

Country report for Zambia¹

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Abstract

This chapter examines soil sustainability legislation in Zambia. It highlights the gaps in the existing legal framework, particularly emphasising the absence of dedicated soil laws. The chapter explores the implications of these gaps, especially in terms of their impact on soil conservation efforts and broader consequences for sectors such as agriculture, food security, and ecosystem health.

An analysis of the existing legal framework reveals that while provisions in the Environmental Management Act (EMA) are progressive, they fail to treat soil as a distinct natural resource. Specific attention is given to the Constitution, the EMA, mining laws, and post-2010 sectoral legislation, with a focus on the complexities of integrating soil management within these various legal structures. The chapter also critiques the fragmented approach to soil governance and the absence of a coordinated institutional framework.

The chapter presents key findings, including the need for dedicated soil legislation, enhanced data sharing, and the establishment of a national soil information system. Recommendations are made to improve soil management practices by integrating soil conservation into land, agriculture, and climate policies. It concludes by emphasising the urgent need for dedicated soil legislation, particularly considering emerging climate change challenges and the need to balance economic development with environmental sustainability.

1 This chapter is an update of the one authored by Sambo, Nkunika & Zulu (see Reference List).

Chapter contents

Summary	700
1 Introduction	701
1.1 Geographic and climatic information	701
1.2 Historical background, demographic information, and level of education	702
1.3 Main economic activities	703
1.3.1 Mining	703
1.3.2 Agriculture	704
1.3.3 Manufacturing	705
1.3.4 Energy	705
1.3.5 Construction	706
1.3.6 Tourism	706
1.4 Gross national product	707
1.5 National debt	707
1.6 Foreign investments	709
1.7 Information on government organisational structure	709
1.8 Legal system/tradition	710
1.9 Competence of legislation and enforcement	710
1.10 Role of traditional entities	711
1.11 Religious considerations	712
2 Main drivers of soil degradation	713
2.1 Mining and soil sustainability	713
2.2 Unsustainable agricultural practices	714
2.3 Overstocking and overgrazing of animals	714
2.4 Incorrect use of fertilisers and pesticides	715
2.5 Deforestation	715
2.6 Climate change effects	716
2.7 Poverty and demographic growth	716
2.8 Urbanisation	717
2.9 Weak governance systems	717
3 Relevant legislative framework on the main drivers of soil degradation	718
3.1 Constitutional provisions on soil sustainability	718
3.2 Mining legislation	719
3.3 Agricultural legislation	720
3.3.1 Fencing Act, Chapter 190	720
3.3.2 Agriculture (Fertilisers and Feed) Act, Chapter 226	720
3.4 Public environmental legislation and soil sustainability	720
3.4.1 Land tenure system	721
3.4.1.1 Lands Act, Chapter 184	722
3.4.1.2 Lands and Deeds Registry Act, Chapter 185	722
3.4.1.3 Land (Perpetual Succession) Act, Chapter 186	722
3.4.1.4 Land Survey Act, Chapter 188	722

3.4.1.5	Lands Acquisition Act, Chapter 189	723
3.4.2	Environmental Management Act, No. 12 of 2011	723
3.4.3	Forests Act, No. 4 of 2015	723
3.4.4	Urban and Regional Planning Act, No. 3 of 2015	724
3.4.5	Local Government Act, No. 2 of 2019	724
3.4.6	Solid Waste Regulation and Management Act, No. 20 of 2018	725
3.4.7	Green Economy and Climate Change Act, No. 18 of 2024	725
4	Relevant policy framework on the main drivers of soil degradation	725
4.1	Vision 2030	726
4.2	Sustainable Development Goals	726
4.3	Seventh National Development Plan	727
4.4	Draft National Land Policy, 2017	727
4.5	National Policy on Environment, 2009	728
4.6	National Climate Change Policy, 2016	728
4.7	National Agricultural Policy, 2016	729
5	Relevant international soil commitments	730
6	Regional commitments	731
6.1	Common Market for Eastern and Southern Africa	731
6.2	Southern African Development Community	731
6.3	African Union	732
7	Multilateral environmental treaties	732
8	Cross-cutting issues	733
8.1	Environmental impact assessments	733
8.2	Public participation	734
8.3	Access to information	735
8.4	Law concerning foreign investors	736
8.5	Competence of environmental enforcement	736
8.6	The Environment Fund	736
8.7	Environmental audits	737
8.8	Environmental monitoring	737
8.8.1	Prevention orders	737
8.8.2	Protection orders	738
8.8.3	Restoration orders	738
8.8.4	Compliance orders	738
8.8.5	Cost orders	738
8.8.6	Civil and criminal prosecution	739
9	Lessons learnt and recommendations	739
	References	740

Summary

This chapter outlines a comprehensive set of recommendations to improve soil sustainability legislation in Zambia, recognising both the challenges and opportunities within the current legal and policy framework. The analysis reveals that while Zambia has some progressive provisions within its Environmental Management Act (EMA), these provisions fail to treat soil as a distinct natural resource. This oversight limits the effectiveness of soil conservation efforts, as soil health is not adequately addressed in a focused, standalone legal context.

The chapter suggests that there are untapped opportunities within the existing legal structure, including the Constitution, EMA, mining laws, and post-2010 sectoral legislation, to create a more coordinated and comprehensive framework for soil sustainability. This could be achieved through amendments and integration of soil-specific provisions into these laws. For example, the National Climate Change Policy offers a significant opportunity to introduce climate-specific legislation that could align with soil conservation goals, considering the interconnectedness of climate change, land degradation, and soil health.

A key recommendation is the establishment of dedicated soil legislation, which could either take the form of a separate Act of Parliament or subsidiary legislation under the EMA. Such legislation would aim to protect soil across various sectors, including agriculture, land management, and mining. The chapter highlights the importance of integrating conservation farming practices into this legal framework while discouraging unsustainable practices such as shifting cultivation (*chitemene*), which leads to significant soil degradation. This would align with the ongoing initiatives to overhaul the agricultural and land sectors, creating a crucial window for legislative reform.

The chapter also emphasises the need for a national soil information system that consolidates fragmented data on soil health and its degradation. Currently, various ministries, including Agriculture and Lands and Natural Resources, operate their own soil mapping systems, but these remain disconnected, making it difficult for policymakers to access relevant information for effective decision-making. A centralised system would improve soil management and facilitate better alignment of national policies with soil sustainability objectives.

Political buy-in is identified as essential for pushing soil sustainability to the forefront of Zambia's political agenda. Effective environmental governance depends on reducing bureaucratic barriers and fostering collaboration between communities and decision-makers. Without strong community representation, the potential for effective soil management remains limited. Additionally, the chapter calls for the control of foreign investment to ensure that land-use projects adhere to sustainable practices and comply with national laws, addressing the risks posed by large-scale projects that may lead to soil degradation.

Another significant recommendation is the inclusion of soil impact assessments within broader environmental assessments. This would ensure that soil considerations are integrated into all developmental activities, from infrastructure projects to agricultural practices. Moreover, it suggests the need for soil-specific standards to be prescribed, ensuring that all projects respect soil health and sustainability goals.

To incentivise sustainable practices, the chapter recommends linking access to Zambia's Environment Fund with adherence to sustainable soil management practices. The fund, established under the EMA, could be used to promote soil conservation efforts and provide financial support for initiatives that protect soil health. This includes environmental audits, monitoring, and enforcement mechanisms that are already part of the EMA's provisions.

The chapter also highlights the importance of raising public awareness about soil conservation, noting that many farmers have already adopted sustainable practices, but these efforts are not well-coordinated. Increased educational initiatives and community engagement will help build support for soil sustainability and foster a culture of environmental stewardship at the grassroots level.

Finally, the chapter stresses the importance of a constitutional framework for environmental protection, which would enshrine the right to a clean and healthy environment, including the right to sustainable soil management. This legal foundation would provide the necessary support for implementing policies that address soil degradation and ensure the long-term health of Zambia's soil resources.

In summary, the chapter advocates for a holistic approach to soil sustainability, one that involves legislative reform, political commitment, improved data management, enhanced public awareness, and strong institutional frameworks. By addressing the current gaps in Zambia's soil governance system, the country can ensure that its soil resources are protected and managed sustainably for future generations.

1 Introduction

1.1 Geographic and climatic information

Zambia, a landlocked country in Southern Africa, spans 752,972 km² and is bordered by eight countries: the Democratic Republic of Congo, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibia, and Angola. Its location, between latitudes 8° and 18° south, and its altitude (900–1,500 m above sea level) give Zambia sub-tropical vegetation and climate.²

2 Japan Association for International Collaboration of Agriculture and Forestry (2008); Plisnier et al. (2018).

The country experiences three seasons: a rainy season (November to April), a cool dry season (May to August), and a hot dry season (September to October). Annual rainfall averages around 1,000 mm but varies regionally, with 900 mm in the south and over 1,400 mm in the north.³ Temperatures in Lusaka range from 9°C to 23°C in July and 17°C to 26°C in January.

As with most of sub-Saharan Africa, Zambia faces climate change challenges, including droughts, rising temperatures, and erratic rainfall.⁴ These impacts threaten livelihoods and food security.⁵ In February 2024, a severe drought was declared a national disaster under the Disaster Management Act No. 13 of 2010, significantly affecting smallholder farmers and national food supplies.⁶

1.2 Historical background, demographic information, and level of education

Zambia gained independence from Britain in 1964 and transitioned through multiparty democracy (1964–1972), one-party rule (1972–1990), and a return to multiparty democracy in 1991.⁷ The country is divided into ten provinces, further split into districts, constituencies, and wards.⁸ Zambia played a strategic role in Southern African liberation movements post-independence but lost global significance with shifting economic and geopolitical dynamics.⁹ Long-standing ties with China and India have supported key projects such as the Tanzania–Zambia (TAZARA) railway.¹⁰

Population censuses were conducted periodically, with the first e-census in 2022 recording 19.6 million people.¹¹ By mid-2024, the population reached 21.1 million, growing at 2.8% annually. Urban growth (3.5%) outpaces rural growth (2.4%), with Lusaka hosting the largest population.¹² Zambia's population density averages 20.6 persons/km², with Lusaka having the highest density (126.8 persons/km²).

3 Resilience and Economic Inclusion Team (2016).

4 Ministry of National Development Planning (2016: 2–3).

5 Plisnier et al. (2018); Sintayehu (2018: 225–227); Ministry of National Development Planning (2016: 4).

6 See https://estatemts.unmeetings.org/estatemts/14.0485/20230305140000000/582jnvwN MpIH/stkqtBAAqGrd_en.pdf, accessed 18 September 2024; www.oxfam.org/en/press-releases/over-six-million-people-face-hungermalnutrition-and-water-scarcity-zambia-oxfam, accessed 18 September 2024.

7 Phiri (2006: 1–5).

8 Central Statistical Office (2015: 1).

9 Prizzon (2013: iv).

10 Monson (2013: 52).

11 Zambia Statistics Agency (2022: 1-2); See <https://www.unfpa.org/data/world-population/ZM>, accessed 18 September 2024.

12 Zambia Statistics Agency (2022: 8); Ministry of Finance (2017: 31-33); Central Statistical Office (2013: 1).

The Vision 2030 plan aims for Zambia to become a middle-income nation, emphasising quality education.¹³ The education system spans early childhood, primary, secondary, and tertiary levels.¹⁴ Notable achievements include increased early childhood education (ECE) participation, rising from 20.3% in 2005 to 24.4% in 2015, though the target is 30%.¹⁵ Education receives 15–17% of the national budget, below SADC’s recommended 20%.¹⁶ Adult literacy stands at 68%, highlighting gaps in awareness, including environmental and soil-related issues.¹⁷

1.3 Main economic activities

The Eighth National Development Plan (2022-2026) focuses on economic transformation and job creation, aiming to boost trade, investment, value addition, and diversification. The main sectors driving this growth are agriculture, mining, tourism, and manufacturing, with support from energy, transport, and water development.¹⁸ Mining has the highest environmental impact, while tourism contributes positively by promoting biodiversity conservation. As Zambia pursues economic transformation, the increased exploitation of natural resources will likely put significant pressure on soil resources.

1.3.1 Mining

Zambia is the seventh-largest copper producer globally,¹⁹ with mining accounting for over 75% of exports, contributing an average of 12.9% to the gross domestic product (GDP) from 2006–2015. The sector created 56,227 jobs in 2005, growing to 82,725 by 2014.²⁰ In 2022, mining contributed 11.1% to GDP but only 2% of total employment.²¹ Recognising mining’s economic importance, Zambia is working to diversify beyond copper, focusing on minerals such as gemstones, cobalt, coal, and gold. However, output has generally been lower than projections, such as the 2015 copper production of 710,560 metric tonnes, below the target of 800,000 metric tonnes.²² Copper

13 Ministry of National Development Planning (2006: 1–2).

14 Ministry of General Education (2017); Ministry of Finance and National Planning (2022:16).

15 Ministry of General Education (2017).

16 OSISA (2015: 10–18); Ministry of Finance (2022: 15-17).

17 Ibid; Fadjukoff (2015: 127).

18 Ministry of Finance (2022:1-3).

19 See <https://www.statista.com/statistics/264626/copper-production-by-country/>, accessed 12 April 2019.

20 Mining Partnerships for Development (2014: 11).

21 Ministry of Mines and Minerals Development, National Three Million Tonnes Copper Production Strategy By 2031 (2024: 1).

22 Ministry of National Development Planning (2017: 26).

production is expected to increase to three million metric tonnes per year by 2031, but this expansion's environmental and soil impacts must be carefully considered.²³

1.3.2 Agriculture

Due to fluctuating copper prices, Zambia has focused on diversifying its economy to reduce reliance on copper. The Zambian agricultural sector comprises crops, livestock, and fisheries.²⁴ A sharp drop in copper prices during the Fifth National Development Plan (2007-2009) caused a 28% fall in copper prices and a 47% decline in foreign direct investment (FDI). FDI has remained concentrated in mining, while agriculture, manufacturing, and tourism have received minimal investment.²⁵

Although 58% of Zambia's land is suitable for agriculture,²⁶ only 15% is cultivated. The government has prioritised agriculture to diversify the economy, with agriculture contributing 9.8% of GDP from 2006 to 2015.²⁷ Despite good rainfall and arable land, the sector faces challenges due to limited irrigation and fluctuating rainfall patterns, worsened by climate change.²⁸ While the country enjoys 40% of sub-Saharan water resources, there is very little mechanical irrigation, and most farms are dependent on rain-fed growing cycles.²⁹ In the 2015-2016 season, maize production fell by 21.9%, and in 2023-2024, the country experienced a maize deficit of over 2 million metric tonnes due to drought.³⁰

This decline in agricultural production impacts the rural economy, where most farming activities occur, and could lead to increased rural-urban migration. Mitigating climate change effects is essential to addressing these challenges.³¹

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- 23 Ministry of Mines and Minerals Development, National Three Million Tonnes Copper Production Strategy By 2031 (2024: vii).
 - 24 See <http://www.zda.org.zm/index.php/agriculture/>, accessed 2 February 2021; Chapoto & Chisanga (2016: 30–42).
 - 25 ZDA (2017: 3).
 - 26 ZEMA (2017: 46); Chapoto & Chisanga (2016: 7–10); Nawiko et al. (2022: 4).
 - 27 Ministry of Agriculture (2016: 1–3).
 - 28 Central Statistical Office (2015: 1); Japan Association for International Collaboration of Agriculture and Forestry (2008: 36).
 - 29 See <http://www.fao.org/3/t0800e/t0800e0a.htm>, accessed 2 February 2021.
 - 30 See <https://www.pdu.gov.zm/blog/zambia-in-21-million-metric-tonnes-maize-deficit#:~:text=In%20the%202023%2F2024%20farming%20season%2C%20the%20country%20produced%20a,the%20entire%20Southern%20African%20Region>, accessed 18 September 2024.
 - 31 Ministry of Finance (2017: 25).

1.3.3 Manufacturing

The manufacturing sector contributed 7.8% to Zambia's GDP, with an average annual growth rate of 3% from 2006 to 2015. Employment in the sector increased from 166,143 in 2005 to 223,681 in 2014. The sector plays a key role in driving economic growth through its backward and forward linkages. However, during the latter years of the Sixth National Development Plan (2011–2015), the sector experienced slow growth due to constraints including the energy deficit and high production costs, resulting in a 60–70% drop in output.³²

The sector is mainly driven by agro-processing (food and beverages), textiles, leather, and metal processing, including copper smelting and refining. It also benefits from the emerald mining industry, producing ornaments for export. Other activities include the production of fertilisers, chemicals, explosives, cement, wood and paper products, vehicle parts, petroleum refining, and light engineering.³³

1.3.4 Energy

As of August 2024, Zambia's power generation was 1,019 MW, while demand stood at 2,400 MW, creating a deficit of 1,381 MW, leading to load management schedules limiting supply to under three hours per day.³⁴ The country's reliance on hydroelectricity has been impacted by El Niño-induced droughts, affecting water levels in the Zambezi and Kafue River Basins.³⁵ In 2015, the electricity deficit was 668 MW due to underinvestment and non-cost-reflective tariffs.³⁶ Demand is projected to grow by 150–200 MW annually. The mining, construction, agriculture, and services sectors are the largest consumers of electricity.

In 2016, Zambia's installed energy capacity was 2,493 MW, with 97% from hydro sources.³⁷ By 2030, non-hydro energy sources such as solar, wind, geothermal, and coal are expected to contribute 15%.³⁸ Expanding energy generation could reduce rural use of charcoal, decreasing deforestation and greenhouse gas emissions.³⁹ The Rural Electrification Authority completed fourteen projects in 2017, helping to improve rural electrification.

32 Energy Regulation Board (2017: 1).

33 BoZ (2017a: 5).

34 Ministry of Energy, Media Update on Energy Situation in the Country (2024: 1-3).

35 Ministry of Energy, Ministerial Statement on the Power Supply Deficit in the Country (2024: 1-4); Ministry of National Development Planning (2016: 7).

36 Ministry of Finance (2017: 27); ZDA (2017: 1).

37 Energy Regulation Board (2017: 1–3).

38 Ministry of Energy (2008: 3–8).

39 Ministry of Finance (2017: 26).

However, energy generation impacts soil sustainability, as persistent organic pollutants (POPs) from equipment such as transformers pose environmental hazards.⁴⁰ As of 2016, Zambia had 16,000 transformers, 326 of which were identified as potentially containing PCBs. Without proper disposal facilities, this poses risks to soil and human health. Furthermore, reduced hydropower generation has hampered Zambia's economic growth and led to increased costs from climate-related diseases, infrastructure damage, and biodiversity loss.⁴¹ Adaptation and mitigation strategies are essential for reducing environmental risks and promoting social well-being and economic growth.⁴²

1.3.5 Construction

The construction industry continues to play an integral part in the development of the economy and is one of the important catalysts for growth. Activities in the subsector are driven by public and private projects, such as roads, stadiums, hospitals, schools, and residential and commercial property. As noted in the section on mining, the construction industry has fuelled illegal quarrying, which, in turn, has severe impacts on soil sustainability. The construction industry continued to grow over the past twelve years at a steady annual average rate of 17.5%. This growth can be directly attributed to increased public and private sector investment in infrastructure development.⁴³ With inadequate safeguards, the growth of the construction sector is projected to cause further strain on soil sustainability.

1.3.6 Tourism

The Zambian government has prioritised tourism, with international tourist arrivals increasing from 668,862 in 2005 to 931,782 in 2015, a 39% rise.⁴⁴ Despite the impact of COVID-19, tourist arrivals grew steadily, reaching 554,290 in 2021 and about 1.5 million in 2023. The sector is projected to attract two million visitors by 2024.⁴⁵ Tourism contributed an average of 1.76% to GDP from 2010-2014, rising to 9.8% in 2019 and 5.8% in 2021. The number of accommodation establishments increased by 25.6% from 2012 to 2015, driven by high local demand.⁴⁶ However, Zambia still faces stiff competition, holding just a 1.63% share of Africa's 55.8 million tourist arrivals in 2013. Despite this, tourism earnings rose from USD 441 million in 2012 to USD 540

40 ZEMA (2017: 113).

41 Sintayehu (2018: 225–227).

42 Ministry of National Development Planning (2016: 7).

43 ZDA (2017).

44 Ministry of Finance (2017: 27–28).

45 See <https://www.mot.gov.zm/?m=20231210>, accessed 18 September 2024.

46 Ministry of Tourism (2016: 12–17).

million in 2013, creating more jobs in the sector. Africans represented 79% of Zambia's tourists in 2013.⁴⁷

1.4 Gross national product

Zambia's economy has experienced notable growth over the years. From 2000 to 2005, the country's economy grew at an annual average rate of 5.8%. This growth accelerated in the following decade (2006–2015), with an average annual growth rate of 6.9%. By December 2017, Zambia's GDP had reached USD 25.81 billion. The country's economic structure is heavily reliant on the agricultural and mining sectors, with copper being a major export product. The bulk of Zambia's exports are directed towards countries outside the European Union, notably Switzerland, China, and other members of the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA).⁴⁸ Copper is particularly sought after by both Switzerland and China.

The forestry sector, although smaller, plays a significant role in Zambia's economy, contributing at least 3.7% to the GDP. A substantial portion of this is derived from wood fuel, which includes commercial charcoal production (2.2%) and subsistence wood collection (0.8%). Fuelwood is crucial in Zambia, with approximately 90% of the population depending on it for energy. However, the productivity of Zambia's forestry industry is hindered by challenges in infrastructure development, particularly in roads and communication. This underdevelopment increases transaction costs throughout the stages of production, processing, and distribution. Addressing these infrastructure gaps and improving the efficiency of the forestry industry, especially among small-scale enterprises, could lead to substantial benefits for both the economy and the environment.⁴⁹

1.5 National debt

Zambia is currently facing significant economic challenges, particularly due to a severe drought that has affected both agriculture and electricity generation, leading to a downward revision of growth projections for 2024 from 4.7% to 2.3%.⁵⁰ In response, the 2024 national budget has been adjusted accordingly.

47 Ministry of Finance (2017: 28).

48 BoZ (2017b: 3).

49 Japan Association for International Collaboration of Agriculture and Forestry (2008: 39).

50 See <https://www.cabinet.gov.zm/wp-content/uploads/2024/09/Key-Highlights-Parley-Speech.pdf>, accessed 23 September 2024.

The country's external debt has been rising steadily since 2012. By the end of 2014, Zambia's external debt had increased to USD 4.81 billion, representing 24% of GDP. This figure continued to grow in subsequent years, reaching USD 6.7 billion (35% of GDP) by 2016, and surged to 72% of GDP by 2018.⁵¹ The International Monetary Fund (IMF) predicted that without fiscal adjustments, Zambia's debt would rise to 84% of GDP by 2021, far exceeding the sustainability threshold of around 60%.⁵²

To address this growing debt burden, Zambia has been actively working on debt restructuring agreements. In October 2023, the country entered a Memorandum of Understanding reflecting the restructuring agreement with the Official Creditor Committee (OCC), and a restructuring deal was reached with Eurobond holders.⁵³ Negotiations with commercial private creditors are ongoing, with an aim for a final agreement by the end of the year.

Historically, Zambia's debt has been a persistent issue. In 1991, the country transitioned from a single-party state to a multiparty democracy, inheriting significant debt from the former UNIP government. The MMD government, which came to power after 1991, initially struggled to determine the full extent of the debt. By 2000, Zambia had calculated its debt and joined the Jubilee 2000 global debt relief campaign.⁵⁴ In 2004, Zambia reached the Highly Indebted Poor Country (HIPC) completion point, leading to significant debt relief, reducing the debt burden from 130% of GDP in 2004 to just 25% by 2005.⁵⁵

However, after attaining lower middle-income status in 2011, Zambia's borrowing increased significantly, particularly through Eurobonds and non-concessional loans from China.⁵⁶ The debt-to-GDP ratio climbed from 21% in 2011 to 62% in 2015, largely due to infrastructure projects financed by borrowing.⁵⁷ Despite a slowing economy and rising debt, the government continued to increase borrowing, which has now contributed to Zambia's current high debt burden and the negative economic outlook. The IMF has linked the rising debt to the country's development strategy, which has prioritised large-scale infrastructure spending, resulting in large fiscal deficits financed by non-concessional debt.⁵⁸

51 Ministry of Finance (2017: 19).

52 Personal communication with Ministry of Finance Economists (2019).

53 See <https://www.imf.org/en/News/Articles/2024/06/26/pr-24242-zambia-imf-completes-3rd-review-under-ecf-and-approves-augmentation>, accessed 23 September 2024.

54 See <https://www.oecd.org/countries/zambia/2497663.pdf>; https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Zambia_Country_Profile.pdf, accessed 2 February 2021; <https://jubileedebt.org.uk/countries/zambia>, accessed 2 February 2021.

55 IMF (2005).

56 AFRODAD (2003: 11–15); Hinfelaar & Sichone (2019: 6).

57 Nalishebo (2015).

58 Hinfelaar & Sichone (2019: 5–6).

1.6 Foreign investments

Foreign investments in Zambia, particularly in natural resource extraction, are central to its economic growth but can have negative environmental impacts, especially on soil quality in the mining sector. FDI is crucial for development, providing access to international markets, skilled jobs, and technological advances.⁵⁹

Research by the central bank revealed that Zambia's net FDI inflows declined by 58.7% from USD 1,177.4 million in 2015 to USD 486.1 million in 2017.⁶⁰ This was largely due to a 49.2% drop in FDI liabilities, but net acquisition of FDI assets rose by 38.6%. The mining sector remains the primary recipient of foreign investments, with the British Virgin Islands being the largest source of inflows.⁶¹

Zambia has also explored leveraging Chinese FDI for diversification, focusing on sectors such as agriculture and manufacturing. By investing in agricultural processing, such as canning and oil-processing plants, and developing large-scale farming blocks with infrastructure support, Zambia aims to reduce its reliance on mining.⁶² Meanwhile, the mining sector, including gold, zinc, and gemstones, continues to attract significant foreign interest, presenting opportunities for future growth.⁶³

1.7 Information on government organisational structure

Zambia's constitutional structure is crucial for understanding the enforcement of soil-related laws and policies. The Constitution establishes Zambia as a sovereign republic under a constitutional form of governance (Article 4). It outlines the basic framework of government and guarantees the principles of a free society.⁶⁴ The country experienced a peaceful transition of power in August 2021, with the United Party for National Development (UPND) assuming office, promising reforms and the promotion of the rule of law.⁶⁵

Zambia is a unitary, multiparty democracy with a clear separation of powers among the executive, legislative, and judicial branches.⁶⁶ The President, elected by the people, appoints cabinet ministers from the elected and nominated members of Parliament.⁶⁷ Zambia has a unicameral Parliament, presided over by the Speaker of the National

59 UNCTAD (2017: 3); Mabey & McNally (1999: 3–8).

60 BoZ (2015: 3–6); BoZ (2017a: 1–10).

61 Ndaba (2015: 7).

62 Abdelghaffar et al. (2016: 10).

63 ZDA (2017).

64 Ndulo & Kent (1996: 256).

65 Hinfelaar et al. (2022: 558–561 & 572–575); Siachiwena (2023: 32–35).

66 Art 4(3) of the Constitution of 2016.

67 Ibid.: Art 47(1).

Assembly, and the judiciary is led by the Chief Justice.⁶⁸ This organisational structure is key to enforcing soil-related policies and laws in the country.

1.8 Legal system/tradition

Zambia operates a dual legal system, where written law and customary law coexist.⁶⁹ Customary laws are not codified and, as such, the phrase ‘customary law’ does not refer to a single system but instead a set of rights, liabilities, and duties across diverse ethnic groups.⁷⁰ The Constitution of Zambia (Amendment) Act, No. 2 of 2016 outlines that the laws of Zambia include the Constitution, parliamentary laws, statutory instruments, and customary law consistent with these.⁷¹ Customary law primarily governs personal matters such as marriage, inheritance, and land under customary tenure. Soil sustainability issues are typically addressed under written environmental laws, even when the land is governed by customary tenure.

Zambia’s legal system, influenced by its colonial past, differs from French colonies in that English law did not entirely replace indigenous customary law. Common law, based on judicial precedent, is applied in superior courts, which handle both civil and criminal cases and appeals.⁷² However, most Zambians, especially the 60% living in rural and peri-urban areas, rely on customary law through local courts, making statutory courts less relevant for much of the population.⁷³

The judiciary, created under the Constitution, is independent and neutral, consisting of superior courts (Supreme Court, Constitutional Court, Court of Appeal, and High Court) and subordinate courts, as outlined in Articles 120(1) and 121.⁷⁴

1.9 Competence of legislation and enforcement

Zambia has a unicameral Parliament consisting of the President and members of Parliament. According to Article 61 of the Constitution, legislative authority is derived from the people and is exercised to protect the Constitution and promote democracy. Parliament enacts laws through bills passed by the National Assembly and assented to by the President, with the power to introduce bills vested in members of Parliament or Ministers (Article 64(1)).⁷⁵

68 The Commonwealth (2019).

69 Munalula (2004: 54); Gloppen (2003: 11); Ige (2015: 59).

70 See <https://issafrica.org/chapter-6-customary-justice>, accessed 5 February 2021.

71 Art 7 of the Constitution of 2016.

72 Gloppen (2003: 113); Church (1974: 2).

73 AFRONET (1998).

74 Art 122(1) of the Constitution of 2016.

75 Ibid.: Art 62(2)-(3).

The Supreme Court has affirmed Parliament's legislative power in cases such as *Zambia Democratic Congress v Attorney-General*,⁷⁶ asserting that Parliament's authority to make laws is not subordinate to anybody. Law enforcement in Zambia is carried out by various agencies, including the Zambia Environmental Management Authority (ZEMA), which enforces soil-relevant legislation under the Environmental Management Act (EMA), (2011).

1.10 Role of traditional entities

Traditional leaders in Zambia play a critical role in land rights and the administration of customary law, both of which are central to the discussion of soil sustainability. The current Constitution of Zambia recognises and guarantees the role of traditional institutions, including chieftaincy, in national affairs. According to Article 165(1), these institutions exist based on the culture, customs, and traditions of the people they represent. The Constitution also ensures that no legislation can diminish the honour and dignity of chieftaincy, nor confer the authority to recognise or withdraw recognition of a chief.⁷⁷

The Constitution (Article 166) further provides that the institution of chieftaincy is a "corporation sole with perpetual succession," granting chiefs the capacity to own property in trust for their subjects and to participate in public affairs, provided they abdicate their chieftaincy if they hold public office, except in the case of becoming a councillor.⁷⁸ Chiefs have the responsibility to manage natural resources, which includes overseeing soil sustainability within their territories.⁷⁹

In Zambia, land and natural resources management by chiefs remains one of the primary challenges. Chiefs are expected to exercise leadership in ensuring the sustainable use of land, which directly affects soil preservation. However, challenges arise when large-scale investments occur, particularly when land is acquired and resold at high prices, often without being developed. This situation has been a point of contention for traditional leaders, who have proposed strengthening the Ministry of Lands with more personnel to conduct regular land inspections, ensuring that land is developed within specified periods.⁸⁰

The Chiefs Act and other legislative provisions, such as the Local Government Act and the Registration and Development of Villages Act, enable traditional leaders to manage natural resources in rural areas where they have jurisdiction. However,

76 SCZ Judgment No. 37 of 1999.

77 Article 165(2) of the Constitution of 2016.

78 Ibid.: Art 167.

79 Ibid.: Art 68(3); Munyinda & Habasonda (2013: 24–27).

80 Zambia Environmental Management Agency (2017: 41–57); Ministry of Lands and Natural Resources (2017); World Bank (2016: 7–10).

traditional leaders have often felt that their authority in land transactions is overlooked, particularly when dealing with large-scale investments.

Another concern of traditional leaders is the high poverty levels in rural districts, which hampers sustainable development.⁸¹ Chiefs have advocated for policies that would promote the development of rural areas by ensuring access to essential services such as electricity, transport, schools, and healthcare. Addressing these issues is key to improving both soil sustainability and the socio-economic conditions in rural Zambia.

1.11 Religious considerations

Article 4(3) of Zambia's Constitution defines the country as a multi-ethnic, multi-religious, and multi-cultural state. The Zambian population is predominantly Protestant (75.3%), followed by Roman Catholics (20.2%), with a small percentage of other religions (Muslims, Buddhists, Hindus, Baha'i), and 1% non-religious.⁸²

Each religion in Zambia has its approach to environmental protection. In 2016, the Zambian government emphasised the need for more organisations to promote organic farming to protect the environment from the harmful effects of chemical fertilisers.⁸³ Organic farming, which supports the natural regeneration of soil, was encouraged as a means of improving yields while maintaining soil health.

At a conference on environmental management, the government praised the Catholic Church's work in promoting organic farming among small-scale farmers. The Church was even recommended to run the Kasisi Agricultural Research Institute, which teaches farmers sustainable farming practices. This initiative aligns with Pope Francis' 2015 call for dialogue on environmental management to protect Earth's common home.⁸⁴

In addition to supporting organic farming, the Catholic Church in Zambia also launched the "Prayer for the Year of the Environment, 2018," urging community awareness of the need to preserve the environment. The Church's stance on soil conservation and environmental protection is consistent with Hansjürgens' view that soil is crucial for food security, combating climate change, and protecting biodiversity.⁸⁵

The religious belief that a higher being created the Earth and its resources underpins the responsibility of humans to care for the environment. This perspective is shared by other Christian denominations and other religious groups, all emphasising the role of humans as custodians of the Earth.

81 See Ministry of Chiefs and Traditional Affairs (2016).

82 See <https://www.indexmundi.com/zambia/religions.html>, accessed 5 February 2021.

83 Tembo (2016).

84 Pope Francis (2015); van Tine (2017: 141–178).

85 Hansjürgens et al. (2018: 1–9).

2 Main drivers of soil degradation

Zambia's primary drivers of soil degradation are mainly soil erosion, degradation, and deforestation. The country's significant energy deficit has also increased pressure on wood fuel, affecting sustainable soil management.

Soil erosion, a natural process, occurs when soil is removed by wind, water, or tillage at a faster rate than it is replenished.⁸⁶ While erosion has been part of agricultural history, recent human activities have accelerated the process, intensifying land degradation.⁸⁷ Erosion leads to the loss of topsoil, which negatively impacts crop production.⁸⁸

Other sectors, such as manufacturing, contribute to soil degradation through chemical processes and ineffective waste management, leading to contamination.⁸⁹ Additionally, foreign investments in various industries may further exacerbate land and soil degradation. Tourism, though beneficial for conservation, can also stress soil health through land-use changes, pollution, and habitat loss. However, tourism can also promote environmental awareness and the economic value of natural resources.⁹⁰

2.1 Mining and soil sustainability

Despite the economic benefits of mining, it has significant negative impacts on land and soil resources in Zambia. Mining contributes to soil and vegetation contamination through dust from smelters, crushers, and tailing impoundments, especially from illegal small-scale mining.⁹¹ Quarrying, driven by demand for construction materials, has also increased, bringing both socio-economic benefits and environmental harms.⁹² Uncontrolled quarrying, particularly in urban areas, leads to soil contamination, water pollution, erosion, deforestation, and loss of biodiversity. Additionally, sulphur dioxide emissions from mining can create acid rain, reducing soil fertility and crop production.⁹³

86 Ul Zaman et al. (2018: 1114).

87 Stanchi et al. (2015: 403–408).

88 Ul Zaman et al. (2018: 1116); Pimentel & Kounang (1995: 1117).

89 Alori & Nwapi (2014: 98–114).

90 Sunlu (2003: 263–270).

91 Křibek et al. (2008: 24–26).

92 ZEMA (2017: 84); Dymond, et al. (2007: 19–22).

93 ZEMA (2017: 84).

2.2 Unsustainable agricultural practices

Soil degradation in Zambia is worsened by non-sustainable practices such as cultivation along slopes, which leads to water concentration and erosion. Traditional methods such as shifting cultivation or ‘slash and burn’ also degrade the soil, as new areas are cleared when yields decline, leaving old sites fallow.

Soil acidity, particularly in northern Zambia’s leached soils, is another major issue. High acidity makes phosphates insoluble and unavailable to plants.⁹⁴ Fertiliser-induced acidification has led to the loss of up to 15% of arable land in 20 years.⁹⁵ While nitrogen fertilisers increase soil organic matter, prolonged use can destabilise clay soils, impair root growth, and cause significant organic matter loss.⁹⁶

2.3 Overstocking and overgrazing of animals

Soil degradation in Zambia is caused by bushfires, overgrazing, and overstocking of livestock.⁹⁷ While bushfires are a traditional practice in parts of central and northern Zambia, local communities often overlook their long-term harm to soil sustainability.⁹⁸ The presence of both domestic and wild herbivores places pressure on grazing lands, with human activities such as crop farming and mining further intensifying land use.⁹⁹ As livestock numbers rise, rural land becomes overused, leading to soil degradation.

In addition to natural factors including water and wind, human activities, particularly the *chitemene* system of shifting cultivation, contribute significantly to soil erosion and degradation.¹⁰⁰ This traditional practice, which involves slashing and burning vegetation, has led to the loss of large areas of the Miombo woodlands and deforestation.¹⁰¹ It has been estimated that northern Zambia has lost over 35% of its biomass due to *chitemene*, contributing to biodiversity loss, soil erosion, and fertility depletion.¹⁰² While it provides short-term benefits, such as nutrient-rich ash, the long-term environmental damage makes it unsustainable.¹⁰³ The practice is accelerating deforestation, soil degradation, and ecosystem destruction in the region.

94 Chidumayo (1987: 15–18).

95 Blackwell et al. (1991).

96 Ibid; ZEMA (2017: 47).

97 Eriksen (2007: 242–249).

98 ZEMA (2017: 84).

99 Ibid.: 48; Zaman (2018: 1114).

100 Eriksen (2007: 243–248).

101 ZEMA (2017: 51); See <http://www.bailiffafrica.org/the-extent-of-slash-and-burn-agriculture-in-zambia-by-clifford-malambo/>, accessed 15 April 2019.

102 Engel et al. (2017: 13); Ministry of Lands and Natural Resources (2017: i—iii & 1–5); Young (1989: 11–17).

103 Chidumayo (1987: 15–18); Neubert et al. (2011: 91–100); Gumbo et al. (2018: 12–21).

2.4 Incorrect use of fertilisers and pesticides

In Zambia, agriculture is divided into traditional subsistence farming and commercial farming, a structure rooted in the colonial era. The reliance on non-organic fertilisers has led to environmental damage and soil degradation.¹⁰⁴ To improve agricultural practices, Zambia is shifting from excessive chemical fertiliser use to conservation farming. This approach focuses on soil and water conservation, reducing fertiliser dependency, and restoring soil fertility damaged by years of intensive ploughing and fertiliser use. While conservation farming techniques are not yet legislated, there are plans to review agricultural laws to align them with Zambia's 2030 development agenda, incorporating international best practices.¹⁰⁵

2.5 Deforestation

Zambia's forests cover 45,610 hectares, about 60% of the country's land area. These forests are mainly composed of closed forests with evergreen and deciduous trees and open forests such as the Miombo woodlands, which make up 60% of Zambia's forest area.¹⁰⁶ Charcoal production, a key energy source for urban households, is a major cause of deforestation.¹⁰⁷

Reforestation efforts started in the 1960s, covering over 55,000 hectares with Pine and Eucalyptus trees, though these efforts are insufficient to meet demand, leading to a decline in commercial reforestation.¹⁰⁸ Deforestation is exacerbated by charcoal use, poor farming practices, bushfires, illegal logging, and overgrazing.¹⁰⁹ It is estimated that Zambia loses 250,000 hectares of forest annually, contributing to biodiversity loss, reduced ecosystem services, and drying water sources.¹¹⁰

Soil degradation is further worsened by poor water and land management, leading to soil erosion, reduced fertility, and water retention.¹¹¹ Compacted soils cause rain-water runoff, taking valuable topsoil and nutrients, resulting in poor crop yields and water shortages.

104 Shitumbanuma et al. (undated); Sharma & Singhvi (2017: 677).

105 Engel et al. (2017: 13); Neubert et al. (2011: 87); Ayub (2020: 31–33).

106 Ministry of National Development Planning (2016: 5–6); Gumbo et al. (2018: 10–11); Japan Association for International Collaboration of Agriculture and Forestry (2008: 21).

107 Chidumayo & Gumbo (2013: 86–89).

108 Chileshe (2001: 20); Ministry of Agriculture (2017: 1).

109 Japan Association for International Collaboration of Agriculture and Forestry (2008: 25); Chileshe (2001: 20–23).

110 UNEP (2015: 12–25); Mudenda (2010: 6); Ministry of National Development Planning (2016: 6); Gumbo et al. (2018: 2, 35 & 44–48).

111 Mudenda (2010: 7).

2.6 Climate change effects

Climate change is a growing challenge worldwide, and in Zambia, it has led to droughts, floods, and extreme temperatures, impacting food and water security, energy, and livelihoods. These events have contributed to land degradation and desertification, posing a serious threat to soil and ecosystems.¹¹² Despite this, Zambia's climate policies, including the National Policy on Climate Change, do not directly address soil sustainability.

Zambia's Ministry of Finance and Ministry of Environment previously had differing approaches to climate change.¹¹³ However, the creation of the Ministry of Green Economy and Environment in 2021 marked a shift towards green growth, with the inclusion of environmental sustainability in the 8th National Development Plan (2022-2026).¹¹⁴ The ministry has overseen the development of several climate strategies and plans, including the National Adaptation Programme of Action (NAPA) and the Nationally Determined Contribution (NDC). Despite these efforts, none of Zambia's climate frameworks specifically address soil sustainability or its link to food security.

2.7 Poverty and demographic growth

Since gaining independence, Zambia's economic fortunes have been mixed, with steady growth from 1990 to 2015 but persistent poverty.¹¹⁵ Income poverty decreased by 24.6% overall between 1991 and 2015, with more significant reductions in urban areas, where it fell from 49% to 23.4%. In rural areas, it dropped from 88% to 76.6%.¹¹⁶

Population growth in Zambia is closely linked to soil sustainability, as most land (90%) is under customary law. Increased urbanisation puts pressure on land and exacerbates harmful agricultural and industrial practices. Settlements in ecologically sensitive areas such as wetlands and game management zones contribute to waste and pollution, leading to health issues including cholera and dysentery, as well as infrastructure damage.¹¹⁷

112 Ministry of National Development Planning (2016: 2).

113 Ministry of Finance and National Planning (2011), this Ministry has now been split into two, namely the Ministry of Finance and the Ministry of National Development Planning; Ministry of Tourism Environment and Natural Resources (2010: ii), which was also split into Ministry of Tourism and Arts, Ministry of Water Development, Sanitation and Environmental Protection and Ministry of Lands and Natural Resources.

114 See https://www.mgee.gov.zm/?page_id=197#:~:text=His%20Excellency%2C%20Mr%20Hakainde%20Hichilema,to%20a%20green%20growth%20pathway, accessed 18 September 2024.

115 Ministry of National Development Planning (2017: 13).

116 Central Statistical Office (2016: 9).

117 ZEMA (2017).

In 2015, 40.8% of Zambia's population was extremely poor, with 13.6% moderately poor.¹¹⁸ Despite economic growth, poverty reduction has been slow, particularly in rural areas.¹¹⁹ Growth has been concentrated in capital-intensive industries such as mining and construction, benefiting urban areas more than rural ones, and has not translated into growth in agriculture, where most of the poor work.¹²⁰

2.8 Urbanisation

Zambia is one of the most urbanised countries in sub-Saharan Africa, with 42.1% of the population living in urban areas, mainly along the rail line.¹²¹ Major urban centres such as Lusaka, Ndola, and Kitwe offer better access to public services and infrastructure than rural areas, creating a clear divide between urban and rural settlements.¹²² Rapid urbanisation puts pressure on the government to find land for new settlements, often at the cost of ecological areas including forests and protected zones.

Water scarcity is already a major issue, affecting 1.7 billion people, and is expected to impact five billion by 2025. Climate change will worsen this, especially in the subtropics, increasing evaporation and altering rainfall patterns. By 2021, nearly two million more Africans may lack access to clean water, exacerbating poverty and health issues such as malaria and cholera, while further stressing natural resources including water and soil.¹²³

2.9 Weak governance systems

Weak governance systems across all sectors are a major challenge to environmental well-being in Zambia.¹²⁴ Key deficiencies in the environmental and soil governance framework include gaps in policy, institutional weaknesses, and poor coordination between grassroots stakeholders and state institutions that enforce laws.¹²⁵

In the forestry sector, weak policy implementation is a significant issue, contributing to deforestation and soil degradation.¹²⁶ Similar challenges are present in other sectors, including inadequate institutional capacity, lack of intersectoral coordination, corruption, political influences, insecure land tenure, and poor funding.

118 See www.stats.gov.zm for this and further information.

119 Ministry of National Development Planning (2017: 11); Central Statistical Office (2016: 23).

120 Ministry of Finance (2017: 5).

121 Mususa (2012: 571–573); Osei-Hwedi (1996); Huth (1984: 1–16).

122 Ministry of Finance (2017: 35).

123 Mudenda (2010: 5–7); Addaney et al. (2018: 182–184).

124 Republic of Zambia (2009: 7).

125 Madzudzo et al. (2013: 10–11).

126 Kalaba (2016: 42–43).

Research highlights the difficulties in implementing climate change laws, which contribute to soil and land degradation.¹²⁷ While sector-specific efforts are underway, a more coordinated approach, such as the National Climate Change Policy, is hoped to address these challenges and improve soil management through better monitoring and enforcement.

3 Relevant legislative framework on the main drivers of soil degradation

This section analyses the legislative framework relating to the main drivers of soil degradation in Zambia. This section starts by recapping that there are no legislative provisions dedicated to sustainable soil management in Zambia. However, many legislative provisions relate to the conservation of biological diversity and environmental well-being and are therefore relevant, by implication. The section specifically analyses relevant constitutional provisions and legislation related to mining, agriculture, land tenure, the environment, and natural resources.

3.1 Constitutional provisions on soil sustainability

The current Zambian Constitution, enacted in 2016, is relatively new, and most environmental provisions that could enhance soil sustainability have not yet been fully implemented. Article 147 provides for a devolved governance system, where soil erosion prevention is a shared responsibility between national and provincial levels.

Part XIX of the Constitution addresses land, environment, and natural resources.¹²⁸ Article 253 outlines key principles for land use, including equitable access, tenure security, sustainable land management, and public access to ecologically sensitive areas for conservation. These principles aim to ensure that land, including soil, is used sustainably for current and future generations, though it is unclear how effectively this is enforced.

Article 255 focuses on environmental management, emphasising the value of natural resources and the need to prevent and repair environmental damage. It calls for sustainable resource use, rehabilitation of degraded areas, and equitable sharing of benefits from natural resources.

Article 256 stresses the responsibility of citizens to contribute to environmental protection, with a focus on sustainable development and soil management. These principles are being integrated into the Solid Waste Management Act.

127 Christoplos et al. (2016: 55–56).

128 This covers Arts 253–257 of the Constitution; See also Sambo (2019: 655–656) analysing these constitutional provisions in the light of their relevance in creating an ‘environmental ethos’ in Zambia.

Finally, Article 257 outlines state responsibilities for protecting biodiversity, minimising waste, and promoting public participation in environmental governance, including measures to address climate change.

3.2 Mining legislation

The mining industry in Zambia is primarily governed by the Mines and Minerals Development Act (MMDA)¹²⁹ and its amendments, which focus on mineral exploration, mining, and environmental protection. Key provisions relevant to soil sustainability include Sections 80-87, which address safety, health, and environmental safeguards. The MMDA requires mining applicants to consider soil conservation, environmental impact assessments (EIA), and specific environmental protection measures before obtaining mining rights. Mining operations can be suspended or closed for failing to comply with environmental conditions, including those related to soil health. Since the enactment of the MMDA, several mining companies have been held accountable for ongoing pollution, through court prosecutions.¹³⁰

The Act mandates that mining rights holders are liable for any harm, including soil contamination, caused by their operations, with compensation requirements for rehabilitation and clean-up. It also introduces the principle of strict liability for environmental damage, ensuring accountability even without intent or negligence.

Further, Section 87 broadens the right to bring legal actions for environmental damage, allowing various stakeholders, including NGOs, to advocate for soil protection in mining areas.¹³¹ While some provisions may be vague, the MMDA, in combination with the Environmental Management Act, provides a strong framework for advancing soil sustainability in Zambia's mining sector.

129 Some of the subsidiary legislation include, but are not limited to Mines and Minerals Development (Application for Mining Rights) Regulations SI No. 123 of 1996; Mines and Minerals (Application for Mining Rights) (Amendment) Regulations SI No. 29 of 1997; Mines and Minerals Development (Environment Protection Fund) Regulations SI No. 102 of 1998; Mines and Mineral (Environment) (Exemption) (Amendment) Order, SI No. 31 of 2000; Mines and Minerals Development (General) Regulations SI No. 84 of 2008; Mines and Minerals Development (Prospecting, Mining and Milling of Uranium ores and other Radioactive Mineral Ores) Regulations, SI No. 85 of 2000; Mines and Minerals Development (Mining Rights and Non- Mining Rights) Order, SI No. 27 of 2009; and Mines and Minerals Development (General) Regulations SI No. 7 of 2016.

130 Mulenga (2019: 3 & 12–15).

131 *Rylands v Fletcher* (1868) LR 3HC 330; See also Sec 3(a) of the Law Reform (Limitation of Actions) Act, chapter 72 of the laws of Zambia.

3.3 Agricultural legislation

The projected development trajectory of the country rests on agriculture. It is expected that there will be further strain on agriculture to achieve the country's SDG targets. Despite this expectation, most of the sector legislation does not specifically address soil-related issues that have been pointed out as driving soil degradation. One reason for this is that the sector is still addressing one of its policy targets by reviewing its legislative and policy framework. Further, it is important to point out that the provisions of the Environmental Management Act (EMA), 2011 take precedence over other laws concerning environmental matters. To this end, the shortcomings of legislation in agriculture can be remedied by the EMA, 2011, where necessary. From the current legal framework, it is only possible to discuss two pieces of legislation.

3.3.1 Fencing Act, Chapter 190

The erection and maintenance of dividing fences are regulated by this piece of legislation. By implication, the Fencing Act may be relevant to soil sustainability in so far as environmental assessments may be necessary to undertake such developments.

3.3.2 Agriculture (Fertilisers and Feed) Act, Chapter 226

The Preamble to the Agriculture Act provides that it is purposed to regulate and control the manufacture, processing, importation and sale of agricultural fertilisers and farm feed as well as provide for minimum standards of effectiveness and purity of such fertilisers and feed and other connected matters. The Act does not provide for standards relevant to soil quality or the impact of fertilisers on the soil.

3.4 Public environmental legislation and soil sustainability

Public environmental law in the context of Zambia refers to the framework and sectoral natural resources legislation. These pieces of legislation are relevant in the quest for sustainable soil management. First and foremost, it is important to understand the Zambian land tenure system before focusing on the environmental and natural resources legislation. The discussion in the next section will progress under the ambit of the relevant overarching constitutional provisions.

3.4.1 Land tenure system

The legal framework on land in Zambia is governed by the Constitution and Acts of Parliament. Article 254 of the Constitution classifies land as state, customary, and other types, and grants the President, through the Lands Commission, authority to allocate land. The Constitution also protects land from deprivation (Article 16), ensuring the security of tenure, whether under customary or state land tenure, indirectly supporting soil sustainability.

Zambia's land tenure system is dualist, combining traditional and Western models. Traditionally, land was held on a usufructuary basis, with access granted through community membership. Customary tenure was based on social relationships rather than property rights, with land controlled as a source of wealth.¹³² The British introduced freehold land tenure in 1911, but indigenous people were not allowed to own land, leading to inequalities in land distribution.¹³³

Post-independence, land reforms in 1975 nationalised land and converted freehold tenure to leasehold, limiting private land ownership.¹³⁴ In 1991, Zambia adopted market-oriented policies and passed the Lands Act in 1995, which established the current land tenure system.¹³⁵ Leasehold tenure applies to state land and registered customary land, while customary tenure covers most of the country's area and is home to protected areas.

There were about 200,000 leaseholds on seven million hectares, about 9% of the country in 2016.¹³⁶ There are four different types of state-registered leases: first, a ten-year renewable Land Record Card issued on municipal land; second, a fourteen-year interim lease based on a sketch pending a registered boundary survey; third, a 30-year Land Occupancy License in municipal areas and settlement schemes; and fourthly, ten- and 30-year leases which the local authorities give without requirement for legally approved boundaries. A 99-year leasehold period is typical for all surveyed land.¹³⁷

Approximately 40% of the country's population is on state land and it has been noted that this is a considerable proportion of the population to be on less than 10% of the country's available land.¹³⁸ Customary land occupation accounts for a little less than 60% of the population, covering 90% of the country's area. Customary tenure is also home to the country's protected areas, wildlife estates, national parks, game management areas, and about 74% of protected forest areas.¹³⁹

132 Loenen (1999: 3-5); Mvunga (1980: 17).

133 See Mvunga (1978: 12, 39 & 54); Loenen (1999: 2 & 9); Chinene et al. (1998: 9); Mudenda (2007: 351-358); Bull (2014: 27).

134 Mudenda (2007: 377).

135 Mudenda (2007: 405-407); Loenen (1999: 7).

136 Ministry of Lands and Natural Resources (2017: 1).

137 Chinene et al. (1998: 4).

138 Ministry of National Development Planning (2006: 7).

139 Chinene et al. (1998: 7).

Public land in Zambia includes land managed by the government, while common lands are reserved for community use. Key legislative acts shaping land tenure include those governing state and customary land.

3.4.1.1 Lands Act, Chapter 184

The Lands Act provides for the continuation of leaseholds and leasehold tenure and the continued vesting of land in the President and alienation of land by the President. The Act further provides for the statutory recognition and continuation of customary tenure, and conversion of customary tenure into leasehold tenure. The Lands Act, as with the other pieces of legislation on land matters, does not expressly make any reference to soil sustainability matters. As noted earlier, the legal and policy framework relating to land is earmarked for revision. It is hoped that the soil sustainability discourse can be incorporated into the ongoing consultations.

3.4.1.2 Lands and Deeds Registry Act, Chapter 185

The Lands and Deeds Registry Act provides for the registration of documents and the issuance of Provisional Certificates of Title and Certificates of Title, as well as the transfer and transmission of registered land.

3.4.1.3 Land (Perpetual Succession) Act, Chapter 186

The Land (Perpetual Succession) Act provides for perpetual succession to land and allows for the holding of land in trust as a body corporate.

3.4.1.4 Land Survey Act, Chapter 188

The Land Survey Act makes comprehensive provision for the registration and licensing of land surveyors, how land surveys should be carried out and diagrams and plans connected with land surveys should be prepared. The Act does not have any direct soil-relevant provisions.

3.4.1.5 Lands Acquisition Act, Chapter 189

The Lands Acquisition Act provides for the compulsory acquisition of land and other property. The Act ensures that adequate and prompt compensation is paid where it is liable to be paid, or alternative land is provided as a replacement for the land compulsorily acquired. By implication, this piece of legislation might be relevant if the purpose for compulsory acquisition is about or related to soil conservation.

3.4.2 Environmental Management Act, No. 12 of 2011

The Environmental Management Act (EMA) 2011 is Zambia's main environmental legislation, aiming for integrated environmental management and the sustainable use of natural resources. It provides for public participation in decision-making and mandates strategic environmental assessments for policies and plans with potential environmental impacts. The EMA emphasises the protection of soil and ecosystems, defining "sustainable management" as safeguarding the life-supporting capacity of air, water, soil, and ecosystems.¹⁴⁰

Key provisions relevant to soil include Section 75, which calls for identifying areas at risk of degradation, such as those prone to erosion, and Section 76, which ensures that natural resource management, including soil, aligns with sectoral legislation. The Act also mandates environmental restoration orders for land degradation, including soil restoration.

The 2023 amendment introduced new terms related to waste and green economy, empowering the Zambia Environmental Management Agency (ZEMA) to reject projects with adverse impacts, including soil degradation, and to enforce stricter regulations on environmental assessments, reinforcing soil sustainability in Zambia.

3.4.3 Forests Act, No. 4 of 2015

The Forests Act No. 4 of 2015 governs the establishment of various forest areas, including national, local, community, and private forests. It emphasises the participation of local communities, authorities, and stakeholders in sustainable forest management and supports international environmental agreements such as the UN Framework Convention on Climate Change and the Convention on Biological Diversity.

Although the Act is new, it has not yet led to significant legal developments. A notable instance of this is the degazetting of a forest reserve in Lusaka in 2019 for

140 Sambo (2019: 647–664).

infrastructure projects, highlighting a lack of understanding and political support for natural resource management in Zambia.¹⁴¹

Section 2 of the Act recognises soil as a “forest produce” and includes it as part of forest resources, along with vegetation and ecological services such as soil quality maintenance and erosion control. Section 45 empowers the Minister to enforce conservation measures for natural resource protection, making the Act relevant to soil sustainability.

3.4.4 Urban and Regional Planning Act, No. 3 of 2015

The Urban and Regional Planning Act No. 3 of 2015 provides a framework for urban and regional planning in Zambia, emphasising democratic, transparent, and inclusive processes. It promotes broad-based participation from communities, the private sector, and other stakeholders, which, by implication, should include considerations for soil sustainability due to the geographical sensitivity of areas. However, the Act does not explicitly address soil sustainability.

The Act ensures integrated urban and regional planning within a devolved governance system, supporting environmentally, socially, and economically sustainable development. It references other regulatory instruments such as the Environmental Management Act and the Public Health Act, highlighting the interconnected nature of settlement issues. While it allows for locational prerequisites to protect area characteristics, the inclusion of soil sustainability in environmental impact assessments (EIAs) remains uncertain.

3.4.5 Local Government Act, No. 2 of 2019

Section 16(2) of the Local Government Act outlines the functions of local authorities. This provision shows that local authorities, first and foremost, have responsibilities in environmental management as also outlined in the Constitution. Further, these responsibilities extend to the conservation of natural resources and particularly to the prevention of soil erosion. It, however, remains unclear whether the local authorities carry out these functions.

141 See <https://tizambia.org.zm/transparency-international-zambias-statement-on-leaders-acquisition-of-land-on-forest-27/>, accessed 2 February 2021.

3.4.6 Solid Waste Regulation and Management Act, No. 20 of 2018

The Solid Waste Regulation and Management Act No. 20 of 2018 governs the sustainable management of solid waste, excluding hazardous, e-waste and healthcare waste regulated under the EMA, 2011. Key principles include restricting landfills near sensitive areas such as wetlands and floodplains and ensuring consumer participation in waste management decisions.

Section 6(5) empowers local authorities to manage solid waste, determine landfill locations in consultation with the ZEMA, and adhere to international best practices. Impact assessments must include soil management measures to prevent environmental harm.

Sections 33 and 34 prohibit burning and burying non-organic waste to avoid soil contamination, though no detailed explanation is provided. Section 78(2) emphasises soil evaluation as essential for monitoring waste's environmental and health impacts. As the Act is recent, evidence of soil evaluations under this provision is yet to be established.

3.4.7 Green Economy and Climate Change Act, No. 18 of 2024

This piece of legislation governs climate change adaptation and disaster risk reduction, climate change mitigation, low emission development, green economy and related actions, regulation of carbon markets, and environmental and social safeguards in climate change actions. It also establishes the Climate Change Fund and domesticates the United Nations Framework Convention on Climate Change and the Paris Agreement and other related issues. In line with the provisions of the Environmental Management Act No. 8 of 2023 which creates a green economy, within which sustainable soil management needs to be prioritised. This piece of legislation has immense potential for sustainable soil management, although none of its provisions make soil-specific references.

4 Relevant policy framework on the main drivers of soil degradation

The legal and policy framework in Zambia does not directly address soil sustainability issues per se but rather focuses on land tenure and usage systems, agriculture, forests, water and environmental protection generally. In examining the relevant legislation, a particular focus is directed at the soil-relevant provisions, their enforceability and any applicable subsidiary legislation. This section starts by examining the policy framework concerning the overall developmental agenda of the country. This is followed by a consideration of policies as they relate to the main drivers of soil degradation, namely

land, environment, climate change, agriculture and mining, before examining the applicable legislative framework.

4.1 Vision 2030

Zambia's Vision 2030 aims to transform the country into a prosperous middle-income industrial nation by 2030, fostering socio-economic justice and improving well-being. It focuses on three priority areas: economic growth and wealth creation, social investment and human development, and creating an enabling environment for sustainable development.¹⁴²

The Vision is implemented through five-year national development plans, with the current Seventh National Development Plan (SNDP) covering 2017–2021. Stakeholders, including the government, private sector, civil society, and communities, are integral to its success. Medium-term expenditure frameworks and annual budgets support its execution.

Vision 2030 promotes decentralised governance and sets sector-specific goals, such as reducing wood fuel use to 40% in the energy sector by 2030 and contributing to sustainable natural resource management. While Zambia's abundant land is seen as a growth asset, it also poses risks to soil protection, emphasising the need for environmental assessments to safeguard natural resources.

The Vision envisions equitable access to basic needs such as shelter and titled land and aims to ensure fair and sustainable land use by 2030. The SNDP integrates the UN Sustainable Development Goals (SDGs) and Agenda 2063, providing a framework for achieving these objectives.¹⁴³

4.2 Sustainable Development Goals

The seventeen SDGs stem from the 2012 UN Conference on Sustainable Development (UNCSD) and its outcome document, *The Future We Want*.¹⁴⁴ These goals, building on the Millennium Development Goals (MDGs), include 169 targets addressing issues such as poverty, gender inequality, land degradation, and climate change.¹⁴⁵ The SDGs, though non-binding, have gained global acceptance since 2015, with countries incorporating them into national plans.

142 Ministry of National Development Planning (2006).

143 See <https://au.int/en/agenda2063/overview>, accessed 3 February 2021; Stevens (2019: 470–472).

144 See <https://bit.ly/2YWbJVj>, accessed 3 February 2021.

145 Stevens & Kanie (2016: 393–396).

Healthy soils are essential to achieving several SDGs, particularly those on food security, water, climate change, biodiversity, and land management.¹⁴⁶ SDG 15, especially Target 15.3, focuses on achieving land degradation neutrality (LDN) by 2030, aiming to restore degraded soils and combat desertification, drought, and floods. LDN seeks to maintain or enhance land resources to support ecosystems and food security.¹⁴⁷

Africa, facing severe land degradation, must leverage the SDGs and LDN to implement indigenous interventions.¹⁴⁸ Zambia, alongside UNCCD and IUCN, has engaged women farmers, policymakers, and NGOs to mainstream gender in LDN projects.¹⁴⁹ However, Zambia lacks specific legal provisions addressing LDN, highlighting the need for targeted laws and policies to meet its LDN goals.

4.3 Seventh National Development Plan

The SNDP highlights Zambia's advantage in renewable and natural resources, emphasising potential in tourism, renewable energy, green housing, forestry, and fisheries. However, it lacks a dedicated focus on soil sustainability, despite recognising the pressures placed on soil by economic and developmental activities.

The plan calls for policy shifts to achieve Vision 2030, particularly in food security and diversification, but fails to address measures to mitigate soil degradation. Economic diversification is prioritised to reduce dependence on mining and promote other sectors. Additionally, the plan advocates for a strong manufacturing and industrial base to boost exports, stabilise the economy and create jobs.

While these initiatives hold promise for economic growth, they also risk soil contamination if sustainability measures are not integrated into implementation strategies.

4.4 Draft National Land Policy, 2017

Land evaluation is essential for understanding soil components, yet Zambia's National Land Policy (2017) remains in draft form after prolonged stakeholder discussions. The draft policy acknowledges declining soil quality and fertility, emphasising the need for measures to curb harmful practices.

146 Orr et al. (2017: 72–73).

147 See Metternicht et al. (2019: 189–191); Gilbey et al. (2019: 230–237); Von Malitz et al. (2019: 54–62); <https://knowledge.unccd.int/knowledge-products-and-pillars/ldn-target-setting-building-blocks/land-degradation-neutrality-ldn>, accessed 3 February 2021; Orr et al. (2017: 15); Smith (2018: 285–287).

148 Kibugi (2018: 387–390).

149 See <https://www.unccd.int/news-events/ldn-projects-zambia-amplifying-gender-dimension>, accessed 3 February 2021.

A key challenge in finalising the policy is resistance from traditional leaders, who fear losing authority over land administration.¹⁵⁰ Customary land rights are often undefined or contradictory, and the roles of traditional and local authorities lack clear guidelines. Resolving these issues requires a consultative and consensual approach to balance traditional authority with environmental sustainability goals.

4.5 National Policy on Environment, 2009

Zambia's National Policy on Environment highlights two key soil-related challenges: natural disaster risks and climate change effects. Extreme weather events such as droughts and floods threaten food security, public health, and natural resources, worsening land degradation and water issues. Climate change has intensified droughts, rising temperatures, and erratic rainfall, with increasing frequency and severity expected, negatively impacting the economy and livelihoods.¹⁵¹

Climate change is projected to cost Zambia 0.4% of annual economic growth, with rainfall variability potentially reducing GDP growth by 0.9% over the next decade, deepening poverty.¹⁵² Recent hydropower losses of about 600 MW, linked to poor rainfall, have slowed growth in agriculture, manufacturing, mining, and services. Other impacts include higher healthcare costs, infrastructure damage, and biodiversity loss.

Adapting to and mitigating climate change will boost economic growth, improve health, and reduce risks including water shortages and pollution, fostering overall social and environmental well-being.¹⁵³

4.6 National Climate Change Policy, 2016

Zambia's National Climate Change Policy (NCCP), launched in March 2017, aims to address climate change impacts, including crop failure and reduced energy production, which threaten economic growth. Developed by the Ministry of National Development and Planning, the NCCP emphasises collaboration among ministries and prioritises vulnerable groups including rural women, children, and youth. It aligns with the UN-FCCC's objectives, promoting sustainable land use to reduce GHG emissions and integrating climate change into policies and plans.¹⁵⁴

150 Ministry of Lands and Natural Resources (2018: 1–3).

151 Ministry of National Development Planning (2016: 2–8 & 34–36).

152 See https://www.climatelearningplatform.org/sites/default/files/resources/zambia_climate_risk_screening_report_-_final.pdf, accessed 3 February 2021.

153 Ministry of National Development Planning (2017: 54).

154 Ministry of National Development Planning (2016: 3).

The NCCP ensures coherence between National Development Plans and climate programs through a multisectoral approach.¹⁵⁵ Complementary legislation includes the and laws on forestry, wildlife, agriculture, and urban planning. The EMA Amendment Act No. 8 of 2023 strengthens Zambia’s green economy focus, incorporating low-carbon development, resource efficiency, and climate resilience into national planning.

Key NCCP measures include climate program coordination,¹⁵⁶ advancing climate-specific legislation, disaster risk reduction, and promoting sustainable land use.¹⁵⁷ These initiatives are crucial for building a low-carbon economy, reducing environmental risks, and supporting Zambia’s climate change goals. Proper implementation of these policies could significantly enhance environmental regulation and foster sustainable development.

4.7 National Agricultural Policy, 2016

The First National Agricultural Policy (FNAP) 2004–2015 laid a foundational framework for Zambia’s agricultural sector, emphasising liberalisation, commercialisation, public-private sector collaboration, and efficient service provision.¹⁵⁸ It aimed to secure food supplies and develop a competitive and sustainable agricultural sector contributing to GDP. Five key objectives underpin this policy: ensuring national and household food security, supporting industrial development, increasing agricultural exports, generating income and employment, and preserving the agricultural resource base. Among the nineteen strategies devised, several are directly related to soil sustainability, such as ensuring product quality for export, strengthening support for small-scale farmers, reforming institutional and legal frameworks, improving land access, and promoting sustainable agriculture.

The Second National Agricultural Policy (SNAP) 2016–2020, though building on FNAP’s goals, prioritised overhauling Zambia’s agricultural legislative framework, a task that remains unfulfilled. This lack of legislative reform has hampered SNAP’s ability to meet its aspirations fully. However, positive advancements such as conservation farming have emerged, offering crucial benefits for sustainable soil management. Conservation farming, for instance, enhances water infiltration, root development, and targeted fertilisation, restoring fertility to overexploited soils and increasing yields with moderate inputs.¹⁵⁹

155 Ibid.: 18–25.

156 Dupuy et al. (2019: 1).

157 Personal communication with officers at the Disaster Management and Mitigation Unit.

158 Ministry of Agriculture and Cooperatives (2004: 1–4).

159 Shitumbanuma et al. (undated); See <http://www.fao.org/conservation-agriculture/en/>, accessed 3 February 2021.

SNAP's objectives relevant to soil sustainability include promoting the efficient use of inputs such as fertilisers and water, ensuring sustainable natural resource management, improving food and nutrition security through diversified production, and increasing private sector involvement via a strengthened legal framework. Operationalised by the Ministry of Agriculture and local authorities, SNAP encourages sustainable land management technologies, such as conservation agriculture and optimal stock densities. Conservation farming has proven particularly impactful, addressing soil degradation caused by excessive ploughing and reliance on chemical fertilisers, while also enhancing farmer incomes and transitioning away from inefficient traditional methods such as hand-hoe farming.

5 Relevant international soil commitments

Zambia is engaged in various regional and global initiatives that require compliance with international law. Under Zambia's legal system, international treaties do not automatically become part of domestic law due to the country's dualist approach.¹⁶⁰ This means that international agreements must be approved and domesticated by the National Assembly before they can be implemented. According to the Zambian Constitution, while the Executive, led by the President, handles the negotiation and signing of international agreements, the National Assembly oversees and must approve their ratification.

To facilitate this process, the Ratification of International Agreements Act, No. 34 of 2016, was enacted. The Act mandates that the Minister responsible for the subject matter of the agreement must undertake a due diligence process to determine if ratification is in the country's best interest. If the National Assembly approves the ratification, the agreement must be domesticated, which could involve enacting local legislation or incorporating the agreement's provisions into an Act.

In the context of environmental agreements relevant to soil sustainability, the EMA is crucial. Section 84 of the EMA outlines Zambia's sovereignty over its environment and natural resources and commits the government to cooperate with other nations and organisations in protecting the environment. When Zambia signs international agreements on environmental protection, the Minister is responsible for ensuring ratification and implementing the agreement, potentially delegating implementation to relevant institutions such as ZEMA.

Thus, international commitments related to soil sustainability can be domesticated into Zambian law following the constitutional and procedural requirements outlined above.

¹⁶⁰ Munalula (2004: 89–90).

6 Regional commitments

At the subregional level (i.e., SADC), Zambia is a signatory to agreements and protocols on forests, wildlife, water, energy, agriculture, and others that fall under trade through COMESA. Some of these are relevant to soil sustainability and are analysed below.

6.1 Common Market for Eastern and Southern Africa

COMESA is a regional organisation of independent states, including Zambia, committed to cooperation in developing natural and human resources for the benefit of their people.¹⁶¹ The primary goal of the COMESA Treaty is to enhance trade and economic cooperation among member states, with specific undertakings in agriculture, economic, and social development.

In agriculture, COMESA member states commit to cooperating in agricultural development, adopting a common agricultural policy, ensuring regional food sufficiency, enhancing rural development, and supporting agricultural research and extension. These goals rely heavily on soil sustainability, as soil is fundamental to agricultural production and food security. Additionally, COMESA's commitment to the development and management of natural resources, energy, and the environment (Article 4(1)(6)(h)) highlights the importance of natural resource conservation for environmental well-being, with soil playing a central role in this process.

However, while the treaty emphasises agriculture and environmental cooperation, there is no specific focus on soil health. Despite this gap, there are opportunities for COMESA member states to integrate soil sustainability into their regional development frameworks. Effective enforcement and implementation of soil sustainability initiatives may face challenges, including economic, political, and institutional constraints.¹⁶² Furthermore, soil sustainability might not be immediately viewed as a priority for enhancing trade, which could hinder its integration into regional policies.

6.2 Southern African Development Community

The SADC is a regional economic community of which Zambia is a member. The objectives of SADC include the promotion of sustainable and equitable economic growth and socio-economic development as a way of alleviating poverty through regional integration.¹⁶³ Additionally, the sustainable utilisation of natural resources and

161 See <https://www.comesa.int/comesa-treaty/>, accessed 3 February 2021.

162 Geda & Kebret (2008: 357–360).

163 Zongwe (2011: 12).

effective protection of the environment are among the other main objectives of SADC (Article 5(1)). At this point, it is noteworthy that there is no dedicated focus on soil sustainability in the SADC objectives. It must, however, be mentioned that “effective protection of the environment” can be interpreted to mean that. In achieving its objectives, SADC gives priority to improved utilisation and stewardship of natural resources, by focusing on key areas, namely forests, wildlife, fisheries, trans-frontier conservation areas, and water.¹⁶⁴

6.3 African Union

The African Union (AU), established in 2002 as the successor to the Organisation of African Unity (OAU), is a 55-member continental body.¹⁶⁵ Zambia is among its member states. The AU aims to accelerate continental integration, enabling Africa to assert its role in the global economy while addressing social, economic, and political challenges, particularly those exacerbated by globalisation. This builds on the OAU’s Pan-Africanism, which emphasised African unity, socialism, communal practices, and the promotion of Africa’s culture and heritage.

Key AU objectives relevant to sustainable soil management in Zambia and Africa include promoting sustainable development, integrating African economies, fostering cooperation to improve living standards, advancing research, especially in science and technology, and defending Africa’s collective interests. The AU’s Agenda 2063, a strategic framework for inclusive and sustainable development, aligns with the global 2030 Agenda for Sustainable Development.¹⁶⁶ Both agendas focus on social, economic, and environmental sustainability, offering African countries an opportunity to collaborate on advancing soil conservation as part of their broader development goals.

7 Multilateral environmental treaties

Zambia has ratified or signed several conventions relevant to enhancing soil sustainability both domestically and internationally. Key legislation, such as the EMA, along with laws related to water, fisheries, forests, and wildlife, help implement these multilateral environmental agreements (MEAs). Notable conventions include the Convention on Biological Diversity (CBD) (1993), aimed at conserving biodiversity and promoting sustainable development through habitat conservation, restoration, and protection; the United Nations Convention to Combat Desertification (UNCCD) (1994),

164 Ibid.: 17.

165 See <https://au.int/en/overview>, accessed 3 February 2021.

166 See <https://www.un.org/en/africa/osaa/pdf/au/agenda2063-presentation.pdf>; <https://bit.ly/3txZPip>, accessed 3 February 2021.

focused on improving living conditions in arid and semi-arid areas; the Convention on International Trade in Endangered Species (CITES) (1975), regulating trade in endangered species to ensure their survival; the Ramsar Convention (1971), promoting international cooperation to protect wetlands and waterfowl habitats; and the United Nations Framework Convention on Climate Change (UNFCCC) (1992), working to stabilise greenhouse gas concentrations and mitigate climate change. Other international agreements, such as the Montreal Protocol, Basel Convention, and Stockholm Convention, address environmental concerns, though none are specifically dedicated to soil sustainability. However, their provisions can be adapted to support soil conservation efforts.

8 Cross-cutting issues

This section analyses cross-cutting issues that have an impact on the achievement of soil sustainability in Zambia.

8.1 Environmental impact assessments

The EMA mandates the conduct of EIAs to evaluate whether activities or projects may have adverse effects on the environment. Section 117 of the EMA makes it mandatory for EIAs to be conducted before undertaking any prescribed activity, and failure to comply with this requirement results in criminal liability. However, the regulations that govern EIAs under the EMA, specifically the 1997 Environmental Protection and Pollution Control Act (EPPCA) regulations, were issued under the now-repealed EPPCA of 1990. Although technically repealed, these regulations remain in force because statutory instruments issued under a repealed law continue to apply unless they conflict with the new law.¹⁶⁷ As such, the 1997 EIA regulations remain valid until challenged for inconsistency with the EMA.

These outdated regulations are relevant to sustainable soil management in Zambia because they include considerations for soil fertility as a potential adverse environmental impact under Regulation 8(3). This regulation requires that ecological factors, including soil fertility, be considered when assessing the environmental effects of development projects. While this provision acknowledges the importance of soil to ecosystems, it limits the scope of protection to soil fertility rather than considering broader soil sustainability. This is a significant limitation, as it overlooks the broader role of

167 Statutory Instrument No. 28 of 1997, the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, 1997; Sec 15 of the Interpretation and General Provisions Act, chapter 2 of the Laws of Zambia.

soil in sustaining ecosystems, particularly in the face of challenges such as soil erosion, degradation, and nutrient depletion.

Given the outdated legal framework, the 1997 regulations should be replaced with more comprehensive, modern provisions that reflect current environmental priorities and global trends in sustainability. Such updated regulations could play a crucial role in promoting sustainable soil management in Zambia, ensuring that soil health is adequately protected as part of broader environmental protection efforts.

On technical legalities, the regulations have the force of law on the basis that where any Act of Parliament is repealed, any statutory instrument issued thereunder remains in force if it is not inconsistent with the repealing written law. As the current regulations have not yet been challenged for being inconsistent with the aspirations of the EMA, they remain in force for the time being.

8.2 Public participation

Public participation in environmental decision-making in Zambia is constitutionally guaranteed and further strengthened by provisions in the EMA, the Water Resources Act, and other natural resource legislation enacted after 2011.¹⁶⁸ Articles 255(1) and 257(d) of the Zambian Constitution emphasise the importance of public participation in the management and utilisation of natural resources, including soil sustainability, although the Constitution does not explicitly define “public participation.” These constitutional principles are elaborated on in the EMA.

The EMA, particularly Sections 91-94, provides specific mechanisms for public participation in environmental decision-making. Section 91 affirms that the public has the right to be informed about decisions affecting the environment, including soil, and to participate in the development of environmental policies, strategies, plans, and regulations. It requires authorities including ZEMA to establish mechanisms for collecting and responding to public input, which may include public debates and hearings. Section 91(3) further empowers the public to review documents related to environmental issues and participate in public hearings on any document under review.¹⁶⁹

However, while these provisions aim to promote soil sustainability by involving the public, their effectiveness is hindered by a lack of awareness and publicity about such participatory opportunities. Despite the legal framework in place, public access to information and engagement with the process remains limited, as there are no widespread campaigns or efforts to inform the public about these rights and opportunities.¹⁷⁰ Therefore, while the legal provisions exist, the low levels of awareness and

168 Munyinda & Habasonda (2013: 10–28).

169 Munyinda & Habasonde (2013: 20–28); Sambo (2019: 653).

170 Sambo (2019: 658).

engagement with these mechanisms undermine their full potential for advancing soil sustainability in Zambia.

8.3 Access to information

The EMA contains progressive provisions for accessing environmental information, which are relevant to sustainable soil management in Zambia, even though soil sustainability is not explicitly mentioned. Sections 86-90 of the EMA outline the responsibilities of ZEMA in managing and disseminating environmental information. Section 86 mandates ZEMA to gather, analyse, and disseminate data related to the environment and natural resources, which includes soil-related information. ZEMA must also carry out public education campaigns on environmental issues, which could include soil conservation. Section 87 requires ZEMA to establish a Central Environmental Information System to store environmental data, including soil-related information. Section 88 empowers ZEMA to integrate environmental matters, including soil, into educational programs, thus, raising public awareness about sustainable soil management. Section 89 requires ZEMA to conduct surveys, research, and studies to inform policy development, which could support more effective soil protection strategies. Section 90 mandates ZEMA to create and maintain an environmental information registry that includes various environmental documents, which must be publicly accessible. These provisions enable the public to access and review soil-related data, although there is currently limited use of the environmental information registry by local communities.

In addition to the EMA, the Access to Information Act (ATI), passed in June 2024, supplements these provisions by providing further legal grounds for accessing environmental information, including soil-specific data. While these laws promote transparency and public access to environmental information, their implementation, particularly concerning soil management, remains underutilised, as there is minimal engagement with the environmental information registry by local communities.

In Zambia, soil science primarily focuses on agronomic aspects, particularly food production, but there is a need to broaden its scope to include environmental management and climate change mitigation.¹⁷¹ Limited investment in research hampers critical studies and innovation and strengthening support for research and development is essential. The Soil Research Team under the Zambia Agriculture Research Institute (ZARI) coordinates fragmented efforts across soil physics, chemistry, microbiology, fertility (including agroforestry), and mapping. Key priorities include boosting capacity in soil surveys (300 professionals), mapping (50), research (100), advisory services (50), consulting (100), education (300), and other areas (50). Addressing these gaps is crucial for sustainable agriculture and climate resilience.

171 Rozanov & Wiese (2018).

8.4 Law concerning foreign investors

Zambia's legal and institutional framework for managing foreign investments includes the Constitution, sectoral and tax legislation, the Zambia Development Agency Act, and related policies.¹⁷² A study conducted between 2013 and 2015 found that while investments in key sectors including energy, forestry, mining, and agriculture—sectors that are closely tied to land and soil—were increasing, challenges remain in ensuring these investments contribute to sustainable development.¹⁷³ The study identified several issues, including a lack of incentives for sustainable land-use investments, insecure customary land tenure with limited legal protections for land users, low institutional capacity to enforce social and environmental safeguards, and limited access to information, which hinders public participation and scrutiny.¹⁷⁴ The research concluded that strengthening Zambia's legal and institutional framework, especially its enforcement mechanisms, is essential to effectively regulate investments that adhere to sustainable development principles and contribute to achieving the SDGs.

8.5 Competence of environmental enforcement

The enforcement of laws generally in Zambia has not been without administrative and other challenges. In many country reports on access to justice, it has been noted generally that inadequacy of expertise in specialised legal areas and inadequate staffing levels have continued to hamper the competence of enforcement. With specific reference to enforcement of environmental matters, and soil sustainability in particular, the EMA makes provision for the establishment of the Environmental Fund, as well as several other enforcement mechanisms, discussed below.

8.6 The Environment Fund

Section 95 establishes the Environment Fund, which is funded by Parliament appropriations, voluntary contributions, levies from developers, grants, and other sources. This fund aims to mitigate and restore environmental degradation, including soil sustainability, by supporting research and environmental management efforts. It does not apply to industries covered by the Environmental Protection Fund under the Mines and Minerals Development Act, 2015, or the Petroleum (Exploration and Production) Act, 2008. ZEMA manages the fund and maintains a register of activities that could harm the environment. Additionally, the EMA includes several enforcement mechanisms,

172 Sambo et al. (2015: 7–9).

173 Ibid.: 2–3.

174 Ibid.: 10–54.

such as audits, orders (compliance, protection, prevention, restoration), and civil or criminal prosecutions, which can be used to ensure soil sustainability.

8.7 Environmental audits

Section 101(1) requires property owners or project developers to take reasonable measures to mitigate adverse effects not covered in the environmental impact assessment (EIA) and to submit an annual environmental audit report to ZEMA. This provision can enhance soil protection by ensuring that soil sustainability is considered after a project's initiation, especially when it may have been overlooked in the original EIA. ZEMA inspectors can enter premises to verify compliance with the EIA, and accurate records must be kept to monitor the project's impact on the environment, including soil sustainability. This provides an opportunity to report and address any negative effects on soil health.

8.8 Environmental monitoring

Section 102(1) provides that environmental monitoring can be extended to “any possible changes in the environment”, which include changes in soil composition, fertility, and sustainability. This enforcement mechanism can be used to ensure that soil matters are also given priority as they contribute towards sustaining a clean and healthy environment. Further, ZEMA inspectors may enter any land or premises to monitor the effects upon the environment of any activities carried out on that land or premises.

8.8.1 Prevention orders

Section 103(1) allows the Director-General to issue a prevention order if there are reasonable grounds to believe that a person is or will be conducting an activity, or in possession of a substance, that may cause an adverse effect. The order can require compliance by a specified date, or immediately if no date is given. Failure to comply can result in a fine, imprisonment, or both. While there is no available jurisprudence on this provision, it could be used as a deterrent for severe breaches in soil management.

8.8.2 Protection orders

Protection orders under the EMA are another enforcement mechanism available for environmental conservation. Under Section 104, the Director-General of ZEMA can issue a protection order to the owner, manager, or person in control of the premises, vehicle, vessel, aircraft, or equipment involved in the activity, or to anyone who caused or permitted the activity. The order may require compliance by a specified date, or immediately if no date is given. Violating this order is an offence, punishable by a fine, imprisonment for up to one year, or both. There is currently no specific jurisprudence on the use of protection orders for sustainable soil management.

8.8.3 Restoration orders

Environmental restoration orders can be served on the owner, manager, or person in control of the premises, vehicle, vessel, aircraft, or equipment involved in a discharge, or on anyone who caused or permitted it (Section 105(1)). These orders are crucial for sustainable soil management, including land restoration and soil replacement. However, enforcing this provision is challenging due to the need for scientific evidence of degradation and the lack of skilled manpower in relevant institutions. Additionally, there is no existing case law on its enforcement. As with other environmental orders, violations can lead to fines, imprisonment, or both upon conviction.

8.8.4 Compliance orders

Section 106 empowers the ZEMA Director-General to issue a compliance order if there are reasonable grounds to believe a licensee has breached the conditions of their EMA licence. The order may require the licensee to remedy the breach within a specified period, suspend the licence to prevent environmental or human health risks or take measures to mitigate adverse effects, including those related to soil. If the licensee fails to comply, ZEMA can take corrective action, recover costs, adjust licence conditions, or revoke the licence. Non-compliance with a compliance order is an offence punishable by a fine, imprisonment, or both.

8.8.5 Cost orders

Where a person fails to comply with a requirement in an order, licence or approval issued under the EMA, ZEMA may issue a cost order requiring that person to reimburse ZEMA for the cost of taking the measures, as provided for under Section 107(1).

A cost order is enforced as if it were an order of court if no application for the review of the cost order is made.

8.8.6 Civil and criminal prosecution

Section 109 of the EMA allows any person to request ZEMA to investigate a suspected environmental contravention, including those related to soil contamination or other harmful practices. However, this requirement to submit a written request may be inaccessible to illiterate or semi-literate individuals. Once a request is made, ZEMA's Director-General must decide within 30 days whether to initiate an investigation. If the Director-General declines, the requesting person can take legal action independently, with assistance from others if needed. This provision empowers citizens to participate in environmental protection without fear of legal repercussions, promoting a culture of soil sustainability.

Section 110 grants individuals the right to sue for damages if an act or omission under the EMA causes harm or potential harm, including to soil quality. Section 111 allows courts to order offenders to take corrective action to remedy environmental damage, which could include measures to preserve soil health.

Sections 117 and 119 address environmental crimes, with Section 119 penalising individuals who violate environmental standards or misuse natural resources. While this section does not specifically address soil degradation, it could help deter harmful practices including slash-and-burn farming, which negatively impact soil sustainability. Penalties under this section can include fines or imprisonment, providing a legal deterrent against practices contributing to soil degradation in Zambia.

9 Lessons learnt and recommendations

This section presents recommendations for improving Zambia's soil sustainability legislation. Despite some positive provisions in the EMA, no other legislation specifically addresses soil issues. While the EMA includes progressive provisions, it does not treat soil as a distinct natural resource, which limits its effectiveness in soil conservation. The analysis reveals that there are opportunities within the Constitution, EMA, mining laws, and post-2010 sectoral legislation to create a more coordinated and comprehensive legal framework for soil sustainability. The National Climate Change Policy presented an opportunity for the introduction of climate-specific legislation, which could have supported national soil conservation efforts. The Green Economy and Climate Change Act, No. 18 of 2024 (Climate Change Act, 2024) was enacted in December 2024, without any provisions directly relevant to sustainable soil management. For instance, while the preambular section highlights that the Climate Change Act of 2024

provides *inter alia* for climate change mitigation, low emission development, green economy, and regulation of carbon markets, there is no reference to soil carbon sequestration and other processes that are soil related.

Foreign investment control is needed to ensure that land-use projects are sustainable and aligned with national laws. Zambia must strengthen regional cooperation and implement findings from international research, such as the 2019 IPCC Report, which links climate change, land degradation, and soil health. Political buy-in is crucial to ensure that soil sustainability becomes a priority, and reducing bureaucratic barriers between communities and decision-makers is essential for effective environmental governance.

Although the current legal framework includes provisions for environmental well-being, there are no clear provisions on soil sustainability. It is recommended that dedicated soil legislation be established to complement existing laws such as the EMA, with provisions for soil management across various sectors. Additionally, integrating soil conservation into Zambia's land and agricultural reforms, including conservation farming practices and discouraging unsustainable practices, could yield significant benefits.

The need for a national soil information system and a centralised institutional framework for soil management is crucial for improving decision-making and ensuring sustainable soil practices.¹⁷⁵ Enhancing public awareness through educational initiatives and community engagement is also vital. The agricultural, environmental, land, and mining sectors should collaborate to improve data sharing and research on soil sustainability.

Finally, integrating soil impact assessments into existing environmental assessments and incorporating soil management as a prerequisite for accessing the Environment Fund will strengthen Zambia's soil governance. Establishing a constitutional human rights framework for environmental protection, including the right to a clean and healthy environment, is also critical for promoting sustainable soil management and addressing soil-related human rights issues.

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