.¹⁹² However, only a small proportion of subsidies are currently linked to sustainability requirements, and many agricultural subsidies remain tied to practices that harm the environment.¹⁹³

4.2.6 Transparency and notification

The WTO's role in monitoring compliance with its laws, particularly regarding trade-restrictive measures that affect soil and food security, depends heavily on transparency

186 WTO (2023: 43); Trachtman et al. (2023: 52); Dall'Agnola (2024: 189).

187 Calvo (2022); Damania et al. (2023: 7); Trachtman et al. (2023: 52).

188 Trachtman et al. (2023: 44).

189 Ibid.: 45.

190 Rudloff & Wieck (2020: 5-6).

191 WTO (2023: 44).

192 Ibid.: 30.

193 Dall'Agnola (2024: 188).

and notification obligations.¹⁹⁴ However, there are significant challenges in ensuring that member countries comply with the mandatory notifications under both the SCM Agreement and the AoA. These compliance rates are alarmingly low across many WTO members, with some countries even reporting zero compliance.¹⁹⁵ This lack of transparency in notifying trade-restrictive measures undermines the WTO's ability to effectively monitor and assess the scope and development of policies that impact agricultural trade, soil health, and food security globally.

In times of crisis, conflict, or climate change, many WTO members enact emergency measures, including subsidies, tariffs, or other trade restrictions, often in response to immediate national concerns such as food shortages, economic instability, or environmental degradation. While some of these measures may align with international law or global interests, many do not. As a result, there is a growing concern about the lack of consistency and transparency in how these policies are implemented and reported.

Although members recognise the importance of transparency, there remains significant controversy surrounding the notification obligations under the WTO framework.¹⁹⁶ Some countries argue that these obligations place undue pressure on them, particularly in contexts of national crisis or urgent food security concerns. The WTO's role in overseeing these notifications is often seen as a challenge to sovereignty, with countries wary of external scrutiny of their domestic policies, particularly in sensitive areas such as agricultural subsidies, trade restrictions, or measures related to food security.

The WTO Secretariat is often tasked with managing the information flow on these measures, which could play a vital role in tracking the effectiveness of trade and agricultural policies in achieving global food security and sustainable soil management goals. Strong information management by the Secretariat can enhance the transparency of trade measures, providing valuable insights into how various policies are affecting global agricultural markets and food security.¹⁹⁷ However, the potential benefits of such a role are often countered by concerns over sovereignty and the fear that WTO's interventions may lead to increased external control over domestic policy choices. There are also practical concerns about resource limitations—many countries, especially those with fewer resources, are concerned that the costs of fulfilling notification obligations may be prohibitively high, especially when their focus is on addressing immediate crises.

194 WTO, Summary Report of the Meeting of the Committee on Agriculture Held on 28 July 2020 (2020) G/AG/R/95; Dall'Agnola (2024: 179).

195 WTO, Compliance with Notification Obligations (2021) G/AG/GEN/86/Rev.43.

196 Dall'Agnola (2024: 179).

197 *Ibid.*: 180.

5 Conclusion

Achieving global food security is one of the most critical goals facing humanity and must be the central issue for the international community. However, various crises—ranging from conflict and climate change to geopolitical tensions—threaten the stability of agricultural trade and jeopardise the global goal of food security. These crises exacerbate food insecurity, undermining human rights and the right to food.

Agriculture, inherently tied to the fertility of soils, is increasingly threatened by climate change, which severely impacts soil quality and agricultural production. International trade law is more deeply interconnected with soil protection than might be initially expected, due to the relevance of trade in agricultural commodities. Changes in trade patterns—whether through more, less, or different trade flows—have significant mutual effects on agricultural activities and, consequently, the usage and fertility of soils. The legal conditions for international agricultural trade, thus, also have direct implications for soil protection and food security.

The current multilateral trading system lacks a comprehensive legal framework that adequately addresses food security beyond market access, subsidies, and export measures.¹⁹⁸

One critical area to address is the role of multinational corporations, especially those dominating the grain trading and food processing sectors. These companies often wield oligopoly powers, influencing agricultural markets in ways that can either support or obstruct sustainable food security efforts. Their market dominance can drive unsustainable profit-maximising practices and create vulnerabilities in global supply chains, exacerbating food insecurity. The risks associated with such concentrated power in the food sector should not be underestimated, and the WTO must factor this into its framework for food security.

This will require enhanced flexibilities within international trade law to address these profound issues. As suggested, WTO members should align their efforts even closer with those of other international organisations, such as the FAO, to address each dimension of food security—availability, access, utilisation, and stability—through trade rules.¹⁹⁹

An urgent rethinking of global food systems, particularly for soil health, is needed. While there is growing awareness of the importance of soil protection and sustainable food security, the degree to which this awareness translates into action remains to be seen. International cooperation and compromise will be key to making progress in this area.²⁰⁰ For example, the G7's Global Alliance for Food Security and their statements

198 Ibid.: 184.

199 WTO, Communication from The United States: The World Trade Organization's Role in enhancing Food Security (2023) JOB/CTG/25.

200 Dall'Agnola (2024: 192-193).

on the issue reflect high-level discussions on how to address these challenges, but concrete action must follow.²⁰¹

For the WTO, this means tackling several regulatory issues, including market access, subsidy disciplines, export restrictions, and food aid programs. The WTO must continue the work to eliminate harmful agricultural subsidies that distort trade and exacerbate environmental degradation, while also promoting green subsidy policies that encourage sustainable agricultural practices.²⁰²

Moreover, global food distribution must be more balanced, particularly for less developed countries, ensuring that all members—especially smallholder farmers—are able to participate in the agricultural market and benefit from it.²⁰³ Especially in Africa, these farmers play a critical role in food security, yet their influence in negotiations often goes underrepresented. The WTO must ensure that smallholder interests are adequately represented in the reform process, as their sustainable practices are often key to ensuring long-term food security.

The goal is to recognise fertile soils as a precious natural asset that must be protected, given their essential role in food production. This protection must be considered in light of local realities, including the socio-economic and ecological characteristics of specific regions.²⁰⁴

As the Director-General of the WTO has stated, “[w]e cannot solve the food systems problems we face without trade. We cannot achieve the food systems transformation we need without reforming trade policy.”²⁰⁵ The time has come for reform in global trade policy to ensure that international trade supports sustainable food security, soil protection, and the overall health of the planet’s agricultural systems.

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201 BMZ (2022); G7, Berlin Ministerial Conference on 24 June 2022: Uniting for Global Food Security (2022) 2.

202 Calvo (2024).

203 Dall’Agnola (2024: 194).

204 WTO, Summary Report of the Meeting of the Committee on Agriculture Held on 21-22 November 2022 (2023) G/AG/R/104.

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