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Discussing International Actions
for the Sustainable Use of Soils



Enhancing the Land and Soil Component in the Institutional Framework of Multilateral Environmental Agreements

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Abstract

Soil has an image problem. For many people, land and soil degradation remains a local rather than a global issue. They see it as a problem limited to poor developing countries, particularly African countries. In the absence of a strong political commitment to the issue, the international regime for land and soil conservation remains relatively weak and fragmented. Meanwhile, climate change, biodiversity, international waters, hazardous chemicals, wetlands and forests have more easily gained political standing as global environmental issues. Importantly, each of these issues contains a strong land and soil component.

Soil is degraded through a range of processes, including desertification, erosion, industrial contamination, land use change, overexploitation of marginal land, overuse of pesticides and fertilisers in mechanised agriculture, declining agro-biodiversity, urban sprawl and soil sealing, and the impacts of mining, tourism, and military and other human activities. As it can take hundreds or thousands of years to regenerate most soils, the damage occurring today is for all purposes irreversible.

As environmental policies and treaties must be science-driven, improving the scientific advice on land and soil issues would be the best way to establish a political perception of land and soil degradation as a global environmental issue. There are today over 50 advisory processes related to the environment. Three thousand and more experts are appointed to UN-sponsored processes alone, and many thousands of others directly contribute their expertise. Despite this, an earlier study by UNEP (2001)

concluded that there were still problems with the availability of good-quality environmental data, the linkage between advisory processes, and the dissemination of knowledge.

In the specific field of land use and soil management, a great deal of scientific knowledge does indeed exist. But this knowledge is not well disseminated, particularly to economic or social experts and policy makers. Thus, the challenge is not necessarily to generate more data, but to integrate existing knowledge into policy processes. At the same time, data gaps must be identified and addressed, and improved indicators should be developed so that data generated in different forums are comparable.

There are at least several ways to move forward to a more effective assessment regime for land and soil degradation:

- Seek closer cooperation on land and soil issues among existing advisory bodies. Since land and soil issues are inherently interrelated, this approach might ensure the most comprehensive possible assessment.
- Mandate an existing advisory body to take the lead in encouraging collaboration. Such a body could facilitate networking and set up a clearing-house for scientific knowledge on land and soil management in order to strengthen synergies among conventions.
- Set up a new, independent advisory body. Such a body could, for example, be modelled on UNESCO's Intergovernmental Oceanographic Commission (IOC), or alternatively, an International Panel on Land and Soil could be created along the lines of the WMO/UNEP Intergovernmental Panel on Climate Change.

1. Land and soil in international environmental policy

On the occasion of the eighth session of the UN Commission on Sustainable Development (CSD), the Secretary-General, in his report on 'integrated planning and management of land resources', stated that land-related issues 'are likely to be the most important factor of global change in terrestrial ecosystems over the next few decades' (E/CN.17/2000/6, section II, paragraph 5). Furthermore, in the Millennium Report, soil degradation is addressed in its own section ('Defending the soil'), stating that 'nearly 2 billion hectares of land – an area about the combined size of Canada and the United States – is affected by human-induced degradation of soils, putting the livelihoods of nearly 1 billion people at risk. [...] Each year an additional 20 million hectares of agricultural land becomes too degraded for crop production, or is lost to urban sprawl' (United Nations, 2000, paragraphs 283–284).

Soil is degraded through a range of processes, including desertification, erosion, industrial contamination, land use change, overexploitation of marginal land, overuse of pesticides and fertilisers in mechanised agriculture, declining agro-biodiversity, urban sprawl and soil sealing, and the impacts of mining, tourism, military and other human activities. As it can take hundreds or thousands of years to regenerate most soils, the damage occurring today is in most cases irreversible for all purposes.

Soil has been ignored particularly because the risks facing it are diffuse and become apparent only in the long term (Bolte, 2000). Soil has been the victim of its own unassuming character: it is difficult to see as distinct from the other milieus, and its slow, complex process of deterioration has not aroused media or public interest (El-Swaify, 2000). Soil is

not subject to a sensational type of pollution or emergency situation, which are the only situations likely to elicit reactions from governments or public opinion (Pilardeaux, 2000).

Soil has an image problem, not least due to the above reasons. For many people, land and soil degradation remains a local rather than a global issue. They see it as a problem limited to poor developing countries, particularly African countries. In the absence of a strong political commitment to the issue, the international regime for land and soil conservation remains relatively weak and fragmented. Meanwhile, climate change, biodiversity, international waters, hazardous chemicals, wetlands and forests have more easily gained political standing as global environmental issues, resulting in a number of multilateral environmental agreements (MEAs). Importantly, however, each of these issues contains a strong land and soil component in most of the multilateral environmental agreements. Interlinkages between agreements can be identified and improved for the sake of better addressing land and soil degradation.

The MEAs negotiated since 1972 represent a remarkable achievement. However, these MEAs lack coherence with respect to a number of important new environmental policy issues, such as the precautionary principle and scientific uncertainty, inter- and intra-generational equity, life-cycle economy, common but differentiated responsibilities, and sustainable development. There is a need to review the existing institutional structures, instruments and arrangements, including the UN system, MEAs and available means for coordination and consultation (UNEP, 2000). This would make it possible to enhance implementation at the national level, especially through harmonisation of national reporting.

The challenge is basically to overcome fragmented concepts and institutionalisation and sectoral divides. Indeed, the existing machinery remains fragmented and is often equipped with vague mandates, inadequate resources and mar-

ginal political support. Weak support and poorly coordinated management have left institutions less effective than they could be, while demands on their resources continue to grow.

The many various institutional mechanisms designed to address specific environmental issues (as well as the interface between the economic, social and environmental aspects of development) were often created without due consideration of how they might interact with the overall system, and questions have increasingly arisen concerning the coordination of this multi-faceted institutional architecture. There is a global awareness that the international institutional architecture dealing with environmental issues must be strengthened.

Following up the views expressed by governments at UNEP's 21st Governing Council (GC) session in February 2001, UNEP has embarked on a process aimed at improving international environmental governance. In its decision 21/21, the GC called for a comprehensive policy-oriented assessment of existing institutional weaknesses as well as future needs and options for strengthened international environmental governance, including the financing of UNEP. There is a general agreement that the strengthening of international environmental governance should be pursued by taking an evolutionary approach that builds on existing structures and ensures improved coordination and coherence among the various global institutions and instruments involved.

2. Framework of conventional protection of land and soil

It is necessary to distinguish between environmental agreements which address land and soil issues directly (primary protection) and those that address these issues indirectly (secondary protection).

To date, the United Nations Convention to Combat Desertification is the globally most important instrument for primary protection of land and soil. The UNCCD defines desertification as 'degradation of land resources in arid, semi-arid, and dry sub-humid areas caused by different factors, including climatic variations and human activities', where arid, semi-arid and dry sub-humid areas means areas other than polar and sub-polar regions, in which the ratio of annual precipitation to potential evapotranspiration falls within the range from 0.05 to 0.65. The objective of the UNCCD is to prevent and reduce land degradation, rehabilitate partly degraded land, and reclaim desertified land particularly in Africa and in countries that experience serious drought. As the geographic focus of 'desertification' excludes important climatic regions no less affected by severe land and soil degradation processes, the 4th UNCCD Conference of Parties (COP-4) adopted a regional annex for Central and Eastern Europe. This annex is considered to have opened the UNCCD to specific situations outside its initial scope.

Several MEAs relate directly to land and soil issues on a regional level. The African Convention on the Conservation of Nature and Natural Resources was adopted in 1968 under the auspices of the Organisation of African Unity by 43 parties, covering the northern and central African States. It addresses conservation, utilisation and development of natural resources including soil, which is recognised as a natural resource. Specifically, parties are obligated to conserve

and improve soil, combat soil erosion, and not misuse soil. Parties are required to establish land use plans based on relevant science, including ecological, pedological, economic and sociological factors. The Convention on Establishing a Permanent Inter-State Drought Control Committee addresses inter-state drought control as a major causal agent of soil degradation. The ASEAN Agreement on the Conservation of Nature and Natural Resources was signed in Kuala Lumpur in 1985 but is not yet in force. Parties are obligated to develop and coordinate national conservation strategies that include the role of soil in the functioning of natural ecosystems. Furthermore, they agreed to undertake soil conservation measures to rehabilitate eroded and degraded soils, establish soil policies, and control soil erosion and improve soil fertility.

The Alpine Convention was signed in 1991 and entered into force in 1995. Particularly relevant is the Alpine Convention Soil Protection Protocol, which was adopted in 1998 and is not yet in force. This Protocol is the only global agreement on the issue which is intended to create legal rights and obligations among parties. It contains various particularly relevant ecological concepts and principles. The ACSPP aims at reducing the quantitative and qualitative damage to soil through the use of appropriate agricultural and forestry land use methods. It encourages minimal interference with soil, soil erosion control, restrictions on the sealing of soil, and soil rehabilitation. The ACSPP states that the functions of soil (including natural functions, cultural functions and land use functions) should be safeguarded and preserved in order to maintain an ecological balance in the region and soil diversity for future generations. In addition, parties are obliged to a) take legal and administrative measures to protect soil which apply the precautionary principle, b) consider the objectives of the

ACSPP in other policies – nature protection, agriculture, coordination of forestry, c) ensure cooperation between institutions and territorial authorities to develop synergies for soil protection, and d) support international cooperation among institutions concerned with soil research. Specific issues such as protection against impacts of tourism, soil pollution, and management of rehabilitation areas or specific ecosystems such as wetlands and moor lands are addressed also in the ACSPP.

Land and soil issues are indirectly addressed in the 'biodiversity' cluster through the promotion of conservation of landscapes, natural scenery, ecosystems and the habitats of plant and animal species.

The Convention on Biological Diversity (UNCBD) regulates the parties' responsibility for conserving biological diversity and for using biological resources in a sustainable manner. Biological diversity is defined as the variability among living organisms from all sources including, among others, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. The UNCBD explicitly incorporates soils as a key habitat for many of the world's species, making them worthy of protection, conservation and sustainable use under the Convention. The Convention on Wetlands protects land and soil as a habitat as well, through 'conservation and wise use of wetlands by national action and international cooperation as a means to achieving sustainable development throughout the world'. The Convention on the Conservation of Migratory Species of Wild Animals is a global Convention that serves the conservation of migratory species and their habitats. On the regional level, MEAs relating to sustainable land and soil man-

agement and conservation include the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, the Convention on the Conservation of European Wildlife and Natural Habitats, and the Benelux Convention on Nature Conservation and Landscape Protection. Most of these MEAs require parties to cooperate in conservation, management and restoration of the natural environment. They are further required to cooperate for consistency in policy, exchange of information and training, and exchange of scientific results, and to coordinate execution of international agreements.

In the 'chemical' cluster, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal addresses not only the transport of hazardous wastes but also their disposal. The Convention thus relates to important aspects of soil protection and soil rehabilitation by promoting and regulating the responsible treatment and disposal of hazardous wastes. The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC) relates primarily to trade of hazardous chemicals, focusing on commercial transaction aspects. Its intention is to foster the international flow of information on hazardous chemicals, guaranteeing better monitoring of trade in such substances. Its implementation is indirectly conducive for soil protection from chemical pollution. The Stockholm Convention on Persistent Organic Pollutants (POP) focuses on the protection of human health and the environment from the harmful impact of persistent organic pollutants (POPs), which contaminate soils and, subsequently, crop, food and water. Unlike the PIC Convention, POP is not of a purely preventive nature, but also covers measures to deal with actual contamination.

The UN Framework Convention on Climate Change (UNFCCC) seeks, in the 'atmospheric' cluster, to limit the greenhouse effect by reducing global greenhouse gas emissions, in particular CO₂, through promoting clean energy production and increased energy efficiencies. The not yet ratified Kyoto Protocol addresses soils and vegetation by virtue of their function as globally significant carbon pools, utilising their ability to temporarily sequester and release carbon. Land use, land use change and forestry obtained a significant role with regard to carbon dioxide and other greenhouse gases. The Convention on Long-Range Transboundary Air Pollution and its Sulphur Protocol aim to further reduce emissions of sulphur and other pollutants which endanger human life, harm living resources and ecosystems, and, in particular, cause land and soil acidification.

In addition, the 'indigenous and tribal peoples' cluster and the 'development and economic' cluster exhibit relevance to land and soil issues. The latter would include, for example, the 4th ACP-EEC Convention of Lomé (Contracts of Guarantee between State and European Investment Bank), in which member states agree that, among others, halting the deterioration of land and forests is one of their basic objectives.

3. Need for enhanced coherence between MEAs

With the recognition of co-dependency of ecosystems, scientific and technical cooperation has become a growing concern within the science and policy interface. Therefore, there is a need of more integrated scientific processes between MEAs, aimed to identify synergistic policies and exploit bio-geophysical relationships between MEAs.

Bringing the work of MEAs towards a more holistic approach represents a real challenge, especially when it comes to

land and soil issues. Enabling an effective coherence of work between MEAs implies enhancing the knowledge available on land and soil degradation and improving assessments. Enhancing coherence between MEAs is in line with enhancing international environmental governance and calls for bringing together all the major actors to agree on the components that will support harmonised and coherent implementation of the conventions at the national level. The centrepiece of the synergy process is indeed the implementation of the conventions at the national level.

A number of initiatives in process aim at enhancing coordination between the secretariats of the MEAs. Enhanced efforts towards a more effective implementation of those conventions have been widely promoted and encouraged, such as UNGASS 19, resolution S/19-2, Programme for the Further Implementation of Agenda, SG recommendation (E/CN.17/1997/6) within CSD, Resolution VII/4 of COP 1999 Convention on Wetlands, Resolution 6.5 of COP 1999 Convention on Migratory Species, COP 2000 of CITES, decision V/19 of COP 2000 Convention on Biological Diversity. In particular, the Nairobi Declaration on the Role and Mandate of UNEP (1997) identifies as one of the core elements of the UNEP mandate the development of 'coherent interlinkages among existing international environmental conventions'. This and other parts of the UNEP mandate concerning a coherent approach towards environmental activities in the UN system give a clear mandate for UNEP to lead efforts to promote synergies. Initiatives already taken to enhance synergies among MEAs have touched different areas, particularly a) harmonising national reporting and b) implementation of joint work programmes under MoU/MoC.

The practice of national reporting requires an MEA party to provide a periodic report to the institutions established under the treaty or to other parties to that agreement. National reporting enables the governing bodies of those agreements to assess implementation and to make rational decisions on future priorities and needs.

As we have mentioned, a number of initiatives aimed at enhancing coherence between the secretariats are in process in the 'land and soil' cluster. Obstacles preventing further cooperation are a) differing constituencies of MEAs; b) fragmented responsibility for national land and soil information management; c) limited understanding of the link between reporting and efficient implementation of MEAs; d) limited resources for information management in MEA secretariats; and e) scientific uncertainty that makes true standards difficult to achieve.

In order to improve institutional interlinkages and to achieve the actions noted above and maintain their success, standing linkages between MEAs will be required in a number of areas, such as a) coherent scientific methodology, b) coherent use of nomenclature and definitions, and c) coherence of information management practices and technology.

4. Institutional cooperation between scientific and advisory bodies of land and soil-related MEAs

The unprecedented number of scientific panels set up to advise governments on various environmental issues is a general trend that can be witnessed in most MEAs. At present, there are more than 50 advisory processes in existence. Over 3,000 experts are currently appointed to UN-sponsored advisory processes alone, and many thousands of others directly contribute their expertise. Several million US dollars are spent on these panels every year. Generally, these individual scientific advisory processes are created separately and without reference to past experience. There is little overarching

debate about their roles and organisation. Because the scientific advisory processes have become an integral part of international environmental governance, there is a need to provide this advisory process structure with a more coherent framework making it possible to use the diversity of existing processes as a potential strength (Fritz, 2000).

The coordination between scientific advisory processes is characterised by the existence of several gaps (Fritz, 2000) that apply also to land and soil issues across the different clusters. The most relevant are the data gap, the linkages gap, the public access gap and the impact gap.

The 'data gap' was identified by Agenda 21 as the gap between the availability of quality data, e.g. on land and soil issues from around the world, and the needs of both national and international policy makers.

A 'linkages gap' exists between the increasing number of advisory processes being founded. Although it is increasingly recognised that environmental problems can only be solved holistically, only few ongoing collaborative efforts exist.

There is also a 'public access gap' between the production and synthesis of knowledge and its use by a broad readership. Each year, dozens of reports are prepared by external consultants and UN staff members at a great cost. They often reflect useful syntheses of current knowledge, and many are of high quality. However, once the official meetings for which the reports are intended are over, the reports are shelved. While most are available on the Internet, a user requires good knowledge of the UN system to search the numerous institutions potentially supporting similar activities. It would be useful to identify 'success stories' and 'best practices' relevant to various conventions.

An 'impact gap' exists between scientific advisory activities and efforts to support local and national-level capacity building. Advisory processes harness much knowledge that is sometimes only used for limited purposes. Located at the interface between scientific research and policy making, advisory processes can set priorities useful to UN scientific and research support activities. While there is much talk of capacity building, there are few examples of advisory processes that assist international scientific programmes in strengthening local and national capabilities to manage national activities – thus, ultimately improving support for implementing international agreements.

5. The structure of scientific and advisory processes

Generally, scientific and advisory processes are either created within the structure of an MEA or contribute to a wider process outside any specific forum.

Certain bodies are set up to provide scientific and technical advice to member parties within an MEA. These bodies are subsidiary bodies of the respective MEAs and remain dependent on the Conference of Parties (COP) set up specifically for the MEA. For instance, the Committee on Science and Technology (CST) within the UNCCD calls for and evaluates experts' scientific assessment at the specific request of the COP. In its capacity as a subsidiary body of the COP bound to COP instructions, the CST is thus closely linked to and dependent on the programme of UNCCD. Similar bodies are the Subsidiary Body on Scientific and Technical Advice (SBSTA) of UNFCCC and the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) of the UNCBD.

Other scientific and advisory bodies are set up independently of MEAs. The recommendations produced by those scientific and advisory bodies are accessible not only to member parties of all MEAs but also to the international community in general: the scientific knowledge provided by those bodies is meant to be used in intergovernmental processes and deliberations.

The IPCC, created by WMO and UNEP in 1988, provides scientific, technical and socio-economic advice to the world community, and in particular to the parties of the UNFCCC, through its periodic assessment reports on the state of knowledge on climate change, its potential impacts, and options for response strategies. The IPCC thus played an important role in establishing the Intergovernmental Negotiating Committee for a UN Framework Convention on Climate Change (UNFCCC) by the UN General Assembly.

6. Options to address identified needs

Clearly, there are at least several ways to move forward to a more effective assessment regime for land and soil degradation.

A first option is to seek closer coherence on land and soil issues among existing advisory bodies. Since land and soil issues are inherently cross-cutting, this approach might ensure the most comprehensive possible assessment of scientific knowledge. An improved dialogue would generate a more holistic understanding of the role of soil in the biosphere and in human socio-economic systems. It would also ensure a stronger and/or more complete consideration of land and soil aspects in global assessment processes such as the Millennium Ecosystem Assessment, the Pilot Analysis of Global Ecosystems, and the Land Degradation Assessment in Drylands.

Another approach would be to mandate an existing advisory body to take the lead in encouraging collaboration between MEAs and their advisory bodies. Such a body could facilitate networking and set up a clearing-house for scientific knowledge on land and soil management in order to strengthen synergies among conventions. The Global Terrestrial Observing System (GTOS), for

example, could serve as a global platform if its mandate, composition and funding mechanism were appropriately altered. Another candidate might be the UNCCD Committee on Science and Technology. The CST advises parties on the scientific and technological aspects of desertification and drought and serves as a liaison between governments and the scientific community. It could well be placed in a position to embrace more responsibilities for global land and soil issues. During the 5th Conference of the Parties (COP-5) to the UNCCD, which took place in Geneva, Switzerland from 1 to 13 October 2001, negotiations addressed the question of improving efficiency and effectiveness of the CST. In its Decision ICCD/COP(5)/L.7/Rev.1, the COP decided to adopt ways and means to improve CST efficiency and effectiveness, including the establishment of a group of experts under the CST to provide scientific input.

Finally, there is the option to set up a new, independent advisory body. Such a body could, for example, be modelled on UNESCO's Intergovernmental Oceanographic Commission (IOC). Composed of government representatives, the IOC facilitates international research, education and training programmes and observing systems. Alternatively, an International Panel on Land and Soil could be created along the lines of the WMO/UNEP Intergovernmental Panel on Climate Change. Such a panel would be able to:

- assess and synthesise the scientific, technical and socio-economic information relevant for the understanding of the risk of human-induced land quality changes,
- stimulate and involve the scientific community to develop the science of land degradation and desertification,
- assist national, regional and global decision makers in developing policies to assess, monitor and mitigate negative impacts on land and soil,
- channel and render accessible the available knowledge about land degradation and desertification.

List of Abbreviations

ACP:	African, Caribbean and Pacific Group of States
ACSPP:	Alpine Convention Soil Protection Protocol
ASEAN:	Association of Southeast Asian Nations
CSD:	UN Commission on Sustainable Development
CST:	UNCCD Committee on Science and Technology
EEC:	European Economic Community
GTOS:	Global Terrestrial Observing System
IOC:	UNESCO Intergovernmental Oceanographic Commission
IPCC:	Intergovernmental Panel on Climate Change
PIC:	Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
POP:	Stockholm Convention on Persistent Organic Pollutants
UNCBD:	United Nations Convention on Biological Diversity
UNCCD:	United Nations Convention to Combat Desertification
UNFCCC:	United Nations Framework Convention on Climate Change
UNEP:	United Nations Environment Programme
UNESCO:	United Nations Educational, Scientific and Cultural Organization
WMO:	World Meteorological Organization

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