NEWSLETTER 4/2009

ESSC EUROPEAN SOCIETY for SOIL CONSERVATION

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Removal of wheat residue from a farm in Haryana (India) for use as cattle feed (photo from Rattan Lal, Ohio, USA).

E.S.S.C. NEWSLETTER 4/2009

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Produced and composed by the Editor-in-Chief at The University of Wolverhampton (U.K.)
Printed by The Soil Science and Conservation Research Institute „Vyskumny ustav podoznalectva a ochrany pody, Bratislava“ (Slovakia)

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This issue of the ESSC Newsletter presents the 11th of our 'Guest Editorials.' This is an opportunity for leading authorities in the soil science community to offer their perspectives on issues relating to soil conservation. This contribution is from Rattan Lal (Ohio State University, USA). Eventually, we envisage this collection of essays developing into an authoritative book.

The Myth of Cellulosic Ethanol from Crop Residues

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Introduction

With a strong and growing interest in using crop residues as biofuels, because of rapidly growing energy demands and the increasing atmospheric concentrations of CO_2 and other radiatively-active gases, the conclusion by Hans Jenny 30 years ago is even more relevant now than ever before: *"I am arguing against indiscriminate conversion of biomass and organic wastes to fuels. The humus capital, which is substantial, deserves being maintained because good soils are a national asset"* (Jenny, 1980). Biofuels, from a wide range of biomass sources, have been used by humans ever since the discovery of fire as a tool. Therefore, the present emphasis on the use of agricultural biomass is not a new phenomenon. Of the total energy use of 643 EJ in 2004, 42-60 EJ (9-13%) was through combined use of traditional and modern biofuels (Hoogwijk *et al*., 2003). However, modern biofuels (bioethanol, biodiesels, syngas) comprise only 6-7 EJ/y (1.3-1.5%) of global energy demand (Hoogwijk *et al.,* 2003). The goal in North America, Europe and elsewhere is to increase biofuel use to meet 10% of energy needs (FAO, 2008) by 2030, when the global energy demand will be ~619 EJ/yr. The challenge lies in identifying a viable source of biofuel feedstock.

Removal of crop residues as a source of energy, through a wide range of technological options (e. g. co-combustion, pyrolysis and biochar production, bioethanol, syngas), can have severe adverse impacts on soil quality and ecosystem services. Thus, its use for numerous competing purposes rather than as a soil amendment must be critically and objectively assessed. Therefore, the objective of this Guest Editorial is to discuss the promise and challenges of using crop residues as biofuel feedstock. Specifically, the article focuses on the ecological impacts of removing crop residues on sustainable use of soil, water and other natural resources in a warming planet.

Residue removal and ecosystem services

Crop residue retention on soil has numerous positive impacts on the hydrological cycle, energy balance, nutrient cycling, biodiversity, biomass or net primary production (NPP), and moderation of gaseous emissions from soils. Beneficial impacts of crop residues mulch on soil and water conservation, widely recognized and documented for diverse

agroecosystems (Wilhelm *et al*., 2007; Blanco-Canqui and Lal, 2007; Lal, 2008; Pimentel and Lal, 2007), include: (i) reducing soil erosion, (ii) decreasing water runoff, (iii) minimizing soil evaporation, (iv) increasing plant available water, (v) increasing soil organic matter (SOM), (vi) improving soil structure, (vii) reducing crusting and compaction, (viii) enhancing the activity of soil macrofauna (e.g. earthworms, termites), (ix) increasing microbial biomass, (x) improving soil fertility by recycling nutrients, (xi) moderating soil temperature, (xii) reducing losses of fertilizers and amendments, (xiii) increasing efficient use of agronomic inputs, (xiv) enhancing crop yields, and (xv) improving the sustainability of soil and water resources. Consequently, removal of crop residues and other agricultural biomass (co-products) can have severe adverse impacts on numerous ecosystem services (Fig. 1). The adverse impacts on the hydrological cycle (i.e. increasing runoff and evaporation, and decreasing infiltration and soil-water storage) reduces water availability for plants. Both the duration and intensity of drought stress are exacerbated by alterations in soil temperature regime, which registers a higher maxima, lower minima and increased diurnal fluctuations. Residue removal can create negative budgets of C, nutrients and water. Consequently, there are severe adverse impacts on all components of soil quality (e.g. physical, chemical, biological, and ecological). Because it is a food source for soil biota, indiscriminate removal of crop residues decreases activity and species diversity of soil organisms. Changes in soil moisture and temperature regimes influence the gaseous flux of CO_2, CH_4 and N_2O. Degraded soils have lower capacity to oxidize CH_4, and the process of methanogenesis is accentuated by anaerobiosis, caused by crusting, compaction and decreased macroporosity. Emission of N_2O is also increased because of denitrification. Generally, there is a decline in the use-efficiency of inputs (e.g. fertilizers, irrigation).

Long-term and indiscriminate removal of crop residues, as frequent in Africa and Asia,

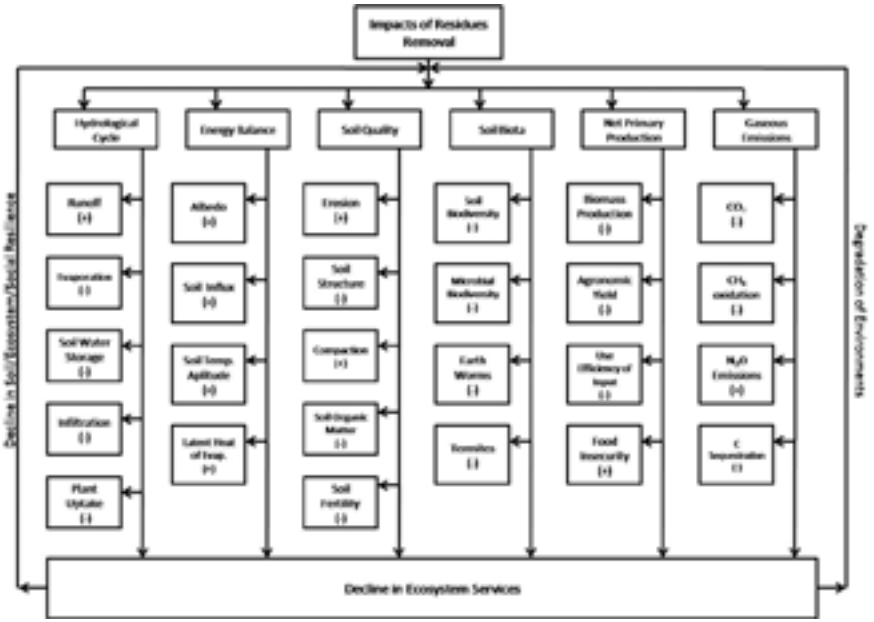

Figure 1. *Ecological impacts of residue removal for energy and other industrial uses.*

has adverse impacts on agronomic production. Loss in agronomic production, with adverse impacts on food security at local and global scales, is perpetuated by short-term reduction in water and nutrient availability and long-term decline in soil's capacity (i.e. by accelerated erosion) to produce goods and services of interest to humans. Indeed, one of the key factors responsible for low agronomic yields of soils of Africa and South Asia is the severe problem of soil degradation caused by mining of soil fertility and its SOM pool over long periods of time.

Liquid biofuels

World energy consumption increased from a mere 11 EJ in 1860 to 463 EJ in 2005; by a factor of 42. Predicted energy consumption will increase by 84% (almost double) to 850 EJ by 2050 (Fischer and Schrettenholzer, 2001). Thus, there is a strong emphasis on identifying alternate/renewable energy sources, especially those which are either C-neutral or C-negative. Bioethanol and biodiesel are being intensively evaluated as transport fuels. Thus, it is important to assess the land, water and nutrient requirements for producing biofuels from crops (e.g. sugarcane, corn (maize) grains, soybeans, rape-seed) and plantations (i.e. oil palm, jatropha). The goal is to conduct a complete life-cycle analysis (LCA), so that biofuels can be assessed for their C-footprint (Landis *et al*., 2007). For example, Table 1 compares C output: input ratios for ethanol production. The ratio is 3.7 for ethanol produced from sugarcane in Brazil, compared with 1.1 for that from maize (corn) grains in the USA (Oliveira *et al*., 2005). The data of Searchinger *et al*. (2008) indicate emissions by biofuels relative to gasoline (petrol). With land use conversion, even the ethanol from cellulosic biomass has higher emissions than that from gasoline (Table 2). Avoided emissions over a 30 year period are higher for sugarcane ethanol than that from feedstocks for food stables (Table 3).

Table 1. *Energy balance of ethanol production from sugarcane (Brazil) and corn (maize) grains (USA) (recalculated from Oliveira et al., 2005)*

Production Sector	Sugarcane Ethanol (Brazil)		Corn Grain Ethanol (USA)	
	Required	Generated	Required	Generated
	GJ/ha			
Agricultural	36.0	-	22.1	-
Industrial	3.6	155.6	41.6	71.4
Distribution	2.8	-	1.3	-
Total	42.4	155.6	65.0	71.4
Output:Input	3:7		1:1	

Table 2. *Comparison of gaseous emissions from bioethanol and fossil fuel combustion (recalculated from Searchinger et al., 2008)*

Fuel	Gaseous emissions	
	G Ce/MJ of energy	Relative
Gasoline	25	100
Corn grain ethanol	74	80
Cellulosic ethanol	135*	147
	27	30
Switchgrass ethanol	138*	150

*With land-use conversion.

Table 3. *Cumulative avoided emissions per hectare over 30 years for a range of biofuels (Righelato and Spracklen, 2007)*

Biofuel feedstock	Biofuel	Avoided emissions (Mg C/ha/30 yr)
Sugarcane	Ethanol	55
Wheat	Ethanol	13
Sugar-beet	Ethanol	32
Maize (grains)	Ethanol	16
Rape-seed	Biodiesel	12
Woody biomass	Biodiesel	58

Competing use of crop residues: conservation agriculture or use of cellulosic ethanol?

The conservation agriculture (CA) important to reducing risks of soil degradation and increasing the SOM pool, has five distinct components: (i) no-till (NT) farming, (ii) use of crop residue mulch, (iii) complex crop rotations, including cover crops and agroforestry, (iv)

Figure 2. *Creating positive carbon and nutrient budgets through adoption of conservation agriculture comprising of five distinct, but inter-related, components.*

integrated nutrient management, and (v) mixed farming by integrating livestock with crop production (Fig. 2). The adoption of CA and NT farming has been negligible in developing countries because of residue removal for other competing uses (e.g. fodder for cattle, see the cover page photograph). Among the biophysical and socio-economic constraints (the human dimensions) governing the adoption of CA technology (Fig. 3), crop residue removal for numerous competing uses is an important constraint, especially in developing countries. Widespread adoption of CA in developing countries cannot be achieved without identification of viable sources of feed, fodder and household fuel for rural communities in developing countries.

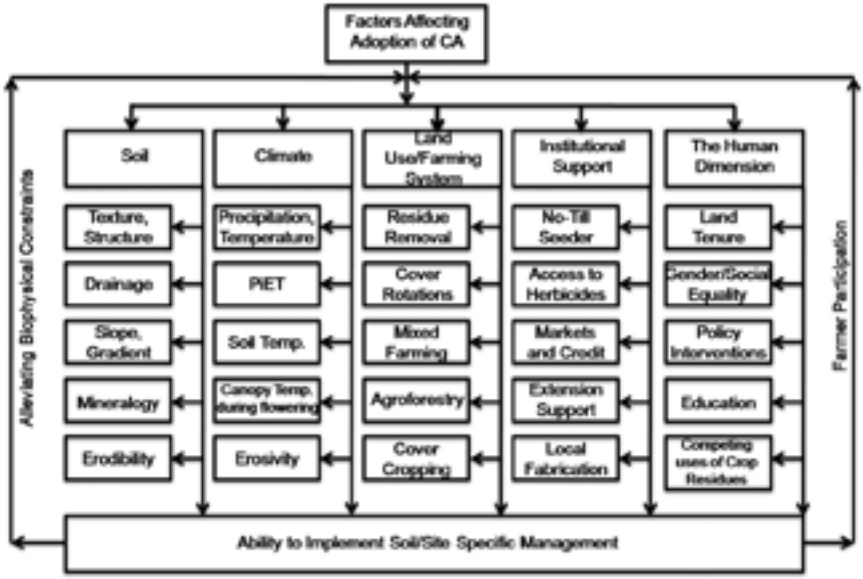

Figure 3. *Biophysical and the human dimension of adopting conservation agriculture (CA).*

Additional needs for land, water and nutrients

Crops suitable for biofuel include sugarcane (Brazil, India, China, Thailand), sugar-beet (France, USA, Germany, Russia), cassava (Nigeria, Brazil, Thailand, Indonesia), maize (corn) (USA, China), rape-seed (Germany, Canada, Argentina, India, China), oil palm (Indonesia, Malaysia, Thailand, West Africa, South America), and soybean (USA, Brazil, China, Argentina) (Table 4). However, the projected needs of liquid biofuels (10 % of the total transport fuel by 2030) will neither come from the crops listed above without aggravating food insecurity, nor from harvesting crop residues without jeopardizing soil quality and its ecosystem services. Therefore, there is a need to identify other plant species which do not compete for food. These include warm season grasses, such as switch grass (*Panicum virgatum* L.), big blue stem (*Andropogan gerardi* vitman) and Indian grass (*Sorghastrum nutans* (L) NAS). Some grasses suitable for biomass production in the tropics include guinea grass (*Panicum maximum*), elephant grass (*Pennisetum purpureum* Schm), and kallar or karnal grass (*Leptochloa fusca*), which can be grown on salt-affected soils. There are also short rotation woody perennials, such as poplar (*Populus* spp.), willow (*Salix* spp.) and black locust (*Robinia pseudoacacia* L.).

Some important halophytes, which can be grown by irrigation with brackish water (salt concentration >30,000 ppm), include pickle weed (*Salicornia bigelovii*), salt grass (*Distichlis palmeri*), salt brushes (*Artiplex* spp.) and some algae (*Spirulina geitleri*). Non-edible oil contained in the seeds of several perennials can be used to produce biodiesel. These plants include jatropha (Jatropha curcas), pongamia (*Pongamia pinnata*) and madhuca (*Madhuca latifolia*).

Table 4. *Common species for biofuel plantations*

Type	**Name**	**Type**	**Name**
Warm season grasses	Switch grass	Broad leaf species	Cup plant
	Big blue stem	Short rotation woody perennials	Poplar
	Indian grass		Willow
	Giant reed		Black locust
	Blue joint grass		Mesquite
	Cord grass		Birch
Legumes	Alfalfa		Eucalyptus
	Mucana	Herbaceous spp.	Miscanthus
	Kudzer		Reed canary grass
	Style		Cynara
Some Common Halophytes			
Pickle weed	*Salicornia bigelovii*	Ny Pa forage	*Distichis spp.*
Salt grass	*Distichlis palmeri*	Salt brushes	*Atriplex spp.*
		Algae	*Spirulina geitleri*

To grow crops for biofuels, the world cropland area of ~1550 M ha will have to be expanded to meet also the increasing food demands of the growing world population. Deforestation to establish crops, pastures or biofuel plantations can create a huge C debt that can take decades to repay (Fargione *et al*., 2008; Reijnders and Huijbrests, 2008). Thus, crop yields for food production must be increased on land already under cultivation. The world average cereal yield of 2.7 Mg/ha in 2000 increased to 3.27 Mg/ha in 2005 (Wild, 2003). However, the present (2005) global average cereal yield and total production, respectively, of 3.27 Mg/ha and 2,240 × 106 Mg/yr will have to be increased to 3.60 Mg/ha and 2,780 × 106 Mg/yr by 2025 and 4.30 Mg/ha and 3,255 × 106 Mg/yr by 2050 for similar dietary needs. This compares with 4.40 Mg/ha and 3,629 × 106 Mg/yr in 2025 and 6.0 Mg/ha and 4,553 × 106 Mg/yr in 2050 with change in dietary preferences towards more animal-based food (Wild, 2003). With progressive improvements in crop yields grown under rainfed conditions, additional cropland area needed to feed the world population of an estimated 9.2 billion by 2050 is estimated at 7% (110 M ha). However, with little or no improvement in crop yields under rainfed conditions, additional land area needed is estimated at 53% (825 M ha) (Molden, 2007). Over and above this, additional land area needed for establishing biofuel plantations is estimated at 850 M ha (Fig. 4). However, these additional land resources do not exist. The area of globally abandoned cropland, a possible option to grow biofuel plantations, is ~425 M ha. With a mean biomass yield of ~4 Mg/ha, it would hardly meet potential energy demand by 10% of countries in North America, Europe and Asia (Campbell *et al*., 2008). It is also argued that expectations of biofuel production from degraded soils are excessive and

presumptuous. Furthermore, repeated harvests of biomass from prairie lands without inputs (Tilman *et al*., 2006) is also expecting more than can be realistically produced.

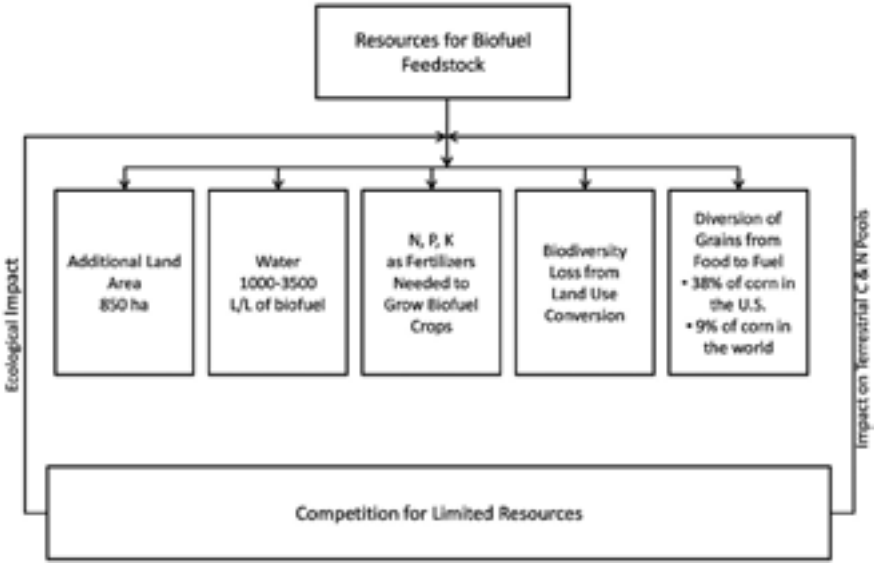

Figure 4. *Additional resources needed for growing biofuel feedstocks.*

Similar to land, establishing biofuel plantations also needs additional water resources. Through increased evapotranspiration and soil water use, the world's irrigated land area of 277 M ha in 2003 is projected to increase to 300 M ha by 2020 and 360 M ha by 2050 (Molden, 2007). Thus, there is a strong need for water withdrawal for bringing additional irrigated area under cropland. Furthermore, establishing biofuel plantations, for multiple harvests during a year, necessitate use of chemical fertilizers (N, P, K) and other amendments. Production of fertilizers and other chemicals involves energy-intensive processes with attendant emissions of CO_2 and other GHGs (Lal, 2004). Emissions from production, formulation, packaging, storage and application of fertilizers are estimated at 1.3 Kg C E/kg for N, 0.2 Kg C E/kg of P, 0.15 kg/kg of K and 0.16 kg/kg of lime (Lal, 2004). Similarly, emissions of C from usage of herbicides are estimated at 6 kg C E/kg of a.i. of herbicides, 5.1 kg CE/kg of a.i. of insecticides and 3.9 kg C E/kg of a.i. of fungicides (Lal, 2004). Emissions (kg C E/ha) of C from the diesel consumption related to seedbed preparation are estimated at 15.2 for moldboard ploughing, 7.9 for chiseling, 8.3 for disking, 11.3 for sub-soiling, 4.0 for cultivation and 2.0 for hoeing. Emissions (kg C E/ha) from other farm operations are estimated at 1.4 for spraying, 3-4 for seeding, 10 for biomass harvesting and 100 for lifting groundwater for irrigation. Complete ecosystem C budgeting is needed to evaluate net C grains from biofuels.

Recommendations for policy-makers

Meeting food demands is a higher priority than that of energy. Issues raised by food riots in 2007 and 2008 must be addressed. Yet, the issue of climate change must also be addressed. The scientific community must be pro-active in advising policy-makers and the public at large. With the objectives of minimizing CO_2 emissions and mitigating global

warming, the general public and policy-makers are advised to consider the following (Righelato and Spracklen, 2007):

(a) Short-term (<25 yrs): Over a short time horizon of <25 years, promising options include:
- (i) Increase the efficiency of fossil fuel use.
- (ii) Save energy (heating, cooling, lighting, transport).
- (iii) Conserve existing forests and savannah.
- (iv) Restore natural forests on surplus grasslands and croplands.
- (v) Enhance the soil C pool by re-carbonizing the planet.
- (vi) Make carbon a commodity, by establishing a price based on just, transparent and a fair mechanism.

(b) Long-term (50 yrs): The long-term energy needs of the growing population will have to be met from renewable and non-carbon fuel sources. Most likely non-carbon fuel technology is hydrogen (H_2), produced either from water or biomass.

Biofuels have specific niches, which must be critically assessed. Surplus biomass from food facilities, large animal and poultry farms, rice milling plants and saw dust from timber factories can be converted into biofuels. Algal farms can be established around a coal-fired power plant by using the CO_2 being generated. Diverting food crops, harvesting crop residues, establishing energy plantations on good cropland, and undertaking deforestation to create new land are not viable options. The rush to expand biofuels indiscriminately may be a classic case of another human blunder, termed "Technology Without Wisdom."

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Minutes of the ESSC Council Meeting

Attended: **M.A. Countinho, C. Dazzi, M.A. Fullen, T. Karyotis, I. Kurincová Kriegerová, J. Podhrázská, J.L. Rubio, I. Pla Sentis.**

Apologies: **P. Bielek, W. Cornelis, E. Costantini, D. Gabriels, K. Helming, J. Rickson, A. Rodriguez, S. Rousseva.**

Agenda:
1. Welcome and introductory remarks (J.L. Rubio, J. Podhrázská).
2. Report by the Treasurers (W.Cornelis, D. Gabriels).
3. Report by the Secretary (P. Bielek).
4. Report by the Editor-in-Chief (M.A. Fullen).
5. Information and discussion on content of the 6th ESSC Congress (T. Karyotis).
6. EU Soil Thematic Strategy (P. Bielek).
7. Soil conservation versus soil security (J.L. Rubio).
8. Review of recent and future activities.
9. Any other items.

Point 1

José Luis Rubio (President of the ESSC) opened the Council Meeting by greeting the participants and thanking Jana Podhrázská for organizing the meeting. On behalf of the meeting organizers, Jana Podhrázská expressed thanks to all participants.

J.L. Rubio presented the Council Meeting Agenda and its respective points.

J.L. Rubio introduced the new ESSC Council member Ida Kurincová Kriegerová as an ESSC Secretarial Assistant to the other Council members.

Point 2

On behalf of the absent Treasurers, J.L. Rubio briefly presented the Treasurer´s Report. The ESSC registered 269 paying members on 31 December 2008 and a total of 585 members

including potential subscribers. There is a large cohort of ESSC members in Germany, Romania, Russia and Spain.

The financial situation concerning income and expenses summary in 2008 was presented and a short evaluation of ESSC finances from 2004-2008 was discussed.

Point 3

Ida Kurincová Kriegerová presented the Secretary´s Report in terms of continual administrative services provided for the ESSC. She summarized the work on the ESSC Newsletter in terms of the final graphic design, publishing and distribution to ESSC members and organizations. This activity is progressing well and is following a carefully designed and agreed schedule.

The statistical summary of visits to the ESSC web site visits during 2008 was presented. It had exceeded 7,500 visits so far and it is regularly increasing. I. Kriegerová proposed a motion to Council members to draft a new graphic design of the ESSC web site to make it more transparent and user-friendly.

During 2008 the ESSC Secretarial Office in Bratislava underwent several personnel changes. The activities of the Secretary´s Assistant were temporarily operated by three persons, but it did not affect overall Secretarial obligations. Since December 2008 the tasks of Secretarial Assistant have been undertaken by Ida Kurincová Kriegerová.

After discussion, Council members agreed on the following activities:

- I. Kriegerová will submit a proposal of a new ESSC web site design to all ESSC Executive Committee members.
- The ESSC Executive Committee will prepare an updated promotional ESSC leaflet (to be completed by the Secretariat).
- The Secretariat will complete an updated list of VIP addresses for free copies of the ESSC Newsletter, including the Presidents of all European national soil science societies.
- The ESSC Executive Committee will prepare an ESSC publication summarizing the activities and accomplishments of the ESSC (lead: J.L. Rubio).

Point 4

Editor-in-Chief, M.A. Fullen, presented his report and information about the main publishing activities of the ESSC in 2008-09.

The ESSC Newsletter is progressing well and M.A. Fullen expressed his appreciation of the helpful co-operation of all members of the Editorial team.

Since this Council Meeting was held during the 'International Conference of the ESSC' in Průhonice (Czech Republic) and focused on **'Protection of the Ecological and Productivity Functions of Soil in a PAN European Context,'** J.L. Rubio invited Jana Podhrazska to compile a report of the Conference (deadline 1 October 2009), which will be included in ESSC Newsletter 2009/4. The Report of the Conference, together with appropriate information on activities in the Czech Republic relating to soil conservation, will initiate a new series of 'national reports' for the Newsletter.

M.A. Fullen further presented the Council with the ESSC members citation list as well as the list of Ph.D. theses. These are proving popular in both the printed and web-version of the Newsletter. To date, 46 Ph.D. theses and 438 publications are quoted. He pointed out that these information sources are proving useful for both teaching and research. Council members who have not already done so, are requested to provide the Editorial team with the citation details of papers published in international refereed journals and book chapters published since 2000.

J.L Rubio suggested to also invite other soil professionals (such as policy-makers) to contribute Newsletter articles.

Point 5

Theodore Karyotis made a detailed presentation about the forthcoming '6th International Congress of the ESSC' under the title **'Innovative Strategies and Policies for Soil Conservation,'** which will be held from 9–14 May 2011 in Thessaloniki, Greece.

J.L. Rubio thanked T. Karyotis for his attendance and the presentation and further discussion focused on the structure of thematic sessions of the Congress. Since some Council members expressed opinions in relation to themes structure, J.L. Rubio invited them to provide some specific recommendations and subsequently find an optimum solution.

J.L. Rubio asked T. Karyotis and Carmelo Dazzi to find additional financial support for Congress arrangements and prepare grants for the attendance of young researchers at the 6th ESSC Congress.

The First announcement will be sent to M.A.Fullen and to the ESSC Secretary to include in both the Newsletter and ESSC web site.

For more information about 6th International Congress of the ESSC, please visit the web site:

www.esscthessalonikicongress.gr.

Point 6

Pavol Bielek sent his apologies for absence and J.L. Rubio informed the Council about the situation concerning the EU Soil Thematic Strategy implementation, based on his recent participation in the European Soil Bureau meeting in Paris, France. The situation is unchanged and the process of framework adoption remains unsuccessful. On the one hand, there is a strong need for a Soil Directive and this initiative had been supported by 22 EU States. On the other hand, a few countries were still blocking this effort. J.L. Rubio said that finally we will probably have the Framework, but it takes some time to be fully adopted at the European level.

Point 7

J.L. Rubio introduced to the Council a presentation on **'Soil conservation versus soil security.'** He stressed the importance of integrated soil conservation approaches, emphasized the importance of overcoming EU difficulties and to improving the perception of soil conservation. He stressed soil security within the context of environmental security, which encouraged an intense discussion on the correct conception of the term 'soil security.' However, J.L. Rubio argued that the term 'security' is applicable in an environmental context. 'Soil security' was also introduced as a UNCCD motto for 2009.

J.L. Rubio summarized the main aspects of soil security which is important for the ESSC and presented some activities in the context of NATO and UNCCD in terms of combating land degradation and desertification, increasing food production through more ecological agriculture and soil conservation and the application of ecological regulation functions in the context of soil, biodiversity and landscape.

J.L. Rubio further paid attention to two new books: **'Water Scarcity, Land Degradation and Desertification in the Mediterranean Region; Environmental and Security Aspects'** (Springer, 2009), supported by the NATO Programme for Security through Science, as the proceedings of the OSCE-NATO Advanced Research Workshop held in Valencia, Spain (December, 2007). The second book is **'Securitizing the Ground, Grounding Security'** (UNCCD, 2009) also related to soil security and the book is accessible via the UNCCD website.

Point 8

J.L. Rubio presented information on forthcoming activities:

- International Symposium on 'Soil, Sediment and Dust Magnetism' (SoilSEDUMA), June-July 2009, Poland.
- The 16th Nitrogen Workshop: Connecting Different Scales of Nitrogen Use in Agriculture, June-July 2009, Turin, Italy.
- International Conference on Desertification in memory of Professor John B. Thornes, September 2009, Murcia, Spain.
- EcoHCC´09 (International Conference on Ecohydrology and Climate Change), September 2009, Tomar, Portugal.
- International Conference on Land and Water Degradation: Processes and Management, September 2009, Magdeburg, Germany.
- The 5th International Symposium on Gully Erosion, April 2010, Lublin, Poland.
- 16th Congress of the International Soil Conservation Organization (ISCO), November 2010, Chile.

Point 9

C. Dazzi presented a short announcement of the ESSC contribution to humanitarian activities in Burundi, one of the 10 poorest countries in the world. The financial contribution was received by the representative from Burundi Margharite Barankitse (the 'Angel of Burundi').

J.L. Rubio closed the meeting with many thanks to all participants of the Council Meeting.

Ida Kurincová Kriegerová
Průhonice, 23 June 2009.

The Newsletter and supporting Ph.D. research

Editor's note:

At the ESSC Council meeting in Lleida (Spain) in September 2006, the interactions between the ESSC and younger soil scientists were discussed (see Newsletter 2006/3, p. 5-8). It was decided that the ESSC should be more proactive in its support of younger scientists. As part of that initiative, we welcome articles from both Ph.D. researchers and supervisors. We would like to hear from recent Ph.D. graduates; what advice and experience do you have which you would like to share with your colleagues in earlier stages of their research? We would also like to hear from current Ph.D. researchers; what are the factors which both encourage and limit progress? What are the particular challenges facing part-time Ph.D. researchers? We also invite contributions from experienced Ph.D. supervisors. What experience would you like to share with less experienced colleagues? If you are a less experienced Ph.D. supervisor, what supervisory issues do you find challenging? In short, please tell us "what I know now, which I wish I knew then!

Editor's note:
The citation details of Ph.D. theses by ESSC members since and including 2004 have been added as an additional page to the ESSC web site. To date, 48 Ph.D. theses are quoted. On the ESSC web site, please look under 'Publications.' Please forward the citation details of any additional Ph.D. thesis completed since the year 2000 by an ESSC member to any of the Editorial team. We will then add the thesis citation details to the web site. Two additional Ph.D. theses have been reported for this issue.

Effectiveness of Biological Geotextilesin Controlling Runoff and Soil Erosion at a Range of Spatial Scales (2009). Ph.D. thesis, 270 pp.

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Abstract
Preliminary studies indicate that geotextiles or soil erosion control blankets can have a high potential for controlling soil erosion by water. Geotextiles can offer immediate soil protection and similar to a vegetation cover they can reduce the impact of raindrops and overland flow on the soil surface. Once installed on the soil surface, geotextiles remain in place and integrate with the established vegetation for a longer-term, composite erosion control solution. However, despite the promising preliminary results and the increased interest of many stakeholders in the use of geotextiles as an erosion control practise, there are only limited scientific data available on their influence on different hydrological and soil erosion processes, e.g. detachment and transport by splash and overland flow. Without a detailed scientific understanding no efficient means exist to improve their design. Therefore the first main objective is to assess the effectiveness of geotextiles in reducing runoff and soil erosion by water by applying a well-defined methodology. In order to assess the impacts of soil conservation techniques, erosion plot studies have often been carried out at a range of spatial scales. Although some studies have already indicated that plot length (or spatial scale) can have an important effect on runoff and soil loss measurements, there is a lack of clarity on the impact of plot length on the runoff and erosion-reducing effectiveness of a surface cover (e.g. vegetation, rock fragments, mulches, geotextiles). Understanding the impact of spatial measurement scale is important for the design of runoff and erosion plots, for modelling runoff and soil erosion rates, for scaling up plot data and for a better understanding of the significance of results originating from short (i.e. ≤1 m) runoff or erosion plots. Therefore, the second main objective is to increase our understanding of the impact of spatial measurement scale on the effectiveness of different soil surface covers in reducing runoff and soil erosion by water.

By conducting controlled experiments on short laboratory plots, the effects of biological geotextiles on runoff and soil erosion at the interrill plot scale and under concentrated flow are assessed for different conditions. Biological geotextiles on the soil surface do not only decrease the erodible bare soil surface area, but they also affect the surface sealing and the detachment and transport capacity of the rainfall and overland flow. On soil surfaces where interrill erosion is the dominant soil erosion process, it is recommended to loosen the topsoil and create a fine tilth soil surface (i.e. seedbed). This increases their runoff and erosion-reducing effectiveness compared to a sealed soil surface. When applied on top of the soil surface, geotextiles significantly reduce overland flow velocity, which leads to an overall reduction in soil detachment rate. In concentrated flow zones, partly embedding geotextiles in the soil top layer decreases their erosion-reducing effectiveness due to complex flow conditions (e.g. flow turbulences) compared to geotextiles on top of the soil surface. Overall, biological geotextiles are less effective in reducing concentrated flow erosion than interrill erosion rates due to the complex flow conditions observed during concentrated flow experiments. The runoff and erosion-reducing effectiveness of biological geotextiles as observed in field conditions, reflecting different environmental conditions, is not very well predicted using a conceptual model based on the interrill laboratory data. A simple approach in order to cope with the dynamic evolution of some soil characteristics (i.e. saturated hydraulic conductivity, soil erodibility and soil cohesion), during an intense rainfall event is proposed to improve the EUROSEM (Morgan *et al*., 1998) model. This approach, based on time-dependent soil properties, improves the predictions of runoff rate and sediment discharge during the first 20-30 minutes of the rainfall event considerably. The sustainability of biological geotextiles as an erosion-control product strongly depends on their economic viability. While widespread use of biological geotextiles is probably not economically viable, it is expected that they are particularly appropriate in high-value and complex applications (e.g. road construction sites, urban erosion sites, agroforestry sites, reclamation projects).

In order to provide a framework for scaling up the plot data on the effectiveness of surface covers in reducing runoff and soil erosion rates, published data from 71 experimental plot studies are compiled. No effect of plot length (0.3-50 m) is observed for the runoff reducing effectiveness. However, plot length is a significant variable in explaining part of the variation ($R^2 = 0.25$) of the erosion-reducing effectiveness of surface covers. In general, surface covers become more effective in reducing relative soil erosion rates on longer plots. Overall, the observed runoff and erosion-reducing effectiveness of surface covers from short plots can be considered as a minimum value, which possibly is not affected or increases with an increasing plot length. By conducting rainfall and runoff experiments on short plots in this study, the effects of various factors (e.g. vertical position of geotextiles in the soil top layer, slope gradient, flow discharge, soil type and initial soil condition) on hydraulic, hydrological and soil erosion processes are assessed in a very efficient way regarding time and cost. Investigating the effects of all these variables on longer field plots would require higher time and cost investments. Although the laboratory experiments conducted in this study appear to be very valuable for different reasons, there are still some shortcomings related to this type of experiments.

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Development of a Model to Predict Salt Accumulation in Agricultural Irrigated Soils Under Mediterranean Climate; Application to the *Vega Baja del Segura and Bajo Vinalopó (Alicante)* (2009). Ph.D. thesis (in Spanish), 309 pp.

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Abstract

Soil salinization is a desertification process in irrigated areas under the Mediterranean climate, especially when there is water scarcity, as is the case of the south of Alicante Province (south-east Spain). Development of models able to simulate salt accumulation in soils is a necessary task, on the one hand to assess the extension and intensity of soil salinization, and on the other, to devise sustainable agricultural practises. A reasoned validated model using no more information than that obtained during most regular land surveys will be a useful tool to map salt-affected lands, and those areas threatened by salinization. Such a model will also be useful to select, in the framework of a Decision Support System, the most suitable water, soil and crop management practises able to preserve soil and water resources from salinization.

A model called SALTIRSOIL, able to predict salt build-up in irrigated soils under the Mediterranean climate, has been developed. This model calculates the soil solution major ion composition and electrical conductivity from water quality, climate, soil features and soil and irrigation management information. Two main hypotheses about the soil-water-plant-atmosphere system have been used to develop this model. Firstly, in order to simulate soil water dynamics, the hypothesis of available water holding capacity has been used. Secondly, the hypothesis of chemical equilibrium has been also used. SALTIRSOIL carries out a monthly soil water balance. Next the terms of this balance are used to calculate the annual soil solution concentration factor at field capacity with regard to irrigation water. By means of suitable pedotransfer functions, the soil concentration factor at soil moisture contents other than field capacity, including soil water saturation, can be calculated. The irrigation water major ion composition is multiplied by the concentration factor of the soil solution under study, and this way, a soil solution composition far from equilibrium is obtained. This composition is the starting point, alongside with other chemical and soil information, such as gypsum and calcite content and carbon dioxide partial pressure, for a soil solution chemical equilibrium model called SALSOLCHEM. This model was developed in parallel with SALTIRSOIL, and then joined to it, in order to calculate the soil solution composition at equilibrium.

The calibration process of SALTIRSOIL was carried out through the application of statistical and thermodynamic analyses. According to them, the solution in the saturation paste was found to be closer to chemical equilibrium than the saturation extract. Therefore the most suitable soil solution to be simulated is not the saturation extract, but the solution in the saturated paste. The characteristic values of the calcite and gypsum solubility products, pKs equal to 8.29 and 4.62, respectively, as well as the apparent carbon dioxide partial pressure in the saturated pastes from different soil depths, were determined.

A model to calculate the electrical conductivity in soil solutions at 25 ºC and ≤30 dS m^{-1}, their major inorganic composition was selected, calibrated, validated and finally implemented in SALTIRSOIL. This model is based on the following hypothesis: electrical conductivity is directly proportional to the sum of the product of free ion concentrations and charged ion pairs multiplied by their charge and by their ionic conductivity at infinite dilution, and all multiplied by an empirical factor, which was found by means of calibration.

The SALSOLCHEM model for chemical equilibrium assessment was developed by means of a stepwise methodology, which centres around validation. In accordance with this methodology, exclusively the necessary hypotheses to make sufficiently accurate, that is valid predictions, were put into the model. With this purpose, a rigorous validation method based on the statistical hypothesis test of the **standardized difference,** which has been described and applied in this work for the first time, was adopted. During the chemical equilibrium model development the following hypotheses were introduced in sequence: i) equilibrium with calcite and gypsum minerals, ii) equilibrium with the exchange complex, and finally iii) hypothesis of salt adsorption in the double-diffuse layer of the soil colloids. The inclusion of the equilibrium with the exchange complex took us to the chemical equilibrium model SALSOLCHEMEC. Nevertheless, in SALTIRSOIL only the simplified version SALSOLCHEM, which considers the equilibrium with calcite and gypsum minerals, was implemented.

A global sensitivity analysis was applied to SALTIRSOIL. This revealed that it is a linear model, and that the most influential factors on the calculations of soil salinity and sodicity are, respectively, the irrigation water salinity and sodicity. Next to these, but further away for sodicity, there are the climatic, crop and hydrophysical soil properties, in this order.

The calculations of electrical conductivity and sodium adsorption ratio carried out by SALTIRSOIL in the soil saturation extract were validated with information from 25 points cropped to wooded plants located in the south of Alicante Province.

In conclusion, the major ion chemistry in moderately saline agricultural soil solutions was reasonably simulated. The validation of SALTIRSOIL in the study area gave us confidence to use the model in order to generate maps of salinization and sodification state of the irrigated soils of the south of Alicante Province. The maps of predictions and observations showed quite satisfactory accordance. The validation of SALTIRSOIL will be continued in plot studies.

Note

The development of this thesis was supervised by Dr José Miguel de Paz (IVIA/GV), Dr José Luis Rubio (CIDE/CSIC) and Dr Juan Sánchez (CIDE/UVEG). The dissertation defence was held at the 'Centro de Investigaciones sobre Desertificación-CIDE' (Albal, Valencia, Spain) on 21 July 2009.

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Development of a Model to Predict Salt Accumulation in Agricultural Irrigated soils Under Mediterranean Climate; Application to the *Vega Baja del Segura and Bajo Vinalopó (Alicante)* (2009). Ph.D. thesis (in Spanish): some views.

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In 2002 a new research line on soil salinization was opened at the 'Centro de Investigaciones sobre Desertificación-CIDE' with the initiative of Dr Juan Sánchez, driving force of Dr José Miguel de Paz, and expert collaboration of Dr Raúl Zapata (Professor in Soil Chemistry at the Universidad Nacional de Colombia-Medellín), who was in residence at CIDE that year. Soon after I also joined this research team and had the fortune to collaborate in several investigations. Particularly, models of different complexity were applied to map the salinization status of soils at the regional scale (de Paz *et al*., 2004, 2006, 2007), the development of equations to calculate the electrical conductivity from the major inorganic ion composition was investigated (Visconti *et al*., 2004), and a soil chemical degradation indicator was described and applied (de Paz *et al*., 2006).

The importance of modelling in combination with Geographical Information Systems (GIS) for the assessment of salt-affected areas was revealed in the course of those activities. This coincided with the proposal of a Directive for Soil Protection by the European Commission, which stressed the importance of having validated models in order to evaluate soil degradation processes such as soil salinization (Commission of the European Communities, 2006).

Given the importance of soil salinization as a desertification process and the necessity of models which are both reliable and easy to apply, the development of a model which met these requirements was proposed. Then, from our point of view, such a model should use the information usually included in regular soil surveys, and should be aimed at validation with data obtained from soil saturated pastes, which are the world-wide reference for soil salinity, sodicity and alkalinity assessment. Therefore, the following considerations should be taken into account in model development: i) it should include soil solution chemistry, particularly the calcite and gypsum equilibria, which still need further research, ii) it should include a validated equation to calculate electrical conductivity from the major inorganic ion composition of aqueous solutions, and iii) it should consider the agricultural management practises, particularly irrigation and crop management. The development of such a model would give us a framework to guide our research on soil salinization.

This model once validated would be coupled to a Geographical Information System in order to develop maps of actual and potential soil salinization, sodification and alkalization. The development of this model was to be the aim of my Ph.D. Thesis. Therefore, a research project was written for the annual Spanish National R&D call for proposals. Nevertheless, the application was rejected in both 2004 and 2005 and given a serious reduction in the budget for 2006. During the years 2003 and 2004, I developed an initial version of SALTIRSOIL (Visconti *et al*., 2006), which I defended to obtain my Master's degree in the Universitat de

València EG in late 2004. However, the lack of funding from that moment and the departure of Dr José Miguel de Paz in Autumn 2004 for IVIA, made me stop developing SALTIRSOIL and eventually leave research in Autumn 2005, which was a sad moment.

However, at the beginning of 2006 Dr José Luis Rubio from CIDE offered me the opportunity to continue my work on SALTIRSOIL in order to complete my Ph.D. degree. Dr José Miguel de Paz and I wrote a project with this aim focusing on the agricultural irrigated area of Vega Baja del Segura-Baix Vinalopó, which is a seriously salt-threatened area in the Valencian Autonomous Region. The soil survey was carried out from mid-June until early August 2006. Soil analyses and data processing were carried out for one year until early October 2007. Then I started writing the thesis, which lasted until mid-February 2009, when it was approved to be submitted to a committee of experts. The thesis was considered ready to be defended in an oral examination in early June, which finally took place on 21 July 2009.

Some final comments

Carrying out a Ph.D. thesis on soil salinization has been an excellent opportunity to be trained as a soil scientist. Soil salinization is still a very interesting subject of study, which needs considerable research, and therefore development of SALTIRSOIL is still in progress. To encounter difficulties during research is commonplace. Sometimes they originate in the investigations themselves, which are the most welcome aspects. However, sometimes they originate in external causes, such as lack of funding. Whatever the case, and as a final remark I would like to encourage all those people who are developing a Ph.D. thesis to not give up and continue working.

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Recent publications by ESSC members

Included are the citation details of papers and books produced by ESSC members. These provide a growing resource for exchange of valuable information to both research and teaching. The cumulative citation list is being added to and updated on the ESSC web site. Students of ESSC members (both undergraduate and postgraduate) are increasingly accessing this facility in their literature searches. Currently, the number of quoted publications cited on the web page is 463. Please e-mail the citation details of papers in international refereed journals since and including the year 2000 to any member of the Editorial team.

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Awokola, O.S., Coker, A.O., Fullen, M.A. and Booth, C.A. (2009). Use of limited hydrological data and mathematical parameters for catchment regionalization: A case study of the Osun drainage basin, Nigeria. Aquaterra (Journal of African Water Resources and Environment) 3(1), 13-22.

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Subedi, M., Hocking, T.J., Fullen, M.A., McCrea, A.R. and Milne, E. (2009). Lessons from participatory evaluation of cropping practices in Yunnan Province, China: overview of the effectiveness of technologies and issues related to technology adoption. Sustainability 2009(1), 628-661. Open on-line access at: http://www.mdpi.com/2071-1050/1/3/628/pdf

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100 year jubilee of the First Conference on Agrogeology in Budapest (1909): An unforgettable event for Romanian Soil Scientists

As it is well known, Dokuchaev, by publishing his book 'The Chernozem' in 1883, set up the foundations of a really new scientific field of **Soil Science.** His concept was received with much interest by scholars at that time in Europe. In Romania, a clever minded scholar, Gheorghe Munteanu-Murgoci, geologist, paid special attention to this problem. Even the government was also interested on the soils as an important factor of agriculture. Fortunately, in 1906, besides the Ministry of Agriculture, Industry, Commerce and State Domains, the Geological Institute was set up by Royal Decree, which included two sections: the Geological Section and the Agrogeological Section. Gheorghe Munteanu-Murgoci was appointed the head of the Agrogeological Section and provided with a staff of two geological assistants: Em. I. Protopopescu-Pake and P. Enculescu.

As a hard working scientist, Gheorghe Munteanu-Murgoci decided to prepare together with his co-workers, in a short time (two years), an agrogeological sketch map of Romania, published in 1908. Desiring to be as completely and thoroughly informed as possible, he decided immediately to organize a series of scientific trips in other countries. So, he and his assistants went to A.I. Nabokikh (Odessa), a co-worker of Dokuchaev, and also to P. Treitz (Budapest). During an excursion in the South Ukraine together, the three scholars (Murgoci, Nabokikh and Treitz) established the idea to prepare the **First International Conference on Agrogeology** in Budapest (1909).

After this particular event, and in order to rapidly advance the discipline of soil science, Gheorghe Munteanu-Murgoci took an active part in the organization of further international conferences on agrogeology, which followed in Stockholm (1910), Prague (1922) and Rome (1924). Due to his particular professional and managerial expertise, at the Second Conference in Stockholm (1910), Gheorghe Munteanu-Murgoci, together with E. Raman, F. Wahnschaffe and T. Schucht, were appointed editors of the 'Internationale Mitteilungen für Bodenkunde' and, at the Third International Conference in Prague (1922), he was elected Chairman of the International Soil Cartography Commission.

While a modest initiative, this Conference, by its valuable results, proffered the way to so many, various and valuable international scientific manifestations on soils all over the world.

Reference

Dr G. Murgoci, Em. I. Protopopescu-Pake şi P. Enculescu. **Raport asupra lucrărilor făcute de secţia agrogeologică în anul 1906-1907,** întocmit de şeful secţiunii după lucrările sale şi ale geologilor asistenţi. **RAPORTUL ANUAL ASUPRA ACTIVITĂŢII INSTITUTULUI GEOLOGIC PE ANUL 1906-1907. BUCUREŞTI 1908.**

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Free web photos of soil erosion and conservation in Switzerland

Volker Prasuhn from the Research Station 'Agroscope Reckenholz-Tänikon ART', Zurich, has published over 700 photos on soil erosion on the Web, which are free to download. All photos are from Switzerland. They are subdivided into 38 photo galleries with different erosion features, sources, causes, consequences and measures to reduce erosion (e.g. no-till, strip tillage, in-mulch seeding) for different crops.

http://picasaweb.google.com/VolkerPrasuhn

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Book Review

E.A.C. Costantini, F. Urbano, G. Bonati, P. Nino and A. Fais (Eds) (2007). The National Atlas of the Areas at Risk of Desertification (in Italian, with extended English summary) INEA, Rome, 108 pp. (ISBN: 978-88-8145-090-9.

L'Atlante Nazionale delle Aree a Rischio di Desertificazione, realizzato con il finanziamento ed il patrocinio del Ministero dell'Ambiente e della Tutela del Territorio e del Mare, non pretende di essere il punto di arrivo di una riflessione avviata istituzionalmente poco oltre due lustri con l'insediamento del primo Comitato Nazionale per la Lotta alla Siccità e alla Desertificazione (CNLSD).

Esso e' però certamente il punto di partenza, il primo ed ad oggi l'unico, autorevolmente costruito da CRA e INEA secondo un approccio metodologico sicuramente condivisibile per come propone al lettore un percorso sistematico e gradatamente penetrante nelle principali componenti della **complessità** del degrado del territorio, come pure degli indicatori che la descrivono.

La Ricerca Scientifica studia e analizza le diverse componenti del fenomeno **Desertificazione;** l'Atlante le rappresenta! Giusto quindi non indugiare in una eccessiva esternalizzazione della **Conoscenza,** che avrebbe rischiato di risultare fatto accademico in sé stesso, se non addirittura didascalico; mantenere flessibile l'utilizzabilità' delle informazioni contenute nell'Atlante da parte degli Utenti ne consente il migliore utilizzo, per esempio nella predisposizione dei PAL (Piani di Azione Locale).

Anche la scelta di campo della **Sterilità Funzionale** pare coerente con questo approccio; essa rappresenta infatti una interessante novità rispetto ad altri più convenzionali modi di **leggere** la Desertificazione, sia perché finalizza le **Determinanti** allo scopo (incidendo quindi anche sulla identificazione dei relativi benchmark), sia perché offre implicitamente la necessaria flessibilità per la categorizzazione dei problemi favorendo dunque le possibili soluzioni. In questo contesto, darei quindi al concetto di **Irreversibilità** un significato più relativo che assoluto, essendo oggi la Ricerca Scientifica fortemente impegnata nello studio dei fenomeni di resilienza, di adattamento, di mitigazione.

Il costante riferimento operativo sia al modello ESA's sia al Framework logico DIPSIR, rendono le indicazioni dell'Atlante in piena sintonia con l'approccio prevalentemente adottato a livello internazionale. Criteri di metodo adeguati non possono tuttavia garantire **livelli di Qualità perenne** ad un Atlante che per sua stessa natura e' destinato a mutare nel tempo; in questo senso la **Qualità del momento** va tutelata attraverso un progetto di aggiornamento e di potenziamento. **Aggiornamento,** poiché le stesse Banche dati di riferimento evolvono, come pure i metodi di rilevazione, di misura e di calcolo, mentre si affinano i modelli di valutazione e di previsione. **Potenziamento,** perché un Atlante delle Aree a Rischio di Desertificazione, se **Nazionale,** deve assurgere ad una dimensione più vasta di quella attualmente riportata che si limita solo ad alcune Regioni affette, e non a tutte, e non in forma esaustiva.

Ciò, non certo per manchevolezza degli Autori, ma per arretratezza (talvolta anche culturale) di quelle amministrazioni che, nel Paese, non sono state in grado di dare risposte ai problemi cogenti del degrado dei suoli e delle risorse naturali non rinnovabili.

Il concetto di **Sterilità Funzionale,** adottato per una più adeguata definizione del fenomeno **Desertificazione** nel nostro contesto nazionale, ne estende i confini ben al di là di quei territori caratterizzati da condizioni di clima arido, semiarido e sub umido, così come definito dalla Convenzione delle Nazioni Unite per la Lotta alla Siccità e alla Desertificazione (UNCCD).

Professore Giuseppe Enne
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The National Atlas of Areas with Risk of Desertification, which has been created with the support of the Italian Ministry for Environment, Territory and the Sea, should not be the final point of a discussion that began a dozen years ago, with the creation of the first 'National Committee to Combat Drought and Desertification' (Comitato Nazionale per la Lotta alla Siccità e alla Desertificazione, CNLSD).

Nevertheless, it is certainly the starting point, the first one and so far the unique, which has been authoritatively realized by CRA (the National Council for Agricultural Research) and the National Institute of Agricultural Economy, following a sensible methodological approach. This approach leads the reader, through a systematic and deepening path, to the main components of the **complexity** of land degradation, as well as to the indicators that describe it.

If the scientific research studies and analyses the different components of the desertification phenomenon, the Atlas maps them! Therefore, it is right to not indulge on excessive externalization of the **knowledge,** which would have risked the Atlas being a mere academic exercise, albeit an instructive one. The flexibility of use of the information contained in the Atlas lends to users the possibility of its best utilizations, for instance, for the preparation and implementation of 'Local Action Plans' (PAN).

Also the formulation of the concept of **functional sterility** seems consistent with this approach; actually it represents an interesting novelty in comparison with other more conventional ways to read the Atlas. Both as it finalizes the **determinants** of the aim (and so it also controls the identification of respective benchmarks), and implicitly offers the needed flexibility for the categorization of problems; thus, favouring the best possible solutions. In this context, I would add the concept of **irreversibility** a more relative than absolute meaning, the scientific research being little involved in studies of resilience, adaptation and mitigation phenomena.

The continuous operative reference to both the ESA's model and the logical Framework of DPSIR, makes the results of the Atlas fully consistent with prevalent internationally adopted approaches. The consistent methodological criteria cannot guarantee; however, **perennial quality levels** to an Atlas that is inevitably destined to change with time. In this sense, the **quality of the moment** must be guaranteed through a project of updating and improvement. **Updating,** as the reference databases itself develops, likewise the survey methods, while the evaluation and provision methods refine. **Improvement,** as an Atlas of the Areas at Risk of Desertification, if **national,** must rise to a broader dimension of that currently reported, which is limited to only some particularly affected regions, instead of to the whole country, and not in an exhaustive form. That was not due to an authors' fault, rather the delay (sometimes also cultural) of those administrations that, in the Country, were not able to give answers to the burning problems related to the degradation of both soil and the other fixed resources.

The concept of **functional sterility,** which was adopted for a more adequate definition of desertification phenomena in our national context, extend the boundaries of it well beyond the territories characterized by arid, semi-arid and sub-humid climatic conditions, as stated in the 'United Nations Convention to Combat Drought and Desertification' (UNCCD).

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Note:
The Atlas is freely available on request from:
CRA-ABP piazza D'Azeglio
30 Firenze (Florence) 50121
Italy
or downloadable from:
http://www.soilmaps.it/download/des-Atlante_desertificazione_A4.pdf

Reference:

Costantini, E.A.C., Urbano, F., Aramini, G., Barbetti, R., Bellino, F., Bocci, M., Bonati, G., Fais, A., L'Abate, G., Loj, G., Magini, S., Napoli, R., Nino, P., Paolanti, M., Perciabosco, M. and Tascone, F. (2009). Rationale and methods for compiling an atlas of desertification in Italy. Land Degradation and Development 20, 261-276.

ESSC membership list and contact details

Web Based Bulletin Board

The ESSC wishes to rapidly disseminate information to its members. Please forward information to the ESSC web site to be placed on our ESSC Bulletin Board. These could include searches for potential collaborators for research proposals, calls for research proposals, job opportunities, research studentship opportunities, impending conferences and other items of important information for rapid dissemination. Of course, we will also continue the regular circulation of information via our Newsletter. The ESSC web site is:

http://www.essc.sk

ESSC membership list and contact details

The full ESSC membership list is held on the ESSC web site. Under 'members' you can get a full listing. Also under 'members' you can click on any member country and find a listing of members in the selected country.

We are trying to keep the membership list on the web site up-to-date. Please check your details and let us know if there are any necessary correction(s). If your details change, also please let us know. Some members have requested that we do not add their e-mail addresses to the web site, to avoid uninvited 'spam' e-mails. Of course, we respect this request. Therefore, while we retain a list of the e-mail addresses of ESSC members, this list will not be available on the web site.

Editorial matters in Bratislava are handled by Ida Kurincová Kriegerová. In terms of membership lists, contact details and the ESSC web site, please send updated information to Ida at:

E-mail: i.kriegerova@vupop.sk

Please also use and refer to the **'Directory of European Organizations and Persons Working on Soil Protection'** as a reference source for European colleagues, both members and non-members of the ESSC. This publication contains the e-mail addresses of most ESSC members and will be subject to periodic updates. The reference citation is:

Rubio, J.L., Imeson, A.C., Bielek, P., Fullen, M.A., Pascual, J.A., Andreu, V., Recatala, L. and Ano, C. (2006). **Directory of European Organizations and Persons Working on Soil Protection.** Soil Science and Conservation Research Institute, Bratislava, 190 pp. (plus CD-Rom).

Conference Reports

REPORT AND RECOMMENDATIONS OF LANDCON 0905: THE INTERNATIONAL CONFERENCE ON LAND CONSERVATION, 'GLOBAL CHANGE – CHALLENGES FOR SOIL MANAGEMENT' HELD AT TARA MOUNTAIN, SERBIA, 26-30 MAY 2009

Soil, like air and water, is essential to life on earth. Over 90% of all human food and livestock feed are produced from the land and from soils that vary in quality and extent. Of the Earth's 13,000 million hectares of ice free-land surface, only 3% is covered with highly productive soils, just 6% with moderately productive and 13% with slightly productive soils. The remaining 78% of the land has limitations that inhibit the sustainable cultivation of its soils sometimes even for grazing. However, it is in such marginal lands that most land and soil, degradation occurs (Hurni *et al*., 1996). It is from this context that we launch this 'International Conference on Land Conservation' (LANDCON), with the hope of discovering new and better ways of counteracting the effects of land degradation and of building more secure and self-sustainable patterns of agricultural land husbandry.

The International Conference on Land Conservation (Landcon 0905 'Global Change – Challenges for Soil Management' was held at Tara Mountain in Serbia from 26-30 May 2009. The Conference attracted 123 scientific participants from 24 countries that span the world. In total, there were: 55 non-Serbian participants, including seven students, and 68 Serbian participants including 38 professionals and 30 students. The Conference was organized jointly with Belgrade University (Faculty of Forestry) and the World Association of Soil and Water Conservation (WASWC). The Conference was convened in accordance with the objectives of the World Association for Sedimentation and Erosion Research (WASER), the International Sediment Initiative (ISI, UNESCO), the European Society for Soil Conservation (ESSC), the United Nations University (UNU), the Ministry of Science and Technological Development of the Republic of Serbia, Ministry of Agriculture, Forestry and Water Management of the Republic of Serbia, the Direcorate of Waters, Water Management Institute 'Jaroslav Černi,' Public Water Management Company 'Srbijavode' and the Water Management Enterprise 'Erozija' from Nis. The Conference benefited from substantial sponsorship from both UNESCO and the UNU Regional Centre in Bonn. The Conference Organizers extend their sincere thanks to all of these sponsors for their academic, organizational and financial assistance, which contributed greatly to the success of this meeting.

Programme

The Conference's scientific programme was organized under eight thematic topics:

Topic 1: Global Change and Soil Degradation, Topic 2: Water Management, Topic 3: Soil Erosion, Sediment Transport and Sedimentation Processes, Topic 4: Erosion and Torrent Control in Environmental Change, Topic 5: Desertification, Topic 6: Socio-economic, Legal and Institutional Aspects of Soil and Water Conservation, Topic 7: Implementing Global/Regional Projects, and Topic 8 the Work of Younger Scholars.

Recommendations and topic summaries

Topics 1 and 5: Global Change, Soil Degradation and Desertification (Reported by: Winfried Blum and Jose Rubio):

The main drivers of global change are: annual population increase of ~85 million people, annual movement of ~50-100 million people from rural into urban areas, problems of food security due to population increase, new consumer demands (especially for animal protein, in the form of meat), over-consumption in industrialized countries and the production of agro-fuels in competition with food. Urbanization, industrialization and transport are sealing agricultural land at the scale of about 300-400 km^2 per day at the global scale. Moreover, climate change driving rising temperatures, decreases in precipitation in many parts of the world and increases in extreme weather events, is threatening soils and land through accelerated erosion, decreases in soil organic matter, salinization and desertification in the dry tropics and subtropics, including regions with a Mediterranean-type climate.

These adverse processes are endangering food security and the well-being of the world's citizens at large. This problem is becoming visible through the increase in food prices and the expansion of landscapes suffering desertification, sometimes induced by the increasing frequency of forest wildfires.

Topic 2: Water Management (Reported by I. Pla Sentis and S. Petkovic)

The water management presentations emphasized three main problem areas and two areas where solutions could be formulated. These could be affected through action in three strategic directions.

Three Problem Areas

First, there were increased risks of water scarcity and of decreased water quality due to present and future global changes. These were framed as consequences of: increasing populations, especially urban, and water demand, which were leading to increases in the irrigated areas needed to produce food, the competition for water against other uses (such as domestic and industrial) and hence, increased land degradation. These processes are exacerbated by climate change, which is manifested as: increasing temperatures and evapotranspiration, decreasing precipitation in some key regions, and more general changes in the regularity and distribution of rainfall.

Second, there is an increased risk of land degradation linked to present and future hydrological change. The causes include: increased runoff and erosion consequent upon increasing rainfall intensities, decreased soil cover and quality, and increased land sealing by structures and surfaces associated with population growth and economic development.

Third, there is an increased risk of weather-related disasters due to human-induced land degradation through development and, again, climatic change. Key changes are the increased incidence of extreme weather events (especially rain storms) and increasing human vulnerability caused by the development of areas prone to hazards, such as flooding and landslides.

Two Sources for Solutions

The key to avoiding or decreasing these risks is to increase the efficiency of water use using management systems that help decrease water use, decrease water losses and wastage, and that enhance the efficiency of sustainable productivity derived from water use. The second key was the application of better land husbandry to enhance water and organic matter management and so reduce land and water resource degradation.

Strategic Actions

Firstly, it is necessary to create, review and evaluate different scenarios for global change, including climatic and social-economic aspects, and create strategies for planning water use management that take into account the different probabilities. Secondly, it is necessary to adapt or modify land use and management systems according to the anticipated availability and competing demands upon land and water under future conditions. Finally, it is necessary to establish more economic and efficient systems for the use, reclamation and recycling of residual or saline waters.

In order to achieve these aims it is essential, firstly, to formulate and apply legislation for regulation of the use and management of land and water at local and regional level that takes into account an uncertain future of global change. Secondly, to increase resources for research into the present and future dynamics of hydrological changes and their consequences as a basis for selecting and applying appropriate prevention and remediation measures for each situation. Thirdly, it is necessary to improve the education and training of professionals and researchers in aspects related with the hydrological processes and its derived effects related to soil and water conservation under present and future global changes. Finally, it is necessary to extend awareness of the necessity of such actions through education of the general public.

Topic 3: Soil Erosion, Sediment Transport and Sedimentation Processes (reported by D. Walling and V. Golosov)

Work on sediment mobilization processes addressed a wide range of targets and was shown to be a very active research area, especially among East European scientists. Two main directions were explored, which involved either the direct field measurement of erosion processes or mapping techniques. Among the techniques explored were: LIDAR, radionuclide, historical photographs and GIS. As ever, the chief general recommendations involve better integration of such work through integrated catchment management and through the integration of field measurements and modelling for the better evaluation of sediment redistribution rates.

Topic 4: Erosion and Torrent Control in Environmental Change (reported by J. Huebl and S. Kostadinov)

This session of two keynote papers and nine technical presentations explored and evaluated the different types of check-dams, from classical to functional, that are used for the retention of bed-load in the hydrographic network. Increasingly, contributors explored the benefits of biological methods, with special emphasis placed on reforestation and good forest management practise. Land use management conflicts were explored, most notably through the case study of ski resorts, where inappropriate treatment and design of ski slopes was shown to lead to significantly increased erosion rates. A key area for future research was the further development of torrent control risk management.

Topic 6: Socio-economic, Legal and Institutional Aspects of Soil and Water Conservation (reported by B. Boer and M. Zlatic).

This session produced two proposals for WASWC action. First was the proposal for the formation of an 'Intergovernmental Panel on Land and Soil' (IPLS) and second the proposal for legislative development on conservation, remediation and sustainable use of land and soil resources for the Balkan region.

1. Proposal for the formation of an Intergovernmental Panel on Land and Soil (IPLS)

Respecting that research into conservation and the sustainable use of land and soil is fundamental to understanding global environmental issues, it is recommended that an 'Intergovernmental Panel on Land and Soil,' complementary to the 'Intergovernmental Panel on Climate Change,' be formed as a worldwide interdisciplinary network of experts.

The Panel would have the following functions:

(i) To initiate and co-ordinate major interdisciplinary research programmes on the conservation and sustainable use of land and soils.
(ii) To disseminate the results of such research in co-operation with relevant organizations, including the natural and social sciences, economics and law.
(iii) To interact and co-ordinate with the 'Intergovernmental Panel on Climate Change' in relation to research projects concerning the conservation and sustainable use of land and soils, which relate to any aspects of climate change.

2. Proposal for legislative development on conservation, remediation and sustainable use of land and soil for the Balkan region

Given that a set of guidelines for the review and drafting of legislative frameworks for the Balkan region was proposed at a conference in Serbia in 2007, it is recommended that a regional co-ordination group, composed of experts in land conservation, soil science and law, be formed to continue this work.

This expert group should be initiated by the Faculty of Forestry at the University of Belgrade and include representatives of the main land and soil conservation organizations that have representation and influence in the Balkan region, representatives of the Specialist Group on Sustainable Soils and Desertification of the IUCN Commission on Environmental Law, as well as representatives of the Students Forum of the World Association of Soil and Water Conservation.

The expert group would have the following functions:

(i) To review the draft 2007 proposal and prepare a preliminary report, including recommendations on the major legal, policy and institutional concerns and research required for the production of a set of legislative guidelines in relation to the conservation, remediation and sustainable use of land and soil in the Balkan region.
(ii) To disseminate the preliminary report to all interested organizations and individuals.
(iii) To make recommendations on approaches to appropriate donor organizations to fund the comprehensive analysis of legislation and preparation of the Guidelines, based on the preliminary report referred to above.

Topic 7: Implementing Global/Regional Projects (reported by A. Leake, N. Dragovic and M. Zlatic)

This session concerned effecting the move **from knowledge to action.** It included nine presentations: one keynote, three project presentations, one NGO presentation, two presentations on the work of two water management enterprises from Serbia and one presentation from the work of a private farmer. **The following strategies were proposed towards achieving this end:**

- Adequate education programmes with more involvement of practical work.
- Conservation agricultures has a great potential role in strategic land management (slm).
- The necessity to incorporate stakeholders experience and knowledge.
- The necessity of taking into account risk management, disaster management and the prevention of natural hazards.
- Promoting the active role of NGOs in environmental issues.
- Implemented projects to move more towards environmental rather than technical issues.

Topic 8: Work of Younger Scholars (chaired by Martin Haigh and Csila Hudek, reported by C. Hudek)

This session contained 17 inspiring presentations from a wide range of new and on-going soil conservation studies. The number and quality of these presentations illustrated the importance of allowing a voice for the younger scholars. This group has a limited number of fora available to them for the communication of their work to a wide international audience. Fewer still that provide the relatively safe and supportive nature of this kind of session, where co-presenters are other young scholars, who are not yet seasoned professionals. While many valuable scientific insights were reported, the most important aspect of this session was that it provided a good opportunity for students to practise presenting their work in another language and to summarize their work in 10-15 minutes. Moreover, after the presentations students obtained immediate feedback from a wide range of students and researchers. Consequently, this helped students improve their professional skills and give better accessibility to national research results to an international audience. Therefore, we all think it was a great opportunity for students to be able to participate in this international Conference and would be an excellent idea to continue Topic 8 'Work of Younger Scholars' in the future. Recognizing the success of the sessions by younger scholars in presenting their work at 'LANDCON 09 05,' it is strongly recommended that future LANDCON meetings include a similar programme for younger scholars.

Developments of the International Sediment Initiative (ISI): Response to LANDCON Recommendations.

Sediment management is a generally accepted aspect of watershed management, and it is essential that the latter includes land conservation, erosion control and the management of sediments already within watercourses. LANDCON recommends, in future, that the 'UNESCO International Sediment Initiative' pays more attention to the management of sediments generated by land erosion. It also proposes that, one of the next meetings of the ISI Steering Committee consider this aspect in planning future activities. The Conference requested LANDCON that those participants who are part of the ISI Steering Committee (Des Walling, Valentin Golosov and Stevan Bruk) brief the ISI Steering Committee on this respect and try to place this proposal on the agenda being compiled by the responsible UNESCO staff specialist Dr Anil Mishra. So, ISI, which has so far been mainly active in promoting sediment

management from the water resources management aspects of sediments affecting river morphology, reservoir sedimentation and river bank safety, might turn its future attention more to sediment management aspects of land conservation.

Conclusions

Land conservation and erosion control require a site specific approach, the setting-up of a persistent institutional activity in the affected river basins. This activity must be legally based to be effective. In this sense, each region subject to land erosion needs to develop competent teams of experts able to deal with site-specific problems, and to ensure institutional and legal support for this activity. An important aspect is the multidisciplinary character of the activity. It is essential to organize periodical exchange of information about the experiences of such teams operating in different regions. For the continuity of ongoing efforts it is essential to educate and train young professionals to take part in the activities. LANDCOM offered an excellent opportunity in this respect and it can be recommended to continue the organization of similar meetings in the future, in different parts of the globe.

Public information and education are most important aspects of land management and it is worth stressing the positive experiences reported at LANDCON. This confirmed that, in many cases, the local population has been most supportive to promote land conservation, and cases were quoted about areas where land erosion has been reduced with the growth of population and its agricultural activity. This contrasts markedly with the general assumption that land erosion increases with the increased population. Four key opportunities were proposed that may also help the message of land conservation reach a wider audience. Firstly, was the proposal for the formation of an 'Intergovernmental Panel on Land and Soil' (IPLS), a little sister for the 'Intergovernmental Panel on Climate Change' that had done so much to influence international policies. Secondly, there was the proposal to widen the brief of the 'UNESCO International Sediment Initiative' (ISI) to include wider catchment characteristics. Thirdly, there was the proposal for the creation of a Balkan regional co-ordination group to continue the work begun in Serbia in 2007 on the creation of administrative frameworks for land conservation. Fourthly, there was the proposal to include a younger scholars forum in every future LANDCON meeting, in order to help the development of the next generation of land conservation scientists.

Appendix 1.

Comments by Participants: LANDCON 09 05 Conference, Tara Mountain, Serbia, 30 May 2009.

1. Ben Boer (The University of Sydney, Australia)

On behalf of the IUCN Commission on Environmental Law, and its Specialist Group on Sustainable Soils and Desertification, let me congratulate the organizers of this Conference for its great success, both on a professional and on a personal basis. In particular, let me thank once again Professor Miodrag Zlatic, all of his enthusiastic colleagues, and his most impressive students, in bringing us all together, and in particular for having the foresight to include a legal and ethical section in this event. The ethical and legal aspects of land and soil conservation and sustainable use are and should always be an inherent part of the scientific debate.

So, do not forget the lawyers; we can stand by you, assist in ensuring that all of your important work can be implemented through institutional development, policy development and adequate legal frameworks at an international, regional, national and local level. The law of nature and the law of human society must be harmonized. This can only be done by working together.

2. Jose Rubio (Valencia, Spain)

Dear Miodrag

Thank you very much for everything.

On my words at the Closing Ceremony of Landcon 09 I was not exaggerating your human quality. You and your dedicated, professional and friendly team created the organizational and inviting atmosphere for a successful Conference. In every sense the objectives of the Conference were achieved, including the scientific scope, the field excursion, the discussions and participation of delegates. I was especially impressed by the remarkable work of younger scholars. The Conference was also a nice opportunity to reinforce the ongoing and productive inter-linkages between the WASWAC and ESSC.

On behalf of the ESSC, please transmit to the Organizing Committee my sincere thanks and congratulations!

All the very best,
Warm regards,
José Luis Rubio (President of the ESSC).

3. Des Walling (Exeter, UK)

Dear Miodrag

Having returned safely to Exeter yesterday, I would like to take this opportunity to thank and congratulate you and your colleagues for organizing an EXCELLENT symposium at Tara Mountain. As indicated by the comments at the closing ceremony, the venue was excellent, the hospitality was outstanding, the field trip was very enjoyable and informative, and the scientific content and scope of the Symposium were outstanding. There was a really good atmosphere at the Symposium and I think it demonstrated that IASWC should follow up the LANDCON theme and approach in organizing future meetings. Do not destroy the group! LANDCON has a very important role to play on the international scene.

4. Seyed H.R. Sadeghi (Tarbiat Modares University, Iran)

Dear Professor Zlatic

I hope you are fully refreshed after some very tedious and hard days. Here, once again, I want to thank you and draw your attention to the following:

- I advise to ask people in Ardebil to confine the scope of our next meeting of WASWAC to receive more high quality and specialized papers. Postponing the meeting is also advised for the same purpose.

- I am trying to extend the valuable idea of the Student forum in our country as well but can you just tell me in which aspects do you expect to be directed. In this regard how they can become members?

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Main highlights of the 18th ISTRO Conference (Izmir, Turkey, 15 – 19 June 2009)

The 18th Triennial 'International Soil and Tillage Research Organization' (ISTRO) Conference was held in Izmir (Turkey) from 15-19 June 2009, in co-operation with John Deere as the main sponsor and several other sponsors. The venue was Sürmeli Hotels and Resorts, Efes Antik Şehir Plajı Kuşadası Yolu, 35920 Selçuk, İzmir, Turkey. The Conference was organized by Professor Dr Engin Çakir (Department of Agricultural Machinery, Faculty of Agriculture, Ege University, Izmir, Turkey). He was the then President of ISTRO. About 250 participants from 41 countries attended the Conference and there were ~100 oral and ~75 poster presentations. The Conference comprised eight themes and a one-day technical excursion to Ege University. Pre- and post- Conference tours were successfully completed, with 11 and four participants, respectively. The Conference also organized several business meetings.

There were four young researchers' scholarships to cover all costs of attending the Conference. Julia Krüemmelbein (from Germany) was selected to receive the 'Cees van Ouwerkerk Scholarship' for 2009. The three 'Low-Income Country' scholarship recipients were Sheng Li (a Chinese citizen, who is currently a Visiting Fellow with Agriculture and Agri-Food Canada), Ranjan Bhattacharyya (from India, currently a post-graduate student in Environmental Sciences at the University of Wolverhampton, UK), and Mohammad Reza Mosaddeghi (from Iran, currently working in the Department of Soil Science, College of Agriculture at Bu-Ali Sina University in Hamadan, Iran).

The Conference organized many interesting themes including: conservation tillage, direct seeding and no-till applications, sustainable forest management, rehabilitation of degraded areas, soil compaction (causes, effects and control), soil dynamics and traction, soil management as a tool to reduce erosion, nutrient leaching and greenhouse gas emission, production of bio-fuels and soil biological quality and health. The keynote lectures addressed: tillage and soil ecology as partners for sustainable agriculture, sustainable issues with field traffic, modelling soil-machine interactions and soil pore space under pressure. Conference delegates assembled to share their research experiences in: conservation tillage effects on soil organic carbon sequestration, characterizing soil degradation, measuring responses to improved soil management practises, assessing the value of conservation tillage,

management practises to achieve greater sustainability and describing interrelationships among soil, water, air and ecosystems. Delegates agreed that conservation management practises are helpful in preserving and improving soil quality around the world by decreasing water erosion and compaction by soil traffic, by increasing C-sequestration and improving soil biological activity. A special challenge for this Conference was to keep momentum in the development of soil protection by conservation tillage, including the establishment of legal instruments. ISTRO members are actively working on dissemination of this knowledge to farmers and practitioners.

The main source of information for this review is:
https://www.istro2009.org/index.php

As an ISTRO member, I express my sincere thanks to the Organizer for arranging this wonderful Conference (18th Triennial ISTRO) at Izmir. Everything, starting from the people's greetings, the venue, to the Conference themes and tours were perfect! This was certainly the best Conference I have ever attended! Not only the atmosphere, food and melodies were pleasant, but also people's behaviour and attitude was extremely enjoyable! As a scholarship winner, my experience was very special!

The venue for the next 19th Triennial ISTRO Conference will be in Uruguay in 2012. The new President of ISTRO is Professor Oswaldo Ernst, Universidad de la Republica Oriental del Uruguay, Uruguay. We, on behalf of all members of the ISTRO, congratulate Professor Oswaldo Ernst!

Ranjan Bhattacharyya

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The transfer of the Presidency of ISTRO from Professor Engin Çakir (Izmir, Turkey, left) to Professor Oswaldo Ernst (Uruguay).

Conference visit to the famous archaeological site of Ephesus (built about 550 BC).

Conference report from the International Conference of the European Society for Soil Conservation (ESSC), Průhonice, Czech Republic, 22 – 25 June 2009

The International Conference of the ESSC was held in Průhonice (near Prague, Czech Republic) in the frame of the National Rural Network and on the occasion of the 55th Anniversary of foundation of the Research Institute for Soil and Water Conservation (RISWC). This Institute deals with the applied research and problems of soil and water in relation to agriculture. The Czech Soil Science Society and Czech Agricultural University co-operated with the organizers. The location for the Conference was chosen at the ESSC Congress in Palermo 2007, based on the established record of long and fruitful research in soil science and soil conservation in the Czech Republic. The main leading theme of the Conference was 'Protection of the ecological and productivity functions of soil in a pan-European context.'

The Conference took place in the Congress and Education Centre Floret in Průhonice, close to Prague City. The comfortable Congress Centre is attached to a nice old castle with famous flowers and trees garden and includes the congress hall, several smaller parlours, a very good restaurant and the hotel for participants. All Conference participants had all they needed for their work. About 90 workers from all most European countries took part in the event. There were seven general contributions in the plenary session, five keynote lectures, 22 oral scientific contributions and 37 posters were presented in four thematic sessions during the two day Conference. All thematic sessions were summarized in a plenary session.

The comprehensive and important lecture on the 'Update of the Soil Thematic Strategy and the Proposal for the Soil Framework Directive' (Luca Marmo from European Commission; Environment Directorate General) was an important contribution on the opening day

programme. Problems with progress and acceptance of this document were listened with extraordinary attention and was followed by discussion and debate. It was a strong voice to a substantial contribution to the EU Soil Thematic Strategy.

The first thematic session was devoted to problems of soil sealing. Generally it was acknowledged the threatened consumption of soil, and mostly high quality soil, for built-up areas all over Europe. The lack of suitable methods for sealing assessment, namely for agricultural or forest use but also from the view of the soil environmental functions and from the impact of soil sealing on water management and landscape was recognized. The problems require applied study of different ways to tackle problems of soil consumption and some possibilities were presented.

The second session concerned soil degradation. The diagnostics and trends of different soil degradation processes, impact of soil degradation on soil multifunctionality, ecological rehabilitation of degraded soils, different ways of land management, including irrigation and supply on possible polluted materials into soil, were the main presented and discussed questions.

The third thematic session was partially tied up to the preceding one. It dealt with different ways of soil reclamation. The impact of high irrigation and varied methods of tillage on infiltration and retention of water, the influence of acid deposits and the improvement of degraded soils similarly as reclamation of man-made soils (Anthrosols, Technosols) were the objects of presentations.

The last thematic session was devoted to the soil and water monitoring. It was pointed-out that monitoring is the only method that can demonstrate the state and changes of soil characteristics. The effort for establish a unified European soil monitoring system is still not successful for troubles in methodical approaches to this process and to use the results.

Poster presentations were a natural part of the Conference, with 37 presented posters covering a range of soil management issues. There was a competition for the best poster. The Conference programme was completed by the acceptance of a General Conclusion evaluating Conference contents and results. The farewell dinner was a fine social finish to the Conference.

The day-long post-conference excursion to the North-Bohemia Open Coal Region focused on problems of open mining, soil and land reclamation works, which followed mining activities and, associated technical, financial and legal questions. All excursion participants were captivated by the range of mining and reclamation activities in agricultural, forest or hydric parts of reclaimed land. A rich discussion with mine specialists on each excursion stop was proof of the general interest and proved a successful close of the Conference.

On the pages www.vumop.cz/essc it is is possible to find the 'Soil Thematic Strategy' lecture as well as a list of participants and photos from the Conference.

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General Conclusion of the International Conference of the ESSC, Průhonice, Czech Republic, 2009

PROTECTION OF THE ECOLOGICAL AND PRODUCTIVITY FUNCTIONS OF SOIL IN A PAN EUROPEAN CONTEXT

RESULTS AND RECOMMENDATIONS OF THE SESSIONS

TOPIC 1: Soil sealing (chair J. Sobocká)

Soil sealing presents one of the soil breaks defined in the Soil Thematic Strategy, which drastically affects soil resources. It was recognized there is an urgent need for reduction of soil sealing because of sustainable urban and agricultural land environment and soil quality preservation. It was also revealed that there is a lack of adequate methodologies to measure soil sealing impacts. This is hoped to encourage soil scientists and environmentalists for more studies and applications, including clear explanation of terms "soil sealing" and "soil consumption." Finally, a consideration about implementation of soil sealing issues in urban and rural land planning and zoning was discussed.

TOPIC 2: Soil degradation (chair P. Novák)

In the frame of the topic of soil degradation, special attention was devoted to the role of soil multifunctionality in sustainable development, diagnosis of soil degradation processes, trends of soil degradation and ecological rehabilitation of degraded soils. Much discussion was devoted to the wider context of humus content under different tillage systems, results of diagnostics of crust formation as a result of irrigation, the impact of forest fires on soil in the Mediterranean regions, efficiency of N fertilizers and water by tillage options and input of potentially hazardous substances into soil. In connection with the theme of the Conference, the progress of soil recultivation practises and man-made soils was presented.

TOPIC 3: Soil reclamation (chair J. Kulhavý)

In the frame of the soil reclamation topic, special attention was devoted to:

1. The aspect of irrigation of agricultural soil and the impact on soil protection and productivity.
2. Needs for measures increasing retention and infiltration capacity of soil in catchments using adaptive agricultural and forest management practises.
3. Reclamation of degraded soils in disturbed areas.
4. Discussion on problems of acid deposition, which still continue to exceed total critical loads in large forested areas, especially in so called 'hot spots.' Further decrease of emissions, especially nitrogen compounds, is urgently needed. To improve the situation, revitalization measures must continue.

TOPIC 4: Monitoring (chair M. Sáňka)

Only systematic monitoring can provide reliable data on the status and changes of soil properties. For the time being, the effort to establish a unified European network of soil monitoring has not yet been successful, which strengthens the need for co-operation among national networks, both in the field of methodical principles and data processing. This

can contribute both to the subsequent harmonization of monitoring networks throughout Europe and to effective utilization of results. Scientifically based systems of soil monitoring should be supported in the framework of general research in soil science.

The responses from Ministry representatives and from scientists of the Czech Republic were very positive. They asked for exchange of experiences and ideas about how to co-operate and how to utilize EU funds for sponsoring workshops and conferences, dealing with themes of rural development, including soil and water conservation.

We hope all participants left Průhonice with good impressions of a well organized Congress with a high scientific level and with an interesting excursion.

Ing. Jana Podhrázská PhD.
Ing. Jana Uhlířová
Ing. Pavel Novák, PhD.
RISWC Prague

International Symposium on Soil, Sediment and Dust Magnetism (SoilSEDUMA) 29 June-1 July 2009, Bytom "Dolomity Sport Valley" (Poland)

During the last decade, a fast growing number of scientific publications related to soil, sediment and dust magnetism has been published. According to ISI Web of Science, since 2000, annually more than 50 related scientific articles have been published. Fast and easily measurable magnetic parameters (even in field conditions), being the result of magnetic mineral concentration and structure, are very often used as tracers of environmental processes and/or anthropogenic influx. Authors using magnetic mineralogical parameters are not only geophysicists but also scientists from many other disciplines of Earth Sciences. These include geochemistry, environmental geology, mineralogy, soil science, physical geography, environmental protection and ecology. This fact inspired scientists from the Institute of Environmental Engineering of the Polish Academy of Sciences in Zabrze (Poland), where the study on soil magnetism and soil magnetic mineralogy has been carried-out since the end of 1980s, to organize the first International Scientific Symposium on 'Soil, Sediment and Dust Magnetism' (SoilSEDUMA). The Symposium took place from 29 June-1 July 2009 in an old dolomite quarry "Dolomity Sport Valley" in Bytom (Poland) and was delivered to scientists from various scientific disciplines, using magnetic methods for studying natural processes and pollution of soil environments, sediments and atmospheric dusts.

The main initiator and organizer of the symposium was Assistant Professor Tadeusz Magiera (a researcher from the Institute of Environmental Engineering of the Polish Academy of Sciences and Head of the Department of Soil Sciences and Environmental Geology, Opole University). The Scientific Committee consisted of famous scientists representing geophysics (Professor Erwin Appel, Dr Eduard Petrovsky and Dr Aleksandr Ivanov) as well as mineralogy (Professor Janusz Janeczek) and soil science (Professor Franz Makeschin and Professor

Zygmunt Strzyszcz). Twenty four scientists from Poland, Germany, Italy, the Czech Republic, Finland, Canada, China, Russia and The Netherlands participated in this meeting. The initiative was also supported by many scientists from various scientific institutions investigating soil, sediment and dust magnetism, who, due to various reasons, could not be present in Bytom.

The general aim of the Symposium was to present scientific results of studies and exchange experiences in the field of soil, sediment and dust magnetism and magnetic mineralogy by scientists from different disciplines of natural science (geophysics, geochemistry, soil science and environmental geology). During the meeting the main emphasis was placed on the practical application of magnetic measurements as complementary methods next to classic chemical and geochemical analyses used in environmental studies on soils, sediments and dusts.

After the inauguration by Professor Dr hab. inż. Czeslawa Rosik-Dulewska (Director of the Institute of Environmental Engineering), the scientific part of the meeting began. The participants gave 22 presentations as part of four thematic sessions:

I Pedogenic and geogenic soil magnetism.
II Anthropogenic soil magnetism.
III Magnetism of lake and river sediments.
IV Magnetic particles in industrial and urban dusts.

Each presentation ended with a short discussion leading to some constructive conclusions regarding practical application of magnetometry.

Final discussions led to elaboration of the following conclusions:

- Comparison of magnetic parameters obtained from individual soil horizons indicates different magnetic mineralogy and magnetic mineral concentrations related to different stages of pedogenic processes. Detailed observation of magnetic properties along vertical soil horizons and proper interpretation of

All participants of SoilSEDUMA Meeting.

Soil magnetometry is the most effective field method for detection of magnetic iron minerals of both natural and anthropogenic origin occurring in topsoil.

magnetic parameters can be indicative for identification of main soil types without additional pedological information.

- Soil magnetometry is an effective method to localize and state the delineation of geochemical anomalies caused by anthropogenic accumulation of urban and industrial dusts rich in anthropogenic heavy metals, where technogenic magnetic minerals can be regarded as a tracer of pollution.
- Combination of soil magnetometry and classical geochemical analysis allows more effective mapping of soils polluted by industrial and urban dust deposition.
- In some specific areas the magnetic susceptibility can be, potentially, used in quantitative estimation of heavy metal content with clearly determined threshold values.
- Examination of vertical distribution of magnetic susceptibility values in topsoil enables us to describe the origin of magnetic anomalies and to estimate the rate of anthropogenic deposition. Furthermore, based on the shape of the vertical distribution curve, it is possible to obtain information regarding land use both at present and in the past.
- In the case of soil studies, mineralogical interpretation of thermomagnetic curves is still difficult and ambiguous due to the influence of organic matter and mineral conversion during heating and has to be supported by other magnetic or mineralogical analyses.
- Considering dust magnetic mineralogical studies, even in the case of magnetically very weak PM10 samples (containing fine ferromagnetic minerals), it is possible to reliably estimate relationships between magnetic parameters and air quality. These parameters constitute a suitable source marker well reflecting climatic effects on the contribution of close dominant pollution source to overall PM10 concentration (better than PM10 alone). Analyses carried-out in time series also showed an experimental approach may be used

to estimate the percentage of non-magnetic PM10 transported from natural distant sources.

- ❖ Coupled magnetic and electron microscopy analyses appear effective for the discrimination of the source of various magnetic particle populations and provide an original tool to monitor roadside vehicular pollution.
- ❖ Magnetic proxy mapping of suitable tree leaves is an effective, fast and cheap tool for delineation of the extent and relative fate (source, spreading and dispersal patterns) of anthropogenic airborne particles. It may also provide an experimental support for planning and designing of air monitoring networks in metropolitan and industrial settings.

The Symposium ended with a discussion on a necessity of organizing such meetings in the future. It was agreed that SoilSEDUMA should be arranged every two years; once within a greater scientific conference (eg. EGU) and once as an independent scientific symposium.

SoilSEDUMA represents a starting-point for building an international scientific platform (working group) for the promotion of magnetic methods in many fields of research in the natural environment. All the participants left the Sport Valley looking forward to the next SoilSEDUMA meeting.

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International Conference on Ecohydrology and Climate Change, Tomar – Portugal, 10 – 12. 9. 2009

Summary
The International Conference on Ecohydrology and Climate Change (EcoHHC'09) took place in Tomar, Portugal, between 10-12 September, in the premises of the Polytechnic Institute of Tomar (IPT), under the initiative of the Mathematical Department of Business School of IPT and the Institute of Mediterranean Agrarian and Environmental Sciences (ICAAM) of the University of Évora. The Conference was sponsored by the Portuguese Foundation for Science and Technology (FCT), the European Society for Soil Conservation (ESSC) and Associação Portuguesa dos Recursos Hídricos (APRH).

EcoHCC'09 was planned to bring together researchers in the areas of Ecohydrology and Climate, as well as those in closely related areas (e.g. geostatistics, remote sensing and

modelling) with the aim of sharing experiences and promoting the integration of these themes in a multidisciplinary framework. Effectively, integration was a very important aspect of the Conference, which was very much stressed during the Conference sessions.

The Conference was organized in Plenary Sessions, and two Parallel Sessions, dealing with specific topics. There were also three Organized Sessions and a Poster Session for free presentation and discussion of different themes; such as, climate modelling and land use changes, soil degradation and soil quality, environmental policies and social impacts and large-scale atmospheric dynamics. It should be stressed that the entire Conference evolved in a friendly and relaxed way, affording easy communication among all participants (around 90 people) and the initiation of contacts leading to research collaborations and new projects. This was an important side effect of the Conference.

Details about the Conference, the themes of the different sessions and the delivered presentations, may be found at:
http://www.ecohcc09.ipt.pt

Plenary Sessions were chaired by internationally reputed scientists,

Professor **Chris Kilsby** of the School of Civil Engineering and Geosciences, Newcastle University, UK:
Presentation: Estimating future water resources using probabilistic climate scenarios and weather generators.

Professor **Serge Rambal** of Dream CEFE-CNRS, Montpellier, France:
Presentation: View Mediterranean Oak Woodlands through an Ecohydrological Lens.

Professor **José Luís Rubio,** President of the European Society for Soil Conservation (ESSC) and CIDE - CSIC, Universidad de Valencia, Spain:
Presentation: Impact of forest fires on soil properties and hydrological processes.

Professor **Winfried Blum,** Director of the Institute of Soil Research, University of Natural Resources and Applied Life Sciences (BOKU), Vienna, Austria:
Presentation: Environmental Policies and Social Impacts, with regard to Land and Soil Management.

Dr **Qian Budong** from the Eastern Cereal and Oilseed Research Center, Agriculture and Agri-Food, Ottawa, Ontario, Canada:
Presentation: Climate change and its potential impacts on Canadian field crop production.

All the Plenary Sessions were presented within the context of a wide and integrative scope, constituting a valuable synthesis of the main questions and difficulties inherent to the Conference topics, as well as of the modern methodologies that are being developed to face them.

A Book of Abstracts was issued with the *ISBN: 978-972-9473-45-6*. The Book contains a brief Resumé of the Invited Speakers and all the abstracts of the presentations in the different Sessions.

The Book of Abstracts, edited by Cristina Andrade, Chair of the Organizing Committee, was published by the Polytechnic Institute of Tomar and can be obtained from

C. Andrade
Instituto Politécnico de Tomar
Quinta do Contador, Estrada da Serra
2300-313 Tomar
Portugal

As Scientific Co-ordinator of the event, I believe that EcoHHC'09 can be the first of a series of Conferences on these so important topics, for the understanding and modelling of climate change and its impacts.

To all those, whose efforts contributed for the success of the Conference, and to all the Speakers and participants, my warm and sincere thanks.

Évora, 25 September 2009

João Corte-Real
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European Soil Bureau Network

Plenary Meeting European Soil Bureau Network (ESBN) in Budapest (Hungary), 14-16 September 2009

The mission of the ESBN is to advice JRC/European Commission in relation to soil related matters. The ESBN Plenary Meeting 2009 was held in Budapest. The first two days had a main focus on the results of the different working groups. The third day was a joint session with the 'Bridging the Centuries 1909-2009' Conference.

The ESBN has, today, four Working Groups with the objective to give JRC advice concerning specific matters. The Working Group on INSPIRE and ESDAC has a mandate to advice JRC concerning the development of data specification to be included in ESDAC (European Soil Data Centre).

Working Group 1:250.000 soil map of Europe has as mandate to advise concerns on the outline structure and process, to develop a full coverage 1:250,000 soil map of Europe. The third Working Group Delineation Priority Areas at Risk develops a further approach to delineate the so called priority areas at risk, which are part in the original proposed Soil Directive. It will be tried to include risk assessment as an additional approach. The fourth Working Group Soil Awareness and Education is very young. The main focus is to propose

ways and structures on how to bring soil matters to the attention of the public, authorities and directly involved stakeholders. This working group works close together with the ENSA initiative (European Network of Soil Awareness).

Special attention was given to the Directive on Renewable Energy, concerning the growing of energy crops. CO_2 credits are proposed to be earned when these crops are grown on specific formulated severely degraded sites. This is to prevent the growing of energy crops competing with food production and to stimulate that the growing of these crops at the same time should contribute to the solution of land degradation. The meeting was concerned about the formulated criteria and an alternative approach was discussed.

This autumn the COP9 (UNCCD) will be held in Buenos Aires, Argentina. The Plenary Meeting formulated a declaration pointing-out the importance of soil to mitigate climate change and to combat desertification.

In 1909 the first International Conference of Agrogeology was held in Budapest. This year the Centennial meeting was held as a joint session with the ESBN Plenary Meeting. Several invited speakers highlighted the developments in soil science and soil science community during the last 100 years. When we look at the present global challenges it is necessary that the soil science community delivers its contribution to the solution of these challenges. This means the necessity to develop more co-operation with other disciplines, outside the traditional natural sciences. We should become aware of our role and possibilities to increase awareness about soil related matters. The Soil Thematic Strategy is adopted and gives room for many initiatives. We should contribute to increase sustainability. And this is not a technological issue, but one about morality and human rights.

Arnold Arnoldussen
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EUROPEAN SOIL BUREAU NETWORK

Declaration of the European Soil Bureau Network of the Joint Research Centre of the European Commission in support of the CST scientific style conference of the UNCCD held at COP9 in Buenos Aires, Argentina, 22-24 September 2009

The European Soil Bureau Network (ESBN) held its Plenary Annual Meeting in Budapest, Hungary during 14-16 September 2009. The membership of our scientific network brings together European soil specialists from 40 countries and is a permanent technical advisory body to the European Commission's Joint Research Centre (JRC), providing policy-relevant soil data and information. For over three decades, with the support of national, international organisations and the European Commission, the ESBN has been documenting the nature, condition and threats to soil resources.

There is an increased understanding that soil resources are critical to sustainable development, especially in the context of climate change. Their extent and condition provide a platform for delivering ecosystem services and goods, such as food production and security, climate change mitigation including carbon sequestration and renewable energy production, climate change adaptation, biodiversity conservation and water and nutrient cycles.

We express our deep concern that the importance of soil is not always properly recognized, despite its paramount importance. Furthermore, we wish to highlight the rapid and extensive degradation of soil in many regions and especially in drylands.

We are convinced that a stronger focus on sustainable land and soil management is imperative if the goals of the UNCCD are to be achieved. In response, we call for the establishment of an 'International Panel on Land and Soil' (IPLS) under the auspices of the UNCCD. In support, we offer our experience and energy to assist the future work of the IPLS.

We send our best wishes for a successful and productive conference.

The ESBN Plenary

Declaration drafting team: Winfried Blum, Mark Kibblewhite, José Luis Rubio, Otto Spaargaren and Pandi Zdruli

FIRST ANNOUNCEMENTS

Dear Colleague,

The BALWOIS 2010 Conference on 'Water Observation and Information Systems for Decision Support' will be held from 25-29 May 2010 in Ohrid, Republic of Macedonia. Full information, is presented at:

www.balwois.com/2010

Please send you abstract(s) only using an online form for Abstract submission at:

www.balwois.com/2010/index.php?option=com_artforms&formid=21&Itemid=99999

Summary of information:

Topics	Climate and Hydrology Environment and Human Activities Water Related Risks Integrated Water Resources Management Ecohydrology Computing and Technologies.
Deadlines	Submission of abstract: 15/11/2009 Author notification of abstract acceptance: 15/12/2009 Submission of full paper: 15/02/2010 Author notification of full paper acceptance: 15/03/2010 Payment of registration fees: 15/04/2010
Registration fee	**Before 15 April 2010:** **€250** per person for participants coming from all countries except the following: **€80** per person for participants coming from: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, Macedonia, Montenegro, Romania, Serbia and Turkey. **€60** for accompanying person from any country. **€60** for students from any country. After 15 April 2010 you will asked to pay respectively €300, 100 and 80.
Contact	**Mr. Marc Morell,** E-mail: secretariat@balwois.com
Organized by	Balkan Institute for Water and Environment. Macedonian Association of Meteorology (METEO MAK). Faculty of Civil Engineering (Saints Cyril and Methodius University, Skopje). University 'St. Kliment Ohridski' (Bitola). Hydrobiological Institute of Ohrid.
Supported by	The Ministry of Environment and Physical Planning of the Republic of Macedonia. Ministry of Ecology and Sustainable Development and Planning of France. The Embassy of France in Macedonia. International Association of Hydrological Sciences (IAHS).

Best wishes and looking forward to meet you on the picturesque lakeshore of Ohrid in the Republic of Macedonia!

Balwois Secretariat.

International Conference on Soil Fertility and Soil Productivity, Two Features to be Distinguished 'Differences of Efficiency of Soils for Land Uses, Expenditures and Returns'

DATE: 17-20 March 2010.
LOCATION: Humboldt University, Berlin, Germany

ORGANIZED by:

- International Union of Soil Science (IUSS), Division 3 –Soil Use and Management, together with:
- German Soil Science Society, Commission 4 (Soil Fertility and Plant Nutrition).
- German Society of Plant Nutrition.
- German Crop Science Society.
- Working Group IOSDV (International Organic Nitrogen Fertilizing Trials).

SPONSORED by:

- ESSC (European Society for Soil Conservation).
- ECSSS (European Council of Soil Science Societies)

CONFERENCE TOPICS will characterize and discuss:

1) The concepts of 'soil fertility' and 'soil productivity' (contents, chances, limitations and contradictions).
2) The soil quality concept, and indicators with respect to soil fertility and soil productivity.
3) The soil properties for soil fertility, and for use of soil services.
4) Soil properties for soil productivity and soil investment-based services.
5) Limitations of the concepts of soil fertility and soil productivity.
6) Short-term investments for use of soil productivity.
7) Soil conservation measures to maintain and improve soil fertility and productivity.
8) Modelling soil fertility and soil productivity.
9) Soil changes and impacts by shift from the soil fertility concept to the soil productivity concept.
10) Soil management, and policy requirements with respect to soil fertility and soil productivity.
11) Future perspectives on the importance of soil fertility or soil productivity with respect to different domains of soil use.
12) Others aspects of soil fertility and productivity.

For further information, please see:
Homepage: http://www.uni-due.de//soil-fertility-productivity2010/index.shtml
and: http//www.IUSS.org

ESSC EUROPEAN SOCIETY for SOIL CONSERVATION

First International Conference of Soil and Root Engineering Relationships (LANDCON1005)

Ardebil Province, Iran
24-26 May 2010

http://www.landcon-ir.com/index.htm

International Company of Soil Eco-Engineering Research (ICSER), NO. 25, Shahid Yosri St., Ardebil, Iran
Postal Code: 56197-45344
E-mail: Landcon.ir@gmail.com
Tel: 00 98 451 2230505
Fax: 00 98451 3337023.

Deadlines:
Abstract submission: 15 November 2009.
Please send to: landcon.ir.abstract@gmail.com.
Notification of acceptance of abstract: 22 January 2010.
Full paper submission: 15 March 2010.

This Conference is the first in the series of LANDCON on soil and root engineering relationships. The aim of this meeting is to bring together scientific researchers, practitioners, geotechnical and civil engineers, biologists, ecologists, rangeland managers and foresters to discuss current problems in soil and root engineering relationships. Papers will be presented (both oral and posters) on mechanics of roots, wind loading on roots systems, slope instability, soil erosion by both water and wind, soil hydrology, mountain plant ecology, land use planning, modelling root reinforcement, failure criteria of roots, root-soil interactions, catchment management, ground bio-engineering, eco-engineering and modelling of root reinforcement.

The Conference Chair is:
Dr Ghassem HABIBI BIBALANI
Islamic Azad University (Shabestar Branch)
Iran.
E-mail: Habibibibalani@gmail.com

Supporting Institutions
International Company of Soil Eco-Engineering Research (ICSER).
World Association of Soil and Water Conservation (WASWC).
International Union of Forest Research Organizations (IUFRO).
European Geosciences Union (EGU).
Iranian National Retrofitting Center, North-West Branch.

EUROPEAN SOCIETY for SOIL CONSERVATION

6TH INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY FOR SOIL CONSERVATION

"Innovative Strategies and Policies for Soil Conservation"

9-14 May 2011

NAGREF

EUROPEAN SOCIETY for SOIL CONSERVATION

Dear Colleagues

On behalf of the Organising Committee, I have the pleasure to invite you to the **6th International Congress of the European Society for Soil Conservation entitled *"Innovative Strategies and Policies for Soil Conservation".*** This event will be held in Thessaloniki, GREECE, from 9-14 May 2011. It is a golden opportunity to participate at a major scientific event where the latest research findings and scientific and technological developments will be presented in numerous thematic fields. Special focus is given in the multi-disciplinary coverage of the selected themes to be covered by the Congress and you are invited to honour the scientific sessions with your contribution. Scientists from all over the world will be participating in a scientific forum to deliver the state-of-the-art in the selected scientific themes, meet with old colleagues, make new friends and start new co-operations.

Thessaloniki is at the crossroads between East and West; a marvellous seaside city with quaint historic districts, museums, cultural heritage, night life, transportation infrastructure and good connection with other European countries and Athens. The blend of high quality scientific sessions with what the host city and its surroundings have to offer will ensure that your participation will be a memorable one. We do hope you will take this opportunity to contribute to the overall success of this Congress and invite you to fill in the attached pre-registration form. Details of the Congress will be soon available through the official web site of the Congress and the circulars that will be posted to all pre-registered participants.

We look forward to seeing you in Thessaloniki

Dr Theodore Karyotis

President of the Organizing Committee

PRE- REGISTRATION FORM

"Innovative Strategies and Policies for Soil Conservation"
9-14 May 2011
GRAND HOTEL PALACE***, Thessaloniki, GREECE**

First Name	
Surname	
Organization	
E-mail address	
Telephone Number	
Contact Address	
I intend to present a paper(s) under thematic unit(s)	
I will probably participate without a presentation	

Please complete the congress pre-registration form and send it by e-mail to
karyotis@nagref.gr or karyotis@hellasnet.gr

The official website will be available soon.

THEMATIC Sessions

1. Policies and thematic strategies for soil protection.
2. Soil mapping and land evaluation for land use planning.
3. Forest fires impacts on natural resources.
4. Sustainable management of wetlands.
5. Policies and strategies for combating desertification.
6. Socio-economic aspects of land degradation.
7. Soil and water management under global climatic change scenarios.
8. New generation biofuels and their environmental effects.
9. Conservation and management of soil biodiversity.
10. Restoration and remediation of degraded lands.
11. Special session on 'Education in soil conservation and public awareness.'

Welcome to Thessaloniki

The 5th International Symposium on Gully Erosion, Lublin (Poland), 20-25 April 2010

'Human Impact on Gully Erosion,' 20-25 April 2010, Lublin, Poland

Organized by the Institute of Earth Sciences, Maria Curie-Sklodowska University and the Association of Polish Geomorphologists.

Hosted by Maria Curie-Sklodowska University.

Scope and objectives

The formation and development of gullies is one of the most important geomorphological processes influencing agricultural landscapes all over the world. Human impact plays major roles in gully erosion and causes major on-site and off-site consequences.

Good recognition of factors influencing the intensity of gully erosion constitutes not only a scientific problem but also an applied one. In many regions it is a major impediment to the sustainable development of agricultural areas. That is why the number of scientific meetings focusing on the problem is progressively increasing.

The First Symposium on Gully Erosion was held in Leuven (Belgium) in 2000. This was followed by Symposia in Chengdu (China) in 2002, Oxford (USA) in 2004 and in Pamplona (Spain) in 2007. The present Symposium, planned for April 2010 in Lublin (south-east Poland), will focus on interactions between human activities and gully erosion.

Several topics will be discussed, including:

- Historical gully erosion all over the world.
- Present day intensity of gully erosion processes.
- Human impact on gully erosion, especially the role of land use.
- Prevention and restoration of gullies.

Please visit the Symposium website:
http://gullyerosion.org/

Wojciech Zglobicki

E-mail: zglobek@hektor.umcs.lublin.pl

Reminder for the next issue:

Articles, reports, letters, views or comments on any aspect of soil erosion and conservation in Europe are always welcome.

We invite proposals for special thematic issues of the Newsletter. We also welcome any comments on the ESSC Newsletter and suggestions on how it can be improved and developed.

Do not forget to send in your details of the following information:

(i) Reviews of recent conferences.
(ii) Recent grant awards.
(iii) The citation details and abstracts of completed Ph.D. and M.Sc. theses.
(iv) Newly enrolled Ph.D. research students, title of their research topic and names of research supervisors.
(v) Recent staff institutional movements/promotions.
(iv) A reference list of your 'new' international refereed scientific journal papers, which have been published recently (since and including the year 2000).

Send these details to either:
Professor Mike Fullen: m.fullen@wlv.ac.uk
or
Dr Colin Booth: c.booth@wlv.ac.uk
and they will include this information in the next issue.

PLEASE NOTE:
We publish four Newsletter issues per year. The deadlines are:
10 January; 1 April, 1 July and 1 October.

Some Closing Thoughts:

"Population growth is related to poverty, and in turn poverty plunders the earth. When people are dying of hunger, they eat everything – grass, insects, everything. They cut down trees and leave the land dry and bare. All other concerns vanish. That's why in the next 30 years environmental problems will be the hardest that humanity has to face"

(His Holiness The Dalai Lama, 1996)

"Only after the last tree has been cut down.
Only after the last river has been poisoned.
Only after the last fish has been caught.
Only then will you find that money cannot be eaten."

Cree (North American Indian) Prophecy

"We shall nourish the ground, which will give rise to more conducive forms of life, to more intelligent human beings, to more enhancing societies"

(Henryk Skolimoswski (1930-), written in 1981)

"Forgiveness is a gift we give ourselves"

(Ralph Waldo Emerson, 1803-1882)

"To measure you by your smallest deed is to reckon the power of ocean by the frailty of its foam. To judge you by your failures is to cast blame upon the seasons for their inconstancy"

(Kahlil Gibran, 1926)

"The Moving Finger writes; and haven writ,
Moves on: nor all your Piety nor Wit
Shall lure it back to cancel half a Line,
Nor all your tears wash out a Word of it."

(The Rubaiyet of Omar Khayyam (1048-1123), edited translation by Edward J. Fitzgerald, 1859)

"When the oak is felled the whole forest echoes with its fall, but 100 acorns are sown in silence by an unnoticed breeze"

(Thomas Carlyle)

"It is necessary only for the good man to do nothing for evil to triumph"

(Edmund Burke, 1729-1797)

"Man's mind, stretched to a new idea, never goes back to its original dimension"

(Oliver Wendell Holmes, 1809-1894)

"Duct tape is like 'The Force.' It has a light side and a dark side, and it holds the universe together"

(Anon)

"A rumour without a leg to stand on will get around some other way"

(John Tudor)

AIMS OF THE SOCIETY

The ESSC is an interdisciplinary, non-political association, which is dedicated to investigating and realizing soil conservation in Europe. The ESSC pursues its aims in the scientific, educational and applied sectors by:

Supporting investigations on soil degradation, soil erosion and soil conservation in Europe,

Informing the public about major questions of soil conservation in Europe,

Collaborating with institutions and persons involved in practical conservation work in Europe.

The ESSC aims at co-ordinating the efforts of all parties involved in the above cited subjects: research institutions; teachers and students of geosciences, agriculture and ecology; farmers; agricultural planning and advisory boards; industries and government institutions.

ZWECK DER VEREINIGUNG

Die ESSC ist einer interdisziplinäre, nicht politische Vereinigung. Ihr Ziel ist die Erforschung und Durchführung des Schutzes der Böden in Europa. Die ESSC verfolgt dieses Ziel auf wissenschaftlichem, erzieherischen und angewandtem Gebiet:

durch Unterstützung der Forschung auf den Gebieten der Boden-Degradierung, der Bodenerosion und des Bodenschutzes in Europa,

durch Information der Öffenlichkeit über wichtige Fragen des Bodenschutzes in Europa,

durch Zusammenarbeit mit Institutionen und Personen, die an der Praxis des Bodenschutzes in Europa beteiligt sind.

Die ESSC will alle Personen und Institutionen zusammenführen, die sich für die genannten Ziele einsetzen: Forschungsinstitutionen, Lehrer und Studenten der Geowissenschaften, der Landwirtschaftswissenschaften und der Ökologie, Bauern, landwirtschaftliche Planungs- und Beratungsstellen, Industrieunternehmen und Einrichtungen der öffentlichen Hand.

BUTS DE L'ASSOCIATION

L'ESSC est une association interdisciplinaire et non politique. Le but de l'association est la recherche et les réalisations concernant la conservation du sol en Europe. L'ESSC poursuit cette finalité dans les domaines de la recherche scientifique, de l'éducation et de l'application:

en encourageant la recherche sur la dégradation, l'érosion et la conservation du sol en Europe,

en informant le public des problemes majeurs de la conservation du sol en Europe,

par la collaboration avec des institutions et des personnes impliquées dans la pratique de la conservation du sol en Europe.

L'ESSC souhaite favoriser la collaboration de toutes les personnes et institutions poursuivant les buts définis ci-dessus, en particulier: institutions de recherche, professeurs et étudiants en géosciences, des agriculteurs, des institutions de planification et des conseil agricole, de l'industrie, et des institutions gouvernementales.

OBJECTIVOS DE LA SOCIEDAD

La ESSC es una asociación interdisciplinar, no-politica, dedicada a la investigación y a la realización de acciones orientadas a la conservación del suelo en Europa. La ESSC persigue sus objectivos en los sectores cientificos, educacionales y aplicados, en al ámbito europeo:

promocionando la investigación sobre degradación, erosión y conservación de suelos,

informanto al público sobre los principales aspectos de conservación de suelos,

colaborando con instituciones y personas implicadas en la práctica de la conservación de suelos.

La ESSC aspira a coordinar los esfuerzos, en los temas arriba mencionados, de todas las partes implicadas: centros de investigación, profesores y estudiantes de geo-ciencias, agricultura, selvicultura y ecología, agricultores, servicios de extensión agraria, industrias e instituciones gubernamentales.

Visit the ESSC Website: http://www.essc.sk

MEMBERSHIP FEES

I wish to (please mark appropriate box):

- Join the ESSC
- Renew my membership of the ESSC
- Know whether I have outstanding membership contributions to pay

Membership rates:

Standard Rates:

- One year € 25.00
- Three years € 70.00

Members in Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia and Ukraine:

- One year € 10.00
- Three years € 25.00

Students:

50 % reduction on above rates for three years
Your supervisor must provide written confirmation of student status

I wish to pay my membership contribution by (please mark appropriate box):

- Eurocard / Mastercard
- Visa Card
- American Express Card
- Bank Transfer

Branch address: Fortis Bank, Zonnestraat 2, B-9000 Gent, Belgium;
International transaction codes:
IBAN - BE29 0014 5139 8064 and BIC - GEBABEBB;
Account name: European Society for Soil Conservation;
Account number 001-4513980-64

CARD NO. ..... EXPIRY .....

Amount: € ..... Date: ..... Signature: .....

NAME: .....

ADDRESS: .....

.....

E-MAIL: .....

MEMBERSHIP NUMBER (if known): M0 .....

Please send this form to: ESSC Treasurer, Dr Wim Cornelis, Department of Soil Management and Soil Care, Coupure links 653, B-9000 Gent, BELGIUM.

wim.cornelis@UGent.be