



## The IUSS World Soils Agenda: background, tasks, and consequences for policies

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### Background

At the 16th World Congress of Soil Sciences (WCSS) of the International Union of Soil Sciences (IUSS), held in Montpellier in August 1998, participants confirmed the need for a global soils agenda, as there is a general lack of recognition of soil-related matters among the general public and government administrations. IUSS thus established a working group whose task would be to examine emerging soil initiatives at the global level. The group called itself the IUSS Working Group "International Actions for the Sustainable Use of Soils" (IASUS).

There are a number of documents and agreements with particular reference to soils at the international level, e.g. the European Soil Charter (Council of Europe, 1972), the World Soil Charter (FAO, 1982) and the World Soils Policy (UNEP, 1982). Unfortunately, their non-binding nature deprives these documents of relevance for widespread action. In other agreements soils are mentioned marginally, as in the Stockholm Declaration on the Human Environment (UN, 1972), the World Conservation Strategy (IUCN, 1980), the Rio Declaration and Agenda 21 (UNCED, 1992), and the

Millennium Ecosystem Assessment (MA, 2005).

The 17th WCSS in Bangkok in August 2002 was a further opportunity for pro-active IASUS initiatives. Specialists were invited prior to the congress to write papers relating to the theme, and an e-mail discussion forum took place from December 2001 to July 2002 in preparation for a draft world soils agenda. The IUSS General Assembly in Bangkok then endorsed the draft, acknowledging that the soil science community has a special role in furthering sustainable use of soils at the global level.

A number of international mechanisms have recently included soils as a natural resource of vital importance, although only at a very modest level. The UN Framework Convention on Climate Change (UNFCCC) looks at soils in light of carbon sequestration potentials, but has so far not accepted this process as part of its clean development mechanism. The Convention on Biological Diversity (UNCBD) sees soils as vital to soil biodiversity preservation, but has made no recommendations for concrete achievements in this respect. The UN Convention to combat desertification is centred around land degradation as a core problem, affecting not only vegetation,

but mainly soils, but focuses primarily on semi-arid lands only. The Millennium Ecosystem Assessment (MA, 2005) considered soils conceptually as a part of ecosystem services, although it unfortunately did not further assess soils in terms of their functions with respect to ecosystem maintenance and services. Last but not least, the currently ongoing International Assessment of Agricultural Science and Technology for Development (IAASTD, 2005) again considers soils because they are a vital basis for agricultural production, although it remains to be seen to what extent land and soil degradation are considered in the various scenarios to be developed for the next 50 years. Soils, however, have many more functions than agricultural production; they are a living space for terrestrial life on earth, a cultural value in the context of religious and social practices, and a natural resource for industrial use. In conclusion, soils have multiple functions that are vital to the global sustainability of the earth as a living system and basis for human survival and well-being.

Stakeholders concerned with healthy soils are invited to become much more active in the above international mechanisms. But how can these multiple demands be satisfied? Where are



**Far left:**  
Silvipasture for soil and water conservation: vegetative measure with *Stylo hamata* grass in Batnawar, Madhya Pradesh, India. Photo by Gudrun Schwilch

**Left:**  
Learning for sustainability – a workshop where different stakeholders discuss their visions of sustainable land use in their own environment. Village in Maharashtra, India. Photo by Andreas Kläy

the specialists willing to invest the time and resources needed to put soils higher on the international agenda? Are soil and land management specialists sufficiently involved in the Millennium Development Project? Are soil issues adequately covered by the UNFCCC, UNCB, UNCCD, MA, IAASTD? And does the Global Environment Facility (GEF) promote enough projects dealing with sustainable soil and land management?

### Tasks formulated by the World Soils Agenda in 2002

#### Tasks for science, monitoring and evaluation

In relation to the first task (cf. Fig. 2), there is a great need to re-assess the status and trends of soil degradation and its effect on soil functions. Since the GLASOD assessment (Oldeman, 1988) in preparation for the first global conference on environment and development in Rio de Janeiro (UNCED, 1992), no further global assessment has been done, even though the expert-opinion approach of this first attempt was considerably contested. Regional studies, nevertheless, have been initiated in South and Southeast Asia (Van Lynden and Oldeman, 1997), and a more recent initiative by FAO and UNEP will provide

Theme	No	Agenda	Target institutions	Source bodies
Science monitoring and evaluation	1	Status and trends of soil degradation	Policy makers, UN agencies, national agencies, NGOs	ISRIC, IWMI-IBSRAM
	2	Impact indicators and tools for monitoring	National, international research and observation agencies	IUSS, ISCU, IHDP, IGBP
	3	Principles, technologies and approaches to sustainable land management	Implementing ministries and agencies, decision-support networks, research institutes	IASUS; WASWC-WOCAT; UNDP; UNCCD

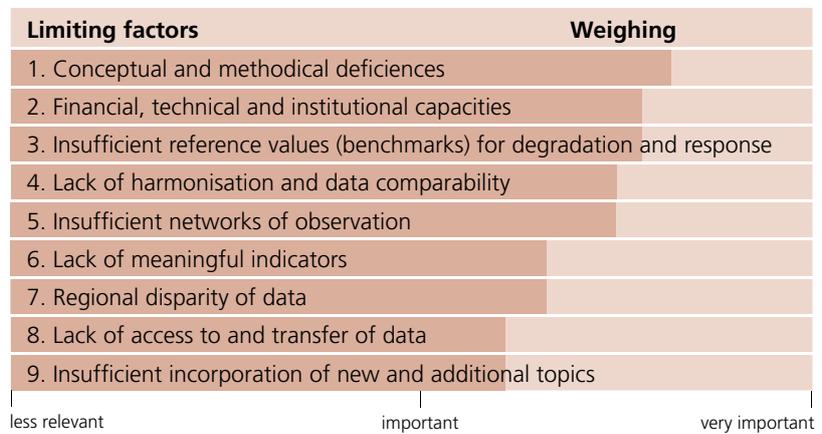
**Figure 2: Tasks for science, monitoring and evaluation.**  
Source: World Soils Agenda (IUSS, 2002)

more data on land degradation in semi-arid lands (LADA, 2002). The second task calls for defining indicators and tools for monitoring and evaluation of degradation and mitigation impacts. Again, the recent LADA project attempts to refine the methodology for assessing degradation. A methodology for assessing the impact of sustainable land management technologies and approaches, and developing tools for monitoring their efficiency and effectiveness, has been developed by WOCAT ([www.wocat.net](http://www.wocat.net)). The WOCAT programme, "World Overview of Conservation Approaches and Technologies," was

initiated in 1992, and has since been actively engaged in over 40 countries world-wide through use of a set of methodologies for assessing, appraising and monitoring suitable technologies.

Figure 3 lists the limiting factors that have to be overcome in order to improve the main tasks in science, monitoring and evaluation. Conceptual deficiencies, capacity, benchmarks and data comparability appear to be the most urgent deficiencies seen by the contributors as most important.

In relation to developing principles, technologies, approaches and enabling frameworks for sustainable land management in general, there is a third task: developing principles, technologies and approaches for reducing and overcoming the negative impacts of all soil degradation processes, whether they are due to soil erosion by water and wind or physical, chemical and biological degradation. Again, in the case of the most prominent process – soil erosion by water and wind – a number of activities have been carried out over the past decades. For example, WOCAT identified and analysed over 250 technologies and 50 approaches for a wide range of land uses and bio-physical, social, political and institutional situations world-wide (Liniger H.P. and Critchley W., forthcoming 2006).



**Figure 3: Factors limiting adequate soil monitoring.**  
**Source: World Soils Agenda (IUSS, 2002)**

### Tasks for policy guidance

Three further tasks in the World Soils Agenda are related to policy guidance (cf. Fig. 4):

National soil science societies are well represented in the IUSS. Dealing with soil issues, however, requires multiple competences beyond soil science. Sustainable soil and land management is a field that requires the interdisciplinary attention of soil scientists, agronomists, geographers and foresters, as well as economists, sociologists, lawyers, political scientists and others. Identifying and mobilising an international, multidisciplinary network for soils, therefore, is a challenging task that will not be easy to realise. Cooperation among several international unions, e.g. under the auspices of ICSU, was seen as an important task in the World Soils Agenda (Hurni and Meyer, 2002).

A second task in policy guidance was the establishment of an international panel on land and soils (to be called IPLS). Such an advisory body could (a) serve as a clearing house for soil and land-related issues in the UNCCD, (b) synthesise relevant information at the global to local levels, (c) provide information on the impacts of soil and land degradation, (d) provide guidance to scientists on land and soil-related

Theme	No	Agenda	Target institutions	Source bodies
Policy guidance	4	International, multidisciplinary network	Policy makers, UN agencies, national agencies, NGOs	IUSS, ICSU, ISCO
	5	Intergovernmental panel on soils	Implementing ministries and agencies, decision-support networks, research institutes	INCCD, UNEP, WBGU
	6	Guidance for national soil policies	National, international research and observation agencies	IUCN-ELC

**Figure 4: Tasks for policy guidance.**  
Source: World Soils Agenda (IUSS, 2002)

research, and (e) assist in policy-making at all levels in order to achieve sustainable land management (cf. Hurni and Meyer, 2002). As the current level of interest in UNCCD may be rather low, however, the IASUS Working Group has supported the establishment of a World Soils Council under the auspices of IUSS (cf. p. 62).



Finally, providing guidance to develop and implement national soil (and land management) policies was the third task endorsed by IUSS in 2002. In this respect, the Environmental Law Centre of the IUCN was considered most competent to support national initiatives (cf. Hannam, J. and Boer, J., 2004). Legal instruments were assessed for their suitability by the group of specialists in preparation for the World Soils Agenda (cf. Fig. 5).

### Tasks in support of implementation

The last three tasks of the World Soils Agenda relate to implementation of sustainable land management on the ground (cf. Fig. 6).

A number of development cooperation agencies and national ministries are actively promoting sustainable land management initiatives. The main issue here is how small-scale farmers can be best encouraged to adopt more sustainable land management technologies within their farming systems. Small-scale farmers are the dominant land users both in terms of area coverage and, even more, in number of persons employed in agriculture. Worldwide, nearly 3 billion people are directly dependent on farming, and their range of options and risk-taking opportunities is very

Instrument	Coverage			Type		Suitability
	Global	Regional	National	Binding	Non-binding	
Framework treaty to strengthen soil in existing treaties	x			x		1.89
National soil law			x	x		2.25
Generic soil law			x	x		2.63
Protocol to existing treaty	x			x		2.78
Special treaty	x			x		2.78
Regional framework treaty		x		x		3.00
Charter or declaration	x				x	3.94

Figure 5: Suitability of legal instruments for sustainable land management. Lowest figure signifies highest suitability. Source: Hurni and Meyer, 2002.

Theme	No	Agenda	Target institutions	Source bodies
Implementation support	7	Programmes to support sustainable land management	Development cooperation agencies	OECD-DAC
	8	Inclusion of soil-related issues in development	Development cooperation agencies	IUSS, WASWC, ISCO
	9	Guidance for national and local action	National ministries, soil associations	UNCCD, UNEP, NRI

Figure 6: Tasks for implementation support. Source: World Soils Agenda (IUSS, 2002)



**Far left:**  
 45,000 ha of irrigated land in Tajikistan (of a total of 720,000 ha) are affected by waterlogging problems.  
 Photo by Hanspeter Liniger

**Left:**  
 Soil erosion in an agave culture in Autlán, Mexico.  
 Photo by Stephan Rist

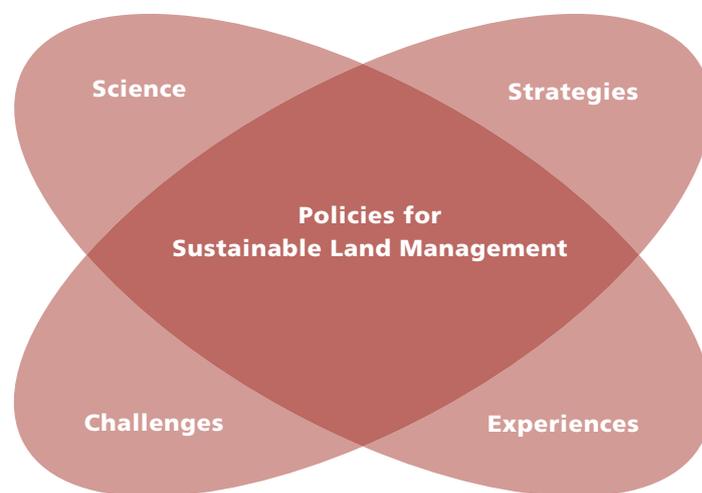
small because they are the most vulnerable and poorest segment of human society.

Rural development programmes have often not included sustainable land management as an integral component of any activity with small-scale farmers in developing and transition countries. Ensuring that this component is included, and that the impacts of programmes on soil and land resources are evaluated in such programmes, is a task for which international networks such as IUSS, WASWC and ISCO are willing to make specialists and/or task forces available.

The last task is based on the observation that local to national programmes in rural development often do not include soil-related considerations, and that guidance by specialists is needed there as well. Task forces composed of national and international specialists could provide backstopping to implementing bodies such as national ministries or NGOs, in partnership with the groups in charge of action.

### Consequences for policies

Development of international mechanisms for sustainable land management must be based on science, strategies and experiences, thereby confronting the challenges posed by the global situation today. These are the four dimensions to be taken into account (cf. Fig. 7).



**Figure 7: Dimensions to be considered in developing policies for sustainable land management.**

The scientific basis for defining policies appears to be adequately established, although much more research is needed to further assess soil and land degradation from the local to the global levels, as a first step towards identifying and assessing the magnitude of the problems and their effects on human society and the ecosystems affected. New land degradation assessments can help improve the situation and serve as an early warning system. In a second step, scientific methods need to be applied to identify suitable measures for reducing and eventually halting soil and land degradation, either by implementing technologies, changing land use systems, or avoiding the indirect impacts of sources of pollution from outside land management.

Strategies for sustainable soil and land management policies have so far primarily been developed for industrialised countries, and to a much lesser extent in developing countries. A good example is the soil protection strategy of the European Union, or Germany with its soil protection law. On a more general level, UNEP developed an ecosystem approach to land use management and soil conservation (UNEP, 2004). Whether an international panel on land and soils is a feasible initiative in support of inter-

national conventions such as UNCCD or UNCBD remains to be seen.

Experience is the third and probably most important dimension in developing soil-related policies and addressing the challenge of sustainable land management. Much experience exists, particularly at the local level. Local knowledge, however, has so far not been sufficiently acknowledged, either by the scientific or the political community. Multi-stakeholder involvement in the design of research is a growing methodological issue in research funding, and a practice that is increasingly used in political processes. Experience with conventions and the GEF is accumulating, but still not sufficient to adequately address the issue.

In summary, there are a number of challenges that justify preparing further actions to increase soil-related awareness and activity at the national and international levels. In the context of the issues described above, various specialists from different institutional backgrounds and disciplines have given a number of inputs on existing programmes, strategies and institutions. This formed the basis for an expert panel held during the Eurosoil Congress in Freiburg, Germany, on 9 September 2004, where a first assessment of (a) the need for new

policy-relevant mechanisms, (b) the challenge and tasks of new mechanisms, and (c) ways and means to develop and establish such mechanisms was carried out. In a follow-up survey among IASUS Working Group members in 2005, recommendations were made about how to proceed further and initiate action at the regional level. This is reported in Part III of the document.

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