

**Charles Leopold Mayer Foundation for the Progress of Humankind**

**Alliance for a Responsible and United World**

# **The Soil Campaign**

**Save Our Soil to Sustain Our Society**

# **Proposals**

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## Acronyms and Abbreviations

ADEME	Agency for the Environment and Energy Resources
CBD	Convention on Biodiversity
CCD	Convention to Combat Desertification
CEL	Commission of Environmental Law
FAO	Food and Agriculture Organization of the United Nations
FCCC	Framework Convention on Climate Change
FPH	Charles Leopold Mayer Foundation
ICLEI	International Council for Local Environmental Initiatives
IFEN	French Institute for Environment
INRA	French Institute for Agronomy Research
IPLS	Intergovernmental Panel on Land and Soil
ISCO	International Soil Conservation Organization
IUCN	World Conservation Union
NGO	Non-Governmental Organization
SSWG	Sustainable Soils Working Group
TISC	Tutzing Initiative for a Soil Convention
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WTO	World Trade Organization

## **FOREWORD**

### **Soil is a basic life supporting system...**

**Soil is a natural, terrestrial milieu whence plant and animal life originates and where life ends.**

Soil is the thin layer of “earth” (from a few centimetres to several metres thickness) which is found between the parent rock material and the atmosphere. Soil is made of rocks by dint of the combined action of air, water and life-forms: Soils are therefore highly varied, and are spatially distributed according to topography, parent rock, plant cover... and human activity.

Soil fulfils fundamental functions in terms of life in general, and particularly in terms of the needs and the well-being of human societies [see sheet 1]. It produces and contains all of the elements necessary to life, including air and water. It filters, processes and purifies the water which flows across and through it. It regulates water courses and the replenishment of groundwater reserves. It stores greenhouse gases (there is four times more carbon in the soil than in the plant life which covers it). It is a vast reserve of genetic resources: it harbours much of terrestrial biodiversity. It provides materials for construction (used not only by humans but by birds, ants, badgers, beavers...) and for human industrial and artisanal activities. It contains mineral resources (gold, aluminium, iron, flint, beryl... etc). It is the physical foundation for dwellings and infrastructure essential to the activities and leisure pursuits of human beings. And it contains the archaeological evidence of the history of humanity.

**Like air and water, soil is thus an essential resource for life: there can be no sustainable development without good management of the soil.**

### **...but, soil is endangered worldwide...**

More and more demands are being imposed upon the soil by human activities: the intensification of agriculture on soils already cropped, the cropping of new land, the growth of pasture lands and forestry plantations, of urbanization and industrialization, the disposal of waste products, and the expansion of recreation. These different activities are growing and competing with each other, without taking account of the diversity of soils, of their functions, and of their potentials. The situation is exacerbated by the population explosion. Earth had two billion human inhabitants in 1930 but six billion by 2000.

As a consequence, soils are degraded. Throughout the world there are many examples of soil which has been deeply modified and seriously damaged by agricultural use. All of the following problems are widespread: biological, organic and mineral impoverishment; structural deterioration and compaction; erosion; salinization; and pollution (mineral, organic, radioactive). Overall, soil fertility is on the decline and the fundamental functions of the soil are no longer safeguarded. Throughout the world there is also the growth of cities and shanty towns, industrial sites and tourist complexes. Transportation networks are being intensified. Hydroelectric

and irrigation dams are being built, surface mineral resources are being extracted. All of these activities are pervasive and some are irreversible, depleting global soil resources each year by tens of thousands of hectares of often very fertile land, with no hope of recuperating these losses.

Hence, other spheres are affected. Soil degradation leads to the impoverishment of biodiversity, the shortening and disruption of the hydrological cycle (water is becoming less available to meet human needs), water quality pollution, air quality pollution through the release of greenhouse gases (carbon dioxide, methane). In short, the health and wellbeing of humanity as a whole is compromised by soil degradation.

### **... and human societies are unaware of the threat**

Soil, in spite of its scarcity, is used today in an unsustainable way by many human communities. There are a few, but only a few, shining lights examples demonstrating that a sustainable use of soils is possible.

The second half of the twentieth century was particularly disastrous. In both the capitalist and the communist countries, the headlong rush into agricultural, industrial and urban development wreaked destruction upon soils and their functions. In the underdeveloped countries, it was poverty which led people to destroy their soils and the vital functions they fulfil, and that is an ever-present spectre in the disadvantaged regions occupying nearly 60% of the world's landmass [see sheet 2].

The blame lies squarely with the economic and technical choices made, which took no account of natural and human diversity.

However, while little has been done in reality to mitigate soil degradation and to improve the condition of soil already heavily degraded, this is largely due to ignorance - in all spheres of society - of what the soil really is and of why it is necessary to preserve its functions. Producers, technicians, administrators and politicians are all accomplices in this ignorance which has its roots in the absence of any teaching about soil at school. Soil is insignificant in the popular culture of most communities nowadays. The soil is little understood and erroneously understood. As a result, the sustainable management of soil does not figure highly among the priorities (as do the management of water, animals, plants and the air) of the general public, political leaders, administrators, technicians... and land owners. One must particularly emphasize the poor level of understanding of the soil among most agronomists and environmentalists: many agronomists approach agriculture and land use on the basis of prioritising techniques and economics, and they overlook the diversity of natural habitats and human communities.

But fortunately, this is going to change. The soil issue is becoming, gently but surely, one of the preoccupations of civil society. There are already, in the field, important and relevant initiatives, to which we shall revert.

### **A worldwide Soil Campaign**

The Charles Leopold Mayer Foundation for the Progress of Humankind (FPH<sup>\*</sup>) has stimulated and supported, since the second half of the 1980s, a wide intellectual discussion that resulted in the publication “*Platform for a Responsible and United World*”. This document expounds the challenges that humanity has to meet during the 21<sup>st</sup> Century and proposes the ways to do it.

According to the “*Platform for a Responsible and United World*” one way to take up the challenges is to focus the attention and the energies of all stakeholders on five major campaigns: soil, water, energy, revitalization of severely deteriorated regions and conversion of armament industries.

It must be highlighted that this was the first time in history that civil society recognized the fundamental importance of soil to life and to biosphere balances, and stressed the need to use soil and land in a responsible, sustainable way.

During December 1995, Mireille Dosso, Rabah Lahmar and Alain Ruellan shaped the campaign on soil in a document entitled “**The Soil Campaign, Initial Proposals**”, where they propose the objectives and define the priorities . The document was submitted to debate.

**The Soil Campaign** started in 1996 within the framework of the Alliance for a Responsible and United World, a wide informal group of people and organizations acting together to contribute to the changes required to meet the challenges of the 21<sup>st</sup> century. Its thoughts and actions aim at:

- Changing attitudes to soil problems;
- Enhancing the "status" of soils;
- Mobilizing international solidarity and cooperation against soil degradation.

The Campaign is founded on a certain number of ideas and observations that can be formulated as follows:

- The soil, with all its diversity and by virtue of its multifunctional character, is one of the most important bases for life on Earth, one of the major factors in the balance of nature [see sheet 1].
- Soils are at the **heart of current human development problems**; in particular, they are at the **core of the food and environmental concerns** experienced nowadays worldwide. We notice, however, that the issue of soils has been evaded or given scant attention by decision makers, the media and the general public.
- Soils, despite their scarcity or vulnerability, are still used in an unsustainable way by human societies. Little is done to mitigate soil degradation or to improve the situation of degraded soils. Local and global economic systems are accountable for this neglect.
- This situation, which involves risks for natural systems, including human habitats, is mostly due to ignorance in all spheres of society, from the ordinary citizen up to centres of power, about what soil is and

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\* <http://www.fph.ch/>

why it is necessary to preserve it. Hence, soil is always absent from public debate, especially when social choices are concerned.

**These ideas and observations were then worked on and verified. They allow the Soil Campaign to be in the position to state that:**

- Soils is one of the challenges of the 21<sup>st</sup> Century. It should concern the human community as much as, for example, global climate change or the loss of biological diversity, to which, incidentally, soil degradation contributes significantly in ways which have been ignored for a long time. Soil, on account of its fertility or its degradation, and by its influence on the air, water and life, is a factor of potential conflict for the 21<sup>st</sup> Century.
- In order to turn soil into a factor of stability and peace, the human community should fulfil at all levels the conditions that enable different soilsystems to fully accomplish all their functions, which are, in effect, free services offered to the biosphere and humankind.

During the period 1995-2001, dialogue was stimulated and supported by the Soil Campaign from which further initiatives and proposals emerged. This paper gathers some concrete proposals for change. Proposals made are intended to contribute to the emergence of behaviour and practices leading to the protection of soil against different types of degradation, and the rehabilitation of degraded soil.

## SUMMARY

Preserving soil from degradation and using soil in a sustainable way requires a real and deep transformation of human attitudes towards this resource. The Soil Campaign considers that there are at least three indispensable and inseparable contributions to the carrying out of this transformation:

- I. to rehabilitate soil in popular culture;**
- II. to protect soil by legal instruments and to include it in the scope of the governance;**
- III. to acknowledge soil as part of the universal heritage of humanity: soil conservation will require complete human solidarity.**

For each of these three points, the proposals for change are summarized in the following four pages.

### Proposals for Change

#### I. The Rehabilitation of Soil in Popular Culture

Several proposals are made:

##### I.A. In the domain of conventional education:

*Proposal 1.* To set up teaching systems that ensure an adequate knowledge of soil, indispensable for all citizens of the planet. This teaching should be built on the fact that soil is a natural body and cultural heritage fulfilling basic functions.

*Proposal 2.* To set up harmonised higher education curricula concerning soil that lead to a common knowledge base for all the disciplines that deal with soil.

##### I.B. In the domain of popularization and public awareness:

*Proposal 3.* To set up and monitor innovative educational practices based on the concept of diversity: drawing from the range of knowledge, taking account of the multifarious of teaching, information and communication resources, and continuously adapting the process to changing situations.

**I.C. A monitoring and coordination system for endeavours pertinent to soil:**

**Proposal 4.** To set up an analysis, support and coordination system for different educational initiatives.

**I.D. A strong symbol:**

**Proposal 5.** To set up the World Soil Day.

## **II. The Duty to Preserve Soil**

With regard to the legal protection of soil:

**II.E. At local and national levels:**

**Proposal 6.** To introduce incentives and enforce regulations and laws based on a broad participatory process involving all stakeholders, including the policy makers and authorities, as well as producers and land users themselves, the scientific community and civil society.

Regulations are nearly always implemented by administrative units but considerations should as far as possible be based on geographical units such as watersheds or landforms.

**Proposal 7.** As soils are local, their sustainable management should first be a local authority responsibility. It is necessary to highlight and to reinforce all existing local initiatives such as the Soil and Land Alliance of European Cities and Towns and the Soil Network of the International Council for Local Environmental Initiatives - ICLEI. All these initiatives must develop easy intercommunication to allow them to exchange their experiences and to benefit from the contacts made.

**II. F. At regional and international levels:**

**II. F.1. To reinforce existing mechanisms and instruments:**

**Proposal 8.** To encourage the implementation of regional and subcontinental initiatives aiming at sustainable use of soil such as the protocol of Bled within the Alpine convention and continental protocols and annexes to international agreements CBD, FCCC, and CCD.

**Proposal 9.** To emphasize and reinforce all initiatives dedicated to reaching the objective of an international legal binding instrument to safeguard soil. Two initiatives are particularly concerned:

- The proposal for an Intergovernmental Panel on Land and Soil (IPLS) with regard to the protection of soil and land, and to stimulate sustainable use of soil worldwide. This should be inaugurated as quickly as possible.

- Works and the findings of the Sustainable Soils Working Group- SSWG set up by the Commission of Environmental law of the World Conservation Union (IUCN), as well as the resolution on the legal aspects of the sustainable use of soils of the IUCN World Conservation Congress in Amman, October 2000.

**II.F.2. To protect fully natural resources:**

*Proposal 10.* To establish a set of binding rules, such as an international convention on the sustainable use of soil and on land management. The ratification by all states of such an instrument is not only desirable, but also urgent.

**II.F.3. To relate soil and international trade:**

*Proposal 11.* To mention soil and impact on soil in all regional and global negotiations on trade and to introduce the topic of soil into the processes that lead to making regional and international trade agreements.

**II.F.4. To relate soil and human poverty:**

*Proposal 12.* To encourage all initiatives aiming at poverty alleviation worldwide. Priority in financial support should be given to projects that target smallholders.

**II.G. Achieving transformations:**

*Proposal 13.* To set up mechanisms and incentives to facilitate transformations in the different activities in relation to soil, in order to underline the primacy of sustainable soil management.

### **III. Human Solidarity to Save a Worldwide Heritage**

With regard to global cooperation to protect soil against degradation:

**III.H. Gathering and sharing knowledge on sustainable soil uses:**

*Proposal 14.* To Establish soil information networks.

**III.I. Mutual assistance in addressing soil problems:**

*Proposal 15.* To mobilize funds for soil conservation, restoration, improvement and where practicable creation. One can imagine the initiation of a World Soil Fund from which volunteers and financial donors would support activities leading to the improvement of the soil situation worldwide.

**III.J. NGOs devoted to soil and environmental issues:**

*Proposal 16.* To raise awareness of environmental NGOs to the fact that soil is a key component of the environment. It should be one of the major items that they address in their fieldwork.

### **Implementing Changes**

Achievement of the objectives described here relies on the mobilization of a large number of actors, both people and institutions, and the emplacement of funds. Soil concerns the ordinary citizen as much as the top decision makers and public, private, national, regional and international institutions.

It is important that the Soil Campaign continues to promote and disseminate these ideas and proposals. Conditions should be provided to allow the Soil Campaign to :

- 1) Make all appropriate organizations take these proposals into account, whether they are governmental or non-governmental institutions, and in particular those concerned with the environment and development.
- 2) Work towards coherence in the actions of those working towards these objectives, by organizing the coordination and the mutual assistance, to be carried out at all levels, local, national, regional and international.

Given the importance of the task, it will be useful and helpful if the Soil Campaign becomes an organization that allows it to meet the challenges. It could be launched as an international NGO, a foundation or another structure. The decision has not yet been made.

# I

## **The Rehabilitation of Soil in Popular Culture**

**Educating, informing and communicating: An absolute priority.**

**Furthermore, a strong symbol: The World Soil Day.**

One of the findings of the Klingenthal Soil Symposium\* held in May, 1998 [see sheet 3] was that there have been cultural references concerning soil throughout history, and some of them still exist in customs and folklore. In the diverse representations of ancient human societies, the soil, by virtue of its food production function, has occupied a privileged position. Soil has contributed toward shaping the lifestyles and mindsets of these societies. Social systems reflected soil conditions and vice versa. The management of soil fertility was at the heart of this connection. Later on, attempts to control the biomass production function of soil by means of science and technology; urban development and the differentiation between city and countryside; and finally the widespread teaching of standard agronomy have all ended up by splitting societies from the land and from the original culture and feelings associated with it.

The result is that nowadays, despite the considerable accumulation of scientific knowledge on soil:

- 1- The teaching of soil-related knowledge at primary, secondary and university level has not evolved a lot, and in places it has even regressed. In most countries of the world, soil as a subject is completely absent from primary education. There is almost general agreement about the failure of higher education in soil science; reality shows that it does not have much impact on the students. This failure is related in particular to the fact that soil topics are not taught within natural sciences nor as a social, economic, cultural or historic factor.
- 2- Information and communication systems, though attracted by environmental issues, omit soil as if it did not play any environmental role.
- 3- Society, as a whole, seems to have little interest in soil.

The rehabilitation of soil in everyone's culture requires setting up educational strategies that combine teaching, information and communication, turning the soil into a both unattractive issue and a concern, as was

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\* See "Sols et Sociétés. Regards pluriculturels". Rabah Lahmar et Jean Pierre Ribaut. Editions Charles Léopold Mayer, 2001, 218p. ISBN 2-84377-053-X

recommended at the Prague Conference\* of August 2000. This attraction has to do with its beauty, its wonder, its diverse morphology, its distribution in landscapes and its links to humanity and to all forms of life, as well as to rocks, air, water, and other features and substances. The concerns have to do with the economic, social and political costs provoked by widespread negligence in soil management.

Concretely, this strategy needs to seek actions on several fronts, described in the next.

#### **I.A. In the domain of conventional education:**

***Proposal 1.*            **Setting up teaching systems that ensure an Adequate Knowledge of Soil, indispensable for all citizens of the planet. This teaching should be built on the fact that soil is a natural body and cultural heritage fulfilling basic functions.****

The **Adequate Knowledge of Soil** is necessary on the one hand in order to rehabilitate soil in popular culture and on the other hand, in order to stress the need to preserve it.

This knowledge should be acquired in two stages:

A first stage starts in the kindergarten, or at least at the beginning of primary (compulsory) education. It seeks on the one hand to lead children to make direct contact with soil and to undo parents' prejudices such as: "Do not get dirty with mud!" and, on the other hand, to help them to integrate soil in their imaginary representations. All this needs to be accomplished with the assistance of appropriate tools, according to each family's language and culture [see sheet 4]. Existing sand pits and clay modelling sessions provide a foundation, but primary schooling seldom includes an appreciation of soil as a whole.

The second stage comes in secondary school. It involves communicating the need to know and protect the soil, with the support of the naturalist approach to soil, namely soil as a structured natural milieu. This stage enables discovery of soil systems and their multipurpose nature, as well as the links between the soil and the diversity of life forms and habitats. Likewise, it needs to show, by means of concrete examples, the social and economic consequences of good and bad soil management practices.

***Proposal 2.*            **Setting up harmonized higher education curricula concerning soil that ensure a common knowledge base for all the disciplines that deal with soil.****

Curricula for degrees that enable the practice of soil-related professions and trades, either in the realm of scientific research or in operational situations, should ensure the same level of obligatory knowledge. This involves training in Agronomy, Ecology, Environment Sciences, Forestry, Hydrology and Civil Engineering as well as in Geography, Topography, Urban Planning, Architecture, Land Use Planning, Landscaping,

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\* See "Soils in Central and Eastern European Countries, in the New Independent States, in Central Asian Countries and in Mongolia: Present situation and future perspectives". R. Lahmar, M. Dosso, A. Ruellan and L. Montanarella Eds. EUR 19723 EN, © European Communities, 2000. 421p.

Archaeology, Economics, Sociology, Politics and Administration. The last four disciplines are Sciences, the breeding ground of State and International senior civil servants and of political leaders.

This heading is about establishing common knowledge for all these disciplines, with various agreed curricula or items that will differ from subject to subject, as common sense dictates.

These teachings should involve not only the fundamental and practical aspects of soil science, but also the historic, cultural, social and economic features.

**I.B. In the domain of popularization and public awareness:**

***Proposal 3.*            **Setting up and monitoring innovative educational practices based on the concept of diversity: drawing from the range of knowledge taking account of the multifarious of teaching, information and communication resources, continuously adapting the process to changing situations.****

In practice, and according to experience, popularization will require a range of complementary tools, adapted to social, economic, cultural and historical settings [see sheets 5 and 6]. These will include:

- Participatory meetings and gatherings for the public at different occasions, in different places and with various emphases; training courses and seminars to specific audiences (practitioners, instructors, teachers etc.). A continuous training system and programme can be envisaged, involving several levels.
- Field visits that enable seeing, touching, feeling etc to discover the reality of soil.
- Fixed or travelling exhibitions.
- Publications, including the written press, comics, children stories, awareness-raising leaflets etc [see sheet 7].
- Radio and television programmes.
- Audio and video products, CD and DVD-ROMs, web sites (distance learning).

This will therefore be a major operation that will require strong commitments and substantial means. Information and communication systems should be involved in order to launch and monitor the endeavours and to disseminate results as they come to hand. [see sheet 8].

Moreover, for this educational scenario to succeed, the following requirements need satisfying:

- Strengthening the initiatives of individuals and non-governmental organisations involved in the domain of soil education [see sheets 5, 6 and 7].
- Assessing popular knowledge regarding soils. Learning about soil from farmers will be useful and often salutary experience for soil surveyors, soil chemists, soil physicists, geomorphologists and other specialists.

- Networking these initiatives and working in close collaboration with the Soil Education and Public Awareness Commission of the International Soil Science Society, national scientific bodies, educationalists, artists, sociologists, economists, historians, archaeologists, anthropologists etc in order to design and prepare the curricula and teaching materials.
- Stirring up the interest of the media, governmental agencies, non-governmental organisations and national, regional and international entities dealing with childhood, education, culture, international cooperation and research, whose priorities should be reviewed.

**I.C. A monitoring and coordination system for endeavours pertinent to soil:**

***Proposal 4.*            **Setting up an analysis, support and coordination system for different educational initiatives.****

Education is a major issue and society must question itself continually, notably through the teacher-learner relationship and who teaches what to whom. All educational endeavours should be supported by a monitoring and coordination system, which, in particular, should be charged with:

- continuously analysing successful or less successful educational initiatives undertaken in a range of contexts, and suggesting amendments and improvements;
- creating adequate conditions for the exchange between the producers of information useful for the educational process (scientists, technicians, holders of popular knowledge etc), the people in charge of designing and preparing teaching material, and soil educators;
- creating the conditions for the exchange of experiences between the various actors involved in soil educational endeavours.

**I.D. A strong symbol:**

***Proposal 5.*            **Setting up the World Soil Day.****

No less important than already existing memorial days such as World Food Day, World Water Day, World Tree Day, we strongly suggest establishing a World Soil Day.

This day will be an occasion for worldwide popular, scientific and cultural events and for debates on soil issues. It will also enable carrying out state-of-the-art reviews on the progress of all soil-related undertakings, at all levels, by all the stakeholders: governments, NGOs, international agencies, public and private enterprises, and individuals or unaffiliated groups.

This day will be an auspicious occasion for promoting information and communication systems, educational programmes, and artistic shows and festivals worldwide [see sheet 9]. This is also a way to popularize rapidly the soil and issues relevant to it.

We propose **20 March the as World Soil Day**. This proposal seems convenient because the vernal equinox occurs on 20 or 21 March and it would be fitting that the World Soil Day falls close to the World Day of the Tree (21 March) and World Water Day (22 March).

## II

### The Duty to Preserve Soils

**The protection of soils is a precondition for peace and prosperity**

**Soil is a limited resource; it is a key factor in global food security\* and environmental health. Sustainable use of soil and satisfactory land management should be a permanent duty for all. Soil must be included in the field of governance.**

We live and we grow on a globe whose soil resources are physically limited in space and also in time, on account of their slow recovery rate.

Soils are fixed in geographical space but, taking into account their multifunctional nature [see sheet 1], all soil management, even at the local level, has global consequences that affect all the other life forms of the planet. Indeed, the flows of solid, liquid and gaseous matter that reach or leave the soil in a given place of the world cross boundaries - these can be the geographic limits of plots, municipalities, provinces, countries and even continents.

Therefore, in order to increase the likelihood for world food security and environmental quality - as a precondition for social stability, peace and prosperity - it is necessary to adopt utilization and land management practices that transform soils and their functions as little as possible, or at least that do not lead to irreversible degradation. If enhancement of beneficial soil features can be achieved, that is a welcome bonus.

Since private property rights and national sovereignty are both exercised over soils, regulatory systems are required at all governance levels - local, national, regional and international - in order to redirect current human activities towards sustainable soil utilization.

For these regulations to be efficient, they need to draw their strength from local, national or regional levels and from legislation rooted in popular awareness and demands, as was recommended at the Prague Conference of

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\* An International Conference co-organised by the Soil Campaign, the Evangelische Akademie Tutzing, the Schweisfurth Foundation and the European Soil Bureau was held in April 2001 at Tutzing in Germany on the topic: "*People Matter- Food Security and Soils*". Proceedings are under preparation.

August 2000. They need to build on the acceptance by national states and by all stakeholders of the obligation of preserving living conditions on Earth. Two principles must be observed:

- The land property and land use rights should be made dependent on the “**principle of good soil management**” which exclude strictly any soil pollution, any damage or destruction to soils or to their functions.
- World states are sovereign in using their soil resources according to the United Nations Charter and to the precepts of international law. But, they must do this in accordance with the “**principle of sustainable development**”.

Regulations should first seek to conserve and maintain a balance between the different functions of soil and prevent conflicts over its utilization, and, in extremely grave particular circumstances, give priority to the conservation of all soil ecological functions (production, transformation, regulation and genetic reserve perpetuation) which are essential for maintaining natural balances and the diversity of life.

#### **II.E. At local and national levels:**

We propose:

**Proposal 6.** To introduce incentives and enforce regulations and laws based on a broad participatory process involving all stakeholders, including the policy makers and authorities, as well as producers and land users themselves, the scientific community and civil society.

Regulations are nearly always implemented by administrative units but considerations should as far as possible be based on geographical units such as watersheds or landforms.

**Proposal 7.** As soils are local, their sustainable management should first be a local authority responsibility. It is necessary to highlight and to reinforce all existing local initiatives such as the *Soil and Land Alliance of European Cities and Towns* and the *Soil Network of the International Council for Local Environmental Initiatives - ICLEI*. All these initiatives must develop easy intercommunication to allow them to exchange their experiences and to benefit from the contacts made.

More may be learned about the European and ICLEI initiatives themselves in annexed sheets 10 and 11. These high profile activities commit the local authorities, ie the first level of governance, to seek solutions leading to sustainable use of soil and good management of land. Local authorities have direct access to their land and to its users. They have legal and technical instruments of spatial planning. They can play a key role in the achievement of sustainable use of soil and land management.

Local governance must be tapped to the full in future to address soil and land issues.

## **II.F. At regional and international levels:**

Although the need to protect soils was felt half a century (and more) ago, it was not until May 1972 that the Council of Europe adopted the first soil charter ever: The *European Soil Charter*. It was followed almost ten years later by the *World Soil Charter* (November 1981) drawn up by the Food and Agriculture Organization (FAO). The World Charter on Nature, adopted by the UN Assembly in October 1982, devotes just a few clauses to soil. Yet all these documents have no juridical value - they just state principles or formulate recommendations. Therefore, the strong visible effects needed continue to be absent.

Since the Rio Summit (1992), the international community has promulgates three international law agreements<sup>1</sup> that cover soil-related issues, but there is thus far no convention on soil as an entity and a resource, with all its dimensions. However, from 1972 to 1996 a number of recommendations were made - particularly in Europe - for creating a binding global juridical instrument for soil protection.

In 1997 civil society launched an approach to create an international agreement on sustainable soil use, better known as the *Tutzung Initiative for a Soil Convention* (TISC). This initiative was rapidly supported by the scientific community and by a number of NGOs. It received the active support of the Soil Campaign, the Alliance for a Responsible, and United World, and the Charles Leopold Mayer Foundation [see sheets 12 and 13].

In 1998, the protocol of the implementation of the Alpine Convention in the field of soil protection was adopted at Bled (Slovenia). The Alpine Convention is the convention to protect the Alps, 1991. It commits Austria (depository), France, Germany, Italy, the Liechtenstein, Monaco, Slovenia, Switzerland and the European Community.

The TISC is currently subject to debate. It is leading to and stimulating, directly or indirectly, many other initiatives of which we have already mentioned two:

- The *Soil and Land Alliance of European Cities and Towns* [see sheet 10];
- The *Soil Network* of the International Council for the Local Environmental Initiatives - ICLEI [see sheet 11];

We should also mention:

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<sup>1</sup> - The Convention on Biological Diversity (CBD) was adopted in Nairobi and Rio de Janeiro in 1992 and came into force in 1993;  
- The Framework Convention on Climate Change (FCCC) was adopted in New York in 1992 and came into force in 1994;  
- The Convention to Combat Desertification (CCD) was adopted in Paris in 1994 and came into force in 1996.

- The *Intergovernmental Panel on Land and Soil (IPLS)* proposed during the 4<sup>th</sup> Conference Of Parties (COP4) of the UN-CCD in Bonn December 2000, for the protection of soils and land and to stimulate sustainable use of soils globally – [see sheet 14].

The Commission of Environmental law (CEL) of the World Conservation Union (IUCN) has established a working group on soil: *Sustainable Soils Working Group* –( SSWG) to study the feasibility of legal instruments to protect soils, and to formulate proposals. Moreover, during the last IUCN World Conservation Congress in Amman October 2000, a very important resolution was adopted: regarding *legal aspects of the sustainable use of soils* [see sheet 15]. This is a first! Progress on the legal front deserve to be emphasized and their continuation should be encouraged and supported.

We propose:

#### **II.F.1. To reinforce existing mechanisms and instruments:**

***Proposal 8.***            **To encourage the implementation of regional and subcontinental initiatives aiming at sustainable use of soil such as the protocol of Bled within the Alpine convention<sup>2</sup> and continental protocols and annexes to international agreements CBD, FCCC, and CCD.**

***Proposal 9.***            **To emphasize and reinforce all initiatives dedicated to reaching the objective of an international legal binding instrument to safeguard soil. Two initiatives are particularly concerned:**

- **The proposal for an Intergovernmental Panel on Land and Soil (IPLS) with regard to the protection of soil and land, and to stimulate sustainable use of soil worldwide. This should be inaugurated as quickly as possible**
- **Works and the findings of the Sustainable Soils Working Group (SSWG) set up by the Commission of Environmental law of the World Conservation Union (UICN), as well as the resolution on the legal aspects of the sustainable use of soils of the IUCN World Conservation Congress in Amman October 2000.**

#### **II.F.2. To protect fully natural resources:**

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<sup>2</sup> Protocol of the implementation of the convention to protect the Alps (Alpine Convention, November 1991) particularly in the field of soil protection. It was adopted at Bled in October.1998 and concerns Germany, Austria (depository), France, Italy, Liechtenstein, Monaco, Slovenia, Switzerland and the European Community.

**Proposal 10.** To establish a set of binding rules, such as an international convention on the sustainable use of soil and on land management. The ratification by all states of such an instrument is not only desirable but also urgent.

### **III.F.3. To relate soil and International trade:**

Trade arrangements often lead to negative impacts on the environment and neglect soil. There should be incorporation of soil issues in every regional or international trade decision making process such as those undertaken by: MERCOSUR, ACP, EC and WTO<sup>3</sup>...

Regional or global bodies including FAO, UNEP and the World Bank should take into consideration the need to protect soil and the cost of soil degradation when negotiating or making decision.

It will be necessary that soil scientists, soil NGOs and economists work hand in hand in addressing soil issues. Attention of financial bodies, in particular, should be drawn to the fact that funding programmes and schemes which lead to soil degradation causes at least three major losses that can lead to social, economic and politic disturbances, namely:

- soils and soil functions are lost;
- this is one reason why many developing countries are getting into debt;
- it is also one reason why loans cannot be recovered.

The proposal is therefore:

**Proposal 11.** To mention soil and impacts on soil in all regional and global negotiations on trade and to introduce the topic soil into the processes that lead to making regional and international trade agreements.

### **II.F.4. To relate soil and human poverty:**

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<sup>3</sup> MERCOSUR = MERCado COMún del SUR, common market of South America since 1995 Argentina, Brazil, Paraguay and Uruguay, who formed a customs union.

ACP = Agreements on cooperation and development signed in Lome in 1975, 1979, 1984 and 1989 between the European Communities and some countries of Africa, the Caribes and the Pacific (ACP): Conventions of Lome - I, II, III et IV.

EC = European Community

WTO = World trade organization set up in January 1995 for the implementation of international agreements on trade signed within the framework of the GATT.

There is a strong relationship between soil degradation and human poverty<sup>4</sup> which affects rural population more than urban. The first victims include smallholders living directly and solely from soil<sup>5</sup>. This means that one cannot expect any soil improvement worldwide without social improvement. That is why we suggest steps:

**Proposal 12.** To encourage all initiatives aiming at poverty alleviation worldwide. Priority in financial support should be given to projects that target smallholders.

## **II.G. Achieving transformations:**

**Proposal 13.** Setting up mechanisms and incentives to facilitate transformations in the different activities in relation to soil, in order to underline the primacy of sustainable soil management.

Soil is basic for life; sustainable use of soil is imperative. Therefore, profound modifications should be undertaken in a number of sectors (agriculture, industry, urban development, tourism, craft-making, services, leisure, etc), as well as in their distribution across terrain, since these activities need to be adapted to the constraints imposed by the soil and by ecosystems. The soil environmental role should be brought out and stressed more in future [see sheets 16 and 17].

### ➤ **Agricultural activity**

Agriculture is now one of the main sources of soil degradation, and requires major changes. Agricultural land users should stop altering and even degrading the broad ecological functions of soil, as do intensive agriculture (due to an excess of tilling, fertilizing, phytosanitary treatments and wastewater from inefficient irrigation schemes or poor animal husbandry) and mining agriculture (due to the lack or the insufficient management of soil fertility). This means that new kinds of agriculture need to be set up, which suit not only environmental conditions and natural fertility renewal rates, but also the conditions and needs of human societies.

This transformation should be accelerated by the perspectives that carbon sequestration by soil offer [see sheet 17]. At least two concepts should be emphasised: soil carbon managing to impose a limit on global climatic warming, and agriculture founded on the management of soil fertility, for which both organic matter and biologic activity that it maintains are key elements.

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<sup>4</sup> See :

- Des sols et des hommes. Récits authentiques de gestion de la ressource sol. Rabah Lahmar, Eds Charles Léopold Mayer, Paris, 1998. ISBN 2-84377-038-6, 118p.

- Soils in Central and Eastern European Countries, in the New Independent States, in Central Asian Countries and in Mongolia: Present situation and future perspectives". R. Lahmar, M. Dosso, A. Ruellan and L. Montanarella Eds. EUR 19723 EN, © European Communities, 2000. 421p.

- People Matter.- Food Security and Soils, Proceedings of Tutzing Conference, April 2001, under preparation.

<sup>5</sup> See

- Histoire des agricultures du monde. Du néolithique à la crise contemporaines. Marcel Mazoyer et Laurence Roudart. Paris, Ed. Seuil, 1998, ISBN 2-02-032397-4, 531p.

- Famines, le retour. René Dumont. Ed. Politis arléa, 1997, ISBN 2-86959-344-9, 57p.

But, taking into account the current control of the market on profit making imperatives, on production styles and on the commerce of agricultural produce, setting up new kinds of agriculture is going to require tremendous willpower on the part of all actors and stakeholders. In particular:

- 1- States should commit themselves not to turn food supply into a form of blackmail against other states or against specific social groups.
- 2- States should commit themselves to ensure that the food products they sell on the international market are obtained under the same conditions as those marketed in the country from which they came; this commitment is essential in order to avoid the development of two parallel agricultures: export oriented and local consumption oriented.
- 3- Under no circumstances (notably when development assistance is invoked) should states be allowed to proliferate industrially polluting agricultural activities in developing countries. No exceptions to this rule should be accorded under any pretext, not even that of development aid.
- 4- The international trade of food produce should be subject to principles of human solidarity and equity; compensation and preference systems should be utilized accordingly.
- 5- Changes in consumption patterns should be encouraged, in order to limit waste and encourage the reorganization of agriculture; consumers can and should, by virtue of their choices, direct the way soil and natural resources are used, towards sustainable utilization goals. Biological agriculture, organic agriculture and the privileged purchase and consumption of local produce, imposed by the consumer and supported by the action of several non-governmental organisations, are now a reality in a number of countries.

➤ **Industrial activity**

The multitude of polluted sites today and the difficulty of restoring them should lead to increased caution when setting up the industrial activities of the future. At least three principles should be compulsory:

- 1- Avoid locating industries on or near land whose soil is especially or even uniquely devoted to ecological functions, particularly in vulnerable or threatened habitats (hot spots).
- 2- Include in the design of any industrial activity the provision for rapid and easy soil rehabilitation in the wake of permanent shutdown activities, and the minimum pollution when working.
- 3- Submit industrial activity to the principles of industrial ecology, in order to minimize inputs (energy, water, raw material) and discharge at the end a limited amount of waste into the soil and the environment.

➤ **Architecture, urban development and land management**

All these activities should be fully reviewed and revised so as to:

- 1- Consume as little surface area of soil as possible. A paved soil loses most of its other functions; efforts need to be made in particular to replace tar or concrete pavement in some localities (public places, parking lots, roads, factory sites, airports etc) by other materials that offer the same comfort and serve the purpose but that enable rainwater, air and biological activity to flow through.

- 2- Mitigate the physical and cultural rifts between the city and the countryside, between urban and rural; contemporary societies do not live any more with the soil but on it, as was observed at the Prague Conference of August 2000: this is dangerous.
- 3- Examine and, where necessary, reshape tourism, craftwork, leisure and services according to their impact on soil and in order to maintain the vitality of the countryside.

This means that tomorrow's habitat and tomorrow's cities, as well as being replanned regarding their land use, need to be reinvented.

### III

#### **Human solidarity to save a worldwide heritage**

**Soil is a natural and cultural heritage of humanity. It is a spatial and temporal link between living beings. It is a factor of interdependence and crucial seat for biodiversity processes and species survival.**

- 1- Soil influences and has been influenced by the development of human societies since at least the Neolithic era. In particular many human societies have improved or even created soils and assured the continuation of human life under harsh conditions in regions with poor soil (the podzols of northern Europe), mountainous regions (Mediterranean basin, Himalayan and Andes ranges), arid climates (Saharan oases, the Dogon highlands etc). In this fashion soils are truly the combined work of humans and nature, and soils therefore can be classed as a Cultural Heritage according to Article 1 of the Convention for the Protection of World Cultural and Natural Heritage (UNESCO 1972). To this can be added the cultural function of soils; they preserve human history, and are a temporal link between humans.
- 2- Soil is a factor of human interdependence, a spatial link between living beings. Soil degradation, which is part of the consequences of human influence on the climate (and beneath the ground surface, the pedoclimate) and on the flows of gases and water in all of Earth's landmasses, shows this to be a daily reality. In fact;
  - a) there is no longer any "natural soil", not even in the Amazon forest,.
  - b) the consequences of soil degradation are global; they concern humanity as a whole, even if the causes of degradation are very local. Emissions of carbon dioxide, methane and ammonia from the soil spread into the atmosphere; the contamination of continental - surface and underground - water and that of sea water are linked to soil pollution.
  - c) soil erosion is a factor for the downstream transfer (sometimes across national boundaries) of fertility (organic matter, clay, silt), pollutants (nitrates, pesticides, heavy metals), and biodiversity (grains, cells); we should remember that a number of the earliest human civilisations were born along rivers (Tigris, Nile, Indus, Amazon are examples), where agriculture was practised on soil deposited from upstream erosion.

d) soil, by stocking organic matter, offers the possibility of sequestering atmospheric carbon dioxide [see sheet 17] and of thus mitigating the greenhouse effect and climate change.

Thus, soil is a true heritage that humanity is obliged to protect. This requires necessarily mutual assistance, a human solidarity. The solidarity needed will not just proceed from practising the usual assistance such as help rich to poor or from strong to weak. It has to proceed from the conviction that all humans are sharing responsibility with regard to natural resources and the biosphere. In other words, this means that what may happen to a plot of land anywhere is not solely the consequence of the management of the land owner or user.

Human solidarity can take place in particular in two ways:

- by mobilizing knowledge useful for soil conservation, and making it available to all;
- by mobilizing financial resources to ensure the effectiveness of soil protection and rehabilitation measures.

The success of such a strategy depends on raising civil society's awareness and welcoming the involvement of all stakeholders, tantamount to all people on Earth.

### **III.H. Gathering and sharing knowledge on sustainable soil uses:**

#### ***Proposal 14. Establishing soil information networks.***

The repeated failures of high-tech endeavours in soil protection operations have led during the last few decades to research efforts that seek to gain insight into popular knowledge and incorporate it into natural resource - and especially soil - conservation practices. The first scientific findings have shown the need to preserve what remains of coherent popular knowledge as soon as possible, so as to prevent a permanent loss for humanity.

Both scientific knowledge and popular knowledge on soil conservation and land management must be gathered and shared. Popular issues should incorporate indigenous language terms for soils and landforms, their significance within local and similar communities and, by compiling glossaries and comparing them, overviews of what communities think about soil features and land suitability classes.. All these initiatives should constitute global information networks. They may be implemented, for example, through **soil and land resource centres**.

### **III.I. Mutual assistance in addressing soil problems:**

Conserving soil in order to prevent its degradation, restoring degraded soil, and improving and building soil require large amounts of financial resources at the national and global levels.

#### **We suggest:**

***Proposal 15. The mobilization of funds for soil conservation, restoration, improvement and where practicable creation. One can imagine the initiation of a World Soil Fund from which***

**volunteers et financial donors would support activities leading to the improvement of the soil situation worldwide.**

**III.J. NGOs devoted to soil and environmental issues:**

NGOs have not given soil issues the priority they need. They have concentrated on climate change, biodiversity and water provision. There are no NGOs acting specifically in the field of soil and land: for a Moldovan exception to this general statement see sheet 7.

Success of campaigns, lobbying and actions aiming at sustainable soil use depends on the possibility of involving representatives of society, notably those acting on environmental issues.

The suggestion is that:

***Proposal 16.*        **Awareness of environmental NGOs should be raised to the fact that soil is a key component of the environment. It should be one of the major items that they address in their fieldwork.****

Thanks to the functions it fulfils, soil is a key environmental element; it has a part to play in all the environmental spheres. Hence, in addressing environmental issues, sustainable use of soil and land management should be given a top priority in itself. It should be taken into account in the major other issues being investigated.

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## **Guidelines to implement the Soil Campaign proposals**

All the proposals mentioned in this document must be formulated as short, medium and long term objectives to be reached.

Achievement of these targets depends on the collaboration of a large number of stakeholders, people and institutions, and on availability of funds. Soil concerns all people- ordinary citizen, decision makers and public, private, national, regional and international bodies and institutions.

The Soil Campaign should continue to promote and to disseminate the ideas and proposals developed in this document. Conditions should be provided to allow the Soil Campaign to :

1. Make all relevant bodies and organizations take these proposals into account, whether they are governmental or non-governmental institutions, and in particular those concerned with environmental and development questions.
2. Work towards global coherence in the actions agreed upon, organizing coordination and mutual assistance between those working towards these objectives. These actions must be carried out at all levels- local, national, regional and international.

Given the importance of the task, it will be essential that the Soil Campaign adopts in the future a form of organization that allows its terms of reference. It could be set up as an international NGO, a foundation or another structure. The decision has not yet been made.

# APPENDICES

- Sheet 1: The Functions Fulfilled by Soil
- Sheet 2: Landmasses of the Developed and Developing Countries
- Sheet 3: The Klingenthal III Meeting
- Sheet 4: Tell Me About Soil
- Sheet 5: The erosive Process in Nazareno, Minas Gerais State, Brazil: A New Approach to Understanding Soil Degradation
- Sheet 6: Centro Técnico de Ciência do Solo (CTCS): A Brazilian Experience in Popular Education
- Sheet 7: The BIOS Organisation in Moldova
- Sheet 8: Soils - the Earth's Skin
- Sheet 9: Postage Stamps for World Soil Day
- Sheet 10: Soil and Land Alliance of European Cities and Towns
- Sheet 11: ICLEI Soil Network
- Sheet 12: Tutzing Initiative for a Soil Convention (TISC)
- Sheet 13: Support of the ISSS to the TISC
- Sheet 14: Call for an Intergovernmental Panel on Land and Soil (IPLS)
- Sheet 15: The IUCN World Conservation Congress Resolution in Amman 2000
- Sheet 16: An Integrated System for Better Knowledge and Management of Soil
- Sheet 17: Carbon Sequestration in Soil Through Land Management and the Main Environmental Consequences

## **The Functions Fulfilled by Soil**

According to current knowledge, soils are:

- **Biomass production systems; both the starting and the ending points for biogeochemical cycles. This production includes food for the living world, renewable energy and the materials that the living world, and notably humanity, uses in its constructions and its industrial activities.**
- **Substance transformation systems. The properties of soil enable it to carry out physical (physical reactors), chemical (chemical reactors) and biological (bio-reactors) transformations on the flows of solid, liquid and gaseous materials that lie in it or flow through it. This function turns the soil into an excellent treatment system for the wastes of human activities. The quality of the food chain, the water and the air depend on it.**
- **Regulation systems. This function is particularly important nowadays for water and carbon. Soils have properties that enable them to play a leading role in feeding underground aquifers and in regulating the hydrological regimes of rivers. Moreover, they store atmospheric carbon dioxide–(the main greenhouse-effect gas) in the form of organic matter. The sequestration of atmospheric CO<sub>2</sub> by soil is considered as one of the possible solutions to adverse effects of climate change.**
- **A gene reserve. Soil is a step for many biological cycles. Biological diversity in the soil is much higher than among plant and animal species on them. A number of living organisms are thought to remain undiscovered in soil.**
- **A memory. They bear witness to past human activities. Since they keep track of their own genesis and of the ways they have been used by human societies, they are a page in the history of nature and of human evolution.**
- **Physical supports for all human activities (agriculture, industry, transport, habitat, craftwork, leisure etc). They are a raw material for a number of human activities (e.g. industry, urban development, architecture, craft-making). They contain minerals that are sought by humanity.**

## Sheet 2

# Landmasses of the Developed and Developing Countries

George Murdoch

It is common to read about the populations of developed and developing countries in publications of the World Bank and United Nations. For instance the Human Development Report (2001) from the UNDP gives, on page 157, the world population as nearly 5.9 billion in 1999, of whom 1.3 billion were residents of the developed nations and 4.6 billion were in developing countries.

A different perspective is given when the area of the developed world is compared to that of the developing world. Huge population densities in India (currently about 300 per km<sup>2</sup>) and the eastern half of China (about 250 per km<sup>2</sup>) contrast with the global average of about 45 per km<sup>2</sup>-six billion people on 132 million km<sup>2</sup>. So developing countries have 77% of the world population but (see table below) only 58% of the world landmass.

Since soil abuse and deterioration are at everybody's door, from highly capitalized agriculture, some of which may be termed soil mining, and effects of industrialisation to the depletion of soil and vegetal cover in desperation by the poorest of the poor, it is no consolation that the developing world has less soil to despoil that its vast population might appear to indicate. Some 77 million km<sup>2</sup> is still an enormous fraction of the global soil resource, and Save Our Soil remains a highly appropriate slogan for rallying all communities on Earth in defence of this asset and endowment.

Regions	Population in 2000		Area (1)		Population Density per Km <sup>2</sup>
	Millions	%	Millions of Km <sup>2</sup>	%	
<b>DEVELOPED WORLD</b>	<b>1370</b>	<b>23</b>	<b>55.0</b>	<b>42</b>	<b>25</b>
United States and Canada	310	5	18.0	14	17
Europe	790	13	10.0	8	80
North Asia (ex Soviet)	110	2	17.0	13	6
Japan	130	2	0.4	<1	320
Oceania	30	1	9.6	7	3
<b>DEVELOPING WORLD</b>	<b>4630</b>	<b>77</b>	<b>77.0</b>	<b>58</b>	<b>60</b>
East China	1190	20	4.8	3.5	250
West China	50	1	4.8	3.5	250
India	980	16	3.3	2.5	300
Other Asia	1100	18	18.3	14	60
Latin America	510	9	20.7	16	25
Africa	800	13	25.1	19	32
<b>WORLD</b>	<b>6000</b>	<b>100</b>	<b>132.0</b>	<b>100</b>	<b>45</b>

(1): Excluding Antarctica, Greenland and Canadian Arctic island.

## The Klingenthal III Meeting

At the initiative of the Soil Campaign of the Alliance for a Responsible, and United World and Pax Christi France, persons from different cultures and spiritualities, representatives of civic society, administrators and scientists, met in a symposium 6 - 10 May 1998 in the Castle of Klingenthal, Alsace, France - to exchange ideas on the issue of "Soils, Cultures and Spiritualities".

The presentations and the debate were about many subjects: existing knowledge accumulated by soil science; perceptions, representations and lessons learned about soils in the different religions, spiritualities and native cultures (Bahais, Buddhists, Christians, Confucians, Hindus, Moslems, Jews, Shintoists, Taoists, Aborigines of Canada, Indians of Amazonia, Black Africans, Quechua of the Andes, Shamans of Siberia) and the Universalists. After these talks, concrete experiences were exchanged on the way soil is managed in uniform, multi-cultural and religious societies; the way soil issues are taken into account in teaching and communication campaigns; and how soil is integrated into the preoccupations of administrators, civil servants, local authorities, and non-governmental organizations. The symposium was fruitful. It ended up with the "**Declaration of Klingenthal III on Soils**" from which we have extracted the following .

We have observed that...scientific knowledge now allows us to identify clearly the importance of soil for the preservation of life on earth and the maintenance of global equilibria; to understand better the role of soil in individual lives, human societies, and diverse human activities; and to define clearly the threats to this natural resource. In the different cultures and religions represented at this symposium, references to the soil exist, and to the extent that these attitudes toward the soil converge, they encourage respect for this resource. But in reality, unfortunately, this is not always reflected in the preservation of the soil. A lack of awareness of the importance of soil is widespread in public opinion and among those who use or manage the soil directly. We consider that for human societies, the soil is the source of life, of well-being and fulfilment, and that whatever our scientific and technical status, the soil will remain an essential foundation for all human progress. In the diversity of our cultures and spiritualities, we must preserve the soil and all its functions for future generations. To this end, we must first change our daily behaviour towards the soil. We call on :

- 1- educational, information, and communication systems to become conscious, and to make others conscious, of the existence of the soil with its multiple functions and its importance for the life of our Planet.
- 2- all peoples to value their culture and popular traditions concerning the Earth land and soil, because they encourage an attitude of respect for this resource which at present many people only tend to see as a source of profit.
- 3- humans and human society to reexamine the illusion of liberty and systematic progress produced by science and technology, and to rediscover ways of using the soil that respect its diversity and the natural rhythms that renew its fertility, while guaranteeing a healthy food chain and excellent water quality.
- 4- decision makers at all levels (individuals, businesses, nations, and international organizations) to make judicious and responsible choices when deciding on future land use and development. Conflicting demands for the best soils must be resolved in favour of preserving the soil resource and its functions.
- 5- individuals and societies to adopt patterns of consumption that discourage the pillage of natural resources and that produce little waste, with maximum recycling, as many as possible of the residual products being destined for soils and the environment. Non-governmental organizations and associations for international collaboration have particularly important responsibilities here.
- 6- individuals and societies to be unified, to recognize the inalienable right of peoples to feed themselves, and to replace confrontation with cooperation and dialogue, which alone can find ways to counter the deterioration of soil and its functions.
- 7- the scientific community to more vigorously research the sustainable uses of soils by human societies in the diversity of their cultures and spiritualities. Nations and institutions must support these research efforts and the application of the results.

8- individuals and societies to initiate a dialogue among diverse groups possessing popular knowledge about soil use and between scientific and popular viewpoints, and to create conditions for the revival and continuous evaluation of coherent and useful forms of popular knowledge regarding the soil for the benefit of future generations and all humanity.

## “Tell Me About Soil”

### A Project of the Soil Campaign within the Intercultural Library of FPH

The absence of soil, as subject matter, in the basic teaching programme (3-11 years) as well as in secondary teaching (12-19 years) has been highlighted, at several international meetings by soil scientists and by representatives of civil society working for a sustainable use of soil resources.

This lack in general teaching, both public and private, is a serious handicap to popular awareness on soil issues. It is reinforced by the absence in the educational and para-educational networks (bookstores, libraries, media, ...) of specific educational materials on soil while there are some on rocks, minerals, water, plants, animals, mushrooms etc.

A minimum knowledge on soil is necessary for all citizens of the Earth with a view to the rehabilitation of soil in people's culture. This rehabilitation appears, today, as a prerequisite for the success of all policies of soil preservation, including through legal means. The community of soil scientists must contribute to this effort.

From the outset, the Soil Campaign emphasized, as one of its concerns, the necessity of teaching about soil as a prerequisite. It launches, in the framework of the “*Intercultural Series for the Future*” of the FPH, a call to the community of soil scientists for the production of educational references on soil intended for the general teaching.

In particular, the community of soil scientists has been asked through the IUSS bulletin to contribute to a first series of educational references for children. They were asked to prepare, in the framework of their own cultures, a two-page (6,000-character) soil lesson for 10 to 12 year old children.

The contributions will be presented and reviewed when the IUSS Commission on Soil Education and Public Awareness meets on the occasion of the 17<sup>th</sup> Soil Science World Congress in Bangkok 2002.

The adopted lessons will then be illustrated by a specialist and published under the title “*Tell Me About Soil*” - **Collection of Educational Material Regarding Soil**, addressed to 10 to 12 year old children. The patronage of UNESCO for this work will be sought, since its official acknowledgement of this and other tools useful for soil education would facilitate translation into other languages and world-wide distribution.

## **The Erosive Process in Nazareno, Minas Gerais State, Brazil: A New Approach to Understanding Soil Degradation**

**Rogério Martins Ferreira**  
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Environmental degradation is one of the most critical problems that we are facing these days. The solution of this problem, as has already been demonstrated, is technically possible. However, the effects of soil degradation frequently persist or establish themselves again. In this context, our study has the objective of developing an environmental education programme to control and stabilize the permanent gullies in the county of Nazareno, Minas Gerais State, Brazil. It aims to contribute with the development of awareness about environmental degradation subjects, particularly the ones that the region presents, specifically the gullies. As this programme has a permanent character, the continuity of the actions will be conducted by the local organizations that were capacitated and appointed for relevant tasks with the technical support of partner institutions.

The proposal is supported by the following interdisciplinary principals and dimensions:

1. ethical: project management in a democratic, participative and clear form, emphasizing citizenship and human rights aspects;
2. technical-ecological: control and stabilization of the gullies using bio-engineering techniques accessible and viable for small farmers, publishing of successful alternative technologies, diversification of agricultural activities, production and distribution of seedlings of natural and exotic species. Also essential will be inauguration of the environmental education programme and the promotion of seed collecting, planting group-work, interpretative excursions, lectures, courses and enabling of teachers and students to benefit from the community activities;
3. social-economical: adoption of alternative technologies of sustainable development, professional instruction in the gully control, seedling production, garbage utilization, horticulture, landscaping and educational tourism;
4. juridical: proposal of specific legislation;
5. political-cultural: development and enhancement of the local culture through the production of handicrafts with recyclable material, forming of local leaderships and organization of the community. The work methodology emphasise community organizations participating in the programme and explores the interaction of the component institutions with sustainable development. Understanding the historical and dynamic reality is the basis for defining interventions and desired changes.

### **Preliminary results**

The project began in August 2000 and will last until May 2002. The results presented here consider the perspectives and the management conducted by the Nazareno local community according to their own ideas and wants. To date, the project presents the following results:

1. ethical: social inclusion;
2. technical-ecological: reduction of soil loss, recovery of the natural fertility of the areas that are catchments for the gullies, production of 25,000 seedlings of native and exotic forest species, commissioning of a garbage separation centre, construction of the municipal garden, putting into effect environmental education in the school curriculum, reduction of bush fires for land clearing, and a halt to the deposition of garbage in inappropriate places;
3. social-economical: implantation of 3 ha of species useful for green manuring, planting of 25,000 forest species with potential to provide firewood, timber and fence posts, medicinal extracts, human and animal foods, increment of native fauna and enhancement of landscape; creation of direct and indirect jobs and a rise in the self-esteem of the community;
4. juridical: effective execution of the municipal law related to the environment and drafting of new, law proposals that would guarantee the sustainable use and occupation of the soil;
5. political-cultural: establishment of the Nazareno House of Culture, handicraft production and commercialization, formation of an artisan association, inauguration of the Municipal Environmental

Council (CODEMA), creation of a farmers association and of a non-governmental organization directed to environmental causes, verification and exploration of local knowledge.

## **Centro Técnico de Ciência do Solo (CTCS)**

### **A Brazilian Experience in Popular Education**

In order to combat ignorance of soil as a natural resource, and its consequences on the life of smallholders (domestic agriculture), CTCS was created in April 1990. This non-profit Brazilian civil association aims to several categories of people.

From 1985 to 1993, the people chosen for training sessions in various regions of Brazil came from the small farming producers sector (domestic agriculture), as well as agronomists and agricultural technicians. Since 1994, the public attending training meetings has been more diversified and has comprised:

- families of the agriculturists: women, children and teenagers;
- agronomists and agricultural technicians;
- professors of agricultural schools of 1<sup>st</sup> and 2<sup>nd</sup> degree, professors and pupils of the 1<sup>st</sup> and 2<sup>nd</sup> degree of all schools, rural or urban, public or private groups;
- a wide range of the public from housewife groups, town halls, health centres and associations' representatives, etc.

As regards the training of 1<sup>st</sup> and 2<sup>nd</sup> degree school teachers and agricultural school lecturers, it is necessary to underline the involvement of specialized: mathematics, Portuguese, history, geography, arts, agricultural techniques professors.

The public may be varied within a single training session. The selection criteria for the participants to each meeting are different.

The objective is that agriculturists and the public in general think anew about the soil, which means: reconsidering the importance of soil in the life of all, the properties of soils, their fertility and their behaviors towards plants, agricultural techniques and all sorts of amenities. This “re-appropriation” starts with a descriptive survey of soil and with interpretation, on the land, of their morphology. This path proved its accessible and appreciated by all in particular because of its agronomic efficiency relationships.

Other subjects such as soil-related knowledge (biological, chemical, physical, mechanical), soil-plant relations, developing and enhancing, are taught according to fieldwork, concentrating on morphological data.

While using the morphological approach, the CTCS makes it in an interdisciplinary perspective of setting soil-related knowledge in the context of other problems such as use of the soil as a natural resource, social and environmental aspects, quality of life of the farming and urban populations, equitable distribution of earnings etc.

A set of teaching material has been progressively built up. It contains films, leaflets, books, slides, etc.

## The BIOS Organisation in Moldova

Claudia Partole

The Non Governmental Organization BIOS was created in 1994; it aims at sustainable soil use mainly through raising public awareness. BIOS has developed and implemented various activities for all categories of the population. Elena Bivol and Valentin Cibotaru have just published a book of fairytales, a genre which is basic for the education of younger children.

This book was written by children and presented in different localities all over Moldova. It had a great impact on children and their parents. Plenty of traditional elements of popular Moldovan tales lie hidden within children's minds and drawings and they are written about with a lot of invention and imagination.

In schools, the teachers teach schoolchildren how to protect soil, but when they return home and see their own children playing in the mud, they yell at them for getting dirty. At such a moment, we do not realize that we, parents, form the negative attitude to soil. Why, in different ambiances, do we treat the same problem differently?

Maybe the time has come to say to children that being dirty is not so terrible and they may come closer to soil. Maybe the time has come to join our efforts in preserving our soils: scientists –to find simpler words in describing their research; farmers to be more sensitive to researcher's advice; NGOs to be flexible and promote ideas of soil sustainability to all groups in the population; teachers to promote only positive attitude to our soils; writers to write and promote the ideas of our main terrestrial wealth. We can succeed in soil preservation only by joining our efforts.

We, with the soil, should try some sound friendly advice brought about by mutual networking. Maybe some practices known by old farmers in Mongolia. Maybe some methodology used by a young farmer near Montpellier. Maybe some plan used by a soil researcher in Monterrey. The secret is to collect them all together and give them to the World.

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Avere vazuta si nevazuta – povesti despre Maria sa Solul. Chisinau 2001, ISBN 9975-78-092-X.  
©NGO Bios, 95p.

## Soils – Skin of the Earth's

### A project working towards a sustainable utilization of soil

**Peter Heller**

[filmkraft@t-online.de](mailto:filmkraft@t-online.de)

Since 1999 the Soil Campaign has been participating with Peter Heller, a well-known German filmmaker, in setting up and launching this project. It foresees:

- Preparing a multimedia kit called “Soil - Skin of the Earth ” in different mass media in a Franco-German campaign during the year 2002. In this context, a 240-minute evening programme is planned on the French ARTE television channel (in cooperation with the German ARD channel) with the title It's Dirty - the Soils of the World”, as well as a series of radio programmes in cooperation with the “Frankfurter Hörfunkagentur IAD / International Audio Services.
- The publication of articles in the journals of the different German and French journalists' associations; the production of an educational film for German and French schools; several exhibitions, and a DVD-ROM (German/French). In-depth and extended versions of these materials will then be produced for secondary schools and for adult education.

The team behind this project includes currently: Prof. **Mireille Dosso** (CNEARC Montpellier; SC); Prof. **Alain Ruellan** (CNEARC Montpellier; SC); Prof. **Rabah Lahmar** (Charles Leopard Mayer Foundation, Paris; SC); Dr. **Martin Held** (Protestant Academy Tutzing), Prof. **Armin Reller** (Augsburg University); **Peter Heller**, filmmaker and producer of award-winning films such as “Jungleburger” and “Love of the Empire”, (Filmkraft, Munich.); **Heiko Feld**, documentary film maker (Feldfilm, Munich)and **Sylvie Banuls**, filmmaker (Lopevi Images, Paris).

## **Postage Stamps for World Soil Day**

**George Murdoch**

The World Water Day and some other international events are commemorated by issues, from time to time, of postage stamps by interested countries. After the World Soil Day has become established, single stamps or sets of two or three could be issued as an awareness heightening device. This could be in 2005 or 2006, depending on progress.

Simple designs for the stamps will be more telling, eg colourful profiles of soils with high land use capabilities, and the minimum of lettering, probably solely *Save our Soils to Sustain our Societies* with at another place on the stamp *World Soil Day 200X*, all in the appropriate local language plus the country name or logo. Countries normally need more than 18 months warning to be able to fit a stamp or set into their sequence of issues.

## Soil and Land Alliance of European Cities and Towns

[bodenbuendnis@osnabrueck.de](mailto:bodenbuendnis@osnabrueck.de) ; <http://www.bodenbuendnis.org>

The idea of a **Soil Alliance of the European Municipalities** was presented in Bolzano, at the international annual conference of the Climate Alliance's Workshop, May 2000. It was underlined in the debate that soil plays an important role in terrestrial climate and that local authorities have special responsibility in the management of their land and soil. The protection of soil and, where feasible, amelioration of climate are necessary for sustainable development.

In October 2000, also in Bolzano, a workshop was held coorganised by the Italian Agency for Environment and Health and Safety Standards, the Protestant Academy Tutzing and IG Soils in Switzerland led to the foundation of the ***Soil and Land Alliance of European Cities and Towns***. The manifesto of the Soil and Land Alliance of European Cities and Towns is now available in several languages.

In the preamble of the manifesto, it is stated that cities and towns have a key role in the protection of soils at national, regional and local levels. This role is justified by the fact that on the one hand, cities and towns have a direct and immediate access to the land and to its users; and on the other hand, they have various instruments of development planning and land law related to property rights. They have the possibility therefore to encourage and to enforce the sustainable use of soil.

The manifesto recognises the responsibility of the local authorities in the management of their soils and underlines the global character of the consequences that ensue. The main objective of the alliance remains the sustainable use of all types of soil.

## ICLEI Soil Network

<http://www.iclei.org>

*The International Council for the Local Environmental Initiatives (ICLEI)* is an international association of local authorities that operates as an international environment agency. ICLEI is dedicated to the prevention and the resolution of local, regional and world environmental issues; goal being to improve the capacity of local authorities in order to encourage sustainable development.

ICLEI was created in 1990. It is sponsored by the United Nations Environment Program (UNEP), the International Union of Local Authorities (IULA) and the Centre for Innovative Diplomacy. It is affiliated to IULA and has an official consultative status with the United Nations.

ICLEI has more than 350 members: cities, townships, counties and other local associations from all over the world.

In April 2000 the European secretariat of ICLEI held, at the Protestant Academy Tutzing (Germany), a workshop on the strategy to adopt in relation to soil issues. The workshop was a result of the interest shown by the local authorities in an international soil project for cities and their commitment for coordinated activities regarding soil and its sustainable use. From this arose appreciation of the need and the content of a municipal programme about sustainable use of soil, and the possibility to mount an international campaign.

The workshop has resulted in the agreement of all participants (plus experts and local authorities that are not yet members of ICLEI) to work jointly on soil issues. A *Soil Network* was proposed as a useful medium for the coordination and the orientation of the activities toward the protection of soil and its sustainable use. Two members of the ICLEI (Storstrom County in Denmark and Hanover in Germany) took the responsibility to coordinate the *Soils Network* and to develop the concept with the support of the European Secretariat of ICLEI.

## Tutzing Initiative for a Soil Convention (TISC)

Martin Held

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There had been recommendations for a binding instrument on soils as an international framework for actions at all levels from various experts and scientific bodies (German Advisory Council on Global Change 1995; Hurni et al 1996). According to these recommendations the Tutzing Initiative for a Soil Convention (TISC) launched a proposal for a Convention on Sustainable Use of Soils (Soil Convention) in 1997. The draft was written with the support of experts and representatives from NGOs and from all relevant disciplines (Tutzing Project "Time Ecology" 1998<sup>2</sup>).

This initiative underlines the importance of the UN Convention to Combat Desertification (UNCCD) as a first step for the sustainable use of soils and for best land management. This proposal is now being widely debated. Many persons as well as organizations are actively supporting and working on it for instance the International Union of Soil Sciences (IUSS), the International Soil Conservation Organization (ISCO), the Committee on Environmental Law of IUCN and many others. Foundations and NGOs from all over the world are actively supporting it eg "The Soil Campaign" of the Charles Leopold Mayer Foundation in Paris, Legambiente in Italy, Friends of the Earth in Germany and many others. This Tutzing Initiative has stimulated activities on all levels, from global to local, to be active and raise soil awareness and encourage measures leading to sustainable use of soil and best land management. For example, the parliament of Bolzano –South Tyrol has decided to support this proposal and take up the goals in the region (June 1999, unanimous vote). The proposal also engendered the idea of a Soil Alliance for Local Authorities complementing the Climate Alliance which was discussed and welcomed at the International Annual Conference of the Climate Alliance at Bolzano, Thursday 18 May 2000.

One outcome hoped for will be the Intergovernmental Panel on Land and Soil. This proposal was presented as a side-event at the Conference of the Parties (COP4) of the UN Convention to Combat Desertification in Bonn December 2000. It is now being discussed globally. For example, it is included in the UNEP Action Programme Related to Land and Soil which was approved by the UNEP Council in Nairobi, February 2001.

### References

- German Advisory Council on Global Change (1995): World in Transition: The Threat to Soils. Annual Report 1994. Bonn: Economica.
- Hurni, Hans et al. (1996): Precious Earth. From Soil and Water Conservation to Sustainable Land Management. Berne: International Soil Conservation Organisation.
- Tutzinger Projekt "Time Ecology" (1998<sup>2</sup>): Preserving Soils for Life. Proposal for a "Convention on Sustainable Use of Soils" (Soil Convention). Schriftenreihe zur politischen Ökologie. Munich: oekom publishers (French-English-Spanish-German). [other publications available edited at Paris, Mexico city, Lublin and Beirut; text is available in Arabic, English, French, German, Italian, Polish and Spanish.]

## Support of the ISSS to the TICS.

### ***This sheet comprises the preface to the publication *Conserving Soils, the Source of Life. Proposal for a Convention on Sustainable Soil Utilization****

*In August 1998, on the occasion of the 16<sup>th</sup> World Soil Science Congress, the proposal for an International Soil Convention was introduced for the first time to the World scientific community. This proposal is now known as the "Tutzing Initiative for a Soil Convention". The preface for this document, published jointly by Ökom-Verlag (Munich) and by Éditions Charles Léopold Mayer (Paris) is reproduced below:*

After considerable efforts on a worldwide level to protect air, water and biota (see UN Agenda 21, Convention on Biological Diversity, UN Framework Convention on Climate Change etc.) it has now become necessary to include the soil within the scope of environmental protection. Soil is a more complex medium than air and water. It may indeed be the most complex system known to science. Composed of inorganic and organic compounds, and solid, liquid and gaseous forms, it contains large numbers of living organisms and is the medium which supports life in its broadest sense. Unlike air, water, and biota, which are mobile systems, soil is site-specific, and although more stable than the other three systems, it shows great variability in space and time.

In general, soils are not known to humans, because they are hidden under their feet and they cannot use them in the way they use air, water or biota. But soils have at least six main functions for human life such as:

- The production of biomass by agriculture and forestry
- Filtering, buffering and transformation activity, between the atmosphere, the ground water, and the plant cover, protecting the environment and especially humans through the protection of the food chain and the drinking water reserves.
- Soils are biological habitats and gene reserves, much larger in quantity and in quality than all the above-ground biomass.
- Soils serve as a spatial base for technical, industrial and socio-economic structures and their development, e.g. for the construction of industrial premises, houses, transport systems, sports and recreation areas, dumping of refuse, and others.
- Soils are used as a source of raw materials, e.g. clay, sand and gravel for construction, and also as a reserve of water and energy.
- Finally, soils are a geogenic and cultural heritage, forming an essential part of the landscape in which we live and concealing paleontological and archaeological treasures of high value for the understanding of the history of earth and humankind

The problems of soil degradation and soil destruction are caused by the competition existing between these different forms of land use. Therefore, new perceptions and concepts for sustainable land use should be developed, which are conditioned by the bounds of nature. In this context, sustainable land use and protection of soil can be defined as the spatial (local or regional) and temporal harmonization of all main uses of soil and land, minimizing irreversible ones, which is not a scientific but rather a political issue.

Exactly in this sense, a new convention is urgently needed, and it is most interesting to recognize that in the last few years NGOs of different origins and with very diverse views and perspectives have started to care for soils, well knowing that the protection of soil through international legal instruments is a must if humanity is to survive, especially in view of the worldwide, rapid degradation of soil and the still growing world population.

The International Society of Soil Science (ISSS) is supporting this initiative for a Convention on Sustainable Use of Soils (Soil Convention). We do hope that it will find broad support, promoting new insights into the problem of soil degradation, and stimulating the public, politicians and decision makers to bring it to an agenda.

Prof. Alain RUELLAN  
President of ISSS

Prof. Winfried E.H. BLUM  
Secretary General of ISSS

N.B.: The International Soil Science Society (ISSS) became in 1998 the International Union of Soil Science (IUSS)

## Call for an Intergovernmental Panel on Land and Soil (IPLS)

DRAFT PAPER

Version 0.4 of 18 June 2001 (corrected September 2001)

### 1. IMPORTANCE OF GLOBAL LAND AND SOIL RESOURCES

Feeding the burgeoning population while preserving or enhancing the quality of global land and soil resources is becoming a daunting task. Land use change and food security in developing countries has been recognized by decision makers as a primary concern affecting environmentally sustainable development and political stability. In industrialized countries issues such as industrial soil contamination, urban sprawl and surface sealing are prevalent and threaten both the vulnerable soil resource and biodiversity. Soil is a limited non-renewable resource. Its economic services to humanity are manifold and frequently disregarded in environmentally sensitive developmental projects. The quality and quantity of land and soil resources is also intrinsically linked *inter alia* with freshwater supply, an environmental service threatened already in many parts of the world, with climate and with biodiversity. Preservation and care of soil resources and their diversity thus compares with the significance of preserving biodiversity and other environmental issues.

Land use and soil management still remains a secondary environmental topic. Despite progress related to drylands (e.g. United Nations Convention to Combat Desertification), the full scope of land and soil related environmental issues have not yet been sufficiently addressed. The UNCCD by extending its mandate to central and eastern European countries (see Annex 5 as adopted by COP-4, 2000) demonstrated the growing need for including the variety of land and soil degradation issues into the international agenda.

### 2. A GLOBAL CLEARING HOUSE NEEDED FOR LAND USE AND SOIL CARE ASSESSMENT

Land and soil degradation is a major global environmental problem. Yet, it has mostly been acknowledged as a local problem. It has traditionally gained more attention in drylands, while it has often been considered "only a local problem" in countries of higher latitudes. However, due to global population growth, concerns for food security and consequently an ever greater pressure on limited natural resources, such a position is no longer defensible.

There exists a broad range of relevant knowledge regarding land use and soil management. However, this knowledge is still largely kept within esoteric science sectors, globally very scattered, not reaching and not interacting with regional economic or social issues. Monitoring of land and soil resources and periodic assessments of land and soil degradation does not happen in most countries. There is only a very limited understanding of regulatory soil functions and impacts of land use changes in the global context. Development of indicators for land and/or soil degradation and its impacts are not yet well advanced, so how will they become operational for policy decisions? There is also a need for a cross-cutting analysis of the pivotal themes of land degradation, economic development, globalization and political stability. It is thus timely to consider the creation of an international institution, called here Intergovernmental Panel on Land and Soil (IPLS), which has:

1. To serve as a clearing house for ongoing and periodic assessment of global land and soil degradation, along with its impact on environmentally sustainable soil and land resources; and to propose regulatory management strategies;
2. To assess and synthesize globally the scientific, technical and socioeconomic information relevant for the understanding of the risk of human-induced land and soil quality change and show the pivotal role of soil and land use in ecosystem services at all scales;
3. To address the whole gamut of land use and soil management issues, including desertification, as related to environmentally sustainable development, food security, poverty alleviation and multilateral environmental agreements;
4. To stimulate and involve the scientific community to advance and develop the soil science and sustainable land use in a multidisciplinary context;
5. To assist actively national, regional and global decision makers in developing policies to assess, monitor and mitigate negative impacts of land and soil use.

In view of the complexity of global degradation issues, we need an early recognition of optimal regulatory strategies, through ongoing systematic dissemination of scientific findings to governments and international

policy regulatory bodies. This would be the role of an Intergovernmental Panel on Land and Soil (IPLS). Its establishment is crucial to support the United Nations Environment Program (UNEP), Food and Agriculture Organization (FAO) projects, United Nations Convention to Combat Desertification (UNCCD) efforts, regional regulatory bodies and the public in general.

### 3. IMPROVING SCIENTIFIC POLICY ADVICE

How will the IPLS improve scientific policy advice? The UNCCD now incorporates a body charged with providing scientific advice – the Committee on Science and Technology (CST). The function of the CST is to call for and evaluate expert scientific opinions, at the specific request of the Conference of Parties (COP). In its capacity as a subsidiary of the COP the CST is thus closely linked to the programme of UNCCD. It cannot act as a high level substitute for an independent, scientific assessment of global land and soil degradation as proposed here. On the other hand the CST, including similar bodies of environmental conventions, could benefit from the scientific input of and exchanges with an Intergovernmental Panel on Land and Soil.

The role and functions of the proposed IPLS are expected to be similar to the Intergovernmental Panel on Climate Change (IPCC), making its recommendations accessible to the Conferences of Parties, their stakeholders and the international community in general. Building upon the experience of IPCC, the establishment of a comparable high level scientific body or advisory panel is envisaged. By bridging the science-policy divide, the IPLS will contribute significantly to sound and balanced policy advice on environmentally sustainable soil care and land use issues.

**Please direct your queries and comments to [wbgü@wbgü.de](mailto:wbgü@wbgü.de) (coordination).**

## **The IUCN World Congress Resolution in Amman 2000**

### **This is the text of the resolution on the legal aspects of the sustainable use of soil**

RECALLING that one of the objectives of IUCN since its founding in 1948 was the establishment of laws and treaties for the protection of nature, and

RECOGNISING the important contributions to establishment of the field of environmental law made by the International Union for the Conservation of Nature and Natural Resources since 1965,

AWARE that environmental law has become a field of law whose scope is exceptionally broad, ranging from the legal systems of local authorities and the customary law of traditional societies and indigenous peoples, through to the laws of States and the international law among States, and

NOTING the significant cooperation and support that exists among the soil science community for the improvement of environmental law and policy for the sustainable use of soils, particularly in regard to the ecological functions of soil for the conservation of biodiversity and the maintenance of human life, including: the production of biomass; the filtering, buffering and transformation activity between the atmosphere, ground water and plant cover; soils as a biological habitat and gene reserve; soils as a spatial base for technical, industrial and socio-economic structures and their development; and soils as a source of raw materials,

CONVINCED that the future ecological benefits of the world's soils will depend on the availability of the existence of adequate global, regional and national legal strategies to enable individual nations to make sound land use and land management decisions, and on building the capacity to communicate these strategies,

CONCERNED that there is a need to study further and make recommendations concerning the synergy among the several international environmental instruments of relevance to soils and the patterns of their implementation through national legislation,

ACKNOWLEDGING that whilst there is a range of international instruments addressing aspects of soil conservation, there is at present no specific global environmental law instrument for the sustainable use of soils

The World Conservation Congress, at its second session, in Amman, Jordan, 4-10 October 2000,

WELCOMES the initiative of the Environmental Law Programme to form the Working Group on the Legal Aspects of the Sustainable Use of Soils to prepare guidelines and explanatory material relating to principles and elements of national legislation and policy to assist States to manage their specific soil degradation and land degradation problems, and to investigate the need for and feasibility of further developing international environmental law in this field, in particular through an international instrument for the sustainable use of soils,

INVITES IUCN members to provide all possible support to the Environmental Law Programme in developing guidelines on the essential elements to include in environmental legislation and policy for the sustainable use of soils, and its investigation of a global instrument for the sustainable use of soils, and

REQUESTS the Environmental Law Programme, in its development of legal guidelines, explanatory material and investigation into a global legal instrument for the sustainable use of soils, to pay particular attention to the ecological needs of soil and their ecological functions for the conservation of biodiversity and the maintenance of human life.

Signatures of the resolution sponsors:

1. Center for Environmental Legal Studies, Pace University, New York, USA;
2. Sociedad Peruana de Derecho Ambiental (SPDA), Peru ;
3. Asia Pacific Centre for Environmental Law, National University of Singapore, Singapore;
4. Environmental Law Institute, Washington, USA;
5. Lawyers for a Green Planet (Instituto "O Direito por um Planeta Verde"), Brazil ;
6. Nature Conservation Council of New South Wales, Australia.

## **An Integrated System for Better Knowledge and Management of Soil**

**Michel Robert**

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Since the last international congress of Soil Science held in Montpellier, stakeholders better realize the importance of soil as an environmental interface (Robert 1996 )

If the role of support of the main human activities (agriculture, construction, industry, transport) is well known, the interactions with the atmosphere (especially the greenhouse gas balance), water (quantity and quality) pollutants and the biosphere have to be better inventoried.

In 2000 a protocol was signed between the main French stakeholders concerned with soil (Agriculture and Environment Ministries, ADEME the main agency in charge of the waste recycling) and the main actors in the field (INRA and IFEN, respectively the French Institute for Agronomy Research and Institute for the Environment).

A national plan of action was decided on soil with various components:

**1.** Soil mapping and inventory. Complete cover of France is still to be achieved, and is scheduled for 2005, with all data presented at 1:250 000 scale.

**2.** A soil monitoring network will be set up over 5 years with a 16 km x 16 km grid which is already used for the European network on forests.

2100 profiles will be described, sampled and analyzed. A national data basis and storage of soil samples will be promoted.

The funding (FF 25 millions over 5 years) will come from the Ministry of Environment and the Agency for Environment (ADEME).

An immediate use of the network will be to improve the soil carbon stock evaluation and to monitor aspects of the pollution specially the total content of trace elements.

But the main stakeholders (Water direction, ADEME) want to go further in the monitoring of soil and water quality and want to set up several regional environmental “observatories” (40 to 50 ?) devoted to certain types of pollution (pesticides etc) or environmental degradation. Some will be set up at the watershed scale.

**3.** A specific research programme (called GESSOL with FF 10 millions) was initiated in 1999 for 5 years. It is devoted to soil sustainable management and environmental functions. Its main purpose is to provide specific tools, new methods or indicators to characterize soil quality in relation to the quality of the other environmental components (air, water, food chain, biodiversity). Some socio-economic researches are associated.

### **Reference**

ROBERT M., 1996 – Le sol : interface dans l’environnement, ressource pour le développement. Dunod-Masson Paris, 264 p.

## **Carbon Sequestration in Soil Through Land Management and the Main Environmental Consequences**

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An international expertise was made in 2001 by Michel Robert for FAO (Rome) focused on the soil of arid and tropical areas. It concerns both the conditions of feasibility of carbon sequestration in soil and the main impacts or benefits for agriculture and the environment (win-win situations).

Soil organic carbon represents the main reservoir (1500 to 1700 Gt C) of the biosphere in direct interaction with the atmosphere.

Increasing carbon sequestration in soil involves either (or both) a change in land occupation (increase forestry and pastures, agroforestry) or a modification of existing agricultural practices. Among these practices, tillage and soil cover provision are of greatest importance.

The increase in carbon can be from several tons C/ha/year when permanent vegetation is established down to a range of 0.1 to 1t/ha/year through a change in the agricultural practices.

New systems of agriculture (involving minimum tillage or the presence of grassland in the rotation ) have to be developed to insure both soil cover and soil organic matter increase.

The main benefits which can be expected could be :

- a decrease of soil erosion which is the main soil degradation process.
- a modification of the water balance between infiltration and runoff with an indirect decrease of water pollution.
- an increase in soil fertility and biodiversity.
- for arid soils a decrease of the risk of desertification.

This expertise involved southern hemisphere where the durability of the soil resource is essential for the food supply. Similar work has to be done for Europe plus some comparison with US. These researches are needed to better analyze the impacts, consequences and costs for both agriculture and environment. If benefits are proved, such systems could be encouraged and developed in common agricultural policy.

### **Reference**

FAO (M. ROBERT), 2001 – Carbon sequestration in soils. Proposals for land management.