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Improving international soil governance – Analysis and recommendations

Final Report

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Improving international soil governance – Analysis and recommendations

Final Report

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Abstract

This study develops options for the German government to improve international soil governance in the short, medium and long term. The study first takes stock of existing international instruments and institutions that are relevant for soil protection and its governance at the international level. It assesses the actual and potential steering effect of, inter alia, the Desertification Convention, the Biodiversity Convention, the Paris Agreement and climate regime, regional treaties, FAO, UNEP, IPBES and IPCC. At present, the Sustainable Development Goals and in particular the “land degradation neutrality” target have established a global political reference point. But there are almost no binding obligations for all states specifically regarding soil. Current governance of soil at the international level is piecemeal and spread over parts of different mandates. There is significant overlap of mandates and activities of relevant institutions, each of which has limitations. While a certain degree of a rudimentary division of labour is emerging, there is scope and a need for improvement. The study develops options for improving international soil governance with regard to overarching issues, new treaty or institutions, improving existing governance, means of implementation and enhancing co-ordination and coherence.

Kurzbeschreibung

Die Studie entwickelt Optionen für die Bundesregierung, internationale Bodengovernance kurz-, mittel- und langfristig zu verbessern. Sie beginnt mit einer Bestandsaufnahme bestehender internationaler Instrumente und Institutionen, die für Bodenschutzgovernance auf internationaler Ebene relevant sind. Sie bewertet die tatsächliche und potentielle Steuerungswirkung u.a. der Wüstenkonvention, der Biodiversitätskonvention, des Pariser Klimabkommens und des Klimaregimes, regionaler Abkommen, der FAO, von UNEP, IPBES und des IPCC. Gegenwärtig haben die Nachhaltigen Entwicklungsziele und insbesondere das Ziel "land degradation neutrality" einen globalen Referenzpunkt für Bodenpolitik geschaffen. Es gibt aber fast keine verbindlichen Verpflichtungen für alle Staaten speziell zum Bodenschutz. Die derzeitige Governance für Boden auf internationaler Ebene ist fragmentiert und über verschiedene Mandate verteilt. Es gibt erhebliche Überschneidungen bei den Mandaten und Tätigkeiten der relevanten Institutionen, während gleichzeitig jede von ihnen Einschränkungen aufweist. Zwar zeichnet sich eine gewisse rudimentäre Arbeitsteilung ab, es ist aber erforderlich, diese weiter voranzutreiben. Die Studie entwickelt Optionen, internationale Bodengovernance zu verbessern, in den Bereichen übergreifende Themen, neue Rechtspflichten oder Institutionen, Verbesserung bestehender Governance, Mittel zur Umsetzung, und bessere Koordination und Kohärenz.

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List of Abbreviations

Abbreviation	Full name
BMUB	Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (Federal Ministry for The Environment, Nature Conservation, Building and Nuclear Safety)
CBD	Convention on Biological Diversity
CCD	Convention to Combat Desertification
CDM	Clean Development Mechanism
CGRFA	Commission on Genetic Resources for Food and Agriculture
COAG	Committee on Agriculture
COP	Conference of the Parties
CILSS	Comité permanent inter-États pour la lutte contre la sécheresse au Sahel (Sahel Committee)
CRIC	Committee for Review of the Implementation of the Convention
CST	Committee on Science and Technology
DLDD	Desertification, Land Degradation and Drought
ECOWAS	Economic Community of West African States
EU	European Union
FAO	Food and Agriculture Organisation
FAOSTAT	Database of the Food and Agriculture Organization of the United Nations
GBO	Global Biodiversity Outlook
GCF	Green Climate Fund
GEF	Global Environmental Facility
GEO	Global Environment Outlook
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GHG	Greenhouse Gas
GLADIS	Global Land Degradation Information System (FAO)
GLASOD	Global Assessment of Human-induced Soil Degradation project
GSP	Global Soil Partnership
HLPF	High-level Political Forum on Sustainable Development
IAEG-SDGs	Inter-agency and Expert Group on SDG Indicators
IASS	Institute for Advanced Sustainability Studies
IFAD	International Fund for Agricultural Development
IFAT	International Fair Trade Association
IIFBES	International Indigenous Forum on Biodiversity and Ecosystem Services
ILK	Indigenous and Local Knowledge
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

Abbreviation	Full name
IPCC	International Panel on Climate Change
IRP	International Resource Panel
ISRIC	International Soil Reference and Information Centre
ITPGRFA	Treaty on Plant Genetic Resources for Food and Agriculture
ITPS	Intergovernmental Technical Panel on Soils
IUCN	International Union for Conservation of Nature
IWG	Intergovernmental Working Group
JLG	Joint Liaison Group
KP	Kyoto Protocol
LADA	Land Degradation Assessment
LDFA	Land Degradation Focal Area
LDN	Land Degradation Neutrality
LDNW	Land Degradation Neutral World
LULUCF	Land Use, Land Use Change and Forestry
MEA	Multilateral Environmental Agreements
MEP	Multidisciplinary Expert Panel
NAP	National Action Programme
NBSAP	National Biodiversity Strategies and Action Plans
NDC	Nationally Determined Contributions
NGOs	Non-governmental organisations
NUA	New Urban Agenda
OECD	Organisation for Economic Cooperation and Development
ONet	Open-ended Network
PA	Paris Agreement
PCCB	Paris Committee on Capacity-Building
PRAIS	Performance and Review and Assessment of Implementation System
REDD+	Reducing emissions from deforestation in developing countries and approaches to stimulate action
RIPs	Regional Implementation Plans
RSPs	Regional Soil Partnerships
SBI	Subsidiary Body on Implementation
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SDG	Sustainable Development Goal
SOTER	Soil and Terrain database programme
SPI	Science Policy Interface

Abbreviation	Full name
SSM	Sustainable Soil Management
STAR	System for a Transparent Allocation of Resources
SWSR	Status of the World's Soil Resources (FAO)
TCP	FAO’s Technical Cooperation Programme
UBA	Umweltbundesamt (German Environment Agency)
UN	United Nations
UNCED	United Nations Conference on Environment and Development
CCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEA	United Nations Environmental Assembly
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNSD	United Nations Statistics Division
US	United States of America
USD	US Dollar
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests
VGSSM	Voluntary Guidelines for Sustainable Soil Management
VNR	Voluntary National Review
WHO	World Health Organization
WMO	World Meteorological Organization

Summary

The objective of this research report is to examine whether and how international governance for the purpose of sustainable soil management can be strengthened and improved in the short, medium and long term. The report has to two main parts: First, we take stock and assess existing international instruments and institutions that are relevant for soil protection and its governance at the international level, including an evaluation of their actual and potential steering effect. The study then develops options for improving international soil governance that the German government could pursue.

The report addresses the protection of *soil.* The term "soil" is not generally synonymous with "land", which is generally used to comprise not only soil-related issues, but also more dimensions and interactions with vegetation. In this sense soil protection is often closely linked to and partly overlapping with the use and management of land. This is particularly relevant with regard to the sustainable development goal 15.3 of achieving land degradation neutrality, which is the starting point for the stocktake in this report.

Key findings from the stocktake

The SDG process as a global point of reference for international soil governance

The Agenda 2030 adopted by the UN General Assembly in September 2015 provides a framework for sustainable development and sets 17 Sustainable Development Goals (SDGs). With target 15.3 under SDG 15 all states agreed to strive to achieve a **land degradation neutral (LDN) world** by 2030. While the SDGs are not a binding treaty, their adoption by the UNGA establishes at least a strong political commitment. It is now up to the states to implement the SDGs according to their national circumstances. The UN assists implementation and provides a forum for exchange - in respect of data, implementation and progress review.

The UN **High-level Political Forum on Sustainable Development (HLPF)** has a central role in the **follow-up and review** of the SDGs at the global level. It meets every year under the auspices of the Economic and Social Council and every four years at the level of heads of state under the auspices of the General Assembly. Follow-up and review are based on the UN Secretariat's annual reports to the HLPF on overall trends. In addition, all states are encouraged to regularly review their progress in SDG implementation at national level.

To guide states in the preparation of the reviews, the UN Secretary General has issued Voluntary Common Reporting Guidelines in 2015 that have been updated in 2017 and the UN Department of Economic and Social Affairs has published a Handbook in 2018. However, with the regular reviews being **voluntary, country-led and country driven**, they hardly ensure transparency and accountability.

Since 2016, various countries have submitted and presented their **Voluntary National Reviews (VNRs)**, some even two or three times. They provide information on national approaches to SDG implementation and an opportunity for states to showcase achievements. But the VNRs are neither subject to peer review of performance nor to monitoring. They are also not a source of guided information on policies and outcomes. However, VNRs are the only global mechanism for follow-up and review on SDG s and their implementation.

Following groundwork by the CCD and the Rio+20 outcome document, he SDGs and in particular the **target 15.3 on LDN** have established the only **global political point of reference specifically on land and soil**. The LDN target includes all soil threats and drivers of land degradation. The mandates of international regimes and international organisations, such as the Rio Conventions and the Food and Agricultural Organisation are limited, for instance to certain soil threats, which leads to fragmented responsibilities. Attempts to promote an **international treaty on soil**, either stand-alone or as a protocol on soil under one of the existing conventions, have not gained political momentum so far.

On their own, the SDGs and the LDN target in SDG 15.3 are not a comprehensive soil policy and have shortcomings in terms of content, normativity and institutional anchoring as well as operationalisation. But at least the SDGs provide a global consensus on soil in general and a political basis for further work in existing regimes and institutions.

UN Convention to Combat Desertification - CCD

The UN Convention to Combat Desertification is the only international treaty specifically addressing land-related issues. However, its scope of application is in effect **limited to drylands**. The limitation derives from an intricate mixture of geographical and subject-related parameters in the CCD's objectives, definitions and in the action to be taken.

The core obligation under the CCD requiring specific action is to prepare, publish and implement **National Action Programmes (NAPs)**. The obligation is on affected developing countries and affected parties covered by an implementation annex; other parties may voluntarily prepare NAPs. So far, they appeared to have **little effect in terms of implementation** due to practical constraints and structural problems. Parties allocate human and financial resources to the planning and reporting instead of the implementation itself. NAPs do not ensure that combating desertification, land degradation and drought is integrated into planning and decision making in other policy areas.

The CCD contains several provisions and general obligations as well as institutional arrangements with regard to financial and other support. With regard to **financial support**, the CCD's "Global Mechanism" is essentially a broker for seeking funding from parties and other sources. It is not a separate institution and does not provide financial resources. However, it was instrumental in establishing the **LDN Fund,** which is managed by a private sector investment management firm and was launched in 2017 with a capital commitment of around USD 100 mill. In addition, the **Global Environmental Facility (GEF)** has been funding activities regarding to land degradation from its restructuring in 1994 and has since now formally available as a financial mechanism. In the GEF-7 replenishment period 2019-2022 funds allocated for the land degradation focal area amount to USD 475 million.

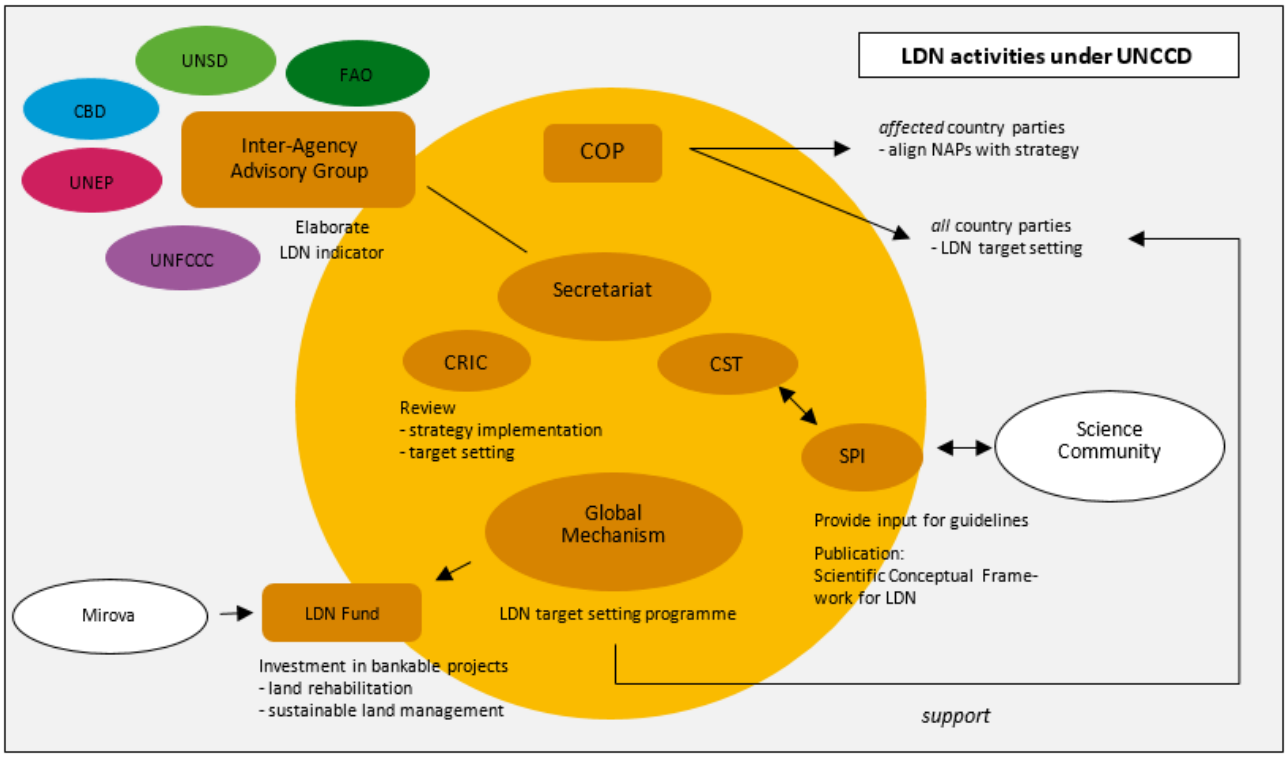
CCD implementation is guided by a **strategic framework** first adopted in 2007 for the period 2008 to 2018, and revised in 2017 for the **period 2018 to 2030**. Affected country parties have been urged to align their NAPs with its strategic and operational objectives. However, by 2017 only 20 per cent of these parties had finalized this alignment process for the 2007 strategic framework. The strategic framework has also been made the reference point for reporting under the CCD. With the **NAP alignment process** only making slow progress, reporting and review can currently not provide information on NAP implementation.

The CCD 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 (for and overview see **Error! Reference source not found.**). Besides a target setting programme this includes elaborating guidance material. In particular, the CCD published a Scientific Conceptual Framework[1] that is intended to apply to all land and guide all parties in implementing LDN.[2] 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.

[1] Orr et al. (2017). See also Cowie et al. (2017) at 25. See generally, https://knowledge.unccd.int/knowledge-products-and-pillars/guide-scientific-conceptual-framework-ldn/about-scientific (last accessed 15.05.2019).

[2] CCD decision 18/COP.13 paras 1-2.

Figure 1: LDN activities under the CCD



Source: Own figure, Ecologic Institute

UN Convention on Biological Diversity - CBD

Adopted in 1992, the Convention on Biological Diversity (CBD) is the major international treaty dealing with biological diversity. Its objectives include the conservation and sustainable use of components of biological diversity as well as fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

While soil biodiversity undoubtedly forms a crucial part of biodiversity, the terms “soil”, “sustainable soil use” or “sustainable soil management” do not appear in the legal text of the CDB, nor do they appear very prominently in other CBD documents. Besides, soil biodiversity forms only a sub-aspect of sustainable soil management. Still, soil biodiversity was identified as an area requiring particular attention soon after the adoption of the Convention.

In addition, both the CBD’s overarching Ecosystem Approach (developed since 2000) and its Addis Ababa Principles (adopted in 2004) promote a holistic approach towards the conservation and sustainable use of biodiversity, interfacing nature and ecosystems with the human sphere. The more recent Aichi Targets (adopted in 2010) furnish both the Ecosystem Approach and the principles on sustainable use with a framework of targets, timelines and indicators.

In 2002, the CBD parties also agreed to establish an International Initiative for the Conservation and Sustainable Use of Soil Biodiversity (International Soil Biodiversity Initiative, managed by FAO) as part of the Programme of Work on Agricultural Biodiversity. From among the soil-related provisions and principles in the CBD, the International Soil Biodiversity Initiative most explicitly calls upon parties to integrate the conservation and sustainable use of soil biodiversity into their national biodiversity strategies.

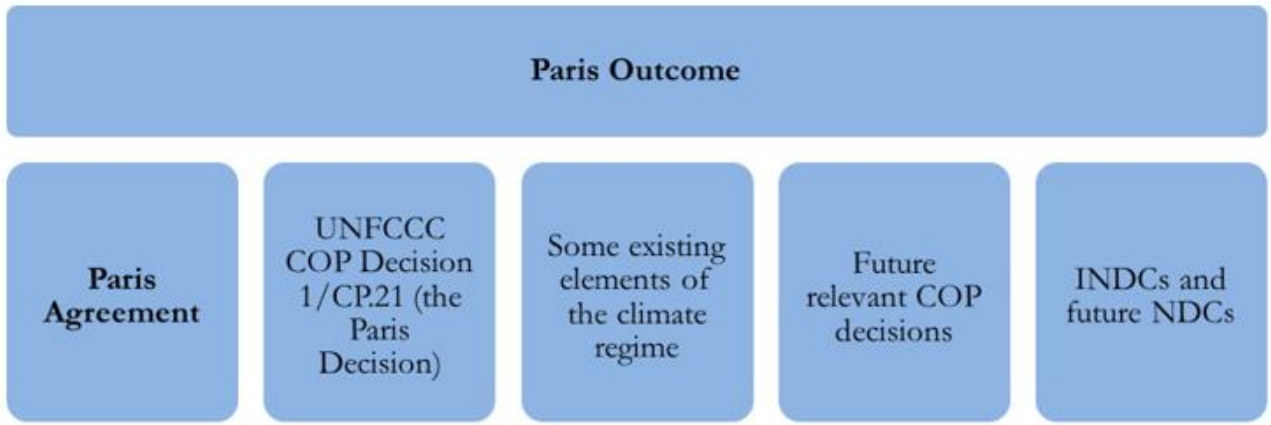
However, parties have, for the most part, failed to follow through.[3] Only a small number of governments and international organisations have actually adopted the initiative and have subsequently developed national or international soil biodiversity activities.[4] Neither do soil or related issues (such as erosion or pollution from excess nutrients) feature prominently in National Reports that parties are obliged to submit to the CBD.[5]

Thus, overall, while the CBD and the Secretariat's activities are conducive to sustainable soil management, implementation among parties remains relatively weak with regard to soil biodiversity. The Convention also does not deal with soil biodiversity or the role of soils for biodiversity in a comprehensive manner. With the exception of the International Soil Biodiversity Initiative, soil is mostly addressed indirectly by the CBD. The CBD's additional potential to an overall international soil governance is likely to remain limited.

The Paris Agreement and the climate regime

The Paris Agreement was adopted on 12 December 2015 under the United Nations Framework Convention on Climate Change (UNFCCC). It entered into force on 4 November 2016 and is almost universal with its currently 185 parties. It does not replace but supplements the existing Climate Change Convention and the Kyoto Protocol and incorporates existing elements of the climate regime:

Figure 2: Paris Outcome



Source: Bodle and Oberthür (2017)

The Paris Agreement sets out the goal of holding global warming well below 2 degrees and pursuing efforts to limit it to 1.5 degrees. The **core obligations** to achieve these overarching objectives are mainly procedural: Parties are required to prepare and present individual climate plans (nationally-determined contributions, NDCs) every five years that set out how the party intends to contribute to the collective objectives. Parties have to take measures with the aim of achieving these NDCs. There are also provisions on adaptation planning. Parties have to report regularly GHG emission inventories as well as on progress in implementing their NDCs and on climate finance. Every five years, a "Global Stocktake" is to assess collective progress towards the Paris Agreement's objectives.

[3] Pisupati and Prip (2015).

[4] Orgiazzi et al. (2016).

[5] See in detail at https://www.cbd.int/reports/search/ (last accessed on 15.05.2019) or the syntheses of the forth National Reports: UNEP/CBD/COP/10/INF/2 (2010), UNEP/CBD/COP/10/8 (2010), UNEP/CBD/WG-RI/3/INF/1 (2010); on the third National Reports: UNEP/CBD/WG-RI/2/INF/1 (2007) and UNEP/CBD/WG-RI/2/INF/1/Add.3 (2007).

The climate regime including the Paris Agreement contains several provisions and general obligations as well as institutional arrangements with regard to **financial and other support**. Developed countries have committed to jointly mobilize USD 100 billion per year by 2020 and through to 2025, from a variety of sources.

Soil as well as land use, land degradation and sustainable land management are closely linked to climate change. Land-based ecosystems absorb and store CO2 and are amongst the most significant sinks of greenhouse gases, while land use and land use change accounts for one of the most important source of anthropogenic greenhouse gas emissions. The UNFCCC and Kyoto Protocol adopted rules on reporting and **accounting** for emissions from land use, land use change and forestry (LULUCF). These rules determine how parties have to report LULUCF in their regular emission inventories, which under the KP is also relevant for accounting of whether parties meet their emission reduction targets. In addition, verified actions on "Reducing emissions from deforestation in developing countries and approaches to stimulate action" (REDD+) are supposed to lead to "results-based payments". However, the Paris Agreement **does not contain specific soil or land-related obligations**. But it has relevant provisions on sinks and reservoirs and adaptation, as well as reporting and accounting. In addition, in 2017 the first COP decision on **agriculture** brought this issue into the negotiation process. Scientific input could also increase the need to address soil more specifically. An **IPCC** special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes is due in mid-2019. The role and importance of soil in the climate regime is likely to increase.

Food and Agricultural Organisation - FAO

FAO was formed in 1945 as the United Nations' specialized agency on nutrition and food security. FAO describes itself as "the lead United Nation's agency concerned with soils"[6] and can be considered a central hub for soil-related activities, albeit with a traditional focus on agricultural soils. In recent years, however, efforts have been undertaken at FAO to shift focus and adopt a more holistic approach on soils as a provider of ecosystem services. This shift in perception has led to the revision of normative instruments (e.g. World Soil Charter) and the development of new ones (e.g. Voluntary Guidelines for Sustainable Soil Management (VGSSM)) as well as the establishment of the Global Soil Partnership (GSP).

Since the 1950s, FAO has been engaged in technical work on soils, both globally and bilaterally. It initiated the development of the non-binding World Soil Charter (1981) and hosts the Global Soil Partnership which was formally established in 2012. The latter, in turn, has been promoting sustainable soil management through various activities including information dissemination and awareness rising (e.g. preparation of the "Status of the World's Soil Resources" Report[7]), the establishment of the Intergovernmental Technical Panel on Soils and the preparation of the development and revision of the above mentioned normative instruments. FAO reports to have implemented over 120 soil-related projects throughout the world over the last 30 years, funded both by FAO regular programme and by extra budgetary (voluntary contributions) resources.[8]

With regard to technical assistance, FAO has been supporting member states in soil matters, from headquarters, regional FAO offices and in the field. This included assistance in implementing soil survey projects, preparing soil survey reports, carrying out soil assessments, setting up land resources inventories as well as promoting integrated land-use planning and the sustainable management of soils, among others though training and institution building.[9]

[6] http://www.fao.org/soils-portal/resources/en/ (last accessed on 15.05.2019).
[7] FAO and ITPS (2015).
[8] FAO (2014).
[9] FAO (1983).

Although FAO's current strategic objectives[10] do not explicitly mention "soils", all its objectives to a greater or lesser extent depend on healthy soils. Given the prevailing perception among (certain) member countries that soil is a national resource, and their concerns e.g. of being exposed to intensified soil monitoring, it is also uncertain whether soils will play a more explicit role in the future. However, the FAO and in particular the GSP could become crucial in disseminating knowledge and developing non-binding technical guidance on soil.

UN Environment - UNEP

Established in 1972 to serve "as an authoritative advocate for the global environment" and to promote "the coherent implementation of the environmental dimension of sustainable development within the United Nations system"[11], UNEP focuses on environmental conditions and instruments on a global, regional and national level.

The focus of UNEP's work on soils lies both on industrial land and soil pollution and on land degradation and restoration. While it does not explicitly cover "soils" as an individual major topic different from "air" and "water", soils form an important part within various topics such as "ecosystems". Issues pertaining to soil conservation are thus, inter alia, covered in UNEP's environmental information and assessment activities (e.g. Global Environment Outlook (GEO)), its technical assistance to member states, its recent campaign "Towards a pollution-free planet" as well as its support to implementation of the SDGs (notably, target 15.3) and the UN Convention on Combating Desertification.[12]

UNEP has played an important role in regard to norm development, publishing the World Soils Policy in 1981, and, more recently in December 2017, the United Nations Environmental Assembly (UNEA-3) adopted a resolution specifically on soil pollution – the first international legal instrument which covers soil pollution more broadly and not in relation to specific pollutants. UNEP also co-founds the Global Soil Partnership (GSP) and hosts several secretariats of relevance to soil conservation such as the Secretariat of the Basel, Rotterdam and Stockholm Conventions. The future role of UNEP in international soil governance could lie in a continued focus on soil pollution.

Ramsar Convention on Wetlands

Adopted in 1971 to protect wetlands as waterfowl habitats, the Ramsar Convention is now the foundation for a comprehensive and sophisticated policy framework for the **management of wetland areas** in general. It does **not tackle specific drivers** of land degradation, but aims at the conservation and wise use of wetlands through local and national action as well as international cooperation.

As a general obligation, parties have to formulate and implement plans to promote the wise use of wetlands. A more sophisticated system has been developed for **wetlands of international importance**, i.e. wetlands that parties have selected for inclusion in the **Ramsar List**. Parties have to promote the conservation of those wetlands and to monitor them. In case that adverse changes in ecological character occur or are likely to occur, a wetland of international importance will be added to the **Montreux Record**, an act that triggers assistance and increases the level of protection. Parties have to **prevent or mediate** damage to the wetland.

The drivers for land degradation are addressed through **strategic plans**, the last of which has been adopted in 2015 and guides implementation between 2016 and 2024. It has been developed within

[10] The objectives include to: 1. Contribute to the eradication of hunger, food insecurity and malnutrition; 2. Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner; 3. Reduce rural poverty; 4. Enable more inclusive and efficient agricultural and food systems at local, national and international levels; 5. Increase the resilience of livelihoods to threats and crises. Cross-cutting themes are gender and governance. Cf. FAO (2013).

[11] https://www.unenvironment.org/about-un-environment (last accessed on 15.05.2019). The mandate was first established in 1972 in the UN General Assembly Resolution 2997 (XXVII) which established UNEP; other resolutions reinforced this mandate, including the Nairobi Declaration on the Role and Mandate of the United Nations Environment Programme of 7 February 1997 and the Malmö Ministerial Declaration of 31 May 2000.

[12] https://www.unenvironment.org/explore-topics (last accessed on 15.05.2019).

the context of the **SDGs** and will support their implementation. To this end, the strategic plan links, among others, target 15.3 to the targets of the strategic plan, such as the restoration of degraded wetlands.

Despite the importance of wetlands in achieving LDN and the experience with prevention of land degradation or restoration of degraded wetlands, the role of the Ramsar Convention in SDG implementation is weak. The Ramsar Secretariat has already identified **opportunities to work with the CCD** towards LDN, e.g. on the LDN Target Setting Programme. Specific measures and activities to better link these two important international fora are still missing. The Ramsar Convention and Secretariat should in future be more involved in activities regarding LDN implementation.

Soil Conservation Protocol to the Alpine Convention

The 1998 Soil Conservation Protocol is the **only legally binding international treaty regulating exclusively soil protection on a regional level**. It has been adopted to implement the Alpine Convention and has been ratified by all of its parties. It dedicates articles to specific **drivers of land degradation** (e.g. tourism, mineral extraction, agriculture and industries) and to **certain soil threats** (e.g. erosion and soil contamination). Besides, it provides for measures of more cross-cutting nature.

It aims to safeguard and preserve the ecological functions of soil both qualitatively and quantitatively as well as to promote the restoration of impaired soils. Despite these ambitious objectives, the Soil Conservation Protocol is **largely preventive**. Although taking the measures is strictly required, parties still have some discretion in most areas. However, while some provisions are rather vague and general, others are sufficiently defined and unconditional and therefore even considered directly enforceable. These **self-executing norms** have to be applied by authorities and courts and can therefore have a strong impact.

The Soil Conservation Protocol responds to the specific needs of the parties and the Alpine region as an important and fragile ecosystem. The measures reflect a compromise between the parties – all developed countries – that **balances interests in the use and conservation of the Alpine region**. It is tailored for the Alpine region and cannot – at least not in content – be applied to other regions.

Maputo Convention

Adopted in 2003, the Maputo Convention entered into force in 2016 without attracting much attention. Notably, it has one **article dedicated to land degradation and soil conservation**. Its instruments overlap with those contained in the CCD, but increase the level of commitment. Its text is based on a proposal developed and submitted by the International Union for Conservation of Nature. To what extent the parties will identify with the convention remains to be seen. Up to now, the institutions have not picked up work and parties have not started with implementation.

Key instruments are **long-term integrated strategies for land resources and land-use plans**. Agricultural activities have been identified as one important driver for land degradation in Africa. Hence, the Convention formulates more detailed requirements for the implementation of agricultural practices and agrarian reform. Other forms of land use are only addressed on a more general level - they shall not result in erosion, pollution, or any other form of land degradation. Besides these requirements focusing on prevention, the Convention also establishes obligations related to rehabilitation. For areas affected by land degradation, parties have to plan and implement mitigation and rehabilitation measures.

The article picks up on the conflicts around land tenure in many African countries and requires 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.

Conclusions and options

While the last few years have seen an increase in activities relating to international soil governance, there is **no general consensus that soil is an issue that calls for or requires *international* policy** and governance efforts. However, the SDGs might have the potential to change this to some extent.

Although they are not binding, the SDGs and in particular the "land degradation neutrality" (LDN) target in SDG 15.3 have established such **a central, global political point of reference** that should be supported. Although the LDN target on its own is not a comprehensive soil policy and has shortcomings, it is a useful starting point for guiding national policies and further work. While it might appear vague in terms of specific individual actions, government actions endorsing the SDGs and the follow-up process are politically relevant and help maintain the SDG's political weight.

Not least because of the lack of a general mandate regarding soil, there are almost no binding obligations for all states specifically regarding soil. At the same time, there does not appear to be political appetite for a treaty specifically on soil at least in the medium term. One option is to work towards **creating the right moment for a new treaty.** However, previous experience as well as the recent UN negotiations on addressing gaps in international environmental law indicated a significant reluctance of state to work towards a new binding instrument.

The **main substantive governance gap** is the absence, or inadequacy of transparency and review mechanisms at the *international* level. SDG monitoring, CCD and CBD reporting are not sufficient in their present form. The main opportunity for improving international governance *within* exiting regimes relates to requirements and guidance regarding communication of national strategies and plans, reporting on implementation and review. Each of the relevant regimes and institutions provides further specific options.

Regarding **guidance for national land and soil policies**, the existing framework and international guidance can already be used to assess and strengthen national strategies and policies. The LDN target could be regarded as the core of what is required to operationalise a generic soil policy at national level. In particular, achieving LDN requires a forward-looking planning element. The existing guiding documents could be checked for duplications, coherence and gaps, and be consolidated. Gaps to be addressed could include a fresh look at which soil policies and measures that are feasible even where land (tenure) rights are an issue.

With regard to **means of implementation**, the existing channels for finance and other support seem work well by and large, and are complemented by new channels. Substantial finance for implementing LDN and soil governance is channelled through bilateral aid and the GEF as well as relatively new channels such as the Green Climate Fund and the LDN Fund. However, better capacity is needed e.g. regarding knowledge about existing support channels, project and programme design and application procedures. Moreover, opportunities should be explored for reducing misaligned subsidies.

Apart from the SDGs, there is no general mandate or central point of reference for soil governance at the international level, either in political or normative terms. **Current governance of soil at the international level is piecemeal** and spread over parts of different mandates. There is significant overlap of mandates and activities of relevant institutions, while at the same time each of them has limitations. Improving soil governance at the international level therefore includes options for enhancing coordination and coherence. **A clearer division of labour** between the institutions addressing soil holds significant potential for improving international soil governance. While a certain degree of a rudimentary division of labour is emerging, there is scope and a need for advancing this further. A more robust coordinating forum could be developed in the medium- to long-term.

The following **specific options** for improving international soil governance are **directed to the German Government** and **clustered** as follows:

- Overarching issues: Improving international framework conditions for soil policy
- New treaty or institutions
- Improving existing governance
- Means of implementation
- Enhancing co-ordination and coherence.

Overarching issues: Improving international framework conditions for soil policy

- Maintain and actively support the recognition at the international level that soil is an international issue and not a purely domestic matter.
- Support the SDG process politically (notwithstanding its shortcomings) as a political reference point for other fora and processes.
- If the General Assembly follows the recommendation that the UN Environment Assembly UNEA-5 should prepare a political declaration on the environment, it should be explored whether there is an opportunity and added value to address soil.
- Consider how the significance of the global land footprint for soil policy could be better recognised. This could increase the incentive for countries in the Global South to participate in the strengthening of international soil governance. Displaced land use should e.g. be put higher on the policy agenda, for instance by taking it into account when developing potential further guidance on implementing Land Degradation Neutrality.
- Explore and identify, e.g. through studies, soil policies and measures that are feasible even where land (tenure) rights are an issue.

New Treaty or institutions

- In medium to long term, work towards creating the political conditions for new binding instrument such as a treaty on soil protection, in order to address gaps and shortcomings in current governance.

Improve existing soil governance within existing fora

- Gradually shape the CCD more towards the model of the Paris Agreement through strengthening transparency and review: Push at the CCD for specific requirements, decisions and guidance on transparency for all parties regarding their national soil policies and implementation. This should include requirements and guidance on preparing and submitting national strategies and plans, reporting on implementation, and for reviewing these plans and the reports at the international level.
- Support that parties who have not yet done so engage in the CCD's voluntary LDN Target Setting, which would actively endorse a more comprehensive understanding of the CCD's mandate and approach.
- Support FAO allocating greater strategic importance to soils; carrying out an internal consistency check on potential conflicts and synergies between the organisation's policies and programmes and sustainable soil management; and scaling up efforts (including donor funding) for implementing the Voluntary Guidelines on Sustainable Soil Management.
- Step up UNEP's work and capacities on soil protection, using the UNEA Resolution on soil pollution as entry point.
- Option: In the UNFCCC, feed in, through the EU, views on soil protection, using the findings of the UFCCC special report and the Koronivia joint work and roadmap.

Means of implementation

- Improve capacity building for accessing international support, in particular through information and technical assistance.
- Promote political commitments that governments as well as international organisations like the World Bank should rationalise, reduce and eliminate subsidies that are incompatible with sustainable soil management. The approach could build on the SGDs which address specific types of unsustainable subsidies.

Enhancing coordination and coherence

- Increase coordination between the relevant institutions addressing soil, notably the CCD, CBD, Paris Agreement, the Ramsar Convention, FAO/GSP, UNEP, with a view of expanding soil governance to cover all biomes, soil types and drivers of soil degradation.
- A more robust coordinating forum could be developed in the medium-term, with a mandate designed to coordinate and promote international soil governance.
- While there is no lack of general substantive guidance for national soil policies, the existing guiding documents could be checked for duplications and coherence and, if necessary, be consolidated, for instance in a non-binding instrument. Additional guidance could be added on certain issue areas that are currently not addressed, such as land degradation by industry or urbanization. This could be discussed by the CCD's Inter-Agency Advisory Group, which might require an adjustment of its mandate.
- FAO to assess the International Soil Biodiversity Initiative: Explore why the FAO has so far not assessed the International Soil Biodiversity initiative.
- An international assessment of options for international soil policies should be carried out, e.g. by FAO and the Global Soil Partnership, on what would be needs and options for international soil governance.

Zusammenfassung

Das Ziel dieser Studie ist zu untersuchen, ob und inwiefern die internationale Bodengovernance kurz-, mittel- und langfristig gestärkt und verbessert werden kann. Die Studie hat zwei aufeinander aufbauende Teile: Sie beginnt mit einer Bestandsaufnahme und Bewertung bestehender internationaler und regionaler Instrumente und Institutionen, die für Bodenschutz und Bodengovernance auf internationaler Ebene relevant sind. Dazu gehört auch die Bewertung der tatsächlichen und potentiellen Steuerungswirkung dieser Instrumente und Institutionen. Darauf aufbauend zeigt die Studie Optionen für die Bunderegierung zur Stärkung der internationalen Bodengovernance.

Die Studie behandelt den Schutz des *Bodens*. Der Begriff „Boden" ist nicht allgemein synonym mit dem Begriff „Land", der gewöhnlich nicht nur bodenbezogene Fragen umfasst, sondern auch weitere Dimensionen und Interaktionen mit Vegetation. In diesem Sinn hängt Bodenschutz oft eng zusammen und überschneidet sich mit Landnutzung und -management. Das ist insbesondere wichtig für das nachhaltige Entwicklungsziel 15.3, „land degradation neutrality" zu erreichen, das der Ausgangspunkt für die Bestandsaufnahme in dieser Studie ist.

Die wichtigsten Erkenntnisse aus der Bestandsaufnahme

Der SDG-Prozess als globaler Referenzpunkt für die internationale Bodengovernance

Mit der von der UN-Generalversammlung im September 2015 verabschiedeten Agenda 2030 hat die Staatengemeinschaft einen Referenzrahmen für nachhaltige Entwicklung geschaffen und 17 Ziele für eine nachhaltige Entwicklung (Sustainable Development Goals – SDGs) gesetzt. Mit dem Ziel 15.3 haben sich alle Staaten darauf geeinigt, bis 2030 „**land degradation neutrality (LDN)**" anzustreben. Obwohl die SDGs kein rechtsverbindlicher völkerrechtlicher Vertrag sind, begründen sie schon wegen ihrer Annahme durch die UN-Generalversammlung eine starke politische Verpflichtung. Es liegt an den Staaten, die Ziele entsprechend ihren nationalen Gegebenheiten zu konkretisieren und umzusetzen. Die UN unterstützt die Umsetzung und ist eine Anlaufstelle für Daten- und Erfahrungsaustausch sowie für Kontrolle des Fortschritts bei der Umsetzung.

Das sog. **Hochrangige Politische Forum für nachhaltige Entwicklung** (High-Level Political Forum – HLPF) der UN spielt eine zentrale Rolle bei der Überwachung und Überprüfung der SDGs auf globaler Ebene. Es tagt jedes Jahr unter der Schirmherrschaft des Wirtschafts- und Sozialrates, und alle vier Jahre treffen sich die Staats- und Regierungschefs zu einem Nachhaltigkeitsgipfel im Rahmen der Generalversammlung. Die Begleitung und Überprüfung des Umsetzungsprozesses beruht auf jährlichen Berichten des UN-Sekretariats zu allgemeinen Trends an das Hochrangige Politische Forum. Darüber hinaus werden alle Staaten ermutigt, ihre Fortschritte bei der Umsetzung der SDGs auf nationaler Ebene regelmäßig zu überprüfen.

Um die Staaten bei der Vorbereitung der Überprüfungen zu unterstützen, hat der UN-Generalsekretär im Jahr 2015 Leitlinien herausgegeben, die 2017 aktualisiert wurden. Zudem hat die Abteilung der UN für wirtschaftliche und soziale Angelegenheiten (UN Department of Economic and Social Affairs – UN DESA) 2018 ein Handbuch veröffentlicht. Da die regelmäßigen Überprüfungen jedoch zum einen freiwillig sind und zum anderen durch die Länder selbst durchgeführt werden, gewährleisten sie kaum Transparenz und Kontrolle.

Seit 2016 haben bereits mehrere Länder **freiwillige nationale Umsetzungsberichte (Voluntary National Reviews – VNRs)** vorgelegt, einige sogar zwei- bis dreimal. Diese Berichte enthalten Informationen über den nationalen Umsetzungsprozess für die SDGs und sie bieten den Staaten zudem die Gelegenheit, auf erzielte Erfolge hinzuweisen. Die Berichte unterliegen weder einem Peer Review noch werden sie sonst auf Richtigkeit und Vollständigkeit überprüft. Sie geben weder einen Überblick über die erlassenen Maßnahmen, noch enthalten sie Informationen über deren Erfolg. Momentan sind die

freiwilligen nationalen Umsetzungsberichte jedoch der einzige Mechanismus, um die Umsetzung der SDGs zu verfolgen und zu überprüfen.

Auf Grundlage von Vorarbeiten der CCD und des Rio+20 Ergebnisdokuments wurde mit den SDGs und insbesondere dem **Ziel 15.3 zu LDN ein globaler Referenzpunkt für Bodenpolitik** geschaffen. Das LDN-Ziel umfasst alle Bodenbedrohungen und Treiber von Bodenverschlechterung. Dagegen beschränken sich die Mandate internationaler Regime und internationaler Organisationen, wie der Rio-Konventionen und der Welternährungsorganisation, auf bestimmte Bodenbedrohungen, was zu einer Zersplitterung der Verantwortlichkeiten führt. Versuche, einen **völkerrechtlichen Vertrag zum Bodenschutz oder ein Bodenprotokoll** unter einem der existierenden Verträge auf die politische Agenda zu setzen, sind bisher gescheitert.

Die SDGs und das LDN-Ziel allein stellen kein umfassendes Regime für Bodenschutz dar, da sie nicht konkret genug, verbindlich oder institutionell verankert sind. Aber zumindest schreiben sie den globalen Konsens über das Ziel des Bodenschutzes fest und sind politischer Referenzpunkt für die weitere Arbeit in bestehenden Regimen und Institutionen.

UN-Konvention zur Bekämpfung der Wüstenbildung - CCD

Die UN-Konvention zur Bekämpfung der Wüstenbildung (UN Convention to Combat Desertification – CCD) ist der einzige internationale Vertrag, der sich speziell mit landbezogenen Fragen befasst und insofern auch für Bodenschutz betrifft. Der Anwendungsbereich ist jedoch auf Trockengebiete beschränkt. Diese Beschränkung ergibt sich aus einer komplizierten Mischung an geografischen und fachlichen Kriterien in den Bestimmungen der CCD zu Zielen, Definitionen und Maßnahmen.

Die zentrale rechtliche Pflicht unter der CCD besteht darin, sog. **Nationale Aktionsprogramme (NAPs)** zu erstellen, veröffentlichen und umzusetzen. Die Verpflichtung gilt für betroffene Entwicklungsländer und die betroffenen Vertragsparteien, die unter einen der regionalen Anhänge der CCD fallen. Andere Vertragsparteien können freiwillig NAPs erstellen. Bisher haben die Nationalen Aktionsprogramme aufgrund praktischer Einschränkungen und struktureller Probleme **wenig Wirkung** gezeigt. Die Vertragsparteien stecken ihre finanziellen und personellen Ressourcen vorrangig in die Erarbeitung der NAPs und die Berichterstattung, so dass es für die Umsetzung an Kapazitäten fehlt. Zudem stellen die Nationalen Aktionsprogramme bisher kaum sicher, dass die Bekämpfung von Wüstenbildung und Landverschlechterung in Planungs- und Entscheidungsprozessen in anderen Politikbereiche integriert wird.

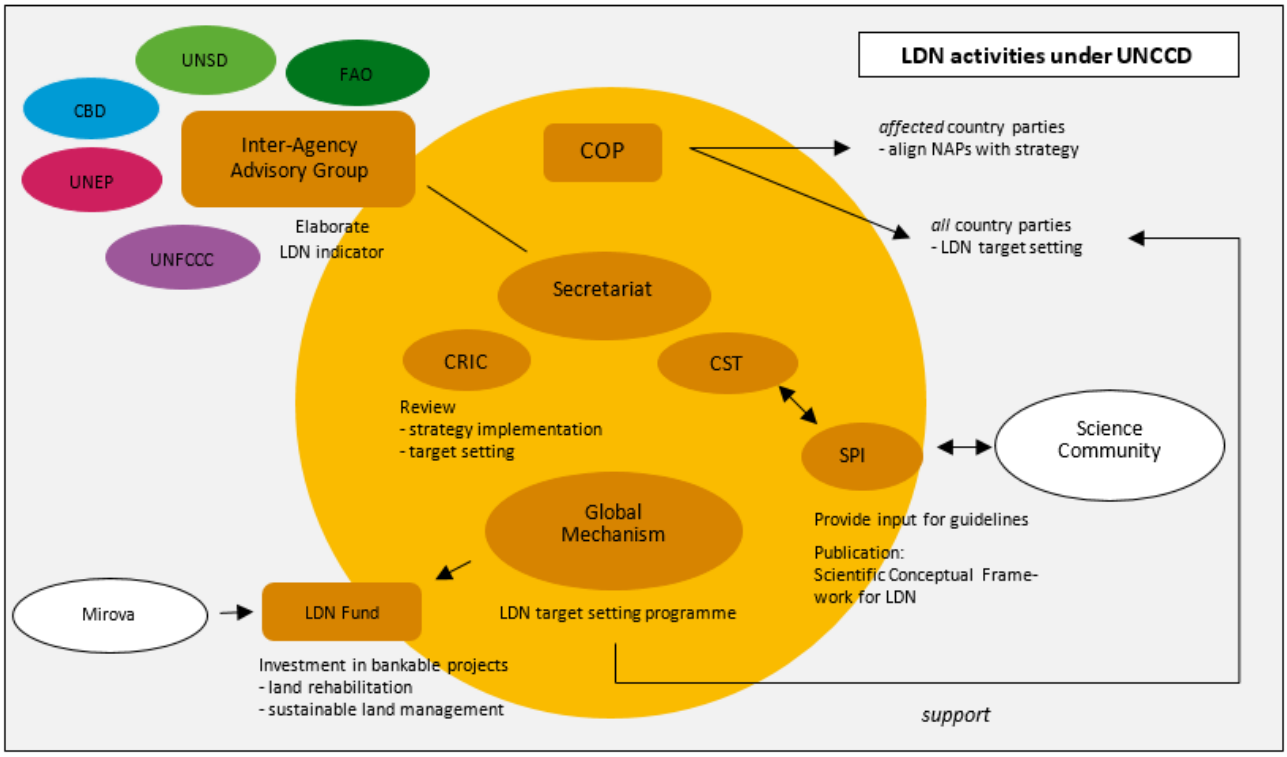
Um insbesondere betroffene Entwicklungsländer bei der Umsetzung zu unterstützen, enthält die CCD allgemeine Bestimmungen zur finanziellen und technischen Unterstützung und trifft institutionelle Vorkehrungen. Der sog. „Global Mechanism“ soll für die Bereitstellung finanzieller Ressourcen sorgen, indem er Gelder von Industriestaaten oder aus anderen Quellen mobilisiert. Er ist allerdings keine eigenständige Institution und verfügt nicht über eigene finanzielle Mittel. Der „Global Mechanism“ war jedoch maßgeblich an der Gründung des **LDN-Fonds** beteiligt, der von einem privaten Investitionsmanagementunternehmen verwaltet wird und 2017 mit einem Kapital von 100 Mio. USD eingerichtet wurde. Darüber hinaus finanziert die **Globale Umweltfazilität (Global Environmental Facility – GEF)** seit ihrer Umstrukturierung im Jahr 1994 Aktivitäten zur Bekämpfung von Bodenverschlechterungen und ist seither auch offizieller Finanzierungsmechanismus für die CCD. In der 7. Aufstockung des GEF für den Zeitraum 2019 bis 2022 sind 475 Mio. USD für das Schwerpunktgebiet Landdegradation vorgesehen.

Die Umsetzung der CCD orientiert sich an einer **Strategie**, die 2007 für den Zeitraum von 2008 bis 2018 entwickelt und 2017 für den **Zeitraum 2018 bis 2030** weiterentwickelt wurde. Die von Wüstenbildung und Landdegradation betroffenen Vertragsstaaten wurden 2007 aufgefordert, ihre Nationalen Aktionsprogramme an die strategischen und operativen Ziele der Strategie anzupassen. Bis 2017 hatten jedoch nur 20 Prozent dieser Staaten den Anpassungsprozess abgeschlossen. Die Strategie wurde mit ihrem Erlass auch zum Bezugspunkt für die Berichterstattung im Rahmen der CCD. Da

der **NAP-Anpassungsprozess** aber nur langsam voranschreitet, können auch die Berichte und Überprüfungen derzeit keine Informationen über die Umsetzung der Nationalen Anpassungsprogramme liefern.

Die CCD legte den Grundstein für die Entwicklung und Etablierung des LDN-Konzepts in den SDGs. Nach deren Verabschiedung beanspruchte sie die Führungsrolle bei der Umsetzung des LDN-Ziels 15.3. Sie hat LDN in ihre Arbeit integriert, unterschiedliche Aktivitäten initiiert (für eine Übersicht siehe **Error! Reference source not found.**) und u.a. das sog. Target Setting Programme aufgesetzt und Leitfäden erarbeitet. Außerdem hat die CCD einen wissenschaftlichen konzeptionellen Rahmen[13] veröffentlicht, der für alle Landtypen gedacht ist und die nationale Umsetzung von LDN unterstützen soll.[14] Die CCD könnte weiterhin die Führungsrolle für die Umsetzung des LDN-Ziels übernehmen und könnte Mittler sein für Diskussionen über bodenbezogene Themen zwischen Entwicklungsländern und Industriestaaten.

Figure 3: LDN activities under the CCD



Source: Own figure, Ecologic Institute

Biodiversitätskonvention der Vereinten Nationen - CBD

Das 1992 verabschiedete Übereinkommen über die biologische Vielfalt (Convention on Biological Diversity –CBD) ist der wichtigste internationale Vertrag über die biologische Vielfalt. Zu seinen Zielen gehören der Erhalt der biologischen Vielfalt und nachhaltige Nutzung ihrer Bestandteile sowie eine gerechte Aufteilung der Vorteile, die sich aus der Nutzung genetischer Ressourcen ergeben.

Während die Bodenbiodiversität zweifellos einen wesentlichen Teil der Biodiversität ausmacht, erscheinen die Begriffe "Boden", "nachhaltige Bodennutzung" oder "nachhaltige Bodenbewirtschaftung"

[13] Orr et al. (2017). See also Cowie et al. (2017) at 25. See generally CCD, *About the scientific conceptual framework for land degradation neutrality*, https://knowledge.unccd.int/knowledge-products-and-pillars/guide-scientific-conceptual-framework-ldn/about-scientific (last accessed 15.05.2019).

[14] CCD decision 18/COP.13 paras 1-2.

weder im Rechtstext der CBD noch werden sie in anderen CBD-Dokumenten hervorgehoben. Außerdem ist Bodenbiodiversität nur einen Teilaspekt der nachhaltigen Bodenbewirtschaftung. Dennoch wurde Bodenbiodiversität bereits kurz nach Annahme der CBD als ein Bereich identifiziert, der besondere Aufmerksamkeit erfordert.

Darüber hinaus fördern sowohl der übergreifende Ökosystemansatz des CBD, der seit 2000 entwickelt wird, als auch die 2004 verabschiedeten Addis-Abeba-Leitlinien einen ganzheitlichen Ansatz für die Erhaltung und nachhaltige Nutzung der biologischen Vielfalt, indem sie die Natur und die Ökosysteme mit dem Menschen verknüpfen. Die 2010 verabschiedeten Aichi-Ziele gestalten sowohl den Ökosystemansatz als auch die Grundsätze für eine nachhaltige Nutzung mit einem konkreten Rahmen bestehend aus Zielen, Zeitvorgaben und Indikatoren aus.

Im Jahr 2002 verständigten sich die Vertragsparteien darauf, als Teil ihres Arbeitsprogrammes zur landwirtschaftlichen Biodiversität eine Internationalen Initiative zur Erhaltung und nachhaltigen Nutzung der biologischen Vielfalt des Bodens zu gründen (International Soil Biodiversity Initiative, verwaltet von der FAO). Diese Initiative forderte die Vertragsstaaten auf, die Erhaltung und nachhaltige Nutzung der Bodenbiodiversität in ihre nationalen Biodiversitätsstrategien zu integrieren.

Ein Großteil der Vertragsstaaten hat es jedoch bisher versäumt, dies auch umzusetzen.[15] Nur wenige Regierungen und internationale Organisationen haben tatsächlich die Initiative ergriffen und nationale oder internationale Maßnahmen zur Bodenbiodiversität entwickelt.[16] Zudem stehen weder der Boden noch auf seinen Schutz abzielende Themen (wie Erosion oder Verschmutzung durch überschüssige Nährstoffe) in den nationalen Umsetzungsberichten, die die Vertragsstaaten regelmäßig vorlegen müssen, im Vordergrund.[17]

Insgesamt sind die Aktivitäten des CBD und des Sekretariats zwar für eine nachhaltige Bodenbewirtschaftung förderlich, die Umsetzung durch die Vertragsstaaten bleibt jedoch im Hinblick auf die Bodenbiodiversität relativ schwach. Das Übereinkommen befasst sich auch nicht umfassend mit der Bodenbiodiversität und der Rolle der Böden für die biologische Vielfalt. Mit Ausnahme der International Soil Biodiversity Initiative wird der Boden meist nur indirekt von der CBD bearbeitet. Daher dürfte die Rolle der CBD im Rahmen einer internationalen Bodengovernance gering bleiben.

Das Pariser Abkommen und das Klimaregime

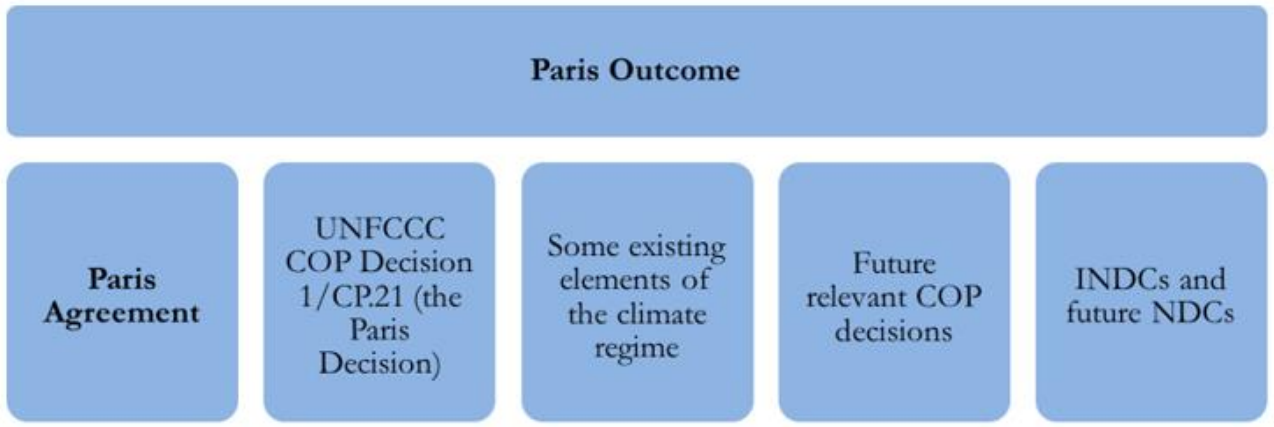
Das Pariser Abkommen wurde am 12. Dezember 2015 unter der Klimarahmenkonvention der Vereinten Nationen (United Nations Framework Convention on Climate Change – UNFCCC) angenommen. Es trat am 4. November 2016 in Kraft und ist mit seinen derzeit 185 Parteien nahezu universell. Es ergänzt die Klimarahmenkonvention und das Kyoto-Protokoll und übernimmt bestehende Elemente des Klimaregimes.

[15] Pisupati and Prip (2015).

[16] Orgiazzi et al. (2016).

[17] See in detail at https://www.cbd.int/reports/search/ (last accessed on 15.05.2019) or the syntheses of the forth National Reports: UNEP/CBD/COP/10/INF/2 (2010), UNEP/CBD/COP/10/8 (2010), UNEP/CBD/WG-RI/3/INF/1 (2010); on the third National Reports: UNEP/CBD/WG-RI/2/INF/1 (2007) and UNEP/CBD/WG-RI/2/INF/1/Add.3 (2007).

Figure 4: Ergebnisse von Paris



Quelle: Bodle and Oberthür (2017)

Die Pariser Abkommen legt als Ziel fest, die globale Erwärmung deutlich unter 2 Grad Celsius zu halten und sich darüber hinaus um eine Begrenzung auf 1,5 Grad zu bemühen. Die **Kernverpflichtungen**, um diese übergreifenden Ziele zu erreichen, sind im Wesentlichen prozessual: Die Vertragsstaaten sind verpflichtet, alle fünf Jahre nationale Klimapläne (Nationally Determined Contributions – NDCs) zu erarbeiten und vorzulegen, mit denen der nationale Beitrag zu den übergreifenden Zielen dargelegt wird. Die Vertragsstaaten müssen Maßnahmen ergreifen, um diese nationalen Klimapläne umzusetzen. Es gibt auch Bestimmungen zur Anpassungsplanung. Die Vertragsstaaten müssen regelmäßig über ihre Treibhausgasemissionen, ihre Fortschritte bei der Umsetzung der nationalen Klimapläne und über die Klimafinanzierung berichten. Alle fünf Jahre findet eine "Globale Bestandsaufnahme" statt, um die gemeinsamen Fortschritte bei der Erreichung der Ziele des Pariser Abkommens zu bewerten.

Das Klimaregime einschließlich des Pariser Abkommens enthält mehrere Bestimmungen, allgemeine Verpflichtungen sowie institutionelle Vorkehrungen zur **finanziellen und sonstigen Unterstützung** von Entwicklungsländern. Die Industrieländer haben sich verpflichtet, ab 2020 und mindestens bis 2025 gemeinsam 100 Milliarden US-Dollar pro Jahr aus verschiedenen Quellen zu mobilisieren.

Landnutzung, Landverödung und nachhaltige Landbewirtschaftung sind eng mit dem Klimawandel verbunden. Landbasierte Ökosysteme absorbieren und speichern CO2 und gehören zu den bedeutendsten Senken von Treibhausgasen, während gleichzeitig Landnutzung und Landnutzungsänderungen eine der wichtigsten Quellen von Treibhausgasemissionen sind. Unter der Klimarahmenkonvention und dem Kyoto-Protokoll wurden Regeln zur Berichterstattung und **Bilanzierung** von Emissionen aus Landnutzung, Landnutzungsänderung und Forstwirtschaft (LULUCF) angenommen. Diese Regeln legen fest, wie die Parteien LULUCF in ihren Treibhausgasinventaren anrechnen müssen, was außerdem unter dem Kyoto Protokoll für die Überprüfung maßgebend ist, ob die Vertragsstaaten ihre Emissionsminderungsziele erreichen. Darüber hinaus sollen Maßnahmen zur "Reduktion von Emissionen aus Entwaldung und Walddegradierung in Entwicklungsländern (REDD+)" zu "ergebnisbezogenen Zahlungen" führen. Das Pariser Abkommen enthält allerdings **keine spezifischen boden- oder flächenbezogenen Verpflichtungen**. Aber es enthält relevante Bestimmungen über Senken und Speicher, über Anpassung, sowie über Berichterstattung und Bilanzierung. Darüber hinaus hat die erste Entscheidung der Vertragsstaatenkonferenz zur Landwirtschaft im Jahr 2017 dieses Thema in den Verhandlungsprozess eingebracht. Ein **IPCC**-Sonderbericht über Klimawandel, Wüstenbildung, Bodendegradation, nachhaltige Landbewirtschaftung, Ernährungssicherheit und Treibhausgasemissionenströme soll Mitte 2019 vorgelegt werden. Die Rolle und Bedeutung von Böden im Klimaregime dürfte wachsen.

Welternährungsorganisation - FAO

Die Welternährungsorganisation (Food and Agricultural Organisation – FAO) wurde 1945 als Sonderorganisation der Vereinten Nationen für Ernährung und Ernährungssicherheit gegründet. Die FAO bezeichnet sich selbst als "die führende Institution der Vereinten Nationen für Bodenfragen"[18] und kann als zentrale Anlaufstelle für bodenbezogene Aktivitäten angesehen werden, wenn auch mit einem traditionellen Schwerpunkt auf landwirtschaftlichen Böden. In den letzten Jahren wurden jedoch bei der FAO Bemühungen unternommen, den Schwerpunkt zu verlagern und einen ganzheitlichen Ansatz für Böden als Träger von Ökosystemdienstleistungen zu verfolgen. Dieser Wahrnehmungswandel hat zur Überarbeitung normativer Instrumente wie der Weltboden-Charta (World Soil Charter), zur Entwicklung neuer Instrumente wie der Freiwilligen Leitlinien zum nachhaltigen Bodenmanagement (Voluntary Guidelines for Sustainable Soil Management – VGSSM) sowie zur Gründung der Globalen Bodenpartnerschaft (Global Soil Partnership – GSP) geführt.

Seit den 1950er Jahren beschäftigt sich die FAO mit der technischen Arbeit zu Böden, sowohl global als auch bilateral. Sie initiierte die Entwicklung der unverbindlichen Weltboden-Charta (1981) und fördert die „Global Soil Partnership“, die 2012 offiziell gegründet wurde. Letztere hat die nachhaltige Bodenbewirtschaftung durch verschiedene Aktivitäten unterstützt, etwa durch die Verbreitung von Informationen (z.B. die Erarbeitung des Berichts "Status der Bodenressourcen der Welt"[19]), durch die Einrichtung des sog. "Intergovernmental Technical Panel on Soils" sowie durch die Vorbereitung der Entwicklung und Überarbeitung der oben genannten normativen Instrumente. Nach Angaben der FAO wurden in den letzten 30 Jahren weltweit über 120 bodenbezogene Projekte durchgeführt, die sowohl über das reguläre FAO Programm als auch durch zusätzliche Haushaltsmittel (freiwillige Beiträge) finanziert wurden.[20]

Im Bereich der technischen Zusammenarbeit hat die FAO die Mitgliedstaaten in Bodenangelegenheiten sowohl von der Zentrale und von Regionalbüros aus, als auch vor Ort unterstützt. Dies geschah durch Projekte zur Untersuchung und Bewertung von Böden sowie Projekte zur Erstellung von Inventaren, zur Integration von Bodenschutzbelangen in die Raumordnung und zur nachhaltigen Bodenbewirtschaftung. Im Rahmen der Projekte wurden Schulungen durchgeführt und der Aufbau von Institutionen unterstützt.[21]

Zwar werden "Böden" in den strategischen Zielen der FAO[22] nicht ausdrücklich erwähnt, das Erreichen der meisten Ziele setzt jedoch einen gesunden Boden voraus. Da (bestimmte) Mitgliedstaaten der FAO Böden als nationale Ressource ansehen und Bedenken haben, Böden beispielsweise stärker zu überwachen, ist es fraglich, ob Böden in Zukunft eine prominentere Rolle unter der FAO spielen können. Die FAO und insbesondere die GSP kann jedoch weiterhin bei der Verbreitung von Informationen und der Entwicklung von technischen nicht rechtverbindlichen Leitlinien zu Boden eine wichtige Rolle spielen.

Umweltprogramm der Vereinten Nationen - UNEP

Das Umweltprogramm der Vereinten Nationen wurde 1972 "als maßgeblicher Anwalt für die globale Umwelt" gegründet, um "die kohärente Umsetzung der Umweltdimension der nachhaltigen Entwicklung innerhalb des Systems der Vereinten Nationen"[23] zu fördern. Der Schwerpunkt von UNEP liegt auf

[18] http://www.fao.org/soils-portal/resources/en/ (last accessed on 15.05.2019).

[19] FAO and ITPS (2015).

[20] FAO (2014).

[21] FAO (1983).

[22] The objectives include to: 1. Contribute to the eradication of hunger, food insecurity and malnutrition; 2. Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner; 3. Reduce rural poverty; 4. Enable more inclusive and efficient agricultural and food systems at local, national and international levels; 5. Increase the resilience of livelihoods to threats and crises. Cross-cutting themes are gender and governance. Cf. FAO (2013).

[23] https://www.unenvironment.org/about-un-environment (last accessed on 15.05.2019). The mandate was first established in 1972 in the UN General Assembly Resolution 2997 (XXVII) which established UNEP; other resolutions reinforced this

dem Zustand der Umwelt und Instrumenten zum Umweltschutz auf globaler, regionaler und nationaler Ebene.

Der Schwerpunkt der Arbeit von UNEP zu Böden liegt einerseits in der Bodenverschmutzung durch industrielle Tätigkeiten und andererseits in der Verschlechterung und Wiederherstellung von Böden. Obwohl "Böden" nicht wie "Luft" oder "Wasser" als eigenständiges Thema behandelt werden, bilden sie einen wichtigen Bestandteil verschiedener Themen wie etwa des Themas "Ökosysteme". Fragen des Bodenschutzes werden daher unter anderem in den Umweltinformationen und -bewertungen von UNEP behandelt (z.B. im Global Environment Outlook (GEO)), in der technischen Unterstützung der Mitgliedstaaten, in der jüngsten Kampagne "Towards a pollution-free planet" sowie in der Unterstützung des SDG Umsetzungsprozesses (insbesondere des Ziels 15.3) und der Wüstenkonvention.[24]

Durch die Veröffentlichung der World Soil Policy 1981 und die im Dezember 2017 von der Umweltversammlung der Vereinten Nationen (UNEA-3) verabschiedete Resolution zur Bodenverschmutzung hat UNEP bei der Entwicklung von Standards eine wichtige Rolle gespielt. Die Resolution zur Bodenverschmutzung ist das erste internationale Instrument diesen Ranges, das Bodenverschmutzung umfassend und nicht nur in Bezug auf bestimmte Schadstoffe abdeckt. UNEP ist auch Mitbegründer der Global Soil Partnership und beherbergt mehrere für den Bodenschutz relevante Sekretariate wie das Sekretariat der Übereinkommen von Basel, Rotterdam und Stockholm. Mit einem Fokus auf Bodenverschmutzung sollte UNEP auch künftig im Rahmen der internationalen Bodengovernance eine wichtige Rolle spielen.

Ramsar-Konvention

Die 1971 verabschiedete Ramsar-Konvention zum Schutz von Feuchtgebieten als Lebensraum für Wasservögel bildet heute die Grundlage für einen umfassenden und anspruchsvollen politischen Rahmen für die **Bewirtschaftung von Feuchtgebieten** im Allgemeinen. Sie zielt **nicht auf spezifische Treiber von Bodenverschlechterung**, sondern auf den Erhalt und die wohlausgewogene Nutzung von Feuchtgebieten durch lokale und nationale Maßnahmen sowie internationale Zusammenarbeit ab.

Generell sind die Parteien verpflichtet, Pläne zur Förderung der ausgewogenen Nutzung von Feuchtgebieten zu formulieren und umzusetzen. Für **Feuchtgebiete von internationaler Bedeutung**, d.h. Feuchtgebiete, die die Parteien für die Aufnahme in die **Ramsar-Liste** ausgewählt haben, wurde ein anspruchsvolles System entwickelt. Die Vertragsparteien müssen den Erhalt dieser Feuchtgebiete fördern und überwachen. Für den Fall, dass nachteilige Veränderungen des ökologischen Charakters auftreten oder wahrscheinlich auftreten werden, wird das Feuchtgebiet von internationaler Bedeutung dem sog. **Montreux-Record** hinzugefügt, wodurch internationale Unterstützung und Schutzmaßnahmen verstärkt werden. Die Vertragsstaaten müssen Schäden am Feuchtgebiet **verhindern oder sanieren**.

Die Treiber für die Landdegradation werden in strategischen Pläne behandelt, von denen der letzte im Jahr 2015 verabschiedet wurde und die Umsetzung zwischen 2016 und 2024 steuert. Der Plan wurde vor dem Hintergrund der SDGs entwickelt und wird deren Umsetzung unterstützen. Zu diesem Zweck verknüpft der strategische Plan seine Ziele, beispielsweise das Ziel der Wiederherstellung degradierter Feuchtgebiete, mit den SDGs, darunter Ziel 15.3 zu LDN.

Trotz der Bedeutung von Feuchtgebieten für die Erreichung von LDN und der Erfahrungen mit der Vermeidung von Bodendegradation oder der Wiederherstellung von geschädigten Feuchtgebieten ist die Rolle der Ramsar-Konvention bei der Umsetzung von SDGs schwach. Das Ramsar-Sekretariat hat bereits Möglichkeiten für eine Zusammenarbeit mit der CCD in Richtung LDN identifiziert, z.B. im Rah-

mandate, including the Nairobi Declaration on the Role and Mandate of the United Nations Environment Programme of 7 February 1997 and the Malmö Ministerial Declaration of 31 May 2000.

[24] https://www.unenvironment.org/explore-topics (last accessed on 15.05.2019).

men des LDN Target Setting Programme. Spezifische Maßnahmen und Aktivitäten zur besseren Verknüpfung dieser beiden wichtigen internationalen Foren fehlen noch. Die Ramsar Konvention und ihr Sekretariat sollten künftig in Aktivitäten zur Umsetzung des LDN-Ziels involviert werden.

Bodenschutzprotokoll der Alpenkonvention

Das Bodenschutzprotokoll von 1998 ist der **einzige rechtsverbindliche internationale Vertrag, der auf regionaler Ebene ausschließlich den Bodenschutz** regelt. Es wurde zur Umsetzung der Alpenkonvention erarbeitet und von allen ihren Vertragsstaaten ratifiziert. Es widmet sich in seinen Artikeln bestimmten **Treibern von Bodenverschlechterung** (z.B. Tourismus, Mineralgewinnung, Landwirtschaft und Industrie) und **bestimmten Bodenbedrohungen** (z.B. Erosion und Bodenkontamination). Außerdem sieht es Maßnahmen mit Querschnittscharakter vor.

Das Protokoll zielt darauf ab, die ökologischen Funktionen des Bodens qualitativ und quantitativ zu sichern und zu erhalten sowie die Wiederherstellung von beeinträchtigten Böden zu fördern. Trotz dieser ehrgeizigen Ziele hat das Bodenschutzprotokoll einen **weitgehend präventiven Charakter**. Obwohl die Vertragsstaaten zum Ergreifen von Maßnahmen verpflichtet werden, haben sie bei der Ausgestaltung in den meisten Bereichen einen Gestaltungsspielraum. Während einige Bestimmungen eher vage und allgemein sind, sind andere ausreichend bestimmt und gelten daher sogar als **unmittelbar anwendbar**. Sie müssen daher von Behörden und Gerichten angewendet werden und können daher eine starke Wirkung entfalten.

Das Bodenschutzprotokoll trägt den spezifischen Bedürfnissen der Vertragsstaaten und des Alpenraums als wichtigem und empfindlichem Ökosystem Rechnung. Die Maßnahmen spiegeln einen Kompromiss zwischen den Vertragsstaaten – alles Industriestaaten – wider, der einen **Ausgleich zwischen Nutzungs- und Erhaltungsinteressen im Alpenraum** schafft. Das Protokoll ist auf den Alpenraum zugeschnitten und kann – zumindest inhaltlich – nicht auf andere Regionen übertragen werden.

Maputo Abkommen

Das 2003 verabschiedete Maputo-Abkommen trat 2016 in Kraft, ohne viel Aufmerksamkeit zu erregen. Es hat unter anderem einen **Artikel, der Landverödung und dem Bodenschutz behandelt**. Seine Instrumente überschneiden sich mit denen der CCD, die Vorgaben sind jedoch konkreter. Der Text basiert auf einem Vorschlag, der von der Weltnaturschutzunion (International Union for Conservation of Nature – IUCN) entwickelt und vorgelegt wurde. Inwieweit sich die Vertragsstaaten mit dem Abkommen identifizieren werden, bleibt abzuwarten. Bislang haben weder die Institutionen ihre Arbeit aufgenommen, noch haben die Vertragsstaaten mit der Umsetzung begonnen.

Zentrales Instrumente sind **langfristige integrierte Strategien für Landressourcen und Landnutzungspläne**. Landwirtschaftliche Aktivitäten wurden als ein wichtiger Treiber für die Landverödung in Afrika identifiziert. Daher formuliert das Abkommen detailliertere Anforderungen an die Umsetzung landwirtschaftlicher Praktiken und an die Agrarreform. Andere Formen der Landnutzung werden nur auf einer allgemeineren Ebene behandelt – sie dürfen nicht zu Erosion, Verschmutzung oder einer anderen Form der Landverödung führen. Neben diesen Anforderungen, die sich auf die Prävention konzentrieren, legt das Abkommen auch Verpflichtungen zur Sanierung fest. Für die von der Landverödung betroffenen Gebiete müssen die Vertragsstaaten Maßnahmen zur Minderung und Sanierung planen und durchführen.

Der Artikel greift die Konflikte um die Bodenordnung in vielen afrikanischen Ländern auf und fordert die Vertragsstaaten auf, eine Politik zur Bodenordnung zu entwickeln und umzusetzen, die in der Lage ist, die Maßnahmen zur Verhinderung der Landverödung sowie zur Erhaltung und Verbesserung des Bodens zu erleichtern.

Schlussfolgerungen und Optionen

Zwar haben die Aktivitäten im Bereich des internationalen Bodenschutzes in den letzten Jahren zugenommen, doch besteht **kein allgemeiner Konsens, dass Boden ein Thema ist, das *internationale* Politik- und Governanceanstrengungen erfordert**. Die SDGs könnten jedoch das Potenzial haben, dies zu einem gewissen Grad zu ändern.

Obwohl sie nicht verbindlich sind, haben die SDGs und insbesondere das **LDN-Ziel in SDG 15.3 einen zentralen, globalen politischen Referenzpunkt** geschaffen, der unterstützt werden sollte. Obwohl das LDN-Ziel allein keine umfassende Bodenpolitik gewährleistet und Mängel aufweist, ist es ein brauchbarer Ausgangspunkt, nationale Politiken und weitere Arbeit anzuleiten. Auch wenn es in Bezug auf spezifische Einzelmaßnahmen vage erscheinen mag, sind staatliche Maßnahmen zur Unterstützung der SDGs und des Folgeprozesses politisch relevant und tragen dazu bei, das politische Gewicht der SDG zu erhalten.

Nicht zuletzt wegen eines fehlenden allgemeinen Mandats für den Boden gibt es fast keine verbindlichen Verpflichtungen für alle Staaten speziell zum Bodenschutz. Gleichzeitig scheint der politische Wille, einen Vertrag speziell für den Boden zu schaffen, zumindest mittelfristig nicht vorhanden. Allerdings besteht die Möglichkeit, darauf hinzuarbeiten, **den richtigen Zeitpunkt für einen neuen Vertrag zu schaffen**. Die bisherige Erfahrung dazu und die UN Verhandlungen darüber, Lücken im Umweltvölkerrecht zu schließen, zeigen eine gegenwärtig erhebliche Zurückhaltung der Staaten gegenüber einem neuen rechtsverbindlichen Instrument.

Eine **wesentliche Lücke in der internationalen Bodenpolitik** ist das Fehlen oder die Unzulänglichkeit von Transparenz- und Überprüfungsmechanismen auf *internationaler* Ebene. SDG-Monitoring, CCD- und CBD-Berichterstattung sind in der vorliegenden Form nicht ausreichend. Wichtige Anknüpfungspunkte zur Verbesserung der internationalen Governance *innerhalb* der bestehenden Regime sind Anforderungen und Leitlinien für die Übermittlung nationaler Strategien und Pläne, für die Umsetzungsberichte und für deren Überprüfung. Jedes der relevanten Regime und Institutionen bietet weitere spezifische Optionen.

Was die **Leitlinien für die nationale Bodenpolitik** betrifft, so können der bestehende Rahmen und die internationalen Leitlinien bereits zur Bewertung und Stärkung der nationalen Strategien und Politiken genutzt werden. Das LDN-Ziel könnte als Kern dessen angesehen werden, was für die Umsetzung einer allgemeinen Bodenpolitik auf nationaler Ebene erforderlich ist. Insbesondere erfordert die Umsetzung des LDN-Ziels ein vorausschauendes Planungselement. Die bestehenden Leitlinien könnten auf Duplikationen, Kohärenz und Lücken überprüft und im Anschluss konsolidiert werden. Um Lücken zu schließen, könnte auch neu überlegt werden, welche Bodenpolitiken und -maßnahmen auch dann möglich sind, wenn Landrechte eine Herausforderung darstellen.

Was die **Mittel zur Umsetzung** betrifft, so funktionieren die bestehenden Kanäle für Finanzen und andere Unterstützung im Großen und Ganzen anscheinend gut und werden durch neue Kanäle ergänzt. Umfangreiche Mittel für die Umsetzung von LDN und Bodenpolitiken werden über bilaterale Hilfe und über den GEF sowie über relativ neue Kanäle wie den Grünen Klimafonds und den LDN Fonds bereitgestellt. Allerdings sind etwa bessere Kenntnisse über bestehende Kanäle für Unterstützung, über die Konzipierung von Projekten und Programmen und über das Antragsverfahren erforderlich. Darüber hinaus sollten Möglichkeiten zum Abbau schädlicher Subventionen geprüft werden.

Jenseits der SDGs gibt es kein allgemeines Mandat oder einen zentralen Referenzpunkt für internationale Bodenpolitik, weder in politischer noch in normativer Hinsicht. Die **derzeitige Governance für Boden auf internationaler Ebene ist fragmentiert** und über verschiedene Mandate verteilt. Es gibt erhebliche Überschneidungen bei den Mandaten und Tätigkeiten der relevanten Institutionen, während gleichzeitig jede von ihnen Einschränkungen aufweist. Die Verbesserung der Bodengovernance auf internationaler Ebene erfordert eine Verbesserung von Koordination und Kohärenz und daher eine **klarere Arbeitsteilung zwischen den Institutionen**, die sich mit dem Boden befassen. Zwar

zeichnet sich eine rudimentäre Arbeitsteilung ab, doch bleibt die Notwendigkeit, diese weiter voranzutreiben. Mittel- bis langfristig könnte ein stärkeres Koordinationsforum entwickelt werden.

Die folgenden **Optionen** zur Verbesserung der internationalen Governance von Bodenschutz sind **an die Bundesregierung gerichtet** und wie folgt **gruppiert**:

- Übergreifende Themen: Verbesserung der internationalen Rahmenbedingungen für eine Bodenpolitik
- Neuer Vertrag oder neue Institutionen
- Verbesserung der bestehenden Governance
- Mittel zur Umsetzung
- Verbesserung der Koordination und Kohärenz.

Übergreifende Themen: Verbesserung der internationalen Rahmenbedingungen für die Bodenpolitik

- Die Anerkennung auf internationaler Ebene, dass Boden eine internationale und keine rein nationale Angelegenheit ist, aufrechterhalten und aktiv unterstützen.
- Politische Unterstützung des SDG-Prozesses (trotz seiner Mängel) als Referenzpunkt für andere Foren und Prozesse.
- Sofern die UN Generalversammlung der Empfehlung folgt, dass die UN Environment Assembly UNEA-5 eine politische Erklärung zur Umwelt vorbereiten soll, sollte geprüft werden, ob es eine Gelegenheit und einen Mehrwert gibt, darin Boden aufzunehmen.
- Erwägen, wie die Bedeutung des globalen Bodenfußabdrucks für die Bodenpolitik besser anerkannt werden kann. Damit könnte der Anreiz für die Länder des globalen Südens erhöht werden, internationale Bodengovernance zu unterstützen. Verlagerungseffekte sollte daher stärker auf die politische Agenda gesetzt werden, indem sie beispielsweise bei der Entwicklung möglicher weiterer Leitlinien für die Umsetzung des LDN-Ziels berücksichtigt werden.
- Bodenpolitiken und Maßnahmen, die auch bei problematischen Landrechten möglich sind, durch Studien erforschen und identifizieren.

Neuer Vertrag oder neue Institutionen

- Mittel- bis langfristig darauf hinarbeiten, die politischen Voraussetzungen für ein neues verbindliches Instrument wie einen völkerrechtlichen Vertrag zum Bodenschutz zu schaffen, um Lücken und Mängel in der derzeitigen Governance zu schließen.

Verbesserung der bestehenden Bodengovernance in bestehenden Foren

- Die CCD schrittweise stärker an dem Modell des Pariser Abkommens ausrichten, indem Transparenz und Überprüfung gestärkt werden: Unter der CCD auf spezifische Verpflichtungen, Entscheidungen und Leitlinien zur Transparenz über die nationale Bodenpolitik und ihre Umsetzung für alle Beteiligten drängen. Hierzu zählen Verpflichtungen und Leitlinien für die Erarbeitung und Übermittlung nationaler Strategien und Pläne, für die Umsetzungsberichte und für die Überprüfung dieser Pläne und Berichte auf internationaler Ebene.
- Unterstützen, dass Vertragsstaaten, die dies noch nicht getan haben, sich an dem freiwilligen LDN Target Setting Programme beteiligen, und damit ein umfangreicheres Verständnis des CCD Mandats aktiv befürworten.
- Unterstützen, dass die FAO den Böden eine größere strategische Bedeutung beimisst, eine interne Prüfung zu Konflikten und Synergien zwischen den eigenen Politiken und Programmen und einer nachhaltigen Bodenbewirtschaftung durchführt und die Bemühungen (einschließlich der Finanzierung) zur Umsetzung der Freiwilligen Leitlinien für nachhaltige Bodenbewirtschaftung verstärkt.
- Arbeit und Kapazitäten von UNEP zum Bodenschutz verstärken und hierzu auf der UNEA-Resolution zur Bodenverschmutzung aufbauen.

- Option: Im Rahmen der Klimarahmenkonvention, aufbauend auf den Ergebnissen des IPCC Sonderberichts und des Beschlusses zur Landwirtschaft (Koronivia Joint Work Agriculture), über die EU Vorschläge zum Bodenschutz einbringen.

Mittel zur Umsetzung

- Kapazitäten für den Zugang zu internationaler Unterstützung insbesondere durch Informationen und technische Hilfe verbessern.
- Politische Verpflichtungen von Regierungen und internationalen Organisationen wie der Weltbank zur Rationalisierung, Reduzierung und zum Abbau von Subventionen, die mit einer nachhaltigen Bodenbewirtschaftung unvereinbar sind, fördern.

Verbesserung der Koordination und Kohärenz

- Die Koordinierung zwischen den zuständigen Institutionen im Bereich Boden – insbesondere der CCD, der CBD, dem Pariser Abkommen, der Ramsar-Konvention, der FAO/GSP, und von UNEP – zur Ausweitung der internationalen Bodengovernance auf alle Böden, Treiber und Bodenbedrohungen verbessern.
- Mittelfristig ein robusteres Forum mit einem Mandat zur Koordinierung und Förderung der internationalen Bodengovernance entwickeln.
- Obwohl es an allgemeinen inhaltlichen Leitlinien für nationale Bodenpolitik nicht mangelt, bestehende Leitfäden auf Dopplungen und Kohärenz überprüfen und gegebenenfalls in einem nicht verbindlichen Instrument konsolidieren. Hinzufügen von zusätzlichen Leitlinien zu einzelnen Themenbereichen, die derzeit nicht behandelt werden, wie z.B. Bodenverschlechterung durch die Industrie oder Urbanisierung. Dies könnte durch die Inter-Agency Advisory Group unter CCD diskutiert werden, was allerdings u.U. eine Anpassung ihres Mandats erfordert.
- Die FAO soll die Internationale Initiative zur Erhaltung der biologischen Vielfalt im Boden bewerten. Prüfen, warum sie diesen bestehenden Auftrag bisher nicht ausgeführt hat.
- Eine internationale Bewertung von Optionen für eine internationale Bodengovernance anstoßen, etwa durch die FAO oder die Global Soil Partnership. Im Rahmen der Bewertung sollte festgestellt werden, welche Bedürfnisse und Optionen für eine internationale Bodengovernance bestehen.

1 Introduction

1.1 Background

Worldwide, the pressure on soil is increasing and the condition of soil is deteriorating.

According to estimates by the Food and Agriculture Organization (FAO), **land degradation already affects more than 20% of the world's population**. Further population growth, changing consumption and nutrition patterns, and an increasing demand for meat and renewable raw materials will increase the pressure on soil. Additional drivers are increasing urbanisation, armed conflicts and the associated migration as well as climate change. It is estimated that between 10 and 12 million hectares of fertile land are lost worldwide every year.[25] About 30% of the world's soils are affected by degradation. Also, 33% of grazing land, 25% of arable land and 29% of forest land are considered degraded.[26] Soil and land degradation is accompanied by the loss of ecosystem services, which is estimated to cost US$ 6.3-10.6 trillion annually. It is assumed that sustainable land and soil management can generate annual benefits of up to US$ 75.6 trillion.[27]

Soil loss and degradation are an expression of various processes triggered by increased pressure on soils. At the European level, the Commission identified eight **threats to soils**. These are erosion, organic matter decline, contamination, salinisation, compaction, soil biodiversity loss, sealing, landslides and flooding.[28] The FAO and the Intergovernmental Technical Panel on Soils (ITPS) further differentiate and complement acidification, desertification, crusting and waterlogging.[29]

Soil degradation is no longer perceived as a purely local phenomenon and has **slowly been moving onto the international political agenda** for some years now.[30] The Rio+20 outcome document recognised the desertification, land degradation and drought as "challenges of a global dimension", albeit not soil.[31] 2015 was the UN Year of Soil and that several soil-relevant goals are included in the Agenda 2030.[32] However, this development has so far hardly had any impact on the level of regulation under international law. The World Soil Charter adopted by the FAO in 1981[33] and updated in 2015[34] remained legally non-binding. Other international initiatives share the same fate: the International Initiative for the Conservation and Sustainable Use of Soil Biodiversity and the Aichi Targets within the CBD as well as the "Voluntary Guidelines on Sustainable Soil Management"[35] recently adopted by the Global Soil Partnership.

Although soil is one of the classic environmental media, there are very **few soil-specific binding instruments at the international level**.[36] The United Nations Convention to Combat Desertification (CCD) contains an obligation to draw up National Action Programmes, but only for affected country parties. Other treaties are limited in their scope of application, such as the Soil Conservation Protocol of the Alpine Convention (Alps region) and also the CCD (drylands). Other instruments only indirectly

[25] BMUB (2013).
[26] Nkonya et al. (2016).
[27] ELD Initiative (2015).
[28] European Commission (2002).
[29] FAO and ITPS (2015b).
[30] See http://www.fao.org/soils-2015/en/ (last accessed on 15.05.2019).
[31] UNGA Res. A/RES/66/288 "The future we want" of 11.09.2012, para 206.
[32] For information on the Agenda 2030 see https://sustainabledevelopment.un.org/ (last accessed on 15.05.2019).
[33] FAO Conference Resolution 8/81, adopted 25.11.1981, http://www.fao.org/unfao/govbodies/gsbhome/conference/resolutions/1981/en/ (last accessed on 15.05.2019).
[34] Adopted in revised form as FAO Resolution 5/2015, adopted 13.6.2015, http://www.fao.org/3/a-mn442e.pdf (last accessed on 15.05.2019); see http://www.fao.org/soils-2015/news/news-detail/en/c/293552/ (last accessed on 15.05.2019).
[35] FAO (2017a), available at http://www.fao.org/3/a-bl813e.pdf (last accessed on 15.05.2019).
[36] See Weigelt et al. (2012); Koch et al. (2013) at 434-441; Montanarella and Vargas (2012) at 559-564.

impact soil conservation as they have other objectives, as in the case of the CBD and the climate regime (UNFCCC).[37]

A possible reason could be that agriculture and forestry are among the topics that have so far been too **sensitive at international level** to reach consensus on binding obligations. External requirements for national land use policies are still seen as a violation of their sovereignty by many countries. On the one hand, transboundary impacts, which have triggered many international regulations, are less obvious when it comes to soil protection. Also, land and soil conservation may be regarded less a common concern than for example response to climate change.[38] Land and soil traditionally belong to the policy areas that are regulated nationally. In the EU, which has adopted many detailed legislative acts on environmental protection over the years, it took until 2006 for the first legislation specifically on soil to be tabled. The draft directive on soil protection did not get adopted for 8 years and was withdrawn in 2014 due to the resistance of individual Member States.[39] However, there are numerous soil-related provisions in other environmental EU legislation such as the Industrial Emissions Directive or the Environmental Liability Directive.[40]

So far, international efforts to protect soil have been limited to anchoring sustainable soil management in as many other policy areas as possible and using forums to put the issue on the international agenda. Since its founding in 2011, the FAO **Global Soil Partnership (GSP)** has become an important platform for sustainable soil management. The GSP's scientific advisory body, the Intergovernmental Technical Panel on Soils, made a major contribution to the revision of the World Soil Charter in 2013. It also produced the first "Status Report on Global Soil Resources"[41] in 2015 and developed the Voluntary Guidelines on Sustainable Soil Management in 2016.

Land degradation was also taken into account in the non-binding **Global Sustainability Goals (SDGs)** adopted by the UN General Assembly in September 2015. Notably, countries committed to “strive to achieve a land degradation-neutral world” by 2030 under target 15.3. Other SDGs, such as SDG 2 on food security and SDG 3 (healthy living) also play an important role in soil protection.

The current high level of recognition of soil issues in international sustainability policy is a good starting point for the further development of international soil protection law.

1.2 Objective and approach

The objective of this research project is to examine whether and how international cooperation between states for the purpose of sustainable soil management can be strengthened and improved in the short, medium and long term. The report has to two main parts: First, we take stock and assess existing international instruments and institutions that are relevant for soil protection, including an evaluation of their actual and potential steering effect. The study then develops options and recommendations to improve international soil governance that the German government could pursue. Ideas and preliminary results were tested and discussed at a workshop with experts for soil governance from various countries and institutions. We also interviewed selected experts in the field throughout the preparation of the study. The cut-off date for the report was 31.12.2018, although in some cases it includes more recent information, e.g. for the so-called Global Pact on the Environment.

The report addresses the protection of *soil.* The term "soil" is not generally synonymous with "land". Yet sometimes the terms “land” and “soil” are used interchangeably. In German, for example, "land" can be equally translated with words meaning land, area or soil (“Land”, “Fläche” and “Boden”). The

[37] See Ginzky (2015) at 199-208; Montanarella and Alva (2015).

[38] See Montanarella and Alva (2015).

[39] Proposal of a Soil Framework Directive, COM(2006) 232, withdrawn in 2014, OJ. C 153 of 21.5.2014, pp. 3-7.

[40] See overviews in Altvater et al (2018); Frelih-Larsen (2016).

[41] FAO & ITPS (2015b).

German Federal Soil Protection Act and most German laws generally use the term “soil” and do not have or address “land” as a distinct category.[42]

Generally, however, the term "land" is used to comprise not only soil-related issues, but also more dimensions and interactions with vegetation.[43] For instance, at the international level, the CCD considers that the term “land” comprises more than “soil”.[44] In this sense soil protection is often closely linked to and partly overlapping with the use and management of land. This is particularly relevant with regard to the sustainable development goal 15.3 of achieving land degradation neutrality, which is the starting point for the stocktake in this report.

[42] Bodle and Stockhaus (2019) at 20-21. On the functions covered by the term “soil” in the German Soil Protection Act see Erbguth/Schlacke, Umweltrecht, p. 373-375.

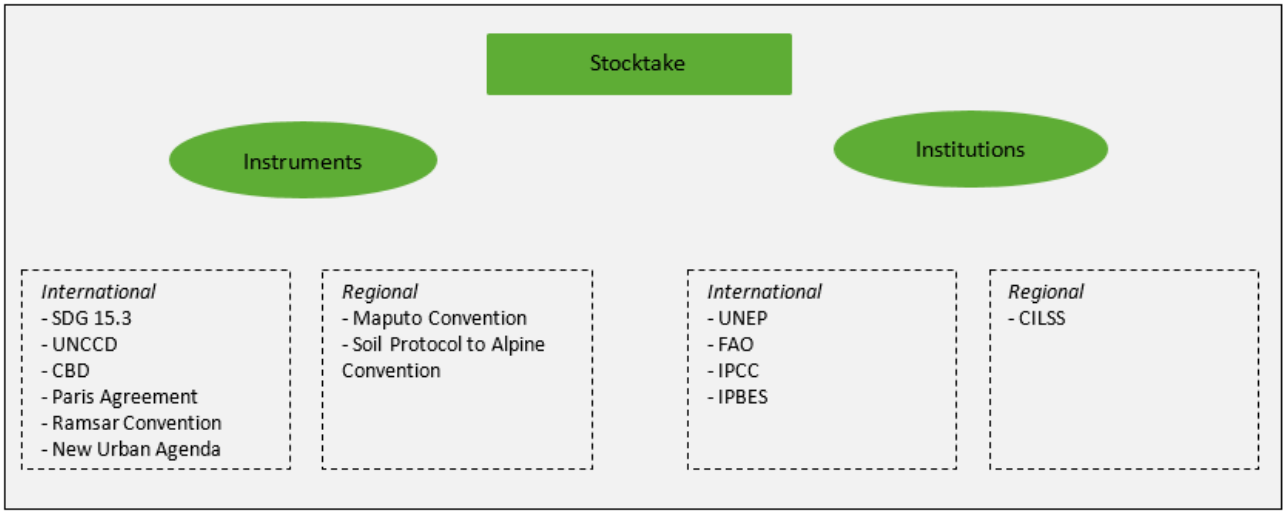
[43] Stavi and Lal (2015).

[44] Cf. the definition in Art. 1(e) CCD.

2 Stocktake of existing international soil governance

International soil governance is fragmented. Different instruments and institutions at the international and regional level cover different aspects of soil protection. For example, the Convention on Biological Diversity (CBD) is relevant for soil biodiversity, the Paris Agreement covers soil carbon and the Convention to Combat Desertification focuses on drylands and land degradation. With regard to institutions, the FAO has traditionally had a strong mandate for sustainable soil management, while the UN Environment Programme has been active regarding industrial pollution.

Figure 5: Overview of existing instruments and institutions for soil governance



Source: Own figure, Ecologic Institute

In addition to international instruments and institutions, regional instruments and institutions are also part of international soil governance. For example, the regional Maputo Convention has an article on land and soil that builds on the requirements under the CCD and renders them more specific for the African context.

None of these instruments and institutions provides an overarching or comprehensive framework for soil governance. Attempts to promote an **international treaty on soil or a protocol on soil** under one of the existing conventions have not gained political momentum so far. But the Sustainable Development Goals, adopted in 2015, provide a new reference point in international policy. The stocktake starts with this instrument.

2.1 Sustainable Development Goals

2.1.1 Analysis

In September 2015, the UN General Assembly adopted the Agenda 2030 to provide a framework for sustainable development. At its core are 17 Sustainable Development Goals (SDGs) that cover various topics relevant for international soil governance. Notably, with target 15.3 under SDG 15 all states agreed to strive to achieve a **land degradation neutral (LDN) world** by 2030. It builds on groundwork by the CCD and the Rio+20 outcome document of 2012, which had set the objective "in the context of sustainable development" and without a target year.[45]

[45] UNGA Res. A/RES/66/288 "The future we want" of 11.09.2012, para 206. See also below on the CCD.

While the SDGs are not a binding treaty, their adoption by the UNGA establishes at least a strong political commitment. Since their adoption, they have been mainstreamed in the work of international organisations. States have started to implement the SDGs according to their national circumstances.

2.1.1.1 Scope of application

We focus our analysis on "land degradation neutrality" in target 15.3. The **definition for LDN** as it is currently applied in the context of SDG implementation at the international level is identical to the definition developed under the auspices of the United Nations Convention to Combat Desertification that has been endorsed by COP12 in 2015. Accordingly, "Land degradation neutrality is a state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remain stable or increase within specified temporal and spatial scales and ecosystems."[46] This science-based definition has been drafted by the Intergovernmental Working Group (IWG).

In scientific and political contexts, there is no universally accepted definition or a uniform or consistent use of the term „land degradation".[47] Yet regardless of how exactly this is defined and measured, degradation of soil is always also degradation of land in terms of LDN. The LDN target is therefore highly relevant for international protection of soil.

Further guidance for understanding and implementing LDN is given by the **Scientific Conceptual Framework** developed by the Science-Policy Interface (SPI) again under the auspices of the CCD. It informs development of practical guidance for pursuing LDN and defines the appropriate steps and measures to be taken based on a **response hierarchy**. Actions to achieve LDN include land management approaches that avoid or reduce degradation, coupled with efforts to reverse degradation through restoration or rehabilitation of land that has lost productivity.[48] Via the Scientific Conceptual Framework, countries have sufficient guidance to start implementing the LDN target at national level.

To track progress towards LDN against the baseline, the **UN Statistical Division (UNSD)** has cooperated with the CCD and presented indicator 15.3.1 in March 2016: "Proportion of land that is degraded over total land area".[49] There is also a minimum consensus on **three sub-indicators**: land cover and land cover change, land productivity and carbon stocks in and above the soil. While these indicators may not be sufficient to achieve soil protection, they are an important first step. They determine the minimum standard as a baseline and leave sufficient flexibility for countries to apply it to national circumstances. Countries are not prevented from working applying additional indicators to raise their ambition.

2.1.1.2 Institutions

The SDGs have been adopted by the UN General Assembly. Under the auspices of the UN, several institutions are involved in the implementation of the SDGs:

- Mandated in 2012 by the United Nations Conference on Sustainable Development, the **High-level Political Forum on Sustainable Development (HLPF)** meets annually under the auspices of the Economic and Social Council including a ministerial segment and every four years at the level of Heads of State and Government under the auspices of the General Assembly.[50] The HLPF is the main United Nations platform on sustainable development and it has a central role in the follow-up and review of the 2030 Agenda and the SDGs at the global level.

[46] CCD Decision 3/COP.12, para. 2.

[47] See analysis and examples in Bodle and Stockhaus (2019) at 20-21; Wunder et al (2018), section 3.2; Ehlers (2017) at 73.

[48] Orr et al. (2017) at 59 et seq.

[49] See https://sustainabledevelopment.un.org/sdg15 (last accessed 15.05.2019).

[50] For format and organisational aspects see General Assembly Resolution 67/290.

- In 2015 the United Nations Statistics Division (UNSD) created the **Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs).** It is composed of Member States, regional and international agencies can participate as observers. Main task of the IAEG-SDGs is to develop and implement the global indicator framework for the SDGs.[51]
- For each SDG a **custodian agency** has been determined. These are United Nations bodies or other international organisations that work with UNSD to develop the indicators and are responsible for compiling and verifying country data and metadata. The custodian agencies are also responsible for developing international standards and recommending methodologies for monitoring. The custodian agency for target 15.3 on LDN is the CCD.

2.1.1.3 Practice

The UN High-level Political Forum on Sustainable Development has a central role in the **follow-up and review** of the SDGs at the global level.[52] Follow-up and review are based on the UN Secretariat's annual reports to the HLPF on overall trends. In addition, all states are encouraged to regularly review their progress in SDG implementation at national level.

To guide states in the preparation of the reviews, the UN Secretary General has issued Voluntary Common Reporting Guidelines in 2015 that have been updated in 2017[53] and the UN Department of Economic and Social Affairs has published a Handbook in 2018[54]. However, with the regular reviews being **voluntary, country-led and country driven**, they hardly ensure transparency and accountability.

Since 2016, various countries have submitted and presented their **Voluntary National Reviews (VNRs)**, some even two or three times. The VNRs are neither subject to peer review of performance nor to monitoring. They are also not a source of guided information on policies and outcomes. Rather, they provide information on national approaches to SDG implementation and allow states to showcase achievements. However, VNRs are the only global mechanism for follow-up and review on SDG s and their implementation.

2.1.2 Assessment and opportunities

The SDGs are an **important global reference point** as they will guide countries on their path to sustainable development over the next decade. Considering the reluctance of states to commit to soil-related international policies, including the LDN target in the SDGs can be seen as a huge success.

While the **LDN target** and the indicators developed merely reflect a **minimal consensus**, they are sufficient to guide countries in their implementation efforts while leaving **flexibility** - for countries to be more ambitious and for countries to adapt them to national circumstances.

The **follow-up and review** process for SDG implementation has two pillars: Reporting of data from the custodian agencies and voluntary reporting from all countries. While reporting by the **custodian agencies** - the CCD for the LDN target - will enable the international community to track the progress made, it will not hold states accountable. The **voluntary reporting from countries** will only fill this gap to a limited extent: Currently, countries are using the reporting mainly to showcase best practices.

2.1.3 Potential avenues for action

On their own, the SDGs and the LDN target in SDG 15.3 are not a comprehensive soil policy and have shortcomings in terms of content, normativity and institutional anchoring as well as operationalisation. But at least the SDGs provide a global consensus on soil in general and a political basis for further

[51] See https://unstats.un.org/sdgs/iaeg-sdgs/ (last accessed on 15.05.2019).
[52] For guidance on the follow-up and review see General Assembly resolution 70/299.
[53] UN Secretary General (2017).
[54] UN Department of Economic and Social Affairs (2018).

work in existing regimes and institutions. For the time being, The LDN target is the only **global political point of reference specifically on land and soil**. This political weight is arguably its main value, as it opens and widens other avenues for action. The review process that forms the follow-up to the SDGs could also be useful, but stands behind that main impact.

2.2 UN Convention to Combat Desertification (CCD)

2.2.1 Analysis

The CCD of 1994 is a binding instrument, a multilateral treaty whose currently 196 parties[55] make it basically universal. It creates a treaty regime with bodies such as a conference of the parties which meets every second year and can adopt decisions that guide and monitor implementation. The CCD website describes it as the "sole legally binding international agreement linking environment and development to sustainable land management".[56] In literature, the CCD has been said to be "the only legally binding global agreement directly dealing with the promotion of bio-productive land".[57] However, there are two limitations in respect of LDN. The first is the CCD's scope of application, and the second is the content of the CCD's obligations.

2.2.1.1 Scope of application

The CCD's **scope of application** is in effect limited to drylands and thus to about 40% of the terrestrial surface of the earth.[58] It has been said to primarily concern Africa.[59] The limitation derives from an intricate mixture of geographical and subject-related parameters in the CCD's objectives, definitions and in the action to be taken. The CCD's obligations are generally limited to drylands either through the definition of the addressee (affected countries) or through their content. Although the CCD also contains obligations for *all* parties, including those that are not affected by desertification, all action to be taken is directed towards arid, semi-arid and dry sub-humid areas (which this section refers to as "drylands" for convenience):

The CCD's objective is to combat desertification and mitigate the effects of drought. Desertification is defined as land degradation in those areas "resulting from various factors, including climatic variations and human activities".[60] Land degradation is in turn defined, also exclusively in relation to these areas,' as "reduction or loss [...] of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns, such as soil erosion caused by wind and/or water; deterioration of the physical, chemical and biological or economic properties of soil; and long-term loss of natural vegetation".[61] On the basis of these definitions, combating desertification means **addressing land degradation** *in such drylands*. Accordingly, the core obligations relating to "affected countries" apply to countries with such drylands.

[55] See https://treaties.un.org (last accessed on 15.05.2019). After withdrawing with effect of 28.03.2014, Canada re-joined the CCD with effect of 21.03.2017.

[56] http://www2.unccd.int/convention/about-convention (last accessed on 15.05.2019).

[57] Boer et al. (2017) at 53.

[58] ibid, 61.

[59] Council of Europe, Revised European Charter for the protection and sustainable management of soil, 17 July 2003, Doc. CO-DBP (2003) 10, p. 3.

[60] Art. 1(a) CCD.

[61] Art. 1(f) CCD.

From a **scientific perspective**, the way the CCD defines desertification on the basis of "land degradation" has sparked criticism from scientists as well as policy-makers: Desertification implies irreversible impacts on long term scales while land degradation is also used to describe short-term processes.[62] Therefore such short-term processes could amount to desertification under the CCD. In addition, both definitions are so broad in scope that virtually any change in land use condition could qualify as degradation.[63]

Politically, the CCD's legal structure and definitions have led to **concerns regarding its scope of application.** The relevant definitions of "desertification", "land degradation" and "affected areas" all explicitly refer to drylands, but it can still be difficult to determine which obligations apply to each individual party. All obligations are directed towards drylands, but there is no list of drylands, areas can turn into dryland over time, and it can be a matter of scientific as well as legal and political debate how the CCD applies to individual countries.

Against this background, it has been claimed that the CCD's practice expands its scope of application because its regional implementation annexes III and V contain obligations for parties that are affected by desertification but do not have drylands.[64] The basis for this concern is not clear, given the explicit use of the term "affected" parties in e.g. Annex V,[65] which according to the definition in the CCD means countries whose lands include drylands. However, there are ambiguities, for instance in the wording of Art. 3 CCD. More generally, parties were concerned that the CCD in practice appeared to abandon its objective to protect drylands and headed towards addressing land degradation *anywhere*. For example, Brazil emphasised that the LDN scope should be limited to drylands at COP12, but announced at COP13 that it would participate in the LDN target setting process that is open to all parties whether they have drylands or not.[66]

The Central and Eastern European countries, to which Annex V applies, sought to clarify the CCD's mandate and scope regarding territories which are not related to arid, semi-arid, and dry sub-humid areas.[67] Their request for an official UN legal opinion was not met,[68] but led to a separate agenda item at COP12 on this issue.[69] At COP12, some parties suggested that ambiguity in the term "affected countries" undermined work on LDN and that the land degradation concept should be extended to all areas.[70] The response from other parties reveals a political subtext, namely that the limited resources available to combat land degradation should not be diverted from the most vulnerable areas.[71] The resulting COP decision notes in the preamble that "a significant proportion of land degradation occurs beyond arid, semi-arid and dry sub-humid areas".[72] In the operative paragraphs, the COP "recognises" that parties (no limitation) "may use" the CCD in pursuing their policies towards LDN. Accordingly, it "invites" the Secretariat and other bodies and institutions to provide assistance to parties.[73] These operative paragraphs are non-prescriptive and pragmatic and leave open the issue of the CCD's scope of application.

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[62] Herrmann and Hutchinson (2006) at 11, 17-18.

[63] Ibid at 17.

[64] Ginzky (2015) at 18.

[65] Art. 1 of Annex V.

[66] IISD (2017a) at 17, available at http://enb.iisd.org/download/pdf/enb04278e.pdf (last accessed on 15.05.2019).

[67] CCD doc. ICCD/COP(12)/16 of 16.07.2015, para. 1.

[68] The UN Office of Legal Affairs required a formal COP in order to provide the opinion, but a CCD Bureau meeting showed that there was no consensus amongst parties for such a decision, see CCD doc. ICCD/COP(12)/16 of 16.07.2015, para. 4.

[69] The Bureau requested the Secretariat to produce a technical note with options and the issue was included in the provisional agenda for COP12 as item 6(f), see CCD doc. ICCD/COP(12)/20 of 25.11.2015, p. 5.

[70] IISD (2017b), available at http://www.iisd.ca/desert/cop12/ (last accessed on 15.05.2019).

[71] CCDIISD (2017b) at 10, http://www.iisd.ca/desert/cop12/ (last accessed on 15.05.2019).

[72] CCD COP decision 8/COP.12, preamble.

[73] CCD COP decision 8/COP.12, paras 1 and 2.

2.2.1.2 Core obligations

The content of the CCD's **actual obligations** are structured along different categories of parties: all parties, affected parties[74], developing country parties, developed country parties. Some obligations are further specified by five regional implementation annexes. The obligations are for the most part general in the sense of being not very prescriptive or precise.[75] The core obligations with the most specific content are:

The overarching general obligation for *all* parties is to adopt an **integrated approach** addressing desertification.[76] It does not prescribe specific actions, but it does require all parties to do *something*, i.e. (i) to address desertification (ii) in an integrated manner. Actions have to integrate strategies for poverty eradication.

Countries affected by land degradation in drylands (i.e. affected countries) have to **direct policies and resources** to combating desertification, including by giving "due" priority to desertification and allocating "adequate" resources, establishing strategies, addressing the underlying causes and providing an enabling environment that includes legislations and long-term policies.[77] Although these obligations are quite general in nature and leave ample discretion regarding how to implement them, they do require parties to at least address land degradation with a clear policy focus and even legislation.

The core obligation under the CCD requiring specific action is to **prepare, publish and implement National Action Programmes (NAPs)**.[78] The obligation is on (i) affected developing countries, (ii) affected parties covered by an implementation annex and (iii) parties who voluntarily undertake to prepare NAPs. The regional implementation annexes to the CCD provide more details on formulating and content of NAPs. Around 80 affected countries prepared their NAPs between 1997 and 2005, but reported problems with the implementation.[79] In 2007, the COP adopted the "10-year strategic plan and framework to enhance the implementation of the Convention (2008-2018)" and urged affected country parties to align their NAPs to the strategy.[80] Around 20% of the affected parties finalized this alignment process.[81] In 2017, the COP adopted the "CCD 2018-2030 Strategic Framework" and strongly encouraged parties to align their National Action Programmes.[82]

Apart from this core obligation, the CCD does **not contain specific and precise obligations to prevent or remediate land degradation**. The CCD's general principles and obligations on all parties generally call for or require improved domestic governance and international cooperation with regard to desertification.[83] The same goes for affected countries: Their obligations to give "due priority", "establish strategies", "address the underlying causes" etc.[84] are directed at setting policy priorities and governance modalities, but do not require specific actions. They leave ample discretion according to national circumstances. Other CCD obligations can provide important political guidance but are so gen-

[74] I.e. parties whose lands include, in whole or in part, areas affected or threatened by desertification, Art. 1 (i) CCD. "Affected countries" means countries whose lands include, in whole or in part, affected areas.

[75] For the conceptual framework in assessing the legal form see Bodle and Oberthür (2017), chap. 5.

[76] Art. 4(2) (a), (c) CCD.

[77] Art. 5 (a)-(e) CCD.

[78] Art. 9-10 CCD.

[79] Smith (2015) at 6.

[80] Decision 3/COP8, The 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018), Madrid, 14 September 2007.

[81] CCD decision 2/COP.12, preamble.

[82] Decision 7/COP.13, The future strategic framework of the Convention, Ordos, 15 September 2017.

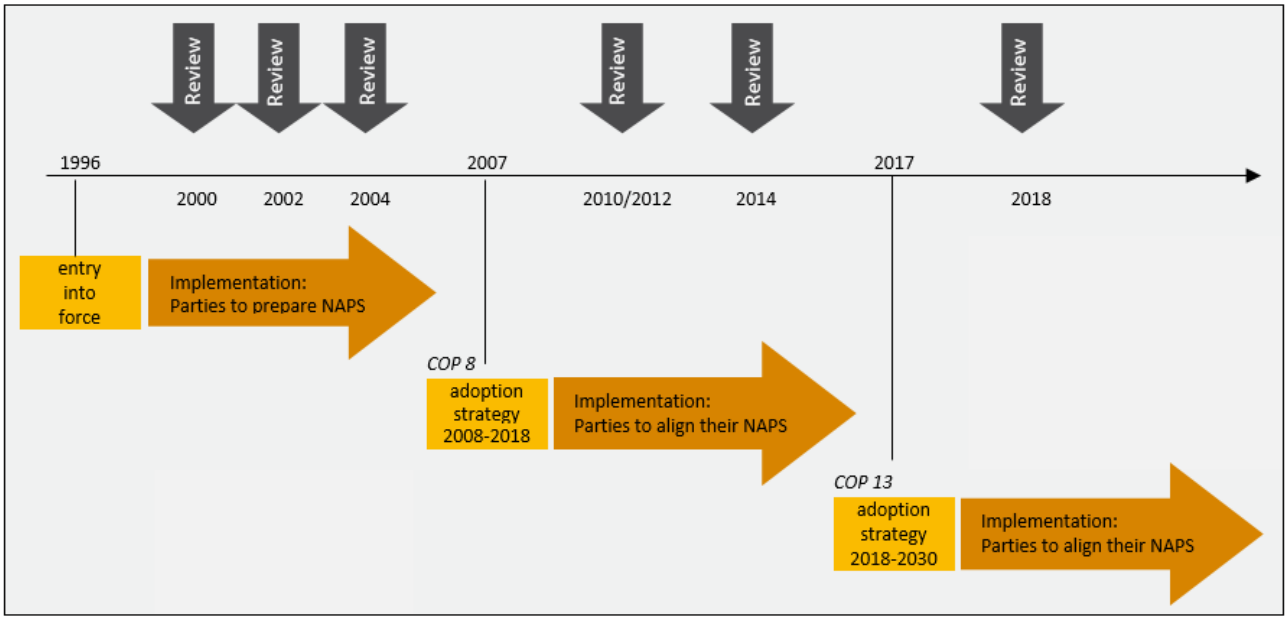
[83] Art. 3-4 CCD.

[84] Art. 5 (a)-(c) CCD.

eral or unspecific that it would be difficult to clearly determine which particular action a country is required to take or refrain from. These include obligations "to promote awareness", "give due attention", "strengthen cooperation" etc.

The Convention also contain obligation regarding **transparency of implementation by reporting and review**. It requires all parties to communicate reports on the implementation measures taken, but left the timetable and the format of the reports up to the COP to decide.[85] Originally, affected country parties were required to report, among others, on the implementation of their NAPs, and developed country parties had to report on measures taken to assist affected country parties, including information on the financial resources provided.[86] Over time, the reporting has changed considerably and has been aligned to the implementation of the strategies as adopted in 2007 and 2017.

Figure 6: Timeline for implementation and reporting under the CCD



Source: Own figure, Ecologic Institute

In 2017, COP13 approved a four-year frequency for CCD reporting for countries to provide information on the strategic objectives and the implementation framework of the CCD 2018–2030 Strategic Framework.[87] To provide their information, countries use the "Performance and Review and Assessment of Implementation System (PRAIS)"[88] developed by the Secretariat. While there have been different reporting formats for affected and developed country parties in the beginning, countries use the same format for reporting now and answer the questions relevant for them. Also, as reporting has been aligned to the implementation of the strategies, affected country parties are not required to report on the implementation of their NAPs.

The CCD contains several provisions and general obligations as well as institutional arrangements with regard to **financial and other support**. This has been a crucial element of environmental trea-

[85] Art. 26 (1) CCD.

[86] CCD Decision 11/COP.1, Procedures for the communication of information and review of implementation, ICCD/COP(1)/11/Add.1, paras 5 and 7.

[87] CCD Decision 15/COP.13, Improving the procedures for communication of information as well as the quality and formats of reports to be submitted to the Conference of the Parties, ICCD/COP(13)/21/Add.1, para. 3.

[88] See https://prais.unccd.int/ (last accessed 15.05.2019).

ties: Politically it is important in order to get developing countries on board for assuming legal obligations, and in practical terms it is needed in order to provide means of implementation. In line with most modern multilateral environmental treaties, developed countries have an obligation to provide "substantial financial resources and other forms of support" to affected developing countries.[89] This obligation is collective and not quantified. In practice, the CCD has relied on two main channels to provide funding:

In contrast to e.g. the other two Rio Conventions, the UNFCCC and the CBD, the CCD treaty text does not originally provide for a specific financial mechanism or Fund, such as the Global Environment Facility (GEF), to provide and channel support specifically for implementing the CCD. Instead, the CCD establishes a "Global Mechanism" to promote the mobilization and channelling of financial resources. The Global Mechanism is not a separate institution and does not provide financial resources.[90] It more a broker for seeking funding from parties and other sources. It was initially "housed" by the International Fund for Agricultural Development (IFAD), a specialized agency of the United Nations which also was the largest contributor to the Global Mechanism's operations.[91] However, the institutional setup caused problems and the Global Mechanism is now in Bonn, Germany, and retains a liaison office in Rome hosted by the FAO. The Global Mechanism offers capacity buildings for project development and access to finance. In collaboration with the Secretariat, it has developed a checklist to provide project developers with clear guidance in designing LDN transformative programmes and projects.[92]

In addition, the Global Environment Facility has been funding activities regarding to land degradation from its restructuring in 1994. Here, too, the CCD's geographical scope was an issue: Because the GEF is designed as a global financing instrument, the CCD treaty text did not envisage that the GEF would be its financing mechanism. Originally, the GEF's four focal areas for funding did not include desertification or land degradation. Incremental costs of activities concerning "land degradation, primarily desertification and deforestation" were eligible for funding, but only if they related to the four existing focal areas. In 2002, "land degradation, primarily desertification and deforestation" was added as a new focal area to the GEF's constituting instrument.[93] This, together with CCD COP decisions that linked the CCD's objectives to GEF funding, enabled the GEF to address and fund land degradation in its own thematic strategy and in the replenishments. By another amendment in 2010, the GEF was formally made a financial mechanism of the CCD[94] and now directly contributes to its implementation. GEF resources for the LDN focal area increased from the GEF-5 to the GEF-6 replenishment, which amounted to USD 431 million.[95] The GEF-6 replenishment cycle ran until 2018 and its end coincided with the end of the CCD's first strategic plan. The amount allocated to the LDFA in the GEF-6 replenishment was invested through country allocations under the GEF System for a Transparent Allocation of Resources (STAR) and focal area set-asides. The GEF-7 Replenishment has increased its allocation to the land degradation focal area to USD 475 million.[96]

[89] Arts. 6 (b), 4 (3) CCD.

[90] Art. 21(4) CCD.

[91] IFAD progress report on the Global Mechanism of the CCD, IFAD doc. GC 34/L.10, 22.12.2010, para. 3.

[92] https://www.unccd.int/news-events/draft-checklist-ldn-transformative-projects-and-programmes-prepared-field-testing (last accessed on 15.05.2019).

[93] Para. 2(e) of the amended GEF's Instrument, see Beijing Declaration of the Second GEF Assembly, 18.10.2002, https://www.thegef.org/council-meetings/assembly (last accessed on 15.05.2019).

[94] Chair's Summary of the Fourth GEF Assembly, 26.05.2010, para. 24, https://www.thegef.org/council-meetings/assembly (last accessed on 15.05.2019); see also http://www.unccd.int/en/about-the-convention/GEF/Pages/default.aspx (last accessed on 15.05.2019).

[95] See CCD decision 12/COP.12, para. 1; http://www.unccd.int/en/about-the-convention/GEF/Pages/default.aspx.

[96] GEF doc. GEF/A.6/05/Rev.01 of 27.06.2018, "Report on the seventh replenishment of the GEF Trust Fund", p. 160.

2.2.1.3 Institutions

Apart from its obligations, the CCD also establishes **institutions** and procedures in order to guide and ensure implementation. In line with most modern environmental treaty regimes, this includes a Conference of the Parties (COP) and a permanent Secretariat as well as technical and other bodies.[97]

- The **Committee for Review of the Implementation of the Convention** (CRIC) was established in 2001 to assist the COP in regularly reviewing the implementation of the Convention.[98] Later it has been upgraded to a standing subsidiary body.[99] In 2017, its mandate has been renewed and adjusted to cover the regular review of the implementation of the CCD 2018-2030 Strategic Framework.[100] The CRIC is composed of all parties to the Convention, national or international agencies can observe the sessions.[101]
- The **Committee on Science and Technology** (CST) has been established by the Convention itself.[102] It provides information and advice to the COP on scientific and technological matters relating to combating desertification and mitigating the effects of drought. The CST is open to participation of all parties and composed of government representatives competent in the relevant fields of expertise. The CST has advisory functions, data and information functions, research and review functions, functions related to technology, and evaluation functions.[103] To strengthen the CST, the Science Policy Interface was established in 2013.
- The **Science Policy Interface** (SPI) was established in 2013 to "facilitate a two-way science-policy dialogue and ensure delivery of policy-relevant information, knowledge and advice on desertification/land degradation and drought."[104] Its mandate includes, among others, the development of proposals to the COP and the CST based on findings and recommendations from the science community and the provision of thematic guidance to the CST for implementation of the CCD.[105] It operates on a work programme adopted by the COP.[106] The SPI is comprised of members of the CST Bureau, five scientists representing the Regional Implementation Annexes, ten scientists selected by the CST Bureau and five observers from civil society organizations, international organizations and relevant UN organizations.[107]

2.2.1.4 Practice

Practice under the CCD showed problems which to some extent result from weaknesses in its legal foundation. Although the **NAPs** are the core legal obligation and instrument, they appeared to have **little effect in terms of implementation**.[108] The CCD Evaluation Office commissioned a study that identified practical constrains like allocation of human and financial resources to the planning and reporting instead of the implementation itself, and structural problems like the inability of NAPs to ensure

[97] See http://www2.unccd.int/convention/about-convention (last accessed on 15.05.2019).

[98] CCD decision 1/COP.5, Additional procedures or institutional mechanisms to assist in the review of the implementation of the Convention, ICCD/COP(5)/11/Add.1, 12 October 2001.

[99] CCD decision 11/COP.9, para. 1.

[100] CCD decision 13/COP.13, para. 1.

[101] Terms of Reference, Annex to CCD decision 13/COP.13.

[102] Art. 24 CCD.

[103] Terms of Reference, Annex to CCD decision 15/COP.1.

[104] CCD decision 23/COP.11, Measures to enable the United Nations Convention to Combat Desertification to become a global authority on scientific and technical knowledge pertaining to desertification/land degradation and mitigation of the effects of drought, para. 1.

[105] CCD decision 23/COP.11, para. 3 and CCD decision 19/COP.12, para. 2.

[106] CCD decision 21/COP.12 and CCD decision 21/COP.13.

[107] CCD decision 23/COP.11, para. 4 as supplemented by CCD decision 19/COP.13, paras 3, 4.

[108] Fritsche et al. (2015) at 43.

combating desertification, land degradation and drought is integrated into planning and decision making in other policy areas.[109] In 2015, COP12 noted that 8 years after adopting the 10-year strategic plan, only 20 per cent of parties had so far aligned their NAPs with it.[110] The withdrawal of Canada in 2014 was a step that is rarely taken by parties to multilateral environmental treaties and seemed to be an indication of the CCD's dwindling relevance. However, Canada re-accessed shortly thereafter on 21 December 2016 with effect of 21 March 2017.[111]

Despite limitations in scope that a reading of the CCD's articles would suggest, the CCD has been **active in addressing land degradation in general**. It elaborated, promoted and addressed the LDN concept long before its adoption as one of the SDGs. Important practice with regard to LDN included:

- In the 10 Year Strategic Plan 2008-2018, parties regard the CCD as an instrument to prevent, control and reverse "desertification/land degradation".[112]
- Various factors have contributed to the inclusion of the LDNW concept in the 2030 Agenda for Sustainable Development. Based on almost universal agreement that desertification governance has been a failure, many called for expanding the global focus from desertification to land degradation.[113] In 2011, a UN General Assembly High Level Meeting on desertification, land degradation and drought created political momentum to tackle issues of land degradation when it noted that if the world community was serious about land degradation and desertification than time had come to commit for building a LDNW.[114] In the end, the CCD Secretariat took the opportunity and was one of the main drivers to include the LDNW concept in the SDGs.[115] Its 2012 policy paper introducing a potential goal of zero net land degradation has been said to have directly led to the LDNW concept in the Rio+20 outcome document,[116] which in turn found its way into target 15.3.
- There was a short period during which ideas and proposals were developed for a special **protocol on soil or LDN under the CCD**. In response to the adoption of the 10-Year Strategy in 2007, the IUCN Environmental Law Centre prepared a "Draft Protocol for Security and Sustainable Use of Soil" and presented it during a side event at COP9 in 2009.[117] Also, the Secretariat suggested the development of a legal instrument on zero net land degradation in a policy brief in 2012.[118] Although the CCD does not provide a legal basis for the adoption of a protocol, parties would be free to do so.[119] However, the development of a special protocol for soil was never put on the COP agenda.
- In 2013 the CCD created an Intergovernmental Working Group (IWG) as a follow-up to the Rio+20 conference and specifically on outcomes related to LDN.[120] The IWG was mandated to establish a definition of LDN, develop policy options for parties and advise the CCD on the implications for its current and future strategy, programmes and the resource requirements.[121] The COP also decided on LDN as the topic for its scientific conference.[122]

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[109] Smith (2015) at 3 et seq.

[110] CCD decision 2/COP.12, preamble.

[111] http://www2.unccd.int/sites/default/files/relevant-links/2017-07/Ratification list Dec2016.pdf (last accessed on 15.05.2019).

[112] CCD decision 3/COP.8, preamble.

[113] Welton et al. (2014) at 12, 13.

[114] Akhar-Schuster et al. (2016) at 1.

[115] Boer et al. (2017) at 62.

[116] Fritsche et al. (2015) at 43.

[117] IUCN Environmental Law Centre (2009).

[118] CCD Secretariat (2012) at 25.

[119] Altvater et al. (2015) at 116, 117.

[120] CCD decision 8 /COP.11.

[121] CCD decision 8/COP.11, para. 1.

[122] CCD decision 21/COP.11, para. 26.

After the SGDs were adopted in 2015, the CCD took steps to formally integrate them into its own implementation work:

- **Integration:** COP12 in 2015 formally **incorporated LDN as in SDG 15.3 into the CCD** and endorsed the Intergovernmental Working Group's definition of LDN: A "state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remain stable or increase within specified temporal and spatial scales and ecosystems".[123] At COP13, LDN has been integrated in strategies, work programmes and other processes. Also, support for the incorporation of LDN has increased with Brazil participating in the voluntary LDN target setting process after expressing concerns regarding the geographical scope of the Convention at COP12.[124]
- **Results framework:** The CCD's 10 Year Strategic Plan results framework for 2016-2019, adopted by COP12, includes the objective "reduction of the area affected by land degradation". Its achievement is to be measured by the "extent to which affected country Parties establish targets for addressing land degradation and rehabilitation".[125] For the period 2018-2021, the CCD results framework already picks up on the new strategic objective on LDN introduced by the "CCD 2018-2030 Strategic Framework" and determines related outcomes. Where appropriate, it also mainstreams LDN in the outcome of other strategic objectives.[126]
- **LDN Target Setting:** COP12 invited affected parties to establish baselines and national-level voluntary LDN targets within their NAPs and to include them in their national reports to the CCD.[127] Interestingly, in a different decision the COP also invites *all* parties to formulate voluntary targets to achieve LDN, "taking into account the list of options for operationalizing LDN at the national level as outlined by the IWG".[128] The invitation is not limited to "affected" countries and thus not linked to NAPs. This approach has been confirmed at COP 13 that also invites parties – and not only affected country parties – to formulate voluntary targets to achieve LDN.[129] The CCD's Global Mechanism manages a "LDN target setting programme" which supports countries to set such targets.[130] It identified leveraging, assessing, target setting and achieving as the building blocks for the LDN target-setting process.[131] The implementation of voluntary LDN targets will be review and discussed at the CRIC17.[132] It will also be covered by the monitoring and evaluation process for the "CCD 2018-2030 Strategic Framework".[133] As of December 2018, 120 countries have committed to set voluntary LDN targets - all of them affected country parties.[134] Out of the EU Member States, only Italy is participating in the LDN target setting programme. While the task has created momentum in some countries, other countries have not yet started the target setting process.
- **Strategy 2018-2030:** COP13 adopted the "CCD 2018-2030 Strategic Framework" that builds on and supersedes the "10-year strategic plan and framework to enhance the implementation of the Convention (2008-2018)".[135] As new strategic objective it has been added "to improve the condition of affected ecosystems, combat desertification/land degradation, promote sustainable land

[123] CCD decision 3/COP.12, para. 2.
[124] Earth Negotiations Bulletin (2017a) at 17.
[125] CCD decision 1/COP.12, Annex, outcome indicator 2.1.1.
[126] CCD decision 1/COP.13, Annex, strategic objective 1.
[127] CCD decision 2/COP.12, paras 3, 5.
[128] CCD decision 3/COP.12, para. 5(a).
[129] CCD decision 2/COP.13, para 1 and CCD decision 3/COP.13, para. 1.
[130] http://www2.unccd.int/actions/supporting-countries-set-land-degradation-neutrality-targets (last accessed on 15.05.2019).
[131] CCD Global Mechanism (2016).
[132] CCD decision 16/COP.13, para. 1 (c).
[133] CCD decision 7/COP.13, Annex.
[134] http://www2.unccd.int/actions/supporting-countries-set-land-degradation-neutrality-targets (last accessed on 15.05.2019).
[135] CCD decision 7/COP.13, para. 1.

management and contribute to land degradation neutrality". The parties have been *strongly encouraged* to apply and align their NAPs with the Strategy 2018-2030.[136] Considering that by 2015 only 20 per cent of the affected country parties aligned their NAPs with the 10-year strategic Plan for 2008-2018,[137] the success of this repeated alignment process remains to be seen. Currently priority is given to the LDN target setting programme and only few countries have integrated their LDN targets in their NAPs.

- **SDG indicator 15.3.1:** Following a mandate by the UN Statistics Division's IAEG-SDGs, the CCD acts as custodian agency and cooperates with FAO in elaborating indicators for LDN.[138] The CCD has formed an Inter-Agency Advisory Group on indicator 15.3.1 composed of CCD, FAO, CBD, UNFCCC, UNEP and UNSD to develop the methodology and data options for this indicator.[139] The Ramsar Secretariat is not represented in the Inter-Agency Advisory Group, although the Ramsar Convention is another international instrument to implement LDN (see Section 2.5). In 2018, the indicator's classification was updated from Tier III to Tier II meaning that it is conceptually clear, has an internationally established methodology and standards are available, but that data is not regularly produced by countries.[140] COP13 requested the secretariat to use the information submitted to it by parties in their national reports that is relevant for the implementation of the SDGs as a contribution to the overall follow-up and review.[141]
- **Reporting:** To integrate LDN, COP12 already strengthened the reporting obligations by including progress on the three indicators 'trends in land cover', 'trends in land productivity or functioning of the land' and 'trends in carbon stocks above and below ground'.[142] With the inclusion of LDN as one strategic objective in the strategic framework for 2018 to 2030, reporting covers implementation of LDN via the respective strategic objective.[143] For the reporting cycle 2017/2018, the Secretariat has updated the template to align it to the updated strategy and provided some affected country parties with default data they may use as a baseline.[144] While there is one common reporting template, developed country parties usually only provide information on the resources mobilized to support implementation. With its 2018 report, Austria has – as the only EU Member State – provided LDN information using the LDN indicators.[145] Germany has submitted an additional note to its report explaining why it is not able to report to the CCD LDN indicator and giving information about national processes concerning LDN.[146]

Several **decisions at COP12 in 2015** aim at showing parties that the CCD is useful for achieving LDN.[147] COP12 initiated further work regarding the integration of LDN into the NAPs[148], including targets, indicators, technical guidance, capacity building and support.[149] It tasked the Secretariat with reaching out to other international institutions and stakeholders regarding SDG 15.3.[150] Importantly,

[136] CCD decision 7/COP.13, para. 2.
[137] CCD decision 2/COP.12, preamble.
[138] UN Statistics Division IAEG SDGs (UNSD; 2018).
[139] See CCD (2017).
[140] UN Statistics Division IAEG SDGs (UNSD; 2018).
[141] CCD decision 15/COP.13, para. 9.
[142] CCD decision 15/COP.12, para. 1.
[143] CCD decision 7/COP13, Annex, para. 18.
[144] https://www.unccd.int/convention/2017-2018-unccd-reporting-process (last accessed on 15.05.2019).
[145] CCD (2018).
[146] Federal Ministry for Economic Cooperation and Development (Germany; 2018).
[147] CCD decisions 2/COP.12; 3/COP.12; 8/COP.12, paras 1, 3; 21/COP.12, Annex.
[148] On a proposal to include LDN in NAPs see Fritsche et al. (2015) at 43, referring to Smith (2015).
[149] See e.g. CCD decision 2/COP.12 and 3/COP.12, in particular paras 10-12.
[150] CCD decision 3/COP.12, para. 9.

COP12 also included a follow-up process by requesting the Executive Secretary on progress at COP13.[151]

With regard to **financial** and other support, COP 12 directed the Secretariat and the Global Mechanism to increase their assistance with regard to SGD target 15.3.[152] It invited GEF and GEF donors specifically to address SDG 15.3 and provides detailed instructions to the Secretariat.[153] At COP 12 the CCD also initiated and mandated the establishment of a potential new financing instrument specifically for LDN, the **Land Degradation Neutrality Fund**.[154] It intended to mobilise public and private capital and to focus on direct investment into large-scale land restoration and land degradation avoidance projects.[155] The Global Mechanism implemented this mandate and as of March 2017 the LDN Fund was in the process of being set up by the private asset management firm Mirova.[156] In August 2017, Mirova, issued Environmental and Social Standards that it applies when selecting projects.[157] The LDN Fund was officially launched on 12 September 2017 at COP13.[158] According to information provided on the CCD website, investors have already announced commitments of US$ 100 million – one third of the LDN Fund's target size of US$ 300 million. According to information provided on Mirova's website there have been 15 *active* projects by September 2017.[159] No further information about the selection and implementation of projects is available on the website of Mirova. COP12 also showed that the CCD can mobilise buy-in from the private sector. With the Ankara Declaration[160], the Sustainable Land Management Business Forum identified LDN as an opportunity, e.g. for the minimisation of profit loss and higher brand value. At COP13, the participants of the Sustainable Land Management Business Forum declared they will align their priorities to include the LDN target in related research, extension, production, technology transfer, and capacity development programmes and strategies.[161]

[151] CCD decisions 3/COP.12, para 12, 8/COP12, para. 3.

[152] CCD decision 2/COP.12, paras 3, 8, 11.

[153] CCD decisions 12/COP.12, paras 2-3; 2/COP.12, para. 6.

[154] CCD decision 3/COP.12, para. 11, requested the Global Mechanism to develop options for increasing resources for the full realization of LDN initiatives, including through the "creation of an independent LDN Fund".

[155] Mirova, (2017a), available at https://www.unccd.int/sites/default/files/inline-files/LDN Fund brochure 2017.pdf (last accessed on 15.05.2019).

[156] Mirova, (2017a).

[157] Mirova (2017a).

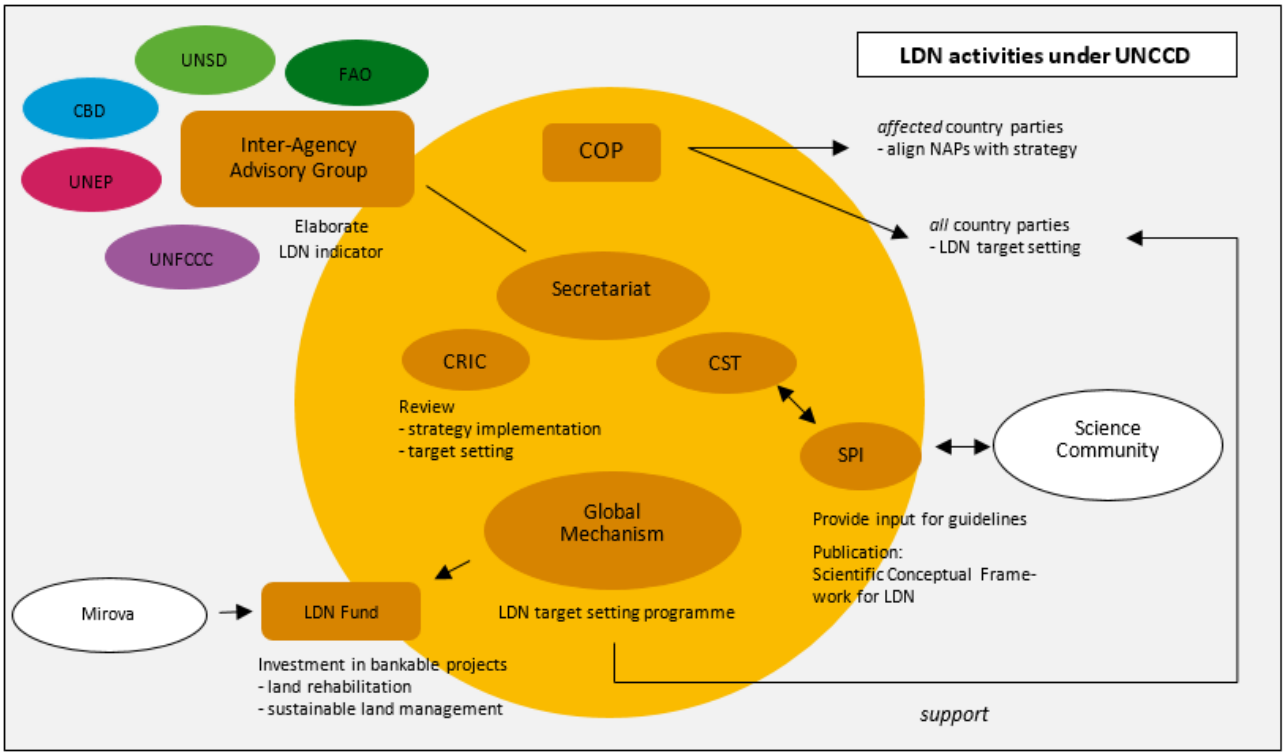
[158] http://www2.unccd.int/news-events/ldn-fund-officially-launched (last accessed on 15.05.2019).

[159] Mirova (2017b).

[160] COP12, Report of the Conference of the Parties on its twelfth session, held in Ankara from 12 to 23 October 2015, Part one: proceedings, ICCD/COP(12)/20, Annex VI.

[161] COP 13, Report of the Conference of the Parties on its thirteenth session, held in Ordos, China from 6 to 16 September 2017, Part one: proceedings ICCD/COP(13)/21, Annex III.

Figure 7: LDN activities under the UNCCD



Source: Own figure, Ecologic Institute

2.2.2 Assessment and opportunities

A few years ago it was argued that the very existence of the CCD was a success in itself, supplemented by high legitimacy based on a "bottom-up" participatory approach to National Action Plans.[162] Yet the CCD was not regarded as a generally effective instrument.[163] In addition, it was argued that the CCD had structural problems which made its international status and public awareness weaker than e.g. the CBD's and UNFCCC's.[164] Despite their value for guiding affected countries towards general good governance, the CCD's obligations are rather general and toothless, lacking in precision and prescriptiveness, and its potential for a global approach to LDN is limited by its geographical scope.[165]

However, the CCD has seized the opportunity provided by SDG 15.3 to address LDN and is **willing to assume a leadership role**. Apart from the numerous specific actions, guidelines and mandates, the COP directs "the secretariat of the CCD, as the lead organization for DLDD, to take the initiative and invite other relevant agencies and stakeholders such as United Nations agencies, international organizations, financial institutions, civil society organizations and the private sector to seek cooperation to achieve SDG target 15.3".[166] The motivation behind it could merely be that this is an opportunity for the CCD to regain political relevance. But even if that is the case, that is not necessarily bad, as long as the CCD is up to the task.

[162] Johnson et al. (2006) at 196.
[163] Ibid at 197–99.
[164] Fritsche et al. (2015) at 42.
[165] For a brief analysis of the Convention's shortcomings see Montanarella and Alva (2015) at 44.
[166] CCD decision 2/COP.12, para. 9.

Generally speaking, the CCD has shown that it can adapt to new challenges and critique: At COP4 in 2000 it adopted a new implementation annex for Central and Easter European countries, which entered into force on 6 September 2001.[167] In 2007 it adopted a 10-year-strategy for 2008-2018, following criticism that its work was not focused, and monitored progress. The CCD has also regained political credibility: If Canada's withdrawal in 2014 had symbolic significance, so does its re-accession shortly thereafter with effect of March 2017.

Specifically **with regard to LDN, the CCD has potential** because it can integrate LDN into its existing treaty rules. It is a regime with an institutional setup and mandate to address LDN and has in practice done so, notably with the decisions at COP12 in 2015 and at COP13 in 2017. Legally speaking, most recent action by the COP regarding LDN is weak in the sense of non-prescriptive, non-specific or both. This does not necessarily mean that implementation will be weak if there is strong political buy-in by parties. One indication of this is the commitment of 120 parties to participate in the LDN target setting programme.[168] The integration of the LDN target in the CCD 2018-2030 Strategic Framework and the alignment of reporting with the LDN indicators ensure LDN is guiding implementation. The fact that Austria reported on the LDN indicators as the first of non-affected country parties may be an incentive for other parties to follow.

Implementation of LDN at national level will be facilitated by two main instruments: First, COP 12 invited all parties to set voluntary LDN target.[169] As of December 2018, 120 countries committed to set LDN targets.[170] Although this demonstrates strong support, it does not overcome the differentiation between affected country parties and developed country parties. Those parties not required to prepare and implement NAPs are also not participating in the LDN target setting process. Examples are the United States, Canada, Germany and most other Western European countries. Second, COP 13 adopted the CCD 2018-2030 Strategic Framework and strongly encouraged affected country parties to align their NAPs.[171] However, when affected country parties were urged to align their NAPs with the previous 10-Year Strategic Framework 2008-2018, only around 20 per cent finalized this process.[172] Also, while many countries prepared NAPs, they lacked human and financial resources to implement them.[173]

The secretariat and the subsidiary bodies are engaging in various activities related to LDN.

- The Committee for Review of Implementation of the Convention (CRIC) will at its next session review and discuss the implementation of the CCD 2018-2030 Strategic Framework and the implementation of the voluntary LDN targets.[174] Only for the CCD 2018-2030 Strategic Framework, review is a continuing task.[175]
- The Science Policy Interface (SPI) gives input on LDN to the CST and the COP.[176] Its work on DLDD and LDN issues has been considered useful, but it is not sufficiently recognized in the scientific

[167] CCD doc. ICCD/COP(5)/3, para. 74, available at https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP5_3/3eng.pdf (last accessed on 15.05.2019). The annex entered into force via an opt-out procedure under article 31(3) CCD by which parties are legally bound by the annex 6 months after being notified of its adoption unless they object or officially declared that they require ratification. The CCD does not appear to provide information about when notification was made and which parties, if any, objected.

[168] See https://www.unccd.int/actions/ldn-target-setting-programme (last accessed on 15.05.2019).

[169] CCD decision 3/COP.12, para. 5(a).

[170] http://www2.unccd.int/actions/ldn-target-setting-programme (last accessed on 15.05.2019).

[171] CCD decision 7/COP.13, para. 2.

[172] CCD decision 2/COP.12, preamble.

[173] Smith (2015) at 6, available at http://www2.unccd.int/sites/default/files/relevant-links/2017-01/NAP evaluation_0.pdf (last accessed on 15.05.2019).

[174] CCD decision 16/COP.13, paras 1 (c) and (d).

[175] CCD decision 7/COP13, annex.

[176] CCD decision 21/COP.13, annex.

community and only had limited impact.[177] In 2017, the SPI published a Scientific Conceptual Framework for Land Degradation Neutrality in 2017 that provides a scientific foundation for understanding, implementing and monitoring LDN.[178] According to its work programme, it will continue providing input on LDN.[179]

- There is no shortage of CCD publications regarding LDN.[180] Whether the amount of brochures and reports is needed might be another matter - although such outreach is of course part of ensuring continued political support for the CCD and its implementation.

Regarding the crucial area of financial and other support for developing countries, there is no further need to anchor LDN in the GEF because **land degradation is already one of the GEF's focal areas.** In terms of the amount of available funding, the current GEF-7 replenishment offers opportunities for achieving SDG 15.3 in respect of the total amount for funding that the GEF will have from 2018 as well as the programming guidance. Apart from securing continued funding for CCD implementation generally, there could be an opportunity to specifically consider and perhaps anchor LDN. According to a new Memorandum of Understanding between CCD and GEF that was endorsed by COP13, the GEF will regularly report on its experience in integrating LDN activities through the land degradation focal area.[181]

The LDN Fund has been launched at COP13 in Ordos with an initial target size of US$ 300 Mio. and claims to be operational.[182] It is expected to be an opportunity to mobilise and channel finance to LDN over and above the support provided by parties. The LDN Fund is interesting because it is being set up by a private investment management company and is structured like a private investment fund, with public money used to attract and de-risk private investments. This follows recent examples in other areas where donors argue that traditional public money had to be supplemented and other, including private sources, had to be mobilised in order to achieve global environmental objectives.[183]

2.2.3 Potential avenues for action

There are various reasons to further strengthen the CCD's role in international soil governance: its basically universal membership, its robust legal and institutional framework, its instruments for implementation and review, and its role as custodian agency for the LDN indicators.

Despite its limited **mandate**, the CCD could be slowly moving towards addressing LDN generally, i.e. not only in "affected" countries. The CCD's practice appears to walk a thin line between its limitations in scope set out above and addressing LDN in general.[184] The frequent repetition in CCD COP12 decisions referring to the scope of the CCD[185] could show the need for the CCD to reassure parties that it will not overstep this line. It is unclear whether parties could be willing to accept such a shift. It could be that the CCD Secretariat is the driving force behind the push for leadership, while (some) parties would prefer to not move in this direction. Decisions adopted at COP13 also reference the scope of the Convention; there has been no shift yet. However, with Austria the first non-affected country party provided information using the LDN indicators in its 2018 implementation report. Also, Germany submitted an additional note on the LDN target with its 2018 implementation report explaining why the

[177] CCD Evaluation Office (2017), available at http://www2.unccd.int/sites/default/files/relevant-links/2017-05/FinalReportof the_SPI_Assessment.pdf (last accessed on 15.05.2019).

[178] CCD SPI (2017), available at http://www2.unccd.int/sites/default/files/documents/2017-08/LDN_CF_report_web-english.pdf (last accessed on 15.05.2019).

[179] CCD decision 21/COP.13, annex.

[180] https://www.unccd.int/publications (last accessed on 15.05.2019).

[181] CCD decision 11/COP.13, annex.

[182] http://www2.unccd.int/news-events/ldn-fund-officially-launched (last accessed on 15.05.2019).

[183] For instance, in the Green Climate Fund. See for example, Sierra (2011).

[184] Ginzky (2015) at 18.

[185] E.g. CCD decision 3/COP.12 paras 3, 4, 10.

LDN indicators cannot be used for reporting from Germany and describing existing national processes for LDN. The CCD may gain more support and acceptance as the main UN agency responsible for LDN in the future. Still, extending the CCD's mandate officially will be met with resistance from parties, require considerable and long-term effort, and will bundle resources that would otherwise be used for implementation.

Nevertheless, the CCD does not claim *sole* leadership. It acknowledges the necessary role of other actors: "While the Convention will make a significant contribution to achieving LDN, the full implementation of SDG target 15.3 will require contributions from other bodies and agencies and the Convention should therefore seek to work cooperatively with other bodies..."[186] These other bodies and agencies include among others, the FAO and the CBD.

There is an **overlap and potential competition and conflict between the CCD and the FAO**. The FAO also claims leadership regarding international soil.[187] Both regimes are major international actors with high participation and political legitimacy in this field.

- However, overlapping mandates between international institutions are neither rare nor necessarily problematic. So far the CCD has stressed the importance of cooperation between the relevant institutions, including the FAO, but the CCD COP decisions use fairly standard and unspecific phrases in this respect. Coordination can happen at many levels, e.g. between the secretariats. While the CCD and the FAO regularly cooperate on a technical level, there is no strategic cooperation.
- Another way of avoiding inconsistency or conflicts between CCD and FAO could be based on different outputs. In contrast to the FAO, at the heart of the CCD is treaty with binding rules for its parties. The CCD bodies are mandated to help implement these rules. In contrast, the FAO treaty does not create norms for its parties in that sense. It creates an international organisation and provides the mandate for the FAO to act. The CCD can build on the existing obligations for its parties and work on integrating LDN into them. It might therefore be content with factual leadership by expertise and guidelines on LDN instead of developing new rules. The advantages of both could be used – while the CCD has binding rules and can guide LDN implementation, the FAO has considerable knowledge of implementation on the ground and the workforce to provide assistance.
- The CCD has formed an Inter-Agency Advisory Group on indicator 15.3.1 composed of CCD, FAO, CBD, UNFCCC, UNEP and UNSD to develop the methodology and data options for this indicator.[188] Although it has mainly worked on a technical level, the group could be the basis for a more robust coordination forum.
- The Ordos Declaration recognises the value of the FAO Voluntary Guidelines on Sustainable Soil Management for good land management.[189] Mutual recognition and alignment of the respective guidelines developed by FAO and CCD could improve LDN implementation.
- In 2017, COP13 requested all CCD bodies to take a leading role at the institutional level through the strengthening of existing strategic partnerships and the establishment of new strategic partnerships on drought preparedness with relevant stakeholders at all levels, including FAO, with a view to ensuring coherence, coordination and complementarity.[190] This gives CCD bodies the mandate to further cooperation with the FAO.

[186] CCD decision 3/COP.12, preamble.

[187] "FAO is the lead United Nations Agency concerned with Soils." See, http://www.fao.org/soils-portal/resources/en/ (last accessed on 15.05.2019).

[188] See CCD (2017), available at http://www2.unccd.int/sites/default/files/sessions/documents/2017-07/ICCD_COP(13)_6-1710495E.pdf (last accessed on 15.05.2019).

[189] CCD decision 27/COP.13.

[190] CCD decision 29/COP.13, para. 4 (c).

There is also **overlap with the CBD**. Not only in terms of legal scope and mandate, but also in terms of which forum to choose for additional legal measures or other policies. For example, soil biodiversity is to some extent covered by the CBD, but is also relevant under the CCD. For instance, one specific proposal for a soil protocol was made specifically for the CBD.[191]

- In 2005, scientists drafted a soil protocol to be adopted under the CBD and lobbied for it. If countries agreed on the necessity of a soil protocol, it could be under the CBD and the CCD.[192] Although the CCD, unlike the CBD, does not provide a legal basis for the adoption of a protocol, parties would be free to do so.[193]
- Parties on a continuous basis identify synergies between the Rio Conventions. For example, in 2015, COP12 tasked the CST Bureau with exploring harmonisation of progress indicators across Rio Conventions.[194] In 2017, COP13 invited Parties to enhance the implementation of the CCD and the SDGs, among others fostering national-level synergies among the three Rio Conventions.[195]

2.3 UN Convention on Biological Diversity (CBD)

2.3.1 Analysis[196]

The Convention on Biological Diversity (CBD) is the major international treaty dealing with biological diversity. Its objectives include the conservation and sustainable of biological diversity as well as fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The CBD was adopted in 1992 as part of the United Nations Conference on Environment and Development (Rio Summit), came into force in 1993 and has been ratified by 196 parties – all UN member states (and the EU) except the United States.

It is built along a "framework convention-protocol" architecture: the CBD provides the basic framework including a decision-making structure, and protocols, work programmes, initiatives or decisions are adopted over time in accordance with parties' needs. To date, the CBD has two protocols and a supplementary protocol to one of these protocols.[197]

While CBD provisions have full legal status under international law, many of them can be balanced against economic and social conditions in the implementation.[198] COP decisions (including on CBD work programmes and initiatives) do not have a clearly binding character but as 'soft law' form an important part of treaty development and guide treaty interpretation. [199] Thus, while the CBD is a legally

[191] Wolff and Kaphengst (2017) at 129 et seq.; Fritsche et al. (2015) at 73.

[192] Wunder et al. (2018).

[193] Altvater et al. (2015) at 116, 117.

[194] CCD decision 15/COP.12, para. 6.

[195] CCD decision 2/COP.13, para. 2 (a).

[196] Chapter 2.3 draws substantially on the article "The UN Convention on Biological Diversity and soils: Status and future options", published together with Kaphengst (2016) in the 1(1) *International Yearbook of Soil Law and Policy* 2016, pp. 129-148.

[197] The Cartagena Protocol on Biosafety governs the handling, transport and use of genetically modified organisms (entered into force in 2003) and was complemented by the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety; the latter entered into force in 2018. The CBD's Nagoya Protocol on Access and Benefit Sharing regulates the sharing of benefits arising from the utilization of genetic resources in a fair and equitable way (entered into force in 2014).

[198] See Jóhannsdóttir et al. (2010) at 143. Cf. qualifying wording in the Convention text, such as the provision that parties shall "integrate, *as far as possible and as appropriate*, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies" (Art. 6(b) CBD).

[199] E.g., Brunnée (2002); Gehring (2007) at 491.

binding international treaty, not all of its provisions create sufficient obligations for states to act accordingly.[200]

In the following, we sketch out the CBD's scope of application, core obligations and institutions. We then explore how soil issues are addressed within the CBD and how the CBD could serve as a basis for internationally strengthening sustainable soil management.

2.3.1.1 Scope of application

The CBD's three objectives are the conservation of biodiversity, the sustainable use[201] of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources (Art. 1 CBD).

Art. 2 specifies that "biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems, including terrestrial ecosystems. The latter is relevant for the topic of soils, as soil management can be understood to constitute an important part of managing terrestrial ecosystems, be it agro-ecosystems, forests, coasts, savannahs or others. It has been submitted that through the link to terrestrial ecosystems all soil functions fall within the objectives of the CBD:[202] "soil's biological functions such as habitat for animals and plants, as reservoirs and sinks for carbon, or its purification function, fall under the objective 'conservation of biological diversity'. The 'use' functions of soil, such as habitat for humans, the production of food and plants that are the basis for renewable energy can be regarded as 'use of its components'. In that sense, the scope of application of the CBD is broad enough for the comprehensive regulation of all relevant aspects of the protection and the sustainable use of soils."[203] Finally, "genetic resources" means genetic material of actual or potential value (Art. 2), including soil genetic resources.

In substantive terms, some genetic resources are excluded from the CBD's scope. These include, most notably, genetic resources for food and agriculture as listed in Annex I of the Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

In geographical terms, the Convention's obligations regarding the conservation and sustainable use of a) components of biological diversity apply in areas within the limits of its parties' national jurisdiction. With regard to b) the processes and activities which can affect these components of biological diversity (and, consequently, biological diversity), the CBD's obligations apply regardless of where their effects occur, carried out under its jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction (Art. 4, CBD). With regard to genetic resources,

This scope of application includes soil biodiversity. Soil biodiversity encompasses the variability among living organisms in the soil, i.e. the "many thousands species of animals and micro-organisms living in soils contributing to many essential ecosystem services. Soil biota ranges from the almost invisible microbiota (e.g. bacteria, fungi and protozoa) to the more conspicuous macrofauna and megafauna (e.g. earthworms, termites, millipedes, moles and rats)".[204] For soil genetic resources, the provisions on "access and benefit sharing" of the CBD and its Nagoya Protocol apply.[205]

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[200] Jóhannsdóttir et al. (2010) at 143.

[201] Sustainable use of biodiversity is specified as "the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (Art. 2). COP Decision V/25 established the sustainable use of biodiversity as a cross-cutting issue of the Convention.

[202] Boer, Ginzky and Heuser (2017) at 60.

[203] Boer, Ginzky and Heuser (2017) at 60.

[204] SCBD, *Key issues*, available at https://www.cbd.int/agro/soilkeyissues.shtm (last accessed on 15.05.2019).

[205] Buck and Hamilton (2011); Oberthür and Rosendal (2014).

The legal text of the CBD, however, only indirectly relates to soils, by defining the CBD's subject matter and objectives. The terms "soil", "sustainable soil use" or "sustainable soil management" do not appear in the legal text of the CDB, nor do they appear very prominently in other CBD documents. Apart from political reasons for this restraint, soil biodiversity is only a sub-aspect of sustainable soil management, which also encompasses water availability and quality, soil erosion and degradation, nutrient balances, etc. Still, soil biodiversity was identified as an area requiring particular attention soon after the adoption of the Convention. In treaty practice (Chapter **Error! Reference source not found.**), references to sustainable soil management can be seen in the CBD's Ecosystem Approach, in the Addis Ababa Principles on Sustainable Use of Biodiversity as well as in the Convention's programme of work on sustainable agriculture and the International Initiative on the Conservation and Use of Soil Biodiversity.

2.3.1.2 Core obligations

The CBD contains very few 'hard' obligations. Beyond its general objectives, the treaty text does not set concrete targets[206] nor does it define species or sites to be protected. Rather, it specifies overall goals and policies and leaves the responsibility of determining how these are to be implemented to the individual Parties themselves. Overall provisions that contracting parties shall implement include:

- General measures for the conservation and sustainable use of biological diversity, notably the development of national strategies, plans or programmes and integration of the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies (Art. 6);
- Identification and monitoring of biodiversity (Art. 7);
- In-situ conservation of biodiversity, including through establishing a system of protected areas, protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings; promotion of environmentally sound and sustainable development in areas adjacent to protected areas; rehabilitation and restoration of degraded ecosystems and promotion of the recovery of threatened species (Art. 8). The obligation to conserve biodiversity in situ includes a call to preserve the traditional knowledge and practices of indigenous and local communities as they are relevant for the conservation and sustainable use of biological diversity (Art. 8(j)).[207] Such knowledge and practices may, among others, relate to the management of soils;
- Ex-situ conservation of components of biological diversity (Art. 9);
- Sustainable use of components of biological diversity (Art. 10);
- Incentive measures (Art. 11), research and training (Art. 12), public education and awareness (Art. 13), impact assessment (Art. 14);
- Access to genetic resources (Art. 15, CBD): the CBD created an obligation for states to facilitate access to genetic resources and linked it to the equitable sharing of benefits arising from their commercial and other utilization. They make access to genetic resources subject to the negotiation of bilateral, contractual benefit-sharing agreements between the 'countries of origin' where the genetic resources grow 'in situ' (on site), and the users that seek access to these resources. Such users may be bioprospecting companies from various sectors or non-commercially interested academics.
- Regular reporting on the measures parties have taken for implementing the CBD's provisions and on their effectiveness (Art. 26).

2.3.1.3 Institutions

The CBD's institutional arrangements include:

[206] On the targets contained on the CBD's Strategic Plan and the Aichi Targets, see below (Chapter 2.3.1.4).

[207] Note that the provisions of Art. 8(j) are subject to national legislation.

- The **Conference of the Parties** (COP) is the CBD's governing body (Art. 23 CBD). As such, it is responsible for ongoing policy development and for advancing the CBD's implementation (e.g., though strategic plans, programmes of work, initiatives or COP decisions). While the COP initially met annually, it now holds it meetings (14 ordinary ones to date and one extraordinary one) every two years. Medium-term planning within the CBD is based on strategic plans; the current one (Strategic Plan for Biodiversity 2011-2020) includes a set of UN-wide biodiversity related commitments ("Aichi Targets"). Preparation of the post-2020 strategic framework has started in 2017. The CBD's COP also serves as the **Meeting of the Parties** (COP-MOP) to the CBD's three Protocols.
- The **Subsidiary Body on Scientific, Technical and Technological Advice** (SBSTTA) is a subsidiary body of the COP (Art. 25 CBD). It is tasked with providing advice relating to the implementation of the Convention, including assessments of the status of biological diversity; assessments of measures taken under the CBD; and advice relating to other questions put to the SBSTTA by the COP. SBSTTA meets once a year.
- The **Subsidiary Body on Implementation** (SBI) is mandated to review the progress in the CBD's implementation; act to enhance implementation; strengthen the means of implementation; and (d) operations of the convention and the Protocols (Decision XII/26). The COP Bureau also serves as the SBI's Bureau. To date, SBI has met two times (2016, 2018),
- The **Ad Hoc Open-ended Working Group on Article 8(j) and related provisions**, established in 1998, is concerned with enhancing the role and involvement of indigenous and local communities in the achievement of the CBD's objectives, and with implementing and further developing the CBD's programme of work on Article 8 (j) of the Convention. The Working Group has met 10 times so far.
- The **Ad Hoc Open-ended Working Group on Protected Areas** (Decision VII/28) supports and reviews the implementation of the programme of work on protected areas. It has met twice so far (2006, 2008).
- In terms of finance, the CBD obliges developed country parties to provide new and additional financial resources for the implementation of the CBD in developed countries. The **Global Environmental Facility** (GEF) operates as financial mechanism of the CBD as well as its protocols (Art. 21, CBD),[208] with US$ 826.3 million having been provided under the Biodiversity Focal Area between 2014 and 2018 (GEF-6)[209], and more than US$ 3.5 billion since the GEF's inception.[210] The budget for the administration of the Convention and its protocols as such[211] amounted to US$ 25 Mio in 2017-2018.

The CBD is supported by work of the **Intergovernmental Platform on Biodiversity and Ecosystem Services** (IPBES, see section 2.11). Institutionally, the CBD is an observer to IPBES and cooperates with the science-policy platform (like other conventions, too) on the basis of a Memorandum of Cooperation. IPBES is no institution under the CBD but an independent organisation established by its (now 130) member states.[212]

2.3.1.4 Practice

In the following, we present information on treaty practice under the CBD as it relates to *soils*. Conserving and sustainably using soil biodiversity is a crucial facet of sustainable soil management (SSM). This is because soils are ecosystems that perform numerous crucial functions and services, ranging

[208] See also Art. 28 of the Cartagena Protocol and Art. 25 of the Nagoya Protocol.

[209] CBD/COP/14/7, p. 2.

[210] https://www.thegef.org/topics/biodiversity (last accessed on 15.05.2019).

[211] More specifically, the "integrated biennium budget for the Trust Funds of the Convention on Biological Diversity and its Protocols", cf. COP Decision XIII/32.

[212] UN General Assembly Resolution A/RES/65/162.

from the provision of food and cleaning of water to archiving cultural heritage.[213] Moreover, "[s]oil organisms contribute a wide range of essential services to the sustainable function of all ecosystems, by acting as the primary driving agents of nutrient cycling, regulating the dynamics of soil organic matter, soil carbon sequestration and greenhouse gas emission; modifying soil physical structure and water regimes, enhancing the amount and efficiency of nutrient acquisition by the vegetation and enhancing plant health."[214] Soil biodiversity is thus essential both for the health of natural ecosystems and the productivity of agricultural systems.

Both the CBD's overarching Ecosystem Approach (developed since 2000) and its Addis Ababa Principles (adopted in 2004) promote a holistic approach towards the conservation and sustainable use of biodiversity, interfacing nature and ecosystems with the human sphere. The more recent Aichi Targets (adopted in 2010) furnish both the Ecosystem Approach and the principles on sustainable use with a framework of targets, timelines and indicators.

The Ecosystem Approach

The "Ecosystem Approach" is the CBD's primary framework for action, adopted by the parties in 2000 (Decision V/6) and then further developed (Decision VII/11). Although not legally binding *per se*, they represent the common and formal understanding of parties on how the CBD is to be implemented. The Ecosystem Approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use of biodiversity in an equitable way.[215] The approach requires adaptive management to deal with the complex and dynamic nature of ecosystems, as well as precautionary action in the absence of complete knowledge or understanding of ecosystem functioning. It recognizes that humans and their activities are elementary parts of an ecosystem.[216] Among others, the ecosystem approach specifies that:

- Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems (Principle 3);
- Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach (Principle 5);
- Ecosystems must be managed within the limits of their functioning (Principle 6).

The terms (ecosystem) "functions" and "functioning" which appear prominently represent a linkage to sustainable soil management. Soils are an obvious biotic and abiotic component of (terrestrial) ecosystems. Without soils, no vegetation could exist; no water, nutrients, carbon and other substances could be stored and made available for all kinds of organisms. Furthermore, the core objective of sustainable soil management is to maintain and enhance soil functions and related ecosystem services. Ecosystems services are defined as "the benefits people obtain from ecosystems"[217] and soil change is regarded as one main factor directly affecting the provisioning of ecosystem services.[218] Sustainable soil management can thus be seen as a key component for achieving the objective of a sustainable use of biodiversity under the CBD.

[213] Jeffery et al. (2010) at 8.

[214] Ibid.

[215] While there are some parallels to the "Scientific Conceptual Framework for Land Degradation Neutrality" developed within the UNCCD (e.g., the reference to the precautionary principle and to the protection of the rights of local land users), the Ecosystem Approach covers other media and natural resources beyond land and is broader with regards to management principles. Moreover, the counterbalancing of anticipated losses in land-based natural capital with planned gains as conceptualised in the LDN Conceptual Framework may compromise Principle 6 of the Ecosystem Approach ("Ecosystems must be managed within the limits of their functioning", see below) when losses at one site are substantial, even if they may be numerically counterbalanced by gains at another site.

[216] https://www.cbd.int/ecosystem/ (last accessed on 15.05.2019).

[217] MA (2005) at v.

[218] FAO & ITPS (2015a).

In addition to thus prescribing principles that are relevant (among others) for soil use, the Ecosystem Approach highlights other aspects that can potentially widen the perspective of soil management to more social and political aspects such as decentralized management (Principle 2), recognizing the economic context (6), and consideration of different forms of knowledge and practices (11). It is hence not surprising that the Ecosystem Approach plays a particular conceptual role in the design and implementation of the programme of work on agricultural biodiversity.

The Addis Ababa Principles on Sustainable Use of Biodiversity

In its Decision VII/12, the COP adopted the Addis Ababa Principles on Sustainable Use of Biodiversity as "an important tool to achieve the 2010 target endorsed by the World Summit on Sustainable Development, the Millennium Development Goals and the three objectives of the Convention". The Addis Ababa Principles are not prescriptive but rather provide a governance framework for the sustainable use of components of biodiversity. Their guidelines and instruments can be used by governments, resource managers, indigenous and local communities, the private sector and other stakeholders[219] - groups which do not only deal with the protection of biodiversity, but are also confronted with the need to manage land and soils in a sustainable way.

Although "soil use" is not explicitly mentioned in the Principles, a strong conceptual link to soil management can be found in Principle 5 which reads: "Sustainable use management goals and practices should avoid or minimize adverse impacts on ecosystem services, structure and functions as well as other components of ecosystems." Further, the rationale of the principle explains "for use of any resource there is a need to take into account the functions that resource may fulfil within the ecosystem in which it occurs, and that use must not adversely affect ecosystem functions." This principle is in turn related to the above mentioned principles (3, 5, and 6) of the Ecosystem Approach and has an equivalent link to soil management.

In total, the Addis Ababa Principles include 14 principles which touch on a wide range of (governance) issues that can be also relevant for the sustainable use of soils. This is despite the fact that the Addis Ababa Principles widen the scope beyond the mere physical aspects of sustainable soil management by relating to, for example:

- Multi-level governance and scaling of management to the ecological and socio-economic needs of resource use (Principle 1 and 7)
- Adaptive management (Principle 4)
- International cooperation (Principle 8)
- Rights-based and participatory approach (Principle 2, 9 and 12)
- Education, awareness raising and communication (Principle 14)

The Strategic Plan for Biodiversity and the Aichi Targets

The CBD's Strategic Plan for Biodiversity (2011-2020) takes a broad perspective on preconditions for the conservation and sustainable use of biodiversity. It does so by focusing on food security, human health, local livelihoods, clean air, water, and so on.

The "Aichi Biodiversity Targets" (which form part of the Strategic Plan) aim at achieving five strategic goals.[220] The targets are mostly set for 2020 (partly for 2015) and they are accompanied by a vision for

[219] SCBD (2004).

[220] These are: addressing the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society (Strategic Goal A); reducing the direct pressures on biodiversity and promote sustainable use (B); improving the status of biodiversity by safeguarding ecosystems, species and genetic diversity (C); enhancing the benefits to all from biodiversity and ecosystem services (D); and enhancing implementation through participatory planning, knowledge management and capacity building (E).

2050.[221] Soil health and soil biodiversity are cross-cutting amongst these targets. For instance, they are indirectly addressed in the call to keep the impacts of use of natural resources well within safe ecological limits (Target 4); to reduce the rate of loss of all natural habitats and to reduce degradation and fragmentation significantly; to manage agriculture sustainably (Target 7); to reduce pollution, including from excess nutrients (Target 8); to restore ecosystem services (Target 14); and to enhance ecosystem resilience and the contribution of biodiversity to carbon storage, including through the restoration of degraded ecosystems (Target 15).

Table 1: Indicators of Aichi Targets with relevance for sustainable soil management

No.	Aichi Target	Selected GBO-4 Indicators[222]
4	By 2020, keep the impacts of use of natural resources well within safe ecological limits.	Ecological footprint
5	By 2020, the rate of loss of all natural habitats is at least halved or close to zero, and degradation and fragmentation is significantly reduced.	Extent of forests & forest types; areas of forest under sustainable management – degradation & deforestation
7	By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	Area of forest under sustainable management (FSC, PEFC-certified); area under organic agriculture; area under conservation agriculture
8	By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	Loss of reactive nitrogen to the environment; global surplus of nitrogen
14	By 2020, ecosystems … are restored and safeguarded …	Wetland extent
15	By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems	[no indicator available]

Source: own.

To measure progress towards the Aichi Targets, the CBD's flagship publication – the fourth **Global Biodiversity Outlook** (GBO-4) – uses indicators which are partly also interesting as proxies for sustainable soil management.[223] These include, for instance, areas of agricultural land under organic production and agricultural land under conservation agriculture (Target 7); as well as loss of reactive nitrogen to the environment and global surplus of nitrogen (Target 8).[224] Missing, so far, are indicators for soil organic carbon (for Target 15) as well as for soil organic matter content, soil productivity, biodiversity of soil organisms or soil water storage capacity (Target 7).[225] For the next GBO, which seeks to align its indicators with those of other Rio Conventions and those under discussion for biodiversity-relevant SDGs, some new soil and land-related indicators are being considered. These include the ratio of land consumption rate to population growth rate (Target 4) and the proportion of land that is degraded over total land area (Target 5).[226]

[221] The vision is as follows: "By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people".

[222] UNEP/CBD/SBSTTA/20/13 (Annex); Leadley et al. (2014), available at http://www.bipindicators.net/globalindicators (last accessed on 15.05.2019).

[223] SCBD (2014).

[224] Leadley et al. (2014).

[225] European Commission, IASS and Umweltbundesamt (2013).

[226] UNEP/CBD/SBSTTA/20/13.

With regard to one of the Aichi Targets' overriding strategic goals – mainstreaming biodiversity concerns into relevant sectors of the economy (including those which heavily utilize soil) – the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) of the CBD made recommendations in its 2016 meeting that have positive implications for soil management. Parties and other governments are encouraged, for example, to develop clear legal or policy frameworks for land use to enhance biodiversity-related ecosystem services from agricultural land, such as pollination, pest control, water provision and erosion control.[227]

The programme of work on agricultural biodiversity

Over the years, the COP has endorsed seven thematic programmes of work that reflect the major biomes of the world and provide concrete guidance by describing principles, key issues, outputs and timetables. As mentioned above, COP decisions such as these work programmes are not legally binding *per se*.[228] However, they are adopted by consensus and represent a common and formal understanding by parties as to how to interpret and implement the treaty. With regard to soil management, the most relevant programme of work is that on agricultural biodiversity.[229] As one of two areas of content, the work programme addresses the impacts of agricultural systems and practices on biodiversity in different ecosystems. It thus has a clear link to soil management.

When the work programme on agricultural biodiversity was adopted in 1996 (Decision III/11, at CBD COP3), this was the first time that soils were formally recognized. During programme development, the role of soil and other below-ground biodiversity in supporting agricultural production, especially in nutrient cycling, was considered in depth.[230]

The work programme stipulates that the biological diversity of soils is responsible for nutrient circulation and fertility within agricultural ecosystems. Decision III/11 of the COP entails an indicative list of thematic areas which highlights soil erosion under the topic of "land resources". Other thematic areas such as sustainable tillage, integrated land and resource management, restoration of degraded landscapes and irrigation management are key issues, which are currently also taken up in the debate on sustainable soil use. Furthermore, the work programme gives soil micro-organisms priority for protection. Annex 3 of the programme identifies the measurement and monitoring of symbiotic micro-organisms, in particular nitrogen-fixing bacteria and mycorrhizal fungi, as an initial issue of conducting case studies within the programme of work. Finally, the work programme calls for the identification and promotion of sustainable land-use practices to enhance micro-organisms.

The International Initiative for the Conservation and Sustainable Use of Soil Biodiversity

In 2002, the CBD parties agreed to establish an International Initiative for the Conservation and Sustainable Use of Soil Biodiversity (in short: International Soil Biodiversity Initiative) as part of the Programme of Work on Agricultural Biodiversity (Decision VI/5). A preparatory study on the subject was carried out by FAO. Based on this input, SBSTTA expertise and a technical workshop held in Brazil in 2002, the International Soil Biodiversity Initiative was developed. The CBD parties adopted the initiative in 2006 and established soil biodiversity as a "cross-cutting issue" (CBD Decision IIX/23, 2006).

The International Soil Biodiversity Initiative calls on governments "to integrate soil biodiversity conservation and sustainable use into their national strategies and action plans and to put in place multisectoral programmes and initiatives for the conservation and sustainable use of soil biodiversity" (CBD

[227] UNEP/CBD/SBSTTA/15.

[228] Unless the treaty so provides, either directly or through interpretation.

[229] Jeffery et al. (2010) at 82-83. Links (though weaker ones) also exist to the programmes of work on forest biodiversity and on dry and sub-humid lands.

[230] UNEP/CBD/SBSTTA/7/INF/11, p. 2.

Decision IIX/23). The "strategic principles" on which the initiative is based are mostly derived from the Ecosystem Approach and the Addis Ababa Principles outlined above.[231] The initiative's main goals and activities include:[232]

- **Promote awareness-raising, knowledge and understanding** of key roles, environmental services, functional groups and impacts of diverse soil management practices, including those performed by indigenous and local communities, in different farming systems and agro-ecological and socio-economic contexts.
- **Increase understanding** of the role of soil biodiversity in agricultural production, traditionally applied land management practices and ecosystem and environmental health.
- Promote the understanding of the impacts, ownership, and adaptation of all land use and soil-management practices as an integral part of agricultural and **sustainable livelihood** strategies.
- Promote the **mainstreaming** of soil biodiversity conservation into land and soil-management practices.

FAO was mandated to manage the initiative in cooperation with various international partners, and to support parties and stakeholders through capacity building and the dissemination of best practices (CBD Decision IX/1, para 23; 2008). FAO was also requested to compile a report on the role of soil biodiversity and its interrelations with agriculture (ibid, para 24). This report, when submitted in 2010,[233] was lacking in detail and FAO was again asked to submit an "expanded progress report" of the Initiative's implementation (CBD Decision X/34; 2010) which they submitted to the CBD's COP-14 (Sharm El-Sheikh, Egypt) in 2018 (CBD/COP/14/INF/42). The new report summarizes recent activities by FAO and its Global Soil Partnership on soil issues. However, these activities are not related to the Initiative's objectives and indeed only a small share of the activities (directly) relates to soil biodiversity. COP 14 invited FAO *("*subject to the availability of resources") to consider the preparation of a report on the state of knowledge on soil biodiversity covering current status, challenges and potentialities, which should be made available for consideration by SBSTTA prior to the next COP (in 2020) (CBD Decision XIV/30, para 23).

The collaboration between the CBD and FAO with regard to soil biodiversity (as well as agricultural biodiversity more generally) is formalized though a Joint Work Plan between the Secretariats of the CBD and the FAO Commission on Genetic Resources for Food and Agriculture.[234] Generally, the FAO ensures an important institutional link to the more agriculture-driven (rather than conservation-driven) initiatives on soil protection (see Chapter 2.9).[235]

International funding for soil issues under the CBD

It turns out that soil biodiversity does not (and has not) play(ed) a major role in the programmes of the Global Environmental Facility (the CBD's funding mechanism).

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[231] Specifically, the ten strategic principles include: improve farmers' livelihoods; integrate framers' experiences and scientific knowledge; apply the ecosystem approach (adaptive management; multi-stakeholder participation, cross-sectoral and holistic approach); prioritize actions on the basis of country goals; promote solutions adapted to local conditions, disseminate and exchange information and data; promote entrepreneurship for household agriculture and food security (CBD Decision IIX/23, Annex).

[232] For an overview of the Initiative's activities, see Dias and Coates (2012) at 9-10.

[233] The "report" on soil biodiversity formed part of a more encompassing "Progress report of the FAO on selected activities related to agricultural biodiversity" (Document UNEP/CBD/SBSTTA/14/INF/30). In it, FAO just gave a very brief (two paragraph) account on the progress of the International Soil Biodiversity Initiative, highlighting among others that a new soil biodiversity website was being developed.

[234] Cf. Annex, UNEP/CBD/SBSTTA/16/INF/33.

[235] It also acts as a connecting entity to other relevant initiatives on soil biodiversity, such as the science-driven Global Soil Biodiversity Initiative (GSBI).

In the just concluded 6th replenishment phase (GEF-6), the focal area of "biodiversity" was equipped with US$ 826.3 Mio (2014 – 2018).[236] With this money, GEF aims at helping developing country parties to the CBD implement the Strategic Plan and achieve the Aichi Targets. Through ten programmes, the GEF-6 "Biodiversity Strategy" targets the main causes of biodiversity loss and aims, among others, to mainstream conservation and sustainable use of biodiversity into production landscapes/seascapes and sectors. This includes the agricultural sector. However, the potentially relevant programmes (Programme 7-9) are not focused on soil biodiversity.[237] However, a cross-cutting GEF-6 pilot programme on food security (in Sub-Saharan Africa) focused specifically on the natural resources underpinning food and nutrition security, including soils (intended budget: US-$ 900 million[238]). In past GEF periods, individual soil biodiversity projects have been funded, too.[239]

With regard to the upcoming 7th replenishment, the COP made its recommendations regarding GEF funding priorities in 2016.[240] GEF-7 is intended to provide several entry points for countries to mainstream biodiversity across sectors and within production land- and seascapes, including through a "Food Systems, Land Use & Restoration Impact Program".[241] Sustainable soil management is not explicitly mentioned as an aim of the programme;[242] however, the explicit aim to fund activities protecting against the overuse of chemical fertilizers and pesticides will also benefit soil biodiversity. In the context of the Food Systems Impact Programme, participating countries will be required to implement sustainable land use plans.

National implementation efforts

From among the soil-related provisions and principles in the CBD, the International Soil Biodiversity Initiative most explicitly "calls upon" parties to integrate the conservation and sustainable use of soil biodiversity into their national biodiversity strategies. However, parties have, for the most part, failed to follow through.[243] Only a small number of governments and international organisations have actually adopted the initiative and have subsequently developed national or international soil biodiversity activities.[244] This is reflected in the widespread absence of information on soil biodiversity related measures in the **national biodiversity strategies and action plans** (NBSAP). While over the past years, the NBSAP have catalysed action as well as specific policy-making among others on agricultural biodiversity,[245] a synthesis of NBSAPs produced in 2015 for the CBD Secretariat does not mention soils.[246]

Nor does soil or related issues (such as erosion or pollution from excess nutrients) feature prominently in **National Reports** that parties are obliged to submit to the CBD.[247] Only a synthesis of the 3rd

[236] CBD/COP/14/7, p. 2.

[237] GEF (2014).

[238] GEF (2014) at 3.

[239] For instance, the project "Conservation and Sustainable Management of Below Ground Biodiversity", executed by CIAT's Tropical Soil Biology and Fertility Institute (TSBF) between 2005 and 2010, supported by GEF with US-$ 9 million.

[240] Cf. the "Four-year outcome-oriented framework of programme priorities" (2018-2022), CBD Dec. XIII/21.

[241] GEF (2017b).

[242] The programme's aim is "to transform food value chains by supporting countries to meet their growing demand for higher productivity of crops and livestock, while at the same time avoiding the inherent risk of further expanding farmland at the expense of biodiversity and ecosystem services, erosion of crop and livestock genetic diversity, overexploitation of water resources, overuse of chemical fertilizers and pesticides, and inefficient practices that lead to GHG emissions, and food loss and waste".

[243] Pisupati and Prip (2015).

[244] Orgiazzi et al. (2016) at 154.

[245] UNEP/CBD/COP/10/8, para. 38.

[246] Pisupati and Prip (2015).

[247] See in detail at https://www.cbd.int/reports/search/ or the syntheses of the forth National Reports: UNEP/CBD/COP/10/INF/2 (2010); UNEP/CBD/COP/10/8 (2010); UNEP/CBD/WG-RI/3/INF/1 (2010); on the third National Reports: UNEP/CBD/WG-RI/2/INF/1 (2007) and UNEP/CBD/WG-RI/2/INF/1/Add.3 (2007).

National Report (2007), focusing on the implementation of the thematic programme of work on agricultural biodiversity, mentions that "a few parties" reported to have conducted assessments of soil biodiversity.[248] This finding confirms an assessment by FAO of an earlier reporting period.[249] The weak coverage of soil biodiversity in CBD parties' national reports may have to do with the general political neglect of soil biodiversity. However, it may also result from the fact that more recent reports focus on parties' performance with regard to the Aichi Targets (or to their respective national equivalents), which do not directly relate to soils.

2.3.2 Assessment and opportunities

The CBD rules and activities are conducive to sustainable soil management. Soils – which are both ecosystems themselves and a key component of most terrestrial ecosystems – are managed sustainably if, inter alia, levels of biodiversity within and above the soil remain high. Also, if (soil-related) ecosystem functions and services are maintained and enhanced, this contributes decisively to sustainable soil management as defined by the revised World Soil Charter (cf. Chapter 0). Both high levels of biodiversity and abundant ecosystem services are core objectives of the CBD and, with a focus on soils, of the International Soil Biodiversity Initiative. More specifically, from a substantive perspective, the CBD's objective to promote the sustainable use of biodiversity, its concrete Aichi Targets, supportive management concepts (Ecosystem Approach, Addis Ababa Principles) and the programme of work on agriculture can all be considered as potentially conducive for sustainable soil management. The same holds for the programme of work on agricultural biodiversity and the International Initiative for the Conservation and Sustainable Use of Soil Biodiversity. However, but FAO's latest progress report on the initiative seems to imply that there are not many activities by FAO or the Global Soil Partnership that are specifically dedicated to soil biodiversity and the International Initiative.

Also, while the conservation and sustainable use of biodiversity is conducive to a healthy state of soils, the Convention itself does not deal with soil biodiversity or the role of soils for non-soil biodiversity in a comprehensive or ambitious way. With the exception of the International Soil Biodiversity Initiative, soil is addressed mostly *indirectly* by the various targets, guidelines and initiatives within the CBD. Its parties have not committed themselves to address the issue of soil (biodiversity) at a more strategic level than through an Initiative (the implementation of which they assigned to FAO). While there would be potential for an increased contribution of the CBD to sustainable soils, there is currently no evidence that the CBD parties are willing to drive the dynamics on international soil governance.

Finally, implementation at the level of parties is still weak with regard to soil biodiversity.

2.3.3 Potential avenues for action

A core challenge for strengthening soil governance through the CBD is in motivating CBD parties in addressing soil (biodiversity) at all. Such efforts could be supported by a narrative emphasising that not only is soil biodiversity an important component of biodiversity that falls into the Convention's remit, but also that sustainable soil management crucially supports the achievement of two of the CBD's objectives – the conservation and sustainable use of biodiversity.

Based on this, one potential avenue for action would be to start with low-threshold initiatives to make CBD parties more aware of the importance of soil biodiversity and soil management. Potential

[248] UNEP/CBD/WG-RI/2/INF/1/Add.3, para. 61.

[249] Under the heading "Reporting on Soil Biodiversity: National Reports on CBD Implementation", the Secretariat of FAO's Commission on Genetic Resources for Food and Agriculture analysed in 2002: "National reports to the COP and reports by international agencies provide a means to assess progress made in implementing the thematic programmes of work of the Convention. In regard to agricultural biodiversity, an overview of national reports indicates that countries have tended to report more on natural ecosystems than on agricultural ecosystems. Moreover, within agricultural systems the emphasis is on plant and animal genetic resources and often little or no information is given on soil biological diversity. Nonetheless, as part of programmes and actions on research and monitoring and on conservation and development, almost everywhere there are initiatives upon which to build. Some countries are preparing specific reports on soil biological diversity, for example, Canada and Uganda. However, such cases are few and far between" CGRFA 2002, § 75.

measures could be the production of technical reports or a mainstreaming of soil biodiversity into reporting. Over time and based on such low-threshold activities, more strategic and ambitious options could be introduced. Examples include the anchoring soils in the CBD's next Strategic Plan for Biodiversity (2021-2030) and in the long run even a protocol to the Convention.

A second avenue could be the expansion of institutional coordination between the CBD and other fora with regard to soil issues (e.g., with the other Rio Conventions UNCCD und UNFCCC, but also the Global Soil Partnership and IPBES).

2.4 Paris Agreement and climate regime

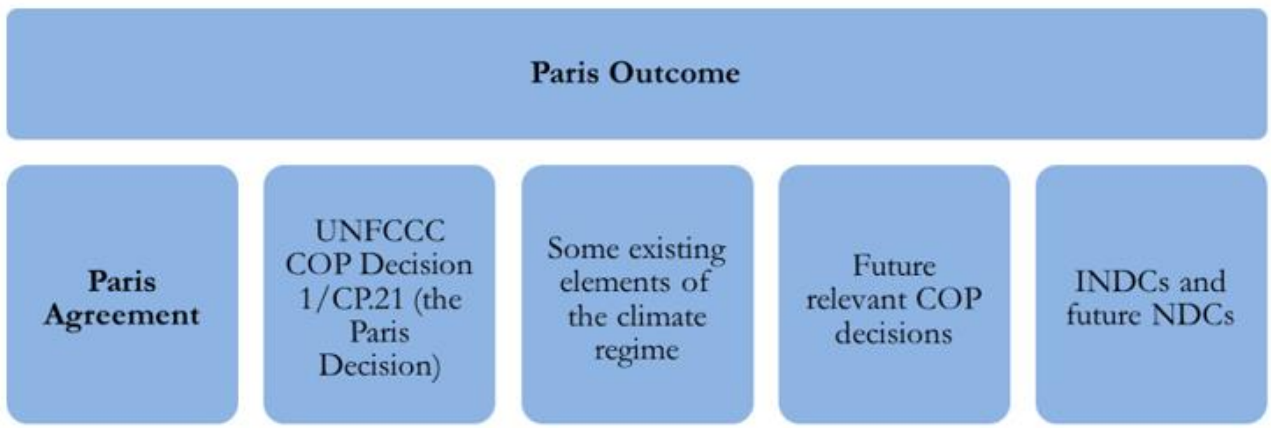
2.4.1 Analysis

The Paris Agreement was adopted on 12 December 2015 under the United Nations Framework Convention on Climate Change (UNFCCC). It entered into force on 4 November 2016 and is almost universal with 185 parties.[250] The decision that adopted the PA (1/CP.1) also provides details on how to implement as well as mandates and work programmes for designing and agreeing further guidelines, standards and procedures for implementation. COP24 in November 2018 adopted a package of implementing decisions.

2.4.1.1 Scope of application

The Paris Agreement is part of the UN climate regime and is open to all parties of the UNFCCC. It addresses climate change and binds all its parties regarding activities on their respective territories and under their control. It does not replace but supplements the existing UNFCCC of 1992 and the Kyoto Protocol of 1997 and incorporates existing elements of the climate regime:[251]

Figure 8: Paris Outcome



Source: Bodle and Oberthür (2017)

The Paris Agreement's material scope of application is very wide because (i) climate change is an issue for basically all areas of human activity and development, (ii) the Paris Agreement takes a mainly procedural approach that does not exclude specific sectors,[252] and (iii) it builds on the existing climate regime with its more than 20 years of implementing history.

[250] As of 01.04.2019, see https://treaties.un.org.

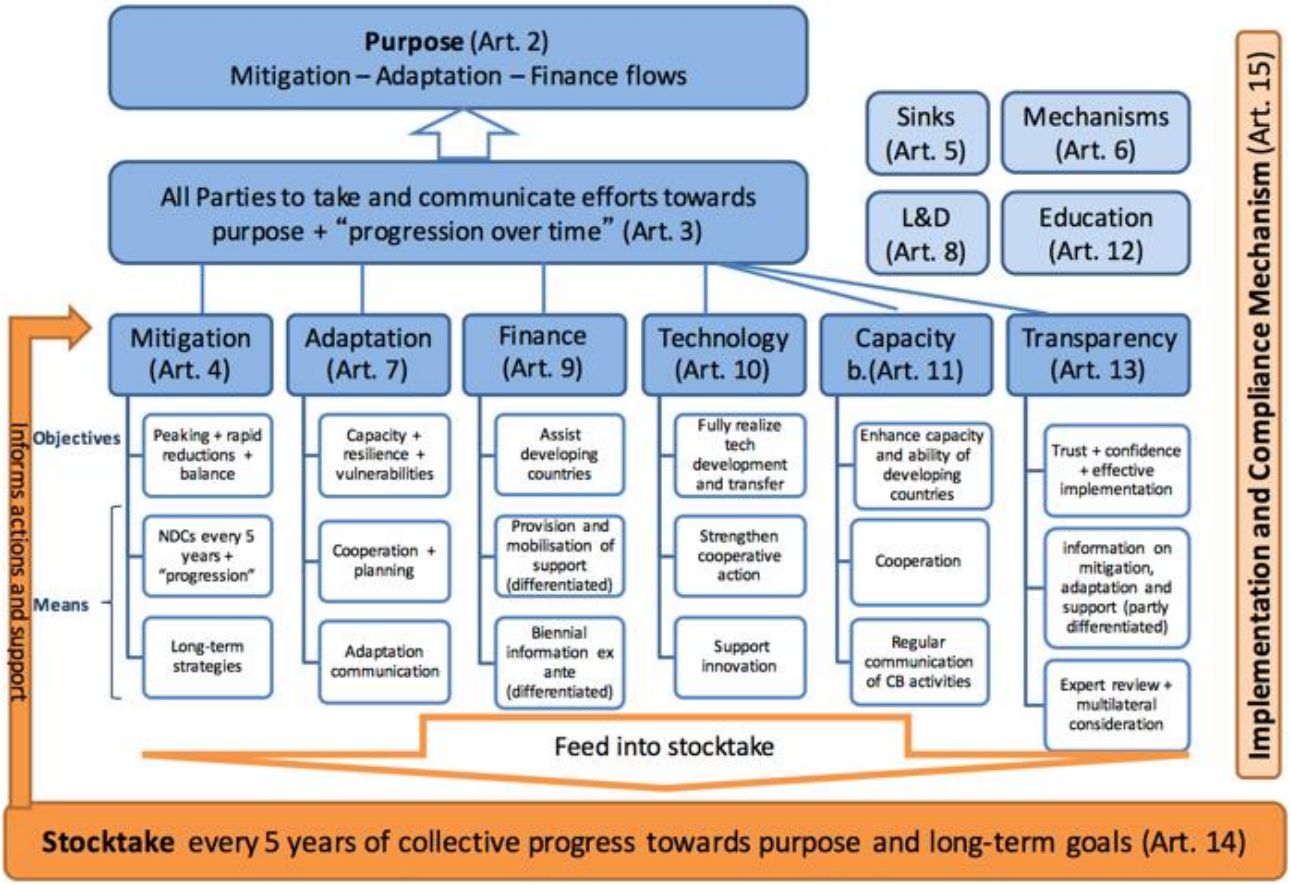
[251] For a general analysis of legal form and nature of the obligations see Bodle and Oberthür (2017).

[252] The only areas that are de facto not addressed by the climate regime are bunker fuels in aviation and shipping, which have been left to ICAO and IMO.

2.4.1.2 Core obligations

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, to increase the ability to adapt, and to make finance flows consistent with low-carbon development. It also aims at reaching global peaking of emissions "as soon as possible" and to drive down GHG emissions to net-zero in the second half of the 21st century.[253] The core obligations to achieve these objectives are mainly procedural: Parties are required to prepare and present individual climate plans (nationally-determined contributions, NDCs) every five years that set out how the party intends to contribute to the collective objectives.[254] Parties are not obliged to implement or achieve these plans exactly as submitted, but they have to take measures with the aim of achieving these NDCs. There are virtually no specific rules as to the content or ambition level of the NDCs. In line with political priorities of developing countries, the Paris Agreement also emphasises adaptation. There are provisions on adaptation planning and submitting "adaptation communications", although these provisions are softer than those on mitigation and NDCs.[255] Parties also have to regularly report GHG emission inventories as well as on progress in implementing their NDCs[256] and on climate finance. Every five years, a "Global Stocktake" is to assess collective progress towards the Paris Agreement's objectives.

Figure 9: Structure of the Paris Agreement



Source: Bodle and Oberthür (2017)

[253] Art. 2 and 4.1 Paris Agreement. The wording in Art. 4,1 with regard to net-zero is " a balance between anthropogenic emissions by sources and removals by sinks".

[254] Art. 4 Paris Agreement.

[255] Art. 7, cf. in particular Art. 7.9 and 7.10 Paris Agreement.

[256] Art. 13.7 Paris Agreement.

The Paris Agreement's key obligations are general and not specific to particular sources of emissions or economic sectors. Many of the provisions of the Paris Agreement lack precision and prescriptiveness and do not create clear legal obligations for parties regarding specific actions. It relies on peer pressure and public pressure to safeguard ambition.[257] The Agreement leaves a lot of **leeway** to countries on the approach they take to reducing GHG emissions and adapting to climate change, including on which sectors to focus. However, each successive NDCs is supposed to be more ambitious than the previous one. Parties are also invited to prepare long-term low-GHG emission strategies, although as yet there are no rules or guidelines for their content.

Soil as well as land use, land degradation and sustainable land management are **closely linked to climate change**. Land-based ecosystems absorb and store CO2 and are amongst the most significant sinks of greenhouse gases, while land use and land use change accounts for one of the most important source of anthropogenic greenhouse gas emissions.[258] The agriculture, forestry and other land use sector is responsible for just under a quarter of anthropogenic greenhouse gas emissions mainly from deforestation and agricultural emissions from livestock, soil and nutrient management.[259] The loss of biodiversity and ecosystem services affects the capacity to adapt and mitigate through carbon storage.[260] Land use, land degradation and sustainable land and soil management are also part of adaptation efforts.[261] Agriculture in particular is also obviously relevant for adaptation and food security. Food production may be adversely affected by climate change,[262] while measures to mitigate and adapt to climate change may also affect the agricultural sector.

Yet the Paris Agreement **does not contain specific soil or land-related obligations**,[263] apart from a reference to deforestation (see below on REDD+). It does not mention the terms "soil", "land" or "agriculture". The Paris Agreement's objective relating to adaptation even has an explicit caveat relating to food security.[264]

However, it **indirectly addresses soil** protection in several respects. Science indicates that reaching the Paris Agreement's temperature goals of keeping global warming under 1.5 °C or at least 2 °C will most likely require addressing soil and land use, given their important role as sinks as well as emissions sources.[265] This is part of the discussion of the "net-zero" objective in Article 4.1 and so-called "negative emissions" that offset remaining emissions. The IPCC's 2018 scientific special report on 1.5 °C accordingly includes afforestation and reforestation, land restoration and soil carbon sequestration in the options for carbon dioxide removal measures that it considers necessary to achieve this goal.[266]

Moreover, **article 5.1 on sinks and reservoirs** covers land-based mitigation and adaptation action by providing that parties "should" take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases, including forests. Similar to other provisions of the Paris Agreement, the legal prescriptiveness of "should" falls short of "shall", but is arguably not purely discretionary. It creates an expectation that the provision is to be complied with, although it would be difficult to show that a party is in breach if it does not do what it 'should', in particular if it puts forward reasons for its acts or omissions.[267]

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[257] Bodle and Oberthür (2017) at 103.

[258] La Vina and de Leon (2017) at 166; see also Streck and Gay (2017) at 106-108.

[259] https://unfccc.int/topics/land-use/the-big-picture/introduction-to-land-use.

[260] Carazo and Klein (2017) at 407.

[261] Suarez Perez and Kallhauge (2017) at 220; Streck and Gay (2017).

[262] As recognised in the preamble of the Paris Agreement.

[263] See also Boer et al (2017) at 59.

[264] Art. 2.1 (b) PA; see also Art. 2 UNFCCC.

[265] See the overview at https://unfccc.int/topics/land-use/the-big-picture/introduction-to-land-use (last accessed on 15.05.2019).

[266] IPCC (2018) at 14, 19.

[267] Bodle and Oberthür (2017) at 98.

With regard to the **measures** parties take, the Paris Agreement's procedural approach based on NDCs -essentially climate plans- does not require parties to address specific soil threats, but does not exclude it either. Whether a party's climate actions address specific soil threats depends on each party's climate action. Agriculture is included in many parties' NDCs.[268] In 2017, COP 23 adopted the climate regime's first decision specifically on agriculture (see below on practice).

Regarding **accounting,** the climate regime is currently in the transition from the existing rules under the UNFCCC und the Kyoto Protocol to new rules under the Paris Agreement.

The existing rules climate regime comprise several systems in for land sector reporting and accounting, which to some extent at least implicitly address soil.[269] There are different and separate reporting and accounting rules for different reports and activities under the UNFCCC and the KP, and they differentiate in text or in practice between developed and developing countries. They cover quantitative and qualitative reporting for anthropogenic GHG emissions and removals under the UNFCCC; reporting and accounting for LULUCF activities for Annex B Parties under the Kyoto Protocol; measurement, reporting and verification for afforestation, reforestation and agriculture projects in developing countries via the Clean Development Mechanism (CDM) under the Kyoto Protocol and recognition for REDD+ activities in developing countries.

While describing the existing rules in full would be too complex for the purpose of this report, a few examples illustrate the complexity: For instance, the old system under the UNFCCC requires all parties to submit national inventories according to IPCC guidelines. The inventories include all emissions and removals from land use, land use change and forestry (LULUCF) in a Party's total emissions.[270] The IPCC guidelines divide all land into the land categories forest land, cropland, grassland, settlements, wetlands and other land. They also distinguish between managed and unmanaged land.[271] In practice, the rules were applied differently for developing countries.[272] Another example is accounting for quantified obligations for developed countries under the Kyoto Protocol, which for the LULUCF sector is limited to net emissions and removals from specific activities that are defined under Article 3.3 and 3.4 of the Kyoto Protocol. These are direct, human-induced, afforestation, reforestation and deforestation activities as well as forest land management, cropland management, grazing land management and/or revegetation.[273] In 2011, Parties decided that both the drainage and the restoration of wetlands by water logging should be included as land-use change in the calculation of emission reduction by developed countries according to Article 3.4 of the Kyoto Protocol.[274] The CDM mechanism, by which projects in developing countries generate emissions reductions that can be traded and used by developed countries, accepts afforestation projects but does not allow for accounting for soil carbon and projects directed at fostering carbon sequestration in soils.[275]

The Paris Agreement does not directly incorporate these rules. Article 4.14 would merely allow for accounting for land, but does not use the word "land" nor specify the existing methodologies. However,

[268] Cf. the analysis in Richards et al (2016); GIZ (2017); Streck and Gay (2017) at 116-117.

[269] Briner et al (2014) at 12.

[270] Based on Art. 4.1(d) and Art. 12 UNFCCC; see https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/reporting-requirements (last accessed on 15.05.2019).

[271] Briner et al (2014) at 14.

[272] See e.g. the guidelines for Biennial Update Reports, decision 2/CP.17.

[273] UNFCCC (2008) at 14. For a detailed account see Streck and Gay (2017) at 113-115.

[274] Boer et al (2017) at 58.

[275] Streck and Gay (2017) at 119-120; Boer et al (2017) at 58.

due to the reference to Article 4.13, such accounting rules for land could be agreed as part of the general mitigation accounting rules.[276] Some argue that in the long run, land use and land use changes would have to be accounted for in defining, implementing and monitoring national contributions.[277]

Deforestation and in particular conversion of forests into agricultural land is another related and highly relevant issue, because it results in immediate release of the carbon originally stored in the trees as CO_2 emissions.[278] In addition to the accounting rules, the climate regime has addressed this issue since 2005 under a specific agenda item "**Reducing emissions from deforestation in developing countries and approaches to stimulate action" (REDD+**). The key feature is that verified REDD+ activities are supposed to lead to "results-based payments". Several COP decisions[279] have provided methodological guidance, parameters for specific results-based payments and established a REDD+ web platform.[280] In a two-step process, the climate regime assesses the reference levels as well as the results compared to it. Parties achieving verified results are intended to receive payments related to the amount of the corresponding emissions. However, there is no specific source of funding. The payments are to come from a "variety of sources, public and private, bilateral and multilateral, including alternative sources."

So far, Brazil and Ecuador are undergoing this process[281] and the Green Climate Fund has begun to provide climate finance for REDD+.[282] The GCF co-finances Ecuador's REDD+ Action Plan and supports aligning financial instruments with the action plan's objectives, by e.g. orienting public credit lines towards sustainable agricultural production practices and promoting tax incentives.[283]

In the Paris Agreement, Article 5.2 on REDD+ is much weaker than the provision in Article 5.1 regarding sinks generally, in that it merely "encourages" parties to take action relating to REDD+. However it does serve to anchor existing forest-related provisions, frameworks and decisions, including on REDD+, in the new Agreement.[284] Both articles indicate that the existing work under the UNFCCC is not lost.[285]

The climate regime including the Paris Agreement contains several provisions and general obligations as well as institutional arrangements with regard to **financial and other support**. In several COP decisions since 2009, developed countries have committed to jointly mobilize USD 100 billion per year by 2020 and through to 2025, from a variety of sources. In the decision adopting the Paris Agreement, parties agreed to adopt a new quantified financial target to apply from 2025. The Paris Agreement also explicitly aims at making **finance flows** consistent with low-GHG and climate resilient development[286] but it does not specifically require parties to e.g. revise their subsidy policies or to introduce carbon pricing. This is an innovative and potentially far-reaching provision, but time will tell whether parties will develop further guidelines for implementation of this overarching purpose and how they will address it.

[276] Winkler (2017) at 159.

[277] Flasbarth (2017) at 16.

[278] See https://unfccc.int/topics/land-use/workstreams/reddplus (last accessed on 15.05.2019).

[279] See overview at http://unfccc.int/land_use_and_climate_change/lulucf/items/6917.php (last accessed on 15.05.2019).

[280] http://redd.unfccc.int/ (last accessed on 15.05.2019).

[281] http://redd.unfccc.int/info-hub.html (last accessed on 15.05.2019).

[282] http://www.greenclimate.fund/-/gcf-begins-first-transfer-of-climate-finance-which-also-saves-trees (last accessed on 15.05.2019).

[283] http://www.greenclimate.fund/-/priming-financial-and-land-use-planning-instruments-to-reduce-emissions-from-deforestation (last accessed on 15.05.2019).

[284] Streck and Gay (2017) at 116.

[285] La Vina and de Leon (2017) at 176; Streck and Gay (2017) at 116.

[286] Art. 2.1(c) Paris Agreement.

2.4.1.3 Institutions

The Paris Agreement has the now usual institutional structure in line with the approach of modern MEAs.[287] It establishes a Conference of the Parties to the Paris Agreement (CMA) and other permanent bodies that guide, review and evaluate the treaty's implementation. Several institutions that exist under the UNFCCC now also serve the Paris Agreement, including the Secretariat and the two main Subsidiary Bodies - the Subsidiary Body for Implementation (SBI) and there Subsidiary Body for Scientific and Technological Advice (SBSTA). In addition, the climate regime has several so-called constituted bodies with a broad range of mandates and tasks, such as the Adaptation Committee and the Paris Committee on Capacity-building (PCCB).[288] The UNFCCC is also linked to the Intergovernmental Panel on Climate Change (IPCC) which is described in section 2.11. For scientific input, the climate regime has normative and institutional links to the Intergovernmental Panel on Climate Change, an independent scientific body.[289]

The **financial mechanism** under the UNFCCC also serve the Paris Agreement, as well as the Adaptation Fund from the Kyoto Protocol. The financial mechanism is operated by the Global Environmental Facility and the Green Climate Fund. These "operating entities" report annually to the Conference of the Parties to the Paris Agreement, which provides guidance to them, including on matters related to policies, programme priorities and eligibility criteria.[290] The GEF's 7th replenishment phase from 2019-2023 amounts to about USD 802 million for climate change.[291] As of January 2019, the total amount pledged and signed to the GCF was around USD 10 billion by contributors.[292]

The UNFCCC is also linked to the Intergovernmental Panel on Climate Change (IPCC) which is described in section 2.11.

2.4.1.4 Practice

The Paris Agreement has entered into force in November 2016 and therefore has not developed much practice. For the time being there is a complex web of existing rules under the UNFCCC that apply temporarily, fully or partly until the specific rules under the Paris Agreement are agreed and come into effect.

The Paris decision 1/CP.23 established a work programme to elaborate rules and guidance on many issues set out in the Paris Agreement. Most of these issues were agreed in a comprehensive set of decisions at COP 24 in 2018. This "rulebook" includes the "common" **transparency system** including rules on land-use accounting and reporting, based on the few clearly prescriptive and fairly precise obligations in the Paris Agreement.[293]

In 2017, a decision at COP 23 for the first time brought agriculture into the on-going climate negotiation process. The decision on the "**Koronivia joint work on agriculture**" mandated the two Subsidiary Bodies to address key issues in a joint process linking climate change and agriculture.[294] Under the "Koronivia Roadmap"[295], from June 2019 to November 2020 the Secretariat is to organise five in-session workshops on: Methods and approaches for assessing adaptation, adaptation co-benefits and re-

[287] See https://unfccc.int/process-and-meetings/bodies/the-big-picture/what-are-bodies (last accessed on 15.05.2019).

[288] See the overview at https://unfccc.int/process-and-meetings/bodies/the-big-picture/what-are-governing-process-management-subsidiary-constituted-and-concluded-bodies.

[289] See section 2.13.

[290] For details see unfccc.int/financeportal (last accessed on 15.05.2019).

[291] https://www.thegef.org/news/gef-will-provide-us3-billion-climate-change-financing (last accessed on 15.05.2019).

[292] http://www.greenclimate.fund/how-we-work/resource-mobilization (last accessed on 15.05.2019).

[293] See the decisions in the reports of the Paris Agreement's CMA1-3 in 2018, FCCC/PA/CMA/2018/3/Add.1, and Add.2, and of the UNFCCC's COP24, FCCC/CP/2018/10/Add.1 and Add.2.

[294] Decision 4/CP.23.

[295] UNFCCC doc. FCCC/SBI/2018/9, Annex I.

silience; improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrated systems, including water management; improved nutrient use and manure management towards sustainable and resilient agricultural systems; improved livestock management systems, including agropastoral production systems and others; and socioeconomic and food security dimensions of climate change in the agricultural sector. COP26 in 2020 will consider the outcome and decide on future work.

2.4.2 Assessment and opportunities

- The Paris Agreement has very high political visibility and standing. The US have announced their intention to withdraw from the Paris Agreement, which may take effect at the earliest on 4 November 2019. The US have so far been isolated in this matter, since even states that originally objected to the adoption of the Paris Agreement have now signed or even ratified.[296]
- 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. Although some argue that there is room to do so within the language of these instruments,[297] the climate regime has so far for the most part declined to address specific sectors. The Koronivia Joint Work on Agriculture is a new opportunity in this regard, based on the increasing recognition of role of land use and soil in the IPCC's special report on 1.5 °C and the upcoming special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems.
- Short and medium-term: The IPCC's special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems is due for adoption in September 2019. Although the scope is on land management rather than specifically on soil protection, Germany could use its findings in the climate negotiations, for instance to promote soil protection in the Koronivia Joint Work on Agriculture. The Subsidiary bodies will report back on this work to the COP 25 in November 2020[298] - under German EU presidency. Parties are invited to submit, by 28 September 2020, their views on the work's progress and on future topics.[299]
- The Paris Agreement has been called an "essential step forward with regard to sustainable soil management", because of the importance of accounting for land use and land use changes in national contributions in order to achieve the Paris Agreement's climate goals.[300] Accounting rules for land could be a powerful incentive for sustainable land management and also for pursuing LDN. However, the accounting rules for the Paris Agreement have been agreed at COP24 in 2018 and are unlikely to be reopened before 2028. Until then there may be opportunities for shaping the technical interpretation of these rules at the climate regime. The accounting rules under the KP also not provide further political opportunities. The second commitment period 2013-2020, adopted in 2012, is not even in force and some of the few developed country parties that remain in it have made it clear that they do not intend to commit to a third.
- The Paris Agreement's adaptation pillar is an opportunity to strengthen political buy-in from developing countries. Sustainable soil management and LDN can be a crucial part of adaptation efforts and thus fit in with developing countries' priorities.[301]
- General: There is cooperation between the climate regime and other institutions in particular regarding forests.[302]

[296] E.g. Nicaragua acceded on 23 October 2017.

[297] Boer et al (2017) at 59.

[298] Decision 4/CP.23, para. 4.

[299] UNFCCC doc. FCCC/SBI/2018/9, para 43.

[300] Flasbarth (2017) at 16.

[301] Cf Streck and Gay (2017) at 118.

[302] See e.g. FAO (2018): From reference levels to results reporting: REDD+ under the UNFCCC, available at http://www.fao.org/3/CA0176EN/ca0176en.pdf (last accessed on 15.05.2019).

- Short, medium and long-term: For developing countries, support for sustainable land use is likely to be crucial.
  - The Green Climate Fund is still in the process of defining its policies and funding projects and programmes. It is an opportunity to facilitate funding for sustainable land use within the GCF through the German Board seat, as well as from the outside by supporting funding proposals.
  - Agriculture, forestry and other land use apparently receive only a small share of climate finance.[303] However, information on these flows could be improved.
- Short term and medium term: With the foreseeable demise of the KP, the future of the CDM mechanism is uncertain. The Paris Agreement contains two general references to mechanisms that could fulfil similar functions in the future. Their design has to be negotiated and Germany could push for including soil-related issues.
- Since the EU negotiates on behalf of its Member States, Germany would have to feed in any points into the EU negotiating position.

2.4.3 Potential avenues for action

- Long-term: Although sustainable land management and LDN are likely to support efforts addressing climate change, LDN as such is probably too remote from the climate regime to play a distinct role. However, the important role land plays in climate change makes the Paris Agreement and climate regime an **important forum** for discussing and anchoring knowledge, rules and policies relevant to LDN.
- Medium-term: According to article 4.19, parties should to submit, by 2020, "mid-century, long-term low greenhouse gas emission development **strategies**". A few countries have done so.[304] Germany has submitted its climate action plan of November 2016. Germany could promote these strategies in the climate negotiations and with other parties, to include sustainable land management and potentially also LDN. Since there is no specific work programme on guidance for these strategies, this would require potentially significant political effort.
- Medium and long term: Germany could politically support the process for integrating agriculture into the climate regime. It is a medium-term as well as long-term perspective: In the medium term, work will be ongoing until the SBIs report back in 2020, and parties are invited to submit views on future topics by September 2020.[305] It is long-term because the mandate does not specify a particular outcome and the work is likely to continue after 2020.
- The FAO is following this development[306] in particular as it supports parties in integrating agriculture sectors in their National Adaptation Plans and in the implementation of their Nationally Determined Contributions. Germany could support these links with a view to incorporating the LDN perspective into the FAO's support.

[303] Streck and Gay (2017) at 120.

[304] https://unfccc.int/process/the-paris-agreement/long-term-strategies (last accessed on 15.05.2019).

[305] FCCC/SBI/2018/9 of 03.07.2018, para. 43.

[306] http://www.fao.org/about/meetings/council/cl158/cl158-side-events/cop23/en/ (last accessed on 15.05.2019).

2.5 Ramsar Convention on Wetlands

2.5.1 Analysis

The Ramsar Convention[307] has been adopted in 1971 just one year before the Stockholm Conference on the Human Environment. It entered into force in 1975 and has currently 169 parties.[308] As characteristic for early international environmental treaties, it addresses the preservation and use of particular natural resources – here wetlands as waterfowl habitat. However, the focus of the Ramsar Convention has shifted over time to the protection of wetlands as ecosystems and, more recently, to the ecosystem services provided by wetlands, particularly in relation to the water cycle.[309] It is now the foundation for an "extremely comprehensive and sophisticated policy framework for the management of wetland areas"[310] in general.

The Ramsar Convention does not tackle specific drivers of land degradation. Its mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world"[311]. According to the Ramsar Secretariat, the "largest changes in loss of wetlands continue to be from unsustainable agriculture, forestry and extractive industries, especially oil, gas and mining, the impacts of population growth (including migration and urbanization) and changes in land use that override environmental considerations."[312] The drivers behind these pressures are addressed through strategic plans, the last of which has been adopted in 2015 and will guide implementation between 2016 and 2024. It has been developed within the context of the Sustainable Development Goals and will support their implementation.[313]

2.5.1.1 Scope of application

The Ramsar Convention applies to wetlands in general, but provides for a special treatment of wetlands of international importance and wetlands of international importance where adverse changes in ecological character have occurred or are likely to occur.

Starting point for the understanding of the Ramsar Convention's scope of application is the definition of **wetlands** in Article 1 (1). Accordingly, wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres. This definition is very broad and determines water as the primary factor for the classification of areas as wetlands as well as for the area's demarcation.[314] Wetlands are "various types of nature that form the frontier zone between land and water."[315]

The Ramsar Convention accords special treatment to **wetlands of international importance** that are included in the Ramsar List. According to Article 2 (2) these wetlands are selected on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology. As expression of their territorial sovereignty, the parties designate wetlands of international importance for inclusion in the Ramsar List and determine their boundaries.[316] Article 2 (5) gives them the right to extent

[307] Ramsar Convention on Wetlands of International Importance, Ramsar, 2 February 1971, in force 21 December 1975, 11 *International Legal Materials* 969.

[308] http://www.ramsar.org/sites/default/files/documents/library/annotated_contracting_parties_list_e.pdf (last accessed on 15.05.2019).

[309] Dupuy and Vinuales (2015) at 173.

[310] Veit (2014) at 100.

[311] See http://www.ramsar.org/about/the-ramsar-convention-and-its-mission (last accessed on 15.05.2019).

[312] Ramsar Convention Secretariat (2016) at 16.

[313] Ramsar Convention Secretariat (2016) at 11.

[314] Dupuy and Vinuales (2015) at 174.

[315] Nordic Council of Ministers (2006) at 16.

[316] Article 2 (1) Ramsar Convention; Dupuy and Vinuales (2015) at 175.

or restrict the boundaries of the wetlands and even to remove them from the Ramsar List. Hence, the scope of application is determined by the parties themselves. However, each party shall designate at least one wetland of international importance to be included in the Ramsar List.[317] Also, the deletion of a wetland from the list and the restriction of the boundaries of a wetland require an urgent national interest.[318] However, a definition of what an urgent national interest is, is missing in the text of the Convention.[319] As of 2019, more than 2,300 wetlands around the world, covering more than 2.1 million square kilometres, have been designated for inclusion in the Ramsar List – and therefore an area larger than Mexico.[320]

If **adverse changes in ecological character** occur or are likely to occur to wetlands of international importance in the Ramsar list, these wetlands will be added to the Montreux Record. This instrument has been established in 1990 to prevent or remedy adverse changes, and has been further refined over the years.[321] The inclusion of a wetland of international importance in the Montreux Record triggers assistance and increases the level of protection.[322] It requires consent of the territorial state.[323] Experience so far has demonstrated that the removal of wetlands of international importance from the Montreux Record is a slow process.[324]

2.5.1.2 Core obligations

The Ramsar Convention itself differentiates between obligations for wetlands of international importance included in the Ramsar List and for wetlands in general, whether listed or not. Overall, the parties' obligations under the Ramsar Convention are very general in nature.[325]

Parties are required to formulate and implement plans to promote the wise use of **wetlands regardless of their inclusion in the Ramsar List**.[326] Wise use has been defined as the maintenance of the wetland's ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development.[327] In addition, parties have to promote the conservation of wetlands by establishing nature reserves on wetlands, whether they are included in the Ramsar List or not, and provide adequately for their wardening.[328] Both of these instruments aim to prevent the deterioration of wetlands in general.

Wetlands of international importance are given additional protection once they have been included in the Ramsar List. It has been argued, that the inclusion of a wetland in the Ramsar List "amounts to recognition that conservation of that wetland is of common concern to all contracting parties."[329] Still, the primary responsibility for the wetlands lies with the territorial state. While the requirements address the degradation of wetlands in different ways, they cannot ensure neutrality.

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[317] Article 2 (4) Ramsar Convention.

[318] Article 2 (5) Ramsar Convention.

[319] Ferrajolo (2011) at 248.

[320] See https://www.ramsar.org/sites-countries/the-ramsar-sites (last accessed on 15.05.2019).

[321] Recommendation 4.8: Change in ecological character of Ramsar site, Montreux, 1990; Resolution 5.4: The Montreux Record, Kushiro, 1993.

[322] Dupuy and Vinuales (2015) at 175.

[323] See for the process Ferrajolo (2011) at 253.

[324] Gillespie (2007) at 243.

[325] Ferrajolo (2011) at 243.

[326] Article 3 (1) Ramsar Convention; Dupuy and Vinuales (2015) at 176.

[327] Resolution IX.1, Annex A: A Conceptual Framework for the Wise Use of Wetlands and the Maintenance of Their Ecological Character, Kampala, 2005; for more information see McInnes et al. (2017) at 123 et seq.

[328] Article 4 (1) Ramsar Convention.

[329] Ferrajolo (2011) at 245.

- To **prevent** deterioration, parties are not only required to facilitate the wise use, but in addition have to promote the conservation of wetlands.[330] Due to its wording, the provision is rather broad and vague and therefore weak.[331]
- Also, the inclusion of a wetland of international importance in the Ramsar List entails additional monitoring and reporting obligations.[332] Parties have to **monitor** wetlands of international importance to detect adverse changes in ecological character that occur or are likely to occur, and to report them to the Ramsar Secretariat.[333] This is facilitated through national reports that have to be submitted at least six months prior to each meeting of the Conference of the Contracting Parties.[334]
- Changes of ecological character in wetlands in the Montreux Record that occur or are likely to occur trigger an obligation to take swift and effective action to prevent or **remediate** such changes.[335]
- In case a party removes a wetland of international importance from the Ramsar List or restricts its boundaries, it should as far as possible **compensate** for any loss of wetland resources.[336] In particular, it should create additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original habitat. Due to the wording ("should") the provision is too weak to establish a legal obligation.[337]

Under the Ramsar Convention, Recommendation 2.1 of 1984 provides for **transparency via monitoring and reporting**. Parties are recommended to submit detailed national reports to the Ramsar Secretariat six months prior to COP meetings. [338] These national reports are structured according to the current strategic plan and include information on the party's progress in implementing the operational objectives.[339]

2.5.1.3 Institutions

Apart from its obligations, the Ramsar Convention also establishes institutions and procedures in order to guide and ensure implementation. In line with most modern international treaty regimes, the institutions include a Conference of the Contracting Parties and a Permanent Secretariat. To assist these two bodies established by the Ramsar Convention itself, a Standing Committee and a Scientific and Technical Review Panel have been added to the institutional framework.

- The **Conference of the Contracting Parties** is the political decision-making body and meets at intervals of three years.[340] At the meetings it agrees on a work programme and budgetary arrangements for the next three years, and considers guidance on a range of ongoing and emerging environmental issues.[341] Its mandate has been extended over the years, including for example recommendations on the functioning of the Convention.[342]

[330] Article 3 (1) Ramsar Convention.
[331] Ferrajolo (2011) at 248.
[332] Dupuy and Vinuales (2015) at 176.
[333] Articles 3 (2) and 8 (2) (c)-(d) Ramsar Convention.
[334] Recommendation 2.1: Submission of National Reports, Groningen, 1984.
[335] Recommendation 4.8: Changes in ecological character of Ramsar sites, Montreux, 1990.
[336] Art. 4 (2) Ramsar Convention.
[337] Ferrajolo (2011) at 246.
[338] Recommendation 2.1: Submission of National Reports.
[339] For more information about the national reports see http://archive.ramsar.org/cda/en/ramsar-documents-natl-rpts/main/ramsar/1-31-121_4000_0 (last accessed on 15.05.2019).
[340] Article 6 (1) Ramsar Convention.
[341] Article 6 (2) and (5) Ramsar Convention.
[342] Ferrajolo (2011) at 249.

- The **Ramsar Secretariat** is the administrative body of the Convention and carries out the day-to-day coordination of the Convention's activities.[343] It is based at the headquarters of the International Union for the Conservation of Nature (IUCN) in Gland. Its duties include the maintenance of the List of Wetlands of International Importance.[344] The Ramsar Secretariat also provides administrative, scientific and technical support to the parties to facilitate implementation.
- The **Standing Committee** has been established in 1987 to oversee the Convention affairs and the activities of the Secretariat as executive body.[345] It represents the Conference of the Contracting Parties between its meetings within the framework of its decisions.
- The **Scientific and Technical Review Panel** has been established in 1993 to provide scientific and technical guidance to the Conference of the Contracting Parties, the Standing Committee, and the Ramsar Secretariat.[346]

To facilitate cooperation between states in regard to wetlands that they share and to wetlands that have been added to the Montreux Record, the Ramsar Convention provides for procedures:

- In case of **wetlands of transboundary nature**, parties are urged to cooperate through consultation and coordination, including through the creation of bilateral or regional agreements.[347] A number of such arrangements have been made by states and communicated to the Ramsar Secretariat.[348]
- The Guidelines for the operation of the **Montreux Record** allow all parties and also non-governmental organisations or other interested bodies to request the inclusion of a wetland of international importance in the Montreux Record.[349]

2.5.1.4 Practice

Work under the Ramsar Convention has been responsive to the challenges of the time and linked to global agendas for sustainable development. This already applied to the Millennium Development Goals and now applies to the Sustainable Development Goals.[350]

The **LDN target has been integrated** into work under the Ramsar Convention. At COP12 in 2015 in Punta del Este, the parties have adopted the "**Ramsar 4th Strategic Plan 2016-2024**" to set priorities for the implementation of the Convention.[351] To make the vision that "wetlands are conserved, wisely used, restored and their benefits are recognized and valued by all" reality, the Strategic Plan determines four goals and 19 targets that are of direct relevance for the Sustainable Development Goals (SDGs). Out of these four goals, three are strategic (1-3) and one is operational (4):

- Goal 1: Addressing the Drivers of Wetland Loss And Degradation
- Goal 2: Effectively Conserving and Managing the Ramsar Site Network
- Goal 3: Wisely Using All Wetlands
- Goal 4: Enhancing Implementation

[343] Article 8 (1) Ramsar Convention; see for the establishment of the Ramsar Secretariat Veit (2014) at 100 et seq.

[344] Article 8 (2) Ramsar Convention.

[345] Resolution 3.3: Establishment of a Standing Committee, Regina, 1987.

[346] Resolution 5.5: Establishment of a Scientific and Technical Review Panel, Kushiro, 1993.

[347] Article 5 Ramsar Convention.

[348] Dupuy and Vinuales (2015) at 175.

[349] Resolution VI.1: Working Definitions of Ecological Character, Guidelines for Describing and Maintaining the Ecological Character of Listed Sites, and Guidelines for Operation of the Montreux Record, Brisbane, 1996.

[350] For the Ramsar Convention and the Millennium Development Goals see Ferrajolo (2011) at 251.

[351] Resolution XII.2: The 4th Strategic Plan 2016 – 2024, Punta del Este, 2015; see for an overview of the resolutions adopted at COP12 Laina and Tsioumani (2015) at 190 et seq.

The Ramsar Secretariat has demonstrated how the Strategic Plan contributes to the Sustainable Development Goals by linking the different targets with the different SDGS.[352] For SDG 15.3 it identified the following relevant targets:

- Target 3: The public and private sectors have increased their efforts to apply guidelines and good practices for the wise use of water and wetlands.
- Target 5: The ecological character of Ramsar sites is maintained or restored, through effective planning and integrated management.
- Target 6: There is a significant increase in area, numbers and ecological connectivity in the Ramsar Site network, in particular under-represented types of wetlands including in under-represented ecoregions and Transboundary Sites.
- Target 7: Sites that are at risk of change of ecological character have threats addressed.
- Target 12: Restoration is in progress in degraded wetlands, with priority to wetlands that are relevant for biodiversity conservation, disaster risk reduction, livelihoods and/or climate change mitigation and adaptation.

Besides that, the **Ramsar Secretariat sided with the CCD Secretariat** to achieve LDN. During the "Planet Plenary" at the IUCN World Parks Congress in November 2015, the Secretariats of the CCD and the Ramsar Convention made a public commitment to create a sustainable and resilient future for our children by stopping and reversing land degradation.[353] The two secretariats are cooperating based on a Memorandum of Understanding of December 1998.[354] The CCD Executive Secretary delivered a statement at COP12 in June 2015. However, it seems no action followed this joint commitment. Also, the 4th strategic plan encourages contracting parties to synergize their implementation efforts with measures taken to implement, among other, the CCD.[355] Still, there are no specific guidelines for the contracting parties on how to tackle land degradation for wetlands and aim for neutrality. The resolutions adopted by COP13 under the Ramsar Convention in October 2018 do not further operationalise cooperation with the CCD regarding LDN. Also, the decisions adopted at COP13 under the CCD do neither mention the Ramsar Convention, nor wetlands.

2.5.2 Assessment and opportunities

The Ramsar Convention is an important instrument for international soil governance with a specific focus on wetlands. Wetlands included in the Ramsar List cover an area larger than Mexico, the actual area affected going far beyond that. The Ramsar Convention's requirements aim at the avoidance and reduction of land degradation. With the Montreux Record, the Ramsar Convention also has an instrument to reverse land degradation.

Although the Ramsar Convention has been criticised for its weak and vague obligations, it has gained influence via the recommendations and resolutions adopted by the COP and triggered the development of wetland policies and legislation worldwide.[356] It can therefore be an important driver for LDN implementation in regard to wetlands.

The Strategic Plan 2016-2024 will guide implementation of the Ramsar Convention over the next year. The Secretariat has already pointed out the links with the SDGs implementation, including target 15.3

[352] Ramsar Convention Secretariat (2016) at 6.

[353] See https://www.ramsar.org/news/ramsar-and-unccd-commit-to-land-degradation-neutrality (last accessed 15.05.2019).

[354] See http://archive.ramsar.org/cda/en/ramsar-documents-mous-memorandum-of-21238/main/ramsar/1-31-115%5E21238_4000_0 (last accessed on 15.05.2019).

[355] Ramsar Convention Secretariat (2016) at 7.

[356] Ferrajolo (2011) at 243 et seq.

on LDN, in a handbook published in 2016. This is an important tool to ensure implementation of the Ramsar Convention is aligned with SDG implementation.

The CCD Secretariat engages in various activities aimed at achieving LDN (see Section 2.2.1.4). Despite the relevance of the Ramsar Convention, the two secretariats only cooperate to a limited extent. While they jointly committed themselves to the LDN target, no further joint activities have been pursued. Notably, the Ramsar Secretariat is not part of the Inter-Agency Advisory Group that elaborates the LDN indicators.

The CCD with its mandate for drylands and the Ramsar Convention with its mandate for wetlands are complementary. But as the CCD acts as custodian agency for LDN, work under the CCD should be aligned with work under the Ramsar Convention. While decisions taken by the COP12 and COP13 under the CCD related to LND call for the creation of synergies between the Rio Conventions, the Ramsar Convention is not mentioned.

2.5.3 Potential avenues for action

Work under the Ramsar Convention is important for achieving LDN, especially for wetlands. Linking the Ramsar Convention and its secretariat closer the LDN activities pursued by the CCD Secretariat, would create synergies and ensure a more effective implementation of both conventions:

- The CCD Secretariat could seek closer cooperation with the Ramsar Secretariat to avoid different standards and to integrate experience gained under the Ramsar Convention in its further work on LDN.
- Work under the CCD could take wetlands and their importance to achieve LDN into consideration. Especially LDN target setting could also be linked the Ramsar Convention. While some parties my address synergies and overlaps on their own, the development of guidance would be helpful.

2.6 Soil Conservation Protocol to the Alpine Convention

2.6.1 Analysis

The Soil Conservation Protocol[357] was adopted in 1998 to implement the Alpine Convention[358] of 1991. It is the only legally binding international treaty regulating exclusively soil protection in a specific region.[359] With the exception of Switzerland the Soil Conservation Protocol has been ratified by all parties to the Alpine Convention.[360] These are the Alpine countries (Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland) as well as the European Union.

The Alpine Convention provides a general framework for sustainable development in the Alpine region by setting out the basic principles, determining general measures and establishing institutions.[361] For soil conservation it defines the reduction of quantitative and qualitative soil damage as an objective and names the application of agricultural and forestry methods which do not harm the soil, a minimum interference with soil and land, the control of erosion and the restriction of soil sealing as means.[362]

[357] Protocol on the implementation of the Alpine Convention of 1991 in the field of soil conservation, Bled, 16 October 1998, in force 18 December 2002, Abl. L 337 of 22.12.2005, p. 29.

[358] Convention on the Protection of the Alps, Salzburg, 7 November 1991, in force 6 March 1995, 31 *International Legal Materials* (1992), p. 767.

[359] Markus (2015) at 214; Fromherz (2012) at 104.

[360] See http://www.alpconv.org/en/convention/ratifications/default.html (last accessed on 15.05.2019).

[361] Sands et al. (2012) at 489; Beyerlin and Marauhn (2011) at 205.

[362] Article 2 (2) (d) Alpine Convention.

Within this context, the Soil Conservation Protocol determines specific measures and concrete steps. It aims to safeguard and preserve the ecological functions of soil both qualitatively and quantitatively as well as to promote the restoration of impaired soils.[363] The Soil Conservation Protocol has ambitious objectives, but is largely preventive in character.[364] There are only limited specific obligations that go beyond maintaining the status quo and require rehabilitation of soil.

2.6.1.1 Scope of application

Geographically, the Alpine Convention covers the Alpine region as described and depicted in its Annex.[365] Accordingly, the Soil Conservation Protocol is limited to the Alpine region contained within the border of its parties.[366] It aims to preserve the **Alpine soil** to allow it to perform its natural functions, its function as an archive of natural history and the history of civilisation, as well as its socio-economic functions.[367] The Soil Conservation Protocol is based on an ecosystem perspective and recognises the Alpine region for its ecological diversity and highly sensitive ecological systems whose functional capacity must be preserved.[368]

2.6.1.2 Core obligations

The Soil Conservation Protocol determines fundamental obligations and specific measures in the context of the Alpine Convention's general obligation to reduce quantitative and qualitative soil damage. It differentiates between specific measures to address certain threats and specific measures of a more cross-cutting nature. While some provisions are rather vague and general, others are sufficiently defined and unconditional and therefore even considered to be directly enforceable at the national level.[369] These self-executing norms have to be applied by authorities and courts and can therefore have a strong impact.[370]

The Soil Conservation Protocol requires parties to take specific measures to address certain possible threats. With the exception of the measures to deal with impacts of tourism infrastructures, the measures are of preventive character. Although taking the measures is strictly required, parties still have some discretion. There are no strict prohibitions and compliance mechanisms, which results in inadequate implementation.[371] The Soil Conservation Protocol does not provide for specific parameters to limit emissions or discharge into the soil.[372]

- To limit **soil sealing and soil consumption**, the Soil Conservation Protocol requires parties to provide for space-saving construction and an economical use of soil.[373] More specifically, parties shall preferably seek to keep the development of human settlement within existing boundaries and to limit settlement growth outside these boundaries. These obligations aim to ensure an economical and prudent use of soils.
- When assessing the spatial and environmental compatibility of **large-scale projects**, parties have to take soil conservation and the scarcity of space into account within the framework of their national procedures.[374] This provision ensures the integration of two aspects – soil conservation and scarcity of space – into the decision making process. However, it does not give those two aspects

[363] Article 1 (2) Soil Conservation Protocol.
[364] Brandon (2013) at 49.
[365] Article 1 (1) Alpine Convention.
[366] Brandon (2013) at 49.
[367] Article 1 (2) Soil Conservation Protocol.
[368] Hannam and Boer (2002) at 69.
[369] Wissenschaftliche Dienste des Bundestages (2016) at 11.
[370] Wissenschaftliche Dienste des Bundestages (2016) at 5; BMU (2004) at 14.
[371] Badura et al (2018) at 50.
[372] Pineschi (2009) at 206.
[373] Article 7 (2) Soil Conservation Protocol.
[374] Article 7 (3) Soil Conservation Protocol.

priority over other aspects. Also, parties are under no obligation to prevent, remediate, restore or compensate land degradation associated with large-scale projects.

- The Soil Conservation Protocol identifies the **extraction, processing and utilization of mineral resources** as a threat. To prevent land degradation from such activities from the outset, parties shall "work towards ensuring that preference is given to the utilization of substitute materials and that recycling options are fully used or their development is encouraged".[375] In addition, parties have to forego the extraction, processing and utilization of mineral resources in areas particularly important for soil protection and otherwise have to reduce impairments of other soil functions to a minimum.[376] All these obligations are of preventive character – prevent the activity at all, prevent the activity in certain areas, and prevent negative impacts.
- High moors and lowland moors enjoy special protection under the Soil Conservation Protocol. There is a strict requirement to preserve them.[377] Hence, the **use of peat** as one possible threat shall be discontinued completely in the medium term.[378] While this obligation aims to prevent degradation of high moors and lowland moors, a clear timeline or interim goals are missing.
- The Soil Conservation Protocol also addresses **soil erosion** as a challenge and provides for preventive and rehabilitative measures. Parties shall limit soil erosion to the inevitable minimum and rehabilitate damaged areas in as far as this is necessary for the protection of human beings and material goods.[379]
- **Agriculture, pasture farming and forestry** can degrade land and trigger erosion and harmful soil compaction. Therefore, the Soil Conservation Protocol provides for different measures of preventive character. First, the parties "undertake to use sound practices" which are adapted to suit local conditions.[380] Second, parties strive to elaborate and implement shared standards for sound expert practice for the input of substances through the use of fertilizers, herbicides and pesticides.[381] Third, in regard to Alpine pasture areas, the parties minimize the usage of mineral fertilizers, synthetic herbicides and pesticides.[382]
- Acknowledging the services mountain forests offer, the Soil Conservation Protocol establishes requirements to prevent negative impacts of **silvicultural measures**. The parties give priority to the protective functions of these forests and gear their silvicultural management towards preserving these functions.[383] Also, parties have to adapt silvicultural measures to local conditions.[384]
- The Soil Conservation Protocol provides for a wide range of measures to deal with the negative impacts of **tourism infrastructure**. These measures aim to prevent, remediate, restore and compensate land degradation. First, parties shall use their influence in the most appropriate manner to avoid detrimental effects of tourism activities on Alpine soils.[385] Second, the parties shall take the "necessary remedial action" where significant damage to soils and vegetation is found to exist.[386] This norm is considered to be self-executing and is therefore directly enforceable by authorities

[375] Article 8 (1) Soil Conservation Protocol.
[376] Article 8 (2) Soil Conservation Protocol.
[377] Wolf (2016) at 374.
[378] Article 9 (1) Soil Conservation Protocol.
[379] Article 11 (2) Soil Conservation Protocol.
[380] Article 12 (1) Soil Conservation Protocol.
[381] Article 12 (2) Soil Conservation Protocol.
[382] Article 12 (3) Soil Conservation Protocol.
[383] Article 13 (1) Soil Conservation Protocol.
[384] Article 13 (1) Soil Conservation Protocol.
[385] Article 14 (1), first intend, Soil Conservation Protocol.
[386] Article 14 (3) Soil Conservation Protocol.

and courts.[387] Third, the parties stabilize soils impaired whenever possible by restoring the vegetation cover.[388] And forth, permits for the construction and levelling of ski runs in forests with a protective function are granted only in exceptional cases and with the provision that compensatory action is taken.[389] This norm also sufficiently defined and unconditional and therefore considered to be self-executing.[390]

- The Soil Conservation Protocol also identifies **harmful substances** as a threat to the Alpine soil and provides for measures of preventive character. Accordingly, parties minimize the input of harmful substances into the soils via water, air or waste through preventive measures.[391] Preference shall be given to measures limiting emissions at their sources. Also, the Parties shall issue technical regulations and provide for checks to avoid soil contamination.[392] Although the Soil Conservation Protocol is dedicated to the specific issue of soil conservation, this is the only provision addressing site contamination.[393]

Besides the specific measures addressing different threats, the Soil Conservation Protocol also provides for cross-cutting measures. These fall within the categories protection, integration and survey.

- The Soil Conservation Protocol requires the parties to **designate protected areas** where soil is worthy of protection.[394] Specifically, soil and rock formations which have particularly characteristic features or a particular significance for the documentation of the earth's history, shall be preserved.
- To **integrate soil conservation into spatial planning and sustainable development** matters regarding soil conservation shall be taken into consideration in drawing up and implementing plans or programmes according under the Spatial Planning and Sustainable Development Protocol[395].[396]
- To gain information related to soil conservation the parties undertake to **survey and document their environmental liabilities** and suspicious landfills to analyse the condition of those areas and to assess their hazard potential using comparable methods.[397]

2.6.1.3 Institutions

The Alpine Convention provides for the establishment of an institutional structure composed of three main bodies:

- The **Conference of the Contracting Parties**, also referred to as Alpine Conference, is the political decision-making body and meets every two years at ministerial level.[398] It adopts protocols and amendments, recommends measures on research and systematic monitoring, and sets up working groups to facilitate implementation.[399]

[387] Wissenschaftliche Dienste des Bundestages (2016) at 11; StMUGV and BMU (2008) at 33 et seq.
[388] Article 14 (1), second indent, Soil Conservation Protocol.
[389] Article 14 (1), third intend, Soil Conservation Protocol.
[390] Wissenschaftliche Dienste des Bundestages (2016) at 11; StMUGV and BMU (2008) at 34.
[391] Article 15 (1) Soil Conservation Protocol.
[392] Article 15 (1) Soil Conservation Protocol.
[393] Brandon (2013) at 55.
[394] Article 6 Soil Conservation Protocol.
[395] Protocol on the Implementation of the Alpine Convention of 1991 relating to Spatial Planning and Sustainable Development, 20 December 1994, in force 18 December 2002.
[396] Article 7 (1) Soil Conservation Protocol.
[397] Article 17 (1) Soil Conservation Protocol.
[398] Article 5 Alpine Convention.
[399] Article 6 Alpine Convention.

- As the executive body, the **Standing Committee** reviews the implementation within the parties, prepares the programmes for meetings of the Alpine Conference and proposes measures and recommendations for the achievement of the objectives of the Convention and also its Protocols.[400]
- The **Permanent Secretariat** has been set up as the administrative body of the Alpine Convention and is located in Innsbruck and Bolzano.[401] It offers professional, logistic and administrative help, and assists the countries in carrying out their tasks.

In addition, the Standing Committee has established other bodies that complement the institutional framework established by the Alpine Convention.

- The **Compliance Committee** has been established as a permanent working group, which considers issues of implementation and compliance, makes recommendations to the Alpine Conference, and assists parties at their request.[402]
- The Standing Committee has established **ad-hoc Working Groups and Platforms** to support and work on different topics related to sustainable development. These include a Soil Protection Working Group, however, no information about its work is available online.[403] Ad-hoc Working Groups and Platforms are usually set for a two-year term and may work in subgroups for specific issues.

2.6.1.4 Practice

Implementation of the Alpine Convention and the Soil Conservation Protocol has not been linked to the SDGs and target 15.3 on LDN so far.

2.6.2 Assessment and opportunities

To preserve the Alpine soil, the Soil Conservation Protocol provides for various instruments to tackle the challenges in the region. These instruments include, among others, the integration of soil conservation and scarcity of space in decision making processes, the use of sound practices in agriculture, farming and forestry, as well as remedial action where tourism infrastructure has damaged soil and vegetation considerably. They contribute to the avoidance and reduction of land degradation – and for some types of land degradation ensure their reversal.

The Soil Conservation Protocol recognizes that soil protection has a transnational dimension.[404] It has been discussed as a role model for regional and global treaties on soil conservation due to its instruments and ambition.[405] However, the Soil Conservation Protocol is a result of the specific socio-economic and political conditions of the Alpine region, and the limited number of quite homogenous negotiating parties.

2.6.3 Potential avenues for action

The Soil Conservation Protocol is an important cornerstone of soil governance in the Alpine region. Although its implementation contributes to achieving LDN, the SDGs and especially target 15.3 on LDN have not yet been integrated into work under the protocol. Targets and work under the Soil Conservation Protocol should be aligned with the LDN target to ensure consistency and to raise ambition.[406]

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[400] Article 8 Alpine Convention.

[401] Decision of the Alpine Convention on the Permanent Secretariat of the Convention on the Protection of the Alps, Doc. VII/2, Meran, November 2002.

[402] Pineschi (2009) at 209 et seq.

[403] See for an overview http://www.alpconv.org/en/organization/groups/default.html (last accessed on 16.05.2019).

[404] Montanarella (2006) at 153.

[405] Markus (2015) at 149 et seq.

[406] See also Badura et al. (2018) at 22 et seq.

2.7 Maputo Convention

2.7.1 Analysis

The Maputo Convention[407] was adopted in 2003 to revise the Algiers Convention[408] of 1968 into a more comprehensive and modern regional treaty on environment and natural resource conservation.[409]

The Algiers Convention had been negotiated by members of the African Union to coordinate nature conservation with poverty reduction and socio-economic development, and to emphasise ancient African conservation and management practices in this effort. [410] Nonetheless, it did not gain relevance because it did not set up the necessary bodies to promote implementation and because parties did not live up to their commitments.[411]

The text of the Maputo Convention is based on a proposal developed and submitted by the International Union for Conservation of Nature (IUCN)[412] and takes modern international developments in approaches to the management of biological diversity and natural resources into account.[413] Due to slow ratification the Maputo Convention only entered into force in July 2016 and has 17 parties as of February 2019. Out of the 55 member states of the African Union, these are Angola, Benin, Burkina Faso, Burundi, Chad, Ivory Coast, Comoros, Congo, Gambia, Ghana, Libya, Lesotho, Liberia, Mali, Niger, Rwanda and South Africa.[414] In comparison, the Algiers Convention gained 30 ratifications, mainly in the 1970s.[415] Up to now, the institutions under the Conventions have not picked up the work and implementation has not yet started.

The Maputo Convention aims to enhance environmental protection, to foster the conservation and sustainable use of natural resources, and to harmonize and coordinate policies in these fields with a view to achieving ecologically rational, economically sound and socially acceptable development policies and programmes.[416] Hence, it addresses a continent-wide spectrum of issues covering the conservation and sustainable management of land, soil, water, air and biological resources, with a view to integrating conservation and environment management strategies into social and economic development aspirations.[417] One of the Convention's articles is specifically dedicated to land degradation and soil conservation.

2.7.1.1 Scope of application

The Maputo Convention is a regional instrument that applies to all areas within the limits of national jurisdiction of the parties, and to activities carried out under the jurisdiction or control of the parties

[407] Revised African Convention on the Conservation of Nature and Natural Resources, Maputo, 11 July 2003, in force 22 July 2016, available at https://au.int/en/treaties/african-convention-conservation-nature-and-natural-resources-revised-version (last accessed on 15.05.2019).

[408] African Convention on the Conservation of Nature and Natural Resources, Algiers, 15 September 1968, in force 16 June 1969, 101 *United Nations Treaty Series* (1976), p. 3.

[409] Price (2017) at 5.

[410] Amechi (2010) at 120.

[411] Van der Linde (2002) at 36 et seq.

[412] IUCN (2006) at 5.

[413] Price (2017) at 5.

[414] https://au.int/en/treaties/african-convention-conservation-nature-and-natural-resources-revised-version (last accessed on 15.05.2019).

[415] https://web.archive.org/web/20120902043558/http://www.africa-union.org/root/au/Documents/Treaties/List/African%20Convention%20on%20nature%20and%20natural%20resources.pdf (last accessed on 15.05.2019).

[416] Article I Maputo Convention.

[417] UN Environment (2017) at 39.

within the area of their national jurisdiction or beyond the limits of their national jurisdiction.[418] There are no relevant territorial restrictions to the Convention's scope of application.

One of the objectives of the Maputo Convention is the conservation and sustainable use of natural resources. Natural resources are defined as renewable resources, tangible and non-tangible, including soil, water, flora and fauna and non-renewable resources.[419] With this comprehensive definition the Convention follows a broad approach towards the conservation and sustainable use of natural resources.

2.7.1.2 Core obligations

The Maputo Convention establishes various obligations to facilitate the conservation and sustainable use of natural resources. Most important is Article VI that determines instruments to prevent land degradation, and to conserve and improve the soil. But other articles are also of relevance for issues of land degradation neutrality.

Article VI on **land degradation and soil conservation** imposes specific obligations on parties and addresses various drivers. The commitments in this provision reflect those contained in the CCD.[420] Key instruments are long-term integrated strategies for land resources and land-use plans. Agricultural activities have been identified as one important driver for land degradation in Africa. Hence, the Convention formulates more detailed requirements for the implementation of agricultural practices and agrarian reform. Other forms of land use are only addressed on a more general level - they shall not result in erosion, pollution, or any other form of land degradation. Besides these requirements focusing on prevention, the Convention also establishes obligations related to rehabilitation. For areas affected by land degradation, parties have to plan and implement mitigation and rehabilitation measures. Finally, parties have to prevent that their land tenure policies constitute an obstacle for the measures aimed at land degradation and soil conservation.

- Paragraph 1 requires parties to take effective measures to **prevent land degradation**. To this end, they have to develop long-term integrated strategies for the conservation and sustainable management of land resources, including soil, vegetation and related hydrological processes.[421] As the provision is legally binding, every party is required to develop a long-term integrated strategy. However, the content of this strategy falls within the discretion of the parties. Paragraph 1 is new in comparison with Article IV on "Soil" in the Algiers Convention. It reflects the requirement of affected country parties under the CCD to prepare and implement national action programmes.
- Paragraphs 2 and 3 are dedicated to the **conservation and improvement of soil**. The parties have to adopt measures to combat erosion and misuse as well as the deterioration of the physical, chemical and biological or economic properties of soil.[422] To this end, they need to engage in different activities. First, the Maputo Convention requires parties to establish land-use plans that are based on scientific investigations as well as local knowledge and experience, in particular, classification and land-use capability.[423] Hence, they need to engage in planning and with that also in data and information collection. Second, parties have to follow certain standards when implementing agricultural practices and agrarian reforms.[424] They are required to improve soil conservation and introduce sustainable farming and forestry practices, which ensure long-term productivity of land. Also, they have to control erosion caused by land misuse and mismanagement which may lead to

[418] Article I Maputo Convention.
[419] Article V (1) Maputo Convention.
[420] IUCN (2006) at 8.
[421] Article VI (1) Maputo Convention.
[422] Article VI (2) Maputo Convention.
[423] Article VI (3) (a) Maputo Convention
[424] Article VI (3) (b) Maputo Convention.

long term loss of surface soils and vegetation cover. In addition, parties are required to control pollution caused by agricultural activities, including aquaculture and animal husbandry. These standards address agriculture as one important driver but do not determine specific instruments that countries need to adopt. Also, sustainable farming and forestry practices are not further defined. Third, in regard to non-agricultural forms of land use, the parties have to prevent erosion, pollution, or any other form of land degradation.[425] Drivers specifically named are public works, mining and disposal of waste. This provision aims at prevention and is new in comparison with Article IV on "Soil" in the Algiers Convention. Finally, the parties are required to plan and implement mitigation and rehabilitation measures in areas affected by land degradation.[426] While the provision does not specify the aspired states of the land, it clearly goes beyond prevention and establishes a legally binding commitment to engage in rehabilitation activities.

- Paragraph 4 picks up on the conflicts around land tenure in many African countries. Parties are required 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.[427] This provision was not included in Article IV on soil in the Algiers Convention.

Various other articles are also relevant for land degradation as they either require the parties to establish certain instruments to address with co-benefits for soil conservation or regulate specific drivers of land degradation.

- Some provisions in Article VIII on the **vegetation cover** are of direct relevance for land degradation. Parties are required to take all necessary measures for the protection, conservation, sustainable use and rehabilitation of the vegetation cover. To this end, they have to take rather concrete steps.[428] First, parties have to adopt scientifically-based and sound traditional conservation, utilization and management plans for forests, woodlands, rangelands, wetlands and other areas with vegetation cover.[429] In doing so, they have to take into account the social and economic needs of the people concerned, the importance of the vegetation cover for the maintenance of water balance of an area, the productivity of soils and the habitat requirements of species. Therefore, depending on the vegetation cover, land can receive additional protection through planning. Second, parties are required to take measures to control fire, forest exploitation, land clearing for cultivation, grazing by domestic and wild animals, and invasive species.[430] The provision names drivers for land degradation that are depending on the vegetation cover. It does not require parties to implement specific instruments but in general to take measures.
- Article XII defines **conservation areas** as one important tool to facilitate conservation.[431] While the provision primarily aims to ensure biodiversity conservation, it can have positive effects for land degradation. The definition of conservation areas in Article V (6) of the Convention reflects the six main categories of protected areas that have been acknowledged under the Guidelines for Protected Areas Management Categories published by IUCN in 1994.[432] The Convention requires parties to establish, maintain and extend conservation areas as appropriate. Extending beyond that, parties have an obligation to designate conservation areas wherever possible to ensure the long-term conservation of biodiversity. Also, parties have to conserve such ecosystems that are either most representative of and peculiar to areas under their jurisdiction, or are characterized by a

[425] Article VI (3) (c) Maputo Convention.
[426] Article VI (3) (d) Maputo Convention.
[427] Article VI (4) Maputo Convention.
[428] IUCN (2006) at 8.
[429] Article VIII (1) (a) Maputo Convention.
[430] Article VIII (1) (b) Maputo Convention.
[431] IUCN (2006) at 10.
[432] IUCN (2006) at 11.

high degree of biological diversity.[433] Finally, they have to promote the establishment of areas managed by local communities primarily for the conservation and sustainable use of natural resources.[434] This provision complements Article XVII (3) which ordains that parties should involve local communities in the process of planning and management of natural resources.[435]

- According to Article XIII, Parties shall take all appropriate measures to prevent, mitigate and eliminate detrimental effects on the environment, in particular from **hazardous substances and waste**.[436] This provision addresses pollution control and waste management as tools and may have positive effects for soil conservation. Parties have to establish, strengthen and implement specific national standards, and are required to provide for economic incentives and disincentives.[437] The national standards may include standards for ambient environmental quality, emission and discharge limits as well as process and production methods and product quality. Hence, the provision names various tools to tackle land degradation resulting from industrial activities. Economic instruments within the meaning of the convention are such instruments that prevent or abate harm to the environment, restore or enhance environmental quality, and implement related international obligations. The instruments go beyond prevention and also address restoration.
- With Article XIV the Convention acknowledges the importance of an integrated approach to environmental protection and resource conservation. The different instruments are also important to prevent land degradation and to ensure soil conservation. First, parties are required to ensure that conservation and management of natural resources are treated as **integral part** of national and local development plans.[438] This provision acknowledges development plans as the primary planning instrument, but requires parties to treat environmental concerns as an integral part of such plans.[439] Second, parties are required to take all necessary measures to ensure that development activities and projects are based on **sound environmental policies** and do not have adverse effects on natural resources and the environment in general.[440] While acknowledging the right to develop, this provision is a strong commitment to the conservation of natural resources and environmental protection. Third, parties have to ensure that policies, plans, programmes, strategies, projects and activities likely to affect natural resources, ecosystems and the environment in general are the subject of adequate **impact assessment** at the earliest possible stage and that regular environmental monitoring and audit are conducted.[441] Hence, the Convention requires the introduction of an impact assessment procedure as a tool to ensure prevention and precaution.[442] Forth, parties are required to **monitor** the state of their natural resources as well as the impact of development activities and projects upon such resources.[443]
- According to Article XXIV, parties shall, as soon as possible, adopt rules and procedures concerning **liability and compensation** of damage related to matters covered by the Maputo Convention. This provision is legally binding and requires all parties to take action. However, the provision is very general leaves the modalities for the parties to decide.

[433] Article XII (1) (b) Maputo Convention.
[434] Article XII (3) Maputo Convention.
[435] IUCN (2006) at 11.
[436] Article VIII (1) Maputo Convention.
[437] Article VIII (2) (a) and (b) Maputo Convention.
[438] Article XIV (1) (a) Maputo Convention.
[439] IUCN (2006) at 7.
[440] Article XIV (2) (a) Maputo Convention.
[441] Article XIV (2) (b) Maputo Convention.
[442] IUCN (2006) at 8.
[443] Article XIV (2) (c) Maputo Convention

2.7.1.3 Institutions

The Maputo Convention establishes a Conference of the Parties and a Secretariat as the main institutions to facilitate implementation. Currently, the institutions are not yet operational.

- The **Conference of the Parties** is the decision-making body of the Maputo Convention and will hold ordinary meetings at ministerial level every two years.[444] So far, no COP has been convened. At each ordinary meeting, the Conference of the Parties will adopt a programme and a budget for the financial period until the next ordinary meeting.[445] Its mission is to keep under review and promote the effective implementation of the Convention.[446]
- The **Secretariat** is the administrative body of the African Convention. Its functions include the execution of COP decisions, the administration of the budget, the preparation of reports and studies for implementation, and the coordination of activities with the secretariats of other international bodies and conventions.[447] At its first meeting, the Conference of the Parties will designate an organization to carry out the Secretariat functions.[448]

The former Algiers Convention did not provide for financial resources to ensure its implementation. As this was identified as one major shortcoming, Article XXVIII determines different issues related to financial resources.[449]

- Paragraph 1 gives the parties the responsibility to ensure financial resources for **implementation of the Convention** are available. The provision is silent on the sources for financing, leaving it up to the parties to allocate budget or ensure funding through other means.
- According to Paragraph 2, financial resources towards the **budget of the Convention** consist of contributions from parties, annual contributions of the AU, and contributions from other institutions. How much the parties contribute will be determined by the COP.
- Paragraph 3 gives the COP the power to establish a **conservation fund** constituted from voluntary contributions of parties or from any other source accepted by the COP for the purpose of financing projects and activities. The fund shall function under the authority of, and be accountable to, the COP.
- According to Paragraph 4, the Parties are required to seek the **mobilization of further financial resources** either individually or jointly. To that effect they seek full use and continued qualitative improvement of all national, bilateral and parallel financing, and are required to seek the involvement of private sector funding resources and mechanisms, including those of NGOs.

2.7.1.4 Practice regarding LDN

The Maputo Convention is not yet operational, the first COP has not convened.[450] Hence, there is no practice regarding LDN.

[444] Article XXVI (1) Maputo Convention.
[445] Article XXVI (4) Maputo Convention.
[446] Article XXVI (5) Maputo Convention.
[447] Article XXVII (3) Maputo Convention.
[448] Article XXVII (2) Maputo Convention.
[449] IUCN (2006) at 19.
[450] https://www.iucn.org/news/world-commission-environmental-law/201810/maputo-convention-protection-nature-gets-a-boost-african-ministerial-conference-environment (last accessed on 15.05.2019).

2.7.2 Assessment and opportunities

The Maputo Convention covers environmental concerns that are also covered in the majority of international environmental treaties.[451] It was negotiated as it was necessary to adjust the Algiers Convention to new developments in scientific, legal and institutional knowledge.[452] The Maputo Convention establishes a wide-ranging and solid legal foundation for the environment continent-wide, crystallizing African response to global issues and commitments. It emphasizes people's rights to land and security of tenure, advocating integrated resource management.[453]

Article VI on land degradation and soil conservation mainly reflects the commitments established under the CCD, namely long-term integrated strategies for the conservation and sustainable management of land resources and land use plans. Additional normative guidelines relate to the sectors relevant for the African continent: introduction of sustainable farming and forestry practices and control of pollution caused by agricultural activities. Instruments established under other articles that are relevant for land degradation and soil conservation are, among others, management plans for forests, woodlands, rangelands and wetlands, as well as the designation of conservation areas.

The Maputo Convention could become an important regional instrument that takes up land and soil protection.[454] In comparison with other international environmental treaties, the Maputo Convention is rather specific. The text, however, has been developed by IUCN and might not reflect the parties' political will. The Maputo Convention only entered into force in 2016 and is not yet operational. The African Ministerial Conference on the Environment that took place in September 2018, called in its final declaration for the convening of the first COP as a next step for implementation.[455] Whether parties will develop ownership and turn the Maputo Convention into an effective tool remains to be seen.

2.7.3 Potential avenues for action

On paper, the Maputo Convention looks like an interesting tool to strengthen soil governance on a regional level and to achieve LDN:

- Article VI on land degradation and soil conservation goes beyond the CCD as its scope is not limited to drylands. It could therefore strengthen implementation of the CCD in Africa.
- Article XXVIII on financial resources could improve access of African countries to financial resources.

However, in practical terms it will take some time until the Maputo Convention is operational and ready to provide guidance and other means for implementation to its parties.

2.8 Sahel Committee CILSS

2.8.1 Analysis

The Permanent Inter-State Drought Control Committee for the Sahel (Comité permanent inter-États pour la lutte contre la sécheresse au Sahel – CILSS) was originally established in 1973 by Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad.[456] Trigger was the drought that hit the Sahel region in the

[451] UN Environment (2017) at 39.

[452] IUCN (2006) at 5.

[453] IUCN (2006) at 22.

[454] Beyerlin and Marauhn (2011) at 208.

[455] https://www.iucn.org/news/world-commission-environmental-law/201810/maputo-convention-protection-nature-gets-a-boost-african-ministerial-conference-environment (last accessed on 15.05.2019).

[456] Convention establishing a Permanent Inter-State Drought Control Committee for the Sahel, Ouagadougou, 12 September 1973, in force 1 July 1974, 14 *International Legal Materials* (1974), at 537.

early 1970s and had serious consequences for the economies and the life of people. Initially, the mandate of CILSS was to raise awareness among donor countries of the situation in the Sahel region, to mobilize resources for regional activities and to assist its member states to access financial support.[457] In 1976, the "Club du Sahel" was created as an informal structure for donor consultation and coordination under the auspices OECD that brought together CILSS member states and donor countries.[458]

Over time the role and relevance of CILSS evolved. Benin, Cape Verde, Ivory Coast, Gambia, Guinea, Guinea-Bissau and Togo ratified the Convention establishing the Permanent Inter-State Drought Control Committee for the Sahel and brought the number of member states to a total of 13 countries. Also, in 1994, CILSS and its bodies were restructured and the mandate was adjusted to promote implementation of the Agenda 21, especially on combating desertification and drought.[459] Its main task is now to conduct the research necessary to ensure food security and to develop policies that mitigate the effects of drought and desertification.[460] Essentially, CILSS works consistently to ensure that its member states are never surprised by changing weather or market conditions that can affect their national food security.[461] It provides them with monitoring data and assessment and organises regional workshops on a regular basis. Finally, CILSS began cooperating more closely with the Economic Community of West African States (ECOWAS) and is now considered its technical arm.[462]

2.8.1.1 Organisational structure

Initially, the Committee had three main bodies: the Conference of the Heads of State and Government, the Council of Ministers and the Technical Secretariat. With the adjustment of the Committee's mandate, a Regional Programming and Monitoring Committee was established. Also, a basis for specialised bodies like INSAH[463] and regional centres like AGRHYMET[464] was provided for.

- The **Conference of the Heads of State and Government** consists of the presidents or prime ministers of the Commission's member states and is the highest decision-making body.[465] It is concerned with the formulation of broad strategies and policies for tackling the problems of drought.[466] Over the years the Committee has proven to be stable even in times of disputes between its member states.[467]
- The **Council of Ministers** is the subordinate decision making body that promotes the implementation of the Commission's objectives within the framework given by the Conference of the Heads of State and Government.[468] Its tasks include, among others, the approval of the triennial work plan and the annual budget.[469]

[457] Article 4 Sahel Committee Convention of 1973.

[458] Asmerom (1994) at 214.

[459] Revised Convention of the Convention of 12 September 1973 establishing the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS), Praia, 22 April 1994, available at http://www.ifrc.org/docs/IDRL/Revised Convention establishing a Permanent Inter-State Drought Control Committee for the Sahel (Fr).pdf (last accessed on 15.05.2019).

[460] Article 5 revised Sahel Committee Convention of 1994.

[461] See http://www.fao.org/in-action/sahelian-and-west-african-governments-avoid-surprises-thanks-to-seasonal-monitoring/en/ (last accessed on 15.05.2019).

[462] See http://www.fao.org/in-action/sahelian-and-west-african-governments-avoid-surprises-thanks-to-seasonal-monitoring/en/ (last accessed on 15.05.2019).

[463] http://www.insah.org/ (last accessed on 15.05.2019).

[464] http://agrhymet.cilss.int/ (last accessed on 15.05.2019).

[465] Article 9 revised Sahel Committee Convention of 1994.

[466] Article 11 revised Sahel Committee Convention of 1994.

[467] Asmerom (1994) at 216.

[468] Article 13 revised Sahel Committee Convention of 1994.

[469] Article 14 revised Sahel Committee Convention of 1994.

- The **Regional Programming and Monitoring Committee** is an advisory body to the Council of Ministers and the Conference of the Heads of State and Government. It is also responsible for the assessment of regional programmes and their monitoring.[470]
- The **Executive Secretariat** is the administrative body of the Committee. It is, among others, responsible for the implementation of the decisions adopted by the Conference of Head of State and Government and the Council of Ministers, organizes the meetings of both of these bodies, and directs the administrative and technical services provided to member states.

2.8.1.2 Mandate and tasks

Initially, CILSS established itself as a regional coordinating body for the long-term development programs of all its member-states.[471] Therefore, it gave priority to the mobilization and coordination of external aid in order to meet the need of people that had suffered of famine and drought.[472]

Under its new mandate, CILSS focuses on the provision of such data on changing weather and market conditions that member states need to prevent negative impacts on food security.[473] To this end, CILSS provides the following technical services:[474]

- Analysis of threats for food security and natural resource in the Sahel region and definition of strategies and policies for sustainable development in the region.
- Coordination of sub-regional and regional actions in regard to food security, environment and demographics in order to further sustainable economic growth.
- Collection, processing and dissemination of data to keep member states and the international community informed about environmental and social problems in the region.
- Contribution to the coordination of development policies, research and training conducted to tackle the effects of drought and desertification.
- Promotion and monitoring of actions on the sub-regional level to strengthen cooperation between the member states.
- Contribution to the coordination between member states in cases of emergency aid obtained on the regional or sub-regional level.

Effectively, CILSS conducts research and distributes information on climate and weather patterns, water management, market systems and agricultural statistics, and implements early-warning systems for ecological events that affect farmers.[475]

2.8.1.3 Cooperative activities

CILSS cooperates with various institutions and countries in order to carry out its mandate.

- **ECOWAS**: CILSS cooperates with the Economic Community of West African States and functions as its technical arm.
- **SWAC**: The Sahel and West Africa Club - successor of the "Club du Sahel" - serves as an international platform for policy dialogue and analysis that aims to enhance the effectiveness of regional action. Its secretariat provides forward-looking analysis, facilitates dialogues and information sharing and formulates policy recommendations.[476]

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[470] Article 17 revised Sahel Committee Convention of 1994.

[471] Asmerom (1994) at 216.

[472] Asmerom (1994) at 216.

[473] See http://www.fao.org/in-action/sahelian-and-west-african-governments-avoid-surprises-thanks-to-seasonal-monitoring/en/ (last accessed on 15.05.2019).

[474] Article 6 revised Sahel Committee Convention of 1994.

[475] USAID (2015) at 1.

[476] See http://www.oecd.org/swac/aboutus/ (last accessed on 15.05.2019).

- **FAO**: The Food and Agriculture Organization provides technical expertise and financial support to CILSS on a regular basis.[477]
- **CCD**: West African countries have developed a second sub-regional action programme to combat desertification under the aegis of ECOWAS and CILSS in 2013.[478] CILSS is responsible for the monitoring and evaluation of the programme's implementation process against the indicators proposed in the 10-year strategy adopted under CCD in 2007.

2.8.1.4 Practice

First activities on land degradation neutrality, such as workshops, have started for Sahelian and West African States including CILSS.[479] Also, CILSS organised a side event at CCD COP12 on LDN and its role.[480] All CILSS member states have agreed to join the LDN Target Setting Programme initiated under CCD.[481]

2.8.2 Assessment and opportunities

As CILSS is responsible to undertake research into the Sahel ecological zone to enable the preparation of more effective regional policies it is important for the sustainable use of soil.[482]

The Sahel Committee has evolved into an institution responsible for technical questions and implementation of projects. It will not play an independent role in the work towards land degradation neutrality, but more likely assist ECOWAS or take up responsibilities for the implementation of the CCD in West Africa.

The motivation behind the work of CILSS is to prevent famine in the region caused by desertification and drought. Hence, its focus and mandate are limited and do not encompass all aspects of land degradation neutrality.

2.9 UN Food and Agriculture Organisation (FAO)

2.9.1 Analysis

Headquartered in Rome, Italy, the UN Food and Agriculture Organization (FAO) is the UN's specialised agency working on hunger, food security and access to high-quality food. The organisation maintains offices all over the world, including regional and sub-regional offices on all continents. In 1943, 44 governments committed themselves to create a permanent organization for food and agriculture. The FAO was founded in 1945 with the adoption of the Constitution of the Food and Agriculture Organization,[483] and the first session of the FAO Conference in 1945 established FAO as a specialized United Nations agency. Today, FAO has 194 member nations and two associate members.[484] The organization is currently led by Director-General José Graziano da Silva, re-elected until July 2019. FAO employs a staff of some 11.560 (2019).[485]

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[477] See http://www.fao.org/in-action/sahelian-and-west-african-governments-avoid-surprises-thanks-to-seasonal-monitoring/en/ (last accessed on 15.05.2019).

[478] ECOWAS, UEMOA, CCD and CILSS (2013).

[479] See https://www.nepad.org/news/nepad-marks-world-day-combat-desertification-and-drought (last accessed on 15.05.2019).

[480] http://portails.cilss.bf/archivesCILSS/IMG/pdf/photodocumentation_side_event_CILSS_COP12_CCD.pdf (last accessed on 15.05.2019).

[481] https://www.unccd.int/actions/ldn-target-setting-programme (last accessed on 15.05.2019).

[482] Hannam and Boer (2002) at 67.

[483] Constitution of the Food and Agriculture Organization of the United Nations, available at http://www.fao.org/3/x5584e/x5584e0i.htm (last accessed on 15.05.2019).

[484] Faroe Islands and Tokelau.

[485] FAO (2019a).

2.9.1.1 Institutional structure

Within FAO, work is organized around seven departments: Agriculture and Consumer Protection; Climate, Biodiversity, Land and Water Department; Economic and Social Development; Fisheries and Aquaculture; Forestry; Technical Cooperation and Programme Management; and Corporate Services.

The institutional structure of the FAO's governing bodies comprises the FAO Conference, its Regional Conferences and the FAO Council with a number of Technical and Council Committees.[486] All 194 Member Nations plus the EU as a member organization and the two associate members (represented by one delegate each) are members of the **FAO Conference**, which constitutes the organization's "sovereign Governing Body". Its purpose is to set FAO's policy, approve its budget and make recommendations to members or international organizations in relation to food and agriculture.[487] The FAO Conference takes place every two years, with participation of all member countries. In addition, five **Regional Conferences** for Africa, Asia and the Pacific, Europe, Latin America and the Caribbean and for the Near East meet once every biennium in non-Conference years.[488] The **FAO Council** is the executive organ between sessions with 49 members elected for 3 years and an independent chairperson.

The **Council Committees** have the purpose to assist the Council. The Programme Committee coordinates the duties of the Council regarding the development and implementation of FAO programme activities. The Finance Committee controls the financial administration, both with 12 representatives.[489] The Committee on Constitutional and Legal Matters with its 7 member nations handles specific constitutional and legal items. The Technical Committees vary in their purpose and in the number of their members. The most important and main technical advisory committee is the **Committee on Agriculture (COAG)**. With altogether 123 members, the COAG is accountable for reviewing agricultural and nutritional problems to propose concerted action by member nations, for the biennial work programmes and their implementation and for reviewing specific agricultural, food and nutritional issues referred to the Committee. Moreover, the COAG advises the FAO Council and the Director General on programmes of the FAO highlighting the integration of all social, technical, economic, institutional and structural aspects of agricultural and rural development.[490]

The FAO, as a specialized UN agency, is funded through a mixture of assessed contributions by member countries and voluntary contributions. The biennial budget is prepared by the FAO's Director-General who submits it to the regular session of the Conference for adoption.[491] For the biennium 2018-2019, the FAO budget amounts to 2.6 billion USD.[492] The composition of the annual budget consists of assessed contributions provided by member countries (39% of the total amount) and voluntary contributions by Members and partners (61%).[493] In the biennium 2014-2015, a total value of 1,617 million USD was spent on FAO Programmes and projects.[494] The budget includes contributions through the FAO Technical Cooperation Programme (TCP) (8%), which supports development efforts and provide technical expertise in response to member countries priority needs; through the Government Cooperative Programme (34 %); the Unilateral Trust Fund (8%); and through further Trust funds (50%).[495] All voluntary contributions support technical and emergency assistance to member countries.

[486] FAO (2019b); Millanes (2015) at 133.
[487] FAO (2019a).
[488] Millanes (2015) at 62.
[489] FAO (2019b).
[490] FAO (2019c).
[491] Millanes (2015) at 71.
[492] FAO (2017a).
[493] FAO (2017a).
[494] FAO (2017a).
[495] cf. FAO (2017a).

2.9.1.2 Mandate and tasks

The mandate of FAO, according to the Preamble of the FAO Constitution, is "to promote welfare by furthering separate and collective action" by:

- raising levels of nutrition and standards of living
- securing improved efficiency of the production and supply of food and agricultural goods
- improving the circumstance of rural populations
- contributing towards an expanding economy on a global level and eliminate hunger to secure humanity's freedom

The FAO's tasks in the provision of global food and nutrition security involve five main areas: promoting sustainable agriculture, strengthening political will and sharing policy expertise, enhancing public-private collaboration to improve smallholder agriculture, bringing knowledge to the field throughout the world and supporting countries prevent and mitigate risks to agriculture, food and nutrition.[496]

FAO's Strategic Objectives – which represent the main areas of work on which FAO intends to focus – currently are: 1. Contribute to the eradication of hunger, food insecurity and malnutrition; 2. Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner; 3. Reduce rural poverty; 4. Enable more inclusive and efficient agricultural and food systems at local, national and international levels; 5. Increase the resilience of livelihoods to threats and crises. Cross-cutting themes are gender and governance.[497] With regard to **soils**, FAO describes itself as "the lead UN agency concerned with soils".[498] At the strategic level, however, the FAO's Strategic Objectives do not explicitly mention "soils", despite the fact that all objectives to a greater or lesser extent depend on healthy soils. Likewise, the 2018-19 Programme of Work and Budget does not substantially relate to soils. On the positive side, the FAO's work on a Common Vision and Principles on sustainable food and agriculture has implications with regard to soil protection, in particular with regard to Principle 2 ("Sustainability requires direct action to conserve, protect and enhance natural resources") and Principle 4 ("Enhanced resilience of people, communities and ecosystems is key to sustainable agriculture").

Historically, FAO has already since the 1950s been engaged in technical work on soils, both globally (producing soil manuals, maps and profile databases) and bilaterally. It initiated the development of the non-binding World Soil Charter (1981) and hosts the Global Soil Partnership which was formally established in 2012. The latter, in turn, has been promoting sustainable soil management through various activities including the establishment of the Intergovernmental Technical Panel on Soils, the preparation of the revision of the World Soil Charter in 2015 and the development of the Voluntary Guidelines for Sustainable Soil Management.

Soil issues are dealt with across its different departments including the Climate, Biodiversity, Land and Water Department, the Agriculture and Consumer Protection Department, the Forestry Department as well as the Regional Offices. FAO activities with regard to soil can be classified to relate to:

- knowledge brokerage
- technical assistance for developing countries
- international networking, most notably through the Global Soil Partnership, but also, for instance, the '4 pour 1000' initiative[499]

[496] FAO (2017a).

[497] FAO (2013).

[498] http://www.fao.org/soils-portal/resources/en/ (last accessed on 15.05.2019).

[499] The '4 pour 1000' initiative (launched by France) aims at increasing carbon sequestration in soils. Members of the multi-stakeholder initiative – i.e., countries or organisations – are invited 'to declare or to implement practical programmes for carbon sequestration in soil and the types of farming methods used to promote it (e.g. agroecology, agroforestry, conservation agriculture, landscape management)', available at http://4p1000.org/understand (last accessed on 15.05.2019). The initiative is governed by a collaborative platform, an executive committee and a scientific and technical committee.

- advocacy and norm development, in particular through the World Soil Charter (1981, 2015) and the Voluntary Guidelines for Sustainable Soil Management[500]

2.9.1.3 Practice

In the following, we review the FAO's organisational practice pertaining to soils. We elaborate some of FAO's activities on knowledge brokerage, technical assistance, networking and norm development in greater depth. This includes, most notably, the Global Soil Partnership and the Voluntary Guidelines for Sustainable Soil Management.

Knowledge brokerage

SDG indicators

In relation to the SDGs, FAO is the custodian UN agency for 21 SDG indicators and is a contributing agency for another four.[501] Only one of the indicators, however, directly relates to soil conservation: indicator 15.3.1 "Percentage of land that is degraded over total land area". FAO and UNEP act as contributing agencies and the UNCCD as the custodian of this indicator. Other indicators are indirectly linked to soil conservation, for example in that they intend to monitor sustainable agriculture and forestry practices.[502] Responsibilities of FAO under its custodianship include the collection, validation and harmonization of data from nation states which feed into annual SGD progress reports, the development of methods and standards e.g. for agriculture statistics and the provision of technical assistance to member countries to meet the new monitoring and reporting requirements.[503]

FAO Soils Portal

The FAO Soils Portal is a website with information on soil surveys, soil assessments, soil biodiversity, soil management, soil degradation and restoration, as well as soil-related policies and governance.[504] It contains definitions and a glossary, overview articles, and links to FAO-developed or external guidelines, tools, databases, publications and other sources with relevance to soils.

Soil data and maps

FAO is an important source of global soil databases and soil maps. Starting in 1961, FAO and UNESCO developed, with the help of soil scientists from all over the world, a global soil map (1:5 million scale). This unique 'FAO/UNESCO Soil Map of the World' was completed in 1981 and till today represents a

[500] Apart from developing these major soil-related sets of norms, FAO was worked on integrating soil aspects in other sets of norms, including the Principles for Responsible Investment in Agriculture and Food Systems (cf. Principle 6).

[501] Indicators under FAO custodianship fall across the SDGs 2 (Zero Hunger), 5 (Gender Equality), 6 (Clean Water and Sanitation), 12 (Responsible Consumption), 14 (Life below Water), 15(Life on Land). Indicators for which FAO is a contributing agency relate to the SDGs 1 (No Poverty), 14 (Life Below Water) and 15 (Life on Land).

[502] See indicators 2.4.1, 15.1.1, 15.2.1, 15.4.2.

[503] FAO (2018).

[504] FAO (2019d).

main basis of information for other existing global soil maps.[505] Partly under the Soil and Terrain (SOTER) database programme[506], the FAO/UNESCO Soil Map's data was updated in a collaborative effort[507] in 2006 through the 'Harmonized World Soil Database'. A Global Soil Organic Carbon Map (GSOCMap) was developed and released in 2017.[508]

International soil data can also be accessed via the FAO's Global Land Degradation Information System (GLADIS/LADA) and FAOSTAT. FAO also compiles and harmonizes national and regional soil information.

Publications: SWSR, World Soil Resources Reports and FAO Soils Bulletin

A new flagship publication is the FAO's "**Status of the World's Soil Resources**" (SWSR) Report.[509] The 2015 SWSR is 'the first major global assessment ever on soils and soil-related issues'[510]. It was developed by the Intergovernmental Technical Panel on Soils (ITPS) (see below) as a reference document on the status of global soil resources as well as regional soil change. The report is based on contributions by over 200 international soil scientists, embedded in a review process and supported by governments.

Its main message is that 'while there is cause for optimism in some regions, the majority of the world's soil resources are in only fair, poor or very poor condition. Today, 33 percent of land is moderately to highly degraded due to the erosion, salinization, compaction, acidification and chemical pollution of soils. Further loss of productive soils would severely damage food production and food security, amplify food-price volatility, and potentially plunge millions of people into hunger and poverty'[511]. The report describes and ranks (for different regions separately) ten major soil threats, analyses direct and indirect pressures on soils and presents ways to combat soil degradation. While headings indicate that (regional-level) policy recommendations are put forward, based on regional assessments of soil changes, **the report in fact hardly contains any recommendations**.[512] The lack of policy recommendations, including overarching, global-level ones, can be counted as a weakness in the SWSR. The next SWSR is scheduled for 2025.

Another report relevant for soil biodiversity is "**The State of the World's Biodiversity for Food and Agriculture**" Report, which was to be published early 2017 but presently still exists as draft.[513] The Report uses an ecosystem approach and focusses on the interactions between plant, animal, aquatic and forest biodiversity. It analyses, among others, the status and trends of soil biodiversity for food and agriculture and how the topic can be mainstreamed across the soil agenda. It also proposes concrete activities, including a global biodiversity assessment and a global symposium on soil biodiversity.

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[505] Including the World Resource Base (WRB) map of World Soil Resources, the World Soil Regions map and the Zobler 'World Soil File for Global Climate Modelling'.

[506] The SOTER programme, initiated in 1986 by FAO, UNEP, ISRIC and the International Soil Science Society aimed at developing a global soil and terrain database at a 1:1 million scale, which was to be the FAO/UNESCO Soil Map's successor. However, while SOTER databases were developed for various regions, countries and continents, no SOTER database with global coverage was achieved.

[507] By FAO, IIASA, ISRIC-World Soil Information, the Institute of Soil Science, the Chinese Academy of Sciences (ISSCAS), and the Joint Research Centre of the European Commission (JRC).

[508] The map is expected to contribute to a 'reliable global view' on soil organic carbon as needed under the UNCCD and SDG indicator 15.3.1, and to provide reference soil carbon stocks that can be used in the further refinement of national greenhouse gas inventories, and to assess the sensitivity of soils to degradation and climate change.

[509] FAO and ITPS (2015a).

[510] FAO and ITPS (2015a) at XIX.

[511] FAO and ITPS (2015a) at XIX.

[512] One of the few recommendations that can be found in the report is addressed at Latin America and the Caribbean. It is relatively unspecific, its authors claiming that a 'major effort is required to design and implement sustainable soil management in the region' and that the respective process should be participatory FAO (2016) at 388.

[513] FAO Document CGRFA-16/17/Inf.10 Rev.1.

Older FAO publications include the "**World Soil Resources Report**" **series**, which started in 1961 and comprises more than 100 issues to date (latest issue from 2014), and the FAO Soils Bulletin. The latter is a technical paper series with 80 issues published between 1965 and 2005. Both series cover over-arching topics as well as individual country case studies or specific reports; the delineation between the two series is not clear.

In 2018, the Commission on Genetic Resources for Food and Agriculture (working under the auspices of FAO) decided to develop a **work plan on microbes and invertebrates**. This includes microbes and invertebrates relevant for soil biodiversity and for the sustained provision of soil-mediated ecosystem functions as well as services essential for sustainable agriculture.

Conferences: International conferences and workshops are another way by which FAO has been spreading soil knowledge. Examples include the '**Global Symposium on Soil Organic Carbon**' (GSOC17) (March 2017), the '**Global Symposium on Soil Pollution**' (GSOP18) (May 2018) and the '**Global Symposium on Soil Erosion**' (GSER19) (May 2019).

FAO is also a partner and steering committee member of the 'Global Soil Week', an international conference series on sustainable soil and land use issues hosted by the Institute for Advanced Sustainability Studies (IASS) in Potsdam.

World Soil Day & International Year of Soils 2015

In 2013, following an initiative by FAO, the UN General Assembly designated 5th December as 'World Soil Day' and declared 2015 the 'International Year of Soils'.[514] It tasked FAO with implementing, in collaboration with the UNCCD secretariat and national governments, the World Soil Day and the International Year of Soils. Both aim(ed) at creating awareness among civil society and decision makers about the importance of soil for human life. During 2015, a range of events were carried out to promote, supported by 'Special Ambassadors', the main messages of the International Year of Soils. The year included achievements as the endorsement of the revised World Soil Charter and it officially concluded with the publication of the SWSR. It is hence considered to have successfully generated momentum.[515]

Technical assistance for developing countries

Since the 1950's, FAO has been supporting member states in soil matters, from headquarters, regional FAO offices and in the field. This included assistance in implementing soil survey projects, preparing soil survey reports, carrying out soil assessments, setting up land resources inventories as well as promoting integrated land-use planning and the sustainable management of soils, among others though training and institution building.[516] At present, technical assistance is provided through the organization's Land and Water Division, the Plant Production and Protection Division (e.g. soil health, soil fertility), the Climate Division (e.g. soil organic carbon, adaptation measures) and the Forestry Policy and Resources Division (e.g. soil organic carbon survey, forest assessments). FAO reports to have implemented over 120 soil-related projects throughout the whole world, in the last 30 years, funded both by FAO regular programme and by extra budgetary (voluntary contributions) resources.[517] Recently, TCP Projects have been funded in Afghanistan, Cambodia and Sudan.[518]

[514] A/RES/68/232.

[515] Rojas and Caon (2016). The number of countries where World Soil Day celebration events have taken place has steadily increased, with over 300 different celebrations in 2018 (communication with GSP official).

[516] FAO (1983), Appendix.

[517] FAO (2014) at 14.

[518] GSP (2016) at 2 and 4.

Technical assistance is made available upon request by member countries and provided either through country or regional offices or, in case that more substantial funding is required, through channels such as the FAO's Technical Cooperation Programme (TCP). The TCP 'may be used in all areas of action that pertain to FAO's mandate and competence that are covered by the Strategic Framework'. Furthermore, TCP assistance needs to contribute to specified country priorities. As was pointed out above, the present Strategic Framework does not explicitly pertain to soils. Nevertheless, activities pertaining to soil conservation and sustainable soil management practices have been carried out for many years and remain important, spanning across FAO's key areas of work. For example, FAO is training countries on increasing soil organic carbon mass, rehabilitating degraded soils and meeting the new monitoring and reporting challenges under the SDG and the LDN conceptual framework. A concrete example of a soil-related TCP project is capacity development in the island state of Grenada related to applying the "land degradation assessment" in drylands (LADA) methodology.[519]

Networking: The Global Soil Partnership

The Global Soil Partnership (GSP) is a voluntary multi-stakeholder initiative under the auspices of FAO, with FAO member countries as partners by default. The GSP involves other relevant UN organizations subject to their focus of work, e.g. the UNCCD, WMO and IPCC on the topic of soil carbon, the CBD on soil biodiversity or WHO and UN Environment on soil pollution.

It is a mechanism for collaboration and learning between different stakeholders ("partners") – including non-governmental ones – to discuss global soil issues and promote sustainable soil management.

The GSP was first proposed by FAO and the EU who, through the GSP, aimed 'to meet the need for a multilateral agreement focusing specifically on soil challenges, and to advocate for sustainable soil and land management at global level'.[520] Following a recommendation in 2009 by FAO's High-level External Committee on the Millennium Development Goals, the GSP was formally established in 2012 and became operational in 2013.

The GSP is composed of "partners" which form the "GSP Plenary Assembly" and which have established "Regional Soil Partnerships". It is advised by the International Technical Panel on Soils and facilitated by the GSP Secretariat.

The **GSP partners** are representatives from governments and international organisations, academia, soil science societies, farmer associations, civil society, the private sector, donors etc.[521] Except for FAO members, who are partners by default, all organisations that apply as partners are reviewed and approved by the Secretariat following FAO procedures.[522]

The GSP partners form the **GSP Plenary Assembly** as the decision-making body that meets once a year to review and prioritize GSP in a regionally balanced process. It takes decisions by consensus. Decisions that may require follow up by national Governments need to be solely decided upon by GSP partners which are FAO members.[523] The Plenary Assembly reports, through the Secretariat, to the FAO's Committee on Agriculture. The latter 'may bring to the attention of the FAO Council any recommendation adopted by the GSP that may have policy implications, or could affect strategic programmes of FAO'.[524]

[519] http://www.fao.org/technical-cooperation-programme/success-stories/detail/en/c/357016/ (last accessed on 15.05.2019).

[520] FAO and ITPS (2015a) at 226.

[521] For an overview of current partners see http://www.fao.org/global-soil-partnership/partners/gsp-partners/en/ (last accessed on 15.05.2019).

[522] Rule II, Rules of Procedure of the Global Soil Partnership.

[523] Rule V, Rules of Procedure of the Global Soil Partnership.

[524] Rule IX, Rules of Procedure of the Global Soil Partnership.

The **Intergovernmental Technical Panel on Soils (ITPS)** was established by the Plenary Assembly of the Global Soil Partnership in 2013 to provide scientific and technical advice on global soil issues to the GSP and to FAO. Its 27 members from all world regions act in their personal capacity and are nominated by countries and endorsed by the Plenary Assembly for 3 years, renewable for one additional term. Among others, the ITPS developed the 'Voluntary Guidelines for Sustainable Soil Management (VGSSM),' prepared the first SWSR, and reviewed efforts to develop indicators for monitoring progress on soil-related SDGs. The ITPS has formed a partnership with the Science-Policy-Interface of the CCD, among others to develop indicators for monitoring soil degradation.

The GSP is logistically supported by a **Secretariat** which consists of FAO technical and administrative staff[525] and is located within FAO's headquarter. At present, it is composed of more than ten technical officers and consultants.

GSP partners have also established Regional **Soil Partnerships (RSPs)** which provide guidance on regional goals and Regional Implementation Plans (RIPs) as well as review their implementation. They work with FAO Regional Offices, other regional stakeholders and national soil entities.

The mandate of the GSP comprises five pillars:

- **Soil management**: Promote sustainable management of soil resources for soil protection, conservation and sustainable productivity
- **Awareness Raising**: Encourage investment, technical cooperation, policy, education awareness and extension in soil
- **Research**: Promote targeted soil research and development focusing on identified gaps and priorities and synergies with related productive, environmental and social development actions
- **Information and Data**: Enhance the quantity and quality of soil data and information: data collection (generation), analysis, validation, reporting, monitoring and integration with other disciplines
- **Harmonization**: Harmonization of methods, measurements and indicators for the sustainable management and protection of soil resources

For each of the pillars, Plans of Action exist, and Global Implementation Plans as well as Regional Implementation Plans are being and partly have been developed. This development takes/took place in working group sessions with regional representatives which were nominated at international technical workshops carried out for the development of each Plan of Action with representatives from each region.[526] For the development of the Implementation Plan of Pillar 1 (which is the most policy-relevant one), the VGSSM are regarded as 'the overarching framework'[527].

Funding of the GSP is based on cost-sharing, meaning that each partner may contribute with different inputs to the implementation of approved work. FAO through its Regular Budget finances the GSP Secretariat and provides core support staff. Resources needed for implementing the activities under the five Pillars of Action come from voluntary contributions (extra-budgetary resources).[528]

Finally, a **Healthy Soils Facility Trust Fund** has been launched at the request from the GSP Plenary Assembly. It is an umbrella programme/facility established for a five-year implementation period (2014-2019) and funded by voluntary contributions of both public and private donors.[529] The facility's resource envelope originally envisaged at US-$ 60 million but had reached only 19% of this sum in

[525] Rule X.1, Rules of Procedure of the Global Soil Partnership.

[526] Annex 1, lit. a and b, Rules of Procedure of the Global Soil Partnership.

[527] ITPS (2017) at 4.

[528] FAO (2014) at 9.

[529] Present donors include the European Commission, the Russian Federation, the Swiss Confederation, Thailand, UNEP, the International Fertilizer Industry Association, the International Association of Agriculture Production Insurers and the Austrian Hail Insurance Company (GSP 2016).

2016[530]. It funds projects relating to the GSP's five pillars, including with regard to awareness raising, capacity development and support of policy development at national level. In the past, implementation of the International Year of Soils and preparation of the VGSSM have been funded through the Facility.

Assessment

The GSP fills a void that previously existed with regard to soil-related international policy debate. The body has been considered 'a very novel undertaking based on the concept of partners of various types freely willing to consult and join forces to address a major international problem'.[531] Since its inception, the GSP has developed an impressive track record, with outputs so far including:[532]

Submission of the proposal for a UN World Soil Day (5 December) and the International Year of Soils 2015

- Preparation of the revised World Soil Charter
- Production of the Status of the World's Soil Resources report
- Establishment of Regional Soil Partnerships
- Development of capacities in developing countries on digital soil mapping
- Development of Voluntary Guidelines for Sustainable Soil Management
- Establishment of national soil information systems
- Publication of various technical reports and booklets[533]

On this basis, the partnership can be considered a major policy development forum and a learning platform, despite the fact that its political clout is limited. The lack of funds for the Healthy Soils Facility Trust Fund as well as for the GSP operation, however, indicates that the GSP is not so strong with regard to implementation. In this vein, the GSP notices that scarce funding 'limits the capacity and flexibility of the Secretariat in providing support to GSP implementation, especially in terms of technical assistance to the countries, a situation which is in deep contrast with the current phase of growing operational complexity and expansion of GSP-related work at all levels'.[534]

A drawback in the GSP's present composition is the low level of civil society organisations or social movements (as opposed to academic/scientific as well as private sector organisations) participating in the Partnership. As the GSP as such is open for all stakeholders, this is a decision taken at the level of the respective organisations, not at the level of the GSP or FAO. One argument mentioned by an international environmental NGO that considered but ultimately rejected participation was the perception that "soils are not campaignable".[535] Still, the GSP should aim to support NGO participation and help making soils "more campaignable".

The World Soil Charter (1981, 2015)

Under the auspices of FAO and (more recently) its Global Soil Partnership, two major sets of soil-related norms were developed: the World Soil Charter (1981, 2015) and the Voluntary Guidelines on SSM (2016).

The original World Soil Charter (WSC) was developed against the backdrop of FAO projections on food supply needs, the limited ability of land to produce food, ongoing land degradation in both developing

[530] GSP (2018).

[531] FAO (2014) at 15.

[532] http://www.fao.org/global-soil-partnership/overview/why-the-partnership/en/ (last accessed on 15.05.2019).

[533] E.g. "Soil organic carbon: a hidden potential", "Global assessment of the impact of plant protection products on soil functions and soil ecosystems", "Soil pollution: a hidden reality", "Handbook for saline soil management", " Soil organic carbon mapping cookbook"

[534] GSP (2016) at §2.

[535] Interview with a former official of an international environmental NGO which had been involved in the organisation's decision not to join the GSP (November 2018).

and developed countries as well as a rising world population. It was revised in 2015 through Intergovernmental Technical Panel on Soils (ITPS) to accommodate new scientific knowledge, among others with respect to new or exacerbated issues such as soil pollution, climate change adaptation and mitigation, or urban sprawl impacts.[536] Both the 1981 and the 2015 WSC are non-binding instruments. They are not treaties and state practice does not suggest that they have developed into customary law.

The original 1981 WSC establishes 13 principles and various guidelines for improved soil use. Among others, the use of land (comprising the resources soil, water and associated plants and animals) should not cause the degradation or destruction of these resources (Principle 1); a high priority should be given to promoting optimum land use, to maintaining and improving soil productivity and to conserving soil resources (Principle 2); and land management decisions should favour the long-term advantage over short-term expedience (Principle 12). With regard to public policies and planning, the Charter recommends addressing land-tenure structures that constitute obstacles to sound soil management (Principle 8), assessing land resources (Principle 10) and including soil productivity and land conservation in land use programmes or land development planning (Principle 5, 13). In addition, governments ought to set incentives at farm level (Principle 6), give practical assistance to land users (Principle 7), and invest in education or extension programmes (Principle 9).

The revised WSC consists of a preamble, a set of principles and guidelines for action. The preamble recognizes that '[s]oils are fundamental to life on Earth but human pressures on soil resources are reaching critical limits'. The principles de facto resemble definitions and descriptions rather than prescriptive precepts. Among others, these principles encompass statements such as 'Soils are a key enabling resource' (para 3), 'Soils result from complex actions and interactions of processes in time and space' (para 4) and that '[t]he implementation of soil management decisions is typically made locally and occurs within widely differing socio-economic contexts" (para 6). Soil management is defined as sustainable 'if the supporting, provisioning, regulating, and cultural services provided by soil are maintained or enhanced without significantly impairing either the soil functions that enable those services or biodiversity' (para 5). Thus, compared to the 1981 WSC, the nature of its (now nine) principles has changed. Prescriptions have shifted into the "Guidelines for Action". The overarching goal defined there for all actors is "to ensure that soils are managed sustainably and that degraded soils are rehabilitated or restored" (para 12). There is also a reference to the land-degradation neutrality goals of the SDGs: "Good soil governance requires that actions at all levels (…) be informed by the principles of sustainable soil management and contribute to the achievement of a land-degradation neutral world in the context of sustainable development" (para 13). Recommendations are made to individuals, the private sector, the scientific community, governments and international organisations. Governments are called on to promote sustainable soil management (I), strive to create socio-economic and institutional conditions favourable to sustainable soil management by removing obstacles (II), participate in the development of educational and capacity-building initiatives (III) and support research programmes (IV), incorporate SSM into policy guidance (V) in particular in the context of climate and biodiversity policies (VI) as well as to limit the accumulation of contaminants (VII).[537]

Assessment

The original WSC has been an important first international policy document on soils, along with UNEP's World Soil Policy (ditto 1982). The ITPS judges that its 'principles and definitions provided

[536] FAO (2015) at 2.

[537] The ITPS sums up that in revising the WSC, "the original strong focus on land use planning and land evaluation has been adjusted; more recent key references and concepts such as the more widely understood framework of ecosystem services are now reflected; major developments in the intervening period such as the outcome of the United Nations Conference on Environment and Development (UNCED) and ensuing spate of new agreements and the work of the Committee on World Food Security have been factored in; and the guidelines for action reorganized and expanded to take account of a broader range of stakeholders" FAO (2015) at 2.

useful guidance for national governments that pursued actions on sustainable soil management', although it is 'difficult to assess [it's] practical impact'.[538]

The revised WSC are too new to empirically assess in terms of effectiveness. However, they seem more abstract and less of a normative document than the original WSC. Despite the fact that it has been updated with regard to scientific and policy developments it therefore seems of lesser value for guiding policy decisions. The Voluntary Guidelines for Sustainable Soil Management, however, were developed to put more flesh to the WSC's bones and thus make up for this drawback.

The Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT) (2012)[539]

In November 2008, as a response to the controversial expansion of large-scale land acquisitions ("land grabbing") worldwide, the FAO launched an initiative under the roof of the Committee on World Food Security (CFS)[540] to develop "Voluntary Guidelines for Responsible Governance in Land and Natural Resource Tenure". The Guidelines are meant to set out principles and internationally accepted standards for responsible land tenure practices. The Guidelines themselves are voluntary and legally non-binding. However, they include references to legally binding instruments (including international instruments), thereby providing a framework that states can use when developing their own strategies and policies.

The process of developing the guidelines brought together a wide spectrum of actors and stakeholders, due to a novel mechanism according to which non-state actors are allowed to participate in the negotiations of open-ended working groups of the CFS. Participants beyond representatives of 96 member countries of the Committee on World Food Security therefore included civil society organizations, farmers associations, private sector representatives as well as UN agencies and other international organizations. The Guidelines were endorsed by the CFS in May 2012.

Content-wise, the VGGT address land registration, land transfers and land administration. They refer to all relevant stakeholders and describe their respective obligations and responsibilities, based on a human rights approach.

Assessment

The VGGT do not mention "soils". However, addressing land tenure they can indirectly impact soil use and management. Rules of tenure determine who can use which resources of the land for how long, and under what conditions. The absence of such rights can disincentivise land users to use soils sustainably. This is especially relevant in developing countries, where often land ownership is not regulated or registered (for instance, there are no secure land tenure rights in 90% of African countries). This situation leads to a weak governance of land use in general and to the uncontrolled exploitation of natural resources as well as soils.

Although voluntary, the VGGT are likely to have effects on national land use policies and legislation. Driven originally by the world food crises 2007/2008 and by the ongoing dispute on the harmful impacts of „land grabbing" to rural communities, the guidelines can have an added value especially in developing countries. Following an inclusive negotiation process, the VGGT received strong support both after adoption and during the follow-up process.[541] Since their finalisation, the VGGT were endorsed by the G8, G20, Rio+20, the Francophone Assembly of Parliamentarians and other organisations, including large multinational corporations. Moreover, the guidelines have inspired policy and legal re-

[538] FAO & ITPS (2015a) at 225.

[539] The following text is based on Wunder et al. (2013).

[540] The CFS reports to the UN General Assembly through the Economic and Social Council (ECOSOC) and to FAO Conference.

[541] Windfuhr (2017) at 205.

forms in a number of developing countries. This was promoted by the fact that donors have implemented over 225 programmes worth 4.1 billion US$ supporting VGGT implementation. Finally, the SDGs where developed, the issue of land tenure was included: SDG 5 calls for improved access to land and increased tenure security. Thus, the VGGT help countries achieving the SDGs and in particular SDG indicator 5.a.2.[542]

The Voluntary Guidelines for Sustainable Soil Management (2016)

The Voluntary Guidelines for Sustainable Soil Management (VGSSM) were prepared by the GSP – thereby allowing non-state actors to participate in the negotiations – in reaction to the World Soil Charter's call for incorporating SSM into policy guidance. Initiated in 2014, the Guidelines were approved by the FAO Council in 2016. While the GSP originally strove to draft a 'concept note on sustainable management of soil resources', this document became a set of voluntary guidelines. This was among other inspired by the success of the drafting process of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT)[543] within the Committee on World Food Security (endorsed in 2012).[544] Preparing the VGSSM included holding regional workshops; development of a zero draft by the ITPS on the basis of the regional outcomes; an e-mail consultation of stakeholders in 2015 in which some 30 organisations participated; review of comments and revision of the zero draft by the ITPS; and the VGSSM's finalization by an Open-ended Working Group in April 2016[545]. The working group comprised, inter alia, member countries, the UNCCD, IFAT, the World Farmers' Organisation as well as private sector actors.

The VGSSM are explicitly of voluntary nature and are **not legally binding**.[546] Neither are they expected 'to provide detailed recommendations, but are designed to inform strategic and context-specific decision-making' (VGSSM, 1.3).

The VGSSM's **objectives** are 'to present generally accepted, practically proven and scientifically based principles to promote SSM and to provide guidance to all stakeholders on how to translate these principles into practice, be it for farming, pastoralism, forestry or more general natural resources management' (VGSSM, 1.2).

The VGSSM define sustainable soil management (SSM) as follows: 'Soil management is sustainable if the supporting, provisioning, regulating, and cultural services provided by soil are maintained or enhanced without significantly impairing either the soil functions that enable those services or biodiversity. The balance between the supporting and provisioning services for plant production and the regulating services the soil provides for water quality and availability and for atmospheric greenhouse gas composition is a particular concern' (VGSSM, 1.5).

With regard to **scope**, the guidelines address technical aspects of SSM including core characteristics of sustainably managed soils, key challenges and potential solutions to address them (VGSSM, 1.3). In terms of sectoral scope, the VGSSM focus mostly on agricultural soils (defined as the production of food, fibre, feed, timber and fuel), although many of their principles also relate to unmanaged soil systems.

In material terms, the VGSSM address the following soil threats: erosion, decline in soil organic matter, salinization and alkalinisation, soil contamination, soil acidification, decline in soil biodiversity, soil sealing, soil compaction and water logging. In addition to the eight soil threats mentioned in European

[542] FAO (2017) at 13.

[543] Windfuhr (2017).

[544] The VGGT process to some extent served as a model, despite the fact that the topic was less contentious (e.g., the issue of land grabbing in the VGGT) and less budget was available for a wide consultation process: ITPS (2015) at 6–7.

[545] GSP (2016) at 1.

[546] VGSSM, 1.3.

Commission (2006), the VGSSM explicitly address the nutrient balance and cycles in soils as well as soil water management.[547]

SSM is thus supposed to contribute to meeting a range of international commitments, including the SDGs, the Zero Hunger Challenge, climate change and the Paris Agreement, desertification and the UNCCD including achievement of a land degradation neutral world, biodiversity and the CBD's Aichi targets, secure land tenure and the VGGT.[548]

Geographically, the VGSSM are intended to contribute to global, regional and national efforts of soil management.

The guidelines are addressed to a wide **target audience** which includes all relevant stakeholders (specifically, 'government officials, policy makers, farmers, pastoralists, forest and land managers, extension services and agricultural advisors, development partners, civil society, private sector and, academia' are mentioned in VGSSM, 1.4).

As to its main **content**, the VGSSM encompass the following guidelines, each of which they justifying and specify:

- Minimize soil erosion
- Enhance soil organic matter content
- Foster soil nutrient balance and cycles
- Prevent, minimize and mitigate soil salinization and alkalinisation
- Prevent and minimize soil contamination
- Prevent and minimize soil acidification
- Preserve and enhance soil biodiversity
- Minimize soil sealing
- Prevent and mitigate soil compaction
- Improve soil water management

The list of guidelines reveals analogies to the principles governing the concept of land degradation neutrality,[549] namely 'avoiding, reducing & reversing degradation'.[550] However, not all principles are included in all SSM guidelines. For instance, with regard to soil sealing, reducing such activities and restoring degraded sites (i.e., reversing degradation) are part of the guideline (VGSSM, 3.8), while 'avoiding' soil sealing is not addressed by the guideline. Avoiding sealing might not be politically feasible in most countries.

Each of the guidelines is specified to a significant degree, so that there are concrete indications of how the guidelines can be nationally **implemented** – though these indications are not binding. For instance, with regard to the "minimization of soil erosion", it is suggested that deforestation or 'improper' grassland-to-cropland conversion should be avoided or carefully planned and appropriately implemented if unavoidable; a cover of growing plants or other organic and non-organic residues should be maintained through implementation of appropriate measures such as mulching, minimum tillage, no-till by direct seeding with attention to reduced herbicide use etc.; erosion by water on sloping and relatively steep lands should be minimized by measures that reduce runoff rates and velocity

[547] The 'optimized and safe use of inputs' forms part of the VGSSM's definition of sustainable soil management (VGSSM, p. 3, No. 10), but does not represent a self-standing guideline.

[548] VGSSM, p. 5.

[549] CCD Global Mechanism (2016) at 17.

[550] The principle of avoiding is inherent in 'preventing' soil salinization/ alkalinisation, soil contamination, soil acidification and soil compaction; the principle of reducing is inherent in 'minimizing' soil erosion, soil contamination, soil acidification': and finally, the principle of reversing is included in 'enhancing' soil organic matter content and soil biodiversity as well as in 'mitigating' soil salinization/ alkalinisation and soil compaction and in 'improving soil water management'.

such as strip cropping, contour planting, crop rotation, intercropping, agroforestry etc.; 'where appropriate', riparian buffers, buffer strips, wetlands, water harvesting and cover crops should be installed to minimize export of soil particles and associated nutrients and contaminants from the soil system and protect the downstream areas from damaging impacts; and erosion by wind should be minimized and mitigated through vegetative (trees and shrubs) or artificial (stone walls) wind breaks to reduce wind velocity.

In addition to specifications as contained in the VGSSM, a set of more specific technical manuals may be developed later to provide complementary tools.[551]

To promote the VGSSM's diffusion and implementation, state actors (development partners, relevant specialized agencies, UN programmes, international financial institutions and regional organizations) are 'encouraged' to:

- 'Support the dissemination and implementation of these voluntary guidelines; and
- Facilitate, as appropriate, technical cooperation, financial assistance, capacity development, knowledge sharing and transfer of technology aimed at promoting SSM'

In early 2017, the GSP Secretariat prepared a proposal for the implementation of the VGSSM to be submitted to the European Commission and other donors for consideration.[552]

The VGSSM are not **institutionally embedded or supported**, e.g. with regard to monitoring/ review provisions or dispute settlement mechanisms. However, it is envisaged that the GSP Secretariat and the ITPS 'will report to the GSP Plenary Assembly on the progress in the implementation of the guidelines, as well as evaluate their impact and their contribution to the improvement of soil management'.[553] Intervals of such an evaluation are not specified.

Assessment

The VGSSM are too fresh to have had a demonstrable impact. We therefore discuss the guidelines in a more abstract, a priori fashion ('theory-based' evaluation).[554]

First, the impact of a policy instrument depends on the political and scientific weight and credibility derived from the process by which the instrument was developed and adopted. In this respect, the open and inclusive nature of the GSP process and the independence and technical expertise of the ITPS are good starting conditions. The VGSSM have indeed been supported by many non-governmental actors (such as IFOAM, Save Our Soils etc.), among others for the co-benefits that SSM and the guidelines themselves provide (e.g., IFOAM are pleased about the guideline on enhancing soil organic matter content which recommends, among others, organic farming practices;[555] other actors perceive the VGSSM's value above all in promoting the climate benefits of SSM).

Second, to become effective, the Guidelines need to target the 'right' audiences. Indeed, the VGSSM define a very broad spectrum of target groups (related to agricultural soil use), no relevant group seems to be neglected. However, not all groups will find the required level of specificity in the guidelines. Neither do the VGSSM clearly identify the different levels of implementation, for instance with regard to which actors need to implement what aspects in what time horizons. Both could be rectified by following up on the already mentioned option that the VGSSM be complemented by technical guidelines. The VGSSM being also of value for the management of non-agricultural soils, it might be discussed whether

[551] VGSSM, p. 7.

[552] ITPS (2017) at 8.

[553] VGSSM, p. 16.

[554] See guiding questions in the Annex to this document.

[555] https://www.ifoam.bio/en/news/2016/07/04/voluntary-guidelines-sustainable-soil-management (last accessed on 15.05.2019).

soil managers and soil users related to forestry, nature reserves, human settlements, industrial sites etc. should be addressed, too.

Third, the target audiences also need to know about the Guidelines. While government officials and policy makers with a remit of (international) soil policy as well as development agencies and soil scientists have likely taken note of the VGSSM, this can be less expected for their other target groups less closely involved with the guidelines' developments: national-level political and administrative actors, extension services and agricultural advisors, the private sector and all the more forest and land managers, farmers and pastoralists. An important next step is thus that the VGSSM be disseminated and endorsed widely,[556] ideally be 'adopted' by governments and donors and that their application at the national and local level is promoted – both at the level of policy and soil management.

Fourth, to become effective, the Voluntary Guidelines need to address core obstacles to sustainable soil management. Some broadly acknowledged obstacles are lacking awareness of the causes of soil degradation and of the medium- and long-term impacts of unsustainable soil management; competing demands for land (e.g., agricultural vs. industrial use vs. settlements/ urban sprawl); lacking policy coherence and cohesion; lacking capacities to implement SSM policies, to offer incentives for compliance or to sanction non-compliance; short-term profits from exploiting soils; lacking tenure rights and thus lacking incentives to invest in soils; as well as lacking competences to implement (partly more complex and knowledge intensive) SSM practices.[557] While the VGSSM can contribute to improving awareness with regard to soil degradation and delivering hints as how to avoid them, the Guidelines as such cannot counter any of the other obstacles. Addressing these requires a broader approach to implementation – with financial assistance being coupled to their application, capacity building, inclusive or local national-level policy processes on land and soil management, even with changes in price signals for products related to SSM (notably, by internalizing external costs of land/soil degradation). Many of these aspects require national policy action but can be internationally supported.

Finally, policy coherence at the level of the FAO and even the GSP is another factor that can improve the future effectiveness of the VGSSM. In this regard it is positive that the VGSSM have been declared to be 'the overarching framework'[558] for the development of the Implementation Plan of Pillar 1 (which is the most policy-relevant one). In addition, it will be crucial that Technical Cooperation Projects and the FAO's Overall Strategic Framework will take account of the VGSSM.

Summing up, the VGSSM are an urgently needed set of norms to promote sustainable soil management apt to specify the principles originally laid down in the World Soil Charter. The guidelines as such are not radical or even novel; however, their sponsorship by FAO give them authority and thus makes them a valuable document.[559]

2.9.2 Assessment and opportunities

FAO cannot commit its member states to any binding obligations. Compared to the above presented international treaties, this implies that FAO's role in international soil governance is comparatively weak. However, FAO is strong with regard to specialist expertise, technical guidance, knowledge brokerage and (through its Global Soil Partnership) networking. The organization is a central hub for global soil-related learning and norm development.

[556] An instance of dissemination is the G20's recent acknowledgement of the guidelines in the context of securing water quality (G20 2017). They 'encouraged' their members using them.

[557] Inter alia, Kassam et al. (2013).

[558] ITPS (2017) at 4.

[559] Merfield, Charles (2016): *The FFC Bulletin: 2016 V3 July*, available at https://www.bhu.org.nz/future-farming-centre/information/bulletin/2016-v3/two-important-soil-publications (last accessed on 15.05.2019).

FAO's soil focus has traditionally been on agricultural soils and on the productive functions of soils. In recent years, some efforts have been undertaken at FAO to shift focus and adopt a more holistic approach on soils as a provider of ecosystem services. This shift in perception has led to the revision and development of (new) normative instruments as well as the establishment of the GSP, acknowledging that sustainable soil management requires a multi-perspective approach.

Despite these developments, (multifunctional) soils do not yet play a prominent in the organisation's current strategy. Given the prevailing perception among (certain) member countries that soil is a national resource and their concerns, e.g. of being exposed to intensified soil monitoring, it is also questionable that soils will play a more prominent or explicit role in the future.[560]

FAO is undertaking a range of practical activities in relation to sustainable soil management, the SDGs and the LDN target, including technical assistance to member countries. Many of these activities involve other soil-relevant organizations or conventions, such as the UNCCD, UNFCCC, IPCC and CBD.

On international level, several normative instruments have been developed by FAO and others in recent years, and substantial knowledge has been accumulated on tools, methodologies and best practices in relation to sustainable soil management. According to a senior FAO official, the current main challenge lies in mobilising resources for implementation on national level. Funding of soil-related activities has to increase substantially both on national and global level and new ways of funding should be explored.

To foster implementation on national level, support to member countries should include continuous awareness-raising on the importance of soils, the development and strengthening of national soil institutions so that soil conservation is put on the political agenda, transfer of technical knowledge as well as support to countries to develop an appropriate legal framework on the sustainable management of soils. While national (investments in) soil-related activities, e.g. the development of soil policies, did increase up to 2015 – the International Year of Soils – little quantitative data exists on these efforts. FAO has thus asked member countries to submit a report on how their policies align with normative instruments at the international level and which investments they have taken in relation to sustainable soil management.[561]

2.9.3 Potential avenues for action

While soils already play a relevant role within the FAO, further activities could help strengthen international soil governance through FAO. Soils being a crucial means for achieving most of FAO's Strategic Objectives, FAO should adjust these Strategic Objectives to better reflect the importance of soils. In addition, a consistency check could examine whether there are policies and programmes within FAO that are not be fully coherent with the sustainable management of soils. Finally, efforts should be scaled up to implement the Voluntary Guidelines on Sustainable Soil Management.

2.10 UN Environment (UNEP)

2.10.1 Analysis

Headquartered in Nairobi, Kenia, the United Nation Environmental Programme (UNEP, also: "UN Environment") was established in 1972 to serve "as an authoritative advocate for the global environment"

[560] Interview with a senior FAO official.

[561] Interview with a senior FAO official.

and to promote "the coherent implementation of the environmental dimension of sustainable development within the United Nations system".[562] UNEP focusses on environmental conditions and instruments on a global, regional and national level.

2.10.1.1 Institutional structure

Since 2014, UNEP's highest-level decision-making body is the **UN Environment Assembly (UNEA)**; previously, this function was exerted by the Governing Council.[563] Members of the UNEA are the Ministers of the Environment of 193 UN Member States; they meet biennially. UNEA's president changes on an annual basis and leads the UNEA together with the UNEA Bureau. The latter is composed of ten Ministers of the Environment for a term of two years, based on geographical rotation.[564] The Committee of Permanent Representatives is the "inter-sessional intergovernmental body of the Assembly" and works as a subsidiary organ of the today's UNEA preparing its meetings throughout the year and "reviews the implementation of its decisions".[565]

UNEP is mostly funded by voluntary contributions (93%); only 7% are received from the UN Regular Budget. The UN Regular Budget (reserved for main functions of the Secretariat and the governing bodies), the Environment Fund (for global and regional work of programmes) and earmarked contributions are the three sources of UNEP's funding. **UNEP's budget** "for 2016 and future years" was 643 million USD as a multi-year funding amount (annual planned budget of 2016: 338.8 million USD).[566] UNEP's largest financial partner is the "Global Environment Facility" (GEF). Compared to FAO, UNEP's budget is only 50% of the annual FAO budget (cf. Chapter 2.9.1.1).

Within UNEP, soil issues are mainly dealt with at its ecosystems division (conservation and management of (terrestrial) ecosystems) and, to a lesser extent, its law division (e.g. support to member states in developing policies) as well as its economy division (e.g. cooperation with the private sector on the use of chemicals). UNEP is also hosting several secretariats of relevance to soil conservation such as the Secretariat of the Basel, Rotterdam and Stockholm Conventions.

2.10.1.2 Mandate and tasks

UNEP does not explicitly cover "**soils**" as an individual major topic.[567] However, soils form an important part within the topics of "ecosystems" and "forests" and, inter alia, in its environmental information and assessment activities. Also, soils were covered in UNEP's recent campaign "Towards a pollution-free planet", UNEP's work on (terrestrial) ecosystems and natural capital as well as its support to implementation of the SDGs (notably, Target 15.3) and the UN Convention on Combating Desertification.[568] The focus of UNEP's work on soils lies both on industrial land and soil pollution and on land degradation and restoration.

UNEP's strategic plan is renewed every four years. The upcoming **UNEP Medium Term Strategy 2018-2021** in its "Situation Analysis" addresses the need for combating desertification, addressing land degradation, halting biodiversity loss and, more broadly, protecting, restoring and promoting the sustainable use of terrestrial ecosystems.[569] While land and soils are not explicitly mentioned in the

[562] https://www.unenvironment.org/about-un-environment (last accessed on 15.05.2019). The mandate was first established in 1972 in the UN General Assembly Resolution 2997 (XXVII) which established UNEP; other resolutions reinforced this mandate, including the Nairobi Declaration on the Role and Mandate of the United Nations Environment Programme of 7 February 1997 and the Malmö Ministerial Declaration of 31 May 2000.

[563] Change of name by General Assembly Resolution 67/251 of 13 March 2013.

[564] http://web.unep.org/environmentassembly/about-un-environment-assembly (last accessed on 15.05.2019).

[565] http://web.unep.org/about/cpr/who-we-are/overview (last accessed on 15.05.2019).

[566] This sum comprises 39% earmarked contributions ($127 million), 31% GEF (100 million USD), 20% soft earmarked contributions (65 million USD) and 7% regular budget (22 million USD), cf. http://web.unep.org/about/funding/our-funding/overview-funding (last accessed on 15.05.2019).

[567] https://www.unenvironment.org/explore-topics (last accessed on 15.05.2019).

[568] https://www.unenvironment.org/explore-topics (last accessed on 15.05.2019).

[569] UNEP (2016a) at 7.

"Vision", it is recognized that "sustainable natural resource use is increasingly critical to economic and social development".[570] Similarly, soils and land degradation are not explicitly mentioned among the Strategy's "Priority Areas", but play an implicit role in the Areas of "Healthy and productive ecosystems" and are affected by the Areas of "Climate Change" as well as "Chemicals, waste and air quality". Regional priorities relating to UNEP's Strategy rarely relate to soils, with the exception of the European chapter which mentions 'decline in soil fertility' at least as an emerging issue.[571]

2.10.1.3 Practice

Knowledge Brokerage

In relation to the **SDGs**, UN Environment is the **custodian UN agency for 30 SDG indicators** out of which three indicators are relevant to soil conservation, namely indicators 15.1.2 (proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type), 15.4.1 (coverage by protected areas of important sites for mountain biodiversity) and 15.9.1 (progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020).[572] Soil-related knowledge integration, information dissemination and awareness rising

UNEP carries out knowledge integration, dissemination and awareness rising both through its own organisation and through the International Resource Panel (IRP). UNEP keeps the "environment under review" with environmental assessments, information/ data management. A number of publications have addressed soil and land issues in the past years:

The **Global Environment Outlook** (GEO) is UNEP's main assessment report. As an environmental information tool, it provides "environmental trends for air, climate, water, land and biota".[573] The main messages of GEO-6 relating to land are the following:[574]

- Food production is the largest anthropogenic use of land, using 50 per cent of habitable land
- Land degradation and desertification have increased, with land degradation hotspots covering approximately 29 per cent of global land, where some 3.2 billion people reside
- By 2050, the world needs to produce at least 50 per cent more food to feed the projected global population of 10 billion people. Current land management cannot achieve this while preserving ecosystem services, the loss of natural capital, combating climate change, addressing energy and water security, and promoting gender and social equality
- Sustainable land-use planning and management can protect high-quality, fertile agricultural soil from competing interests, thus maintaining land-based ecosystem services such as food production, and preventing land from flooding and disaster.

The **UNEP Year Books** which aim at identifying "emerging issues in our global environment" cover soil carbon benefits in their 2014 edition, which provides updates about securing soil carbon benefits and improved soil management.[575] Similarly, the **UNEP Frontiers Reports** are dedicated to "emerging issues of environmental concern". The Frontiers 2017 report covers sand and dust storms as a consequence of land mismanagement and as a threat to soils; the Frontiers 2016 report briefly mentions soil salinization as a climate change impact driving 'loss and damage'.

[570] Ibid at 12.
[571] Ibid at 59.
[572] UNEP (n.d.).
[573] https://www.unenvironment.org/global-environment-outlook (last accessed on 15.05.2019).
[574] UNEP (2019).
[575] UNEP (2014).

In the context of UNEP's "**Towards a pollution-free planet**" campaign, which was initiated by the current President of the Environment Assembly, Edgar Gutiérrez-Espeleta (Minister of Environment and Energy of Costa Rica), UNEP and UNEA published a **background report**.[576] **"Land and soil pollution"** is one of six forms of pollution addressed in the report (the others are: air, chemicals, waste, freshwater and marine environment). The report covers the sources of land and soil pollution as well as its impacts on human health and ecosystems. Impacts of land and soil pollution on human health and ecosystems are specifically covered regarding the four categories of pollutants heavy metals, pesticides, plastic debris/ litter and pharmaceuticals.[577] Moreover, physical impacts and monetary costs of land degradation and soil pollution are highlighted, both at global and regional level.[578] The report also analyses the linkages between addressing land and soil pollution and implementing the Sustainable Development Goals.[579] Finally, the report suggests the following **actionable policy options to combat land and soil pollution**:

- Adopt agro-ecological practices and integrated pest management and establish guidelines for the reduction and efficient use of fertilizers and environmentally friendly pesticides in agriculture
- Reduce point-source pollutants, such as heavy metals from industry, and diffuse pollutants including pesticides and inefficiently used fertilizers in agriculture
- Reduce the use of antimicrobials, including antibiotics in the livestock sector, to avoid unintended releases into the environment and food chain, and increase public awareness and international collaboration on research and product development
- Invest in building the knowledge of all those associated with the design, construction, operation and closure of tailings dams
- Remediate contaminated sites
- Invest in long-term environmental monitoring following industrial closures[580]

In 2007, UNEP launched the **International Resource Panel (IRP).** This group of more than 30 experts and scientists from different disciplines and world regions aims at improving the science-policy interface relating to the sustainable use of global natural resources. Among others, the IRP has a Working Group on "Land and Soils". In 2014, the IRP published an **assessment of global land use** ("Balancing consumption with sustainable supply") which presents recent and long-term trends of global land use, factors driving increased demand for cropland, consumption and sustainable production and options for sustaining global use of land.[581]

Another science-policy body linked with UNEP is **the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).**[582] UNEP, jointly with UNDP, UNESCO and FAO, facilitates the independent intergovernmental body which presently carries out a thematic assessment on land degradation and restoration. In 2016, a **study** by UNEP and IPBES on "**Unlocking the Sustainable Potential of Land Resources**" reviewed existing land potential evaluation systems (focusing on systems that address the potential to support agricultural production), tools and resources. It also developed a strategy for unleashing the sustainable potential of land and policy options for applying land potential evaluation to land use planning and management.[583]

In the past, UNEP was involved in some important international soil-related research. In1988, UNEP and ISRIC (International Soil Reference and Information Centre) published **guidelines for the general**

[576] UNEP (2017).
[577] UNEP (2017) at 73.
[578] UNEP (2017) at 77.
[579] UNEP (2017) at 94.
[580] UNEP (2017) at 52.
[581] IRP (2014).
[582] https://www.ipbes.net/about (last accessed on 15.05.2019).
[583] UNEP (2016b).

assessment of the status of human-induced soil degradation.[584] In the course of developing the guidelines, UNEP initiated and funded the Global Assessment of Human-induced Soil Degradation project (**GLASOD**) which aimed at gaining a worldwide overview of the spatial distribution and severity of human-induced soil degradation. GLASOD was implemented in cooperation with ISRIC and numerous soil scientists from 1988-1991.[585] The project's outcomes included a **global map of human-induced soil degradation** to raise awareness of this problem with a view to the UNCED conference in Rio de Janeiro in 1992. Observers have judged that "GLASOD aroused worldwide interest and the results have been cited in many policy papers and reviewed in several scientific journals".[586] Furthermore, "requests were made for soil degradation assessments at regional and national scale".[587] The **Land Degradation Assessment in Drylands project (LADA)** was initiated and supervised by UNEP (implementing agency), financed by the Global Environment Facility (GEF) and executed by FAO from 2005-2010 (see Chapter 2.9.1.3 concerning GLADIS/LADA).[588] The project aimed at developing and implementing strategies, tools and methods to assess and map land degradation at different spatial scales and at local to global levels.[589] The LADA Pilot Countries were China, Argentina, Cuba, Senegal, South Africa and Tunisia. Prior to LADA, GLASOD was the "only comprehensive source of information on land degradation"[590].

Networking

UNEP currently co-funds the **Global Soil Partnership** (initiated by FAO and the European Commission) by contributing to the "Healthy Soils Facility" and its multilateral trust fund.[591] The facility serves as a multi-partner platform to provide "new momentum for action and cooperation on soils".[592]

Technical assistance

UNEP also provides technical assistance to UN member states relating to soil issues, receiving most of its funding from GEF. Since land degradation is one of GEF's focal areas, this also holds true for projects implemented by UNEP. For example, economic studies on land degradation were conducted in both Africa and Asia-Pacific, analysing the costs of land degradation.[593]

UNEP has also partnered with BNP Paribas to launch the Sustainable Finance Facilities programme which aims at raising US$10 billion in private capital by 2025 for sustainable projects in emerging countries including projects on sustainable land management and the restoration of degraded landscapes (UNEP 12.12.2017).

Another project example is the clean-up of soil contaminated by industrial pollution in the Republic of Serbia. Starting in 2016,[594] UNEP funds the collecting of data and production of a map of contaminated areas as well as soil-related policy efforts.

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584 https://www.unenvironment.org/resources/report/guidelines-general-assessment-status-human-induced-soil-degradation (last accessed on 15.05.2019).

585 http://www.isric.org/projects/global-assessment-human-induced-soil-degradation-glasod (last accessed on 15.05.2019).

586 van Lynden und Oldeman (1997) at iv.

587 Ibid.

588 Biancalani et al. (2013) at 2.

589 Ibid.

590 Biancalani et al. (2013) at 4.

591 Ibid.

592 Ibid; GSP (2014) at 2.

593 Interview with senior official at UN Environment.

594 https://www.unenvironment.org/news-and-stories/news/fridayfact-after-decades-pollution-serbian-soil-be-cleaned (last accessed on 15.05.2019)

The World Soils Policy (1982)

In 1982, UNEP published the **World Soils Policy**, a non-binding three-page policy statement which commits governments to 'agree to use their soils on the basis of sound principles of resource management, to enhance soil productivity, to prevent soil erosion and degradation, and to reduce the loss of good farmland to non-farm purposes'. The policy includes eight objectives addressed to international and regional organizations, governments and non-governmental organizations and individuals.[595] These objectives include:

- knowledge production ('to increase and apply scientific knowledge of the soils of the world', 'to monitor changes in soil quantity and quality and in land use;')
- awareness-raising ('to bring to the attention of the people of the world, and their political leaders...')
- intergovernmental support ('to encourage and assist countries in improving the productivity and management of their soils and in reducing soil degradation')
- agricultural policy measures ('to … promote agricultural production systems that assure the use of the soil in a sustained basis'; 'to enlarge and improve the world's supply of arable agricultural land through irrigation, flood control, and reclamation'), and
- other soil-related policies ('to encourage the management and conservation of soil, reduce pollution, and improve the quality of water and air; 'to slow the loss of productive agricultural and forest land to other purposes')

The World Soils Policy advocates a range of actions for organisations and national governments. The latter are advised, inter alia, to map current land use and assess the extent of soil degradation; to develop a land-use policy and the necessary legislative framework to implement it, to monitoring and supervise soil conservation; to impose obligations on soil users such as tax exemptions and subsidies; to establish programmes, where needed, for reforestation, irrigation, and reclamation of saline, flooded or other land not presently productive; as well as to develop programmes ensuring 'the availability and wide application of fertilizers and other actions appropriate to the improvement and sustained use of the soil'.

Following the adoption of the World Soils Policy, UNEP formulated 'environmental guidelines' for the development of National Soil Policies.[596]

The World Soils Policy clarified at the time that UNEP, FAO and UNESCO would 'share responsibility in promoting and supporting the international and regional activities suggested'. The World Soil Charter of FAO (1981) and the World Soils Policy (1982) were developed as "conjunctive instruments",[597] the FAO focusing more on maintaining the productivity of soils and promoting 'optimal' land use and UNEP on environmental aspects. Both instruments have become recognised as global soft law for soil protection.[598] While their non-binding nature makes it difficult to trace their effects, both sets of norms are judged to have had an impact on further actions on sustainable soil management at the national level.[599]

Recent soil-related policy development

[595] UNEP (1982) at 2.
[596] UNEP (1983).
[597] Hannam and Boer (2002) at 61.
[598] Ibid.
[599] FAO & ITPS (2015b) at 225.

The **UN Environment Assembly** at its second session in 2016 adopted a **resolution on "Combating desertification, land degradation and drought** and promoting sustainable pastoralism and rangelands".[600] In it, the ministers call on UNEP "to contribute to strengthening existing global partnerships that promote a shared vision of resilient landscapes for resilient people and strengthen coordination in the fight against desertification and land degradation". They also request that UNEP jointly with other UN agencies, member states and stakeholders "explore whether there are gaps in the current provision of technical support and environmental and socioeconomic assessments of grasslands, rangelands, soil erosion, land degradation, land tenure security and water security in drylands". Finally, the UNEA calls on UNEP to support the UNCCCD by "facilitate[ing] the sharing of best practices for the development and implementation of strategic frameworks and early warning systems for enhanced disaster risk management, sustainable land management, land restoration and resilience to drought" as well as by "mobiliz[ing] resources to help Member States affected by desertification, upon request, to develop, implement and review National Action Programmes".

More recently, at its third session in December 2017, UNEA issued a **ministerial declaration, "Towards a pollution-free planet"**, which includes sixteen demands to "alert people everywhere" to the permanent pollution of ecosystems.[601] Statement 6 addresses land and soil management: "We are also concerned that unsustainable land use and management can lead to soil degradation and pollution and creates phenomena such as forest and biodiversity loss, sand and dust storms, increasing wildfires, and other undesirable effects that pose a great challenge to sustainable development."[602] Moreover, Statement 8 proposes actions to prevent, mitigate and manage the pollution of land and soil (as well as air, freshwater and oceans).[603] The pledge **#BeatPollution**[604], initiated by UNEP in 2017, accompanies the initiative.

Also at UNEA-3 in 2018, a **resolution** (UNEA-3 Res. 6) was passed specifically **on soil pollution** ("Managing soil pollution to achieve Sustainable Development"), acknowledging that land is the main resource around which ecosystem services are anchored and that the impacts of soil contamination potentially hamper achieving the SDGs. The resolution requests member states to address soil pollution within the existing global agendas (environmental, food security, agriculture, development and health). It also calls on member states to address soil pollution on both national and regional level and urges UNEP "to provide, upon request … support to Governments' efforts to strengthen and, as appropriate, coordinate national and regional policies and legislation to curb soil pollution". It also calls on UNEP, WHO, FAO, UNCCD and others to prepare a report based on available scientific information and data on the extent, trends and impacts of soil pollution and to elaborate technical guidelines for the prevention and minimization of soil contamination.[605] Although not legally binding, the resolution presents the first international instrument at this level of formality that covers soil pollution more broadly and not in relation to specific pollutants. FAO has reportedly begun work on the guidelines in regard to pesticides and fertilisers.[606] It is in the context of this resolution that UNEP was involved in the organisation of the **Global Symposium on Soil Pollution (GSOP18)** at FAO headquarters in May 2018 (see Chapter 2.9.1.3 above).

UNEP's engagement in the field of environmental law is based on the **'Montevideo Programmes for the Development and Periodic Review of Environmental Law'**, which are prepared every ten years and set the strategy for its environmental law activities. The current (fourth) programme includes

[600] UNEP/EA.2/Res.24.

[601] UNEA (2017): *Ministerial declaration of the United Nations Environment Assembly at its third session: "Towards a pollution-free planet"*, UNEP/EA.3/L.19, p. 2.

[602] Ibid.

[603] Ibid.

[604] http://web.unep.org/environmentassembly/beat-pollution-pledge (last accessed on 15.05.2019).

[605] UNEA (2018).

[606] Interview with senior official at UN Environment.

'soils' as a programme area, citing the objective 'to improve national and international principles and standards and to support efforts under the United Nations Convention to Combat Desertification for the further development of legal approaches for the conservation, restoration and sustainable use of soils.' In order to reach the objective, an overall strategy and a number of actions are outlined, including the strengthening of existing laws pertaining to the conservation of soils and the implementation of national laws on land use. In addition, there are other programme areas that directly or indirectly touch upon the topic of soils, such as 'forests' and 'biological diversity'.

2.10.2 Assessment and opportunities

UNEP has a track record with regard to soil issues, notably industrial land and soil pollution as well as land degradation and restoration. While this track record goes back to the 1980s, the visibility of UNEP with regard to soil matters has not been very high in the past years.

Only recently, more soil-related activities and policies have been developed within UNEP. These include the organisation's campaign "Towards a pollution-free planet", the UNEA-3 resolution on soil pollution, the Montevideo Programme, UNEP's involvement with SDG implementation and with the Global Soil Partnership, as well as dedicated land-related assessments by expert panels associated with UNEP (International Resource Panel, IPBES).

With these new initiatives, UNEP's role in soil matters may increase. This calls for addressing the 'division of labour' with FAO and UNCCD between these organisations.

2.10.3 Potential avenues for action

UNEP expertise and capacities on pollution should be used to step up the organisation's work on soil protection. Its 2018 resolution „Managing soil pollution to achieve Sustainable Development" could form an entry point for this. Concrete activities range from increasing UNEP's capacities for implementing the Resolution and monitoring its impact. Implementation includes the development of guidelines for the prevention and minimization of soil contamination.

2.11 Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

Often described as the 'IPCC for Biodiversity', IPBES is a global science-policy forum designed to bring together the scientific community and decision-makers to promote the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development.[607] It was established in 2012 and is comprised of over 130 member states and over 1000 scientists.

2.11.1 Analysis

2.11.1.1 Institutional structure

The IPBES is based in Bonn, Germany. Its chairmanship rotates every three years to a different UN region. The current chairwoman, Ana Maria Hernandez from Colombia, was elected at the IPBES 7 (2019 in Paris).[608] The Multidisciplinary Expert Panel (MEP) is the main scientific body and is re-elected every three years. A Bureau was established to organise the plenary meetings and other communications in addition to monitoring finances and overseeing the secretariat.[609]

The IPBES is structured along the working areas of capacity building, knowledge generation, policy tools and assessments. Expert groups and task forces have been established for each of these areas. Members of the groups are nominated by member states and other organizations and chosen by the

[607] https://www.ipbes.net/news/ipbes-global-assessment-preview (last accessed on 15.05.2019).
[608] http://www.biodiv.de/en/biodiversitaet-infos/ipbes.html (last accessed on 15.05.2019).
[609] IPBES, *Bureau: Members*, available at https://www.ipbes.net/bureau (last accessed on 15.05.2019).

Bureau and the MEP. Scientists work on a voluntary basis. The financial contributions of the member states are also voluntary. [610]

NGOs and other organisations can participate in the forum as observers and can organise in two Stakeholder networks: the Open-Ended Network (ONet) of IPBES Stakeholders and/ or the International Indigenous Forum on Biodiversity and Ecosystem Services (IIFBES). Stakeholders, once registered in the IPBES Stakeholder registry, can contribute to the activities of the work programme; they can also apply for observer status. Indigenous and local knowledge (ILK) holders have to be represented in the preparation of the IPBES' assessments.[611]

2.11.1.2 Mandate and tasks

The primary tasks of the IPBES include the preparation of assessments on biodiversity and ecosystem services (e.g. "Pollinators, Pollination and Food Production", "Land Degradation and Restoration") at both the regional and global levels. In addition, its tasks encompass policy support, capacity and knowledge building, as well as communications and outreach.[612]

2.11.1.3 Practice

In 2018, the IPBES published its **Thematic Assessment on Land Degradation and Restoration** covering the global status of and trends in land degradation, by region and land cover type.[613] The Assessment was welcomed "with appreciation" by the CBD parties at COP-14 (2018). It is the first comprehensive scientific assessment on land degradation at a global scale. The assessment concludes that "the degradation of the Earth's land surface through human activities is negatively impacting the well-being of at least 3.2 billion people, pushing the planet towards a sixth mass species extinction, and costing more than 10 per cent of the annual global gross product in loss of biodiversity and ecosystem services." Land degradation is characterised as a pervasive, systemic phenomenon which occurs in all parts of the terrestrial world. The report addresses soil degradation as one of the forms of land degradation.[614] Specifically, it reviews data on soil erosion, loss of soil fertility, changes in carbon stocks following land degradation and restauration, and soil pollution. In its chapter on responses to halt land degradation and restore degraded land, the Assessment mentions sustainable soil management practices as well as policy approaches (including rights-based instruments and customary norms), though the latter are not specified with regard to soil protection.

More recently, the IPBES approved the first **Global Assessment Report on Biodiversity and Ecosystem Services** on 6 May 2019. It is the first global biodiversity assessment since 2005 and the first global assessment to ever systematically evaluate and include indigenous and local knowledge, issues and priorities.[615] A full report is to follow later in 2019. 400 experts from 50 countries worked on the report for 3 years. It is based on nearly 15,000 scientific references and government reports and is supported by 132 countries.

The report references soil pollution, degradation and erosion in connection with biodiversity and ecosystem services. It provides scientific data collected on soil quality, composition, pollution and other soil information. It describes trends in these areas in its regional Chapter Reports and suggests potential government responses and emerging implications.

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[610] http://www.biodiv.de/en/biodiversitaet-infos/ipbes.html (last accessed on 15.05.2019).

[611] IPBES (2018a).

[612] https://www.ipbes.net/about (last accessed on 15.05.2019).

[613] IPBES (2018b).

[614] It defines soil degradation to include "loss of soil through erosion at a rate faster than it is formed; nutrient removal in harvest greater than it is replaced; depletion of soil organic matter, surface sealing, compaction, increasing salinity, acidity, metal or organic toxicity to the point where it cannot support former uses."

[615] https://www.ipbes.net/news/ipbes-global-assessment-preview (last accessed on 15.05.2019).

The IPBES encourages external review of the reports after their initial publication. For example, the Report on Land Degradation was improved by over 7,300 comments from more than 200 external reviewers.

2.11.2 Assessment and opportunities

The assessment reports of the IPBES are intended to increase the knowledge base with which states can then create and implement effective policy. While the organization has a lesser standing than its sister IPCC, it is steadily gaining traction and attracting more member governments. Moreover, after receiving criticism for its lack of scientific diversity it sought to recruit more experts from the social sciences.[616]

As regards soil and land, the Thematic Assessment on Land Degradation and Restoration and the Global Assessment Report on Biodiversity and Ecosystem Services provides valuable and comprehensive scientific data on the state of soil in different regions around the world. While this provides a good basis for knowledge-sharing and capacity-building policies, no follow-up exists on these issues within the CBD as the international treaty to which IPBS is thematically linked. CBD Decision 14/1 mere mentions that parties, depending on national circumstances and priorities, could take actions on "improving efforts to prevent land degradation and to restore degraded lands" as a means to facilitate the achievement of the Aichi Biodiversity Targets.

2.11.3 Potential avenues for action

The results of the two land-related assessments with relevance for land and soil degradation should urgently be taken up in the preparation of the post-2020 global biodiversity framework under the CBD.

2.12 Intergovernmental Panel on Climate Change (IPCC)

The IPCC is a scientific body jointly established by the UNEP and the World Meteorological Organization in 1988 and endorsed by the UN General Assembly.[617] It is the United Nations body for assessing the science related to climate change and has 195 Member countries. It does not conduct its own research, but prepares regular and comprehensive assessment reports about the state of scientific, technical and socio-economic knowledge on climate change, its impacts and future risks, and options for addressing it. Thousands of scientists review the scientific literature in an elaborate transparent process.[618]

In addition to its comprehensive Assessment Reports, the IPCC produces special reports on topics as mandated by its members, as well as methodologies that provide guidelines for the preparation of greenhouse gas inventories.[619] The IPCC is currently in its Sixth Assessment cycle, which will produce three special reports, a methodology report on national greenhouse gas inventories and the Sixth Assessment Report (AR6).[620]

The IPCC is **linked to the international climate regime**. Art. 21.2 UNFCCC provides for close cooperation between the UNFCCC Secretariat and the IPCC "to ensure that the Panel can respond to the need for objective scientific and technical advice". The COP decisions on reporting and accounting for the

[616] Heffernan (2016).

[617] UN GA Resolution 43/53 of 6.12.1988; see generally www.ipcc.ch.

[618] See https://www.ipcc.ch/about/preparingreports/ (last accessed on 15.05.2019).

[619] https://www.ipcc.ch/ (last accessed on 15.05.2019).

[620] https://unfccc.int/process-and-meetings/bodies/the-big-picture/what-are-governing-process-management-subsidiary-constituted-and-concluded-bodies (last accessed on 15.05.2019).

greenhouse gas inventories strengthen this link by referring to IPCC methodologies.[621] The Kyoto Protocol has several provisions that make binding reference to IPCC methodologies and guidelines.[622] The same goes for the Paris Agreement: The "good practice methodologies" accepted by IPCC **are mandatory for accounting** for the national inventories and its reports are a source of input for the regular global stocktake.[623] The AR6 Synthesis Report is due in the first half of 2022 in time for the first global stocktake.[624]

The decision that adopted the Paris Agreement in 2015 invited the IPCC to provide a special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways.[625] The COP discussed this report in 2018. The IPCC is also working on a special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems, which is due for adoption in September 2019.[626]

The opportunities that the IPCC provides for soil protection are linked to climate change and discussed in section 2.4.

2.13 The New Urban Agenda

The New Urban Agenda (NUA) was adopted by world leaders on 20 October 2016 at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador. It was approved by the United Nations General Assembly on 23 December 2016.[627] It is a non-binding document and UN member states as well as sub-national entities (municipalities etc.) can voluntarily take action towards its goals.

As populations are shifting increasingly toward urban areas (urbanisation), cities will play a critical role in sustainable development. In 2012, then-UN Secretary-General Ban Ki-Moon stated that "our struggle for global sustainability will be won or lost in cities." The New Urban Agenda presents a collective vision for both developing and developed countries. It includes a roadmap for building sustainable cities which promote cultural and social well-being while protecting the environment and providing guidance for achieving the Sustainable Development Goals. The Agenda, however, does little to directly address issues of soil degradation or protection.

The NUA is shaped by five guiding principles:

- Urbanization protects and promotes human rights and the rule of law
- Ensure equitable urban development
- Empower civil society, expand democracy
- Promote environmental sustainability
- Promote innovation & learning

[621] See section 2.4.

[622] Cf. Art. 3.4, 5.2, 5.3 KP.

[623] Art. 13.7(a) Paris Agreement; decision 1/CP.21, para. 31.

[624] https://unfccc.int/process-and-meetings/bodies/the-big-picture/what-are-governing-process-management-subsidiary-constituted-and-concluded-bodies (last accessed on 15.05.2019).

[625] Decision 1/CP.21, para. 21.

[626] See section 2.4.

[627] United Nations (2017): *New Urban Agenda*, A/RES/71/256, available at http://habitat3.org/wp-content/uploads/NUA-English.pdf (last accessed on 15.05.2019).

2.13.1 Analysis

2.13.1.1 Scope of application

The Agenda primarily addresses national governments and applies to urban and peri-urban areas in both developed and developing countries. City administrations and local and regional governments are the main stakeholders and will play the most active role in the implementation process.

2.13.1.2 Core obligations

As a voluntary instrument, the New Urban Agenda does not oblige governments to specific activities. Its sustainable development objectives include access to basic services, equal opportunities for all, mitigation of natural disasters and creating greener cities through improved infrastructure, establishing safe and accessible green spaces, the use of renewable energies and reducing emissions. These objectives are to be achieved through voluntary commitments and capacity-building and financial support to local communities from international donors, among others.

There is little mention of soil beyond a commitment to the sustainable development of peri-urban land areas. The term "soil" itself is not included in the NUA text. Land-related commitments that may indirectly relevant for the sustainable management of soils are listed below:

Table 2: New Urban Agenda commitments related to land

No.	Commitment
14.	To achieve our vision, we resolve to adopt a New Urban Agenda guided by the following interlinked principles: (…) (c) Ensure environmental sustainability by promoting clean energy and sustainable use of land and resources in urban development, by protecting ecosystems and biodiversity
69.	We commit ourselves to preserving and promoting the ecological and social function of land, including coastal areas that support cities and human settlements, and to fostering ecosystem-based solutions (…) We also commit ourselves to promoting sustainable land use, combining urban extensions with adequate densities and compactness to prevent and contain urban sprawl, as well as preventing unnecessary land-use change and the loss of productive land and fragile and important ecosystems.
71.	We commit ourselves to strengthening the sustainable management of resources, including land (…)
76.	We commit ourselves to making sustainable use of natural resources and focusing on the resource efficiency of raw and construction materials such as concrete, metals, wood, minerals and land.
98.	We will promote integrated urban and territorial planning, including planned urban extensions based on the principles of equitable, efficient and sustainable use of land and natural resources, compactness, polycentrism, appropriate density and connectivity, and multiple use of space, as well as mixed social and economic uses in built-up areas, in order to prevent urban sprawl (…)

Source: own (selection from the New Urban Agenda)

2.13.1.3 Institutions

National governments and local authorities are primarily called on to implement the Agenda, with technical and **financial partnerships** and assistance being provided from the international community.

It offers the "Quito Implementation Platform" on which stakeholders can publish voluntary commitments and best practices, reinforcing the implementation of the NUA.[628]

[628] http://nuaimplementation.org/ (last accessed on 15.05.2019).

The New Urban Agenda promotes new urban rules and regulations, better urban planning and public finance. Thus far, the Green Climate Fund, the Global Environment Facility and the Adaptation Fund have all facilitated increased investment in sustainable urbanization. Local infrastructure funds and municipal development corporations have also been strengthened.[629]

Five **quadrennial follow-up reports** are planned, the first of which was published on 7 May 2018, 18 months after the Agenda's initial publication.[630] This first report proposes monitoring mechanisms producing quantitative and qualitative data which will be evaluated in the subsequent progress reports. The report also seeks to establish linkages to other international policies (first and foremost the 2030 Agenda) and provide **policy coherence** to simplify implementation at the local level.

In addition to progress reports, regular assessments, along with meetings and conferences will support the follow-up and review of the New Urban Agenda.

2.13.1.4 Practice

Most implementation activities related to the NUA are taking place at national level. One of the exceptions is the "Guiding Principles for Urban-Rural Linkages to Advance Integrated Territorial Development" which were developed under the auspices of UN Habitat to specify the NUA's provisions on urban-rural linkages. However, the Principles do not include references to soil issues.

2.13.2 Assessment and opportunities

The establishment of measurable indicators has been prioritized and should be in place in the near future, allowing for better monitoring of implementation progress.

Capacity building could be further improved (best practice sharing). There are currently 70 projects on the Quito Implementation Platform internationally; this leaves much room for improvement. Coordination mechanisms and institutional frameworks for achieving the Agenda must also be strengthened, and local ownership should be better incorporated in decision-making. Lastly, the private sector is not being utilized to its full potential in urban development.

The New Urban Agenda is primarily focused on social objectives, with not enough attention paid to environmental protection beyond air pollution and energy and resource conservation. The framework offers little opportunity to address soil degradation or protection outside of a strengthening of urban-rural linkages and the sustainable use of agricultural land to protect food sources.

2.13.3 Potential avenues for action

Since soils are not strongly embedded in the New Urban Agenda, there are not many opportunities to promote urban soil management in the context of the New Urban Agenda. Possibly, the next UN Habitat conference, which will produce the NUA's successor strategy, will take place only in over ten years time. In the meantime, UN Habitat's continuous work on urban planning and its Urban Planning and Design Lab could be used as an interface to set sustainable urban soil management on the UN Habitat's agenda. The organisation's next Strategic Plan (as of 2020) is presently under development and could possibly still be influenced.

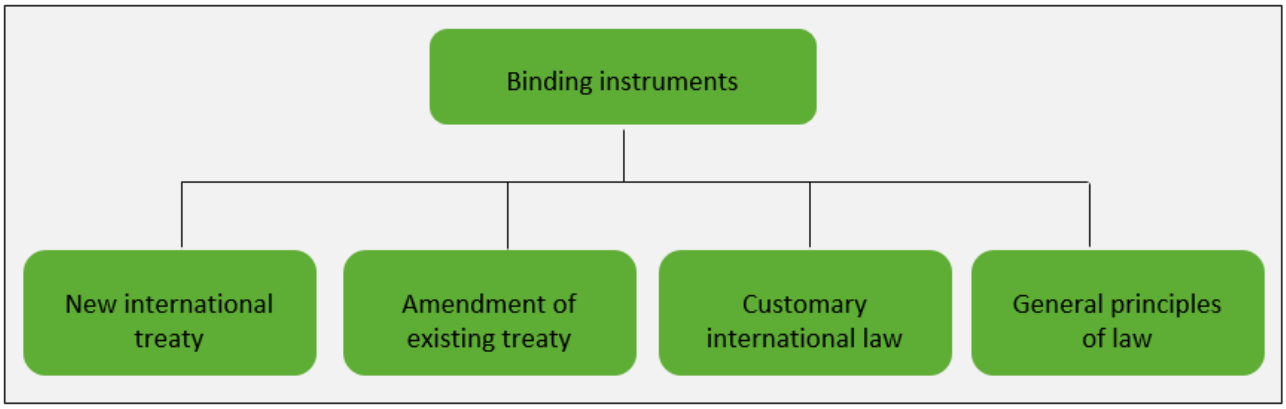
2.14 Initiatives for an international instrument for soil

One option to strengthen international governance on soil protection and land degradation neutrality is a binding international instrument for soil conservation.

[629] See UNGA (2018): available at https://unhabitat.org/progress-on-the-implementation-of-the-new-urban-agenda-report-of-the-secretary-general/ (last accessed on 15.05.2019).

[630] UNGA (2018).

Figure 10: Options for binding international instruments for soil



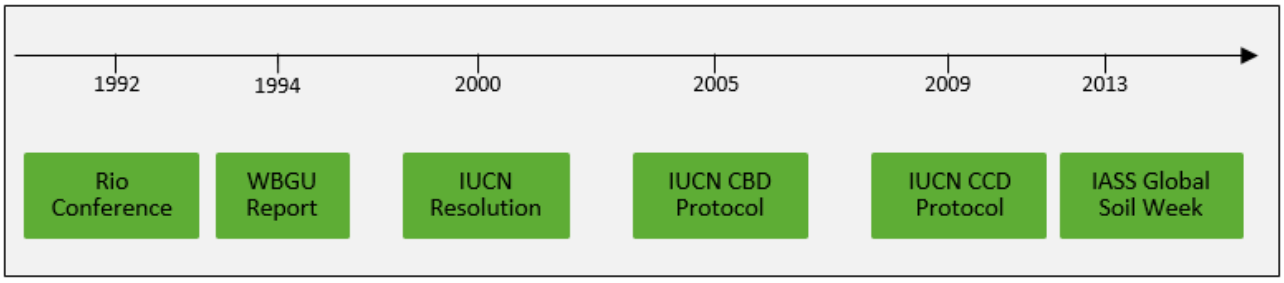
Source: Own figure, Ecologic Institute

Binding international law comprises international treaties; international customary law that countries follow in practice as they consider them to be binding; and general principles of law. The latter are not relevant for this study.

2.14.1 History of initiatives for an international instrument for soil

There have been various initiatives over the past decades that promoted the idea of new or additional legal instruments for soil conservation on the international level.

Figure 11: History of initiatives for a binding international soil instrument



Source: Own figure, Ecologic Institute

First initiatives to adopt an international instrument for soil conservation date back to the 1990s. These recommended a comprehensive stand-alone convention.

- The 1992 Rio Conference on Environment and Development already had a proposal for an international soil convention on its agenda. However, climate and biodiversity got more political attention. In the end, the proposal for an international soil convention was restricted to an instrument to combat desertification – the UN Convention to Combat Desertification that was adopted in 1994 and entered into force in 1996.[631]
- In its 1994 Flagship Report "World in Transition: The Threat to Soils" the German Advisory Council on Global Change recommended that the German Government examines whether a Soil Convention would be a way to overcome the problem of soil degradation.[632] This recommendation was

[631] Haber (2015) at 1.
[632] German Advisory Council on Global Change (1995) at 77.

based on the finding that all resolutions and declarations adopted until then had not substantially tackled the problem.

- Following a conference in 1997, a proposal for a "Convention on Sustainable Use of Soils" by Held, Kummerer and Odendahl was put forward and has been discussed at various conferences in Europe and internationally.[633]

Subsequent initiatives mainly originated from the International Union for Conservation of Nature (IUCN) and focused on a protocol to be developed under one of the Rio Conventions.

- Following an IUCN resolution in 2000, a Protocol for the Conservation and Sustainable Use of Soil was put forward as a supplement to the Convention on Biological Diversity in 2005. It was discussed during the Global Soil Forum that took place in Iceland in September 2005. The participants issued a Declaration on Sustainable Use of Global Soil that reflected support for an international instrument for soil conservation.[634]
- In 2009, a Protocol for Security and Sustainable Use of Soil was prepared to strengthen the UN Convention to Combat Desertification. It was presented by Boer at a Side Event at COP 9 in Buenos Aires in September 2009.[635]
- In 2012, the CCD Secretariat suggested the development of a legal instrument on Zero Net Land Degradation under the UNCCCD "as a global policy and monitoring framework to focus efforts and empower the international community to act with the speed and scale required to address this crucial problem."[636] However, the development of a corresponding legal instrument was never put on the COP agenda.
- In June 2013, the German Environment Agency in cooperation with the Institute for Advanced Sustainability Studies (IASS) facilitated a "Soil Protocol Workshop" to discuss legal aspects of a binding instrument in the field of global soil policy and to develop a proposal. [637] The proposal was presented and discussed during the Global Soil Week in October 2017. None of the various proposals has been put on a COP agenda or has been discussed by decision-makers.

2.14.2 Content of an instrument for soil conservation

In a publication of 2015, Boer and Hannam set out the following options: A specific and comprehensive treaty with all essential legal elements; a framework treaty that sets out basic principles and mechanisms with a protocol subsequently elaborated; a protocol or technical annex under the CCD; or a protocol to the CBD and to the UNFCCC.[638] Regarding content, it is one of the most detailed proposals, with the following elements:

- Recognition of soil bodies as integral elements of the terrestrial ecosystems and their critical role maintaining the earth's biodiversity as well as their carbon sequestration function
- Jurisdictional scope under consideration of areas beyond national jurisdiction and the need for regional cooperation
- Definition of terms such as soil security, sustainable use of soil and the concept of land degradation neutrality

[633] Hannam and Boer (2002) at 71, available at https://portals.iucn.org/library/sites/library/files/documents/EPLP-045.pdf (last accessed on 15.05.2019).

[634] See http://eusoils.jrc.ec.europa.eu/projects/scape/Call for Action.pdf (last accessed on 15.05.2019).

[635] Boer (2009): *Presentation "International Governance of Soils: A Protocol to the Convention on Desertification"*, available at http://www.iucnael.org/en/documents/421-ben-boer-international-governance-of-soils/file (last accessed on 15.05.2019); IUCN Law Center (2009).

[636] CCD Secretariat (2012) at 5.

[637] IASS (2013): *Minutes Soil Protocol Workshop*, available at http://www.iass-potsdam.de/sites/default/files/files/soil_protocol_workshop_minutes.pdf (last accessed on 15.05.2019).

[638] Boer and Hannam (2015) at 8.

- Reference to sovereign right of states to exploit their own soil resources and to their responsibility to avoid transboundary harm
- Establishment of an international panel for the sustainable use of soil
- Cooperation between parties in on capacity building, education and knowledge sharing
- Access to information and public participation in decision making in line with the Aarhus Convention
- Encouragement of states to enact comprehensive national soil legislation
- Obligation of states to develop a national strategy to achieve the sustainable use of soil
- Establishment of an independent national authority for sustainable use of soils
- Implementation tools such as national soil policies, soil assessment and planning, soil plans of management, codes of practices for sustainable use of soil, monitoring the use of soil
- Encouragement of parties to identify and manage existing or potentially threatening processes to the sustainable use of soils
- Recognition that a particular level of economic well-being is a precondition for achieving the sustainable use of soils
- Assurance that the role of women in promoting the sustainable use of soil receives adequate legal recognition
- Preparation and implementation of national action programmes through a consultative process

2.14.3 Assessment and opportunities

Soil conservation is noticeably absent in text books on international environmental law. Some authors have come to the conclusion that **current international environmental law does not sufficiently provide for the conservation of soil**. In 2008, Wyatt argued that "despite its overlap with many soil functions [...] the hodgepodge of legal instruments actually ignores many important technical, social, and economic aspects of soil protection."[639] Montanarella and Vargas stated in 2012 that "available legal frameworks for soil conservation at national and regional level seem not to be able to regulate the current use of soil resources in order to assure long-term sustainability."[640]

Nevertheless, the **discussion of an international instrument for soil conservation** is mainly driven by Boer and Hannam, who have published with and through IUCN over the years. In their first publication of 2002, Boer and Hannam merely presented and explained the two main options for such an international instrument - a stand-alone treaty and a protocol within the context of an existing treaty.[641] These options have been reiterated and elaborated in later publications. In a more recent publication of 2015, the options presented where a specific and comprehensive treaty with all essential legal elements, a framework treaty that sets out basic principles and mechanisms with a protocol subsequently elaborated, a protocol or technical annex under the CCD, and finally a protocol to the CBD and to the UNFCCC.[642]

In 2015, acknowledging that it would take years to conceptualize and discuss a new UN convention for soil, the GLOBALANDS research project recommended a protocol on land under the CBD as the most feasible option.[643] A different project, which focused on legal instruments to implement LDN and assessed all Rio Conventions, came to the conclusion that the LDN target best fits with the approach of the CCD, because the UNFCCC and the CBD focus on other topics.[644]

[639] Wyatt (2008) at 192.
[640] Montanarella and Vargas (2012) at 4.
[641] Hannam and Boer (2002) at 75.
[642] Boer and Hannam (2015) at 8.
[643] Fritsche et al. (2015) at 75.
[644] Altvater et al. (2015) at 116, 117.

Considering the number of initiatives over the years that did not make it on the political agenda, there does not appear to be an appetite for a treaty specifically on soil, whether stand-alone or under one of the existing conventions, at least in the medium term. The initiatives of IUCN to push for a soil protocol under the CBD or CCD have not been picked up by the parties or secretariats. The political concern about further broadening the CCD's approach and the dormant state of the Maputo Convention could be further indications of reluctance by states in this regard.

2.15 Summary of key governance aspects and timeline of milestones

While there are several existing treaties, institutions and fora that are relevant for soil governance at the international level, there are almost no binding obligations specifically regarding soil that apply more or less universally to all states.

Some treaties and other institutions address specific soils such as drylands in the CCD, and wetlands in the Ramsar Convention, or soil components such as soil biodiversity and soil carbon, or specific soil threats such as desertification, loss of biodiversity and erosion. Some soil threats such as compaction or salinisation are basically not addressed.

The CCD is the only international treaty specifically addressing land-related issues. However, its scope of application is in effect limited to drylands due to a mixture of geographical and subject-related parameters in the CCD's objectives, definitions and in the action to be taken. While it already has basic elements such as NAPs, target setting and also some provisions on reporting, implementation and follow-up are lacking or insufficient. The UNCDD laid the groundwork for developing and establishing the concept of LDN and has claimed a leading role in this regard in particular with the Scientific Conceptual Framework.

The CBD's scope and approach with regard to biodiversity is broad enough to address a range of soil threats and issues. However, with the exception of the International Soil Biodiversity Initiative, soil is mostly addressed indirectly by the CBD. In addition, while the CBD and the Secretariat's activities are conducive to sustainable soil management, implementation among parties remains relatively weak with regard to soil biodiversity. Parties have, for the most part, failed to follow through the CBD's soil biodiversity initiatives.

The Paris Agreement addresses climate change and also has a scope and approach that is broad enough to address some soil threats. It is closely linked to land use, land degradation and sustainable land management as well as loss of organic soil carbon in particular. The scientific input by the IPCC shows that the Paris Agreement's goal of holding global warming well below 2 degrees and pursuing efforts to limit it to 1.5 degrees will most likely require soil-related action at least in order to preserve soil as a carbon sink. However, the Paris Agreement's mainly procedural approach does not contain specific soil or land-related obligations. Each party determines whether and how it its climate actions address specific soil threats. The main rules with regard to soil are the accounting and reporting rules under the UNFCCC, KP and -relatively recently- the Paris Agreement. The climate change regime has mostly refrained from addressing specific sectors, but in 2018 tentatively started to address agriculture.

The Ramsar Convention does not specifically address soil or drivers of land degradation, but it provides a comprehensive and sophisticated policy framework for the management of wetland areas in general. In addition to general obligations, parties have to promote the conservation of wetlands of international importance and to monitor them. Deterioration can trigger assistance and an increased level of protection, and parties have to prevent or mediate damage to the wetland. However, despite the link to the LDN target in SDG 15.3 and the experience with prevention and restoration of wetland degradation, the role of the Ramsar Convention in SDG implementation has so far been weak.

These global treaties have a scope and provisions that would implicitly cover many soil threats. The extent to which these treaties actually address them depends, inter alia, on how closely the soil threat is linked to the general mandate and objective. This applies to e.g. loss of organic matter under the climate regime, erosion under the CCD and loss of biodiversity under the CBD. The same goes for the FAO and UNEP.

The most specific binding obligations are in two regional instruments: The African Union's Maputo Convention does have an overarching obligation on land management including soil protection. It includes long-term integrated strategies for land resources and land-use plans as well as developing and implementing corresponding land tenure policies. However, the Maputo Convention's relatively few ratifications since 2003 as wells as lack of institutions and implementation appear to indicate little political impact.

The Soil Conservation Protocol to the Alpine Convention is the only legally binding international treaty regulating exclusively soil protection, albeit at a regional level. It addresses specific drivers and threats such as pollution and also has cross-cutting obligations, but applies to a very limited number of parties in a narrowly defined geographical area. While some obligations leave quite some discretion to parties, others are so clear and precise as to be considered self-executing. The Soil Conservation Protocol is tailored for the Alpine region and its content is not necessarily transferable as a model for other regions.

A number of initiatives over the years for a new treaty specifically on soil did not make it on the political agenda.

There a number of governance elements that are not binding but do address soil specifically and have political clout. The most relevant overarching element of international governance is the LDN target in SDG 15.3. As it addresses land degradation more generally rather than soil specifically, it includes all soil threats and drivers of land degradation. It is not binding but represents a strong political commitment. However, on its own it is not a comprehensive soil policy. Other relevant non-binding elements mainly include work of institutions such FAO, UNEP, IPBES and IPCC.

FAO can be considered a major international hub for soil-related activities. In recent years it sought to shift its traditional focus on agricultural soils towards a more holistic approach on soils as a provider of ecosystem services. It has made significant contribution to international soil governance by developing and revising the non-binding World Soil Charter and the Voluntary Guidelines for Sustainable Soil Management, preparing the “Status of the World's Soil Resources” Report and establishing the Global Soil Partnership and the Intergovernmental Technical Panel on Soils. FAO’s current strategic objectives do not explicitly mention “soils”, although all its objectives to a greater or lesser extent depend on healthy soils.

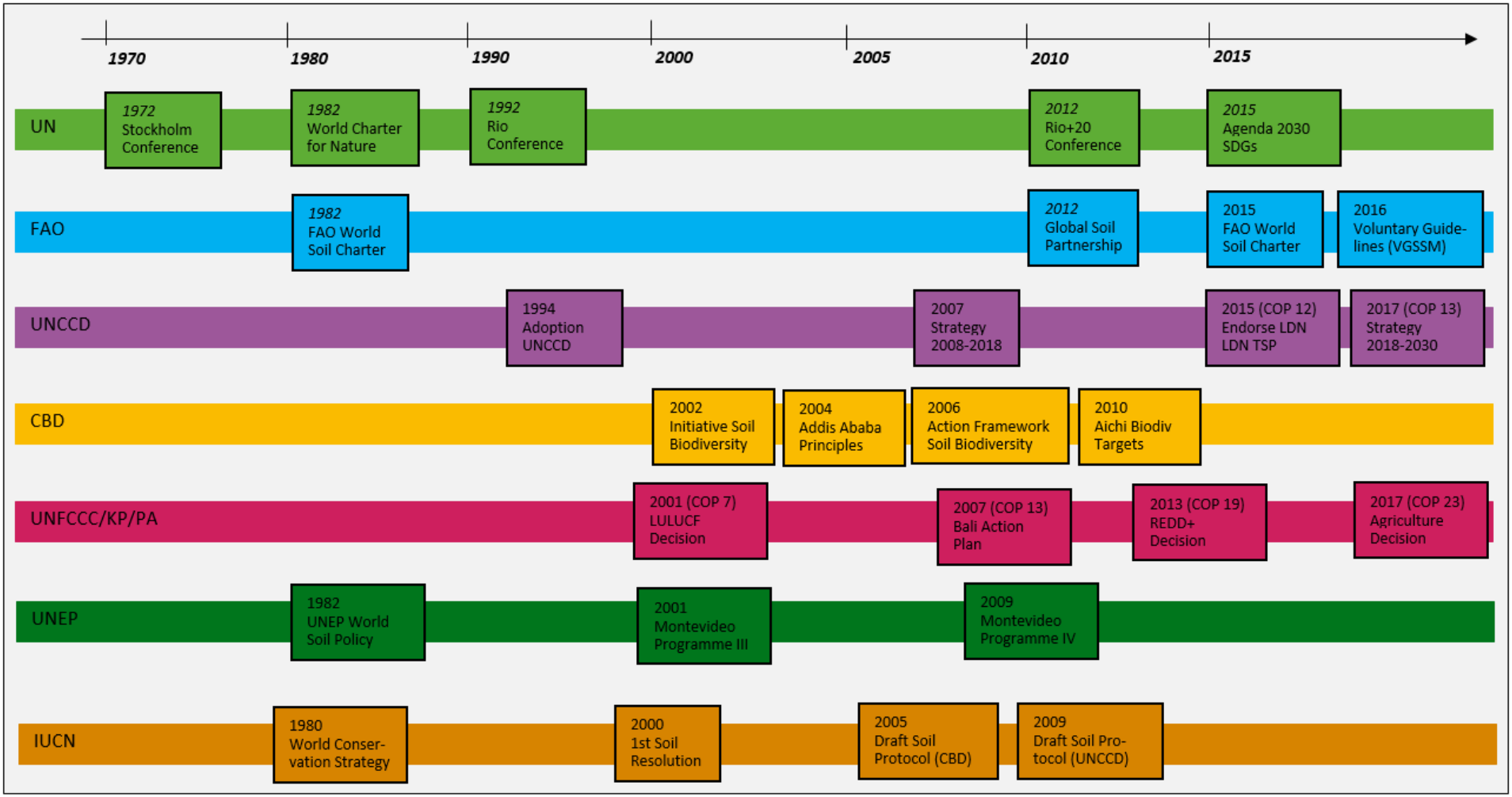
UNEP's general mandate with regard to environment also includes soil, but has not had a high profile with regard to soil governance in the past years. Its work on soil has mostly been part of its focus on air and water, and included industrial land and soil pollution and on land degradation and restoration. The periodic Global Environment Outlook is a notable contribution to environmental information and assessment. More recently, UNEP appears to have increased its engagement on soil. In 2017 the United Nations Environment Assembly, UNEP's governing body, adopted a resolution specifically on soil pollution – the first such international instrument that covers soil pollution more broadly and not in relation to specific pollutants. In 2019 UNEA-4 also adopted several resolution relating to specific aspects of soil protection, such as peatlands and biodiversity.

Under the different international instruments (CCD, UNFCCC and CBD) as well as under the different international institutions (UN, FAO, UNEP and IUCN) policies and guidelines have been adopted. **Error! Reference source not found.** provides an overview of the most important documents that have been issued since the Stockholm Conference of 1972.While there is an abundance of international

knowledge and guidance and growing work on indicators and monitoring, there are few and inadequate transparency and review mechanisms at the international level which show and follow up on states' action on soils.

The following chapter looks into the governance gaps in more detail and from an overarching perspective, and links them to options and recommendations for improvement.

Figure 12: Timeline of governance initiatives for soil conservation



Source: Own figure, Ecologic Institute

3 Assessment, conclusions and options for strengthening international soil governance

This section first presents conclusions from the stocktake of existing governance, together with options and recommendations for strengthening international governance. It shows main gaps in current soil governance at the international level and links them directly to options for addressing them.

The following assessment of international soil governance used different functions of international governance as a starting point. These include agenda-setting; visions and goals that provide guidance and policy signals; setting of rules and governance architecture; means of implementation; international transparency and accountability; and knowledge and learning.[645]

While these types of governance functions are a useful basis, the options for improving international soil governance do not always directly and unequivocally match one of these types. We therefore cluster the options slightly differently as follows:

- Overarching issues: Improving international framework conditions for soil policy
- New treaty or institutions
- Improving existing governance
- Means of implementation
- Enhancing co-ordination and coherence.

3.1 Overarching issues: Improving international framework conditions for soil policy

3.1.1 Land use and soil protection not sufficiently established as an 'international' issue

While the last few years have seen an increase in activities relating to international soil governance, there is **no general consensus that soil is an issue that calls for or requires *international* policy** and governance efforts. The Rio+20 outcome document recognised the desertification, land degradation and drought as "challenges of a global dimension", but not soil, and does not seem to have had much political impact. However, the SDGs appear to have more political weight and might have the potential to change this to some extent.

Option: Maintain and actively support the recognition at the international level that soil is an international issue and not a purely domestic matter.

This is a mid- to long-term option that should be pursued in parallel or complementary to other options. The argument could be underpinned by linking soil to overarching issues with international implications such as climate change, security and migration.

Suitable fora and forms of action would have to be discussed, such as political declarations, COP decisions or simply factual recognition. One particular approach could be to promote a principle that soil or land degradation is a "common concern". It should be noted that such recognition and international cooperation do not necessarily mean regulation, prescriptive legal obligations or having to take specific courses of action.

Challenges to addressing soil and land at the international level could arise from the notion that land is – in traditional understanding – not a shared resource and it is not regarded as a global commons. Moreover, states might consider land and soil to be special because it defines their main territory and

[645] Oberthür et al. (2017).

is relevant for food production. In addition, it is not obvious that there is a direct transboundary impact which would call for an *international* response and governance. This might be similar to forests.

In addition to a general recognition that soil should also be addressed at the international level, consistent action over time in this respect can also support *legal* development. It could contribute to **the development a customary principle regarding soil.** In legal terms, customary law requires two components: state practice and corresponding acceptance as law. Each of these elements has to be established on a case-by-case basis. Some argue that repeated mentioning in international documents such as General Assembly Resolutions over time can be a significant element towards in establishing customary law. On this basis, similar to other principles of international environmental law, one strategy could be to establish over time that protecting soils is a *legal* principle "common concern" of humankind, similar to climate change. This could notion could be anchored in a potential treaty text or in the long term develop into a general legal principle. However, currently there is no internationally agreed or common understanding of what being a "common concern" entails in legal terms. Another candidate for a long-term legal development towards a potential customary law could be a general principle of sustainable land management. In contrast, SDG 15.3 does not seem suitable for becoming customary law, because it is a specific target with a specific target date.

A development towards an emerging customary principle could be a basis on which to build internationally as well as domestically. The impact of a legal principle would be long-term and could justify, support and shape future (national as well as international) policies and actions. This development could be supported in addition, or as an alternative, to including a principle in e.g. a potential soil treaty.

3.1.2 Recognise the significance of the global land footprint for soil policy

A more specific issue that needs to be set on the agenda is that of the interrelation between soil degradation in some regions (notably, the Global South) and land used to satisfy consumption patterns in other regions (above all, the Global North). Such 'land footprint' results from globalization and international supply chains: food, feedstuff, non-food agricultural or timber products consumed in one place have been produced on lands elsewhere. The related production practices may well lead to the degradation of the foreign soils.

In recent years, a multitude of studies showed how trade patterns are displacing land use to other countries.[646] For instance, Yu et al. show that 33% of total U.S. land use for consumption purposes is displaced from other countries and that this ratio is even larger in the case of the EU (more than 50%) and Japan (92%).[647] For Germany, Fischer et al. demonstrate that the land footprint of each German citizen appropriates on average 2.693 m^2 cropland and an additional 1.655 m^2 of grassland, resulting in a net 'cropland import' to Germany of 10.6 Mha as well as a significant grassland import.[648] These expanses of land abroad are also exposed to soil degradation.

When politically discussing ways to counter soil degradation, the land footprint should thus be included. To date, such 'displaced' or 'virtual' land use is not sufficiently reflected in the LDN concept and it is even expressly excluded in UNCCD's Scientific Conceptual Framework. This is unsatisfactory both from an environmental and global justice perspective. Addressing these issues can create ownership for international soil policy among countries of the Global South which to date suffer from soil degradation in exchange for economic 'development' opportunities. Recognising the global land footprint could form a basis for sharing the responsibility in dealing with land degradation in developing countries. This would not necessarily imply transfer payments, but could rather include policy action in the

[646] E.g., Bruckner et al. (2015); Bruckner et al. (2018); Ruiter et al. (2017); Steen-Olsen et al. (2012); Tukker et al. (2014).
[647] Yu et al. (2013).
[648] Fischer et al. (2017).

Global North – e.g., on sustainable foreign agricultural investment and on the responsible governance of supply chains (e.g., by means of due diligence regulation).

Option: Recognising the significance of the global land footprint for soil policy could increase the incentive for countries in the Global South to participate in the strengthening of international soil governance. Displaced land use should therefore be put higher on the policy agenda, for instance by taking it into account when developing potential further guidance on implementing Land Degradation Neutrality.

3.1.3 Further engage in SDGs and developing indicators and implementing tools

The SDGs and in particular the "land degradation neutrality" (LDN) target in SDG 15.3 have established a **central global political point of reference** regarding land and soil in general. Although the LDN target includes all soil threats and drivers of land degradation, on its own it is not a comprehensive soil policy and has shortcomings in terms normativity and institutional anchoring as well as operationalisation. But the SDGs provide an important global consensus on soil in general and a solid political basis for further work in regimes and institutions such as the CCD, the CBD, FAO and UNEP.

Option: Support the SDG process politically (notwithstanding its shortcomings) as a political reference point for other fora and processes.

This option involves "soft" actions supporting the SDGs such as official statements and participating in the implementation and follow-up processes. While it might appear vague in terms of specific individual actions, government actions endorsing the SDGs and the follow-up process are politically relevant and help maintain the SDG's political weight.

In terms of content, the LDN target in SDG 15.3 could be regarded as the core of what is required to operationalise a generic soil policy at national level. LDN as formulated in SDG 15.3 and specified through the conceptual framework provides a workable basis for guiding states. The framework and existing international guidance on land and soil can already be used to assess and strengthen national law on soil conservation. In particular, achieving LDN requires a forward-looking planning element. One option to support the further SGD process could be to collect and share a toolbox of concrete "best" practices with regard to implementing policies for achieving LDN at the national level.

3.1.4 Feasible policies independent of tenure rights

The issue of land rights could be looked at from a fresh perspective. For instance, the Maputo Convention provides one approach to resolving potential contradictions between the two issues. Although land tenure rights are a serious and politically hot topic in many countries, they should not automatically be a reason for postponing any discussion on effective soil governance.

Option: Explore and identify, e.g. through studies, soil policies and measures that are feasible even where land (tenure) rights are an issue.

3.2 New treaty or institutions

While binding rules are not an end in itself, a new treaty on soil protection could be useful to address gaps and shortcomings in current governance. Not least because of the lack of a general mandate regarding soil, there are **almost no binding obligations specifically regarding soil**. The relevant SDGs and in particular the LDN target in SDG 15.3 are not formally binding, even though they define the current overarching soil policy objective applicable to all countries and represent a significant global consensus with potentially normative weight.

However, initiating and negotiating a new treaty requires significant political buy-in and has to come at the right time in order to find support. At present, there does not appear to be **political appetite for a treaty specifically on soil** at least in the medium term. Previous initiatives of IUCN to push for a soil

protocol under the CBD or CCD have not been picked up by the parties or secretariats. There are further indicators for the current reluctance of states to go in this direction: The political concern about further broadening the CCD's approach and the dormant state of the 2003 Maputo Convention

Under these circumstances, one option is to work towards **creating the right moment for a new treaty**. Besides improving existing governance by amending an existing instrument, options for a new binding instrument include a stand-alone treaty or a new instrument under an existing treaty (e.g. a "protocol"). A standalone instrument could require more political effort and its added value vis-a-vis existing instruments would have to be justified. On the other hand, a protocol to for instance the CCD is difficult for legal reasons because the CCD, in contrast to many other treaties, does not provide for protocols.

Option: In medium to long term, work towards creating the political conditions for new binding instrument such as a treaty on soil protection, in order to address gaps and shortcomings in current governance.

Creating the opportunity and right moment is not always predictable. For instance, the initiative for a new global instrument, a "Global Pact for the Environment" was put on the UN's table. The General Assembly started a process for identifying gaps in international environmental law and for a round of negotiations to consider a potential international instrument to address them.[649] However, the negotiations indicated a significant reluctance of state to work towards a new binding instrument. The recommendations to the General Assembly of May 2019 merely envisage a mandate to the 5th UN Environment Assembly in 2021 to prepare a draft "political declaration". The recommendations are quite vague on substance and do not mention soil or land.[650] It could be considered to include them at UNEA-5 on the basis of SDG 15.3, because it is already agreed at the international level and represents the core of what is required to operationalise a generic soil policy at national level. Another option could be a general principle of sustainable land management. However, given the apparent reluctance of states, it is difficult to assess at this stage whether UNEA-5 will provide such a new opportunity.

Option: If the General Assembly follows the recommendation that UNEA-5 should prepare a political declaration on the environment, it should be explored whether there is an opportunity to address soil.

3.3 Improve existing soil governance within existing fora

There are several existing treaties, institutions and fora that are relevant for soil governance at the international level. Some already address specific soils such as drylands, wetlands and forest soils, or soil components such as soil biodiversity, soil carbon, or soil threats such as soil pollution and soil erosion. Some at least have provisions that allow them to address soils, soil components or soil threats. Options to improve international soil governance therefore include strengthening or expanding the existing soil related provisions and policies within these different fora. In this respect we focus on the CCD, the CBD, FAO and UNEP.

This should be complemented by an overarching perspective that improves coherence *between* them (see below section 0.).

3.3.1 CCD: International transparency and accountability of national policies and actions

In absence of specific obligations on soil protection, the **main substantive governance gap is the absence or inadequacy of transparency and review mechanisms at the *international* level.** While there is an abundance of guidance and growing work on indicators and monitoring, there are virtually

[649] UN GA resolution 72/A/L.52 of 7 May 2018.

[650] "Recommendations, as agreed by the working group (22 May 2019)", https://www.unenvironment.org/events/conference/towards-global-pact-environment (last accessed on 15.05.2019).

no requirements or mechanisms which show, follow up on and review states' action on soils. This relates to requirements for states regarding strategies and plans, reporting and review.

SDG monitoring and CCD reporting are not sufficient in their present form. Under the CCD, the obligation to submit National Action Programmes is only on affected countries and relating to drylands, there are no formalised guidelines for their content or alignment with the CCD'S new strategic framework for 2018-2030, and there is no detailed mechanism for reviewing NAPs or following up on their content. Moreover, by and large only affected country parties have committed to setting LDN target setting programme, which is not connected to the National Action Plans or any review mechanism. With regard to reporting, there are reporting obligations under the CCD for all parties, but non-affected parties do not report on their soil policy, the reporting guidelines are not directed towards how the party has implemented its NAP, and there is no mechanism for reviewing or assessing the actual reports.

Generally, given the state and direction of global land degradation and the universal commitment to LDN, it seems reasonable that states prepare and maintain national soil strategies or management plans. This type of instrument is included in recent international treaties, in particular the Paris Agreement on Climate Change. The idea is that parties are more willing to engage in international commitments and take action if they do not have to negotiate and agree obligations to implement specific policies. Instead, parties have an international obligation to define and communicate their own approach in the form of national plans or strategies, which can be discussed and reviewed at the international level. The same goes for reporting on progress in implementing these plans. This approach is laid down to some extent in the CCD, but with severe shortcomings in particular on the reporting side.

The next question would then be to what extent this approach, the plans and their implementation can be facilitated and addressed at the *international* level. Since all states have committed to the SGDs and the LDN target, and since the CCD with its near-universal membership provides obligations or voluntary programmes on soil action plans and targets for many of its parties, it also seems reasonable that states should be transparent towards other states about their strategies and plans. Some form of follow-up and review of states policies and action on soil should be ensured. Moreover, transparency and feedback mechanisms, such as reporting and review should be improved, both with regard to having a national strategy, as well as with regard to its implementation. Details would be specified in particular institutions such as the CCD, UNCBD, SGDs, etc.

Despite its shortcomings, the most obvious point for improvement is at the CCD, because it is a binding treaty with basic transparency and reporting obligations and an institutional framework for adopting detailed guidance. While it already has basic elements such as NAPs, target setting and also some provisions on reporting, implementation and follow-up are lacking or insufficient. Transparency and review should therefore be strengthened to shape the UNCCCD more towards the model of the Paris Agreement.

Option: Gradually shape the CCD more towards the model of the Paris Agreement through strengthening transparency and review: Push at the CCD for specific requirements, decisions and guidance on transparency for all parties regarding their national soil policies and implementation. This should include requirements and guidance on preparing and submitting national strategies and plans, reporting on implementation, and for reviewing these plans and the reports at the international level.

Option: Governments who have not yet done so could also actively endorse a more comprehensive CCD approach by engaging in the voluntary LDN Target Setting.

To overcome existing shortcomings of the CCD in terms of geographical scope and mandate, initiatives were launched hand to develop the CCD into an overarching framework for land governance, as well as

to adopt a soil conservation protocol under the CCD (see Section 2.11). Although the CCD – unlike the CBD or the UNFCCC – does not formally provide for the adoption of a protocol, parties could still choose to do so (see Section 2.2.3). They could also formally widen the scope of the CCD beyond drylands in affected country parties.

However, the failure of past initiatives to put a protocol on the agenda of the COP indicates reluctance of parties to commit to far reaching legally binding obligations for soil governance. This is also underlined by the COP's 2015 and 2017 decisions that appear to reaffirm the CCD' scope with the decisions adopted in 2015 and 2017. It therefore seems more promising to use the existing political will among parties to implement LDN and their support of the CCD as custodian agency for LDN to pursue the less formal options outlined above to ensure transparency and accountability.

3.3.2 CBD

The CBD is mandated to address soil biodiversity and to promote soil-related measures that are conducive to the conservation or sustainable use of biodiversity. Still, soils and soil biodiversity do not yet play a significant role within the CBD regime.

As a first step, [651] the topic of soils could be anchored more directly within and mainstreamed through the CBD. This includes the development of soil-specific implementation or capacity building actions as well as an integration of soil-related provisions in the CBD text itself, to increase the formality of responsibilities under the Convention. A low-threshold activity in the context of implementation and capacity-building activities could be the production or commissioning of a guidance document by the CBD Secretariat within the CBD's Technical Series,[652] addressing the topic of "sustainable use of soils" under the CBD. As a minimum, this document would collate (handbook-style) all CBD objectives, principles, rules, decisions etc. with relevance for the sustainable use of soil, and it would describe their respective soil implications. A CBD publication could also review soil-related ecosystem services and/ or highlight their role for achieving the SDGs, as ways to strengthen awareness of the benefits of SSM. In this context, the economic costs resulting from the loss of soil biodiversity could further be demonstrated, too.[653] Alternatively, a CBD publication might present management practices and policy instruments that successfully promote soil biodiversity, so as to disseminate best practices. Workshops, technical expert groups, side events etc. could complement such efforts at awareness-raising and ultimately contribute to political agenda-setting.

The CBD's International Soil Biodiversity Initiative is being co-managed by FAO which submitted a progress report on the Initiative's implementation to the CBD Secretariat in November 2018. The report did not feature a great range of implementing activities that directly address the Initiative's objectives. In reaction to the report, the CBD parties could therefore call for more implementing activities by FAO, oriented at the Initiative's objectives. Or they could decide to increase own activities to reach the Initiative's objectives, both at the international level (Secretariat) or domestically. The latter would include pushing for a better integration of soil biodiversity into national biodiversity strategies and action plans, and into sectoral policies and national reports. For instance, the reporting template for the third National Reports included a Box asking parties to provide information concerning the actions taken to implement the Plan of Action for the International Initiative for the Conservation and Sustainable Use of Pollinators (Box LXV). For the fourth National Report, an analogous information request could be integrated with regard to the International Soil Biodiversity Initiative.

A more structural way to attain similar outcomes would be to work towards integrating sustainable soil use into the next revision and update of the Strategic Plan for Biodiversity (2021-2030). As some of the Aichi Targets 'expire' in 2020, it seems likely that they will either be updated or replaced by new

[651] The following is based on Wolff and Kaphengst (2017).

[652] See publications at https://www.cbd.int/ts/.

[653] Cf. ELD Initiative (2015).

targets. This could be a window of opportunity to introduce a soil-specific target or at least include soil biodiversity in existing Aichi targets. This would be strategic-level option and a more powerful pathway than an implementation initiative for better integrating soils into the CBD: there would be increased pressure on CBD parties to comply with and report towards this target, which could in turn trigger national soil protection activities. Moreover, targets at such a high strategic level typically are reflected in bilateral as well as multilateral funding instruments (e.g., the Global Environmental Facility). As a consequence, funding for projects through such instruments would explicitly have to consider soil biodiversity.[654]

The most far-reaching option to better integrate soils into the CBD would be the development of a "Soil Protocol" under the Convention. The protocol could both address the conservation and sustainable use of soil biodiversity through specific mechanisms, and it could promote sustainable soil management as a strategy to bolster terrestrial biodiversity. Unlike the envisaged FAO Voluntary Guidelines on Sustainable Soil Management, a CBD Protocol would constitute a binding international agreement and as such would have some political clout. Formally, a protocol would require a COP decision (Art. 28 CBD) and subsequent ratification by sufficient parties.[655] Politically, at the moment it seems unlikely that the CBD parties will engage in developing a new protocol. The process of negotiating protocols has proven to be time- and resource-intensive, and the tough negotiations of the CBD's Nagoya Protocol – adopted only in 2010 – still linger in the memory of delegates. The negotiation histories of the CBD's Cartagena Protocol (on biosafety) as well as its Nagoya Protocol (on access and benefit-sharing relating to genetic resources) also show that significant political momentum – including public pressure – around the issues and a critical mass of promoters are necessary to trigger protocol negotiations. In both cases, a substantial number of developing countries had called for a protocol, fearing economic injustice and/ or ecological risk from the lack of international regulation. In other words, a perception had emerged among a sufficient number of countries that they would gain from introducing international regulation. Also, both Protocols' topics (biosafety and access & benefit-sharing) had been "new" issues, for which no national regulations or property rights had pre-existed; this could have kept opposition to an international regulation of the issues comparatively low. Finally, the ultimate adoption of both protocols can be attributed to issue linkages and/or compensatory arrangements. Most of these conditions are not (likely to be) prevalent when it comes to addressing 'sustainable soil management'. The topic of sustainable soils is not (yet) sufficiently politicized at the international level. Among the CBD parties, only a number of CBD parties have made steps towards a greater attention to soils. These include a number of EU Member States[656] and countries committed to the concept of a 'land degradation-neutral world' in the context of the CCD.[657] A range of both developing and developed country parties to the CBD, on the other hand, have rejected international 'interventions' with regard to their domestic soil and land use regimes in the past (most notably, with regard to forestry and agriculture).[658] To

[654] Another strategic option would be the integration of soil biodiversity into the CBD text itself. This would require an amendment to the Convention and thus first a decision of the COP (Art. 29, CBD). Ideally, such a decision is reached by consensus and, if consensus fails, as a last resort by a two-third majority vote (Art. 29.3). While this would be generally possible, amendments are cumbersome procedures which require, once they are adopted by the COP, that at least 131 parties ratify them in order for it to enter into force (Art. 29.4). Also, explicitly mentioning soil (biodiversity) in the CBD would constitute a precedence, as no other types of biodiversity (e.g., forest, marine, mountain, island etc. biodiversity) are currently highlighted in the Convention text itself. Overall, the value-added of integrating "soils" in the Convention text might also be limited as a political dynamic might result to incorporate references to other types of biodiversity.

[655] The necessary number of ratifications is determined in the Protocol; the Cartagena and Nagoya Protocols each specify the need for fifty parties to ratify, accept, approve or accede the Protocol.

[656] Namely, those 23 member states willing to commit themselves to an EU Soil Framework Directive (which was ultimately blocked by a minority of five EU countries, leading to the withdrawal of the draft directive in 2014).

[657] The so-called "Group of Friends (GoF) of Desertification, Land Degradation and Drought". It includes Australia, Burkina Faso, Iceland, Lesotho, Namibia, Qatar, the Republic of Korea and Turkey.

[658] With regard to forestry these have been, among others, Brazil, Indonesia, Malaysia, but also Russia, Finland and Sweden. With regard to agriculture, these have included the "Miami Group" of agricultural exporters (US, Canada, Argentina etc.). In Europe, Austria, France, Germany, the Netherlands and the UK successfully blocked the draft EU Soil Protection Directive.

date, no group of states regards themselves as potential 'winners' from the international regulation of sustainable soil management, and thus there is little incentive for governments to become leaders and push the process forward. Pondering a Soil Protocol under the CBD, therefore, can only be a medium- to long-term perspective when all other options have been pursued.

3.3.3 FAO

While soils already play a relevant role within the FAO, further activities could help strengthen international soil governance through FAO.

Firstly, the organisation's Strategic Objectives should be adjusted to better reflect the importance of soils – soils being, among others, a means for achieving the FAO's other Strategic Objectives (e.g., to eradicate hunger and food insecurity, to increase and improve the provision of goods and services from agriculture, and to reduce rural poverty). While the FAO's Strategic Framework as such is likely to be renewed in 2023 at the earliest, it is reviewed every four years and the organisation's (quadrennial) Medium Term Plans can take up some specifications with regard to the Strategic Objectives as well.

Secondly, and based on such a strategic readjustment, a consistency check might be helpful to examine whether there are policies and programmes within FAO (e.g., on agricultural mechanisation, crop production intensification or animal production) that are not be fully coherent with the sustainable management of soils (as defined in the Voluntary Guidelines on Sustainable Soil Management). The check could also be used to mainstream soil issues into such policies and programmes which do not presently consider soils in depth but which might have an added value if they did (e.g., technical cooperation projects, research and extension). Along with the consistency check and mainstreaming effort, the internal networks between FAO staff (which works often only marginally on soils) and the staff of the Global Soil Partnership's Secretariat within FAO (which primarily work on soils) should be strengthened.

Thirdly, efforts to implement the Voluntary Guidelines on Sustainable Soil Management should be scaled up. This includes raising awareness among the various stakeholders of soil management and governance, such as national policy-makers, civil society organisations and the media. It also includes raising money for projects with bilateral donors (within "FAO-Government Co-operation Programmes") as well as aiming for the earmarking of respective funds by multilateral donors (such as GEF).

Option: International soil governance could be strengthened by FAO allocating greater strategic importance to soils; carrying out an internal consistency check on potential conflicts and synergies between the organisation's policies and programmes and sustainable soil management; and scaling up efforts (including donor funding) for implementing the Voluntary Guidelines on Sustainable Soil Management.

3.3.4 UNEP

Despite a tradition of addressing soils, UNEP has not had a high profile with regard to soil governance in the past years. UNEA's new resolution „Managing soil pollution to achieve Sustainable Development" could be used as an entry point to change this and strengthen its capacities and its role with regard to international soil governance.

An immediate step within UNEP would hence be to increase its capacities for implementing the Resolution and monitoring its impact. This includes not only the envisaged preparation of a global assessment on soil pollution but the provision of technical capacities and earmarked programmes for supporting governments' efforts to strengthen and possibly coordinate national and regional policies to curb soil pollution (through in-house as well as technical and legal assistance etc.). In accordance with

the Resolution, this would also include the development of guidelines (jointly or coordinated with FAO[659] and WHO) for the prevention and minimization of soil contamination.

Option: Step up UNEP's work and capacities on soil protection, using the UNEA Resolution on soil pollution as entry point.

3.3.5 Paris Agreement and climate regime

The importance of land use and soil management for climate change is increasingly recognised. The Paris Agreement has spawned related climate initiatives by sub-national authorities and non-state actors which can also add political weight to international soil policy.[660] The nexus between land use and soil management can be also used to further address sustainable *soil* protection *within* the climate regime. This is part of the discussion of the "net-zero" objective in Article 4.1 and so-called "negative emissions" that offset remaining emissions. In 2018 the Paris Agreement adopted a transparency framework which includes rules for reporting on and accounting for land use, land-use change and forestry, and which eventually will replace the existing UNFCCC framework. While this closes for some time the opportunity to shape these rules, the transparency framework provides an opportunity to showcase efforts in the reporting. Moreover, the UNFCCC's "Koronivia joint work on agriculture" has relatively recently started its work. Together with the findings of the IPCC's 2019 special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems, it provides an opportunity for Germany, through the EU, to promote soil protection through the UNFCCC's future work on agriculture.[661]

Option: In the UNFCCC, feed in, through the EU, views on soil protection, using the findings of the UFCCC special report and the Koronivia joint work and roadmap.

3.4 Means of implementation

3.4.1 Capacity building for accessing international support

Means of implementation, including financial support, capacity building and technology development and transfer for developing countries, is a recurring theme in international environmental law and governance. Besides bilateral development assistance, there are multilateral channels with significant resources for support relating to land and soil, notably the GEF, the CCD's LDN Fund and the Green Climate Fund.

There is substantial finance for implementing LDN and soil governance. Developing countries can access funds allocated by the GEF to NAP alignment and LDN target setting under CCD. The Green Climate Fund might finance sustainable soils management from a sinks perspective. There is also bilateral cooperation.

The existing channels for finance and other support seem to have worked well by and large and are complemented by new channels. The GEF has had land degradation as a focal area for well over a decade and since 2011 has been available to formally serve as a financial mechanism to the CCD. Its current programming directions for the US$ 475 million allocated under GEF-7 include a special focus on implementing LDN and an impact program on „food, land use and restoration". The LDN Fund has been launched and attracted commitments of around US$ 100 million but is still in the process of becoming operational. With increasing awareness of the relevance of land management for climate change, the Green Climate Fund could become a further significant source for land-related support.

[659] FAO is already working on related guidelines on pesticide and fertiliser use.

[660] https://www.thegef.org/news/global-business-government-and-agricultural-leaders-announce-land-focused-commitments-mitigate (last accessed on 15.05.2019).

[661] See UN doc. FCCC/SB/2018/L.7 of 07.12.2018.

However, it is also a recurrent theme that developing countries have difficulties in accessing available funding and other international support. Better capacity is needed e.g. regarding knowledge about existing support channels, project and programme design and application procedures.

Option: Improve capacity building for accessing international support, in particular through information and technical assistance.

3.4.2 Tackle adverse subsidies

Developing countries could receive financial incentives for voluntarily eliminating subsidies that undermine or run directly counter to soil protection. Technical assistance for a transition to more sustainable land management could be provided. However, this needs to be checked against already available finance and other support, as well as development priorities.

Worldwide, governments as well as international organizations subsidize activities or products 'that promote, without any environmental considerations, the intensification or geographic expansion of economic sectors such as agriculture, bio-energy, fishing, forestry and transport' (OECD, 2013, p. 36).

Drawing on a narrow definition of subsidies, the OECD estimates environmentally relevant – and possibly harmful – subsidies to amount to ca. US$ 227 billion for agriculture (2010) within the OECD alone and to about US$ 500 billion for energy worldwide (2009) per year.[662] This includes subsidies for fertilizers, pesticides, agricultural production (e.g., maize cultivation), agricultural mechanization, timber production as well as for industrial production all of which can have soil-degrading effects.

The reform or removal of environmentally harmful subsidies could be a win-win solution: on the one hand, incentives are reduced that have a degrading impact on soils; on the other hand, fiscal revenues are raised that can potentially be used to finance soil protection.[663]

On the international level, the SDGs already stipulate that agricultural export subsidies as well as certain types of subsidies in fishing sector and 'inefficient' fossil fuel subsidies should be eliminated. This commitment provides an anchoring point for also calling for the reduction of subsidies that are detrimental to the health of soils – and that therefore counteract the achievement of, among others, SDG 1 (End poverty), 2 (End hunger), 3 (Ensure healthy lives), 14 (Sustainable use of oceans etc.) and 15 (Sustainable use of terrestrial ecosystems).

As a first step, the Global Soil Partnership could analyse data regarding the volumes of subsidies potentially detrimental to soils. Based on these insights, both countries and international (donor) organisations including the World Bank should be called upon to phase out land and soil degrading subsidies.

Option: Promote political commitments that governments as well as international organisations like the World Bank should rationalise, reduce and eliminate subsidies that are incompatible with sustainable soil management. The approach could build on the SGDs which address specific types of unsustainable subsidies.

3.5 Enhancing coordination and coherence

Current governance of soil at the international level is piecemeal and spread over parts of different mandates such as biodiversity, desertification, food and agriculture. While several institutions address soil, none has a clear or universally accepted mandate to address soil in general. The CCD's

[662] OECD (2013). This estimate draws on a narrow definition of subsidies, in the sense of moneys resulting from direct government action rather than including the absence of full cost recovery, the lack of resource pricing or the waiving of internalising external effects.

[663] See also ELD Initiative (2015).

moves in that direction have been met with political concern and reluctance by many parties, and it remains to be seen to whether it will gain acceptance.

However, overlapping mandates between international institutions are neither rare nor *necessarily* problematic. There are existing linkages between these treaties and institutions that could pragmatically develop into de facto division of labour, e.g. between the climate regime and FAO on agriculture or between the FAO and the CCD regarding indicators. Options to strengthen international soil governance hence include enhanced coordination between the existing fora.

3.5.1 Clarify division of labour

A clearer division of labour between the institutions addressing soil holds significant potential for improving international soil governance. There is significant overlap of mandates and activities of relevant institutions, while at the same time each of them has limitations: Both CCD and the FAO are major international actors with high participation and political legitimacy in their field. Both to some extent claim leadership on soil policy and in implementing LDN. The CCD's role remains constrained by political concerns about its mandate. Some parties are reluctant to formally have the CCD as the main international forum for general soil policy, because the CCD's scope is limited to drylands and affected country parties. Therefore, the CCD has limited ability to ensure accountability of states for their soil policies globally - even if national action plans were strengthened as an instrument and reporting guidelines were improved. The FAO focuses on agricultural soils and has a strong production-focus with regards to soil. The Soil Biodiversity Initiative under the CBD is awaiting assessment by the FAO. UNEP explicitly focuses on assisting the CCD and does not claim leadership in its soil-related work on pollution and contamination.

However, a certain degree of a **rudimentary division of labour is emerging**. There are interesting current developments regarding soil at the international level that could be relevant for a potential future division of labour: In practical terms, the potential rivalry between FAO and CCD might be resolved by each focusing on different issues. At the CCD, the SDGs and in particular the LDN target have catalysed action on LDN target setting and national action plans, specifically supported by the GEF. The FAO is active in deploying methodological tools and data collection, in particular through the Global Soil Partnership,[664] as well as in developing voluntary standards related to sustainable soil management and land rights. Under the Paris Agreement, there is a new framework for agriculture, and land use is becoming increasingly important as a sink in order to reach the Paris Agreement's climate goals. In 2017 UNEA adopted a ministerial declaration on a 'pollution-free world' as well as a resolution specifically on soil pollution, which UNEP is to follow up on.

While some division of labour appears to be evolving in the wake of the SDGs, it does not seem *satisfactory.* There is scope and a need for further **advancing and improving coherence**. The relevant institutions addressing soil, notably (the Secretariats of) the CCD, CBD, UNFCCC, Ramsar Convention, FAO including the Global Soil Partnership (GSP), UNEP (also with a view to the SDG process) should work towards a division of labour. This includes discussing overlaps and gaps in soil governance with regard to:

- biomes
- types of soil
- drivers of soil degradation

The aim should be that between the relevant international institutions and organisations, all types of soils in all biomes and all drivers of soil degradation are addressed by norms or at least programmes

[664] As described by the FAO, http://www.fao.org/land-water/land/ldn/en/ (last accessed on 15.05.2019); http://www.fao.org/land-water/land/ldn/unccd-collaboration-on-dldd-and-ldn/en/ (last accessed on 15.05.2019).

and activities, ideally without duplications. The division of labour needs to be in line with the institutions' mandates. The relevant treaties contain general mandates for the COP and the Secretariats to engage in coordinating activities with other institutions. Since UNEP is the organisation with the broadest mandate with regard to protecting the environment and natural resources, it should be the organisation which should cover those biomes, types of soil and drivers of soil degradation which are not covered by any of the other institutions.

Option: Increase coordination between the relevant institutions addressing soil, notably the CCD, CBD, Paris Agreement, Ramsar Convention, FAO/GSP, UNEP, with a view of expanding soil governance to cover all biomes, soil types and drivers of soil degradation.

The CCD has the mandate to develop indicators for SDG 15.3 in collaboration with the FAO. The CCD's Inter Agency Advisory Group, established for that purpose is a start in bringing together CCD, FAO, CBD, UNFCCC, UNEP and UNSD. But it remains to be seen whether this group could be a nucleus or vehicle for fostering a more systematic and purposive division of labour.

3.5.2 Establish a coordinating forum

As it often happens at the international level, a clearer division of labour in soil governance might evolve through organic historic development, which can also mean duplication to some extent. However, there are arguments against waiting for organic development. The existing fora such as the Inter Agency Advisory Group have so far not shown a clear potential to fulfil this function, since their the focus to date is not on the governance of soils.

In order to further advance the division of labour along the lines sketched out, **a coordinating forum between the relevant institutions should be established**. This could draw from previous experience, as the Secretariats of international treaties and organisations have co-operated in various formalised degrees before, through a Joint Liaison Group (JLG) and the Rio Conventions Pavilion. At a higher formal level, the Stockholm, Rotterdam and Basel Conventions have to some extent institutionalised their cooperation in order to create synergies, e.g. through joint COPs and a joint secretariat.[665] However, in contrast to these three Conventions, the fora involved in soil are much more different and this level of formal cooperation seems unsuitable for soil. Accordingly, a functioning division of labour regarding soil is unlikely to be achieved through a similar top-down administrative exercise.

Against this backdrop, we suggest an option in between the organic development of existing fora and a high-level formalised approach: A "Collaborative Mechanism on Soils" be established, modelled on the "Collaborative Partnership on Forests".[666] The latter is an informal, voluntary arrangement among 14 international organizations and secretariats with substantial programmes on forests, which was established in reaction to a suggestion in 2000 by the UN Economic and Social Council.[667] Chaired by FAO and serviced by the Secretariat of the United Nations Forum on Forests, the 14 agencies share their experiences and collaborate to streamline and align their work.[668] Building on this model, a Collaborative Mechanism on Soils could be mandated to coordinate and promote international soil governance as an *interagency*-mechanism. This mandate would have more political clout than the existing Inter

[665] See the joint "synergies" website for the three Conventions at http://www.brsmeas.org (last accessed on 15.05.2019).

[666] The term "Mechanism" seems preferable to "Partnership" in this context, to avoid confusion with the Global Soil Partnership.

[667] These are: The Center for International Forestry Research (CIFOR), Convention on Biological Diversity (CBD Secretariat), Food and Agriculture Organization of the United Nations (FAO), Global Environment Facility (GEF Secretariat), International Tropical Timber Organization (ITTO), International Union for Conservation of Nature (IUCN), International Union of Forest Research Organizations (IUFRO), United Nations Convention to Combat Desertification (CCD Secretariat), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Forum on Forests (UNFF Secretariat), United Nations Framework Convention on Climate Change (UNFCCC Secretariat), World Agroforestry Centre (ICRAF) and World Bank

[668] http://www.cpfweb.org/73947/en/ (last accessed on 15.05.2019).

Agency Advisory Group's mandate which is limited to developing indicators. Meetings of such as Collaborative Mechanism could be back-to-back with meetings of the Global Soil Partnership.

Depending on the scope of the mandate, establishing this forum might require a formal arrangement between the institutions involved, as well as potentially the agreement by their respective parties or members.

Option: A more robust coordinating forum could be developed in the medium-term, with a mandate designed to coordinate and promote international soil governance.

3.5.3 Check coherence of existing guidance

There is a lot of international guidance material on soil policy, sustainable land management and LDN that states can draw on for formulating and implementing their national soil policies. While virtually none of this is binding, the content of these materials entails a good basis for states to develop, adopt and implement soil policies. While some specific issues around soil protection might not be addressed, or might only be addressed to a small extent, it has to be taken into account that some issues such as domestic planning and zoning laws are usually not specifically addressed at the international level. Given the amount and variety of guiding documents available for soil, it could be worth considering checking the existing guiding documents for duplications and coherence, and to consolidate them. Consolidated guidance could be modelled e.g. on the "United Nations Forest Instrument" adopted by the General Assembly in 2007.[669] The added value to existing overarching instruments such as the revised World Soil Charter of 2015 would need to be assessed, taking into account the political and academic effort involved.

Option: While there is no lack of general substantive guidance for national soil policies, the existing guiding documents could be checked for duplications and coherence and, if necessary, be consolidated, for instance in a non-binding instrument. Additional guidance could be added on certain issue areas that are currently not addressed, such as land degradation by industry or urbanization. This could be discussed by the CCD's Inter-Agency Advisory Group, which might require an adjustment of its mandate.

In addition, the International Soil Biodiversity Initiative was launched in 2011 to inform the Global Soil Partnership. The FAO has been mandated to assess the initiative, but has not conducted the assessment yet.

Option: FAO to assess the International Soil Biodiversity Initiative: Explore why the FAO has so far not assessed the International Soil Biodiversity initiative.

More generally, an overarching assessment on soil governance could be prepared.

Option: An International assessment of options for international soil policies should be carried out, e.g. by FAO and the Global Soil Partnership, on what would be needs and options for international soil governance.

A complementary approach to activities *within* the CBD is the use and expansion of existing channels of institutional coordination *between* the CBD and other fora with regard to soil issues. The cooperation with IPBES could thus be used to promote a spotlight on soil, most importantly in conjunction with the follow up to its assessment on land degradation. With regard to cooperation among the Rio Conventions (CBD, CCD, UNFCCC),[670] efforts are ongoing to harmonize among the three conventions land-based indicators and monitoring systems towards the achievement of the SDGs. For instance, one proposed indicator for SDG target 15.3 – "proportion of land that is degraded over total land area" –

[669] Originally adopted as the „Non-legally binding instrument on all types of forests", renamed by UNGA Res 70/199 of 16.2.2016.

[670] Cf. Böhringer (2014).

could also be used as an indicator for Aichi Target 5 ("At least halving the rate of loss of all natural habitats"); the same goes for indicators for soil organic carbon as well as for soil organic matter content (for Aichi Target 7, 15).

3.6 At a glance: Compilation of options

The following list is a compilation of all options mentioned in Chapter 3:

- Maintain and actively support the recognition at the international level that soil is an international issue and not a purely domestic matter.
- Recognising the significance of the global land footprint for soil policy could increase the incentive for countries in the Global South to participate in the strengthening of international soil governance. Displaced land use should therefore be put higher on the policy agenda, for instance by taking it into account when developing potential further guidance on implementing Land Degradation Neutrality.
- Support the SDG process politically (notwithstanding its shortcomings) as a political reference point for other fora and processes.
- Explore and identify, e.g. through studies, soil policies and measures that are feasible even where land (tenure) rights are an issue.
- In medium to long term, work towards creating the political conditions for new binding instrument such as a treaty on soil protection, in order to address gaps and shortcomings in current governance.
- In the current process following the General Assembly's resolution relating to a potential new global instrument, it should be explored a) how to best push for identifying soil as a gap, and b) which provisions relating to soil would be critical to include.
- Gradually shape the CCD more towards the model of the Paris Agreement through strengthening transparency and review: Push at the CCD for specific requirements, decisions and guidance on transparency for all parties regarding their national soil policies and implementation. This should include requirements and guidance on preparing and submitting national strategies and plans, reporting on implementation, and for reviewing these plans and the reports at the international level.
- Governments who have not yet done so could also actively endorse a more comprehensive CCD approach by engaging in the voluntary LDN Target Setting.
- International soil governance could be strengthened by FAO allocating greater strategic importance to soils; carrying out an internal consistency check on potential conflicts and synergies between the organisation's policies and programmes and sustainable soil management; and scaling up efforts (including donor funding) for implementing the Voluntary Guidelines on Sustainable Soil Management.
- Step up UNEP's work and capacities on soil protection, using the UNEA Resolution on soil pollution as entry point.
- Option: In the UNFCCC, feed in, through the EU, views on soil protection, using the findings of the IPCC special report and the Koronivia joint work and roadmap.
- Improve capacity building for accessing international support, in particular through information and technical assistance.
- Promote political commitments that governments as well as international organisations like the World Bank should rationalise, reduce and eliminate subsidies that are incompatible with sustainable soil management. The approach could build on the SGDs which address specific types of unsustainable subsidies.
- Increase coordination between the relevant institutions addressing soil, notably the CCD, CBD, Paris Agreement, Ramsar Convention, FAO/GSP, UNEP, with a view of expanding soil governance to cover all biomes, soil types and drivers of soil degradation.

- A more robust coordinating forum could be developed in the medium-term, with a mandate designed to coordinate and promote international soil governance.
- While there is no lack of general substantive guidance for national soil policies, the existing guiding documents could be checked for duplications and coherence and, if necessary, be consolidated, for instance in a non-binding instrument. Additional guidance could be added on certain issue areas that are currently not addressed, such as land degradation by industry or urbanization. This could be discussed by the CCD's Inter-Agency Advisory Group, which might require an adjustment of its mandate.
- FAO to assess the International Soil Biodiversity Initiative: Explore why the FAO has so far not assessed the International Soil Biodiversity initiative.
- An International assessment of options for international soil policies should be carried out, e.g. by FAO and the Global Soil Partnership, on what would be needs and options for international soil governance.

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