Country report for Uganda[1]

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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.

Chapter contents

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 Much of the existing information is outdated, fragmented, or inconclusive, making it difficult for stakeholders to make informed decisions.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.tradeclub.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 erosion[40] 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 at 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, subleasing, transferring, or bequeathing. Tenure systems are influenced by legal, sociocultural, 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/585071468000009216/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.landnet.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 Wacha & 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 Uganda[127]

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 & Vanclay (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 Namyenya 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 nonexistent.[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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