Country report for Mozambique[1]

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Abstract

This chapter examines Mozambique's legal framework for environmental protection and soil conservation. It highlights the challenges of soil degradation, with particular emphasis on the lack of dedicated soil conservation legislation. The chapter explores the implications of this gap in the legal framework, discussing how it impacts ecosystem health and sustainable land management. An analysis of the existing legal system reveals significant shortcomings, especially in enforcement and the absence of comprehensive, sector-specific laws addressing soil issues. Specific attention is given to the 1997 Environmental Law and the complexities arising from land tenure systems, particularly the state's ownership of land and the use of DUATs (land-use rights), which complicate the effective implementation of policies.

The chapter also presents key critiques regarding the fragmented application of environmental laws and offers recommendations aimed at strengthening the legal framework, improving enforcement, and introducing specialised laws for soil conservation. It concludes by emphasising the urgent need for a dedicated soil conservation law, particularly considering the growing concerns over land degradation, climate change, and the need for sustainable agricultural practices.

1 This chapter draws from a book chapter authored by Ruppel, Ruppel-Schlichting, Houston & Afua (see Reference List).

Chapter contents

Summary

Mozambique has established a comprehensive and modern legal framework for environmental protection, with constitutional provisions that mandate the state to preserve the environment and ensure citizens' right to a balanced ecosystem. At the core of this framework is the 1997 Environmental Law, regarded as progressive, which has influenced a wide range of environmental legislation, covering areas such as land use, forestry, mining, waste management, and agriculture. The law incorporates important concepts relating to environmental liability and offences, as outlined in Articles 26 and 27, which hold individuals and organisations accountable for causing environmental

damage. Additionally, the law requires Environmental Impact Assessments (EIAs) for projects that might negatively affect the environment, offering safeguards against unsustainable development. A central feature of the law is its emphasis on public education regarding environmental issues, highlighting the need to change harmful practices and encourage sustainable behaviours, as per Article 20.

Alongside the Environmental Law, Mozambique's legal framework includes several sector-specific laws that protect areas such as forestry, mining, and waste management. The establishment of dedicated ministries—such as the Ministry for the Coordination of Environmental Affairs, as well as Ministries for Agriculture and Land—has improved the application of these laws, although challenges persist in fully enforcing them. Mozambique's international commitments to environmental matters further reflect its efforts to align with global standards on sustainability and environmental protection.

However, despite the presence of a comprehensive legal framework, soil degradation remains a significant concern in Mozambique, exposing gaps in the current legislative framework. One critical issue is the lack of specific legislation focused solely on soil conservation. While soil protection is indirectly addressed through broader environmental and constitutional laws, there is a need for a dedicated soil conservation law. A specific law focusing on soil would help fill the gaps in the fragmented regulatory system and provide clearer, more effective guidelines for soil protection, especially in the agricultural sector, which plays a key role in soil degradation. Strengthening the legal framework in this area is crucial in addressing ongoing issues such as soil erosion and land degradation.

Another critical issue is the enforcement of existing laws. Despite having a strong legal framework, Mozambique faces challenges in effective enforcement. A major weakness is the lack of robust mechanisms for enforcement, particularly in areas such as public access to information, licensing fees, and the monitoring of resource exploitation projects. There are also significant concerns regarding the application of land-use rights (DUATs) under the 1997 Land Law, with reports of irregularities in the approval process for large-scale projects. One such case is the gas project on the Afungi Peninsula, where the approval process lacked proper environmental assessments and consultation with local communities, exposing weaknesses in the system's ability to protect environmental and community rights.

Furthermore, although the Environmental Law includes provisions for environmental liability, the vague language surrounding "significant damage" and "particularly dangerous activities" has made enforcement difficult, as it lacks clear thresholds for action. The law also tends to rely on reparations and compensation, which often come too late to prevent environmental harm. The 2014 waste disposal law has also proven inadequate, as its broad approach does not address specific issues including waste reuse and recycling, which are crucial for maintaining soil health in expanding urban areas.

To address these shortcomings, the chapter suggests a multi-faceted approach. First, it advocates for updating and harmonising outdated environmental laws to ensure they meet current needs and challenges. A consolidated environmental code would help streamline the legal framework and improve enforcement. Specifically, revising the 1997 Environmental Law and introducing a dedicated soil conservation law would provide the legal clarity and protections needed to tackle soil degradation in a more targeted way. This would include specific provisions for sectors such as agriculture, mining, and waste management, which are major contributors to environmental harm.

Second, the chapter stresses the importance of improving enforcement mechanisms, particularly by enhancing public access to information, ensuring transparency in land-use allocations, and improving the monitoring of resource exploitation. Tackling corruption, especially in the approval process for projects, and ensuring that local communities are consulted in decision-making are also key to building trust and ensuring effective law enforcement.

Additionally, the chapter highlights the need for greater public engagement and education. Raising awareness about the importance of soil conservation and promoting sustainable practices is vital in changing harmful agricultural methods. Strengthening community participation in environmental governance can help reduce damaging practices and encourage more sustainable land management. Addressing illegal activities, such as unregulated mining and logging, and limiting actions that have high environmental impacts would also protect soil health.

Another crucial recommendation is to secure land tenure for local communities. Since the state holds ownership of land under the current DUAT system, communities often face insecurity regarding their land rights. This insecurity discourages long-term investment in sustainable land management, as land users may focus on short-term profits rather than ecological preservation. By ensuring secure land tenure, Mozambique can empower communities to take responsibility for land conservation efforts.

Finally, the chapter underscores the need to strengthen Mozambique's judicial system to ensure it is adequately funded, independent, and capable of enforcing environmental laws. This includes improving the effectiveness of the EIA process to ensure that it is rigorous and transparent for all development projects.

In conclusion, addressing Mozambique's environmental and soil conservation challenges requires a multi-pronged approach that strengthens both the legal framework and its enforcement. By creating a dedicated soil conservation law, updating existing environmental legislation, enhancing public education, and ensuring transparency, Mozambique can better protect its soil and natural resources. With a commitment to effective implementation and respect for community rights, Mozambique can ensure sustainable development and preserve its ecosystems for future generations.

1 Country information

1.1 Historical background

The first inhabitants of Mozambique were the Khoi-San hunter-gatherers, followed by indigenous communities that introduced agriculture between the first and fourth centuries. Arab traders later established settlements along the coast, integrating the region into the Indian Ocean trade network. Portuguese explorer Vasco da Gama reached Mozambique in 1498, initiating European involvement. After decades of local resistance, Portugal colonised Mozambique until the country gained independence on 25 June 1975. Following independence, approximately 250,000 Portuguese residents left Mozambique, marking a significant demographic shift.

After gaining independence, Mozambique endured a fifteen-year civil war between Marxist guerrillas and anti-communist forces, backed by the Soviet Union and South Africa, respectively.[2] The war claimed around a million lives, displaced over four million people, and severely hindered development.[3] More than two decades were needed to clear landmines, with humanitarian efforts removing over 171,000 mines.[4] Though the country has experienced 30 years of relative peace, local conflicts persist, and the lingering effects of the civil war still impact Mozambique today.

1.2 Geography and climatic conditions

Mozambique is located in southeastern Africa, stretching over 2,000 km from Eswatini and KwaZulu-Natal in South Africa to Tanzania in the north. It shares western borders with Zimbabwe, Zambia, and Malawi and has a 2,450 km coastline along the Indian Ocean. Covering 799,380 km², 1.62% of the country is water, and 7.2% is arable land.[5] The capital, Maputo, is located at the southern end of the coastline.

The Mozambican coast extends from South Africa to Tanzania, facing Madagascar across the Channel. It features two major natural bays: Delagoa Bay, where the capital, Maputo, is located, and Sofala Bay in the central part of the country. The southern coast is primarily composed of tall dunes, some reaching heights of 100 meters, along sandy beaches.[6] In contrast, the northern coast is marked by cliffs, rocky formations, and numerous islands, including the historically significant *Ilha de Moçambique*.

2 See https://www.cia.gov/the-world-factbook/about/archives/2021/countries/mozambique/, accessed 23 March 2024.
3 Ibid.
4 See Smith (2015); Guttiérrez et al. (2015).
5 See https://academic-eb-com.ez.sun.ac.za/levels/collegiate/Article/Mozambique/109711, accessed 23 March 2024; *CIA Factbook;* https://data.worldbank.org/indicator/AG.LND.ARBL.ZS?locations=MZ, accessed 23 March 2024.
6 See https://aquadocs.org/handle/1834/349, accessed 23 March 2024.

Mozambique is traversed by numerous rivers, each contributing to its diverse landscape. The Rovuma River defines the northern border with Tanzania, while the Zambezi River flows from Zimbabwe, creating a vast delta before emptying into the Indian Ocean. The Buzi River reaches Beira, and the Limpopo flows into Xai-Xai from South Africa. The Maputo River, originating from the south, enters the capital city. Many of these rivers flow from the eastern highlands to the western coast, forming deltas such as the expansive Zambezi delta.

Mozambique's topography is characterised by a western escarpment and flat lowlands along the coast. The country has notable highland regions, including the Angónia Highlands southwest of Malawi, the Lichinga Plateau near Lake Malawi, the Chimoio Plateau bordering Zimbabwe, and the Marávia Highlands bordering Zambia. These highlands feature a few prominent summits, with Monte Binga, the highest peak, reaching 2,440 meters near the Zimbabwean border. Mount Namuli in the north reaches 2,419 meters, rising from the Chimoio Plateau.

Mozambique has a predominantly tropical climate influenced by the Indian Ocean. Along the coast, the climate is tropical savanna (Aw) under the Köppen classification,[7] while the northern highlands experience humid subtropical climates (Cwa and Cwb). In contrast, southern highlands are warmer and more arid (BWh and BSh). The country has a dry season from April to September and a wet season from October to March. Annual rainfall varies, with 630 mm in Tete to 1,600 mm in Beira. Temperatures often reach 30°C, peaking at 45°C in Tete, Mozambique's hottest region.

In the southern region of Mozambique, rainfall is scarcer, with Maputo receiving around 815 mm annually. Summer temperatures can climb to 38°C, while winter nights can drop to 10°C. Cyclones frequently impact the country, particularly from December to mid-April. Cyclone Freddy in March 2023 affected over 171,000 people,[8] causing more than 200 deaths across Mozambique and Malawi.[9] In January 2021, Cyclone Eloise led to heavy flooding in central Mozambique, destroying over 1,000 homes and affecting 160,000 people.[10] Cyclones Idai and Kenneth in 2019 similarly devastated the Beira region.

7 See https://climateknowledgeportal.worldbank.org/country/mozambique, accessed 23 March 2024.

8 See https://edition.cnn.com/2023/03/12/africa/cyclone-freddy-mozambique-intl/index.html, accessed 23 March 2024.

9 See https://apnews.com/Article/cyclone-freddy-mozambique-malawi-climate-change-7a0949c6ea48dec4fa772f5d05c494d5, accessed 23 March 2024.

10 See https://www.bbc.com/news/world-africa-55786149, accessed 24 March 2024.

1.3 Soil classification

Mozambique's soils are diverse, with the northern and central regions being generally more fertile compared to the south.[11] The central areas benefit from sediments carried by the Zambezi River. The southern region is less fertile, except for alluvial soils near rivers. Key soil types include Arenosols (sandy soils on the southern coast), Ferralsols (rare in the north), Fluvisols (near rivers), and Leptosols (common in highlands).[12] Lixisols and Luvisols, found in the north, vary in nutrient-holding capacity, while clay and sodium-rich Solonetz soils dominate the south.

1.4 Agro-ecological and livelihood zones

The National Institute of Agronomic Research in Mozambique has classified the country into ten agricultural zones based on rainfall, topography, and soil types as follows:[13]

- R1: Located inland in southern Maputo province, this semi-arid zone receives about 570 mm of rainfall annually, primarily producing cassava, maize, and cattle in sandy soils.
- R2: Situated on the southern coast, this zone also experiences semi-arid conditions with similar rainfall and deep sandy soils, focusing on cassava, cashew nuts, and coconuts.
- R3: North of R1, this arid region has rainfall ranging from 400 to 600 mm per year, with loamy clay soils supporting sorghum and millet cultivation.
- R4: Located inland around Chimoio, this zone sees 1,000 to 1,200 mm of rainfall annually and is characterised by clay soils, producing maize, sorghum, cassava, and cowpeas.
- R5: Encompassing the central coast near Beira and the Zambezi delta, this region receives 1,000 to 1,400 mm of rainfall with vertosols and fluvisols, primarily cultivating rice.
- R6: Following the Zambezi inland, near Tete, this zone has low rainfall (500 to 800 mm) and sandy-clay soils, with millet, sorghum, and cassava as main crops.
- R7: Covering the northern highlands, this zone receives 1,000 to 1,400 mm of rainfall and contains sandy-clay soils, primarily growing maize and sorghum.

11 See Jones et al. (2013); *Britannica*.
12 See *Soil Atlas of Africa* 50.
13 See Walker et al. (2006); https://fews.net/sites/default/files/documents/reports/MZ%20LHdescriptions%20August%202013%20en3.pdf, accessed 29 March 2024.

- R8: On the northern coast of Cabo Delgado province, this zone sees 800 to 1,200 mm of rainfall and mainly sandy soils, focusing on cassava and millet production.
- R9: A small area in Cabo Delgado near the Tanzanian border, this zone experiences 1,000 to 1,200 mm of rainfall, with sandy-lime soils growing maize, sorghum, cowpeas, and cassava.
- R10: Located at the borders with Zimbabwe, Zambia, and Malawi, this high-altitude region receives over 1,200 mm of rainfall, featuring hard ferrasols and is known for maize, millet, beans, and potato production.

In addition to the agro-economic zones identified by the National Institute of Agronomic Research, Mozambique has 26 livelihood zones. These zones, defined as areas where communities share similar food sources, income options, and market access, were established by the USAID-backed Famine Early Warning System Network.[14] They serve as a vital tool for identifying and addressing food insecurity in specific regions of the country. The country is divided as follows:[15]

- Coastal and Lakeshore Regions: These areas focus on fishing and crops such as cassava, rice, and sugarcane, contributing to local food sources and income.
- Highland Areas: Characterised by mixed cropping and tourism, these regions grow a variety of crops, including maize and tobacco, while also supporting forestry initiatives.
- Northwestern and Central Zones: These regions are crucial to producing staple crops such as maize and cassava, alongside cash crops such as tobacco and cotton. The Zambezi Valley stands out for its fishing activities combined with agriculture.
- Southern Regions: With a mix of semiarid and coastal conditions, these areas engage in cereal production, cattle farming, and fishing, playing a vital role in the country's food security.
- Cross-Border Trade and Economic Activities: Some northern and northeastern regions participate in cross-border trade, enhancing food availability but also complicating food security dynamics due to dependency on external markets.

An analysis has been conducted for each livelihood zone, examining various factors such as local crops, soil types, economic activities, challenges faced by communities, and the main hazards that threaten their livelihoods.

14 See https://climateknowledgeportal.worldbank.org/sites/default/files/2019-06/CSA-in-Mozambique.pdf, accessed 28 March 2024.

15 See https://fews.net/sites/default/files/documents/reports/MZ%20LHdescriptions%20August%202013%20en3.pdf, accessed 30 March 2024.

1.5 Demographics

In 2024, Mozambique's population was estimated at 36,769,000, with a density of 40.6 people per square kilometre.[16] The birth rate is approximately 36.5 per 1,000 population, while the mortality rate stands at 9.6 per 1,000, resulting in a natural growth rate of 2.54% per year.[17] This demographic data highlights the country's ongoing population growth and its implications for development and resource management.

Mozambique's population is predominantly black African, accounting for over 99% of its inhabitants. In addition to this majority, there are smaller communities of mixed ethnicities, along with people of European, Chinese, and South Asian descent. Among the various ethnic and linguistic groups, the Makua are prevalent in the north, while the Sena and Shona are found in the central region, and the Shagaan reside in the south.[18] This diversity is a legacy of the Portuguese colonial period.

Portuguese is the sole official language of Mozambique, primarily used for official purposes. As of 2017, only 16.5% of the population speaks it as a first language, while 58% can understand it, mostly in urban areas.[19] The most common first language is Emakhuwa, spoken by about 25% of the population, followed by Xichangana (8.6%), and Elomwe and Cisena (7% each). In addition to Portuguese, several languages, including Makhuwa, Sena, Tsonga, Lomwe, and Shona, are recognised.

In 2017, 60.5% of the population over fifteen could read and write, a significant rise from just 37% in 1997. This increase reflects improvements in education, although only about half of the country's children complete primary school. Fertility rates in Mozambique have decreased from 6 to 4.9 children per woman between 1997 and 2017. The median age is 14.5 years in rural areas and 17.6 in urban settings, with a life expectancy of 58.3 years.[20] The population is predominantly Christian (56.1%), followed by Muslims (17.9%), and practitioners of traditional religions (7.3%). About two-thirds of the population lives in rural areas, largely reliant on subsistence farming.[21] The AIDS infection rate among adults was 11.5% in 2022.[22]

The Human Development Index (HDI) evaluates a country's economic, human, and social development through life expectancy, education, and gross national income per capita.[23] In 2022, Mozambique ranked 183 out of 193 countries, with an HDI value

16 *Britannica.*
17 *CIA Factbook.*
18 *Britannica.*
19 Instituto Nacional de Estatisticais, censo 1980, 1997, 2007, 2017.
20 *CIA Factbook.*
21 *Britannica*.
22 See https://www.unaids.org/en/regionscountries/countries/mozambique, accessed 30 March 2024.
23 See https://hdr.undp.org/data-center/human-development-index#/indicies/HDI, accessed 30 March 2024.

of 0.461, comparable to Afghanistan. This highlights significant challenges in both economic and social progress within the country.

1.6 Economy

Mozambique's economy is developing and typical of a low-income country. In 2022, its gross domestic product (GDP) was estimated at USD 18.407 billion in current US dollars and USD 48.707 billion when adjusted for purchasing power parity.[24] This translates to a per capita GDP of USD 558.30 and USD 1,477.30, making Mozambique one of the countries with the lowest per capita GDP globally. The national currency, the Metical, is managed by the National Bank of Mozambique in Maputo. GDP growth averaged 7.6% from 1993 to 2015 but has slowed significantly since then.[25]

1.6.1 Agriculture

Most of Mozambique's population relies on subsistence farming, with approximately 80% engaged in agriculture, contributing only 23% to the nation's GDP.[26] Crop yields are often limited, reaching only 30% to 60% of their potential. Maize is the most widely cultivated staple, covering half of the total cultivated area, but only 5% to 30% of farms sell their maize. Cassava ranks second, occupying 19% of arable land, with similar consumption-focused production. Rice, the third-largest crop at 8.73% of cultivated land, primarily comes from small farms averaging 0.5 hectares, leading to substantial imports.

Cash crops include cotton, sugar cane, bananas, and cashew nuts, with cotton mostly farmed by smallholders. Notably, 80% of banana production is exported, while cashew is grown in coastal regions and sugar cane thrives along rivers.

1.6.2 Fishing

Fishing is a vital source of food and income for Mozambicans, supplying half of the country's daily protein and supporting 350,000 livelihoods, representing 2% of the GDP.[27] Artisanal fishing dominates, accounting for 90% of production, which reached

24 *The World Bank Factbook.*
25 *World Bank*.
26 Silici et al. (2015).
27 See https://documents1.worldbank.org/curated/en/342481619154376842/pdf/Fisheries-in-Mozambique-A-Snapshot.pdf, accessed 15 April 2024.

about 397,200 tonnes in 2018.[28] Fishing communities are often small, isolated, and economically disadvantaged.[29] As of 2020, there were 377 semi-industrial vessels and 99 industrial ships, with many operations focused on shrimp fishing.[30]

1.6.3 Manufacturing

Manufacturing in Mozambique began during colonial times but halted in the 1970s due to the exodus of skilled labour and the civil war, which reduced industrial production by two-thirds by 1990.[31] Since then, limited industrial projects have emerged, such as the Mozal aluminium smelter, which opened in 2000 and uses 45% of the country's electricity while contributing 10% to GDP.[32] In 2014, Hyundai established an assembly plant near Maputo,[33] but challenges such as a lack of skilled labour and infrastructure hindered the development of the car manufacturing sector.[34]

1.6.4 Mining

Mining plays a vital role in Mozambique's economy, with resources such as aluminium, gold, iron, niobium, tantalum, gemstones, clay, coal, natural gas, and titanium being extracted.[35] In 2019, Mozambique was the second-largest producer of graphite, contributing 10% of the global supply. Mining accounted for approximately 55% of the country's exports that year, with several coal projects also underway.

28 See https://ecofish-programme.org/wp-content/uploads/2023/03/ECO-2022-39-Fisheries-Mgmt-MOZ.pdf, 10, accessed 15 April 2024.
29 See https://documents1.worldbank.org/curated/en/403651525888008345/pdf/Communities-livelihoods-fisheries-fisheries-governance-and-shared-growth-in-Mozambique.pdf, 2, accessed 15 April 2024.
30 See *Ecofish*.
31 *Britannica.*
32 See https://www.news24.com/fin24/economy/mozambique-wants-to-end-cahora-bassa-deal-with-eskom-threatening-sa-power-supply-20240202, accessed 15 April 2024; Tran (2013).
33 See https://africanreview.com/manufacturing/industry/hyundai-opens-assembly-plant-in-mozambique, accessed 25 April 2024.
34 See https://www.zitamar.com/a-car-that-wont-start-obstacles-to-mozambiques-electric-vehicle-potential/, accessed 25 April 2024.
35 See https://pubs.usgs.gov/myb/vol3/2019/myb3-2019-mozambique.pdf, accessed 25 April 2024.

1.6.5 Energy production

1.6.5.1 Natural gas

The discovery of natural gas has been transformative for Mozambique. The Mamba South gas field, located off Cabo Delgado's coast, was discovered in 2010, holding around 425 billion cubic meters of gas valued at approximately USD 350 billion.[36] This sparked significant investment, including a landmark USD 20 billion from Total Energies, Africa's largest foreign investment.[37] However, the project faced setbacks due to regional violence, particularly the 2021 attack on Palma, which halted operations.[38] By November 2022, Mozambique made its first liquefied natural gas shipment to Europe, but ongoing violence and legal actions against Total Energies raise concerns about the local benefits from gas exploitation.[39] Mozambique is expected to gain only about USD 20 billion from the discovered reserves,[40] illustrating the challenges faced by developing countries amid large foreign investments.

1.6.5.2 Hydraulic power

Mozambique's diverse geography, featuring highlands and rivers, is conducive to hydroelectric power generation. As of 2020, hydropower accounted for 79% of the country's electricity, down from 100% between 1998 and 2012.[41] Access to electricity increased from 3.66% in 1998 to 30.60% in 2020,[42] with an installed capacity of 2,834 MW in 2021.[43] The Cahora Bassa Dam, the largest in Southern Africa at 2,075 MW, primarily exports electricity to South Africa. However, Mozambique plans to redirect this supply for domestic electrification, including a new project at Mphanda Nkuwa expected to produce 1.5 GW.[44]

36 See https://www.bbc.com/news/business-15386875, accessed 25 April 2024; https://www.bbc.co.uk/news/world-africa-22008933, accessed 25 April 2024.
37 See https://www.bbc.com/news/world-africa-56886085, accessed 25 April 2024.
38 See https://www.bbc.com/news/world-africa-56557623, accessed 27 April 2024.
39 See https://www.africanews.com/2022/11/13/mozambican-leader-announces-first-lng-export-shipment/, accessed 27 April 2024; https://reliefweb.int/report/mozambique/acaps-briefing-note-mozambique-conflict-cabo-delgado-17-april-2024, accessed 27 April 2024; https://www.rfi.fr/en/africa/20240504-french-prosecutors-probe-totalenergies-over-deadly-mozambique-attack, accessed 27 April 2024.
40 See https://www.bbc.co.uk/news/world-africa-22008933, accessed 27 April 2024.
41 See https://data.worldbank.org/indicator/EG.ELC.HYRO.ZS?locations=MZ, accessed 28 April 2024.
42 See https://ourworldindata.org/energy/country/mozambique, accessed 28 April 2024.
43 See https://www.trade.gov/country-commercial-guides/mozambique-power-generation-transmission-distribution, accessed 28 April 2024.
44 See https://www.news24.com/fin24/economy/mozambique-wants-to-end-cahora-bassa-deal-with-eskom-threatening-sa-power-supply-20240202, accessed 28 April 2024;

1.6.6 Tourism

Mozambique's stunning tropical coast is increasingly attracting tourists, with the industry projected to contribute 12% to the GDP in 2022.[45] The country welcomed two million tourists in 2019.[46] The tourism sector is relatively new, having faced significant challenges during the civil war that restricted access and deterred visitors. As the situation improves, Mozambique is positioning itself as a vibrant travel destination, offering unique experiences along its coastline and rich cultural heritage.

1.7 Internal conflicts

Mozambique has faced ongoing internal conflicts that also significantly impact soil health and land management. After a civil war and a brief peace period, political tensions between the ruling *Frente de Libertação de Moçambique* (FRELIMO) and the *Resistência Nacional Moçambicana* (RENAMO) led to intermittent insurgencies from 2013 to 2021,[47] alongside an Islamic insurgency in Cabo Delgado since 2017.[48] These conflicts disrupt agricultural practices, displace communities, and lead to land abandonment, adversely affecting soil health.

Uncertainty regarding land ownership hinders investment in sustainable practices, while increased resource exploitation can degrade soil quality. The instability threatens food security by reducing local agricultural production and increasing reliance on imports. Displacement forces farmers to cultivate larger plots in remote areas for safety, impacting their land management practices.[49] Understanding these socio-political challenges is essential for effective soil management and sustainability.

https://www.trade.gov/country-commercial-guides/mozambique-power-generation-transmission-distribution, accessed 28 April 2024.

45 See https://360mozambique.com/business/tourism/mozambican-tourism-growth-of-12-in-2022/, accessed 28 April 2024.

46 See https://data.worldbank.org/indicator/ST.INT.ARVL?view=map&locations=MZ, accessed 28 April 2024.

47 FRELIMO secured 52.29% of the vote, while RENAMO received 47.71%. See https://africanelections.tripod.com/mz.html, accessed 28 April 2024; Felimao (2014); Bowker (2015); https://www.aljazeera.com/news/2019/08/mozambique-president-RENAMO-leader-sign-peace-deal-190801115411693.html, accessed 30 April 2024; https://allafrica.com/stories/202105210826.html, accessed 30 April 2024.

48 For a discussion see Warner et al. (2020); Weiss (2019); Love (2023); Karr (2023); Goldbaum (2021); Borges et al. (2024); Corcoran (2020).

49 Temudo & Silva (2012: 433).

1.8 Political system and governance

1.8.1 Constitution

Mozambique gained independence through war, with FRELIMO emerging as both the victor and the ruling party. The 1975 Constitution, drafted by FRELIMO, declared the country a democratic and independent republic, solidifying the party's power.[50]

In 1990, a new Constitution was enacted, recognising FRELIMO's role in the liberation struggle while allowing other political parties to participate, provided they respect the law.[51] The current Constitution, introduced in 2004 and amended in 2018 and 2023, establishes a semi-presidential system where the President appoints the Prime Minister without a parliamentary confidence vote, though parliament can dismiss the government.[52]

1.8.2 Executive branch

According to the Constitution, the President serves as the head of state, head of government, and commander-in-chief of the armed forces.[53] Elected by universal suffrage for a five-year term, the President can serve a second consecutive term and additional discontinuous terms.[54] The current President is Filipe Nyusi of FRELIMO, first elected in 2015.

The government, or Council of Ministers, includes the President, Prime Minister, and ministers, overseeing national administration with limited legislative power.[55] Additionally, the Council of State assists the President on matters such as assembly dissolution, general elections, war declarations, or government dismissal, comprising current and former officials and opposition leaders.[56]

1.8.3 Legislative branch

Mozambique has a unicameral legislature known as the Assembly of the Republic, composed of 250 deputies elected through direct suffrage.[57] This body holds legislative

50 Arts 2-3 of the 1975 Constitution.
51 See Arts 32, 107 & 118 of the 1990 Constitution.
52 Ibid.: Art 159; Shugart (2005).
53 Art 146 of the 2004 Constitution.
54 Ibid.: Arts 147-148.
55 Ibid.: Arts 201 & 203-204.
56 Ibid.: Arts 164 & 166.
57 Ibid.: Art 169.

power, approves the state budget, and oversees government actions.[58] Currently, FRELIMO dominates the Assembly with 184 deputies, while RENAMO serves as the main opposition party with 60 deputies.

1.8.4 Judicial branch

Since the 1990 Constitution, Mozambique's judicial branch has operated independently, with judges required to uphold the law impartially.[59] The judiciary comprises various courts, including a Supreme Court, which is the highest court, and an Administrative Court, the highest for administrative matters.[60]

1.9 Legal system

Mozambique's legal system is based on the Portuguese model, characterised by a civil law system where legislation serves as the primary source of law, lacking the binding precedent found in common law.[61] The 2004 Constitution acknowledges legal pluralism, allowing for the coexistence of different legal traditions.[62] New laws and decrees are officially published in the Bulletin of the Republic.[63]

2 Soil degradation

2.1 Main drivers of soil degradation

Soil degradation in Mozambique results from rapid population growth and economic activities. As development accelerates, land demand leads to unsustainable practices harming soil health. Climate change exacerbates the issue, with droughts, floods, and cyclones causing erosion and fertility loss. Deforestation for agriculture and artisanal gold mining introduces further environmental degradation, including mercury

58 Ibid.: Art 179.
59 See Massarongo-Jona et al. (2023); Art 217 of the 2004 Constitution.
60 Ibid.: Arts 223 & 227-228.
61 *NYU Law*.
62 Art 4 of the 2004 Constitution.
63 *NYU Law*.

pollution.[64] These harmful practices threaten agricultural productivity, local ecosystems, and public health, jeopardising the livelihoods of communities reliant on healthy soil.[65]

2.1.1 Agriculture

Agriculture in Mozambique primarily relies on subsistence farming, with 80% of the workforce engaged in this sector.[66] Unsustainable practices, such as excessive soil tillage and slash-and-burn techniques, contribute to soil degradation through erosion and nutrient depletion.[67] Research shows that common tillage methods, including using hand hoes, lead to poor soil quality by reducing organic matter and disrupting soil structure.[68] To mitigate these effects, reducing tillage intensity and maintaining crop residues can improve soil health, enhance fertility, and promote sustainable agricultural practices, crucial for carbon sequestration and ecosystem resilience.

2.1.2 Deforestation

Deforestation is a major problem in Mozambique. From 2001 to 2023, Mozambique lost an estimated 4.30 million hectares of tree cover. This represents a 15% decrease.[69] A study found that small-scale agriculture was responsible for 46 ± 17% of total biomass loss, followed by construction and other activities at 24 ± 11%, charcoal production at 18 ± 9%, logging at 9 ± 5%, and commercial agriculture at 3 ± 2%.[70]

The expansion of cropland to accommodate population growth often comes at the expense of forests. Additionally, the rise of commercial farming displaces subsistence farmers, leading to increased deforestation and soil pollution.[71]

Timber harvesting in Mozambique, both legal and illegal, contributes significantly to deforestation as communities and private companies seek construction materials and firewood.[72] Charcoal production, driven by urban demand, further exacerbates forest

64 See Bey et al. (2021); Perreira et al. (2024).
65 See https://reporting.unhcr.org/files/2023-06/SA%20-%20Mozambique.pdf, accessed 18 May 2024; https://planipolis.iiep.unesco.org/sites/default/files/ressources/mozambique_vnr_2020.pdf, accessed 18 May 2024.
66 See https://www.usaid.gov/mozambique/agriculture-and-food-security, accessed 18 May 2024.
67 See *Britannica;* Perreira et al. (2024); Serrani et al. (2022).
68 See Chichongue et al. (2020).
69 See https://www.globalforestwatch.org/dashboards/country/MOZ/?category=forest-change&location=WyJjb3VudHJ5IiwiTU9aIl0%3D, accessed 19 May 2024.
70 See Ryan et al. (2014).
71 See Zaehringer et al. (2018).
72 See Perreira et al. (2024).

loss, while also serving as a crucial income source in rural areas.[73] To combat this issue, Mozambique has launched its National Reforestation Strategy, aiming to develop a forest-based economy that provides alternatives to local populations and reduces pressure on native forests.[74]

2.1.3 Mining

Mining, especially open-pit operations, significantly impacts soil quality in Mozambique.[75] Both large companies and small-scale miners contribute to soil degradation, with artisanal gold mining posing a notable threat.[76] The use of mercury in gold extraction is particularly damaging to soil, waterways, and miner health.[77] Additionally, contamination from arsenic, chromium, and manganese has been detected in soils and groundwater around large mining sites, highlighting the serious environmental and health risks associated with these practices.[78]

2.1.4 Waste pollution

Waste pollution poses a severe threat to soils in Mozambique, as untreated waste is often dumped in landfills.[79] A National Census in 2017 revealed that 46% of the population burned waste, while others buried it or disposed of it in open areas. This practice leads to soil contamination, especially with heavy metals from solid waste, notably around Maputo's Hulene-B dumpsite, where 1,250 tons of waste are produced daily.[80] Additionally, hazardous waste from developed countries has been received, including toxic substances, despite a 2019 international convention aimed at addressing the issue.[81]

73 See Sedano et al. (2016).
74 See Mbanze et al. (2022).
75 See Perreira et al. (2024).
76 See Rase et al. (2022).
77 See Perreira et al. (2024); Global Assessment of Soil Pollution (2021).
78 See Marove et al. (2022).
79 See Sallwey et al. (2017).
80 See Bernardo et al. (2022); Amad et al. (2020).
81 See Global Assessment of Soil Pollution (2021).

2.1.5 Demographic growth and poverty

Rapid demographic growth and relative poverty in Mozambique significantly impact soil health.[82] As the population increases, so does the demand for food, leading to expanded agricultural areas and intensified farming practices, which contribute to soil degradation. In Zambezia province, the decline of coconut trees due to disease has forced communities to exploit mangrove resources, worsening soil erosion. The Food and Agriculture Organization (FAO) highlights that these factors create a cycle of environmental stress and vulnerability, emphasising the need for sustainable practices to protect soil and ecosystems.[83]

2.1.6 Climate factors and natural disasters

Climate factors, particularly droughts and floods, severely impact soil conservation in Mozambique by exacerbating erosion and reducing soil fertility.[84] The FAO identifies human activities and climate change as the main threats to soil quality, with hydric erosion being a major concern.[85] Droughts further worsen soil erosion and diminish agricultural productivity, forcing communities to resort to harmful practices. Although Mozambique is not a desert, some regions are becoming drier, increasing the risk of desertification and negatively affecting soil conservation efforts.[86]

2.2 Conclusion

Demographic and economic growth in Mozambique significantly contributes to soil pollution. To address this, two key areas for improvement are stricter controls on companies and enhanced training for local populations. Effective implementation of tighter regulations requires strong policies, regular monitoring, and accountability. Promoting sustainable practices in forestry, agriculture, mining, and charcoal production is essential, particularly in the context of population growth. Increasing droughts and

82 See https://www.unep.org/news-and-stories/press-release/mozambique-works-break-vicious-circle-environmental-degradation-and, accessed 27 May 2024.
83 See https://www.fao.org/mozambique/news/detail-events/en/c/1173887/, accessed 27 May 2024.
84 See https://www.npr.org/sections/goatsandsoda/2019/12/27/788552728/mozambique-is-racing-to-adapt-to-climate-change-the-weather-is-winning, accessed 27 May 2024.
85 See https://www.fao.org/mozambique/news/detail-events/en/c/1173887/, accessed 27 May 2024.
86 See https://www.uncdf.org/Article/8745/our-land-our-future-tackling-land-restoration-halting-desertification-and-building-drought-resilience-at-the-local-level, accessed 27 May 2024.

desertification risks, combined with deforestation and harmful agricultural practices, further exacerbate soil erosion.[87]

3 Relevant national legislative framework on the main drivers of soil degradation

3.1 Constitution

The 2004 Constitution of Mozambique offers environmental protections, ensuring citizens have the right to a balanced environment and the duty to protect it (Article 90). It mandates state and local authorities to implement policies for safeguarding the environment and promoting sustainable resource use. Article 117 emphasises the state's role in ecological balance and quality of life, outlining policies aimed at preventing pollution and erosion, integrating environmental objectives with sectoral policies, and ensuring the rational use of natural resources for future generations.

Article 102 of the 2004 Constitution allows the government to promote the knowledge and valuation of natural resources while setting conditions for their use and development according to national interests. While it does not explicitly require environmental protection, it provides a framework for the government to establish tighter regulations and control over resource exploitation. This article, in conjunction with others focused on environmental rights and sustainability, can support efforts to protect natural resources and the environment in Mozambique.

In Mozambique, land is state property, as established by Article 109, which prohibits land sales. Article 110 gives the government control over land use, allowing it to regulate sustainably. While not explicitly mandating environmental protection, this authority enables the state to deny permits for harmful projects. Article 111 recognises traditional land rights through inheritance or occupation, balancing land use regulation with these rights. This legal framework presents opportunities for promoting soil conservation and responsible land management in the country.

Article 81 of Mozambique's Constitution empowers citizens to initiate legal actions for environmental protection, reinforcing their role in safeguarding public interests. This provision, included in the 2004 amendment, enhances public accountability and encourages active participation in conservation efforts.

Thus, the Constitution contains multiple commitments to environmental protection and grants the state authority to manage natural resource access and land ownership, supporting sustainable practices. Various laws complement these constitutional provisions to address environmental issues in greater detail.

87 See https://www.informea.org/sites/default/files/imported-literature/MON-094629.pdf, accessed 30 May 2024.

3.2 Law No. 19/97 Land Law

3.2.1 Presentation of the law

Mozambique's land ownership system is rooted in its Marxist-Leninist political past.[88] Article 109 of the Constitution declares that land belongs to the state and cannot be sold. The 1997 Land Law builds on this by establishing a framework where land use is governed through DUATs (*Direito de Uso e Aproveitamento da Terra*), granting rights to individuals or organisations to use land for 50 years, renewable. This law aims to regulate land tenure, promote responsible land use and protect the rights of local communities while aligning with national development objectives (Article 17).

The 1997 Land Law reinforces the state's ownership of land, which cannot be transferred, leased, or mortgaged (Article 3). It establishes the State Land Fund and designates zones of total and partial protection (Article 4). Article 7 restricts land use in critical areas, such as nature reserves, while Article 8 focuses on safeguarding water sources. The law ensures sustainable land use through DUATs, granting usage rights but maintaining state control over land, thereby promoting conservation and responsible land management.

Article 12 outlines three paths for acquiring land in Mozambique: through customary norms by local communities, occupation by individuals in good faith for at least ten years, and legal petitions. Local communities, defined as families living in specific areas, cannot sell their land outright but can permit private individuals to apply for government leases, granting legal access to the land. This framework emphasises protecting community interests while maintaining state control over land usage.[89]

Article 17 of Mozambique's Land Law stipulates that the right to use land for economic purposes is valid for 50 years but can be renewed. In contrast, local communities using the land for habitation or familial exploitation do not have a specified term for their rights. This distinction highlights the government's recognition of community needs while regulating land use for economic activities.

The 1997 Land Law in Mozambique aims to differentiate between local communities and nationals versus large commercial entities, particularly foreign ones. Local communities enjoy protective access to land, while commercial entities face restrictions and fees. Article 28 mandates that land use titleholders must pay fees, whereas national citizens benefit from preferential fees. Article 29 allows free land use for the state, local communities, and small-scale national cooperatives, highlighting a commitment to prioritise community needs over commercial exploitation. A subsequent decree clarified these provisions.[90]

88 See *Britannica*.
89 McLain (2023: 11).
90 *Regulamento da Lei de Terras vigente pelo Decreto* No. 66/98.

In 2010, the 1997 Land Law in Mozambique was amended to include a requirement for local communities to be consulted on land administration and use management (Article 27).[91] The amendment emphasises the active participation of these communities in decision-making processes through local consulting committees, reinforcing their rights and involvement in land-related matters. This change aims to enhance transparency and accountability in land governance, ensuring that community voices are heard and considered in decisions affecting their land rights.

While the 1997 Land Law in Mozambique does not explicitly address environmental issues, the state's ownership and control over land use are crucial for implementing soil protection policies. The government's authority allows it to regulate land use practices that impact soil health, enabling the adoption of sustainable land management strategies that can help mitigate soil degradation and promote environmental conservation. The law's framework supports the integration of environmental considerations into land administration, fostering responsible land use among local communities and national entities.

In 2010, Mozambique established a consulting forum on land to enhance dialogue among stakeholders, focusing on ecological zone conservation.[92] A 2024 consultation, following previous meetings and the 2022 land policy adoption, aims to modernise the law.[93] The reform seeks to improve land access for local communities and nationals while addressing the disconnect between law and practice.[94] However, concerns have been raised about proposed changes, including land privatisation, restricted access, and weakened guarantees for local communities, alongside calls for stronger environmental provisions.[95]

The application of Mozambique's Land Law remains problematic, with some harmful projects being approved despite commitments to sustainable development.[96] For instance, the natural gas project on the Afungi Peninsula uprooted a community without clear justification, raising concerns about transparency and local rights. Similarly, mining projects in Tete province have been criticised for disregarding land rights

91 Decree No. 43/2010.

92 Decree No. 42/2010 creating the Consulting Forum on Land.

93 See https://sibmoz.gov.mz/public-consultations/consulta-publica-do-anteprojecto-da-lei-de-terras/, accessed 8 June 2024; https://clubofmozambique.com/news/mozambique-government-approves-new-land-policy-its-implementation-strategy-aim-227836/, accessed 8 June 2024; https://naturaljustice.org/wp-content/uploads/2024/01/Moz-Land-Law-Fact-Sheets-2024-1-1.pdf, accessed 8 June 2024; Resolution 45/2022.

94 See https://www.dw.com/pt-002/mo%C3%A7ambique-revis%C3%A3o-da-lei-de-terras-em-fase-de-ausculta%C3%A7%C3%A3o-p%C3%BAblica/a-66176444, accessed 10 June 2024; https://www.cipmoz.org/wp-content/uploads/2021/10/RELATO%CC%81RIO-RELATIVO-A%CC%80-REVISA%CC%83O-DA-POLI%CC%81TICA-E-LEI-DE-TERRAS.pdf, 15, accessed 10 June 2024.

95 See https://naturaljustice.org/wp-content/uploads/2024/01/Moz-Land-Law-Fact-Sheets-2024-1-1.pdf, accessed 10 June 2024.

96 See https://www.wri.org/insights/qa-alda-salomao-natural-gas-project-threatens-community-land-mozambique, accessed 10 June 2024.

and causing environmental degradation. These instances highlight the ongoing challenges in enforcing land and environmental protection laws while balancing economic development and community welfare.[97]

3.2.2 Land tenure insecurity and land registration

Land tenure insecurity in Mozambique stems from the government's nationalisation of land after independence in 1975.[98] The 1997 Land Law aimed to provide legal recognition of land claims for local communities, allowing them to establish rights either through good faith occupation or customary practices (Article 12). This law sought to protect existing land claims, offering legal support to pre-existing *de facto* tenures, which is essential for ensuring the rights of communities in the face of ongoing development pressures.[99]

Lawmakers in Mozambique faced the challenge of defining customary norms due to the country's diverse ethnic groups. Rather than specifying these norms, the 1997 Land Law was crafted to broadly encompass various customary practices across different regions. Article 12 allows local communities to use customary norms to assert their land rights, while Article 24 empowers them in natural resource management, dispute resolution, and entitlement processes. This flexible approach acknowledges the importance of local customs in land governance.

The inclusion of customary norms in Articles 12 and 24 highlights the lawmakers' recognition of existing land tenure structures in Mozambique. This approach allows the state to manage land tenure effectively without requiring documentation for every individual claim, relying instead on local customs. However, despite these protections, violations of the law have led to issues of land grabbing, undermining the intended security for local communities. The lack of respect for these provisions poses significant challenges for the integrity of land tenure in the country.[100]

Land registration remains a critical issue in Mozambique, with over 80% of land held under good faith or customary occupations unregistered.[101] Although customary rights are acknowledged in the Land Law, local communities struggle to prove and delineate their land use. Low literacy rates further complicate this process, leaving them vulnerable to exploitation. While long-term use can establish rights, registration

97 See https://www.hrw.org/sites/default/files/reports/mozambique0513_Upload_0.pdf, accessed 10 June 2024.
98 Art 109 of the 2004 Constitution.
99 See Knight (2021).
100 See https://grain.org/en/article/5137-the-land-grabbers-of-the-nacala-corridor, accessed 18 September 2024.
101 Balas et al. (2021: 2).

is not automatic and only confirms existing rights.[102] Additionally, the absence of an efficient Land Information Management System (LIMS) hampers efforts to secure equitable land access and tenure.

To address this, two key initiatives were launched: *Acesso Seguro à Terra* in 2010, which aimed to register land in northern provinces and implement a LIMS (SiGIT), and *Terra Segura* in 2015, which aimed to regularise five million land parcels and delimit four thousand communities, with support from the World Bank.[103]

Over four years, *Acesso Seguro à Terra* registered only 200,000 parcels, mainly in urban areas, while *Terra Segura* registered 220,000 parcels and delimited 400 communities by the end of 2016, far short of its goals. The average cost was USD 50 per parcel and USD 10,000 per community. Paper-based forms led to high rejection rates due to data issues such as invalid locations and missing mandatory information. Additionally, conducting community delimitations and individual registrations separately duplicated efforts, raising costs and causing dissatisfaction. The conventional methods were too expensive, slow, and riddled with data quality problems, making it clear that a more efficient and affordable approach was needed to achieve widespread land tenure security.

Despite significant donor investments, Mozambique has been slow to embrace technology for scaling land rights data, integrating systems, and utilising open data tools. The national land cadastre remains largely analogue, opaque, and disconnected.[104] While some issues stem from the SiGIT system, deeper problems include a lack of national standards for cadastral operations, missing and conflicting data, unrecognised community boundaries, political and elite interference, and insufficient human and technical resources. The lack of transparency in the cadastre may reflect both bureaucratic attempts to hide these dysfunctions and efforts to protect skewed land allocations from public scrutiny.

In Mozambique, most formal land administration is managed at the provincial level by the Provincial Services for Geography and Cadastre (SPGC), which maintains cadastral maps and DUAT records. District-based services, such as the District Services for Economic Activities (SDAE) or Infrastructure and Planning (SDIP), primarily handle technical and surveying tasks but often lack access to crucial data stored at the provincial level. As a result, local communities and customary leaders play the primary role in day-to-day land administration.

Recognising that full title registration is not feasible in the medium term, the Mozambican government has initiated the community land delimitation (CLD)

102 "Areas over which a right of land use and benefit has been acquired by occupancy according to customary practices may, when necessary or at the request of the local communities, be identified and recorded in the National Land Cadastre". Art 9(3) of Decree 66/98; Art 14(2) of the Land Law.

103 Balas et al. (2021: 3).

104 Norfolk et al. (2020: 13).

program as a lower-cost option.[105] Historically, CLD efforts were mainly government-led, but due to financial and capacity constraints, progress was limited. In 2003, international donors launched the Community Land Initiative (*Iniciativa Terras Comunitarias*, or iTC) to promote local economic development through balanced community-investor partnerships and support the registration of community land rights.

The registration process for customarily acquired rights involves a participatory rural diagnosis, where local communities use their knowledge of history, land use, and socio-political organisation to define their community. This approach aims to empower residents by incorporating their insights into the formal recognition of their land rights.[106] At the start of the delimitation process, a consultation takes place, and local leaders claim the land belonging to their community. The technical regulations of the Land Law outline a multi-step delimitation process that begins with information dissemination to ensure all stakeholders are informed.[107] Following this, a participatory appraisal is conducted, allowing community members to engage actively in the process. This is followed by the creation of a sketch and a descriptive report that details the findings. Afterwards, feedback is gathered from participants to refine the process and address any concerns. Finally, the completed delimitation information is entered into the National Land Cadastre, ensuring that all data is officially recorded and accessible.

The SPGC oversees the technical accuracy of the mapping done based on the claims made by each local community. The sketch map realised after consultation with the local community must be approved by the leaders of that community, as well as the leaders of neighbouring communities.[108] The SPGC will store the map (*lançamento*) and issue a certificate (*certidão*), which certifies that the delimitation process was conducted lawfully.[109] This represents an entry into the National Land Cadastre.[110]

The mapping and cadastre can effectively identify local communities and vacant areas for potential projects. By documenting land rights, local communities are legally protected, although proving these rights without formal certificates can be challenging.[111] This approach allows for efficient mapping across Mozambique's rural landscape, aligning with the FAO's recommendations to manage communal land use cost-effectively. Instead of detailing each small plot, a larger boundary around villages can secure local land rights collectively, simplifying documentation and management.

In Mozambique, while the 1997 Land Law offers a framework for protecting local community rights, its implementation is lacking, leading to tenure insecurity. Despite

105 Ghebru et al. (2015: 1).
106 See Durang et al. (2004).
107 Ministerial Decision No. 29-A/2000 approving the Technical Annex to the Land Act, Art 5(1).
108 Land Law, Art 12(1).
109 See Durang et al. (2004).
110 Ministerial Decision No. 29-A/2000 approving the Technical Annex to the Land Act, Art 13.
111 Land Law, Art 12(1); Durang et al. (2004).

low literacy rates,[112] the law aims to be accessible. However, communities often lack legal protections against government actions that allocate their land to investors.[113] The state's declaration of "unused" land as available for state control exacerbates this issue, undermining communities' efforts to secure their land rights even after successful delineation. This highlights a significant gap between legal provisions and practical enforcement.

Under the customary system, land access is primarily through inheritance, community leaders' allocations, land clearing, buying, or borrowing. Although land markets are legally prohibited, buying and selling land remains a widespread practice. One type of land market is community-based, where private investors negotiate access by providing agricultural produce, building schools or clinics, or employing local labour, often consulting community leaders. The second type is private land markets, which emerged after company privatisations increased demand for land investment. These markets involve internal community transactions, urban buyers acquiring land from rural sellers, or private groups, including foreigners, renting land through local intermediaries.

Political power and economic resources also play a significant role in determining land tenure security in Mozambique. Farmers and residents often depend on money and political connections to secure land for basic needs such as food, livelihoods, and housing.[114] As wealthier individuals gain access to more land, the poor are left with fragmented and less fertile plots. This leads to a growing concern among existing landowners that their families and future generations are losing their land while rising population density further complicates efforts by farmers to buy or rent additional land for cultivation.

More than 90% of communities involved in a study on CLD outcomes in Mozambique reported fewer land conflicts, both internally and between neighbouring communities, after undergoing the CLD process.[115] Additionally, perceptions of tenure security were significantly higher in CLD communities compared to those that did not participate in the CLD process. Despite the potential to leverage community institutional capacity and integrate local communities into the formal land administration system, the central government has not made this a practical focus, even though officials recognise its importance. Land administration is still viewed as a service provided to communities rather than a collaborative effort. Only recently has the government started to implement the Land Law with rural land users in mind. Before this, the focus of cadastral authorities was primarily on urban housing market transactions benefiting the middle class and facilitating land allocations for external investments in

112 See https://data.worldbank.org/indicator/SE.ADT.LITR.ZS?locations=MZ, accessed 18 September 2024.
113 See Knight (2021).
114 Ibid.: 7.
115 Ghebru et al. (2015).

agriculture, forestry, and mining.[116] Notably, the Mozambican state did not finance any of the hundreds of CLD processes completed by 2015; these efforts were largely driven by NGOs with support from bilateral donors.

3.3 Law No. 19/2007 on Land Use Planning and Territorial Planning

The Law on Land Use Planning in Mozambique governs territorial planning, defining it as the process of creating plans that shape human interactions with their environment.[117] This law directly impacts soil conservation. However, the government has identified several land use challenges, including unregulated urban expansion and inadequate spatial planning enforcement; poor supervision and coordination among stakeholders in land allocation; delays in hiring specialised personnel for urban planning and meeting housing demands; construction of homes in erosion and flood-prone areas; establishment of enterprises in unplanned zones; lack of designated spaces for essential infrastructure such as roads, markets, and recreational areas; difficulty in installing drainage systems and utilities in existing neighbourhoods; and rising poverty, vandalism, and deteriorating health and sanitation conditions.[118]

The law is organised into five chapters: general provisions, territorial management systems, planning tools, citizen rights and obligations, and evaluation, monitoring, and inspections. Its primary goal is to establish a legal framework for land use planning that aligns with constitutional principles.[119] Key principles include sustainability, public participation, equal access to land, precaution, minimising environmental impact, public entity accountability, legal security, and transparency.[120] The law aims to secure local communities' land rights and ensure the preservation of soil fertility and quality.[121] It introduces instruments such as the National Plan for Territorial Development and Special Territorial Planning Plans.[122]

This law underscores the importance of territorial planning in Mozambique. Between 2006 and 2014, the Community Land Initiative helped secure land for local communities, aiding 679 communities in delimiting and 633 in demarcating their land, covering over nine million hectares by 2016.[123] This project empowered communities, allowing them to become key players in local land planning. The government aims to link land regularisation with planning, which offers benefits such as better protection

116 Norfolk et al. (2020: 14).
117 Law No. 19/2007 on Land Use Planning, Art 1.
118 See https://spp-pr.com/conferences/3rdMeeting/pdf/doc_langa.pdf 7-8, accessed 30 September 2024.
119 Law No. 19/2007 on Land Use Planning, Art 2(a).
120 Ibid.: Art 4(a-g).
121 Ibid.: Art 5(2)(a) & (d).
122 Ibid.: Art 10(2).
123 See Monteiro et al. (2017); Carrilho et al. (2024).

of natural resources, reduced resettlement risks, and diminished community conflicts, highlighting the need for proper consultations and assessments for sustainable development.

The 2008 Regulation of the Spatial Planning Law complements the 2007 Land Use Planning Law by establishing a legal framework for national spatial planning instruments. It regulates interactions between various levels of public administration and stakeholders, including representatives from economic, social, and cultural sectors, as well as local communities. This framework aims to enhance collaboration and ensure that diverse interests are considered in the spatial planning process, ultimately promoting effective land use management in Mozambique.[124]

The MOZLAND project focuses on enhancing land tenure security in selected districts while improving the efficiency and accessibility of land administration services.[125] It aims to regularise two million DUATs (land usage authorisations) and is based on four principles: community participation, prioritising delimitation with land use zoning, a fit-for-purpose "pro-poor" cadastre, and clustering community efforts.[126] Although the project led to the new legislation, Diploma Ministerial n° 2/2020, it lacks provisions for analysing climate and disaster risks. The government recognises the need for trained personnel, planning to train over 18,000 individuals through the "Ordering My Neighbourhood" program, which focuses on land use planning and climate change awareness.[127]

In 2021, the Mozambican government, through the Ministry of Land and Environment, recognised several challenges in land use planning.[128] Key issues include the training of technicians and community leaders, effective implementation of territorial planning instruments, enhanced monitoring and inspection, improved inter-sector coordination, the requalification of informal settlements, and better solid waste management and sanitation. Progress is being made through urban structure plans and government support for municipalities, districts, and provinces.

New laws must safeguard the rights of local communities while addressing environmental concerns. Following the issuance of DUATs (land usage authorisations), land use planning becomes essential in regulating land usage. To ensure better representation of local communities and adherence to the principles established in the 2007 Land Use Planning Law, it is crucial to actively involve these communities in the planning process. Furthermore, linking the land register directly with land use planning could enhance transparency and effectiveness in managing land resources.

124 See Santos et al. (2022).
125 See https://www.fnds.gov.mz/index.php/pt/documentos/publicacoes?task=document.viewdoc&id=115, accessed 23 July 2024.
126 See Carrilho et al. (2024).
127 See https://spp-pr.com/conferences/5thMeeting/common/pdf/D01-01-04.pdf 16, accessed 30 September 2024.
128 See https://spp-pr.com/conferences/3rdMeeting/pdf/doc_langa.pdf 10-12, accessed 30 September 2024.

3.4 Law No. 20/97 approving the Environment Act

The 1997 Environment Law (*Lei do Ambiente*) in Mozambique establishes key principles for environmental management, emphasising soil as a critical component of the environment. It defines soil degradation and pollution, characterising desertification as a process resulting from natural and human-induced factors that lead to desert-like conditions.[129] Erosion is described as the loss of soil due to natural forces and human activities, while pollution encompasses harmful substances that negatively affect the ecosystem.[130] These definitions aim to enhance the law's effectiveness in addressing environmental challenges.

The 1997 Environment Law establishes a legal framework for responsible environmental management in Mozambique. Article 4 outlines fundamental principles, including a commitment to environmental protection aligned with constitutional mandates. Notably, paragraph 7 introduces the principle of responsibility, holding individuals accountable for environmental pollution or degradation. Additionally, Articles 5 and 6 describe the National Council for Sustainable Development's role as a consultative body to the Council of Ministers, which is responsible for proposing and reviewing environmental protection and natural resource management legislation.

Article 9 of the 1997 Environment Law explicitly prohibits pollution exceeding legal limits, stating that the production, deposition, or emission of any toxic substances that contribute to environmental degradation is not allowed in Mozambique. This strengthens existing commitments in the Constitution and other laws, although it remains somewhat general and necessitates more specific regulations for effective enforcement. Additionally, Article 12(1) bans activities that threaten the conservation and quality of biological resources, thereby supporting soil protection, as certain species play a crucial role in maintaining soil health and preventing erosion.

Article 20 establishes the right to education, requiring the government to implement formal and informal environmental education mechanisms, essential for combating soil degradation caused by improper practices. Article 21 grants citizens the right to seek justice for violations of their rights under this law, while Article 22 allows them to obtain administrative injunctions to stop activities harmful to an ecologically balanced environment. Articles 25 and 26 introduce civil liability and strict liability for those causing environmental harm, ensuring state intervention to prevent significant degradation. Article 27 mandates specific legislation to address environmental infractions.

Together, these articles establish a comprehensive framework for accountability by prohibiting harmful practices, imposing sanctions, and ensuring that responsible parties are held liable for environmental damage. This enforcement mechanism aims to foster greater responsibility among stakeholders. However, the practical

129 Environmental Law, Arts 1(2)(c), 1(7), 1(11) & 1(21).
130 Ibid.: Art 11(13).

implementation of this accountability framework faces challenges due to vague criteria for defining environmental damage and a lack of complementary legislation, which has made civil liability for environmental harm largely ineffective.

As highlighted, the law's use of vague terms such as "significant damage" and "especially dangerous activities" presents challenges for stakeholders attempting to access legal protections. This ambiguity often forces individuals and communities to rely on the Mozambican Civil Code, which necessitates proving fault—a difficult task in environmental disputes. This disparity between the theoretical framework and practical application underscores the pressing need for clearer definitions and more effective enforcement mechanisms to ensure genuine environmental protection.[131]

The provision for incentives in the law is a positive step towards promoting environmentally sound practices. However, the absence of detailed regulations means that its potential impact may not be fully realised. Without clear guidelines or frameworks for implementing these incentives, it can be challenging for businesses and communities to understand how to access and benefit from them. Establishing specific criteria, processes, and support mechanisms would be essential to effectively encourage the adoption of sustainable technologies and practices.[132] This could help bridge the gap between the law's intentions and practical outcomes in environmental protection.

The *Lei de Ambiente* marks a significant advancement in Mozambique's environmental commitments, introducing critical prohibitions against pollution and establishing liability for polluters. These innovations provide a framework for accountability that is crucial for environmental protection. However, the law's general nature and the absence of specific regulations hinder its practical effectiveness.[133]

The challenges in coordinating this law with industry-specific regulations highlight the need for reform to enhance its implementation.[134] Strengthening the regulatory framework could ensure that the mechanisms for environmental liability are more actionable, ultimately improving enforcement and compliance. Despite these limitations, the law serves as a foundational element for environmental protection efforts in Mozambique, paving the way for future advancements and reforms.

3.5 Environmental impact assessments regulations

In Mozambique, Environmental Impact Assessments (EIAs) are regulated by a 2006 Ministerial diploma that standardises assessment procedures to evaluate potential

131 See Silveira (2014).
132 Environment Law, Art 31.
133 Silveira (2014: 34).
134 Ibid.: 39.

environmental impacts of proposed projects.[135] The 2015 decree,[136] which replaced earlier regulations,[137] details the criteria for obtaining environmental permits, the public participation process, and the categorisation of activities based on their potential impact. This framework ensures that environmental assessments or exemptions are conducted before project work begins, maintaining essential environmental management principles.[138]

Environmental auditing in Mozambique is governed by a 2011 decree, which establishes an impartial and documented process aimed at ensuring environmental protection.[139] This decree outlines the procedures for assessing operational practices against the standards in the environmental management plan, including legal requirements for specific projects.[140] Importantly, Article 7(1) mandates annual audits for projects deemed to have a non-negligible environmental impact, ensuring ongoing compliance with environmental standards throughout the project's lifecycle.

Environmental inspections in Mozambique are governed by a 2006 decree,[141] which aims to supervise, monitor, and enforce compliance with environmental protection regulations nationwide.[142] For any investment project to gain approval, an environmental inspection must be carried out by the Ministry of Land and Environment. This inspection ensures that the project aligns with existing environmental legislation. Additionally, before authorisation, the project's environmental management plan must be finalised and meet the required standards for environmental protection. This process ensures ongoing accountability for sustainable development.

Public consultation in Mozambique is regulated by a 2006 Ministerial diploma, which ensures maximum participation from stakeholders and those affected during the EIA process.[143] The law mandates that every project must include public participation, adhering to the procedures outlined in the decree. This process ensures that all relevant parties, including the local communities and stakeholders, can engage in and influence decisions related to the project's potential environmental impacts.

These processes aim to ensure that projects comply with environmental legislation during their planning stages by thoroughly assessing potential impacts. Public participation is a key component, allowing local communities to voice concerns, especially about issues that external parties might overlook. However, while EIAs are meant to safeguard against environmental damage, their practical implementation often falls

135 Ministerial Diploma No. 129/2006.
136 Decree No. 54/2015.
137 Decree No. 45/2004; Decree No. 42/2008.
138 See https://www.agricultura.gov.mz/wp-content/uploads/2024/08/ESIA_BUZI_Final.pdf. Projecto de fortalecimento da cadeia de valor de arroz na zeea-l e nos regadios das provincias de sofala e zambézia, 19, accessed 18 June 2024.
139 Decree No. 25/2011.
140 See *Projecto de fortalecimento da cadeia de valor de arroz.*
141 Decree No. 11/2006: Approves the Regulation on Environmental Inspection.
142 See *Projecto de fortalecimento da cadeia de valor de arroz.*
143 Ministerial Diploma No. 129/2006; See *Projecto de fortalecimento da cadeia de valor de arroz*.

short. Approvals are granted quickly, and post-approval monitoring is sometimes inadequate, leaving environmental risks insufficiently addressed throughout a project's lifecycle.[144]

3.6 Criminal Code provisions on environmental damage

The second chapter of the third title of Mozambique's 2019 Criminal Code emphasises environmental crimes. Article 314 penalises illegal mineral exploitation with imprisonment. Article 315 prohibits the handling of toxic substances and the operation of polluting enterprises without an environmental license, also punishable by imprisonment. Article 316 addresses the spread of diseases harming ecosystems, while Article 320 targets environmental negligence. Article 317, reflecting the 1997 Environment Law, imposes penalties of up to two years in prison and fines for discharging toxic substances or degrading the environment.

The recently revised Criminal Code in Mozambique enhances the enforcement of environmental laws by introducing stricter punitive measures. Article 317 builds upon the 1997 Environmental Law by explicitly holding polluters accountable for their actions, bringing them closer to legal prosecution.

3.7 Law No. 16/2014 on Protection, Conservation, and Sustainable Use of Biodiversity

Mozambique's 2014 Conservation Law, along with its 2017 amendment,[145] focuses on the protection, conservation, and sustainable use of biological diversity within conservation areas. It outlines the creation and management of both total conservation areas (with strict protection) and sustainable-use conservation areas (allowing resource extraction within sustainable limits).[146] This legal framework aims to integrate conservation efforts into the country's broader development goals, ensuring the responsible use of natural resources while protecting critical ecosystems. The law also provides detailed guidelines on managing and qualifying these zones.

The 2014 Conservation Law emphasises the recovery and restoration of biological diversity in Mozambique. Article 44 mandates state-led reforestation efforts for degraded areas, while Article 45 holds offenders responsible for ecosystem degradation due to deforestation or fires, requiring them to restore affected areas. However, the reference to "terms and conditions to be determined by proper regulations" limits the

144 See Salcedo-La Viña (2015).
145 *Lei de Protecção, Conservação e Uso sustentável da Diversidade Biológica No. 5/2017*.
146 Ibid.: Art 13(3); https://biofund.org.mz/wp-content/uploads/2017/04/Manual-sobre-a-Aplicacao-da-Lei-de-Conservacao-16-2014-ENG.pdf, accessed 22 June 2024.

clarity and scope of this obligation, potentially hindering effective enforcement and recovery measures.

The 2014 Conservation Law lays a strong foundation for biodiversity protection in Mozambique. However, its effectiveness hinges on complementary regulations, adequate funding, and skilled personnel. Experts emphasise the importance of effective land-use planning, institutional coordination, community engagement, and private-sector incentives for successful conservation efforts.[147] Collaboration with local communities and investments in training and infrastructure to enhance tourism are also vital for promoting sustainable practices within conservation areas.

The establishment of the National Administration of Conservation Areas in 2014 aimed to enhance the management of these zones. However, while the 2017 amendment improved sanctions for environmental crimes[148] and financing for conservation areas,[149] the law lacks comprehensive soil protection at a national level. Addressing soil degradation necessitates a holistic approach rather than a fragmented strategy confined to specific areas. Effective soil conservation requires integrating practices across all land uses to better address the root causes of degradation.

3.8 Waste disposal legislation

3.8.1 Decree No. 83/2014 approving the Regulation on Hazardous Waste Management

The 2014 Decree on Hazardous Waste Management in Mozambique outlines general rules for hazardous waste disposal, emphasising principles such as producer responsibility, waste prevention, and pollution liability.[150] Article 8 mandates producers, transporters, and operators to minimise waste and ensure its proper treatment, temporary storage, and disposal without harming health or the environment. The decree also includes a list of hazardous wastes in Annex IX. For effective implementation, ongoing monitoring and compliance with these regulations are crucial to safeguard public health and the environment.

The decree also mandates environmental licensing and certification for transporters, requiring all public and private entities to have a management plan for hazardous

147 See https://biofund.org.mz/wp-content/uploads/2017/03/Interpretacao-da-Lei-de-Conservacao-ING.pdf, 113, accessed 22 June 2024.
148 Conservation Law, Art 62.
149 Ibid.: Art 8; *Regulamento da Lei No. 16/2014, de 20 de Junho, alterado e republicado pela Lei No. 5/2017, de 11 de Maio, Lei da Protecção, Conservação e Uso Sustentável da Diversidade Biológica*.
150 Regulation on Hazardous Waste Management, Art 4.

waste disposal before commencing activities.[151] This ensures proper handling and disposal of hazardous waste, promoting environmental and public health safety.

3.8.2 Decree No. 94/2014 approving the Regulation on Urban Solid Waste Management

Decree No. 94/2014 regulates urban solid waste management in Mozambique, addressing significant soil contamination risks.[152] Article 4 encourages waste minimisation and establishes polluter liability, ensuring public access to waste disposal information. Article 8 requires public and private organisations to develop integrated management plans for waste, following a hierarchy of waste management practices. Once approved, these plans remain valid for five years, integrating waste management into project planning and fostering responsible disposal solutions.

3.9 Mining and oil legislation

3.9.1 Law No. 20/2014 on Mining

The 2014 Mining Law of Mozambique modernises the mining sector and addresses soil protection, recognising mining as a significant cause of soil degradation.[153] Per Article 4, all mineral resources are state property, and mining requires permits (Article 5), including an environmental license before operations (Article 44(1)(a)). Article 36 mandates that mining holders undertake sustainable development actions, protect the environment, provide information on soil and environmental conditions, and restore damaged areas. Additionally, they must ensure the area is rehabilitated and properly closed after mining activities.[154]

The 2014 Mining Law of Mozambique includes provisions for small-scale and artisanal mining, requiring operators to obtain mining certificates and an environmental license before commencing work.[155] Chapter IX focuses on the environmental management of mining activities, emphasising adherence to existing environmental laws

151 Ibid.: Arts 9-11.
152 Regulation on Urban Solid Waste Management, Art 2.
153 Law No. 20/2014 on Mining, Art 3: "The purpose of this law is to regulate the use and re-use of mineral resources in harmony with the best and safest mining and socio-environmental practices and transparency, allowing a sustainable long-term development and the raising of revenues in favour of the State."
154 Ibid.: Art 44(2)(p).
155 Ibid.: Art 47(1).

and best practices.[156] It mandates the rehabilitation of mined areas, recognising the importance of restoring soils affected by mining operations.[157]

3.9.2 Ministerial Order No. 189/2006 regulating the Environmental Management for Mining Activities

Ministerial Order No. 189/2006 aims to minimise environmental damage caused by mining activities.[158] It also aims to ensure that mining activities are conducted using simple methods that avoid air, soil, and water pollution.[159] Article 4 holds the perpetrator liable for cleanup costs in case of spills or damage. Article 5 requires earthmoving operations to be conducted in dry seasons to limit soil erosion. The storage of combustible and contaminated water,[160] as well as toxic substances,[161] is also regulated. Article 10 provides that dust production should be minimised, by reducing driving speeds and limiting operations on windy days. The storage and disposal of toxic waste is regulated in Article 12 and the use of chemical products in Article 18. The rehabilitation process is described in Article 17. The cover layer affected by mining activities must be removed by the mine owner.[162] In addition, each site, which suffered negative environmental impact must be rehabilitated and "must be left in a safe, stable, well-drained and maintenance-free state."[163]

3.9.3 Decree No. 26/2004 on the Environmental Regulations for Mining Activities

Decree No. 26/2004 on Environmental Regulations for Mining Activities aims to establish rules to prevent and mitigate the adverse environmental effects of mining while promoting sustainable development. Article 7 outlines essential environmental management instruments, including EIA, environmental management plans, environmental management programs, risk and emergency control programs, and environmental audits, detailing the function of each instrument to ensure compliance with environmental standards.

Article 18 mandates that mining owners and operators must take appropriate measures for the disposal and treatment of waste, prohibiting the deposition of

156 Ibid.: Art 68.
157 Ibid.: Art 71(1).
158 Ministerial Order No. 189/2006, Art 1(1).
159 Ibid.: Art 1(2).
160 Ibid.: Art 6.
161 Ibid.: Art 8.
162 Ibid.: Art 17(1).
163 Ibid.: Art 17(4).

hazardous waste in soil or subsoil. Article 20 establishes that they are responsible for any environmental damage caused by mining activities, while Article 21 allows for modifications to the mining project to ensure compliance with environmental laws. Overall, the decree strengthens existing legal commitments, providing the state with tools to monitor mining activities and enforce environmental liability.

3.9.4 Decree No. 56/2010: Environmental Regulations for Petroleum Operations

Oil exploitation in Mozambique is governed by a 2010 decree that mandates an EIA to assess the effects of oil extraction and proposed remedies (Article 12).[164] A rehabilitation plan must also be submitted.[165] Once approved by the authorities, an environmental license is issued, allowing oil extraction to commence. This regulatory framework aims to mitigate environmental impacts associated with oil activities.[166]

3.10 Agricultural and forestry legislation

3.10.1 Law No. 17/2023 establishing the Basic Principles and Standards for the Protection, Conservation, and Use of Forestry Resources

Law No. 17/2023 replaces the 1999 Forest and Wildlife Act, focusing on biodiversity protection and sustainable forest use (Article 4). It mandates that local communities engage in forest exploitation according to specific regulations and customary practices while adhering to environmental laws (Article 51). Recognising the importance of forests for soil health, the law imposes a closure period from January to March, prohibiting exploitation. This measure aims to reduce soil degradation, encourage natural regeneration, conserve biodiversity, and safeguard the environment while allowing regulated forest use for community development.[167]

The law strictly prohibits illegal logging and mandates that a license is required for any forest exploitation, with penalties, including imprisonment, for those operating without one.[168] Similarly, the illegal export of forest products is punishable by imprisonment.[169] The introduction of this law highlights lawmakers' commitment to forest protection, which is crucial for soil health. The regulations surrounding forest

164 Environmental Regulations for Petroleum Operations, Art 13(1).
165 Ibid.: Art 14.
166 Ibid.: Art 21.
167 Art 34 of Law No. 17/2023.
168 Ibid.: Art 77(1).
169 Ibid.: Art 78(1).

exploitation, especially for local communities, aim to curb illegal timbering practices and promote sustainable use, ultimately safeguarding soil health.

3.10.2 Decree No. 23/2008 approving the Regulation on Land Use Management

Decree No. 23/2008 establishes regulations for land use management, focusing on soil classification to ensure proper land use and ecological preservation.[170] It differentiates soil parcels based on location, human presence, usage, and potential installations, with classifications recorded in a land register (*cadastro*).[171] This register documents the ownership of land use rights (DUATs) while maintaining state ownership of the land.[172] The decree also regulates land expropriation, justifying it for soil preservation among other reasons.[173]

3.10.3 Decree No. 6/2009 approving the Regulation on Pesticides Management

Decree No. 6/2009 regulates pesticide management in Mozambique. Article 2 states that the decree aims to "ensure that all processes involving the handling of pesticides are conducted without compromising public, animal, and environmental health." Additionally, it establishes a registration procedure for pesticides to monitor their use effectively (Articles 3-4). The technical evaluation committee for the registration of pesticides is also created, and it oversees the evaluation, approval, and registration of pesticides, determining the technical conditions to be observed when trading pesticides and imposing restrictions on the use of certain pesticides (Article 6). Article 8 mandates the registration of pesticides, while Article 12 mandates the correct labelling of pesticides. Articles 29 provide guidelines for the transport of pesticides. Articles 41 and 42 provide guidelines for the storage of pesticides.

3.10.4 Decree No. 23/2018 approving the Regulation for the Implementation of Projects to Reduce Emissions from Deforestation and Forest Degradation, Conservation and Increase of Carbon Reserves

Decree No. 23/2018 establishes regulations for implementing projects aimed at reducing emissions from deforestation and forest degradation (REDD+ Regulation).[174] A

170 Regulation on Land Use Management, Arts 5(b) & 51(1)(a).
171 Ibid.: Arts 51(2), 52 & 54(a).
172 Ibid.: Art 5(c).
173 Ibid.: Art 68(2)(b).
174 Regulation for the Implementation of Projects, Art 2.

key objective is to promote sustainable forest management practices, addressing the significant mismanagement contributing to deforestation.[175] By encouraging these methods, the regulation seeks to protect forest ecosystems and enhance soil health, which is directly affected by deforestation activities.

Article 4 outlines several key principles of the decree, including the conservation, prevention, and control of deforestation, as well as the sustainable use of forests and biodiversity. It also emphasises the importance of territorial and environmental management, ensuring the rights of local peoples and communities. Article 5 further promotes the adoption of good practices in sustainable forest management and the conservation and restoration of degraded natural ecosystems, highlighting the law's commitment to environmental stewardship and community rights.

4 Relevant ministries, state institutions, and their responsibilities

4.1 Ministry of Land, Environment, and Rural Development

Created in 2015, the Ministry of Land and Environment focuses on land from an environmental point of view, while the Ministry of Agriculture and Rural Development focuses on land from an agricultural point of view. These two ministries form the second part of the country's policy on soil protection.

The Ministry of Land and Environment oversees various policies related to land administration, forest management, and environmental conservation in Mozambique.[176] Within this framework, the National Environment Directorate focuses on combating soil degradation, managing erosion, and addressing climate change.[177] Additionally, the Department of Environmental Education promotes environmental awareness by integrating these topics into school curricula, highlighting the importance of sustainable practices for protecting soil health and ecosystems.[178]

The Ministry of Land and Environment has various missions, including implementing bilateral and multilateral agreements, promoting environmental education, and leading initiatives for soil recovery and management.[179] The judicial cabinet within the Ministry ensures compliance with relevant legislation and proposes necessary legislative measures, allowing for effective feedback to lawmakers and further development of existing laws.[180] This structure enhances the Ministry's ability to address soil degradation and environmental issues comprehensively.

175 See Veldkamp (2020); Regulation for the Implementation of Projects, Art 5(e).
176 Presidential Decree No. 4/2020, Art 1.
177 Ministerial Diploma No. 1/2016, Art 28(1)(i).
178 Ibid.: Art 29(1)(a).
179 Presidential Decree No. 4/2020, Arts 3(c)(xi), 3(c)(vi) & 3(c)(ix).
180 Ibid.: Art 69(1)(a)-(b).

4.2 Ministry of Agriculture and Rural Development

The Ministry of Agriculture and Rural Development was established in 1994 as the Ministry of Agriculture and Fishing.[181] Its role is to direct, plan, and implement policies related to land, agriculture, livestock, forests, wildlife, and fisheries.[182] The name changed in 2000 to its current title,[183] but it underwent two more name changes—becoming the Ministry of Agriculture in 2005[184] and the Ministry of Agriculture and Food Safety in 2015[185]—before reverting to the current name in 2020.[186] The Ministry focuses on promoting sustainable development and managing agro-forestry resources.[187]

The Ministry has initiated various projects for soil conservation, including the 2023 Food Security and Resilience Project in Mozambique.[188] This project targets areas at risk of soil degradation and aims to enhance agricultural output. Its goals include boosting the resilience and sustainability of natural resources, restoring agricultural production, and improving resource management. It directly benefits 17,500 small producers and 580 public sector professionals, emphasising food availability and integrating resilience into policymaking at national and regional levels.[189]

In 2022, the Ministry developed the strategic plan PEDSA 2030 to tackle food scarcity and enhance agricultural development in Mozambique.[190] A key goal for 2023 is to ensure sustainable food production systems and resilient agricultural practices.[191] This includes boosting productivity while preserving ecosystems, adapting to climate change, and improving land and soil quality. The plan also promotes agricultural research, particularly in enhancing soil quality information, contributing to both agricultural advancement and sustainable soil conservation practices.[192]

In July 2024, the Ministry launched a project to enhance the rice production value chain in Sofala and Zambézia, part of the Environmental and Social Management Plan (PGAS).[193] The initiative aims to boost agricultural productivity, improve market access, and support strategic value chain development. A key focus is soil management,

181 Presidential Decree nº 2/1994.
182 Presidential Decree nº 7/1995.
183 Presidential Decree nº 1/2000; Ministerial Diploma nº 161/2000.
184 Presidential Decree nº 13/2005.
185 Presidential Decree nº 1/2015.
186 Resolution No. 3/2020.
187 See https://www.agricultura.gov.mz/instituicional/ministerio/historial/, accessed 15 July 2024.
188 See https://www.agricultura.gov.mz/wp-content/uploads/2023/04/FRSP_Plano_Engajamento_Partes_interessadas.pdf, accessed 15 July 2024.
189 Ibid.: 2.
190 See https://www.agricultura.gov.mz/documents/PEDSA_VERSAO_LONGA.pdf, accessed 15 July 2024.
191 Ibid.: 38.
192 Ibid.: 57.
193 See https://www.agricultura.gov.mz/wp-content/uploads/2024/08/ESIA_BUZI_Final.pdf, accessed 15 July 2024.

with objectives to minimise erosion, prevent sediment transport, avoid soil contamination, and maintain productivity. The plan also monitors soil compaction, erosion, and contamination, while optimising the use of fertilisers and pesticides.

4.3 Ministry for the Coordination of Environmental Action

In 1994, the Ministry for the Coordination of Environmental Action was established to enhance sector coordination and promote sustainable use of natural resources in Mozambique.[194] Its responsibilities include directing the implementation of environmental policies, managing resource utilisation, and issuing environmental licenses required for projects as per the EIA Regulations.[195] The Ministry also addresses cross-cutting issues, including poverty reduction linked to environmental development, and oversees action plans aimed at combating soil erosion.[196]

5 Relevant policy framework on the main drivers of soil degradation

5.1 Resolutions No. 10/95 on the National Land Policy and No. 11/95 on the Agricultural Policy

In 1995, Mozambique implemented two key policies on land and agriculture through simultaneous resolutions. The Land Policy established a framework for land use, recognising customary land rights while promoting investment.[197] It emphasises sustainable development by mandating the protection of ecologically sensitive areas and advocating for responsible natural resource management (Article 14). This commitment to sustainability is reflected throughout the policy, aiming to align land use with ecological integrity for the benefit of future generations (Article 17). The 2022 draft of the new National Land Policy emphasises environmental sustainability by committing to the rational and sustainable use of land and natural resources. This focus aims to balance development needs with ecological preservation, ensuring that land management practices align with sustainable development goals.

194 Presidential Decree No. 2/94; *Plano de Accao para A Prevencao e Controle A Erosao de Solos*, 18.

195 See https://www.portaldogoverno.gov.mz/por/Cidadao/Servicos/Estudo-do-impacto-ambiental/Entidade-Responsavel, accessed 17 July 2024; http://www.impacto.co.mz/informacao/licenca-ambiental/, accessed 17 July 2024.

196 See https://www.unpei.org/files/pdf/estudo_sobre_a_an%C3%A1lise_de_instrumentos_econ%C3%B3micos_ambientais_para_a_redu%C3%A7%C3%A3o_da_pobreza_em_mo%C3%A7ambiqu_140115.pdf, accessed 17 July 2024; Estudo sobre a Análise de Instrumentos Económicos Ambientais para a Redução da Pobreza em Moçambique, Introduction; https://www.informea.org/sites/default/files/imported-literature/MON-094629.pdf, accessed 17 July 2024.

197 See Filipe et al. (2017).

The 1995 Agrarian Policy serves as the foundation for Mozambique's agricultural policies, emphasising the sustainable use of resources in Article 17. This commitment to environmental protection aligns with the principles outlined in the Constitution, reinforcing the importance of responsible resource management for both current and future generations.

5.2 Resolution of the Council of Ministers No. 5/95 approving the National Policy on the Environment

The 1995 National Environmental Policy of Mozambique aims to promote sustainable development through poverty eradication, improved quality of life, and reduced environmental damage. It mandates the integration of environmental considerations into all development plans and emphasises community involvement in environmental management. The policy highlights the importance of both formal and informal education to enhance environmental awareness, recognising local communities' knowledge and expertise in promoting sustainable practices.

The 1995 National Environmental Policy establishes strategies for developing key institutions, notably the Ministry for Environmental Coordination. It emphasises effective inter-sectoral coordination, decentralisation, and professional training. Regarding legislation, it prioritises the promulgation and implementation of environmental laws, focusing on the finalisation of EIA regulations and alignment with international commitments. Medium- to long-term actions include building expertise in environmental law, establishing monitoring centres, and advancing academic studies in this field.

The strategy aims to establish an environmental education policy, integrate it into school curricula, and enhance collaboration among ministries, NGOs, and community groups. It promotes local language media programs to raise environmental awareness. For rural development, it emphasises decentralisation to empower local resource management and incentivise agriculture. In urban areas, the focus is on improving sanitation systems, solid waste disposal, and addressing soil erosion through better drainage, education, and limiting deforestation.

The 1995 Environmental Policy laid a crucial groundwork for environmental protection in Mozambique, establishing development axes that include legal frameworks and public education. This policy led to the 1997 Environmental Law, which created the legal structure for environmental safeguarding. Despite these efforts, nearly thirty years later, the country still faces significant environmental threats, particularly concerning soil degradation. Addressing these ongoing challenges is essential for sustainable development in Mozambique.

5.3 Action Plan for the Prevention and Control of Soil Erosion

5.3.1 Presentation and state of soil erosion in Mozambique

In 2007, Mozambique's Council of Ministers approved a plan by the Ministry for the Coordination of Environmental Action to address soil erosion.[198] This plan, crucial for soil protection, highlights existing challenges such as a lack of understanding of the erosion problem, insufficient mechanisms for solution identification, and unclear roles among stakeholders. The initiative aims to establish a comprehensive Soil Erosion Prevention and Control Program, addressing these gaps and enhancing the effectiveness of broader environmental protection legislation.

The document aligns with Mozambique's Environment and Land Laws, addressing erosion from human and natural factors while proposing mitigation strategies. It emphasises the need for preventive measures over corrective actions, identifying poverty as a key driver of soil erosion. The plan acknowledges that limited resources and survival pressures lead to the overexploitation of natural resources, exacerbating environmental degradation. By outlining responsibilities for stakeholders, it serves as a framework for implementing soil erosion prevention and control measures over eleven years.[199]

The plan identifies several causes of soil erosion in Mozambique, including deforestation for construction and fuel, uncontrolled burning, subsistence farming on slopes, poor land planning, and overgrazing.[200] It emphasises the adverse effects of erosion, such as the loss of topsoil, reduced organic matter, and disrupted soil structure, which together create an unfavourable environment for plant growth.[201] These insights serve as a foundation for proposing effective solutions to combat soil erosion in the country.

5.3.2 Remedies proposed by the plan

The development plan outlines strategies to combat various types of soil erosion in Mozambique. For laminar erosion, it recommends developing and preserving vegetation, implementing terracing, and utilising specific plants.[202] To tackle ravine erosion, the plan suggests constructing dams to redirect water flow.[203] For wind erosion, reforestation, building hedges, and land clearing are proposed. To address coastal erosion caused by waves, the plan advocates constructing breakwater walls or using sandbags

198 Aprovado na 32ª Sessão do Conselho de Ministros, 4 de Dezembro de 2007.
199 *Plano de Acção para a prevençao e controlo da Erosão de Solos*, iv.
200 Ibid.: 8.
201 Ibid.: 10.
202 Ibid.: 12.
203 Ibid.: 14.

secured by tree trunks.[204] These methods aim to enhance soil conservation across different landscapes.

The plan includes a comprehensive action strategy for soil restoration in Mozambique. In the short term, it aims to restore 20% of eroded areas by promoting sustainable practices and engaging local communities.[205] The medium-term goal focuses on restoring 15% through continued risk area identification and accountability based on the "polluter pays" principle.[206] The long-term goal targets a 10% restoration, emphasising the development of specific regulations from existing laws and training for personnel involved in environmental management to enhance capacity and effectiveness.[207]

The plan outlines a collaborative approach for implementation, designating provincial governments to adapt it locally while enhancing local government resources for public education on soil erosion.[208] The private sector is encouraged to adopt socially and environmentally responsible practices, and NGOs are to implement projects and monitor progress.[209] Local communities, as primary resource users, are tasked with forming management committees to engage in monitoring and sharing traditional knowledge for effective soil erosion control. This multi-stakeholder approach aims to foster sustainable management of natural resources.

The plan concludes by pointing out that a spirit of cooperation will be needed by the individuals in charge of the implementation of the pan, as well as a consideration of the cross-cutting nature of the erosion problem.

5.4 Resolution No. 15/2020 approving the Government's Five-Year Programme for 2020-2024

In 2020, Mozambique launched a five-year development plan prioritising sustainable management of natural resources and the environment.[210] This plan aims to enhance biodiversity conservation by fostering partnerships between communities and the private sector, promoting employment opportunities and income-generating activities. It also emphasises environmental education and the implementation of best management practices. Additionally, the plan includes strengthening oversight of mineral, oil, and energy resource exploitation through systematic inspections to ensure sustainable practices.

204 Ibid.: 15.
205 Ibid.: 30.
206 Ibid.: 31.
207 Ibid.: 32.
208 Ibid.: 34-35.
209 Ibid.: 36.
210 Resolution No. 15/2020.

5.5 National Strategy for Adaptation and Mitigation of Climate Change, 2013-2025

The National Strategy for Adaptation and Mitigation of Climate Change in Mozambique, developed in 2012, emphasises adaptation and climate risk reduction as key national goals. It seeks to minimise the impacts of climate change through low-carbon development initiatives while ensuring that development efforts are not compromised. The strategy outlines short-, medium-, and long-term priorities that align with the country's five-year program.

The strategy emphasises protecting forests and promoting sustainable agriculture to enhance soil protection. It advocates for mechanisms to plant trees and establish local forests to prevent erosion and soil productivity loss. Additionally, the strategy includes developing a national action plan for soil conservation and nutrition, as well as diversifying crops resistant to climate variations. Legal concerns highlight significant limitations on environmental protection, with institutional coordination and the legal framework being key obstacles to effective policy implementation.

The strategy highlights the need for legal and institutional improvements in Mozambique to address climate change effectively. It proposes identifying gaps in existing laws, equipping sectors with necessary tools, and strengthening grassroots institutional frameworks. Training and empowering institutions responsible for monitoring and enforcing regulations are key components, alongside fostering collaboration among various stakeholders. Although its direct impact on soil protection may be limited, implementing the strategy is crucial for safeguarding soil health in the broader context of climate resilience.

5.6 National Fund for Sustainable Development

The National Fund for Sustainable Development, or *Fundo Nacional de Desenvolvimento Sustentável*, was created in 2016. It aims to promote and fund programs and projects that ensure sustainable, balanced, and inclusive development, with a particular focus on rural areas. The fund has multiple responsibilities, including promoting scientific research programs and actions related to sustainable development in rural areas, as well as financing initiatives for environmental management, climate change adaptation and mitigation, sustainable forest management, biodiversity conservation, land administration, and land use planning.

The fund financed different programs over the years. The PERS programme of sustainable rural economy aims to "increase productivity and market access for target beneficiaries and improve natural resource management practices in selected project

areas."[211] The REDD+ project on forest protection and reduction of carbon emissions is also linked to the fund.[212]

6 Relevant international environmental commitments

6.1 The African Convention on the Conservation of Nature and Natural Resources

The 1968 African Convention on the Conservation of Nature and Natural Resources, ratified by Mozambique in 1981,[213] emphasises the importance of natural resources, soil, and water for public health. It requires parties to create conservation areas, implement measures for threatened species and their habitats, and develop effective soil conservation strategies to address erosion and misuse (Article IV).[214] While it advanced environmental legislation in newly independent African nations, its effectiveness could have been improved by establishing a central authority to oversee implementation and enforcement across the continent.[215]

Mozambique ratified the updated 2003 version of African Convention on the Conservation of Nature and Natural Resources in 2016, which reflects the transition from nascent to well-established international environmental legislation.[216] The Convention emphasises the right to a satisfactory environment and obligates states to prevent land degradation and enhance soil quality.[217] It highlights the importance of local community involvement and recognises their rights in conservation efforts.[218] Additionally, it mandates measures to protect vegetation cover and[219] addresses liability for environmental damage.[220] Article XXIV stipulates that the parties must promptly establish rules and procedures regarding liability and compensation for damages related to the issues addressed by the Convention. It remains uncertain whether the liability applies to the states themselves. Some authors argue that assigning financial liability to operators of activities or state parties could serve as a deterrent, potentially leading to changes in future practices.[221] They conclude that without sufficient funding and

211 See https://www.fnds.gov.mz/index.php/pt/nossos-projectos/listagem-de-projectos/21-desenvolvimento-sustentavel/266-mozrural-programa-de-economia-rural-sustentavel, accessed 23 July 2024.
212 See https://www.fnds.gov.mz/index.php/pt/nossos-projectos/listagem-de-projectos/redd, accessed 23 July 2024.
213 Adopted 15 September 1968, entered into force 16 June 1969; Resolution 18/81.
214 See Bowman et al. (2011).
215 Ibid.: 266.
216 Adopted 11 July 2003, entered into force 23 July 2016.
217 Ibid.: Arts II-IV & VI.
218 Ibid.: Art VI(3)(a).
219 Ibid.: Art VIII.
220 Ibid.: Art XIII(1).
221 See Bowman et al. (2011: 292-293).

political commitment to fulfil its obligations, any chance of progress under the 2003 African Convention is likely to be diminished.[222]

6.2 The Bamako Convention on the Prohibition of Hazardous Waste Import and Control of Transboundary Movements of Hazardous Wastes in Africa

The Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa was adopted in 1996 by Mozambique.[223] It focuses on the management of toxic waste and its effects on human health and biodiversity. The disposal of toxic waste can be particularly harmful to soils. This Convention comes as a complement to the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, focusing on challenges faced by African countries. Many African countries often receive hazardous waste from more developed nations instead of generating it themselves. Additionally, they typically lack the necessary resources and infrastructure to manage and dispose of this waste safely.[224]

The Convention mandates that states must ensure access to adequate facilities for the treatment and disposal of hazardous wastes, promoting environmentally sound management. This requirement directly supports soil conservation efforts by minimising contamination risks.[225] The Convention also requires parties to ensure that those managing hazardous wastes take necessary precautions to prevent pollution. This obligation is crucial for protecting the environment and preserving soil health from potential contamination.[226]

6.3 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

Mozambique ratified the Rotterdam Convention in 2010 to protect human health and the environment by regulating the trade and use of hazardous chemicals.[227] The Convention bans certain dangerous chemicals[228] and severely hazardous pesticides,[229]

222 Ibid.: 295.
223 Resolution n°19/96.
224 See https://openknowledge.fao.org/server/api/core/bitstreams/fe5df8d6-6b19-4def-bdc6-62886d824574/content/src/html/chapter-12-5.html, accessed 29 July 2024.
225 Adopted 30 January 1991, entered into force 22 April 1998, Art 4(3)(d).
226 Ibid.: Art 4(3)(e).
227 Adopted 10 September 1998, entered into force 24 February 2004, UNEP/FAO.
228 Ibid.: Art 5.
229 Ibid.: Art 6.

while also restricting their import and export.[230] Annex III contains a detailed list of the restricted substances.[231]

6.4 Stockholm Convention on Persistent Organic Pollutants

In 2004, Mozambique ratified the Stockholm Convention on Persistent Organic Pollutants. Persistent organic pollutants (POPs) pose a significant risk to soil conservation, as they remain in the environment for extended periods. A substance is classified as persistent if its half-life in the soil exceeds six months, leading to long-term contamination and potential harm to soil health and ecosystems.[232] The third article of the Convention lists the measures parties should take to reduce or eliminate releases of persistent pollutants from international production and use. They include the prohibition of the production of the worst pollutants and the restriction of the production of other pollutants.

6.5 Minamata Convention on Mercury

Mozambique signed the Minamata Convention on Mercury in 2013 and ratified it in 2024. The Convention aims to protect human health and the environment from mercury emissions and releases.[233] It restricts mercury mining[234] and the trade of mercury-added products.[235] Key provisions include reducing mercury use in artisanal gold mining, minimising emissions, regulating mercury waste disposal under the Basel Convention, and managing contaminated sites.[236] These measures are essential for safeguarding both public health and the environment.

6.6 UN Convention to Combat Drought and Desertification (UNCCD)

Mozambique ratified the UN Convention to Combat Drought and Desertification in 1996,[237] which emphasises the need for an integrated approach to address desertification and drought. It mandates the establishment of strategies to combat these issues,

230 Ibid.: Arts 10-11.
231 Ibid.: Art III.
232 Adopted 22 May 2001, entered into force 17 May 2004, Annex D(1)(a)(b)(i).
233 Adopted 10 October 2013, entered into force 16 August 2017, Art 1.
234 Ibid.: Art 3.
235 Ibid.: Arts 4-5.
236 Ibid.: Arts 7, 9 & 11-12.
237 Resolution n°20/96.

promote local participation, and enhance relevant legislation.[238] Droughts, a frequent occurrence in Mozambique,[239] are significant contributors to economic losses.[240] Reports from 1999[241] and 2004[242] highlighted the need for a national action plan and identified insufficient funding as a critical barrier to implementation.

6.7 Convention on the Protection of Wetlands

The Convention on the Protection of Wetlands was adopted by Mozambique in 2003.[243] It acknowledges the ecological significance of wetlands for biodiversity. As a unique type of soil, wetlands must be protected due to their role in regulating water systems and supporting distinctive plant and animal life.[244] The parties to the Convention are required to develop and execute plans that promote the conservation of wetlands on the list and, whenever possible, ensure their sustainable use within their territories.[245]

6.8 UN Convention on Biological Diversity

The UN Convention on Biological Diversity was signed by Mozambique in 1992 and ratified in 1995. The Convention mandates that states develop or adapt national strategies, plans, or programs focused on the conservation and sustainable use of biological diversity.[246] It also emphasises the need to integrate these goals into relevant sectoral or cross-sectoral plans, programs, and policies as much as possible and as appropriate.[247]

The 6th national report on the implementation of the convention on biological diversity in Mozambique was published in 2019.[248] It emphasises the structural challenges Mozambique encounters in biodiversity conservation while noting that recent

238 Ibid.: Arts 4-5.
239 Adopted 17 June 1994, entered into force 26 December 1996.
240 See https://www.ais.unwater.org/ais/pluginfile.php/601/mod_page/content/25/Mozambique_2.pdf, 4, accessed 30 July 2024.
241 See https://www.unccd.int/sites/default/files/prais-legacy/Mozambique/1999/Mozambique%20-%20ACP%20-%201999%20eng.pdf, accessed 30 July 2024.
242 See https://www.unccd.int/sites/default/files/prais-legacy/Mozambique/2004/Mozambique%20-%20ACP%20-%202004%20eng.pdf, accessed 30 July 2024.
243 Resolution n°45/03.
244 Adopted 2 February 1971, entered into force 21 December 1975, Preamble.
245 Ibid.: Art 2.
246 Adopted 5 June 1992, entered into force 29 December 1993, Art 6(a).
247 Ibid.: Art 6(b).
248 See https://www.cbd.int/doc/nr/nr-06/mz-nr-06-en.pdf, accessed 30 July 2024.

legal and political reforms in the forestry sector and biodiversity conservation have gradually enhanced efforts to protect biodiversity.[249]

7 Environmental crimes and application of the law

7.1 Illegal logging

Illegal logging has become a significant issue in Mozambique, contributing to environmental degradation. In recent years, several hundred cases have been opened annually, primarily focusing on illegal activities related to mineral resource exploitation, poaching, and logging.[250] These cases highlight the ongoing challenges in enforcing environmental laws and protecting the country's natural resources. Logging and mining significantly impact soil conservation in Mozambique. To address these issues, USAID has offered training for judges to enhance their understanding of environmental laws. This initiative aims to prevent wildlife trafficking and strengthen the country's legal and judicial systems, ultimately supporting better enforcement of regulations related to natural resource management.[251]

Mozambique's illegal logging problem is aggravated by corruption and suspected links to insurgent financing, despite government efforts to address it.[252] The Environmental Investigation Agency (EIA) published a report revealing a sharp decrease in forest cover, from 88% in 1980 to 43% in 2020.[253] The EIA's recommendations for improving forest management include revising the Forest Code, implementing anti-corruption measures, enhancing the training and selection of forest guards, and enforcing stricter penalties for high-level offenders. These steps are vital for protecting both Mozambique's environment and its institutions.

7.2 Illegal mining

Mining concessions are expected to be granted through a comprehensive legal process; however, there have been instances where this process has been bypassed, resulting in

249 Ibid.: xiii.

250 See https://clubofmozambique.com/news/mozambique-845-environmental-crime-cases-opened-in-the-last-12-months-221989/, accessed 30 July 2024; See https://ocindex.enactafrica.org/country/mozambique, accessed 30 July 2024.

251 See https://www.usaid.gov/mozambique/document/spotlight-justice-bringing-environmental-criminals-court, accessed 18 September 2024.

252 See https://www.bbc.co.uk/news/Articles/c51nnzzkpkyo, accessed 30 July 2024.

253 See https://eia.org/wp-content/uploads/2024/06/EIA_US_Mozambique_Timber_Report_0424_FINAL_SINGLES-5-13.pdf, accessed 30 July 2024; https://openknowledge.worldbank.org/server/api/core/bitstreams/e05de39a-1acb-5187-99fb-daf66c4b9a74/content, accessed 31 July 2024.

concessions being awarded without proper procedures.[254] The Africa Organised Crime Index project, supported by the US and the EU, noted that in Mozambique, mining concessions are frequently held by individuals with political ties, and the processes for mineral production and export lack transparency. While illegal mining operations present a significant challenge, the problematic issuance of legal mining permits raises concerns about law enforcement and government transparency.

The Centre for Public Integrity published a report on the effects of illegal mining in Mozambique in 2024.[255] It exposes different cases of illegal mining with disastrous consequences on the environment. The report's conclusions criticise the Mozambican government for failing to enforce environmental laws and uphold its commitments. It states that protecting the environment has not been a priority for authorities. Documented cases reveal severe environmental abuses occurring openly, raising serious questions about the state's role in safeguarding fundamental rights. The report highlights the extreme measures taken, such as blocking natural watercourses for extractive industries, often with little benefit to the state or local communities. It emphasises that despite having laws and ratifying international agreements, the lack of implementation undermines both current and future survival.[256]

The report recommends that the Mozambican government strengthen its fight against corruption and establish conditions for effective monitoring and penalisation of offenders.

Environmental case law appears to be limited and fails to address certain offences highlighted in the reports, suggesting underlying issues of corruption.

8 Cross-cutting issues

8.1 Customary dispute resolution

8.1.1 Traditional authorities

Traditional authorities in Mozambique hold a significant position in managing land issues, especially within the framework of the 1997 Land Law, which acknowledges local communities as vital stakeholders in land tenure.[257] The complexities surrounding their authority raise important questions about governance, representation, and decision-making processes regarding land use and management.

254 See https://ocindex.enactafrica.org/assets/downloads/2023/english/ocindex_summary_mozambique.pdf, 4, accessed 31 July 2024.

255 See https://www.cipmoz.org/wp-content/uploads/2024/02/Extractivismo-que-destroi-o-ambiente-.pdf, accessed 31 July 2024.

256 *CIP Extractivismo que destrói o ambiente*.

257 Aminaka (2022: 120).

Traditional leaders, such as the *régulo*, oversee communal lands and facilitate land allocation, often acting as intermediaries between local communities and external investors. While these authorities can strengthen social networks and foster trust, they can also operate as criminal organisations that enforce social order through vigilantism. This duality complicates their role in local governance, where they might support community interests or align with external political agendas.

For example, in Nampula Province, the *muene*, a lineage-based chief, has a matrilineal inheritance system that provides a counterbalance to the more centrally appointed *régulo*, established during colonial times.[258] This independence allows the *muene* to handle familial and land-related matters autonomously, while the *régulo* often echoes colonial practices by facilitating the interests of agricultural companies.

Following the civil war, Mozambique's governance structure experienced a crisis of authority, particularly for the ruling FRELIMO party.[259] The state recognised traditional chiefs to restore legitimacy in areas with weak state presence, leading to a politically charged environment where traditional leaders' roles became entangled with political power dynamics.[260] The post-war context allowed traditional authorities to fill governance gaps, but it also meant they could be easily manipulated for political ends.

The recognition of legal pluralism in Mozambique through the 2004 Constitution in Article 4 acknowledges the coexistence of various legal systems, provided they align with constitutional values. However, defining who constitutes a "community" remains ambiguous, often relying on customary norms and historical leadership structures.[261] This vagueness can complicate negotiations with outside investors, as determining legitimate representation is fraught with challenges.

While Mozambique's Land Law protects smallholder land rights based on customary use without formal documentation, there are no local institutions such as Tanzania's village councils to represent these rights effectively.[262] This absence raises questions about who legitimately represents communities during negotiations, often leaving them vulnerable to exploitation by investors.

Moreover, the formal recognition of traditional leaders has intensified competition among individuals seeking authority, leading to struggles over land control and allocation.[263] This dynamic is emblematic of a broader resurgence of customary practices across Africa.[264] In Mozambique's pluralistic legal landscape, individuals can petition both state and customary institutions to legitimise their land claims, sometimes resulting in overlapping claims to the same land, further complicating the governance landscape.

258 Ibid: 125-126.
259 See Alexander (1997: 20).
260 Aminaka (2022: 120); Patrício (2022: 14).
261 Regulation of Decree 15/2000, Art 8.
262 Walker (2020: 324-325).
263 Ibid; Buur (2006: 10).
264 Walker (2020: 324).

Also, various community authorities, such as neighbourhood secretaries and chiefs, perform similar duties, leading to confusion.[265] Decrees No. 15/2000 and 11/2005 address their roles, but differing sources of legitimacy result in inconsistent actions.

To ensure effective land management and community protection, traditional authorities must maintain their independence while being held accountable to their communities. They should not merely serve as representatives of the ruling party, as this compromises their ability to act in the best interests of their constituents.

Recognising the rich cultural and legal diversity in Mozambique is crucial. The government must actively regulate legal pluralism to ensure that customary practices are respected while aligning with progressive values that promote democratic representation and accountability. By addressing these challenges, Mozambique can foster sustainable land governance that empowers local communities and protects their rights in the face of external pressures.

8.1.2 Community courts

Traditional authorities play a crucial role in resolving land disputes and managing customary norms in Mozambique. They mediate conflicts related to land allocation, family matters, and community issues.[266] While considered informal by Western standards, their legitimacy stems from local customs. These authorities provide immediate and culturally relevant justice, fostering a collective approach that adapts to the community's context. This system emphasises honour and dignity, helping maintain social order within the community. Strengthening these traditional mechanisms can enhance access to justice and improve land governance.

Community courts in Mozambique, established in 1992,[267] facilitate local dispute resolution using customary laws.[268] These informal justice bodies focus on minor conflicts, enriching Mozambican law through community practices.[269] Operating independently from formal judicial systems, they offer accessible and culturally relevant solutions, prioritising preventive measures.[270] While they provide vital access to justice for marginalised populations, the lack of oversight can lead to power abuses, potentially compromising fairness and justice. Balancing traditional practices with accountability is essential to ensure the effectiveness of these courts.[271]

The lack of regulation of Mozambique's 1992 law establishing community courts has led to an incomplete legal framework, allowing unofficial justice traits to

265 Patrício (2022: 14).
266 See Kaarhus et al. (2015: 201); Meneses (2005: 21).
267 Law No. 4/92.
268 See Trindade et al. (2006: 119).
269 Utter (2021: 175).
270 Ibid.: 152.
271 Ibid.: 176.

dominate.[272] Critics argue that the ruling FRELIMO party politicised the courts by influencing appointments and decision-making processes, filling judicial vacancies with party affiliates.[273] By not establishing a comprehensive legal framework for these courts, FRELIMO allegedly maintained control over customary law, preventing the rise of a legal system that could challenge its political power. This manipulation risks undermining the courts' effectiveness and legitimacy.

The issue of judicial appointments in Mozambique's community courts is significant. Although Law No. 4/92 mandates that judges should be elected, the absence of regulations has prevented elections from occurring. Initially, judges from the previous Popular Courts stayed in office, but over time, they were replaced by judges connected to the ruling FRELIMO party. This practice diminished public trust in the courts, leading to the establishment of parallel courts in areas dominated by RENAMO. The lack of an appeal process and the seasonal disruptions of open-air courts further weakened their effectiveness and public confidence.[274]

Mozambique's Constitution recognises legal pluralism in Article 4, allowing multiple legal systems, including customary law, but without specifying which laws are included. This vague framework has enabled the FRELIMO party to codify customary laws and exert control over community court operations.[275] High costs, long distances, and poor transportation hinder citizens from challenging these decisions in formal courts.[276] The lack of integration between customary and statutory systems, particularly the absence of communication and appeals, limits community courts' effectiveness, making communities vulnerable to land disputes and government manipulation.[277] Integrating these courts into the judicial system could enhance access to justice and reduce political interference.

8.2 Public participation

In Mozambique, the population suffers from soil degradation while also contributing to it. The state needs to enforce environmental legislation to address this issue, emphasising public participation. Although many laws promote environmental education, there is a need for legal frameworks that secure public involvement in environmental decision-making. Involving communities in creating environmental laws is essential to successfully combat harmful practices such as illegal mining and logging, ultimately reducing soil degradation.

272 See Gomes et al. (2006: 206).
273 See Utter (2021: 154 & 159-160).
274 Ibid.: 161.
275 Ibid.: 168.
276 See Open Society (2006: 15).
277 See Utter (2021: 172, 175 & 183); Trinidade (2006: 133).

Environmental democracy faces significant challenges in Mozambique, particularly regarding public participation in environmental decision-making. There is an urgent need to legally ensure citizens' rights to engage in processes affecting their lives.[278] While access to information is vital, it is equally important for the public to be involved in creating environmental laws. Additionally, there are calls for simplified and more accessible legal mechanisms under Article 22 of the Environmental Law and Article 81(2)(b) of the Constitution to facilitate citizens' access to justice concerning community interests.

Economic barriers significantly impede access to justice, especially for the impoverished majority. High judicial costs and limited free legal assistance make it challenging for low-income individuals to seek justice.[279] The government recognises these deficiencies and acknowledges the need for reforms. Simplifying legal procedures and improving funding for legal assistance could enhance access to justice for all citizens, enabling them to advocate for their rights more effectively.

Widespread legal violations contribute to a pervasive sense of impunity among local communities.[280] Common infractions include operating without environmental licenses and illegally exploiting natural resources. This situation leaves residents feeling powerless, as they often lack the financial means to defend their rights, resulting in disengagement from environmental issues. Strengthening legal enforcement and ensuring accountability are essential for restoring community trust and fostering active participation in environmental governance.

8.3 Public access to information

Public access to information in Mozambique is legally guaranteed, notably by Article 19 of the 1997 Environmental Law. However, this access is often limited due to delays in the publication of official documents, such as the *Boletim de República*.[281] Additionally, language barriers pose challenges, as Portuguese is the official language but only about half the population speaks it fluently,[282] combined with low literacy rates.[283] These factors significantly affect local communities' ability to engage effectively in land-grabbing cases and other environmental issues. Also, currently, there is fewer than one soil scientist per district in Mozambique, which has a total of 110 districts.[284]

278 See Meloni et al. (2021: 29).
279 *Plano Estratégico Integrado da Justiça II* (2009 – 2014), 17.
280 See Meloni et al. (2021: 31).
281 See Massarongo-Jona et al. (2023).
282 Instituto Nacional de Estatisticais, censo 2017.
283 See Liberti et al. (2018).
284 Rozanov & Wiese (2018).

In 2014, Mozambique's Parliament enacted a law affirming the right to information, mandating that public entities operate transparently in the public interest.[285] Key provisions include Article 7, which requires these entities to ensure transparency, and Article 8, highlighting the necessity of access to information for meaningful democratic participation. Article 14(1) grants citizens the right to request information, while Article 17 ensures this access is provided free of charge, aiming to empower citizens in public decision-making processes.

The implementation of the right-to-information law in Mozambique is inadequate, as highlighted by the National Union of Journalists.[286] There is a lack of accessible online information, with much of it being outdated and not in the public interest.[287] Crucial documents, such as reports and contracts, are often missing. This lack of transparency hampers community awareness of projects and DUAT approvals, preventing legal challenges and potential violations of environmental legislation. Access to information is vital for meaningful public participation in environmental protection efforts.

8.4 Laws concerning foreign investors and land grab issues

The foreign investment law in Mozambique, first enacted in 1993[288] and amended in 2009[289] and 2021,[290] includes provisions that help mitigate environmental impacts from foreign investments. It establishes clear decision-making processes for investment projects with potential political, social, economic, financial, or environmental consequences, requiring that these undergo scrutiny by the Council of Ministers.[291] Special economic zones are also required to conduct EIAs, ensuring environmental considerations in certain investment decisions. However, environmental protection could be more strongly emphasised within the law for greater safeguards.

Land grabs in Mozambique are a critical issue, often occurring with government complicity.[292] Despite the 1997 Land Law, which guarantees land rights for communities and individuals using land "in good faith" for over a decade (Article 12), enforcement is weak. Local populations, especially subsistence farmers, face significant threats from foreign investment projects, with land being taken without proper

285 Law No. 34/2014.
286 *Sindicato Nacional dos Jornalistas;* https://www.dw.com/pt-002/acesso-%C3%A0-informa%C3%A7%C3%A3o-ainda-%C3%A9-um-grande-desafio-em-mo%C3%A7ambique/a-55084942, accessed 8 August 2024.
287 See https://www.dw.com/pt-002/acesso-%C3%A0-informa%C3%A7%C3%A3o-ainda-%C3%A9-um-grande-desafio-em-mo%C3%A7ambique/a-55084942, accessed 8 August 2024.
288 Law No. 3/93.
289 Decree No. 43/2009.
290 Decree No. 20/2021.
291 Law No. 3/93, Art 3(a).
292 See https://grain.org/en/article/5137-the-land-grabbers-of-the-nacala-corridor, accessed 18 September 2024; Twomey (2014).

consultation or compensation. Strengthening the implementation of the Land Law and ensuring accountability in land transactions is essential to protecting community rights and preventing the social and environmental impacts of land grabs.

The ProSAVANA project in Mozambique's Nacala corridor, led by Brazil, Japan, and Mozambique, aimed to transform 35 million hectares into soybean farms, which would have been Africa's largest land grab.[293] Strong opposition from local farmers and civil society led to its cancellation.[294] However, protests in 2012 highlighted the land-grabbing nature of the project, revealing a lack of transparency and public consultation. A 2013 leak confirmed collusion between Japan, Brazil, and Mozambique's government.[295] The 2018 Maputo Administrative Court ruling against ProSAVANA marked a small victory, but underlying issues of land grabbing remain unresolved.[296]

AgroMoz is another troubling example of land grabbing in Mozambique, where over a thousand people were displaced to make way for a 3,000-hectare soybean project.[297] This process was marred by a lack of transparency, and the displaced communities were not given alternative land or compensation. One of the key investors in AgroMoz was Armando Guebuza, who was the president of Mozambique at the time, which raised concerns about government collusion and the disregard for local communities' rights and livelihoods.[298]

Numerous instances of land grabbing have been reported across Mozambique, with the Mozambican Farmers' Union expressing serious concerns about the detrimental effects on local communities.[299] The Land Law allows communities to claim rights to land they have farmed for more than ten years, implying that former colonial estates should be returned to them. However, with rising foreign agricultural investments, the government is allegedly working with foreign investors, granting them long-term leases. These leases often prioritise those with political connections rather than agricultural expertise, exacerbating tensions with local populations.

The state's role in land-grabbing in Mozambique has shifted significantly with the 2022 Land Policy, which increased state control over land access and allocation. While the 1997 Land Law provided some protections, it was not foolproof. The new policy now allows the government to expropriate land without additional compensation or resettlement for affected residents, placing the burden on the state rather than private investors. This change has normalised land transactions, making land grabs more

293 See https://dollarsandsense.org/archives/2015/0315wise.html, accessed 18 September 2024.
294 See Funada-Classen (2019).
295 See https://grain.org/article/entries/4703-leaked-prosavana-master-plan-confirms-worst-fears, accessed 18 September 2024; Funada-Classen (2019).
296 *Tribunal Administrativo de Maputo, Processo n°120/2017CA.* See https://farmlandgrab.org/uploads/attachment/Acordao_30-_TACM-2018_Caso_Pros_avana_acesso_a%CC%80_informac%CC%A7a%CC%83o.pdf, 12, accessed 17 September 2024.
297 See Paulino (2014).
298 See Liberti et al. (2018).
299 See https://grain.org/en/article/5137-the-land-grabbers-of-the-nacala-corridor, accessed 18 September 2024.

discreet and often overlooked, threatening local communities' land rights and reducing public scrutiny.[300]

8.5 Extension services and the use of pesticides and fertilisers

Despite government efforts, the PEDSA highlights that yields for major crops in the family farming sector remain low, with average maize yields at only 1 ton/ha compared to a potential of 4.5-6 tons/ha. Low adoption of agricultural technologies contributes to this issue. Investments in agriculture and agrarian extension have been insufficient to address the challenges faced in the sector. Most farmers in sub-Saharan Africa, including Mozambique, do not adopt agricultural technologies, resulting in stagnant production and productivity levels. Criticisms of agrarian extension in the region highlight gaps such as inadequate training for extension workers, top-down approaches, and the marginalisation of resource-constrained female farmers. This combination limits support for disadvantaged farmers and neglects the unique challenges faced by smallholders. Over three decades, Mozambique's agricultural extension services have struggled significantly with these issues.[301]

Mozambique's agricultural extension services are insufficient, with only about 4% of farming households accessing these services in 2015.[302] The National Directorate of Agrarian Extension reported 1,947 extensionists in the first half of 2019, yet many farmers remain without support.[303] Assuming that each extensionist can assist up to 250 agricultural families, Mozambique would require approximately 18,000 extensionists to effectively support about 67% of the population engaged in agricultural activities, which amounts to approximately 18.7 million individuals.

The lack of attention given to this issue could be attributed to the fact that the agricultural sector in Mozambique has faced nearly constant organisational changes in recent decades due to a multitude of policies and plans. Between 1995 and 2005, numerous laws regarding natural resources were introduced, often conflicting with existing frameworks. From 2005 to 2013, various development strategies emerged, leading to frequent shifts in government responsibilities across ministries. This instability has overwhelmed existing capacity and diverted focus from essential public support

300 Bruna & Mbanze (2023); Bruna et al. (2024: 16-17).

301 Note, that there are non-governmental initiatives, such as 'Kulima ndi Malonda', which is a private sector-led agricultural extension approach in Mozambique. See chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.niras.com/media/cchl2swj/kulima-ndi-malonda_reduce-size.pdf, accessed 1 October 2024; See also https://www.afdb.org/en/news-and-events/press-releases/mozambican-farmers-gear-planting-season-timely-2-million-fertilizer-financing-boost-72764, accessed 1 October 2024.

302 Cunguara et al. (2018).

303 Marassiro et al. (2020: 430).

services for agricultural development, compounded by favouritism linked to powerful social groups influencing operations at various levels.

Mozambique's low agricultural productivity is further linked to minimal use of yield-enhancing inputs such as fertilisers, improved seeds, and pesticides.[304] The 2015 Integrated Agricultural Survey shows that only 3.8% of smallholder farmers utilised fertilisers during the 2014/2015 season, with even lower percentages using pesticides (3.4%), manure (1.8%), and improved maize seeds (5.2%).[305] Furthermore, agriculture remains predominantly rain-fed, with less than 3.3% of farmers using irrigation. Mozambique's fertiliser application rate of 5.7 kg/ha significantly lags behind regional targets, such as the government's aim of 25 kg/ha by 2020 under PEDSA and the Abuja Declaration's target of 50 kg/ha by 2025.

Smallholder farmers in Mozambique primarily source their fertiliser from local wholesalers, retailers, and small-scale agro-dealers in their villages. According to the 2015 Integrated Agricultural Survey, 66% of these farmers purchased fertiliser, while 24.1% received it on credit.[306] Among those who bought fertiliser, 39.4% obtained it in their villages, and 33% procured it from nearby districts. This highlights the reliance on local suppliers for fertiliser access among smallholder farmers. This is especially significant considering that most roads in Mozambique are unpaved. Data from the National Road Administration indicate that, as of 2017, approximately 74.2% of the roughly 30,500 km of roads were unpaved, leaving only 35.7% paved.[307] This underscores the critical inadequacy of transport infrastructure in the country, which can hinder access to essential agricultural inputs such as fertiliser for smallholder farmers and much-needed extension services.

Mozambique lacks a comprehensive fertiliser policy that addresses both supply and demand constraints holistically, including the training of extension workers, market development, and improved access to finance.[308] Additionally, there is no existing biofertiliser policy to regulate the increasing use of inoculants in legume production. Although a draft fertiliser law is under review, its absence leaves the market vulnerable to low-quality fertilisers. A well-defined legal framework would enhance the fertiliser value chain and support effective subsidy programs, ultimately benefiting farmers through improved fertiliser quality.

Although, as noted, currently, fertiliser usage among smallholder farmers in Mozambique is low, with only 5.4% of fertiliser users having access to credit compared to 0.5% of non-users.[309] Given that 66.8% of these farmers are asset-poor, improving credit access could enhance fertiliser demand. However, directly reducing fertiliser prices might be even more effective, as cost is a key barrier. Resource-poor

304 Anson et al. (2019).
305 Zavale et al. (2020: 2).
306 Ibid.: 10.
307 Ibid.: 9-10.
308 AFAP (2023: 15-16).
309 Zavale et al. (2020: 9).

farmers are unlikely to invest in fertiliser if it does not lead to profitable returns, making affordability crucial for increasing usage.

9 Lessons learnt and recommendations

9.1 Positive lessons learnt

Mozambique has established a comprehensive legal framework for environmental protection and soil conservation, deeply rooted in constitutional provisions that mandate the state to safeguard the environment and uphold the population's right to a balanced ecosystem.[310] The environmental legislation in Mozambique is recognised for its modernity, comprehensiveness, and diversity, effectively addressing various environmental issues.[311]

The Environmental Law of 1997 offers extensive provisions for environmental protection and was adopted relatively early compared to other countries. Key concepts such as environmental liability (Article 26) and environmental crimes (Article 27) serve as powerful tools for safeguarding the environment. Additionally, the EIA process acts as a safeguard mechanism against projects that could harm the environment (Article 16).

Educating the population about environmental issues is crucial for reducing harmful practices and promoting sustainable behaviours (Article 20). Other laws provide significant protection in areas such as forestry, agriculture, mining, waste management, and logging. The establishment of dedicated ministries for agriculture and land, which play roles relevant to soil conservation, enables better application of the ambitious laws enacted by the country. The Ministry for the Coordination of Environmental Affairs focuses on enhancing the efficiency of state environmental actions. Various development plans and action strategies further reflect the government's commitment to environmental protection. Moreover, Mozambique's numerous international commitments underscore its dedication to addressing environmental challenges effectively.

310 Arts 90 & 117 of the 2004 Constitution.

311 See https://biofund.org.mz/wp-content/uploads/2018/06/1528197235-O-Meio-Ambiente-em-Mocambique-2012-Serra-et-al.pdf, 13, accessed 12 August 2024.

9.2 Negative lessons learnt

9.2.1 Critique of the legislation

Despite the presence of a comprehensive environmental legal framework, soils in Mozambique continue to experience degradation, underscoring significant gaps in the effectiveness of this legislation. This situation can be analysed in two main areas for improvement: enhancing the legal framework itself and ensuring better enforcement of existing laws.

In terms of the legal framework, while Mozambique boasts a commendable legal system, the implementation of these laws faces substantial challenges. There are critical gaps, especially in areas lacking relevant legislation.[312] Notably, one significant gap is the absence of dedicated soil conservation legislation. Although soil issues are addressed in constitutional provisions and general environmental laws, a comprehensive law focused specifically on soil conservation is missing. While the action plan against soil erosion is valuable, it would benefit greatly from a dedicated soil law that comprehensively addresses all soil-related issues with better harmonisation and scope than the current fragmented regulations.

The agricultural sector, which occupies vast areas of land, is a major contributor to soil degradation in Mozambique. Improving agricultural legislation could play a crucial role in promoting a transition away from harmful practices. A dedicated soil conservation law would likely have a more significant impact than the existing smaller pieces of legislation, providing clearer guidelines and stronger protections for soil health.

Since the Environmental Law was enacted in 1997, numerous pieces of environmental legislation have been introduced, addressing various sectors. Creating a comprehensive code that consolidates and harmonises these laws would significantly enhance legal coverage for environmental issues. Such codes exist in several civil law countries, including France.

The system of DUATs (land use rights) and state ownership of land grants the government considerable control over land use, particularly concerning large projects. This control, along with regulations governing EIAs, provides an opportunity to mitigate soil degradation. However, implementing tighter regulations would further bolster soil conservation efforts and ensure more effective protection of this vital resource.

Ultimately, addressing soil degradation in Mozambique requires a two-pronged approach: enhancing the legal framework with a specific focus on soil conservation and improving the enforcement of existing laws to ensure meaningful implementation and adherence.

312 See https://biofund.org.mz/wp-content/uploads/2018/06/1528197235-O-Meio-Ambiente-em-Mocambique-2012-Serra-et-al.pdf, 23-24, accessed 12 August 2024.

9.2.2 Critique of the application of the legislation

Serra highlighted a significant weakness in Mozambique's environmental governance: the ineffective implementation of existing environmental legislation.[313] Although a legal framework is in place, enforcing and adhering to these laws is a critical challenge for achieving meaningful environmental protection and soil conservation. Issues such as the inadequate application of public access to information law, uncollected licensing fees, and insufficient governmental oversight of resource exploitation projects further exacerbate the problem, raising concerns about the effectiveness of environmental protections.[314]

In Mozambique, the state owns all land and issues usage rights through DUATs, regulated by the 1997 Land Law. However, concerns about the law's application have emerged, particularly regarding irregularities in the approval process for a gas project on the Afungi peninsula.[315] The NGO Centro Terra Viva noted issues such as the lack of a public exploitation plan before DUAT approval, the absence of local community consent, and missing EIAs. These lapses highlight the laws' limited effectiveness, which relies heavily on proper enforcement to achieve meaningful outcomes.

The 1997 Environmental Law in Mozambique, while theoretically valid and aimed at preventing environmental damage, suffers from significant enforcement issues. Article 33(1) mandates regulatory measures, yet practical effectiveness is limited, especially in prevention and environmental liability. Environmental damage occurs regularly, indicating insufficient preventive measures. While some advocate for Article 26's strict liability applicability, its vague terms, such as "significant damage" and "particularly dangerous activities," hinder effective enforcement without clearer regulations. This reliance on reparation and compensation highlights the law's inadequacies in protecting the environment.

Despite the existence of laws promoting environmental education, the impact has been limited, and harmful agricultural practices persist. This indicates that laws alone are insufficient; effective implementation and community involvement are essential for meaningful change.[316] The 2014 waste disposal law has seen inadequate enforcement, exacerbating waste management issues as urban areas grow, which jeopardises soil health.[317] The law's general nature and lack of specific policies for waste reuse

313 Ibid.: 29.

314 See https://www.dw.com/pt-002/acesso-%C3%A0-informa%C3%A7%C3%A3o-ainda-%C3%A9-um-grande-desafio-em-mo%C3%A7ambique/a-55084942, accessed 14 August 2024; https://biofund.org.mz/wp-content/uploads/2018/06/1528197235-O-Meio-Ambiente-em-Mocambique-2012-Serra-et-al.pdf, 30, accessed 14 August 2024.

315 See Salcedo-La Viña (2015).

316 See https://www.fao.org/mozambique/news/detail-events/en/c/1173887/#:~:text=The%20Food%20and%20Agriculture%20Organization,nutritional%20security%20in%20the%20country, accessed 14 August 2024.

317 See Amad et al. (2020).

and recycling hinder effective management, leading to ongoing challenges in soil conservation.[318]

The creation of various ministries for agriculture, environmental action, and land has not led to the effective implementation of Mozambique's environmental protection laws. The primary challenge lies in the enforcement of existing legislation, which is often lacking. If the commitments stated in the Constitution and the Environmental Law were adequately enforced, they could significantly improve soil conservation efforts across the country.

9.3 Recommendations

The recommendations stress the necessity of bolstering existing legislation, introducing new specialised laws, and improving enforcement practices. A key focus is harmonising outdated environmental laws, as many have not been updated to align with recent legislation, leading to inconsistencies. The creation of an overarching environmental code could help address these gaps. Updating the 1997 Environmental Law is essential, along with establishing a dedicated soil conservation law to tackle soil issues across various sectors, such as agriculture, mining, and waste disposal.

Additionally, actionable plans to combat erosion should be developed, and environmental education should be promoted to engage communities in minimising harmful agricultural practices. It is also vital to address illegal mining and logging, restricting legal activities to those with minimal environmental impact. Enhancing transparency and public access to information regarding environmental laws is crucial for accountability. Tackling corruption that undermines environmental regulations, particularly in project approvals and land-use allocations, is essential.

Furthermore, respecting local communities and ensuring compliance with protective legislation can build trust. Addressing land grabbing through new protective laws and enforcing the 1997 Land Law will safeguard community rights. Since the state owns the land, individuals and communities typically hold only usage rights, leading to insecurity. This insecurity can discourage long-term investment in sustainable land management, as individuals may prioritise short-term gains over ecological preservation. Secure land tenure is essential for responsible stewardship, providing communities with the motivation to invest in the health of their land and resources.

Strengthening the judicial system through better funding and independence is vital, alongside upholding international environmental commitments by aligning national laws accordingly. Developing customary dispute resolution systems while maintaining their independence would further protect local communities. Finally, enhancing the EIA process ensures thorough and transparent evaluations for all projects.

318 See Sallwey et al. (2017).

In conclusion, addressing Mozambique's pressing environmental challenges necessitates a multifaceted strategy that strengthens existing laws, promotes community involvement, and enhances enforcement mechanisms. By harmonising legislation, prioritising soil conservation, and ensuring transparency and accountability, Mozambique can better protect its natural resources while empowering local communities. A commitment to effective implementation and respect for environmental rights will pave the way for sustainable development and a healthier ecosystem for future generations.

References

African Elections, 2024, "Mozambique Election Results". *African Elections* 2024, at https://african-elections.tripod.com/mz.html, accessed 28 April 2024.

African Review, 2024, "Hyundai Opens Assembly Plant in Mozambique". *African Review* 11 November 2014, at https://africanreview.com/manufacturing/industry/hyundai-opens-assembly-plant-in-mozambique, accessed 25 April 2024.

Africanews, 2022, "Mozambican Leader Announces First LNG Export Shipment". *Africanews* 13 November 2022, at https://www.africanews.com/2022/11/13/mozambican-leader-announces-first-lng-export-shipment/, accessed 27 April 2024.

Agricultura, 2024, "Projeto de Fortalecimento da Cadeia de Valor de Arroz na ZEEA-L e nos Regadios das Províncias de Sofala e Zambézia". *Ministério da Agricultura*, 2024, at https://www.agricultura.gov.mz/wp-content/uploads/2024/08/ESIA_BUZI_Final.pdf, accessed 18 June 2024.

Al Jazeera, 2019, "Mozambique President and RENAMO Leader Sign Peace Deal". *Al Jazeera* 1 August 2019, at https://www.aljazeera.com/news/2019/08/mozambique-president-RENAMO-leader-sign-peace-deal-190801115411693.html, accessed 30 April 2024.

Alexander, J., 1997, "The Local State in Post-War Mozambique: Political Practice and Ideas about Authority". *Africa: Journal of the International African Institute* 67(1), 1.

AllAfrica, 2021, "Mozambique: Latest Conflict and Peace Updates". *AllAfrica* 21 May 2021, at https://allafrica.com/stories/202105210826.html, accessed 30 April 2024.

Amad, H., A. Olaide, M. Aderoju, A.G. Dias & A.A.R. Monjane, 2020, "Improving the Attitude and Reaction Towards Municipal Solid Waste Management in Mozambique." *WIT Transactions on Ecology and the Environment* 247, 47.

Aminaka, A., 2022, "Politics of Land Resource Management in Mozambique". In: Takeuchi, S. (ed.), *African Land Reform Under Economic Liberalisation: States, Chiefs, and Rural Communities*. Singapore: Springer, 111.

Aminaka, A., 2023, "How did Political Dynamics Distort Land Law Reform in Mozambique?". *Institute of Developing Economies* July 2023, at https://www.ide.go.jp/English/ResearchColumns/Columns/2023/aminaka_akiyo.html, accessed 30 April 2024.

AP News, 2023, "Cyclone Freddy Hits Mozambique and Malawi". *Associated Press* 12 March 2023, at https://apnews.com/Article/cyclone-freddy-mozambique-malawi-climate-change-7a0949c6ea48dec4fa772f5d05c494d5, accessed 23 March 2024.

BBC News, 2024, "Mozambique Conflict Update". *BBC News* 25 April 2024, at https://www.bbc.com/news/world-africa-56886085, accessed 25 April 2024.

Bernardo, B., C. Candeias & F. Rocha, 2022, "Soil Risk Assessment in the Surrounding Area of Hulene-B Waste Dump, Maputo (Mozambique)". *Geosciences* 12(8), 290.

Bey, A. & P. Meyfroidt, 2021, "Improved Land Monitoring to Assess Large-Scale Tree Plantation Expansion and Trajectories in Northern Mozambique". *Environmental Research Communications* 3(11), 1.

Bidaguren, J.A. & D. Nina, 2004, "Governability and Forms of Popular Justice in the New South Africa and Mozambique: Community Courts and Vigilantism". *Social Justice* 31(1/2 (95-96)), 165.

Biofund, 1995, "Política Ambiental". *Biofund* 6 December 1995, at https://biblioteca.biofund.org.mz/wp-content/uploads/2019/01/1547621013-politica_ambiente.pdf, accessed 18 July 2024.

Biofund, 2014, "Manual sobre a Aplicação da Lei de Conservação". *Biofund* 17 December 2014, at https://biofund.org.mz/wp-content/uploads/2017/04/Manual-sobre-a-Aplicacao-da-Lei-de-Conservacao-16-2014-ENG.pdf, accessed 22 June 2024.

Borges, N. & M. Hill, 2024, "Islamic State Stages Boldest Attack in Mozambique in Years". *Bloomberg* 10 May 2024, at www.bloomberg.com/news/articles/2024-05-10/islamic-state-stages-boldest-attack-in-mozambique-in-three-years, accessed 18 July 2024.

Bowker, T., 2015, "Renamo Claims It Killed 45 Mozambican Troops, MediaFAX Says". *Bloomberg* 23 June 2015, at www.bloomberg.com/news/articles/2015-06-23/renamo-says-it-killed-45-mozambican-troops-mediafax-says, accessed 18 July 2024.

Bowman, M., P. Davies & C. Redgwell, 2011, "The African Convention on the Conservation of Nature and Natural Resources". In: Bowman, M., P. Davies & C. Redgwell (eds), *Lyster's International Wildlife Law*. UK: Cambridge University Press, 262.

Britannica, 2024, "FRELIMO". *Britannica* 5 June 2024, at https://www.britannica.com/topic/Frelimo, accessed 5 June 2024.

Britannica, 2024, "Tillage." *Encyclopaedia Britannica* 18 May 2024, at https://www.britannica.com/topic/tillage, accessed 18 May 2024.

Bruna, N & A.A. Mbanze, 2023, "Towards Climate-Smart Land Policy: Land Grabbing under a Changing Political Landscape in Mozambique". In: Neef, A., C. Ngin, T. Moreda & S. Mollett (eds), *Routledge Handbook of Global Land and Resource Grabbing*. New York: Routledge, 173.

Bruna, N., S. Borras & Y. Xu, 2024, "Failed Land Deals and the Invisibilization of Land Grabbing in Mozambique". LDPI Working Paper 2024-034.

Buur, L. & H.M. Kyed, 2007, "Traditional Authority in Mozambique: The Legible Space between State and Community". In: Buur, L. & H.M. Kyed (eds), *State Recognition and Democratization in Sub-Saharan Africa*. US: Palgrave Macmillan, 105.

Carrilho, J., G. Dgedge, P.M. Santos & J. Trindade, 2024, "Sustainable Land Use: Policy Implications of Systematic Land Regularization in Mozambique". *Land Use Policy* 138, 1.

Carrilho, J.Z., I.A. Ferreira, R.N. Ribeiro & F. Tarp, 2021, "The Relative Neglect of Agriculture in Mozambique". The United Nations University World Institute for Development Economics Research (UNU-WIDER) Working Paper 2021/135, Helsinki.

Chichongue, O., J. van Tol, G. Ceronio & C. Du Preez, 2020, "Effects of Tillage Systems and Cropping Patterns on Soil Physical Properties in Mozambique". *Agriculture* 10(10), 448.

CIA Factbook, 2021, "Mozambique". *Central Intelligence Agency* 2021, at https://www.cia.gov/the-world-factbook/about/archives/2021/countries/mozambique/, accessed 23 Mar. 2024.

CIP, 2021, "Relatório Relativo à Revisão da Política e Lei de Terras". *CIP* 2021, at https://www.cipmoz.org/wp-content/uploads/2021/10/RELATO%CC%81RIO-RELATIVO-A%CC%80-REVISA%CC%83O-DA-POLI%CC%81TICA-E-LEI-DE-TERRAS.pdf, accessed 10 June 2024.

CIP, 2024, "Extractivismo que destrói o ambiente". *CIP* 2024, at https://www.cipmoz.org/wp-content/uploads/2024/02/Extractivismo-que-destroi-o-ambiente-.pdf, accessed 31 July 2024.

Club of Mozambique, 2022, "Mozambique Government Approves New Land Policy". *Club of Mozambique* 2 November 2022, at https://clubofmozambique.com/news/mozambique-government-approves-new-land-policy-its-implementation-strategy-aim-227836/, accessed 8 June 2024.

CNN, 2023, "Cyclone Freddy Devastates Mozambique". *CNN* 12 March 2023, at https://edition.cnn.com/2023/03/12/africa/cyclone-freddy-mozambique-intl/index.html, accessed 23 March 2024.

Corcoran, B., 2020, "EU Agrees to Help Mozambique Tackle Islamist Insurgency". *The Irish Times* 15 October 2020, at https://www.irishtimes.com/news/world/africa/eu-agrees-to-help-mozambique-tackle-islamist-insurgency-1.4386186, accessed 7 May 2024.

Cunguara, B., T. Thompson & K. Davis, 2018, *Mozambique: Desk Study of Extension and Advisory Services*. Developing Local Extension Capacity (DLEC) Project.

De Castro Silveira, P., 2014, "Algumas Considerações Sobre a Lei do Ambiente em Moçambique". *FD Ulisboa* 2014, at https://www.fd.ulisboa.pt/wp-content/uploads/2014/12/Silveira-Paula-de-Castro-ALGUMAS-CONSIDERACOES-SOBRE-A-LEI-DO-AMBIENTE-EM-MOCAMBIQUE.pdf, accessed 18 June 2024.

Deutsche Welle, 2020, 'Access to information in Mozambique', 28 September 2020, at https://www.dw.com/pt-002/acesso-%C3%A0-informa%C3%A7%C3%A3o-ainda-%C3%A9-um-grande-desafio-em-mo%C3%A7ambique/a-55084942, accessed 14 August 2024.

Deutsche Welle, 2023, 'Revisão da Lei de Terras em Fase de Auscultação Pública', 10 July 2023, at https://www.dw.com/pt-002/mo%C3%A7ambique-revis%C3%A3o-da-lei-de-terras-em-fase-de-ausculta%C3%A7%C3%A3o-p%C3%BAblica/a-66176444, accessed 10 June 2024.

Diário Económico, 2023, "Moçambique Será o Terceiro Maior Importador de Arroz em África no Próximo Ano". *Diário Económico* 17 November 2023, at https://www.diarioeconomico.co.mz/2023/11/17/economia/desenvolvimento/mocambique-sera-o-terceiro-maior-importador-de-arroz-em-africa-no-proximo-ano/, accessed 10 April 2024.

Durang, T. & C. Tanner, 2004, "Access to Land and other Natural Resources for Local Communities in Mozambique: Current Examples from Manica Province Setting the Scene". Presented to the Green Agri Net Conference on 'Land Registration in Practice', Denmark, 1-2 April 2004.

Enact Africa, 2023, *Organised Crime Index Summary Mozambique*.

Encyclopaedia Britannica, 2024, "Mozambique". *Encyclopaedia Britannica Online* 2024, at https://academic-eb-com.ez.sun.ac.za/levels/collegiate/Article/Mozambique/109711, accessed 23 March 2024.

Environmental Investigation Agency, 2024, *US-Mozambique Timber Report*.

Farmland Grab, 2012, "UNAC Statement on the ProSavana Programme". *Farmland Grab* 22 October 2012, at www.farmlandgrab.org/21211, accessed 20 September 2024.

Felimao, W., 2014, "Mozambique's RENAMO Says Cease-Fire over as 20 Military Killed". *Bloomberg* 2 June 2014, at www.bloomberg.com/news/articles/2014-06-02/mozambique-s-renamo-says-cease-fire-over-as-20-military-killed, accessed 4 October 2024.

Filipe, E. & S. Norfolk, 2017, *Understanding Changing Land Issues for the Rural Poor in Mozambique*. International Institute for Environment and Development.

FNDS, 2024, "MozRural Program". *FNDS* 2024, at https://www.fnds.gov.mz/index.php/pt/nossos-projectos/listagem-de-projectos/21-desenvolvimento-sustentavel/266-mozrural-programa-de-economia-rural-sustentavel, accessed 23 July 2024.

FNDS, 2024, "REDD Project". *FNDS* 2024, at https://www.fnds.gov.mz/index.php/pt/nossos-projectos/listagem-de-projectos/redd, accessed 23 July 2024.

FNDS, 2024, "Terra Segura Project". *FNDS* 2024, at https://www.fnds.gov.mz/index.php/pt/nossos-projectos/listagem-de-projectos/terra-segura, accessed 23 July 2024.

Food and Agriculture Organization of the United Nations & United Nations Environment Programme, 2021, *Global Assessment of Soil Pollution: Report*.

Food and Agriculture Organization of the United Nations, 2018, "Nutritional Security in Mozambique". *FAO* 6 December 2018, at https://www.fao.org/mozambique/news/detail-events/en/c/1173887/#:~:text=The%20Food%20and%20Agriculture%20Organization,nutritional%20security%20in%20the%20country, accessed 14 August 2024.

Funada-Classen, S., 2019, "The Rise and Fall of ProSavana: From Triangular Cooperation to Bilateral Cooperation in Counter-Resistance". *Observador Rural* 82, 3.

Ghebru, H. & F. Girmachew, 2019, "Perceived Tenure (In)security in the Era of Rural Transformation: Gender-Disaggregated Analysis from Mozambique". Feed the Future Innovation Lab for Food Security Policy Research Paper No. 125.

Ghebru, H., R. Pitoro, & S. Woldeyohannes, 2015, "Customary Tenure and Innovative Measures of Safeguarding Land Rights in Africa: The Community Land Initiative (Iniciativa de Terras Comunitárias) in Mozambique". IFPRI Discussion Paper No. 01484.

Global Forest Watch, 2024, "Forest Change in Mozambique". *Global Forest Watch* 19 May 2024, at https://www.globalforestwatch.org/dashboards/country/MOZ/?category=forest-change&location=WyJjb3VudHJ5IiwiTU9aIl0%3D, accessed 19 May 2024.

Goldbaum, C., 2021, "Isis Claims Responsibility for Mozambique Attack". *The New York Times* 30 March 2021, at https://www.nytimes.com/2021/03/30/world/africa/isis-mozambique-attack.html, accessed 23 May 2024.

Gomes, C., J. Fumo, G. Mbilana, J.C. Trindade & B. De Sousa Santos, 2006, "Community Courts". In: De Sousa Santos, B., J.C. Trindade & M.P. Meneses (eds), *Law and Justice in a Multicultural Society: The Case of Mozambique*. CODESRIA, 203.

GRAIN, 2013, "Leaked ProSAVANA Master Plan Confirms Worst Fears". *GRAIN* 30 April 2013, at https://grain.org/article/entries/4703-leaked-prosavana-master-plan-confirms-worst-fears, accessed 20 September 2024.

GRAIN, 2015, "The Land Grabbers of the Nacala Corridor". *GRAIN* 25 February 2015, at https://grain.org/en/article/5137-the-land-grabbers-of-the-nacala-corridor, accessed 20 September 2024.

Gutiérrez, P., C. Fenn, D. Smith, P. Torpey & C. Levett, 2015, "How Mozambique was Cleared of Landmines: A Visual Guide". *The Guardian* 17 September 2015, at https://www.theguardian.com/world/ng-interactive/2015/sep/17/how-mozambique-was-cleared-of-landmines-a-visual-guide, accessed 20 July 2024.

Henriques, B., 2023, "Mozambican Tourism Growth of 12% in 2022". *360 Mozambique* 19 April 2023, at https://360mozambique.com/business/tourism/mozambican-tourism-growth-of-12-in-2022/, accessed 15 July 2024.

Human Rights Watch, 2024, "Mozambique: Environmental and Human Rights Issues". *Human Rights Watch* 2024, at https://www.hrw.org/sites/default/files/reports/mozambique0513_Upload_0.pdf, accessed 10 June 2024.

Impacto, 2024, "Licença Ambiental". *Impacto* 2024, at http://www.impacto.co.mz/informacao/licenca-ambiental/, accessed 17 July 2024.

Informea, 2024, "Estudo sobre a Análise de Instrumentos Económicos Ambientais para a Redução da Pobreza em Moçambique". *Informea* 2024, at https://www.informea.org/sites/default/files/imported-literature/MON-094629.pdf, accessed 17 July 2024.

Informea, 2024, *Environmental Degradation in Mozambique: A Comprehensive Report*.

Joint United Nations Programme on HIV/AIDS, 2024, "Mozambique". *UNAIDS* 2024, at https://www.unaids.org/en/regionscountries/countries/mozambique, accessed 30 March 2024.

Kaarhus, R. & S. Dondeyne, 2015, "Formalising Land Rights Based on Customary Tenure: Community Delimitation and Women's Access to Land in Central Mozambique". *The Journal of Modern African Studies* 53(2), 193.

Karr, L., 2023, "Africa File: Al Qaeda–Linked Militants Take Control in Northern Mali". *The Critical Threats Project* 10 February 2023, at https://www.criticalthreats.org/briefs/africa-file, accessed 23 June 2024.

Knight, R.S., 2010, *Statutory Recognition of Customary Land Rights in Africa*. FAO.

Liberti, S. & E. Parenti, 2018, "Mozambique Won't Be Mato Grosso". *Le Monde diplomatique* 8 June 2018, at https://pulitzercenter.org/stories/mozambique-wont-be-mato-grosso, accessed 31 April 2024.

Love, J., 2023, "When Private Military Operations Fail: The Case of Mozambique". *Oxford Political Review* 6 March 2023, at https://oxfordpoliticalreview.com/2023/03/06/when-private-military-operations-fail-the-case-of-mozambique/, accessed 10 July 2024.

Marassiro, M.J., M.L.R. de Oliveira & S.F. Come, 2020, "Three Decades of Agricultural Extension in Mozambique: Between Advances and Setbacks". *Journal of Agricultural Studies* 8(2), 418.

Marove, C.A., R. Sotozono, P. Tangviroon, C.B. Tabelin & T. Igarashi, 2022, "Assessment of Soil, Sediment and Water Contaminations Around Open-pit Coal Mines in Moatize, Tete Province, Mozambique". *Environmental Advances* 8, 1.

Massarongo-Jona, O. & I.E. Muhosse, 2023, "Mozambique: Constitutional Law, Legal System, and Political Structure". *NYU Law Globalex* 2023, at https://nyulawglobal.org/globalex/Mozambique1.html#political-system, accessed 2 October 2024.

Mbanze, A.A., W. Shuangao, J. Mudekwe, C.R. Dias & A. Sitoe, 2022, "The Rise and Fall of Plantation Forestry in Northern Mozambique". *Trees, Forests and People* 10, 1.

McLain, R., 2023, *Drivers and Consequences of Tenure Insecurity and Mechanisms for Enhancing Tenure Security: A Synthesis of CGIAR Research on Tenure Security (2013–2020)*. Food Policy Research Institute.

Meloni, G. & A.L.C. Machanguia, 2021, "Democracia Ambiental em Moçambique: Congruências Legais e Contradições Práticas". *Africa Development/Afrique et Développement* 46(2), 17.

Meneses, M.P.G., 2005, "Traditional Authorities in Mozambique: Between Legitimisation and Legitimacy". *Centro de Estudos Sociais*, 1.

Ministério da Terra e do Ambiente, 2021, "Spatial Planning in Mozambique: Challenges and Experiences." *Ministério da Terra e do Ambiente* 2021, at https://spp-pr.com/conferences/5thMeeting/common/pdf/D01-01-04.pdf, accessed 15 August 2024.

Ministry of Agriculture, 2024, "Environmental and Social Impact Assessment". *Ministry of Agriculture* 2024, at https://www.agricultura.gov.mz/wp-content/uploads/2024/08/ESIA_BUZI_Final.pdf, accessed 15 July 2024.

Ministry of Agriculture, 2024, "Institutional History". *Ministry of Agriculture* 2024, at https://www.agricultura.gov.mz/instituicional/ministerio/historial/, accessed 15 July 2024.

Ministry of Agriculture, 2024, "Plano de Desenvolvimento do Sector Agrário". *Ministry of Agriculture* 2024, at https://www.agricultura.gov.mz/documents/PEDSA_VERSAO_LONGA.pdf, accessed 15 July 2024.

Ministry of Agriculture, 2024, "Plano de Engajamento de Partes Interessadas". *Ministry of Agriculture* 2024, at https://www.agricultura.gov.mz/wp-content/uploads/2023/04/FRSP_Plano_Engajamento_Partes_interessadas.pdf, accessed 15 July 2024.

Momade, F. & M. Achimo, 2003, "Dune Geomorphology in Maputaland, Mozambique", Proceedings Paper, XVI INQUA Congress. July 23-30. Reno, Nevada. Paper N° 35-3.

Monteiro, J., A. Inguane, E. Oliveira, S. Joaquim & L. Matlava, 2017, "Territorial Planning at Community Level in Mozambique: Opportunities and Challenges in a Context of Community Land Delimitation". Conference: Annual World Bank Conference on Land and Poverty. Washington, DC.

Mozambique Government, 2024, "Consulta Pública do Anteprojecto da Lei de Terras". *Mozambique Government* 2024, at https://sibmoz.gov.mz/public-consultations/consulta-publica-do-anteprojecto-da-lei-de-terras/, accessed 8 June 2024.

National Public Radio, 2024, "Mozambique is Racing to Adapt to Climate Change". *NPR* 27 May 2024, at https://www.npr.org/sections/goatsandsoda/2019/12/27/788552728/mozambique-is-racing-to-adapt-to-climate-change-the-weather-is-winning, accessed 27 May 2024.

Natural Justice, 2024, "Mozambique Land Law Fact Sheets". *Natural Justice* 2024, at https://naturaljustice.org/wp-content/uploads/2024/01/Moz-Land-Law-Fact-Sheets-2024-1-1.pdf, accessed 8 June 2024.

News24, 2024, "Mozambique Wants to End Cahora Bassa Deal with Eskom, Threatening SA Power Supply". *News24* 2 February 2024, at https://www.news24.com/fin24/economy/mozambique-wants-to-end-cahora-bassa-deal-with-eskom-threatening-sa-power-supply-20240202, accessed 15 April 2024.

Nguegan, N., 2024, "Mozambican Farmers Gear Up for Planting Season with Timely $2 Million Fertilizer Financing Boost". *Africa Fertilizer Financing Mechanism* 18 July 2024, at https://www.afdb.org/en/news-and-events/press-releases/mozambican-farmers-gear-planting-season-timely-2-million-fertilizer-financing-boost-72764, accessed 1 October 2024.

Norfolk, S., J. Quan & D. Mullins, 2020, "Options for Securing Tenure and Documenting Land Rights in Mozambique: A Land Policy & Practice Paper". Natural Resources Institute, University of Greenwich, Chatham, UK.

Open Society Initiative for Southern Africa, 2006, *Mozambique: Justice Sector and the Rule of Law*.

Our World in Data, 2024, "Energy Consumption in Mozambique". *Our World in Data* 2024, at https://ourworldindata.org/energy/country/mozambique, accessed 28 April 2024.

Panagos, P., M. Van Liedekerke, P. Borrelli, J. Köninger, C. Ballabio, A. Orgiazzi, E. Lugato, L. Liakos, J. Hervas, A. Jones & L. Montanarella, 2022, "European Soil Data Centre 2.0: Soil Data and Knowledge in Support of the EU Policies". *European Journal of Soil Science* 73(6), 1.

Patrício, M., 2022, "Customary Rules and the Law of Domestic Violence: Conflicting Norms and Social Change in Rural Mozambique". In: Navarra, C. & C.U. Rodrigues (eds), *Transformations of Rural Spaces in Mozambique*. New York: Bloomsbury Publishing Plc, 13.

Paulino, J., 2014, "Mozambique: More than 1,000 People Displaced from Their Lands in Lioma". *Farmlandgrab* 2014, at https://www.farmlandgrab.org/post/24164-mozambique-more-than-1-000-people-displaced-from-their-lands-in-lioma, accessed 5 October 2024.

Pereira, M.J. S.L. & J. Esteves da Silva, 2024, "Environmental Stressors of Mozambique Soil Quality". *Environments* 11(6), 125.

Portal do Governo, 2024, "Entidade Responsável pelo Estudo do Impacto Ambiental". *Portal do Governo* 2024, at https://www.portaldogoverno.gov.mz/por/Cidadao/Servicos/Estudo-do-impacto-ambiental/Entidade-Responsavel, accessed 17 July 2024.

Radio France Internationale, 2024, "French Prosecutors Probe TotalEnergies Over Deadly Mozambique Attack". *Radio France Internationale* 4 May 2024, at https://www.rfi.fr/en/africa/20240504-french-prosecutors-probe-totalenergies-over-deadly-mozambique-attack, accessed 27 April 2024.

Raso, E.F., S.D.S. Savaio & E.P. Mulima, 2022, "Impacto da Mineração Artesanal de Ouro nos Solos Agrícolas: Caso do Distrito de Manica, Moçambique". *Revista Verde De Agroecologia E Desenvolvimento Sustentável* 17(1), 44.

ReliefWeb, 2024, "ACAPS Briefing Note: Mozambique Conflict - Cabo Delgado". *ReliefWeb* 17 April 2024, at https://reliefweb.int/report/mozambique/acaps-briefing-note-mozambique-conflict-cabo-delgado-17-april-2024, accessed 27 April 2024.

Reuters, 2024, "Mozambique Forces Kill Over 100 Islamist Insurgents in Past Month". *Reuters* 2024, at https://www.reuters.com/Article/us-mozambique-insurgency/mozambique-forces-killed-over-100-islamist-insurgents-in-past-month-government-idUSKCN22A38T, accessed 5 October 2024.

Reuters, 2024, "Mozambique Government Kills 50 Insurgents in Recent Days: Minister". *Reuters* 2 May 2024, at https://www.reuters.com/Article/us-mozambique-insurgency/mozambique-government-kill-50-insurgents-in-recent-days-minister-idUSKBN22Q3CH?il=0, accessed 5 October 2024.

Rozanov, A. & L. Wiese, 2018, *On Soil Scientists and where to find them in Africa: Assessment of Human Capital*. Eurasian Center for Food Security.

Ruppel, O.C., K. Ruppel-Schlichting, L.J. Houston & Y.N. Afua, 2021, "Soil Protection Across Africa: Taking a Glimpse at Namibia, Uganda, Mozambique, Nigeria, Ghana and South Africa". In: Ruppel, O.C. & H. Ginzky (eds), *African Soil Protection Law: Mapping out Options for a Model Legislation for Improved Sustainable Soil Management in Africa – A Comparative Legal Analysis from Kenya, Cameroon and Zambia*. Baden-Baden: Nomos, 453.

Ryan, C.M., N.J. Berry & N. Joshi, 2014, "Quantifying the causes of deforestation and degradation and creating transparent REDD+ baselines: A method and case study from central Mozambique". *Applied Geography* 53, 45.

Salcedo-La Viña, C., 2015, "Q&A with Alda Salomao: Natural gas project threatens community land in Mozambique". *World Resources Institute* 2015, at https://www.wri.org/insights/qa-alda-salomao-natural-gas-project-threatens-community-land-mozambique, accessed 5 October 2024.

Sallwey, J., H. Hettiarachchi & S. Hülsmann, 2017, "Challenges and Opportunities in Municipal Solid Waste Management in Mozambique: A Review in the Light of Nexus Thinking". *AIMS Environmental Science* 4(5), 1.

Santos, M.M., A.V. Ferreira & J.C.G. Lanzinha, 2022, "Colonial Moorings on Spatial Planning of Mozambique". *Cities* 124, 1.

Sedano, F., J.A. Silva, R. Machoco, C.H. Meque, A. Sitoe, N. Ribeiro, K. Anderson, Z.A. Ombe, S.H. Baule & C.J. Tucker, 2016, "The Impact of Charcoal Production on Forest Degradation: A Case Study in Tete, Mozambique". *Environmental Research Letters* 11(9), 1.

Serra, C., S. Dondeyne & T. Durang, 2012, *O Meio Ambiente em Moçambique*.

Serrani, D., S. Cocco, V. Cardelli, P. D'Ottavio, R.B. Rafael, D. Feniasse & G. Corti, 2022, "Soil Fertility in Slash and Burn Agricultural Systems in Central Mozambique". *Journal of Environmental Management* 322, 1.

Shugart, M., 2005, "Semi-Presidential Systems: Dual Executive And Mixed Authority Patterns". *French Politics* 3, 323.

Sicili, L., C. Bias & E. Cavane, 2015, *Sustainable Agriculture for Small-Scale Farmers in Mozambique - A Scoping Report*.

Sitoe, S., 2021, *A Review of the National Fisheries Management Plans for Mozambique*. Ecofish Programme ECO 2022/ 39.

Smith, D., 2015, "Flash and a Bang as Mozambique is Declared Free of Landmines". *The Guardian* 17 September 2015, at https://www.theguardian.com/world/2015/sep/17/last-known-landmine-mozambique-destroyed, accessed 12 August 2024.

Tanner, C., 2002, *Law Making in an African Context: The 1997 Mozambican Land Law*. Food and Agriculture Organization.

Temudo, M.P. & J.M.N. Silva, 2012, "Agriculture and Forest Cover Changes in Post-War Mozambique". *Journal of Land Use Science* 7(4), 425.

The African Fertiliser and Agribusiness Partnership, 2023, *A Review of National Fertiliser Regulatory Authorities in Mozambique*.

Trade, 2024, "Mozambique: Power Generation, Transmission, and Distribution". *Trade* 2024, at https://www.trade.gov/country-commercial-guides/mozambique-power-generation-transmission-distribution, accessed 28 April 2024.

Tran, M., 2022, "Mozambique Smelting Profits Should Not Fill Foreign Coffers, Say Campaigners". *The Guardian* 19 October 2022, at https://www.theguardian.com/global-development/2013/jan/08/mozambique-smelting-profits-foreign-coffers, accessed 18 July 2024.

Trindade, J.C. & J. Pedroso, 2006, "The Judicial System: Structure, Legal Education and Legal Training". In: De Sousa Santos, B., J.C. Trindade & M.P. Meneses (eds), *Law and Justice in a Multicultural Society: The Case of Mozambique*. CODESRIA, 113.

Twomey, H., 2014, "Displacement and Dispossession: Forced Migration and Land Grabbing in Mozambique". Working Paper No. 101. Refugee Studies Centre, University of Oxford.

UN Capital Development Fund, 2024, "Our Land, Our Future: Tackling Land Restoration and Drought Resilience". *UNCDF* 27 May 2024, at https://www.uncdf.org/Article/8745/our-land-our-future-tackling-land-restoration-halting-desertification-and-building-drought-resilience-at-the-local-level, accessed 27 May 2024.

United Nations Convention to Combat Desertification, "Mozambique Reports". *UNAIDS* 2024, at https://www.ais.unwater.org/ais/pluginfile.php/601/mod_page/content/25/Mozambique_2.pdf, accessed 30 July 2024.

United Nations Convention to Combat Desertification, "Mozambique Reports". *UNAIDS* 2024, at https://www.unccd.int/sites/default/files/prais-legacy/Mozambique/2004/Mozambique%20-%20ACP%20-%202004%20eng.pdf, accessed 30 July 2024.

United Nations Development Programme, 2024, "Human Development Index (HDI)." *Human Development Reports* 2024, at https://hdr.undp.org/data-center/human-development-index#/indicies/HDI, accessed 30 March 2024.

United Nations Educational, Scientific and Cultural Organization Planipolis, 2020, "Mozambique VNR 2020". *UNESCO* 2020, at https://planipolis.iiep.unesco.org/sites/default/files/ressources/mozambique_vnr_2020.pdf, accessed 28 June 2024.

United Nations Environment Programme, 2014, "Estudo sobre a Análise de Instrumentos Económicos Ambientais para a Redução da Pobreza em Moçambique". *UNEP* 2014, at https://www.unpei.org/files/pdf/estudo_sobre_a_an%C3%A1lise_de_instrumentos_econ%C3%B3micos_ambientais_para_a_redu%C3%A7%C3%A3o_da_pobreza_em_mo%C3%A7ambiqu_140115.pdf, accessed 17 July 2024.

United Nations Environment Programme, 2024, "Mozambique Works to Break Vicious Circle of Environmental Degradation". *UNEP* 27 May 2024, at https://www.unep.org/news-and-stories/press-release/mozambique-works-break-vicious-circle-environmental-degradation-and, accessed 27 May 2024.

United Nations High Commissioner for Refugees Reporting, 2023, "Mozambique". *UNHCR* June 2023, at https://reporting.unhcr.org/files/2023-06/SA%20-%20Mozambique.pdf, accessed 14 June 2024.

United States Agency for International Development, 2022, "Spotlight on Justice: Bringing Environmental Criminals to Court". *U.S. Agency* 2022, at www.usaid.gov/mozambique/document/spotlight-justice-bringing-environmental-criminals-court, accessed 21 September 2024.

United States Agency for International Development, 2024, "Agriculture and Food Security in Mozambique". *USAID* 2024, at https://www.usaid.gov/mozambique/agriculture-and-food-security, accessed 10 May 2024.

US Geological Survey, 2019, "Mozambique Mineral Resources". *US Geological Survey* 2019, at https://pubs.usgs.gov/myb/vol3/2019/myb3-2019-mozambique.pdf, accessed 25 April 2024.

Utter, M., 2021, "New Rules of the Game: The Politization of Community Courts in Mozambique". *Washington International Law Journal* 31(1), 1.

Veldkamp, E., M. Schmidt, J.S. Powers & M.D. Corre, 2020, "Deforestation and Reforestation Impacts on Soils in the Tropics". *Nature Reviews Earth & Environment* 1(11), 590.

Walker, M.M., 2020, "Protecting Smallholder Land Rights in Mozambique, 1997–2017: Unfinished Business?". *African Studies Review* 64 (2), 315.

Walker, T., R. Pitoro, A. Tomo, I. Sitoe, C. Salência, R. Mahanzule, C. Donovan & F. Mazuze, 2006, *Priority Setting for Public-Sector Agricultural Research in Mozambique with the National Agricultural Survey Data*. IIAM Research Report No. 3E.

Warner, J., R. O'Farrell, H. Nsaibia & R. Cummings, 2023, "Outlasting the Caliphate: The Evolution of the Islamic State Threat in Africa". *West Point Combatting Terrorism Center* 9 August 2023, at https://ctc.westpoint.edu/outlasting-the-caliphate-the-evolution-of-the-islamic-state-threat-in-africa/, accessed 20 April 2024.

Weiss, C., 2019, "Islamic State Claims First Attack in Mozambique". *FDD's Long War Journal* 4 June 2019, at www.longwarjournal.org/archives/2019/06/islamic-state-claims-first-attack-in-mozambique.php, accessed 18 September 2024.

Wise, T.A., 2015, "The Great Land Giveaway in Mozambique". *Dollars & Sense* March/April, at https://www.dollarsandsense.org/archives/2015/0315wise.html, accessed 20 September 2024.

World Bank Climate Knowledge Portal, 2019, "CSA in Mozambique". *World Bank Climate Knowledge Portal* 2019, at https://climateknowledgeportal.worldbank.org/sites/default/files/2019-06/CSA-in-Mozambique.pdf, accessed 28 March 2024.

World Bank Climate Knowledge Portal, 2024, "Mozambique". *World Bank Climate Knowledge Portal* 2024, at https://climateknowledgeportal.worldbank.org/country/mozambique, accessed 23 March 2024.

World Bank, 2018, "Communities Livelihoods Fisheries: Fisheries Governance and Shared Growth in Mozambique". Working Paper 126083.

World Bank, 2024, "Arable Land (% of Land Area) - Mozambique". *World Bank Data* 2024, at https://data.worldbank.org/indicator/AG.LND.ARBL.ZS?locations=MZ, accessed 23 March 2024.

World Bank, 2024, "Content". *World Bank* 2024, at https://openknowledge.worldbank.org/server/api/core/bitstreams/e05de39a-1acb-5187-99fb-daf66c4b9a74/content, accessed 31 July 2024.

World Bank, 2024, "Fisheries in Mozambique: A Snapshot". *World Bank* 2024, at https://documents1.worldbank.org/curated/en/342481619154376842/pdf/Fisheries-in-Mozambique-A-Snapshot.pdf, accessed 15 April 2024.

World Bank, 2024, "Hydroelectric Power (% of Total Electricity Consumption) - Mozambique". *World Bank Data* 2024, at https://data.worldbank.org/indicator/EG.ELC.HYRO.ZS?locations=MZ, accessed 28 April 2024.

World Bank, 2024, "International Tourist Arrivals - Mozambique". *World Bank Data* 2024, at https://data.worldbank.org/indicator/ST.INT.ARVL?view=map&locations=MZ, accessed 28 April 2024.

World Bank, 2024, “Literacy Rate, Adult Total (% of People Ages 15 and Above) - Mozambique | Data”. *World Bank Data* 2024, at data.worldbank.org/indicator/SE.ADT.LITR.ZS?locations=MZ, accessed 20 May 2024.

Zaehringer, J.G., A. Atumane, S. Berger & S. Eckert, 2018, “Large-Scale Agricultural Investments Trigger Direct and Indirect Land Use Change: New Evidence from the Nacala Corridor, Mozambique”. *Journal of Land Use Science* 13(3), 325.

Zavale, H., G. Matchaya, D. Vilissa, C. Nhemachena, S. Nhlengethwa & D. Wilson, 2020, “Dynamics of the Fertilizer Value Chain in Mozambique”. *Sustainability* 12, 1.

Zitamar News, 2024, “A Car That Won’t Start: Obstacles to Mozambique’s Electric Vehicle Potential”. *Zitamar* 25 April 2024, at https://www.zitamar.com/a-car-that-wont-start-obstacles-to-mozambiques-electric-vehicle-potential/, accessed 25 April 2024.

Zitamar, 2024, “Over 1,190 Killed in 2021 Palma Massacre: New Survey Finds”. *Zitamar* 5 May 2024, at https://www.zitamar.com/over-1-190-killed-in-2021-palma-massacre-new-survey-finds/, accessed 5 May 2024.