Soil Protection Law in South Africa and the African Union

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Fertile soils are the quiet infrastructure of life—anchoring food, water regulation, carbon storage, and biodiversity—yet they are steadily degraded across Africa by unsustainable land use and climate stress. This chapter examines soil governance in South Africa and within the African Union (AU), mapping key drivers (agriculture, mining, urbanisation, insecure tenure, weak enforcement) and assessing a broad but fragmented domestic framework. Despite recent reforms, the absence of a dedicated Soil Protection Act, thin monitoring capacity, and diffuse mandates leave significant gaps.

At the AU level, soils appear mostly indirectly across treaties, strategies, and soft law; newer initiatives (the Soil Initiative for Africa and the Pan-African Parliament (PAP) model-law work) signal momentum but face constraints: no supranational enforcement, finance shortfalls, data deficits, and input-heavy approaches. The chapter proposes a practical pathway: enact dedicated soil legislation, build open national soil data systems, strengthen enforcement and tenure security (especially in communal areas), support smallholders through extension and finance, and align sectoral policies under a coherent, science-informed framework. Soil protection is thus foundational to food security, climate resilience, and social justice.

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1 Introduction

Fertile soils underpin food systems, regulate water, store carbon, and support biodiversity.[2] Across Africa, they are being degraded by unsustainable land use and climate stress. Hazards such as sealing, erosion, compaction, pollution, salinization, and loss of organic matter diminish ecosystem services, driving declining yields, food insecurity, displacement, and, at times, conflict.

Because many economies remain agriculture-dependent and dominated by smallholders, soils are both critical and fragile.[3] Diverse climates complicate management, while poverty, population growth, and uneven development heighten exposure to shocks. Foreign investment can unlock capital, yet has sometimes deepened tenure insecurity; high public debt further narrows policy space.

Despite their centrality, soils have long been treated only indirectly in African law and policy. The African Union (AU) has begun to integrate soil protection into Agenda 2063, climate, and agricultural strategies. This chapter examines South Africa's framework and AU law, identifies the strengths and gaps between norms and enforcement, and outlines opportunities for a coherent and integrated approach. It argues that soil protection is not merely environmental, but foundational to food security, climate resilience, and social justice.

[2] Ruppel/Ginzky, 2021, 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.

[3] Ginzky/Ruppel, 2022, Soil Security 6, 100032.

2 Soil Protection in South Africa

2.1 Extent of Degradation

South Africa's soils face accelerating degradation driven by interacting pressures: input-intensive and expansionary agriculture, legacy and new mining footprints, deforestation and invasive species, climate variability (flood, fire, drought, wind), rapid urban expansion with sealing and compaction, industrial contamination hot spots, and tenure insecurity rooted in historical dispossession and uneven land reform.[4] These forces deplete organic matter, disrupt hydrology, impair fertility, and heighten erosion—undermining food systems and livelihoods. Weak enforcement, fragmented mandates, limited soil science capacity, and inadequate support for smallholders exacerbate the problem.

2.2 Legal and Policy Framework

2.2.1 National Policies Relevant to Soil Protection

South Africa has developed a wide array of policies, strategies, and programmes that directly or indirectly affect soil protection.

2.2.1.1 Agriculture and Soil Management Policies

The Conservation Agriculture Policy (2017, draft) promotes farmer empowerment and sustainable production, encouraging minimum/zero tillage and recognizing soil as a dynamic ecosystem. Under South Africa's UNCCD land-degradation-neutrality pledge, 60,000 km^2 of cropland are expected to shift to conservation agriculture by 2030. **The Policy on Agriculture in Sustainable Development (eighth draft)** provides a cross-sector framework that prioritizes soil management (degradation, salinity, and acidity), aligning with the **Agricultural Strategic Plan (2020-2025)**. **The Climate-Smart Agriculture Strategic Framework (2018, draft)** encompasses agriculture, aquaculture, forestry, and fisheries, promoting practices such as mulching, intercropping, conservation agriculture, and improved water management to enhance productivity, cut emissions, and increase carbon sequestration—ultimately strengthening soil health. **The Draft Policy on the Preservation and Development of Agricultural Land (2016)** aims to secure long-term, sustainable use of agricultural land. **The LandCare Programme (1999)** promotes a conservation ethic and rural livelihoods through job creation and stewardship, but its delivery is uneven due to variable provincial implementation and inadequate funding management.[5]

2.2.1.2 Climate, Water, and Ecosystem Strategies

South Africa's climate and ecosystem instruments indirectly bolster soil health. The **National Climate Change Response White Paper (2011)** charts a low-carbon, climate-resilient pathway, prioritising soil- and water-conservation research, urban management, and support for smallholders. The **National Climate Change Adaptation Strategy (2018, draft)** addresses rising temperatures and rainfall variability, especially in agriculture and forestry, while the **NDCs (2015; 2021 update)** link mitigation/adaptation to sustainable land management and soil carbon. The **Ecosystem-Based Adaptation Framework (2016)** promotes the restoration of rangelands and wetlands and mainstreams biodiversity. Water instruments, such as the **National Water Resource Strategy (2023)** and **Mine Water**

[4] Ruppel/Ginzky/Murray, 2025, Legal Pathways to Sustainable Soil Management in Africa: Insights from Botswana, Burkina Faso, Cameroon, Kenya, Madagascar, Morocco, Mozambique, Namibia, South Africa, Uganda, and Zambia. Baden-Baden: Nomos; Ruppel et al. (2020: 312).

[5] See https://pmg.org.za/committee-meeting/35429/, accessed 27 August 2025.

Management Policy (2022), reduce soil risks by improving water governance and addressing acid mine drainage. The **NAP to Combat Desertification (2018–2030)** strengthens policy, research, stakeholder coordination, and restoration to sustain ecosystem services and support adaptation.

2.2.1.3 Biodiversity and Environmental Frameworks

The National Biodiversity Framework (2019–2024) and the **National Biodiversity Strategy and Action Plan (2015–2025)** coordinate conservation and protected-area expansion, indirectly strengthening soil health through ecosystem protection and restoration. **The White Paper on Environmental Management Policy (1998)** provides a cross-sectoral sustainable-development framework that recognises soil health and prioritises long-term soil fertility. **The National Framework for Sustainable Development (2008)** advances sustainable agriculture through stakeholder engagement, research investment, capacity building, and rural infrastructure, emphasising sustainable land management and decoupling growth from unsustainable resource use. **The National Development Plan (2012)** flags erosion and fertility loss as major threats and proposes a standardised soil-quality assessment with annual reporting. **The National Spatial Development Framework (2022)** guides long-term spatial planning, encompassing land-use patterns, urbanization, rural development, and resource management, thereby indirectly affecting soil sustainability.

2.2.1.4 Food Security and Poverty Alleviation Programmes

The 2014 National Policy on Food and Nutrition Security recognises healthy soils as essential to sustainable production; its implementation advances soil health through sustainable farming and sound land management. Working for Water (established in 1995) employs marginalised groups to rehabilitate wetlands; invasive-alien clearance supports biodiversity, improves soils, and reduces erosion. However, strict employment criteria and high monitoring costs have limited the effectiveness of robust monitoring and evaluation, despite substantial funding.

2.2.1.5 Land and Tenure-Linked Policies

The White Paper on Land Policy (1997) promotes sustainable land use, community participation, and protection of vulnerable groups' land rights to redress apartheid-era dispossession and foster social cohesion. It links land degradation and soil erosion to landlessness, overcrowding in former homelands, and the use of inappropriate farming methods.

2.2.2 National Laws for Soil Protection

2.2.2.1 Constitutional Foundations

The Constitution of the Republic of South Africa (1996) provides the overarching framework:

Section 24 guarantees everyone an environment that is not harmful to their health or well-being and obliges the state to prevent pollution, promote conservation, and ensure sustainable use for present and future generations. Complementary rights, such as property and land reform (**Section 25**), access to information (**Section 32**), just administrative action (**Section 33**), and access to courts (**Section 34**), reinforce accountability and transparency in land and environmental governance, indirectly supporting soil protection. Principles of co-operative government (**Sections 41**, **152**), read in conjunction with the Municipal Systems Act 32 of 2000, require all spheres, especially municipalities, to integrate environmental sustainability into planning and service delivery.

2.2.2.2 Historical Evolution of Soil Laws

Soil protection has been a key feature of South Africa's legal agenda for over a century. Early efforts included the establishment of drought commissions in the 1920s and the adoption of the **Forest and Veld Conservation Act 13 of 1941**, which marked the first legislative recognition of the risks

associated with land degradation.[6] This was followed by the **Soil Conservation Act 45 of 1946**, which created national boards and introduced subsidies to support conservation measures. The Act was later replaced by the **Conservation of Agricultural Resources Act 43 of 1983 (CARA)**, which remains the country's principal agricultural statute for erosion control, invasive plant management, and soil rehabilitation.

2.2.2.3 Core Environmental Legislation

South Africa safeguards soils primarily through cross-cutting environmental statutes. **The National Environmental Management Act 107 of 1998 (NEMA)** provides binding principles and the EIA/authorisation regime for listed activities (including virgin-soil cultivation and clearance), supported by intergovernmental planning duties. The **National Water Act 36 of 1998 (NWA)** and the **Water Services Act (1997)** regulate water use and quality, indirectly protecting soils through licensing and catchment planning. The **Biodiversity Act 10 of 2004 (NEMBA)** and the **Protected Areas Act 57 of 2003 (NEMPAA)** maintain ecosystem integrity (invasive-species control; protected areas), while the **Forests Act (1998)** addresses erosion and sustainable woodland management. The **Waste Act 59 of 2008 (NEMWA)** governs waste and contaminated land remediation, while the **Air Quality Act 39 of 2004 (NEMAQA)** manages emissions and dust through air quality management plans (AQMPs). The **Climate Change Act (2024)** incorporates adaptation, mitigation, and just transition planning. Collectively, these statutes influence land-use decisions and mitigate soil degradation risks, although none are specifically related to soil.

2.2.2.4 Agriculture-Specific Legislation

South Africa's agriculture statutes shape soil outcomes. The **Preservation and Development of Agricultural Land Act 39 of 2024 (PDAL)** (signed Jan 2025) replaces the **Subdivision of Agricultural Land Act 70 of 1970 (SALA)**, introducing a comprehensive framework for evaluating, classifying, and protecting agricultural land, with provincial agricultural plans, nationally protected agrarian areas, agro-ecosystem authorisations, inspections, and enforcement; it strengthens co-operative governance across all spheres but lacks soil-specific management standards. The **Conservation of Agricultural Resources Act 43 of 1983 (CARA)** defines natural agricultural resources (soil, water, vegetation) and regulates erosion control, veld management, invasive species, and virgin-land cultivation (including slope limits and approvals), with regulations on invasives, grazing, irrigation, wildfire, and rehabilitation; its institutional machinery largely collapsed post-1994, and the statute is dated and weakly enforced.[7] The **White Paper on Agriculture (1995)** strikes a balance between productivity and conservation, emphasizing secure tenure, rehabilitation, invasive-species control, biodiversity protection, and the integration of soil/food-security information with early warning systems. Complementary input and biotechnology acts, the **Fertilisers, Farm Feeds, Agricultural Remedies, and Stock Remedies Act 36 of 1947**, **Agricultural Pests Act 36 of 1983**, and **Genetically Modified Organisms Act 15 of 1997,** ensure product safety and pest control but only indirectly protect soils and are dated, backlog-prone, and in need of sustainability-oriented reform. **Foreign agricultural investment** remains modest.[8] The Regulation of Land Holdings Bill (2017) was withdrawn in 2023, leaving investors subject only to general law and raising concerns about accountability and transparency in soil and land governance.

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6 Rabie, 1974, The Comparative and International Law Journal of Southern Africa 7(3), 255.

7 Baade et al., Sustainability of Southern African Ecosystems under Global Change. Cham: Springer, 2024, 335.

8 Department of Rural Development and Land Reform, *Land Audit Report* (2017: 2).

Mining and Industrial Regulation

The **Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA)** vests mineral and petroleum resources in the state (Section 3) and requires environmental authorisation for all prospecting and mining (Section 5A). Rights are contingent upon stakeholder consultation, compliance with NEMA, and approval of Environmental Management Plans (EMPs); holders remain liable until a closure certificate is issued (Section 43). The Minister may intervene, suspend, or revoke rights for non-compliance (Sections 46–47), with offences and penalties in Sections 91–99. Financial provisioning is now governed by NEMA Section 24P, which requires mine-specific rehabilitation, closure, and residual-risk plans. In practice, weak enforcement and poor compliance with closure leave soils vulnerable; thousands of derelict/ownerless mines persist, with fewer than 1% rehabilitated.[9] Although the **Norms and Standards for Contaminated Land (2014)** were introduced to regulate remediation, inconsistent thresholds have created confusion for regulators and investors, while escalating compliance costs have hindered effective rehabilitation.

The **Land Rehabilitation Guidelines for Surface Coal Mines (2019)** recommend salvaging usable soil for restoration. However, the prescribed salvage depth is often too shallow to restore soil function. In practice, soils are usually stockpiled at higher levels than recommended, which can lead to degradation before reuse. Similarly, the **Chamber of Mines Guidelines (2007, Appendix 3)** classify land primarily by soil depth, unlike international standards, which also consider climate, vegetation, and topography. This narrow approach risks misclassification and inappropriate land use, fuels further degradation, and reflects limited input from soil science—leaving rehabilitation standards weakly grounded and ecologically misaligned.

Foreign investors underpin South Africa's mining sector, supplying capital, technology, and expertise, but are bound only by existing environmental laws that are unevenly enforced amid corruption, capacity constraints, and mismanagement. The **Exploration Implementation Plan (2022)** aims to expand exploration and raise mining's GDP contribution; without stronger oversight and compliance, these ambitions risk exacerbating soil degradation and related environmental harms.

South Africa's transition from an agrarian to a manufacturing-based economy has been guided by the **Economic Reconstruction and Recovery Plan (2020)**, which emphasizes climate-resilient infrastructure, green investment, and resource conservation aligned with the Sustainable Development Goals (SDGs). Key instruments include the **Industrial Development Act 22 of 1940** (industrial development corporations), the **Broad-Based Black Economic Empowerment Act 53 of 2003** (transformation), and the **Special Economic Zones Act 16 of 2014** (investment, exports, and job creation). There is no single comprehensive industrial statute; environmental safeguards rely on cross-cutting regimes, notably NEMWA and the National Waste Management Strategy (2010).

2.2.2.6 Urbanisation and Land-Use Law

The **Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA)** provides the national framework for spatial planning and land use, promoting inclusive, equitable, and consistent decision-making to address historical imbalances. It establishes municipal planning tribunals and enforcement mechanisms, while provinces and municipalities implement policy through Spatial Development

[9] SAHRC, National Hearing on the Underlying Socio-economic Challenges of Mining-affected Communities in South Africa (2016: 28).

Frameworks and Integrated Development Plans. In practice, urban sprawl exposes ongoing tensions between development priorities, community rights, and environmental protection.

2.2.2.7 Monitoring, Enforcement, and Access to Justice

Environmental monitoring in South Africa relies heavily on Environmental Impact Assessments (EIAs) under NEMA, but compliance is inconsistent, and soil-specific studies are often inadequate. The Green Scorpions (Environmental Management Inspectors) have strengthened oversight; however, their capacity remains stretched.[10] Illegal sand mining, landfill violations, and mining infractions persist as pervasive issues. At the same time, the fact that much of their caseload involves government institutions raises concerns about the effectiveness of internal environmental management systems.

The **Promotion of Access to Information Act 2 of 2000 (PAIA)** facilitates access to state-held environmental information; however, soil data are often outdated, fragmented, and concentrated in private hands, thereby limiting transparency. The **Promotion of Administrative Justice Act 3 of 2000 (PAJA)** promotes fair, accountable administration, and NEMA Section 32 grants broad standing to NGOs and citizens. Nonetheless, high litigation costs, limited expertise, language barriers, and deference to traditional authorities continue to impede participation and access to justice.[11]

2.2.2.8 Institutional Responsibilities

Soil governance is shared across spheres. The **Department of Land Reform and Rural Development** leads land-use, land reform, and rural development; the **Department of Agriculture** sets agricultural policy and practice; the **Department of Environment, Forestry and Fisheries** oversees environmental protection and biodiversity; the **Department of Water and Sanitation** manages water resources; and the **Department of Mineral and Petroleum Resources** regulates mining and petroleum. **Municipalities** drive spatial planning and development under SPLUMA, while **NGOs** and civil society help fill capacity gaps through monitoring, public awareness, and strategic litigation or advocacy.

2.2.3 Provincial and Local Levels

South Africa has nine provinces, 44 districts, 205 local municipalities, and eight metropolitan municipalities. Provincial environmental conservation is primarily governed by older ordinances, including the **Transvaal (1983)**, **Cape (1974)**, **Natal (1974)**, and **Free State (1969)** statutes, supplemented by newer provincial biodiversity/ecological statutes. These regimes regulate wildlife use, hunting, trespass, and conservation measures, and provide for appeals, delegated powers, and recreational areas. Though not soil-specific, they indirectly influence land management. At the local level, municipal by-laws on air quality, waste, and land-use planning further complement the national framework.

2.3 Synthesis: Strengths and Weaknesses of the Legal Framework

South Africa's soil governance is extensive yet fragmented. Section 24 guarantees an enforceable environmental right, but protection is mediated through sectoral laws: NEMA (principles/EIA), CARA (the only explicit agricultural soil statute, now dated and weakly enforced), and newer measures such as PDAL (2024/25) and the Climate Change Act (2024) that gesture toward agro-ecosystem resilience and adaptation. Policies such as conservation agriculture and LandCare signal intent but are unevenly implemented.

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10 Department of Forestry, Fisheries, and the Environment, *National Environmental Compliance & Enforcement Report* (2023: 4).

11 Kidd, 2010, Potchefstroom Electronic Law Journal 38, 1.

Critical gaps persist: no dedicated Soil Protection Act; thin monitoring and data (few government soil scientists; no open, central soil database); dispersed mandates and friction between SPLUMA planning and traditional authority; strained enforcement (EMIs) amid illegal sand mining, landfill non-compliance, and unsustainable farming; and socio-economic pressures—tenure insecurity, urbanisation, mining legacies, and input-intensive agriculture—driving erosion, salinisation, and nutrient loss. Progress requires a Soil Protection Act, a national soil information system with routine monitoring, stronger institutions and enforcement, tenure reform that aligns municipal and traditional governance, embedded soil expertise, targeted smallholder support, and climate alignment that treats soils as key carbon sinks and resilience assets. Without these, accelerating degradation will erode food security, equity, and long-term development.

2.4 Relationship between South African Domestic Law and African Union Law

South Africa follows a dualist approach to international law: Therefore, also AU treaties create international obligations once ratified, having force in domestic law only when incorporated by an Act of Parliament (Constitution, Section 231(4)).[12] This notwithstanding, South African courts must consider international law when interpreting the Bill of Rights (Section 39(1)(b)) and prefer interpretations consistent with it (Section 233). Customary international law applies unless inconsistent with the Constitution or legislation (Section 232). AU soft-law (declarations, strategies, model laws) is not binding but is persuasive for policy, legislative drafting, and adjudication, including the content of Section 24.

A model law is a non-binding framework designed to harmonise legal systems across the AU by promoting best practices and guiding member states in developing national legislation.[13] The PAP model laws are for instance non-self-executing; they operate only when enacted domestically or used as interpretive aids. Yet, AU soil commitments can inform updates to NEMA and CARA, support the development of a dedicated Soil Protection Act, and promote alignment across national, provincial, and municipal measures.

[12] Ruppel/Ginzky/Murray, 2025, Legal Pathways to Sustainable Soil Management in Africa: Insights from Botswana, Burkina Faso, Cameroon, Kenya, Madagascar, Morocco, Mozambique, Namibia, South Africa, Uganda, and Zambia. Baden-Baden: Nomos, 583 .

[13] PAP *Procedural Guidelines for the Formulation of Model Laws* PAP.4/BUR/PFPG/MAR.2018.

3 Soil Protection under African Union Law

3.1 Institutional and Legal Foundations

The **Constitutive Act of the AU (2000)** underpins AU law but does not expressly mention "soil."[14] Nonetheless, Article 3 objectives—sustainable development (3(j)), human rights (3(h)), health (3(n)), living standards (3(k)), and science and technology (3(m))—depend on healthy soils, and Article 13(1)(c) lists soil-reliant sectors (food, agriculture, livestock, forestry). The omission of soil as a distinct resource has encouraged a tailored yet fragmented, sectoral approach. A preferable model would embed sector-specific measures within an overarching continental soil-protection framework; explicit recognition of soil in Article 13, analogous to water in Article 13(1)(d), would have anchored such coherence.

Institutionally, the **Assembly** (headed by heads of state) is the supreme policymaker; the AU **Commission** implements policies; the **Pan-African Parliament (PAP)** drafts model laws but lacks binding legislative power; and the **Economic, Social, and Cultural Council (ECOSOCC)** provides advisory input. Unlike the European Union, the AU is not a supranational organization and lacks coercive enforcement; therefore, the effectiveness of AU-level soil protection hinges on the political will and the domestic legal strength of its member states.

3.2 Key AU Legal Instruments

Although it does not regulate soil directly, the **African Charter on Human and Peoples' Rights (1981)** establishes the foundation for environmental rights. Articles 16(1) (health) and 24 (a generally satisfactory environment) together provide an interpretive basis to recognize healthy soils as part of these rights, framing soil conservation as a human rights and environmental justice concern.

Supplementing the African Charter, the **Maputo Protocol (2003)** advances the rights of women. Article 18(1) guarantees a healthy, sustainable environment, encompassing healthy soils, thereby foregrounding the gendered dimensions of soil protection.

The **Charter on the Rights and Welfare of the Child (1990)** links education to environmental stewardship. Article 11.2(g) requires curricula that foster respect for the environment and natural resources, implying state duties to protect soils and to build ecological literacy among future generations.

The **African Convention on the Conservation of Nature and Natural Resources (revised in 2003/2016)** is the AU's principal treaty addressing the conservation of nature and natural resources, including soils. Article VI integrates land and soil with vegetation and hydrological processes, mandates preventive and rehabilitative measures (Article VI(3)(d)), and recognizes the rights and knowledge of local communities (Article VI(4)). It also establishes a Conference of the Parties (Article XXVI) and promotes cooperation on transboundary impacts, providing a modern and practicable framework for soil governance.

The **Charter on the Values and Principles of Decentralisation, Local Governance, and Local Development (2014)** centres on decentralisation and development but offers environmental entry points: Article 10(5) requires local authorities to pursue sustainable development, and Article 16(4a) obliges states to legislate for sustainable resource use at the regional level. Although soil is not

[14] Ruppel/Ginzky (Fn. 1).

explicitly addressed, the Charter's emphasis on local governance and participation is notable: soil management is site-specific and depends on the cooperation of landholders and communities; participation leverages local knowledge and aligns policy with the local context.

The **African Youth Charter (2006)** embeds environmental duties. Article 19 commits states to support youth-led initiatives, such as tree planting, forest regeneration, and anti-desertification, while Article 26(o) places a correlative duty on youth to protect the environment. For soil governance, it foregrounds intergenerational equity: healthy soils underpin food security and long-term prosperity; degradation jeopardises future livelihoods.

The **African Charter on Democracy, Elections, and Governance (2007)** is primarily a governance instrument. Still, it embeds environmental duties: Article 9 requires policies that promote sustainable development and human security, and Article 42 mandates protection of the environment for present and future generations, reinforcing intergenerational responsibility. For soils, it links effective management to transparent, accountable institutions and long-term ecological stewardship; weak enforcement and corruption undermine these aims.

The **Convention for the Establishment of the African Centre for Fertiliser Development (1985)** created a body to advance fertiliser research and development (Articles I and II), but it has remained largely dormant. It does not address soil protection and scarcely engages environmental considerations, privileging input promotion over sustainability, thereby overlooking risks from overuse and misapplication that can degrade soils. Reorienting the Centre toward environmentally sound fertilizers and integrating its work with sustainable soil-management programs would enable an indirect yet meaningful contribution to soil conservation, while remaining within its mandate.

The **Phyto-Sanitary Convention (1967)**, the region's first comprehensive environmental instrument, targets plant pests and diseases rather than soil conservation. "Soil" primarily serves as a regulated medium for quarantine, inspection, and certification (Article II), with import restrictions on plants, seeds, soil, compost, and related materials (Article IV), as well as domestic action against pests (Article V). Soil protection is thus only indirect. Oriented to plant health (preamble; Article VII), the Convention is broadly drafted and lacks concrete measures, leading to uneven implementation.

The **Bamako Convention (1991)** was adopted to curb hazardous-waste dumping in Africa. Article 2 prohibits all imports of hazardous wastes into Africa while permitting intra-African movement and export by African states. Although it does not regulate soils directly, it indirectly protects them by preventing contamination from hazardous-waste disposal.

Other instruments, such as the **Maritime Transport Charters (1993/2010)** focus on maritime safety, security, and the protection of the marine environment; the **African Nuclear-Weapon-Free Zone Treaty (Pelindaba Treaty, 1996)** prohibits nuclear weapons and activities that could cause radioactive contamination; the **Convention on the Protection and Assistance of Internally Displaced Persons (2012)** includes provisions against environmental degradation in displacement contexts (Articles 3(1)(i) and Article 9(2)(j)); the **Agreement Establishing the African Risk Capacity Agency (2012)** enhances disaster preparedness and resilience, indirectly protecting soils from climate-related shocks; and the **African Continental Free Trade Area (AfCFTA) Agreement (2019)** embeds sustainable development principles within trade (Article 3(e)). While none of these instruments explicitly regulates soils, their environmental safeguards, disaster resilience measures, and sustainability clauses contribute to the broader framework for soil protection.

3.3 Soft Law and Strategic Frameworks

AU environmental governance often relies on non-binding soft law:

Agenda 2063 (2015) acknowledges soil erosion and fertility only in broad terms, setting no soil-specific targets. Several goals nonetheless implicate soil health: high living standards and reductions in poverty and hunger (Goal 1.1/priority 1.1.2), healthy and well-nourished citizens (Goal 1.3), sustainable and inclusive growth (priority 1.4.1), modern, productive agriculture (Goal 1.5), and climate-resilient, environmentally sustainable economies and communities (Goal 1.7). Soil protection is therefore a cross-cutting enabler rather than a standalone priority.

The **Climate Change Strategy (draft)** establishes a continent-wide framework that aligns with Agenda 2063, SDG 13, and the Sendai Framework. It targets five outcomes—stronger institutions, harmonised strategies, a unified African voice, greater resilience, and improved finance—through education, research, and multi-stakeholder engagement. "Soil" appears in references to degradation from biodiversity and wetland loss and, under Outcome 4, as an adaptation priority. The Strategy links soil health to food security through climate-smart land and water use, and underscores the importance of secure tenure for sustainable farming. Although many activities remain under-specified, explicit recognition of soils is a necessary step toward concrete AU action.

The **Climate Change and Resilient Development Strategy & Action Plan (2022–2032)** complements Agenda 2063 with a continental framework for climate resilience, food security, and low-emission growth, identifying land degradation and food insecurity as key risks. Through Intervention Area 8, it promotes community-inclusive management of land ecosystems—afforestation, soil enhancement, and wetland restoration—and emphasises soil biodiversity and soil organic carbon for productivity, water storage, erosion control, and carbon sequestration. Implementation will rely on a developing monitoring and evaluation plan and a whole-of-economy, intersectional approach prioritising smallholders and indigenous communities. However, operationalisation, cross-strategy coordination, and addressing the climate–soil governance gap remain challenges.

The **Nairobi Declaration on Climate Change (2023)** strikes a balance between climate ambition and development. Centred on decarbonisation, it commits to halting biodiversity loss, deforestation, and desertification, restoring degraded land toward land-degradation neutrality (No.27), raising agricultural yields through sustainable practices (No.31), and building drought-resilience systems that prioritise preparedness (No.44). It emphasises "climate-positive growth," "green industrialisation," and "sustainable supply chains." It calls for external technical and financial support. Inclusion is explicitly supported through initiatives for smallholders, indigenous peoples, and local communities (No.38), the recognition of indigenous knowledge and citizen science (No.42), and participation by children, youth, women, persons with disabilities, and climate-vulnerable groups (No.45). A future soil framework should adopt this development lens, aligning sustainable agriculture, technology transfer, and finance with implementation at the national level.

The **African Fertiliser and Soil Health Action Plan (2023–2033)** aims to reverse degradation and increase yields primarily by enhancing fertiliser markets, affordability, and efficiency—assuming output can grow without expanding cropland. Critics warn this fertiliser-centric approach may erode biodiversity and food sovereignty, increase smallholder vulnerability through costs and market exposure, and divert scarce finance from agroecology. It also sits uneasily with the Nairobi Declaration's support for vulnerable groups and indigenous knowledge, and the process reportedly under-

represented farmers, civil society, and agroecology practitioners. Overall, the Plan prioritizes near-term growth over a holistic, inclusive soil health strategy.

The **Soil Initiative for Africa (SIA, 2023)** establishes a long-term continental framework to enhance soil health by scaling locally adapted technologies beyond fertilizers and by embedding supportive policies, programs, and institutions. Priorities include integrated soil–water management, research, education, and capacity building that value indigenous knowledge; harmonized data and monitoring aligned with global standards; and coherent, cross-sectoral regulation. Farmers and communities are cast as agents of change under AU Commission leadership, with coordination emphasised. Its chief weakness is finance: despite acknowledging fiscal and smallholder constraints, the SIA offers only a general investment call, whereas the Fertiliser Action Plan proposes a dedicated Soil Health Fund under the Africa Fertiliser Financing Mechanism (AFFM).

The **Draft Nairobi Declaration on Fertiliser and Soil Health (2024)** endorses the 2023–2033 Action Plan and the SIA, calling for an implementation roadmap that aligns them. It affirms the role of fertilisers but acknowledges they cannot alone halt degradation or restore productivity. A key addition is support for subsidies to widen access and catalyse soil-health investment. Noting the mixed record of such programs in Africa, the Declaration urges the repurposing and improvement of existing schemes, preceded by rigorous reviews of their shortcomings and backed by regular monitoring to prevent waste and ensure effectiveness.

While the **PAP Model Law on Food and Nutrition Security (2022)** addresses land, water, forests, and biodiversity, it omits soil. This is a significant gap: soil is not merely a subset of land but a distinct ecosystem essential to food production, climate resilience, and environmental health. By overlooking soil degradation—erosion, nutrient depletion, salinisation, and deficits in data and monitoring—the Model Law undercuts its own objectives.

The **PAP Model Law on Climate Change (draft)** seeks to guide national climate legislation and harmonise resilience frameworks. It could advance recognition of soils' roles in carbon sequestration, adaptation, and food security; however, climate is only one determinant of soil health. Even with soil provisions, it cannot substitute for a dedicated Soil Model Law that offers comprehensive, long-term protection across agriculture, water, biodiversity, and land governance.

Adopted by the PAP in July 2025, the **Model Law on Sustainable Soil Management in Africa (draft)** is the AU's first dedicated soil-protection framework, recognising healthy soils as foundational to food security, climate adaptation, and ecosystem services.[15] It remains subject to regional consultations and AU sign-off before domestication; its impact will hinge on member-state political will and effective national and regional implementation.

3.4 Challenges and Opportunities

AU soil governance remains fragmented across sectoral regimes—agriculture, mining, climate change, and human rights—resulting in duplication, inconsistency, and weak policy coherence. The PAP's Model Law on Sustainable Soil Management in Africa (2025) is a promising corrective; however, pending full adoption and domestic implementation, the continental framework remains piecemeal. Enforcement capacity is limited: the AU lacks supranational authority, and bodies such as the PAP and the

[15] Ruppel/Ginzky (Fn. 1).

Commission are largely advisory, leaving implementation to member states and producing uneven standards. Continental strategies also prioritize fertilizer-led approaches, which risk biodiversity loss, smallholder dependency, and the marginalization of agroecology. Financing is inadequate, while the SIA acknowledges the gap, it offers few robust mechanisms, and data systems are fragmented, with no harmonised, accessible soil information base.

Notwithstanding these constraints, several opportunities exist. A human-rights framing, drawing on the African Charter and the Maputo Protocol, can ground recognition of a "right to healthy soils." The PAP Model Law can harmonise standards. The explicit integration of soils into Nationally Determined Contributions (NDCs), adaptation plans, and carbon market methodologies would align the climate and soil agendas. Embedding indigenous knowledge and the roles of youth and women can enhance legitimacy. If adequately financed and participatory, the SIA could deliver common monitoring standards, a continental soil information system, and structured knowledge exchange.

4 Recommendations and conclusion

Africa needs a long-term, development-first vision for soils, treating sustainable soil management as both a driver and a metric of progress.[16] Governments should pair explicit legal recognition of soil as a distinct resource with economy-wide measures, including building domestic value chains (e.g., affordable organic fertilizers), advancing seed autonomy, and channelling domestic and foreign investment through safeguards that ensure equitable benefits. Centre smallholders through extension, credit, and risk tools; address urbanisation through proactive spatial planning. Secure tenure by registering customary rights, adopting inclusive allocation systems, and clarifying traditional leaders' roles. Base decisions on open, harmonised soil data and strengthen national soil-science institutions. Make core tools bite: permit screening of soil impacts, EIAs that assess soils, zoning to protect high-value soils and prevent sealing, and investment assessments with meaningful participation. Establish a central coordinator to align standards across various spheres and authorities, ensuring access to remedies through administrative mechanisms and specialized forums. Sequence reform—stocktake, targeted amendments, then comprehensive soil legislation drawing on a Pan-African model—and plan financing upfront for data, capacity, and farmer support, mobilising public, private, and development finance with transitional support. Finally, embed soil stewardship through education and broad public awareness.

Soil governance in South Africa and under AU law demonstrates evident progress, but persistent gaps remain. Domestically, a relatively rich body of environmental, agricultural, and land-use laws—underpinned by constitutional environmental rights—coexists with significant deficits: no dedicated Soil Protection Act, an outdated CARA, and weak enforcement. Recent reforms (PDAL and the Climate Change Act) signal modernisation, yet implementation challenges, fragmented mandates, and socio-economic pressures continue to hinder effectiveness.

Continent-wide, the AU increasingly links soils to food security, climate adaptation, and Agenda 2063 through the SIA, the African Fertiliser and Soil Health Action Plan, and the Nairobi Declaration. PAP model laws (Food and Nutrition Security, Climate Change, and Sustainable Soil Management) aim to harmonize approaches; however, most instruments remain of a soft-law nature. The revised African Convention on the Conservation of Nature and Natural Resources is the only binding treaty explicitly addressing soils, underscoring the need for stronger legal innovation.

Bridging ambition and outcomes requires realistic, integrated frameworks that marry science, local practice, and human-rights principles, backed by monitoring, finance, and enforcement. Our trilateral cooperation (PAP, Stellenbosch University's DROP, and the German Environment Agency), launched by the 10 October 2019 MoU, produced a comparative volume (2021), a multi-country study (2025), and informed the PAP's July 2025 adoption (draft) of the Model Law on Sustainable Soil Management in Africa, now proceeding through further consultations toward AU sign-off. These lessons will be consolidated in *Legislating for the Future: The Pan-African Model Law for Sustainable Soil Management* (Ruppel & Ginzky, eds., forthcoming, Nomos, 2026). Moving to dedicated legislation, stronger institutions, improved monitoring and implementation as well as inclusive participation can elevate soils from a neglected resource to a pillar of sustainable development.

[16] Ruppel/Ginzky, 2024, African Soils: The Foundation of Our Future: A Policy Report. United Nations Environment Programme. Nairobi.