

## The Anthropocene and the Anthroscape: point of view and activities of the WG-LD, IUSS

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### ABSTRACT

The Anthropocene is the epoch when impact of human activities on ecosystems has exceeded that resulting from natural forces while the term Anthroscape designates a new contextual approach of integrated land management. Different workshops related to those concepts have taken place, held in Adana, Marrakech, Alexandria and Bari, and have shown anthrosapes from the anthropocene in Mediterranean environments. The Working Group LDD since the first meeting in 1996 at Adana, Turkey to the last one held, in Bari, in 2008 has been very active dealing with the main problems related to Anthropocene and Anthroscape.

### KEYWORDS

Anthropocene, Anthroscape, Working Group Land Degradation and desertification

### INTRODUCTION

Basically, the Anthropocene is the epoch when impact of human activities on ecosystems has exceeded that resulting from natural forces. From the land resource point of view, the Anthropocene becomes the Epoch of land degradation and desertification (LDD). As we are in the beginning of this new epoch, the forces are not operating with the same intensity at all points of the landscape nor have the same impacts everywhere. It may not be necessary to assign a more precise date to the onset of the Anthropocene. For purposes of discussion on the impacts on land, the beginning of the 18<sup>th</sup> Century is adequate, as the last three Centuries have documented information on changes in the ecology and on the land.

The human impact is on the ecosystem and the controlling factor is the soil. The quality of the soil determines the kind and efficiency of the ecosystem. Biodiversity is also a function of the soil as is clearly evidenced when there is onset of soil degradation.

Soil scientists have always been on the forefront alone or with an incomplete inter-disciplinary context in investigating land degradation and desertification. Thus, the approach to LDD needs a more interdisciplinary touch, where the concept of Anthropocene now provides a temporal concept for such investigations, making future investigations more specific and contextual. If the soil science community embraces the concept together with earth and social sciences, it will provide a rational basis for developing databases.

To be useful, the Anthropocene concept must be holistic involving a wide range of specializations and specialists. Specialists from other disciplines must be invited to present papers. Where possible, we should try to encourage reports on time-based studies or studies that demonstrate changes. Changes in soils are equally difficult to quantify and document and this is one of the reasons that we have to rely on information from other disciplines. Changes in vegetation are usually a good indicator of soil conditions.

The term Anthroscape (Eswaran *et al.*, 2005) designates a new contextual approach of integrated land management developed in the EU-Project MEDCOASTLAND-led by the MAI Bari- to document and describe natural conditions with human impacts on the landscape and to complement (develop criteria for applicability and mitigation) the initial hypothetical challenge introduced by the Anthropocene concept. It appears that there is a close link between the

availability of resources and the way they are used by humans. As long as both nature and humans are matching their needs the ecosystem tends to be stable, otherwise either both or one of them will suffer. Ultimately, the ongoing studies on the development of the links and their integration to problems of land use considering all sectors have also enabled the users of the Anthroscape approach to attempt to create the relations between the pedons/landscapes and forms of land use, covered with natural vegetation or cultivated crops and allocated to animal husbandry, to strongly consider in developing the sustainable land management programmes. The Working Group on Land Degradation and Desertification of the IUSS is now dealing with those concepts and actively organizing different meeting and conferences of great concern.

### SOME ACTIVITIES RELATED TO LDD IN MEDITERRANEAN ECOSYSTEMS

#### Workshop 1 held in Adana, Turkey 2-7 June 2003

**Theme:** Ecosystem- based assessment of soil degradation to facilitate land users' and land owners' prompt actions. The main topics of discussion of the workshop included the following:

- Is still land degradation a serious threat to natural resources in the Mediterranean region?
- What is missing to achieve sustainable land use?
- Is the available knowledge base and existing research results complete?
- What we have learned and where should we extend our knowledge?
- Why implementing positive research results is not always the case?
- What further actions are to be taken?

One major conclusion of these discussions dealt with the clarification of the approach and endorsement of the *integrated agro-ecosystem management*, considering thus not only the soil component but also other natural features of the ecosystem and incorporating all of them with the socio-economic context of a particular given area. The concluding remarks of the workshop were focused on the development of integrated approaches to help put forward income-generating measures at each pilot area to be designated by the partners themselves on their own grounds seeking integrated agro-ecosystem management.

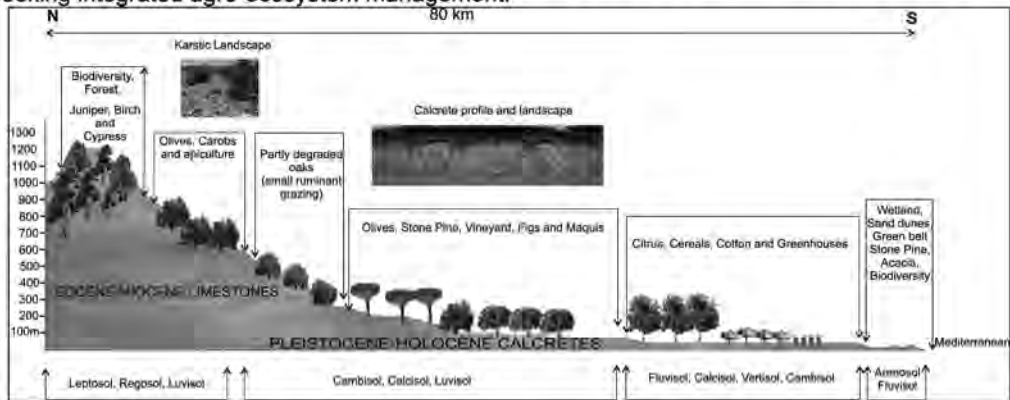


Figure 1. The Adana Anthroscape

#### Workshop 2 held in Marrakech, Morocco 12-16 February 2004

**Theme:** "Determining an income-product generating approach for soil conservation management"

The objectives of the workshop included a thorough investigation of socio-economic factors inducing or preventing farmers to adopt sustainable land management practices, including the level of income, farmer's perception of land degradation, potential impacts, and access to credit and markets. The task to identify and establish the link between soil conservative measures, income-product generating activities and farmer's involvement was thoroughly discussed and investigated.

Yet there is much to be done in determining an income-product generating approach for soil conservation management in relation to economic and production aspects generated by the sustainable land management practices.

### **Workshop 3 held in Alexandria, Egypt 9-13 October 2004**

**Theme:** "Promoting participatory management of the land system to enhance soil conservation management"

This third workshop was held in Alexandria, the birthplace of knowledge (let us remember the famous millenary "Bibliotheca Alexandrina"), plough and irrigated agriculture. Past indigenous experience is merged with modern irrigation systems that are realising the "*greening of the desert*" as it happened in the West Noubaria Rural Development Project.

An important objective of the workshop was to highlight also the virtues of decentralization and the development of the local administrative legislative framework along with institutional and local capacity building. This endeavour was stated to create an adequate environment for developing methodologies, which would induce the role of the bottom-level farmers and land users in implementing conservation measures for the land resources.

The approach for the said methodology considered the integration of the bottom-up and the top-down approaches and their magnitudes at proper levels, roles and stages. The partners of the project agreed that this have to be the most crucial outcome of the workshop. Furthermore, partners agreed that, the earlier top-down decision making was dangerous since it could ignore real problems on the ground, therefore a compromise should be found between bottom-up and top-down approaches with farmers being involved in project formulation, drafting and execution, while decision makers should provide the necessary guidelines and leadership.

### **Workshop 4 held in Bari, Italy 6-11 September 2005**

**Theme:** "Drafting appropriate policies and guidelines to support sustainable land management in the Mediterranean Region"

The objectives included a comprehensive review of the existing Euro-Mediterranean regulatory frameworks and policies, impacts of policies in sustainable land management at regional scale, the role of participatory and scientific context in policy development, guidelines and policies and the whole range of boundary conditions including national and regional dimensions, guidelines and indicators for the establishment of incentives for land-users to enhance soil conservation.

Development of measures for securing environmental quality, establishing the roles, responsibilities and coordinated actions of the rural communities, academicians, researchers, policy and decision-makers in developing the necessary guidelines and regulations for local conditions was carefully carried out. Last but not least, it was emphasised that if not implemented, even the best policies have no impact in combating land degradation and promoting sustainability.

The final conclusions of the workshop called for the development and implementation of policies that fill in the coordinated gaps between all the factions of the Mediterranean society. It was strongly suggested to advise international agencies to adapt a stakeholders approach bearing in mind that even the developed nations (including the EU) suffer similar problems in land and water abuse and misuse. The competing forms of land use and issues like food security and safety amalgamated with agricultural productivity and environmental quality as the inseparable twins to the renewal of interfering legislation could create obstacles to responsible bodies in allocating their duties.

## **INTERNATIONAL CONFERENCES OF THE WORKING GROUP ON LAND DEGRADATION AND DESERTIFICATION, IUSS**

The Group was formed at the first meeting on the theme in 1996 at Adana, Turkey, organized by Dr. Selim Kapur and with the initiative of Dr. Ahmet Mermut. Considerable information on land degradation in the Mediterranean region was generated at this meeting. The Working Group of the IUSS was in response to a growing awareness of this global problem and has one main objective. This is to provide a forum for soil scientists to conduct research and discuss the challenges and needed technologies from a soil's perspective. The Working Group recognizes the multifarious

dimensions of the Anthropocene and Anthroscape and the very strong role of socioeconomic conditions in land degradation and desertification. It is also acutely aware of the historical aspects and the impact of land use and management. All these and other aspects are being addressed by other groups and the whole effort is coordinated by the United Nations Convention to Combat Desertification.

A 2<sup>nd</sup> Conference was held in Thailand and hosted by the Land Development Department of Thailand. This meeting was held in Khon Kean in 1999 and was organized by Mr. Taweesak Vearasilp. The Conference attracted a number of participants from Asia.

The 3<sup>rd</sup> Conference (ICLD3) was held at Rio de Janeiro in 2001 and organized by Dr. Antonio Ramalho and his colleagues from CNPS-Embrapa (Embrapa Soils), developed an excellent program that attracted 274 participants from 45 countries, particularly from South America, among them 18 keynote lecturers. The Working Group conducted a Symposium on the subject at the 17<sup>th</sup> World Congress in Bangkok in 2002.

The 4<sup>th</sup> Conference in Cartagena was organized by Dr. Angel Faz Cano and his colleagues at the Universities of Cartagena and Murcia. Many sponsors contributed financially and through other means to ensure the success of the meeting. The meeting was attended by over 250 participants from 51 countries and they participated in an ambitious program with the themes: Geographic perspective; Historical and archaeological perspectives; Linkages with global issues; Quantifying land resources stresses; Managing land quality; Human impact; Policy and legal framework; Rehabilitation.

The 5<sup>th</sup> International Conference on Land Degradation was successfully held at the Mediterranean Agronomic Institute of Bari (MAI-B), Italy in September 2008. About 100 participants from 37 countries from around the world attended. A total of 43 oral and 50 poster presentations were made.

During this even, as the International Union of Soil Science had re-established the Working Group on Land Degradation (WG-LD), conference participants agreed that the WG-LD report primarily to Divisions I and subsequently Divisions III and IV, as well as to the Secretary General of the IUSS. The conference unanimously endorsed the proposal for the following individuals to lead the WG-LD: Dr. Marcello Pagliai (Chair, Italy) and Prof. Angel Faz Cano (Vice Chair, Spain), Prof. Selim Kapur (Secretary, Turkey), Dr. Pandi Zdruli (Deputy Secretary, Italy).

The 6<sup>th</sup> International Conference on Land Degradation will be held in Cairo, Egypt in autumn 2111.

### CONCLUSIONS

Anthropocene and Anthroscape, related to land degradation, will remain an important global issue for the 21st century because of its adverse impact on agronomic productivity, the environment, biodiversity, and its effect on food security and the quality of life. Productivity impacts of land degradation are due to a decline in land quality on site where degradation occurs (e.g. erosion) and off site where sediments are deposited. However, the on site impacts of land degradation on productivity are easily masked due to use of additional inputs and adoption of improved technology and have led to the modification of the landscape (anthropocene), with its further transformation into a Anthroscape.

The International Union of Soil Science must take the leadership to develop guidelines for the assessment and monitoring of land degradation to enable countries to implement national programs. Current knowledge and databases are inadequate to quantify land resource stresses and more research is needed in this area; The Working Group LDD since the first meeting in 1996 at Adana, Turkey to the last one held I Bari in 2008 has been very active dealing with the main problems related to Anthropocene and Anthroscape.

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