Soil protection across Africa: Taking a glimpse at Namibia, Uganda, Mozambique, Nigeria, Ghana and South Africa

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1 Introduction

This chapter addresses soil protection across Africa. In this regard it is important to note that 'soil' is not synonymous with 'land'. Of course, soil is a constituent of land but, while soil is movable, land is not. Moreover, soil protection is closely related to and even overlaps with land use and land management. The chapter provides an overview of national soil protection across Africa, while taking a glimpse at Namibia, Uganda, Mozambique, Nigeria, Ghana, and South Africa. It will also briefly cover the most soil-relevant international law instruments. The chapter is, however, neither meant to be comprehensive nor comparative in nature. In order to deliver a thorough legislative soil review, a more holistic approach would be necessary as has been conducted in the chapters on Cameroon, Kenya and Zambia in this volume.

Such comprehensive legislative soil reviews require an analysis of the Constitution (in respect of social, economic and environmental rights, and responsible branches of government for legislating and enforcing those rights); the examination of the country's international (monist or dualist), regional and bilateral agreements, and legally binding obligations reflected or not reflected in national legislation (including conflicting and ambiguous legislation); an analysis of existing regulatory (sectoral and cross-sectoral) policy, legal and institutional frameworks; the identification of existing regulatory gaps, bad practices and responsibility overlaps; the identification of institutional and governance frameworks; the scrutiny of implementation, monitoring, standardisation and enforcement challenges and pinpointing of the reasons (cost, lack of capacity, political will, human resources, etc.) thereof.[1]

Moreover, such legal reviews should take into consideration aspects related to dispute resolution (courts and tribunals, administrative environmental tribunals, alternative dispute resolution, customary courts); and access to justice (standing, costs, geographic accessibility, timeliness, availability of counsel, and non-governmental advocacy organisations).[2]

1 FAO & UNEP (2020: 63).
2 UNEP (2019: 235).

Apart from the legislative review, contextual factors also play a role in the assessment of optimal soil protection. These include demography (distribution of wealth, population density, age structure, urban/rural split, education and literacy, gender equity); economy (contribution of natural resource/extractive sector to the state economy, per capita income, evenness of development); politics (fragility, corruption perception, rule of law generally); corruption (in the control of natural resources/concessions, in management of natural resource revenues, in the enforcement process); and civic engagement.[3]

2 Namibia[4]

Namibia is one of the driest countries in the world with two of the largest deserts, namely the Kalahari Desert and the Namib Coastal Desert. Namibia has a generally low vegetation cover, thus making soil degradation one of the major environmental challenges facing the country. A sound legal and policy framework is essential to preserve and stabilise fragile soils, to protect biological diversity, and to ensure that the socioeconomic value of the soil is maintained for the benefit of the people living in Namibia, especially those in rural areas of whom most are directly dependent on the soil. This section seeks to provide an overview of Namibia's varied legal and policy frameworks pertaining to soil protection, which span various sectors and institutions.

The inhospitable desert constituted a barrier to European colonisation of southwestern Africa until the late 18th century when traders and missionaries first explored the area. Soon the territory fell under German administration and became known as German South West Africa. German domination ended during World War I in the wake of South Africa's military occupation of the German colony. On 17 December 1920, South Africa took over South West Africa in terms of Article 22 of the 1919 Peace Treaty of Versailles. From this point South Africa was mandated with the power of administration and legislation over the territory.[5]

In 1946, the League of Nations was superseded by the newly formed United Nations (UN). When the UN requested South Africa to place the territory under a trusteeship agreement, South Africa refused. After more than a century of foreign domination and a long struggle on both diplomatic and military levels, Namibian independence was achieved and officially declared on 21 March 1990.[6]

Namibian law reflects the country's history and is the product of different sources: Roman law; the fusion of Roman law and Roman Dutch customary law – hence the

3 Ibid.: 235.
4 Ruppel & von Finckenstein (2016).
5 Ruppel & Ruppel-Schlichting (2016: 1).
6 Ibid.

term Roman Dutch law – which came in the wake of the Dutch colonisation of the Cape of Good Hope; English law asserted itself from the early 19th century onwards, leaving deep traces in Roman Dutch law after British hegemony in southern Africa had been established; and indigenous customary law from time immemorial.[7]

With the effect of Proclamation 21 of 1919, the Roman Dutch law developed by South African courts became the common law of the territory, binding on the Namibian courts until Independence. This position was affirmed by Article 66(1) of the Namibian Constitution of 1990, which provides that:

> both the customary law and the common law of Namibia in force on the date of Independence shall remain valid to the extent to which such customary or common law does not conflict with this Constitution or any other statutory law.

With a few exceptions, German legal influence has disappeared completely. Today, the Namibian legal system is an object of fascination for comparative lawyers, legal ethnologists and sociologists. The concept of legal pluralism – a situation in which more than one type of law or legal tradition operates simultaneously – is commonplace in Namibia.[8] The sources of law are statute law or legislation; judgements of the courts; international law (Article 144 of the Constitution); common and customary law (Article 66 of the Constitution), and to some extent legal writing.[9]

The major driving forces of land degradation in Namibia include poverty in rural areas; population pressure; land management policies; unsustainable use of water; limited capacity and cross-sectoral collaborations to effectively prevent land degradation; limited financial and technical resources; and climate change.[10]

Some of the main causes of soil degradation recognised by policymakers and affected persons are overstocking and overgrazing. The most vulnerable and poor groups in Namibia are disproportionately affected by the adverse effects of land degradation. In Namibia, the agricultural use of land, commercially and communally, is widespread. Even though many commercial farmers are able to mitigate negative impacts by means of rotational grazing and continuous monitoring, these opportunities do not generally exist for communal farmers.[11]

The era of colonial reign over Namibia has skewed landownership in the country in favour of the white minority. After Namibia acquired independence, the government promulgated several laws aimed to implement a comprehensive plan of land reform. The National Land Policy of 1998 intended to address the social injustices of the past and encapsulates constitutional principles. The policy goes so far as to state that the failure to practise sustainable environmental practices may be a ground to deny or

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7 With further references: Ruppel & Ruppel-Schlichting (2016: 4).
8 Ruppel & Ruppel-Schlichting (2012: 33–64).
9 With further references: Ruppel (2016a: 49).
10 Government of the Republic of Namibia (2014).
11 Ibid.: 28. Communal farmers are generally restricted by the size of the land allocated to them, as well as with regard to technical knowledge and fiscal means.

terminate a title. This approach is in line with Article 95(1) of the Constitution, which promotes environmental sustainability.

The name of the Ministry of Agriculture, Water and Forestry changed to the Ministry of Agriculture, Water and Land Reform in 2020. It is responsible for soil management and the promotion and development of sustainable soil management practices in the agriculture, water and forestry sectors through appropriate policy and legal instruments. The directorate for Agriculture Research and Development aims to facilitate the development and management of human resources at all levels and in all disciplines, and to undertake well-balanced crop, livestock and natural resource research within the communal and commercial sectors, with the goal of contributing to increased productivity and sustainable utilisation of natural resources under arid, semi-arid and sub-humid conditions, and thereby improving the living standards of the Namibian population.[12]

According to Article 1(6) of the Namibian Constitution of 1990, the Constitution is the law above all laws. Therefore, all legislation ought to be consistent with the provisions of the Constitution. The Constitution lays the foundation for all policies and legislation in Namibia and contains three key environmental clauses relevant to sustainable use of natural resources.[13]

Article 100 of the Constitution vests all-natural resources in the state, unless otherwise legally owned. Thus, unless legal ownership in a specific locality is proved, such natural resources are owned by the state. The provision thus implies that natural resources can be legally owned as private property. The land (and the soil on the land) belongs to the state in terms of Article 100 of the Constitution, if not otherwise lawfully owned. By means of Article 95(l), Namibia is obliged to protect its environment and to promote a sustainable use of its natural resources.[14] It compels state organs to be directed by the environmental principle of state policy.

The Third National Action Programme for Namibia is the framework intended to aid in the implementation of the United Nations Convention to Combat Desertification (UNCCD) between 2014 and 2024. Here the focus is placed on illustrating the present obstacles which Namibia faces with regard to the environment, desertification, land degradation and drought processes, and how these pose an immediate danger to Namibia's land-based agricultural sector.[15] While the Namibian Programme to Combat Desertification has subsequently been established, various other national policies, strategies and action plans complement the most relevant pieces of legislation for the

12 See http://www.mawf.gov.na/directorate-research-and-development, accessed 12 July 2020.
13 Ruppel (2016b: 30).
14 Ibid.
15 Government of the Republic of Namibia (2014: 3).

protection of soil in Namibia.[16] The environmental framework legislation of cross-sectoral nature such as the Environmental Management Act, No. 7 of 2007 is rather broad in scope, while sectoral legislation such as the Soil Conservation Act, No. 76 of 1969 and the Agricultural (Commercial) Land Reform Act, No. 6 of 1995 is more specific in nature. Apart from the aforementioned pieces of legislation, the Communal Land Reform Act, No. 5 of 2002, the Minerals (Prospecting and Mining) Act, No. 33 of 1992, the Forest Act, No. 12 of 2001, the Agricultural Pests Act, No. 3 of 1973, and the Plant Quarantine Act, No. 7 of 2008 will also be relevant to soil protection.

The Soil Conservation Act of 1969 remains applicable in Namibia and is specifically referred to in the Communal Land Reform Act, No. 5 of 2002. The Soil Conservation Act gives wide ranging powers to the Minister, which includes powers to issue directives relating to the cultivation of land,[17] the management of water and drainage,[18] and the protection and stabilisation of soil surfaces.[19] One of the biggest obstacles which hinders effective soil conservation in Namibia is the fragmentation of responsibilities relating to soil. As yet, there is no cohesive policy to coordinate the effectiveness of existing laws and regulations with regard to soil protection in Namibia.

Article 144 of the Namibian Constitution incorporates international law explicitly as the law of the land. International law is thus integrated into domestic law.[20] Where possible national authorities and the judiciary, in particular, can therefore apply international law directly on the national level, before cases are taken to regional or international judicial or quasi-judicial bodies. International agreements become Namibian law when they come into force for Namibia. The conclusion of or accession to an international agreement is governed by Articles 32(3)(e), 40(i) and 63(2)(e) of the Namibian Constitution. It is important to mention that the Constitution does not require the promulgation of an international agreement for it to become part of the law of the land.[21]

16 These include inter alia the Third National Action Programme for Namibia to Implement the United Nations Convention to Combat Desertification 2014-2024 (NAP3); the National Biodiversity Strategy and Action Plan (NBSAP) 2013-2022; the National Climate Change Strategy and Action Plan (2013-2020); the Forestry Strategic Plan 1996; the National Drought Policy and Strategy 1997; and the Strategic Action Plan for the Implementation of Renewable Energy Policy 2006.

17 Section 3(1)(a).

18 Section 3(1)(c), (d), (f).

19 Section 3(1)(e), (g) and (h).

20 Article 144 reads as follows: "Unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international law and international agreements binding upon Namibia under this Constitution shall form part of the law of Namibia."

21 Ruppel (2016b: 55ff).

3 Uganda[22]

Most of Uganda's land is a plateau, consisting of low savanna with a tall reed-like grass known as elephant grass, and is surrounded by mountains. There are some small areas of equatorial forest.[23] Large deposits of copper and cobalt are Uganda's most important natural resources, along with arable land and regular rainfall. Other minerals mined in Uganda include gold, limestone, and salt. Just over 34% of the land is arable, and about 13% of the land is composed of wetlands.[24] Uganda faces a number of environmental concerns, including deforestation and the draining of the wetlands.

Soil is a fundamental resource for development in Uganda and supports grazing, cultivation, energy provision and settlement, however, communities and households take land-use decisions without due consideration to the delicate balance between productivity, ecosystem health, changing land uses and human welfare.[25] Soil degradation stemming from –[26]

> deforestation, burning of grasslands and organic residues, and continuous cultivation with minimum soil fertility enhancement leads to soil erosion and organic matter and nutrient depletion in these areas. Other unsustainable land-use practices, such as overgrazing, have produced compacted soil layers and often bare grounds in extreme cases in the country.

Uganda was a British colony, which has influenced its legal system that is based on British common law and African customary law. The latter is brought into effect only when it does not conflict with statutory law. In this regard, Uganda today applies statutory law, common law, doctrines of equity, and customary law. The Constitution of Uganda[27] and the Land Act[28] provide that land in Uganda may be owned in accordance with the following four systems: freehold, leasehold, *mailo* and customary. The breakdown in land tenure and management systems is causing land degradation, which is evidenced by loss of vegetation, soil erosion and soil fertility loss in most of the districts in Uganda.[29] Having ownership or tenure of land means that persons can adopt sustainable soil practices and are responsible for maintaining effective soil management over their own land, which ensures accountability for unsustainable land-use and soil practices.

Uganda has ratified several international and regional conventions that recognise the importance of soil conservation, such as the Convention on Biological Diversity (CBD) (1992);[30] the United Nations Framework Convention on Climate Change

22 Cf. Kasimbazi (2019: 315).
23 Tumuhairwe et al. (2003: 35).
24 Ibid.
25 Kasimbazi (2019: 315).
26 Ibid: 316.
27 Constitution of 1995.
28 No. 16 of 1998 Chapter 227, Section 2.
29 Kasimbazi (2019: 316).
30 The Convention on Biological Diversity, 5 June 1992, 31 I.L.M. 818, ratified 8 September 1993.

(UNFCCC);[31] the UNCCD (1994);[32] the Revised African Convention on Nature and Natural Resources (2003);[33] the Treaty for the Establishment of the East African Community (1999);[34] and the Protocol on Environment and Natural Resources Management (2006).[35]

Soil protection in Uganda is traceable in the various environmental and natural resource legal instruments, namely the Constitution; the National Environment Act;[36] the Land Act; the National Forestry and Tree Planting Act;[37] the Prohibition of the Burning of Grass Act;[38] and the Cattle Grazing Act.[39] Uganda has various soil-relevant policies in place, such as the Ugandan Vision 2040;[40] the National Land Policy;[41] the National Agriculture Policy;[42] the Forestry Policy;[43] and the National Environment Management Policy.[44]

Land tenure in Uganda can be a tool for soil conservation since it involves sets of rules and regulations used to control and manage natural resources, biodiversity and the general environment.[45] Although elements relating to soil protection are evident in many pieces of environmental legislation, the consequential and effective implementation and enforcement is yet to be achieved.[46] There is no unified policy that coordinates effectiveness among existing laws, regulations and government initiatives with regard to soil protection in Uganda. Therefore, security of land tenure remains a prerequisite for long-term soil protection, regardless of whether ownership is in individual or collective hands.[47]

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31 The United Nations Framework Convention on Climate Change I.L.M. 31 (1992), ratified 8 September 1993.
32 The United Nations Convention to Combat Desertification 33 ILM 1328 (1994), ratified 25 June 1997.
33 The Revised African Convention on Nature and Natural Resources (2003), signed 18 December 2003, yet to be ratified.
34 The Treaty for the Establishment of the East African Community (1999), ratified 7 July 2000.
35 The Protocol has since been ratified by the Republic of Uganda and the Republic of Kenya in 2010 and 2011 respectively.
36 The National Environment Act 1995 Chapter 153.
37 The National Forestry and Tree Planting Act No. 8 of 2003.
38 The Prohibition of the Burning of Grass Act 1974 Chapter 33.
39 The Cattle Grazing Act 1945 Chapter 42.
40 Uganda Vision 2040.
41 National Land Policy, 2013.
42 The National Agriculture Policy, 2013.
43 Uganda Forestry Policy, 2001.
44 The National Environment Management Policy for Uganda, 1994.
45 Kasimbazi (2019: 316).
46 Ibid: 330.
47 Ibid.

4 Mozambique[48]

Mozambique enjoys extraordinary natural conditions owing to a diverse natural resource base and geographical position, affording access to regional and international markets by both sea and land.[49] Mozambique's ecological make-up and natural potential is determined by specific features of the agroecological zones into which the country is divided.[50] Each region contains different and specific climate, geomorphology, soils and agricultural production systems, and as such each region must be viewed and considered with its own merits, and soil conservation and protection must also be viewed with this consideration in mind.[51] Mozambique has a relative abundance of resources, including soil, water, fauna and flora. Its major weaknesses, however, are an ineffective system of land-use planning and severe environmental degradation.[52]

With regard to soil, there are 10 zones in the country, from zone R1 to R10.[53] These agroecological zones of Mozambique have been identified, based on climate, soil type, elevation, and farming system.[54] Soil texture analysis indicates that most of the soils fall in the loamy sand, sandy loam, and sandy clay loam classes.[55] Several previous field surveys have indicated that soil fertility is a fundamental problem to food production in Mozambique.[56] Mozambique's soils are diverse in quality and type, but the northern and central provinces generally have more fertile, water-retentive soils than does the south, where sandy, infertile soils prevail.[57] The northern soils, whose qualities allow agricultural potential to extend beyond the river valleys, have a higher content of red clay, with a varying range of fertility. In contrast, the central region has a broad expanse of rich alluvial soils along the Zambezi Delta.[58]

Until independence, Mozambique was predominantly governed by Portuguese law. Thereafter it first repealed the colonial system while the Portuguese legal tradition was revived after the end to the 16-year-long civil war, when the 1990 Constitution and the Rome Peace Accords paved the way to the first democratic elections in 1994. Today, Mozambique's formal legal system can be considered as civil law with statutory

48 Cf. Chiziane (2019: 331).
49 According to Mozambique's Agrarian Policy of 1995: "the natural basis of Mozambique roughly consists of: (i) 36 million hectares of arable land, of which about 5 million are currently cultivated, (ii) 3.3 million hectares, of which only about 50,000 are Plains, are currently irrigated"; Chiziane (2019: 331).
50 República de Moçambique (2007: 12).
51 Chiziane (2019: 333).
52 The Resolution (Council of Ministers) No. 10/95, of 17 October approved the National Land Policy and its implementation strategies.
53 Ibid.
54 Maria & Yost (2006: 903).
55 Ibid: 905.
56 Ibid: 913.
57 See https://www.britannica.com/place/Mozambique, accessed 4 June 2020.
58 Ibid.

legislation as its primary source of law. There is no binding precedent (*stare decisis*) as understood in most common law systems. The 2004 Constitution recognises the existence of legal pluralism with African customary law.

There are several provisions within the 2004 Constitution which refer directly or indirectly to soil conservation and addressing issues pertaining to soil conservation in the country, in particular Articles 11(d); 90(1)–(2); 98; 102; 103(1)–(2); 109(1)–(3); 110(1)–(2); 111; and 117(1)–(2). Mozambique has also put together a statutory draft on agriculture to provide a legal framework for the sustainable development of the agricultural sector and the rural environment, which needs to be established and aimed at the promotion and progressive improvement of food and nutritional security of Mozambicans pursuant to paragraph 1 of Article 179 of the Constitution.

Several governmental and non-governmental bodies dealing with soil conservation issues exist in the country.[59] Mozambique's Agrarian Policy,[60] among others, outlines fundamental principles of sustainable use of natural resources, which include land, soil, water, forests, wildlife and genetic resources. Moreover, Mozambique, implemented the principles provided for under the United Nations Conference on Environment and Development (also known as, Rio+20),[61] dealing specifically with desertification, soil degradation and drought, emphasising that these are global challenges presenting serious obstacles for sustainable development.[62]

Mozambique has demonstrated commitment towards soil conservation. However, the work remains unfinished. Full soil conservation, for instance, implies:[63] defining a road map for the introduction of legislation on the conservation of soils and biodiversity; realising agroecological zoning; establishing criteria for the harmonisation and regulation of spatial occupation by various productive activities; and installing hydroelectric infrastructures, while taking into account the agroecological fitness criteria and sociocultural habits of local populations; improving institutional coordination in the sector of land management; and increasing research on soils by the Agricultural Research Institute of Mozambique.

5 Nigeria[64]

The Federal Republic of Nigeria is located in western Africa. Nigeria's climate and ecology is diverse, with the Sahel Desert to the north, tropical forest in the south,

59 Rees (2018: 24).
60 Point 13 of the Agrarian Policy of 1995.
61 Resolução (Assembleia da Republica) No. 2/94, de 24 de Agosto, ratifica a Convenção das Nações Unidas sobre a diversidade biológica, de 5 de Junho de 1992.
62 Chiziane (2019: 340).
63 Ibid.: 343.
64 Cf. Orubebe (2020: 157).

mountains in the east and mangrove swamps in the core Niger Delta where the River Niger meets the Atlantic Ocean.[65] A shift in laws has created a conflict of interest among states, ethnic nationalities, communities, families, and individuals, which has been aggravated by the negative impact of climate change and global warming, a fact that has necessitated an unprecedented migration of people and livestock to other parts of the country.[66] Land in Nigeria is predominantly used for activities such as farming and cattle rearing, which both require cultivation of the land and rely on richness of the soil.[67]

Nigeria enjoys a diversity of climates and marked environmental features, including oil- and gas-rich and sensitive wetlands.[68] The country consists of several extensive physiographical plateau surfaces including the Jos Plateau, the Udi Plateau, the Manbila Plateau and the North-Central High Plains.[69] Nigeria, like most African countries, is facing the problem of food insecurity, degradation of land, desertification, pollution, and creation of wasteland. Nigeria is a member of the Global Soil Partnership (GSP) by virtue of its membership of the Food and Agriculture Organization (FAO).[70] GSP was initiated to improve the governance of the limited soil resources of the planet, in order to guarantee healthy and productive soils for a food-secured world, as well as supporting other essential ecosystem services.[71]

After British colonisation, Nigeria became independent on 1 October 1960. The Nigerian legal system is still based on British common law legal tradition. Contemporary sources of Nigerian law include the Constitution, statutory legislation, British common law, African customary law, Islamic law, and judicial precedents. The current constitution is the 1999 Constitution. The Nigerian Land Use Act of 1978, which is regarded as the central statute laying out the legal and governance structure of land, does not define what constitutes land or soil. Notwithstanding, Nigeria federal law that governs soil and land tenure is the Land Use Act. It has been stated that this piece of legislation does not do enough to address the issues associated with sustainable soil and land development.[72] In order to develop sustainable use of soil conditions, "governance programs must be integrated from the local to global level, across a range of sectors, and over a substantial time frame to enable effective soil policy making."[73] Further, "soil

65 Ibid.
66 Ibid.: 158.
67 Ibid.: 159.
68 Ibid.: 157.
69 Ibid.
70 See http://www.fao.org/global-soil-partnership/partners/country-focal-points/en/, accessed 4 June 2020.
71 Orubebe (2020: 170).
72 Ibid.: 174.
73 Boer & Hannam (2015: 5).

protection and rehabilitation policies need to be based on a human rights framework, principally emphasising land rights for marginal and vulnerable groups in society".[74]

In the light of the situation described above, the following recommendations are necessary and ought to be taken seriously:[75] review of current soil or land governance structures and ownership principles; an enabling framework for holistic soil governance legislation; a mutually beneficial land tenure system; an authority avoiding sectionalism; a new legal framework on soil or land governance; impartial enforcement or implementation of detailed soil governance standards; a sustainable and responsible land and soil agenda; more sustainable use of natural resources; and respect by the Federal Government ensuring neutrality of all its law enforcement agencies.

Nigeria is a party to international conventions such as the UNCCD, the CBD and the UNFCCC, and the Paris Agreement on Climate Change.[76]

6 Ghana

The Republic of Ghana has often been branded as an anchor ensuring stability in West Africa, where democracy is well-established. Ghana's economy is heavily dependent on export earnings from just a few commodities, such as gold, crude oil and cocoa. In terms of development cooperation, agriculture and sustainable economic development are focus areas.[77]

On 6 March 1957, the former Gold Coast was led to independence from Britain by Kwame Nkrumah, who transformed the country into a Republic. Ghana's legal system was built on a foundation of received common law, statutory law, and other documents, such as those heralding the legal existence of various military regimes. In addition to this received and imposed law, there is an enduring body of largely unwritten customary usages and practices that still are a contextual feature of today's legal system of Ghana. Legal pluralism is evidenced by a coexistence of indigenous customary laws and practice, which shaped Ghana's legal system, including the impact of British colonialism and, more recently, its constitutional evolution, following independence.[78]

Ghana's Constitution of 1992[79] was adopted just before Ghana's 1995 Environmental Policy was formulated.[80] The new Constitution has made government accountable to the people of Ghana. It identifies the Legislature, the Executive and the Judiciary as

74 Ibid.
75 Orubebe (2020: 176).
76 Ibid.: 174.
77 See https://www.bmz.de/en/countries_regions/subsahara/ghana/index.html, accessed 11 August 2020.
78 See http://judicial.gov.gh/index.php/summary, accessed 11 August 2020.
79 The Constitution of the Republic of Ghana 1992.
80 Ayee (1998: 113).

the different arms of government within the framework of cooperative governance. The starting point for developing a new environmental policy for Ghana, therefore, is the Constitution from which the powers of government and the Ghanaian population at large derives.[81]

Article 11 of the 1992 Constitution provides that the laws of Ghana comprise the Constitution, statutes, orders, rules, regulations, and common law, which includes customary law.

> It thereby establishes a pluralist legal system without establishing a hierarchy among the various, potentially conflicting, sources of law. As an outsider, one might expect that land is governed either by customary law or by a combination of common law and statutes. The reality is more complex, with overlapping claims, multiple systems of customary laws, boundary disputes, lack of written records, an inefficient registration system, no clear choice of law rules, and overlapping jurisdictions for dispute resolution ... Approximately 80% of the land in Ghana is held under customary land tenure systems.[82]

Article 41(k) of the 1992 Constitution regulates soil pollution through environmental protection:

> The exercise and enjoyment of rights and freedoms is inseparable from the performance of duties and obligations, and accordingly, it shall be the duty of every citizen to protect and safeguard the environment.

Article 269 of Ghana's 1992 Constitution provides for the establishment, composition and functions of this country's Forestry Commission. It also gives the Ghanaian President control over all mineral resources, to be managed on behalf of the people, thereby, promoting environmental law principles of the public trust doctrine as far as the exploitation of mineral resources is concerned.

The Forestry Commission of Ghana (re-established under the Forestry Commission Act[83]) is the subdivision under the respective Ministry and is responsible for the sustainable development and management of Ghana's forests and wildlife.

Core objectives of Ghana's revised 2011 policy include managing and enhancing the ecological integrity of forest, savannah, wetlands and other ecosystems; promoting the rehabilitation and restoration of degraded landscapes through plantation development and community forestry; promoting the development of viable forest and wildlife-based industries and livelihoods, particularly in the value-added processing of forest and wildlife resources; promoting and developing mechanisms for transparent governance, equity sharing and peoples' participation in forest and wildlife resource management; and promoting training, research and technology development that supports sustainable forest management.

The Legislative Instrument 1721 Timber Resources Management (Amendment of 2003) plans and manages the use of soil in a comprehensive manner. More specifically,

81 Ibid.: 100.
82 Higgins & Fenrich (2012: 8).
83 Act 571 of 1999.

Sections 3(3)(b) of the Timber Resources Management Act make reference to environmental assessments which can be useful in measuring soil impacts and determining whether practices meet soil protection standards. When it comes to spatial planning instruments or urban planning, the Land Use and Spatial Planning Act,[84] also has relevant legal provisions, namely:

> to prevent soil degradation by inter-alia promoting permission regimes including environmental impact assessment for potentially detrimental environmental uses.

Article 73 of Ghana's 1992 Constitution stipulates that the government must conduct its international affairs in consonance with the accepted principles of public international law and diplomacy in a manner consistent with the national interest of Ghana. Ghana has, of course, acceded to major international agreements and United Nations conventions, of which some have been translated into national action, as reflected in certain legislation.[85] These international conventions deal with the responsibilities which Ghana and other states need to carry out in preventing trends such as waste burning, and the release of excessive concentrations of poisonous gases and heavy metals in the soil, atmosphere, sea and ecosystems in a generic sense. Furthermore, relevant African Union and regional Economic Community of West African States (ECOWAS) treaties also serve to ensure harmonisation at the respective national, subregional and regional levels, as far as soil pollution is concerned.

The National Environmental Policy and National Environment Action Plan[86] seek to improve living conditions and the quality of life of the entire citizenry and to harmonise economic development with natural resource conservation. The following specific purposes are exhibited in the policy: maintaining ecosystems and ecological processes essential for the functioning of the biosphere; ensuring sound management of natural resources and the environment; protecting humans, animals and plants with respect to biodiversity conservation; and minimising pollution and public nuisance stemming from development activity.

The Action Plan is the first comprehensive plan for environmental protection for Ghana, in which the following activities are proposed: Investment related to environmental protection; institutional building; and commitment of the government to policy-making, legislation and management in respect of land resources, forests and wildlife, water, marine and coastal ecosystems, human settlements, and pollution control.

Ghana's Environmental Resource Management Programme,[87] under the Ministry of Environment, Science and Technology, was formulated as an actual programme along

84 Act 925 of 2016.
85 Government of the Republic of Ghana (2009).
86 Government of the Republic of Ghana (1990).
87 Government of the Republic of Ghana (1992).

the lines of the National Environment Action Plan. The Environment Protection Agency was established according to this programme.

The Forest and Wildlife Policy[88] comprehensively covers all aspects of forestry and wildlife conservation. It seeks compatibility between forest conservation and the increasing industrial demand for forest resources in order to ensure rural livelihoods on a limited resource base, exhibiting activities including conservation and good management of forest and wildlife resources in Ghana; promotion of viable and efficient forest-based industries, particularly in secondary and tertiary processing; raising people's awareness to involve rural people in forest conservation and wildlife protection; facilitation of research-based and technology-oriented management of forest and wildlife for their utilisation and development; and enhancement of capability of national, regional and district agencies for sustainable forest and wildlife management.

The Environmental Sanitation Policy[89] aimed at developing and maintaining a clean, safe and pleasant physical environment in all human settlements, as well as promoting the social, economic and physical well-being of all the people. The policy includes the following principal components: Collection and sanitary disposal of wastes including solid waste, liquid waste, excreta, industrial waste, hospital waste and other hazardous waste; drainage of stormwater; street sweeping and cleansing of public spaces including markets; pest control and vector control; education on environmental sanitation; inspection and enforcement of sanitary regulations; burial of the dead; domestic animal control; and monitoring environmental quality with respect to environmental standards.

The Mineral and Mining Act[90] and the Pesticide Control and Management Act[91] are also relevant when it comes to soils. The Minerals and Mining Act makes no explicit mention of soil, however environmental considerations are mentioned in a number of sections throughout the Act. Section 18 pertains to forestry and environmental protection and provides for approvals and permits required from the Forestry Commission and the Environmental Protection Agency prior to activity and action on a mineral right. Section 46 goes further to provide for rights conferred by a mining lease. Section 49 provides that any development agreements may contain provisions pertaining to environmental regulations. Sections 92 and 93 deal rather specifically with small-scale mining committees and the operations of small-scale miners. Section 110 allows the Minister to make additional regulations pertaining to environmental considerations. Unlike the Mining and Minerals Act, the Pesticides Control and Management Act explicitly mentions soil in Section 7(d):

88 Government of the Republic of Ghana (2012).
89 Government of the Republic of Ghana (1999a).
90 Act 703 of 2006.
91 Act 528 of 1996.

> In determining whether or not to approve the registration of a pesticide and what classification to give a registered pesticide, the Agency shall consider relevant matters including – the relative hazards of its patterns of use, such as granular soil applications, ultra low volume or dust aerial applications or air blast sprayer applications ...

Ghana's Environmental Protection Agency monitors air quality in industrial and mining areas. Industries and mining operators are required to submit Environmental Management Plans to the EPA to control pollution, while emission standards are under preparation.[92]

Looking more specifically at legislative mandates for soil and environmental protection, the Environmental Protection Agency Act,[93] under Section 2(h), provides the Environmental Protection Agency with the mandate to "provide standards and guidelines relating to the pollution of air, water, land and other forms of environmental pollution including the discharge of wastes and the control of toxic substances". Reference to what land entails is not provided for in the legislation; however, the broad nature of Section 2(h) can be read to include soil preservation.

More recently, the Petroleum (Exploration and Production) Act,[94] Section 95, has provided for the interpretation of land to include subsoil, thus ensuring that subsoil is protected and considered in environmental efforts regarding petroleum exploration and production in Ghana. Numerous environmental considerations are identified equally in specific sections, such as Section 7. Each of the following sections, although mentioned briefly, provide a consideration for environmental protection and ensure environmental assessments that prevent further environmental harm as a result of petroleum exploration and production: Opening of an area; 9. Reconnaissance licence; 24. Exploration drilling; 27. Plan of development and operation; 33. Restrictions on flaring; 39. Application to install and operate facilities; 43. Decommissioning plan; 44. Decision on the decommissioning plan; 47. Restoration of affected areas; 50. Petroleum operating standards; 75. Emergency preparedness; 81. Environmental principles and protection; 82. Impact assessment; 94. Authority to issue regulations and guidelines and stipulate conditions; 95. Interpretation. There are a multitude of NGOs including international NGOs, registered with the Environmental Protection Agency, working on soil pollution and related issues such as the use of pesticides and other chemicals. Owing to the low levels of public illumination on the hazards associated with the use of certain chemical and farming practices on the soil, the implementation of sound pollution laws becomes difficult. The solution to this would be to have more training programmes for farmers and other users of land and soil.

Owing to the lack of adequate penalties, laws are not abided by. One good way to rectify this could be to use the 'carrots and sticks' approach by granting incentives and

92 See http://www.epa.gov.gh/epa/, accessed 11 August 2020.
93 Act 490 of 1994.
94 Act 919 of 2016.

awards to users of best practices. This method could even encourage otherwise illegal offenders to conform to the stipulations of soil pollution laws, as Ghana

> perceives an increasing resource scarcity, competition and use of the available resource are likely to intensify. In this sense, the need for soil security can be conceived of as akin to the turning of a screw. The perception of scarcity (availability) reinforces intense competition use (accessibility and utilization), which in turn speeds up or intensifies degradation, scarcity, inequity, injustice, and ultimately conflicts (stability). Economic development imperatives and urbanization, for example, put manifold pressure on soils available for agriculture and forest. In jurisdictions where land administration and general governance systems are weak, arable lands are being lost rapidly to uses that can potentially make the soils permanently unavailable.[95]

Lastly, there has been no comprehensive legislation on various aspects of environmental problems in Ghana so far. However, while a number of laws touch on the exploitation of natural resources and specific aspects of the environment such as soil pollution, some of the existing laws overlap in their implementation. Consequently, more comprehensive environmental laws, which are under preparation, may be necessary to complement the Environmental Assessment Regulations,[96] as promulgated in 1999 and the Environmental Quality Standard Regulation (water, air and noise) as drafted in the same year. Ultimately, more light should be shed on soil pollution through the provision of relevant sector-specific regulations. In such processes the Soils Science Society of Ghana (SSSG) seems well-equipped to advise on pertinent issues relating to soil health and management; soil degradation and reclamation; agricultural intensification and the environment; and climate smart agriculture.

7 South Africa[97]

Traditionally, South Africa's economy has been rooted in the primary sectors as a result of a wealth of mineral resources and favourable agricultural conditions.[98] Agriculture is one of the main sectors of the economy in South Africa – it is at the same time diverse, and ranges from the intensive, large-scale, commercial agricultural sector to the low-intensity, small-scale, and subsistence farming sector. Moreover, South Africa is facing a mushrooming of new mining ventures, particularly in coal, platinum group metals and other precious metals that are placing a heavy burden on land and which have a significant impact on soil. Mining activities have significant impacts on air and water quality, biodiversity and productivity of soil, by causing erosion, sedimentation, subsidence and landslides.

Pre-1994 land policies led to the crowding of people into 'homelands'. These rural areas constitute shared access to land resources, commonly referred to as communal

95 Ywason et al. (2016: 15).
96 Government of the Republic of Ghana (1999b).
97 Cf. Ruppel et al. (2021 forthcoming).
98 See https://bit.ly/3cObmmk, accessed 10 March 2020.

use. These communal areas are used for producing crops and livestock, mainly for subsistence and livelihood security. Communal areas have long been neglected, which has resulted in overgrazing, overharvesting and soil erosion.[99]

The progress towards South Africa's current constitutional dispensation was a journey that was filled with challenges based on a mixture of legal regimes. Colonisation, settlement and Apartheid are major influences on the current multifaceted nature of South Africa's legal system. However, the introduction of the 1996 Constitution has meant extensive change to South Africa's previous legal and political system. Today, South African law consists of the Constitution, legislation, judicial precedent, common law (rules developed from Roman-Dutch and British authorities), (African) customary law, and international law. The "common and customary law embodies official legal pluralism, whilst those two 'official' legal systems, together with all other 'unofficial' legal systems (e.g. Hindu law, Jewish law and Muslim law) embody 'deep' legal pluralism."[100] The diverse nature of the system is mirrored by the inclusion of African customary law, Roman-Dutch law and British common law in pluralistic practice.[101] Traditional leaders are recognised by the Constitution, with Chapter 12 providing for recognition and the role of traditional leaders.[102] South African courts follow the rule of precedent, whereby courts are bound by their own decisions unless and until they are overruled by a superior court. It is, however, conceivable that circumstances arise that would render it possible for a court to override its own legal opinion.[103]

Since the end of Apartheid, South Africa has often been at the forefront of international law efforts. As such, South Africa signed the UNFCCC in 1993 and ratified it in 1997. South Africa acceded to the Kyoto Protocol in 2002 and ratified the Paris Agreement in 2016.[104] South Africa also ratified the UNCCD in 1997. South Africa further recognises the role of SDG 15 (Life on Land), as well as target 15.3 of the same goal, which envisages

> [b]y 2030 [to] combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and [to] strive to achieve a land degradation-neutral world. South Africa is committed to setting its voluntary targets for achieving land degradation neutrality (LDN) by 2030.[105]

The Constitution distinguishes between the obligations of the Republic of South Africa on an international level that derive from international agreements to which South

99 Department of Environmental Affairs (2012).
100 Rautenbach (2010: 145).
101 Du Plessis (2019: 15).
102 Constitution of the Republic of South Africa of 1996.
103 Havenga et al. (2002: 8).
104 See https://www.sanbi.org/wp-content/uploads/2018/09/Strategic-Framework-and-Overarching-Implementation-Plan-for-EbA-in-SA.pdf, accessed 20 May 2020.
105 See https://sustainabledevelopment.un.org/content/documents/26158Final_SG_SDG_Progress_Report_14052020.pdf, accessed 20 May 2020.

Africa is a party and their applicability in the domestic legal system.[106] Section 231(2) of the Constitution requires the ratification of an international treaty by both the National Assembly and the National Council of Provinces except in the case of those agreements that can be classified as technical, administrative or executive.[107] The Constitution does not contain any definitions or indication when these criteria are met. It is, however, important to emphasise that ratification by parliament does not replace the need for implementing legislation to guarantee the international treaty's domestic applicability.[108] Therefore, Section 231(4) of the Constitution provides for the enactment of additional national legislation to transform the international treaty provisions into municipal law, unless the particular agreement contains a self-executing provision. The legislature seems to use three different methods to incorporate international agreements into South African national law.[109] Firstly, the provisions of the particular agreement may be embodied in the text of an act; secondly, the agreement may be included as a schedule to a statute and thus be incorporated by reference; and, lastly, the legislation may authorise the executive to bring the agreement into effect as domestic law by publishing it in the *Government Gazette*. Once an international agreement is incorporated into national legislation its provisions enjoy the same legal status as the implementing legislation itself.[110] Ultimately, Section 39(1)(b) of the Constitution provides that international law must be considered when a court interprets the Bill of Rights. Although Section 39 provides that international law must be considered, it does not require that international law must be applied.[111] However, as stipulated in Section 233, "when interpreting any legislation, every court must prefer any reasonable interpretation of the legislation that is consistent with international law over any alternative interpretation that is inconsistent with international law".

At national level, South Africa has previously promulgated legislation that was aimed at controlling or reducing soil loss. This legislation included the Forest and Veld Conservation Act, No. 13 of 1941, the Soil Conservation Act, No. 76 of 1969, the Conservation of Agricultural Resources Act, No. 43 of 1983, and the Environment Conservation Act, No. 73 of 1989. This legislation, however, was predominantly applied to white-owned areas, while soils protection legislation in black areas fell under the Native Administration Act, No. 38 of 1927, the Bantu Homelands Constitution Act, No. 21 of 1971, legislation formulated by individual homelands governments, and proclamations by the State President, such as Proclamation 116 of 1949, and the

106 Sections 231(2) & (4) Constitution of the Republic of South Africa of 1996.
107 Section 231(3) Constitution of the Republic of South Africa of 1996.
108 Sucker (2014: 426).
109 Dugard (2018: 61).
110 *Glenister v President of the Republic of South Africa and Others* Case *(CCT 48/10) [2011] ZACC 6* (para. 100).
111 Rautenbach (2018: 75).

Betterment Areas Proclamation, R196 of 1967.[112] The Environment Conservation Act, No 73 of 1989 was subsequently replaced by the National Environmental Management Act, No. 107 of 1998 (NEMA), together with the primary legislation aimed at addressing soil conservation, and the Conservation of Agricultural Resources Act, No. 43 of 1983 (CARA), which are complementary frameworks for the safeguarding of soil.[113]

CARA promotes the conservation of soil, water resources and vegetation, with the objects of the Act being to provide for the conservation of the natural agricultural resources of the Republic through the maintenance of the production potential of land, by combating and preventing erosion and weakening or destroying the water resources, and by protecting the vegetation and combating weeds and invader plants.[114] The act provides management plans that guide the eradication of weeds and alien invasive vegetation and promote and protect the integrity of indigenous vegetation, as well as guide the management and protection of soil. CARA provides the Minister of Agriculture with the power to prescribe control measures that need to be complied with and applied by land users which include control measures for the cultivation of virgin soil, and the utilisation and protection of land which is cultivated.[115]

NEMA promotes cooperative environmental governance through the establishment of principles of decision-making in an integrated and cooperative manner for any matters that affect the environment. NEMA further stipulates the procedures, administration and enforcement of environmental management laws, through various management instruments. Furthermore, NEMA Section 24 management principles, requirements, and procedures for environmental authorisation are outlined in order to reduce negative impacts on and degradation of the environment. Section 24 further makes stipulations for actions to be taken in the case of pollution or degradation of the environment by the persons responsible.

The National Action Programme Combating Land Degradation to Alleviate Rural Poverty (2004), set by the Department of Environmental Affairs and Tourism,[116] aims to combat desertification and mitigate the effects of drought in line with the framework of Agenda 21, in order to achieve sustainable development. The Soils Protection Strategy (2005) (yet to be completed)[117] was prompted by the need to identify priority areas for the implementation of integrated soil rehabilitation programmes that have been identified through modelling and mapping land capability and predicted soil erosion. South Africa has been relatively active in dealing with regulatory aspects of climate change.[118] In June 2018, the South African Minister of Environmental Affairs

112 Garland et al. (2000: 69–107).
113 Kidd (2011: 132).
114 Ibid.
115 Kidd (2011: 133).
116 Department of Environment and Tourism (2004).
117 Department of Agriculture (1999).
118 Ruppel et al. (2020: 274).

published the Draft Climate Change Bill (called the Climate Change Bill) in the *Government Gazette*, thus opening the public to submit comments.[119] The Climate Change Bill seeks to "build the Republic's effective climate change response and the long term, just transition to a climate resilient and lower carbon economy and society in the context of an environmentally sustainable development framework; and to provide for matters connected therewith".[120] The bill addresses policy alignment and institutional arrangements; climate change response for provinces and municipalities; national adaptation to impacts of climate change; greenhouse gas emissions and removals; and general matters and transitional arrangements, i.e. public participation, delegation, offences and penalties, etc.[121] The overall objectives of the Climate Change Bill are also relevant to soil protection in that they promote section 24 of the 1996 Constitution, which stipulates that everyone has a right to an environment that is not harmful to their health and well-being; and to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation, secure ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development.[122]

The right to property is found in Section 25 of the Constitution, stating that no person may be deprived of property except in terms of the law of general application and that no law may permit arbitrary deprivation of property.[123] Further, Section 25 provides that property may be expropriated only in terms of the law of general application for the public purpose or in the public interest and subject to compensation.[124] The Constitution allows for the protection of property, but also for the reform of property relations. Common law, precedent and statutory law were traditionally regarded as sources of South African property law but are no longer regarded as exhaustive under the new constitutional dispensation.[125] Public law dealing with landownership and rights before 1996 can be found to be discriminatory. As a result of this, a number of instruments have been introduced in order to right the wrongs of the past. One of the most applicable measures is the 1997 White Paper on Land Policy, which was set up with the purpose if redressing the Apartheid era, nurturing national reconciliation and sustainability to support economic growth, to improve welfare, and to relieve poverty.[126]

119 Government Gazette 41689, 8 June 2018.
120 Climate Change Bill (draft) No. 580 GG 41689 of 8 June 2018.
121 Ibid.
122 Section 24 of the Constitution of the Republic of South Africa of 1996.
123 Constitution of the Republic of South Africa of 1996.
124 Ibid.
125 Mostert & Pope (2010).
126 See https://www.grainsa.co.za/unpacking-the-various-forms-of-land-ownership, accessed 21 February 2020.

In South Africa, as a result of the post-1996 constitutional dispensation, there is a demand for equal consideration be given to (African) customary law and to public law.[127] Customary law is both written and unwritten, having developed from the customs and traditions of communities over time.[128] For customs and traditions to be considered as law, they must be known to the community, followed by the community, and be enforceable. When there is a conflict between public and customary law, both laws are looked at together in order to determine the differences and to ensure that both are in line with the Constitution. A choice of law rule is then made. The purpose of this rule is to select the law that will do justice in the given case – not for one party, but for all.

Planning law is relevant when considering landownership and rights to use and access land. Planning law can be defined as the area of law that provides for the creation of a sustainable land management planning framework, as well as for the management of land development with the purpose of ensuring the health, safety and welfare of society as a whole, while accounting for overarching interests such as the environment.[129] This is an important division of the law in South Africa and is predominantly governed by the Spatial Planning and Land Use Management Act, No. 16 of 2013.

The National Environmental Management: Biodiversity Act, No. 10 of 2004 supports the conservation of plant and animal biodiversity, and the soil and water that it depends on. The Act promotes the management and conservation of South Africa's biodiversity within the framework of NEMA in order to protect species and ecosystems and promote equitable and sustainable use of natural resources.

The National Environmental Management: Protected Areas Act, No. 57 of 2003 makes provision for the protection and conservation of ecologically viable areas that represent South Africa's biological diversity and natural land- and seascapes, and calls for the establishment of national, provincial and local protected areas and their management in accordance with national norms and standards. Amendment 31 of 2004 of the Act supports the conservation of soil, water and biodiversity.

The National Environmental Management: Waste Act, No. 59 of 2008 (NEMWA) stems from NEMA, and is the act which is primarily concerned with waste management in order to protect health and the environment. NEMWA provides reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. Under Section 73(1)(a) of NEMWA, the national norms and standards for "The Remediation of Contaminated Land and Soil Quality" in the Republic of South Africa are stipulated and took effect in 2013. These norms and standards focus on contamination through various land-use activities that have an impact on soil quality, human health and water resources; from this contamination the norms and standards then outline remediation measures that assist with the

127 Mostert & Pope (2010).
128 Ruppel (2008: 23).
129 Van Wyk (2018: 1131).

management of the contaminated site to "prevent, minimise, or mitigate" the damage to human health or the environment.

Further, when addressing public environmental law, the agricultural sector must be addressed because of its relation to and impact on the environment. Agriculture plays an important role in the economy of South Africa and it is therefore necessary to have legislation with provisions dealing with agriculture. CARA aims to provide for the conservation of the natural agricultural resources of South Africa by maintaining the production potential of land – by combating and preventing erosion and halting the weakening or destruction of the water sources, and by protecting vegetation and combating weeds and invader plants.[130]

The Subdivision of Agricultural Land Act, No. 70 of 1970 is another act contributing to the provisions concerning agriculture. This Act provides that agricultural land may not be subdivided unless the Minister of Agriculture, Forestry and Fisheries has consented to the subdivision. The Act was supposed to be replaced by the Subdivision of Agricultural Land Repeal Act, No. 64 of 1998; however, this has not been put into operation yet. Further, the Act has not yet been brought into alignment with the 1996 constitutional framework, leaving much still to be determined. New draft legislation has been developed to replace the Act; however, the finalisation and promulgation is yet to take place.[131]

South African national development imperatives have resulted in calls for radical economic transformation and accelerated land reform. It is therefore clear that Sustainable Development Goal (SDG) 15, which focuses on life on land, and target 15.3, which aims at achieving land degradation neutrality by 2030, will need to come even more to the fore in national development programmes.[132] Therefore, legal measures in relation to soil are conditional, such as legislation and policies that are necessary to enforce and control the protection of soil and to minimise the environmental impact with the accompaniment of social education and sensitisation. Although South Africa has applicable legislation, like that of CARA, there are improvements that need to be made in order to have a legal system that promotes and achieves soil protection. For example, CARA prescribes the creation of soil conservation committees; however, unfortunately, a number of these committees have yet to start functioning, which leaves them purposeless until they begin to do so.

130 Meyer et al. (2018: 335).
131 Ibid.
132 See https://bit.ly/3d1iMUX, accessed 20 May 2020.

8 Africa relevant international regulatory framework on soil[133]

Even though several international conventions recognise the importance of soil conservation, no overarching and transnational framework yet exists. One of the reasons advanced by opponents of an overarching, global and binding framework is that soil is non-moving and has *locally unique* problems, which should be dealt with locally.[134]

The European Soil Charter of 1972 is held to have been the first international document relating to soil.[135] The World Soil Charter and the World Soils Policy were negotiated by the United Nations Environment Programme (UNEP) in coordination with the FAO and were adopted in 1981. Both instruments contain non-binding guidelines and principles relating to soil conservation[136] and were intended to aid states in formulating domestic policies. However, in light of modern environmental practices, these instruments are considered to be outdated.[137]

Yet, 2015 was the International Year of Soils, which has resulted in a wealth of awareness activities across the globe, in addition to putting soils back on the international policy agenda.[138] This has also led to a new international dialogue concerning the protection and rehabilitation of soils and sustainable farming practices in general.[139] The GSP is a body established prior to the International Year of Soils and aided in the implementation and coordination of the roll-out of the year-long activities.[140] The GSP further encourages research, plans conferences and establishes local and regional partnerships.[141] However, criticism has been voiced relating to the felt absence of tangible results and calls for specific actions are mounting.[142]

New scientific knowledge has been gained over the past three decades, "especially with respect to new issues that emerged or were exacerbated during the last decades, like soil pollution and its consequences for the environment, climate change adaptation and mitigation and urban sprawl impacts on soil availability and functions".[143] In this respect, the World Soil Charter has been revised and was unanimously endorsed in June 2015, during the course of the International Year of Soils, by the member states of the FAO during the 39th Session of the FAO Conference.[144] The revised guidelines

133 Cf. Ruppel & von Finckenstein (2016: 309).
134 Montanarella (2015).
135 Alori & Nwapi (2015: 105).
136 Ibid.
137 Ibid.: 106.
138 See http://www.fao.org/soils-2015/news/news-detail/en/c/353737/, accessed 20 January 2021.
139 Ibid.
140 See http://www.fao.org/globalsoilpartnership/iys-2015/en/, accessed 20 January 2021.
141 Montanarella (2015).
142 Ibid.
143 See the revised World Soils Charter at http://www.fao.org/fileadmin/user_upload/GSP/docs/ITPS_Pillars/annexVII_WSC.pdf, accessed 16 January 2021.
144 The revised World Soil Charter is organised into a preamble, nine principles, and guidelines for action.

intend to ensure that "soils are managed sustainably and that degraded soils are rehabilitated or restored".[145] The actions are targeted at individuals and the organised private sector, governments and international organisations, which triggered an international dialogue concerning the protection and rehabilitation of soils and sustainable farming practices.[146] While tools such as FAOLEX and ECOLEX already compile national legislation and policies, and include some legislation on soil protection and soil degradation prevention, the newly established working group on soil legislation will in the time to come contribute to reviewing and updating the SoiLEX database containing all soil-related legal instruments adopted in each country.

While the World Charter on Nature[147] and Agenda 21[148] have been criticised to be inappropriate to aid in soil conservation, as their wording is too broad to establish clear norms,[149] other international law instruments have proved to be more relevant. Particularly for Africa, the UNCCD is the main international legal document to combat desertification and mitigate the effects of drought in affected countries through effective action at all levels supported by international cooperation. This instrument is the only international treaty specifically addressing land-related issues, while the definition of desertification therein clearly relates to soil conservation.[150]

> The UNCCD laid the groundwork for developing and establishing the concept of LDN. After adoption of the SDGs, the CCD claimed leadership for implementation of target 15.3 on LDN. It decided to integrate LDN in its work and has engaged in various activities. Besides a target setting programme this includes elaborating guidance material. In particular, the CCD published a Scientific Conceptual Framework that is intended to apply to all land and guide all parties in implementing LDN. Although the legal and political constraints make the UNCCD's potential difficult to assess, it could continue to pursue a leading role in implementing the LDN target and serve as forum for discussing soil-related issues between developing and developed countries.[151]

So far, however, the tangible effect of the UNCCD remains limited, as the focus is primarily placed on capacity-building, as opposed to creating binding obligations per se.[152]

The 2003 Maputo Convention, which entered into force in 2016 has one article dedicated to land degradation and soil conservation, overlapping with those contained in the UNCCD. Herein, agricultural activities have been identified as one important driver for land degradation in Africa, pointing out conflicts around land tenure that

145 See Section 3 of the Revised World Soil Charter.
146 See http://www.fao.org/soils-2015/news/news-detail/en/c/353737/, accessed 20 January 2021.
147 See http://www.un.org/documents/ga/res/37/a37r007.htm, accessed 16 January 2021.
148 United Nations Conference on the Environment and Development, Agenda 21, UN Doc a/CONE151/4 (1992).
149 Alori & Nwapi (2015: 106).
150 Land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors including climatic variations and human activities.
151 See with further references, Bodle et al. (2020: 14).
152 Alori & Nwapi (2015: 107).

require parties to develop and implement land tenure policies that are able to facilitate the measures to prevent land degradation and to conserve and improve the soil.[153]

It has been stated in recent studies that there is an overlap and potential competition and conflict between the UNCCD and the FAO, which also claims leadership regarding international soil. Both regimes are major international actors with high participation and political legitimacy in this field. Moreover, there seems to be an overlap with the CBD in terms of legal scope and mandate regarding soil biodiversity. Here the CBD is probably the more relevant international instrument, as the diversity within species and ecosystems is closely linked and reliant upon the conservation of soils and ecosystems. It aims at conserving biological diversity, promoting the sustainable use of its components, and encouraging equitable sharing of the benefits arising out of the utilisation of genetic resources.[154]

The 1992 UNFCCC was adopted to regulate levels of greenhouse gas concentration in the atmosphere, so as to, for instance, avoid the occurrence of climate change on a level that would compromise initiatives in food production. In this regard the convention is relevant together with a variety of other multilateral environmental agreements and international legal instruments that (directly or indirectly) deal with climate change.[155]

The 2015 Paris Agreement is part of the UNFCCC regime as it binds all its parties regarding activities on their respective territories and under their control. As such, the Paris Agreement supplements the UNFCCC and the Kyoto Protocol of 1997 by incorporating existing elements of these regimes.

According to its Article 2, the Paris Agreement's overarching objective is to keep the increase in global temperature well below 2°C, or even 1.5°C. Parties are required to prepare and present individual climate plans (nationally determined contributions) every five years that set out how the party intends to contribute to the collective objectives. Of course, soil as well as land use, land degradation and sustainable land management are closely linked to climate change in terms of carbon capture and storage, on the one hand, and the emissions from deforestation and agriculture, on the other. Yet the Paris Agreement fails to explicitly mention 'soil', 'land' or 'agriculture'. As such, the Paris Agreement only indirectly addresses soil protection in the general context of climate change. And despite the importance of land use and soil management for climate change, the UNFCCC, the Kyoto Protocol and the Paris Agreement have not established a comprehensive regime with regard to land-related climate change measures.[156] At COP 23 in 2017, agriculture first appeared in the ongoing climate negotiations under the Koronivia joint work programme.

153 See with further references, Bodle et al. (2020: 19).
154 Bodle et al. (2020: 53–54).
155 Ruppel (2013: 29).
156 Bodle et al. (2020: 53–54).

> The decision officially acknowledges the significance of the agriculture sectors in adapting to and mitigating climate change. Countries agreed to work together to make sure that agricultural development ensures both increased food security in the face of climate change and a reduction in emissions. The joint work is expected to address six topics related to soils, nutrient use, water, livestock, methods for assessing adaptation, and the socio-economic and food security dimensions of climate change across the agricultural sectors.[157]

Lastly, the Sustainable Development Goals (SDGs) were formulated as a successor to the Millennium Development Goals at the UN Conference on Sustainable Development. The SDGs were adopted in 2015 and Goal 15.3 therein pertains to achieving the "[p]rotection and promotion of sustainable use of terrestrial ecosystems, halt desertification, land degradation and biodiversity loss" and further aims to "achieve a LDN world". Although not legally binding, the SDGs, and in particular the LDN target in SDG 15.3, have at least established a political consensus for continued dialogue that guides national policies and governmental action for national land and soil policies.[158]

From the aforementioned it becomes clear, that the international soil governance framework remains highly fragmented, while the displayed international law instruments cover different aspects of soil protection in a relatively unconcerted manner.

9 Conclusion

In terms of this chapter, it can be concluded that soil management is an integral part of land management and many jurisdictions in Africa address soil within land management instruments or within soil-specific legislation. Soil management can be found in sectoral legislation on agriculture, land, environment or even water. While some legislative approaches distinguish between different soil types and characteristics in order to determine the specific interventions warranted to achieve the appropriate quality for the land use selected, others focus on issues such as soil quality, contamination and pollution, soil conservation and soil rehabilitation.[159] The fact is that the maintenance and protection of soil in Africa is vital in order to allow a continued reliance upon it. Soil maintenance and protection needs to be governed by legislation and policy, along with prescribed and practised enforcement measures. Incentives and deterrents for sustainable land use ensure that private land use is in line with social and other policy objectives and promote certain practices, fertilizers, subsidies, etc. No doubt, sustainable agriculture, rural development and the upliftment of poor and marginalised communities require a cross-sectoral involvement of environment, climate change, land rights, gender equality, traditional and indigenous affairs, health, economy and trade, among others.

157 See http://www.fao.org/climate-change/our-work/what-we-do/koronivia/en/, accessed 16 July 2020.
158 Bodle et al. (2020: 11–21).
159 FAO & UNEP (2020: 132).

Progression in terms of land tenure rights is also necessary to enable soil protection to obviate the effect that land tenure can have on soil. Human influence on the land and natural resources, such as soil, is accelerating as a result of the growth in population on the African continent and the associated increase of food requirements.[160]

While scarce, land is more than a source of food security, income and shelter. Especially in Africa, it is also related to cultural identity and is thus often a source of tribal tension or political competition.[161] Therefore, reliable land tenure arrangements will serve to reduce poverty, support sustainable livelihoods, enable social stability and housing, and foster environmental protection. Moreover, food security and food availability are highly dependent on secure access to and the productivity of land.[162]

Land-use change is displayed in the change of land-cover, and this change is a key component of global environmental change that is affecting the climate, biodiversity and ecosystems, which in turn has an impact on land-use decisions.[163] Increased compacted areas associated with urban development, for example, increase runoff during rainfall, which accelerates erosion and runoff downstream of the urban catchment. The way land is used plays a considerable role in the quality of soil. Land tenure thus also significantly affects soil conservation. In many countries in Africa, there is still a need for the formalisation of land tenure in respect of both individual and communal land rights and for an integration of different land tenure systems, to achieve a unitary approach that can ensure that all land is administered and regulated. This will ensure land protection and, in particular, soil protection.[164] In order to achieve this, a legal framework is necessary for any registration programme to function and bring about the desired outcomes, such as the administration of land usage and protection of natural resources.[165]

> For most of human history, the natural world has been protected from the most disruptive human influences by relatively humble technology, cultural factors ... [and] land ownership by the ancestors ...[166]

And while customary law, under colonised structures, was seen as inferior to colonial law, the so-called 'repugnancy clause' is no longer valid. Under this clause, customary law was only recognised under the condition that it was "not repugnant to the general principles of humanity recognised throughout the whole civilised world".[167] It was therefore in many African countries after independence that:[168]

160 Kanianska (2016: 4).
161 FAO & UNEP (2020: 93).
162 Sandrey (2019/20: 134).
163 Kanianska (2016: 6).
164 Tlale (2018: 267).
165 Ibid.: 266.
166 Hinz & Ruppel (2008: 5).
167 Zenker (2020).
168 Menski (2011: 143).

> [a]fter generations of missionaries, anthropologists and lawyers, whose first interest was to force African customary law into the procrustean bed of either the bible, civilisation or a western paradigm of rule of law, African customary law begins to breathe again: to breathe the air of Africa.

Legal systems in Africa[169] are made up of a melting pot of cultures, religions and community practices that have culminated in the complexity and all-encompassing nature of the systems.[170] This plurality including customary law and indigenous knowledge in soil-related policies:[171]

> is likely to contribute to the development of more effective adaptation strategies that are cost-effective, participatory and sustainable. After all, indigenous people have always been tasked to develop flexible mechanisms to cope with climatic conditions and their vulnerability.

And although there are still many improvements that can be made to enhance the protection of soil in Africa, education in soil law is also important in order to stress the importance of soil protection measures. The training of lawyers and law students in the subject of soil protection and law can promote the need for any legal system that has secure and effective soil protection measures. This training would see an increase in legal personnel who have the relevant expertise and knowledge to ensure that soil protection law is complied with and improved upon, as well as enforced and monitored.

Moreover, when considering improvements that need to be made to soil legislation in Africa, it can also be said that the legislation relating to foreign investors should not be neglected:[172]

> Investment for sustainable development in Africa requires political commitment to overcome substantial barriers at various levels. To enable new markets for sustainable development requires adequate regulatory frameworks (international, regional and national) in order to give investors, the necessary confidence. The national state has to balance the interest of attracting (and securing) international investment while promoting peace and security for its population. The most appropriate approach for achieving both of the aforementioned is adherence to and promotion of the rule of law while creating incentive structures for investors to act sustainably and to respect national social development goals, empowerment policies, labour standards and human rights.

The aforementioned is particularly true in the context of 'land-grabbing', where there is a need for legislation that clearly sets out how the foreign investor needs to comply with national interests, as well as a need for legislation that prescribes how foreign investors can acquire, possess, own and utilise land in African countries. Such legislation should also highlight and clarify social and environmental responsibilities of the foreign investor, along with the consequences should they fail to comply with these responsibilities.

Lastly, both at national and at international law level, improving soil governance includes options for enhancing coordination and coherence. A clearer division of

169 Ruppel & Ruppel-Schlichting (2011).
170 Du Plessis (2019: 15).
171 Ruppel & Ifejika Speranza (2011: 200).
172 Ruppel & Borgmeyer (2018); Ruppel & Shifotoka (2017: 56).

labour between sectors and institutions addressing soil holds significant potential for improving soil governance. After all, it becomes increasingly clear that the element, soil, is both international and domestic in nature and should therefore be pursued in a complementary[173] manner in order be able to counter soil degradation in the context of climate change in the Anthropocene,[174] global human security[175] and cross-border migration processes.[176]

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173 Bodle et al. (2020: 11–21, 126).
174 Ruppel (2013).
175 Ruppel & Ruppel-Schlichting (2013).
176 Ruppel & Van Wyk (2013).

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