NEWSLETTER 2/2000

ESSC EUROPEAN SOCIETY for SOIL CONSERVATION

ESSC President, José L Rubio greets Su Alteza Real Don Felipe de Borbón on his arrival to open the Third International Congress in Valencia

E.S.S.C. NEWSLETTER 2/2000

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Produced and composed by the Editor-in-Chief, Cranfield University at Silsoe.
Printed by Paulus & Partner GmbH, Mansehnow, Germany.

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HONORARY MEMBER
EUROPEAN SOCIETY FOR SOIL CONSERVATION

El Príncipe de Asturias, Su Alteza Real Don Felipe de Borbón, has accepted an invitation to become an Honorary Member of the European Society for Soil Conservation.

The invitation was made by the President of the ESSC, Dr José Rubio, following a proposal by the Executive Committee, in recognition of the high level of interest shown by the Crown Prince in the objectives and work of the Society over several months which culminated in his agreement to open the Third ESSC Congress in Valencia on 28 March 2000.

El Príncipe de Asturias, Su Alteza Real Don Felipe de Borbón, our first Honorary Member

THIRD E.S.S.C. CONGRESS
MAN AND SOIL AT THE THIRD MILLENIUM
VALENCIA, SPAIN
28 MARCH - 1 APRIL 2000

Congress Inauguration Statement

José Luis Rubio
President of the European Society for Soil Conservation

Your Royal Highness, Distinguished Mme. Minister of the Environment, Honorable Mr. President of the Valencia Community, Distinguished Mr. Government Representative in the Valencia Community, Distinguished Mme. Mayor of Valencia, Distinguished Mr. President of the Higher Council for Scientific Research, Dr. Morgan, Ladies and Gentlemen.

It is a great honour for me to speak to you on behalf of the European Society for Soil Conservation. I would like to begin these words by expressing our most sincere thanks to H.R.H. the Prince of Asturias, whose interest and support for this scientific community will, without a doubt, strengthen our hopeful commitment to have a worthy and outstanding conference, and which will also be an important stimulus to our future activities.

I also wish to thank the Authorities, Representatives and Delegates from institutions and companies that have helped with the organization of this conference for their presence, as well as everyone else who is here with us today at this opening ceremony. I wish to underscore the unwavering support of the Valencian Generalitat (through the President; the Council of Agriculture, Food and Fisheries; and the Council for the Environment) from the very beginning when Valencia was granted the responsibility of organizing the Third International Congress of the Society in accordance with the decision of the Executive Committee of the European Society for Soil Conservation at their meeting in Graz, Austria, in November 1998.

We also thank the responsible parties from the "Príncipe Felipe" Science Museum of the Citadel of Arts and Sciences for the fortunate and stimulating honour to being able to hold this conference in this fascinating building and complex, in as much as we can clearly appreciate its unique nature.

This Society, founded in Leuven, Belgium, on November 4, 1988 by a small group of researchers from various European countries, with whom I had the honour of working, held its first conference in Silsoe, England in 1992, and the second one in Freising, Germany in 1966. During the twelve years that have gone by since its beginnings, the Society has made great strides for it now constitutes an important international network of scholars from 47 countries. The activity of the Society in the organization and support of scientific meetings, the backing of soil conservation studies, cooperation

with institutions and individuals on conservation initiatives, the publication of studies and documents are all things of which we can feel very proud.

However, social progress, the development of knowledge and different schools of thought on scientific approaches at this change of Millennium, lead us to rethink both old and new challenges with broader and intertwined aims, continuing the process of review and criticism of the scientific method. In this context, we are looking at the role and functions of soil in natural, agricultural and forestry systems and in the interaction with the disfunctions of other components in the natural environment; all these topics are in line with the main objectives of this conference.

The logo of this Third Congress recreates the mythological figure of the Horn of Plenty. In its adaptation here, it symbolizes this natural resource of soil which constitutes the membrane of life on the surface of the planet, and which is also a provider of multiple assets, services and functions of society. It is worth noting that this planet is called Earth. Earth or Soil, the interface between the geosphere and the atmosphere which, in so many different aspects, impregnates human life and so outstandingly intervenes in the multitude of biogeochemical cycles of consequence in the development of life. It is in this context that the inaugural lecture of this conference, given by Professor Rattan Lal, will focus on the role of soil conservation in the carbon cycle and its capacity to influence the dynamics of the greenhouse effect.

In the different sessions, papers will be presented on the problems of erosion and desertification, soil pollution and recuperation, and inter-linkages between the soil and the water cycle. Another session will be devoted to the links between the problems and the proposals to solutions concerning the loss of biodiversity, to land use changes and to the threat of climate change. Also, aspects tied into soil quality, its functions and the development of environmental indicators will be discussed.

Another important aspect will be addressed in the papers about the development of new study methodologies and the application of new technologies, as well as comprehensive and precise proposals, or more general approaches, about the soil renewal and conservation.

The motto of this conference *Man and Soil at the Third Millennium*, intends to propose a platform for reflection and debate about the perception of soil and its problem areas with regards to society.

From the first concepts of soil as an essential element in food production, gradually other views or conceptual models have been added, which have given answers to the different socioeconomic needs of each period. At the moment, the size and sensitivity of the natural environment oblige the scientific community to devote time to different aspects of the study of soil functions, to consider new approaches, orientations and methods, to give an answer to the growing demand for information and scientific knowledge about the soil generated from very different sectors: scientific, academic,

environmental, agricultural, forestry, landscape, planning, administration, etc. This conference will be the occasion to talk about and consider new proposals about soil use and management in the presence of a natural resource that must be perceived from its multifunctional dimension, its agrofood productive side and the paramount factor in the global concern for environmental degradation. This reflection and debate will hopefully take shape in a proposal of basic principles of sustainability in the use of soil which is an essential and threatened commodity.

We believe that it is important that this conference is being held in Valencia since Mediterranean soils are experiencing serious degradation problems, mainly through processes of erosion, salinization, pollution and desertification. Also, the climate, lithological and topographical features of our environment show a great pedodiversity as well as landscape diversity. This rich natural heritage is seriously threatened. The United Nations Convention to Combat Desertification has pointed this out by providing for a specific Annex concerning the problems of European Mediterranean environments. At the governmental level, the Spanish National Plan to Combat Desertification provides for a general framework of actions and measures to alleviate these processes.

The establishment of the Desertification Research Centre, as a joint think-tank in the Valencian community, involving CSIC, University of Valencia and the Valencian Generalitat, is highly significant. At the moment, it is the only research centre in Europe devoted to this problem area.

The recent creation of the Scientific Advisory Board to the President of the Valencian Generalitat is also a positive sign, which intends to address diverse environmental concerns, paying special attention to the problem of soil degradation and soil conservation and their inter-linkages with the water cycle.

However, there is a lot of work to be done and are asking for steadfast and decisive support from groups and research centres in order to generate and to furnish information as well as knowledge about our soils, so as to be able to put forward guidelines and courses of action to society which will contribute to an effective and sustainable use of the same.

We are gathered together in this magnificent building which should be considered as a lighthouse to remind us of the need to pursue and to deepen our knowledge about our environment, with a critical and rigorous stance, also taking into account new bold and creative approaches. Let this building be a source of inspiration to the deliberations and to the work of this conference in an open and cordial city which gives you a very warm welcome.

Thank you very much.

Opening Presentation

Soil conservation and restoration to sequester carbon and mitigate greenhouse effect

Rattan Lal

School of Natural Resources, The Ohio State University, Columbus OH 43210, USA

Atmospheric concentration of CO_2 was about 280 ppmv in about 1850 and is approaching 370 ppmv in 2000. It is increasing at the rate of 0.5 per cent per year (1.8 ppmv/y or 3.3 Pg C/y). If this trend continues, the concentration will be 600 ppmv during the 21st century. Concentration of CH_4 is 1.74 ppbv and increasing at 0.8 per cent per year; that of N_2O is 311 ppbv and is increasing at 0.8 ppbv. Three principal anthropogenic sources of greenhouse gases are: (i) fossil fuel combustion and transport; (ii) the chemical industry including cement manufacture; and (iii) agricultural land use and change including soil cultivation. Conversion of natural to agricultural ecosystems and ploughing increases the risks of accelerated soil erosion, and the attendant soil degradation. CO_2 emission from soil to the atmosphere is exacerbated by deforestation, biomass burning, soil drainage, ploughing and the onset of soil degradation processes.

Soil erosion is a three-phase process. It involves detachment, transport and deposition of soil particles. Once aggregates are detached, fine soil fractions and organic matter are preferentially removed by the overland flow or blowing wind. Severely and strongly eroded soils may lose 75 to 80 per cent of their original organic carbon pool which may be 30 to 40 Mg C/ha in some soils. Since soil aggregates are disrupted and C hitherto encapsulated is now exposed to microbial processes, a large fraction (20% or more) of the carbon displaced is readily mineralized.

It is estimated that accelerated soil erosion leads to emission of 1.14 g C/y. Therefore, adoption of effective erosion control measures would reduce the risk of C emission. In addition, there is the potential to restore soils degraded by desertification and accelerated erosion. Historic loss of C due to past erosion is estimated at about 25 Pg, and a large proportion of this C can be sequestered through restoration of eroded soils. Global land area affected by strong and extreme soil erosion is estimated at 244 million ha by water and 26 million ha by wind erosion. Restoration of these lands can sequester 25 to 30 Mg C/ha over a 25- to 50-year period, with a potential of sequestering 0.2 to 0.3 Pg C/y. The potential of soil C sequestration is estimated at 0.9 to 1.9 Pg/y through desertification control, and 3.0 Pg C/y through restoration of all degraded soils on the world.

Soil sequestration is a win-win situation. It enhances soil quality and increases productivity, improves water quality, and reduces C emission into the atmosphere. It is a cost-effective way to reduce the risks of the greenhouse effect while alternatives to fossil fuel and other energy-related strategies take effect. It is a bridge to the future.

Report of the Third International ESSC Congress

Ildefonso Pla Sentis
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The *Third International Congress of the European Society for Soil Conservation* was held in Valencia (Spain) from the 28th April to 1st of May 2000. These congresses, which are held every four years, have as their main objective to review soil and water degradation problems, their causes, and the progress that has been reached in their study and control, mainly in European countries. Also discussed are the effects of those problems on other natural resources like flora and fauna, and on the society in general, looking for possible solutions. In the interval between congresses the ESSC organize other meetings dedicated to more specific problems.

Although the ESSC is the society responsible for the organization of these congresses, on this occasion the Congress was co-sponsored by several institutions and organizations at local, national and European levels, and also by important international organizations with similar objectives, like the *European Soil Bureau*, the *World Association of Soil and Water Conservation*, the *Soil and Water Conservation Society*, the *International Soil Conservation Organisation*, the *Bureau of Land Management (US Department of the Interior)* and the *Commission International du Génie Rural*, all represented by their Presidents, Vice-Presidents or Secretaries. This interaction was very useful in reinforcing the relations between the organizations and will help to increase the coordination of their activities in the future, pursuing the same objectives in addressing problems like the conservation of the soil, water and other natural resources which affect the whole World, with global consequences that cannot be limited to a particular region,

The direction and organization of the Congress was the responsibility of the Acting President of the ESSC, Dr. José L. Rubio, with the help and advice of an excellent group of collaborators at local, national and European level. The Congress was centred in the magnificent facilities of the *Museo de las Ciencias Príncipe Felipe (Ciudad de las Artes y las Ciencias)*. In addition, there was a one day field trip in the south of the Valencia region, and a visit to the Centro de Investigación sobre Desertificación close to Valencia city.

The opening of the Congress was presided over by the Príncipe D. Felipe de Borbón, heir to the Spanish crown, accompanied by the main political and administrative authorities at local and regional level. In his very well documented inaugural speech the Crown Prince drew attention to the important environmental problems affecting the whole society that derive from soil degradation, and especially to the desertification process which is increasingly affecting the lands of south-east Spain. The same theme was referred to in the speeches of the Minister of Environment, the President of the Valencia Community and of the President of the ESSC.

In this third congress there were a record number of participants (456), countries represented (50) and papers presented (366). Besides European countries, there were delegates from the USA, Canada, Africa and Ibero-America. There were 15 keynote lectures by well-known international specialists, including one past president (R. Lal) and two vice-presidents (E. Roose and I. Pla) of the WASWC. The papers, both oral and posters, covered a wide range of topics related to the degradation and conservation of soil and water resources, and their effects on people. There was emphasis on the processes of soil degradation and desertification and their influence on the hydrological cycle, climatic changes and biodiversity. The main conclusions of the Congress refer to the need to take into consideration and to emphasize the functions of soil as a fundamental part and regulator of the whole environment; and to the close relationship between soil degradation, hydrological processes and water conservation, creating problems in situ and off site, at present and in the near future, which may affect not only local agricultural production but the whole society, without border limits. It was agreed that, with this way of focussing the problems of soil and water degradation and their effects, together with well documented specific examples of actual and prospective problems, it would be easier to get the support of politicians and decision makers, and society in general, for the research and gathering of basic information which is urgently required for a better diagnosis of potential problems of soil and water degradation and their effects, leading to more effective preventive and control measures. All activities and outcomes of the Congress were widely publicised by the local and national newspapers, TV and radio.

During the field trip it was possible to observe spectacular processes and problems of erosion and desertification in the south-east of the Valencia region, mainly associated with land abandonment and drastic changes in the traditional agricultural use and management of the land, under a semiarid climate. Examples were also seen of how with the use of new technologies of land management and land use, and when there are resources to adopt them and the results are economically productive, the process of land desertification may be stopped and even reversed. In the visit to the *Desertification Research Centre*, close to Valencia, is was possible to appreciate how an organisation integrating local and regional research, teaching and political institutions, may effectively contribute to the study of the causes, processes and control practices of the growing soil degradation and land desertification in the Mediterranean region of Valencia, with projection to the whole Mediterranean area.

The organizers, headed by José L. Rubio, must be congratulated on the great success of the Congress, both in the aspects related to the sessions of presentations of papers and posters, and all the social activities, lunches, coffee breaks, etc, where the facilities, information and help available made everything easy and agreeable. The smooth organisation was appreciated by every participant. All this was only possible due to the great effort, dedication, and spirit of collaboration of all the people that accompanied José Luis in such activities.

Conclusions and recommendations of the Congress

Don Gabriels
Department of Soil Management and Soil Care, University of Ghent, Coupure Links 653, B-9000 Gent, Belgium

May I remind you that the theme of the Third International Congress of our European Society for Soil Conservation is *Man and soil at the Third Millennium*. This means that we have to look into the future and we are given thousand years to do this. This means also that we have been given a task to predict what will happen in the future. May I refer to our 'prediction models' to do this? Some of you asked for more research and this on a long-term basis. Let's call it better 'on a continuous basis' because we need solutions now; we have to conserve our soil now!

May I also remind you that we are members of a society for soil conservation. We have to conserve the soil. We have to care for the soil. We have to preserve the soil. For what? For a better soil quality? Or for maintaining the soil quality at a certain level? Or for a better water quality? Or for a better environmental quality taking into account the crops and the plants? I was using the expression term 'we' on purpose. 'We' means also that 'we' like to share 'responsibilities'. 'We' refers to a society, a club, a region. The term 'we' was used on a number of occasions during this congress. 'We' need more research. 'We' have to design strategies for soil conservation. 'We' have to reclaim land. But who is who, who is 'we'? Do 'we' have to construct the terraces? Do 'we' have to plough along the contours? Do 'we' have to reclaim saline and alkaline soils? 'We' tell people (farmers) what should be done, 'we' are not doing it ourselves but in fact 'we' hope that somebody else will do the work.

Another point which comes out of this congress is that our European Society for Soil Conservation should not only be a gathering together of scientists discussing the details of how for example an erosion prediction model should be developed or refined, nor should the society be only a forum or platform for presenting problems or for assessing processes. It is true that research is needed and that indicators of problems should be defined and described. The slogan 'we can learn from the mistakes' is too easy an excuse for making other and further mistakes. If there was no erosion, there would be no need for erosion control. If there was no contamination, we would not need to clean the soil. If there were no soil problems we would not be here. There should not be a need for our society to exist. In fact we have to conserve and preserve and protect what is good, what is left in good quality (what that ever may be) and therefore we have to consider soil as part of the land, as part of the environment and that was not stressed enough. We are a society for environment conservation.

It was remarked that we are not only a society for soil conservation but also a society for soil and water conservation. In the session on the soil and water cycle there was ample discussion on the soil loss by water erosion, mainly because the majority of the participants are working in that field. We missed almost completely the wind erosion

problems. Also we did not consider enough the hydrological aspects in the water erosion process.

The question was asked if there is enough progress made in predicting erosion. Do we need to predict average soil erosion rates of 10 t ha^{-1} y^{-1} or 20 t ha^{-1} y^{-1} or do we need to focus on severe storms causing 400 t ha^{-1} in 1 or 2 months? Or do we need to concentrate more on gully erosion prediction and control as this is more spectacular and provides the best and most spectacular examples of erosion to show to decision-makers? The excursion allowed us to see spectacular erosion and spectacular conservation works: terraces.

An important point was raised about the value of average soil loss on a long-term basis. What does the 'mean' really mean? Let us go for the extremes and concentrate more on off-site effects than on on-site effects. Then we can more easily ask for public intervention.

A point was made if we are not concentrating too much on or only on agricultural aspects. There is soil loss and soil movement outside the agricultural world. And then we come to the important session and discussion on soil quality and soil quality indicators. It was said that there is a need to educate politicians and decision-makers into the importance of soil quality. But quality of soil for what? For multi-uses? To fulfil the soil functions? The soil potential for carbon sequestration? The soil to produce food? The resistance of the soil to disturbance? The resistance of soils to climatic change? The question was asked if we can quantify the quality of soil in terms of soil conservation. We have to promote and sell our soil with emphasis on its good quality. In fact people care more about the quality of water than about the quality of soil. For water there are already quality indicators in terms of water functions: drinking water, irrigation water. In fact, at this moment, people are more concerned with the quality of the water and air because this affects directly the society and the environment. We have to keep in mind: no soil conservation without water conservation.

Soil conservation has on-site effects but sometimes more off-site affects. And what about the socio-economic factors? They were not enough recognised as being important in explaining land degradation and desertification. Apparently they operate differently in northern as opposed to southern Mediterranean areas. In the northern Mediterranean the population decline is causing abandonment of land, which in many cases leads to enhanced erosion. On the other hand, in southern Mediterranean areas it is the increase in population pressure that is the main contributor to land degradation. The abandonment, transformation or substitution of traditional agricultural systems has lead to land degradation and loss of soil productivity in Eastern European countries. I think we have to be careful with this statement. The increasing range of factors, physical and socio-economic explaining land degradation can become so complicated that it can be used as an excuse for not doing anything. But as was said, do not make it too simple by generalizing otherwise we do not need further research. It is a difficult task being not too complicated but also being not too simple.

With this in mind, a point was made to produce not only very thick reports but illustrative descriptions such as maps of erosion risk map, soil quality, salinity/ alkalinity and these at different scales: field scale, small catchment, large catchment, eventually accompanied, if we have sufficiently reliable data, with output from simple models. The weakest link in the model is not its construction but the data we are putting in it. We are in a crisis of having too many models, not enough data and not measuring enough. Also, we are not demonstrating enough that we are able to conserve the soil and that we are able to preserve our natural resources. Just a few examples were given here in this congress. We need examples, we need demonstrations. We need criteria in terms of soil quality for specific soil and water functions.

Some made the point to use nature-like methodologies for soil conservation and restoration and fight against contamination in accordance with the mechanics of the entire ecosystem. Also more consideration should be given to improve soil structure and soil renewal rates because we also have to think in positive terms. Soil is not that bad. Let us keep both feet on the soil.

Proposals for soil sustainability

1. Soil conservation should be linked with water conservation
2. Soil quality should be linked with land quality and environmental quality
3. Research should be encouraged, supported and oriented to assess processes of land degradation on different scales : from the field to the small and large catchment to an environmental unit
4. Attention should be given to the heritage and landscape value of traditional soil and water conservation systems
5. Socio-economical and political aspects at different levels (field, watershed, community, region) should be integrated
6. Politicians, decision-makers and land use planners should be educated and informed about soil quality, soil functions and the importance of soil and water conservation
7. The ESSC can be a key-actor in a campaign for the EU and national governments to adopt a convention on soil quality, soil care, soil restoration, soil protection and soil and water conservation

BERICHT VOM INTERNATIONALEN KONGRESS DES ESSC IN VALENCIA

Unter dem Oberthema, *Man and Soil at the Third Millenium*, kamen in Valencia vom 28. März bis 1. April 2000 mehr als 400 Wissenschaftler aus etwa 50 Ländern zum dritten internationalen Kongress des ESSC zusammen. Über 200 Vorträge und 170 Poster waren zu Veranstaltungsbeginn gemeldet. Zusätzlich standen 15 eingeladene Übersichtsvorträge auf dem Programm. Durch die feierliche Eröffnung und gleichzeitige Einweihung des neuen Kongresszentrums von Valencia durch den Prinzen von Asturias und der spanischen Ministerin für Umwelt und dem Minister für Landwirtschaft und Fischerei, sowie zahlreicher Prominenz aus der Politik und Wissenschaft erhielt die Tagung nicht nur bei wissenschaftlichem Publikum, sondern auch bei der spanischen Bevölkerung erhebliche Resonanz und Aufmerksamkeit durch die regionale Presse. Die einzelnen Veranstaltungstage wurden jeweils im Auditorium Maximum mit einführenden Vorträgen begonnen. Tagungssprachen waren Englisch und Spanisch, wobei für alle Veranstaltungen Synchronübersetzung angeboten wurde. In je drei Parallelsessions die folgenden Themenschwerpunkte bearbeitet:

Boden und Gesellschaft

Hier wurde der Bogen zwischen Bodenkonservierung und Politikmaßnahmen geschlagen. Aspekte von regionaler Landnutzungsplanung, Kosten und ökonomische Effizienz von Konservierungsmaßnahmen und historische und zukünftige Entwicklungsperspektiven wurden diskutiert.

Boden und Wasserkreislauf

Unter diesem Schwerpunkt wurden u.a. Versalzungs- und Alkalisationsprobleme, Wasserverfügbarkeit, Nutzungseffizienz und der Einfluss von Managementmaßnahmen auf den Wasserhaushalt auf Feld- und Einzugsgebietsskala behandelt.

Verkettung von Biodiversität, Klimaänderung und Boden

Der Einfluss von Pflanzenbedeckung, Saisonalität von Erosionserscheinungen, Auswirkungen von Pflanzenschutzmitteln auf die Mikro- und Mesoflora des Bodens und das Zusammenspiel von Bodeneigenschaften und Edaphon sind nur eine kleine Auswahl aus der weiten Themenspanne dieser Session, die sich hauptsächlich mit Wechselwirkungen von Pflanze, Boden und Bodenlebewesen auseinandersetzte.

Traditionelle Systeme zur Boden- und Wasserkonservierung

Strategien zur Boden- und Wasserkonservierung in historischer Dimension und aktuelle regionale Konservierungstechniken, wie Terrassierung oder Water Harvesting waren Gegenstand dieses Forums.

Bodenfunktionen, Bodenqualität und Indikatoren

Mit 81 bzw. 83 Beiträge waren die Sessions Bodenfunktionen, Bodenqualität und

Desertifikation besonders stark vertreten. Ansätze zur Indikatorbildung für Bodenqualität wurden kontrovers diskutiert. Die Diskrepanz zwischen Anwendbarkeit eines Indikatorkonzepts und der tatsächlichen Komplexität des Systems Boden konnte dabei nicht überbrückt werden. Im Zusammenhang mit der Bodenqualität wurden vor allem Probleme der Nährstoffauswaschung (NO_3) und Konsequenzen der Ausbringung von organischen Düngern wie z.B. Kompost oder Klärschlamm vorgestellt.

Prozesse der Desertifikation und Bodendegradierung

Beiträge aus dem mediterranen Raum und den östlichen Ländern dominierten diese Gruppe. Lokale Beispiele von Desertifikation und Maßnahmen zur Erosionskontrolle bei verschiedenen Managementmaßnahmen wurden vergleichend diskutiert.

Bodenkontamination

Die Schwermetallbelastung von Böden über verschiedene Eintragspfade, wie Industriestäube, Klärschlammapplikation oder Bergbaurückstände wurde in 12 Vorträgen kritisch beleuchtet. Dies ist ein Arbeitsgebiet, dass man im Licht des Kreislaufwirtschaftsgedankens, sicher noch weiter vertiefen muss und bei dem es zur Zeit nur sehr heterogene gesetzliche Einzelregelungen zum Schutz des Bodens in den jeweiligen Länder gibt.

Neue Technologien und Bodenbewertung

Eine Vielzahl von Modellierungsansätzen zur Beurteilung von Erosionsrisiken wurde vorgestellt. Die Spanne reichte von einfachen empirischen Ansätzen, geostatistischen Verfahren bis hin zu physikalisch basierten, GIS-gekoppelten Modellen. Zeitliche und räumliche Variabilität und die Identifikation von besonders gefährdeten Flächen, sowie die Überprüfung von Konservierungsmaßnahmen waren Gegenstand der Modellierung.

Bodenkonservierung

Vorträge zu Konservierungsmaßnahmen wie Direktsaat oder Filterstreifen und zu potentiellen Schadeinflüssen, wie Beweidung und Wegenetzbau waren unter dem Oberthema Bodenkonservierung zusammengefasst.

Während der Abschlussdiskussion wurden noch einmal die Kernergebnisse reflektiert. Es wurde angeregt, Themenbereiche, die zur Zeit wenig oder gar nicht vertreten sind, wie z.B. Winderosion oder die Rekultivierung von Industrie- oder Bergbaustandorten mit in das Themenspektrum aufzunehmen.

Abgerundet wurde das wissenschaftliche Programm durch eine ganztägige Exkursion in die Region südlich von Valencia bis nach Alicante. Die Reise führte zunächst durch die intensiv bewirtschaftete Küstenregion der Gemeinde Valencia, wo Zitruskulturen, Reisanbau und intensiver Gemüsebau das Landschaftsbild prägen. Anschließend ging es landeinwärts in die hügelige Landschaft der Sierra de Benicadell mit 1104m über NN und der Sierra del Menejador (1352m ü. NN). Dort dominiert der terrassierte Regenfeldbau. Die Hauptanbaukulturen sind Wein, Mandeln und Oliven. Von dem

Bergpass La Carrasqueta führte die Reiseroute hinunter in das Flußtal nach Jijona, mit seiner typisch ariden Landschaftsausprägung und beeindruckenden Schluchten, die durch Erosion entstanden sind.

Abschließend bleibt noch den Organisatoren/innen und Helfern dieses Kongresses zu dem wohldurchdachten Ablauf und der gelungenen Planung der Tagung zu gratulieren. Trotz der Vielzahl der Teilnehmer und der entsprechenden Anzahl an großen und kleinen Extrawünschen, waren sie stets mit einem Lächeln und der sprichwörtlichen spanischen Gastfreundlichkeit bereit, jedem Wunsch nachzukommen. Für alle Teilnehmer war diese Veranstaltung ein Forum der Diskussion, des Wissensaustausches und sicher ist auch so mancher Kontakt entstanden, der auch über diesen Kongress hinaus weitergepflegt werden wird.

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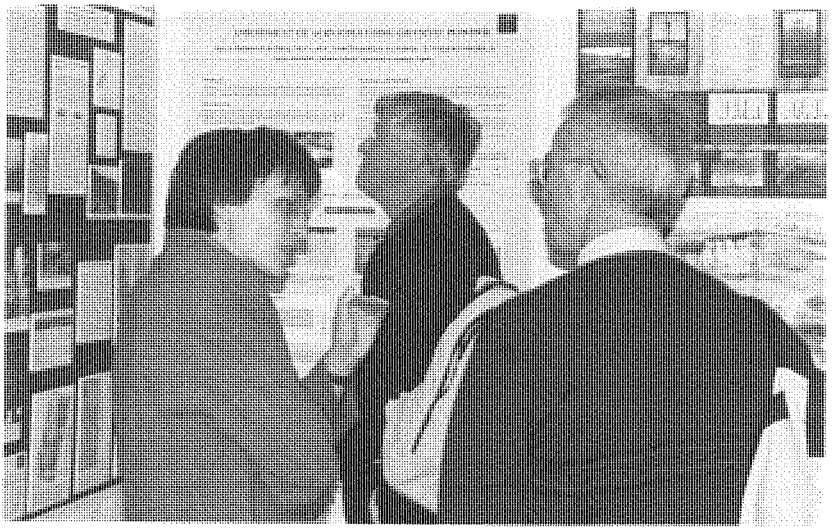
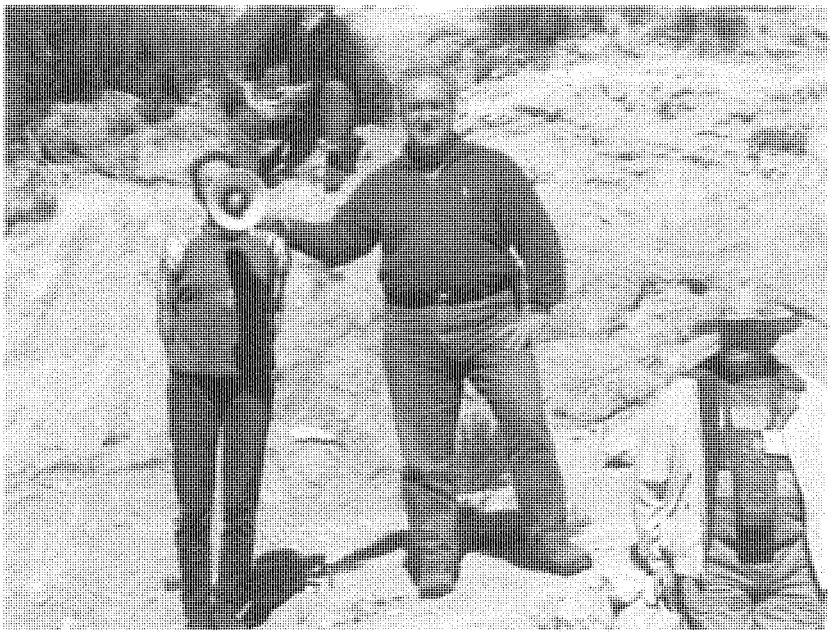
Germany

In the Conference Hall: listening carefully to the paper presentation



This is what my poster is about!

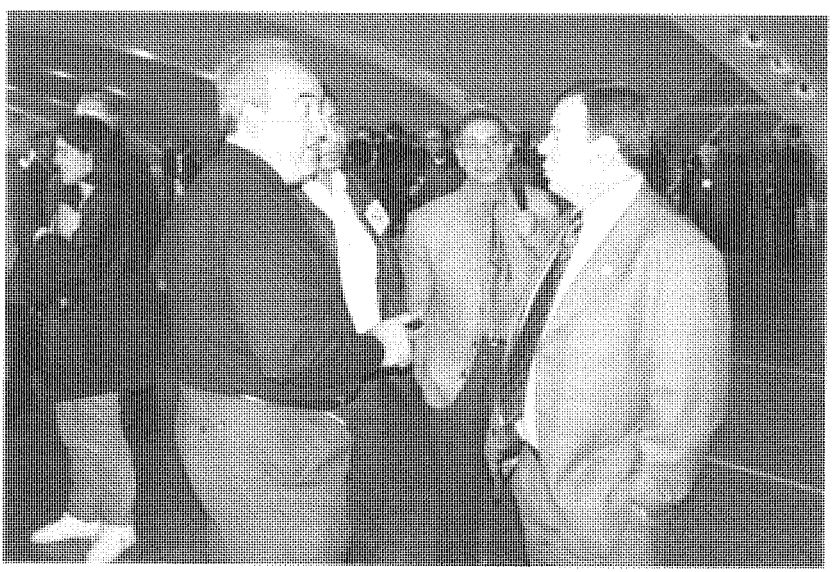
Lunch hinders conversation on the morning presentations



The fieldwork: Now can you hear what I have to say?

Yes, we can, and it's very funny!

Serious discussion at the banquet



Relaxing between the sessions

COMPTE RENDU DU 3ÈME CONGRES INTERNATIONAL DE LA ESSC SOCIÉTÉ EUROPÉENNE POUR LA CONSERVATION DES SOLS DU 28 MARS AU 1 AVRIL 2000, VALENCIA, ESPAGNE, « L'HOMME ET LES SOLS AU 3ÈME MILLÉNAIRE »

La société européenne de conservation des sols, fondée en 1988, a organisé son troisième congrès international dans le cadre magnifique du nouveau palais des Sciences et des Arts à Valencia, du 28 mars au 1er avril 2000. La participation fut importante (440 participants de 47 pays, essentiellement européens) et diversifiée (géographes, agronomes, forestiers et pédologues, botanistes et hydrologues, environnementalistes et chimistes, etc).

Trois journées très denses ont été consacrées à la présentation de 194 communications et 172 posters et un jour à une tournée dans les paysages du parc naturel de « l'Albufera », dans la plaine irriguée le long de la côte et sur les terrasses des montagnes calcaire de la « Font Roja ». Enfin, durant la matinée du 1er avril, ont été presentés un bilan du comité sortant (rapport des groupes de réflexion), une esquisse des problèmes à résoudre dans le futur et les résultats du vote de l'Assemblée générale de l'ESSC (10 membres dans le comité exécutif et 28 représentants des pays membres dans le « ESSC Council 2000-2004 »).

La conférence, introduite par le prince héritier d'Espagne et par de nombreuses personnalités du gouvernement espagnol ou régional, a reçu une très large audience dans le pays grâce à la présence continue de la presse au colloque, grâce aux informations télévisées et aux articles dans les quotidiens. La traduction simultanée a été réalisée dans les deux langues officielles, l'anglais et l'espagnol.

Après une conférence sur « la conservation et la restauration des sols en vue de séquestrer le carbone » par le prof. Rattan Lal, dix thèmes principaux ont été présentés par des orateurs invités , puis des exemples traités dans une douzaine de communications :

- Les sols et les societés : Prof.A. Kertesz (Hongrie), 15 communications ;
- Les sols et le cycle de l'eau : Prof. Pla Sentis (Espagne), 18 papiers + 3 sur la salinisation ;
- Relations entre biodiversité, changement climatique et ressources en sol : Dr.Misopolinos (Grèce), 12 papiers ;
- Stratégies traditionelles de CES : Dr E. Roose (France), 11 papiers sur la gestion de l'eau sur les versants ;
- Les indicateurs de qualité des sols : Prof. W. Blum (Autriche), 7 communications ;
- Fonctionnement et qualité des sols : Dr. D. Torri (Italie), 24 papiers ;
- Désertification et dégradation des sols : Dr. Yassoglou (Turquie), 16 papiers ;

- Nouvelles technologies et cartographie des sols : Prof. J.Poesen (Belgique), Prof. R.Morgan (UK) et M. Nearing (USA), 22 papiers ;
- Contamination des sols : Dr. P . Bieleck, 12 communications ; et
- Conservation des sols : Prof. Imeson, (The Netherlands), 11 papiers

Quelques réflexions personnelles

Sur l'organisation. Globalement l'organisation a été très soignée, bien que le congrès ai inauguré le nouveau palais des Sciences qui prenait parfois l'allure d'un « palais des glaces et des vents ». La présentation des thèmes par des invités pour toute l'assemblée, puis la dispersion des participants en trois salles a permis au plus grand nombre de présenter en 15 minutes leurs travaux : par contre, les dernières présentations sans discussion (10 minutes) ont été trop frustrantes. Tous les posters sont restés exposés 4 jours : chacun pouvait donc choisir d'aller les voir, mais il n'y eu aucun temps prévu exclusivement pour les posters.

La tournée sur le terrain dès le second jour a permis aux participants de mieux se connaitre et d'observer de nombreux paysages : cependant avec le grand nombre de visiteurs il a été difficile de présenter les points importants et d'organiser la discussion. Il ressort de cette tournée que les paysages méditerranéens ont beaucoup de points communs (lithologie, pentes fortes, nombreuses terraces d'âges divers, climat semi-aride) et que l'homme s'est acharné à modifier ce milieu à son avantage, mais qu'il a souvent dégradé profondément la végétation et les terres au cours de l'histoire. Personnellement, j'ai été impressionné par l'énorme effort réalisé depuis les romains et les arabes au IV siècle, pour adapter la topographie de ces montagnes semi-arides à la gestion des eaux de surface sur les « bancales » en bas de pente (pour la culture des citrus, vignes et oliviers + céréales, avec irrigation) et les « terrassas » sur les fortes pentes pierreuses (pour la culture des amandiers et oliviers en sec). Depuis une vingtaine d'années, seules les terrasses mécanisables étaient entretenues et les murettes consolidées avec du béton. Récemment, avec les subsides de l'UE, la culture des amandiers a repris et certaines vieilles terrasses sont réhabilitées, en particulier dans les sites touristiques. Ailleurs la guarrigue et les essences forestières recouvrent ces versants raides, rocailleux et peu érodibles. On observe partout une activité agricole intense, capable de concurrencer les produits que nous importions traditionnellement des pays du Maghreb (primeurs, oranges, olives, etc).

Sur le fond

- De nombreuses communications ont montré l'intérêt de lier la gestion de l'eau à la conservation des sols (MO et nutriments) pour valoriser les efforts de protection du milieu naturel. Seule une gestion combinée de l'eau, de la biomasse et des nutriments du sol permet de répondre aux questionnements des paysans qui cherchent urgemment à valoriser leur terre et leur travail. D'où l'intérêt de l'approche « GCES-=-Land husbandry », encore officiellement peu connue des méditerranéens
- Quantité de modèles ont été développés, mais il manque de données pour

les valider régionalement. Un certain intérêt a été marqué pour un retour à l'analyse naturaliste du fonctionnement des écosystèmes avant de tenter de modéliser les processus de ruissellement et surtout les nombreux processus d'érosion. EUROSEM a la prétention de modéliser à l'échelle de petits bassins les transports solides et leur dépôts ; il semble avoir nettement amélioré ses performances ces dernières années (d'après Morgan). Certains voudraient qu'on revienne sur la mise au point de techniques de suivi de terrain (indicateurs et techniques rapides et peu coûteuses). Les indicateurs de fonctionnement des sols permetraient d'améliorer nos relations avec les décideurs et responsables politiques qui, actuellement se demandent si nos recherches (et les crédits alloués) sont bien justifiées et quel impact elles peuvent avoir sur le développement de la société et la protection de l'environnement.

- En milieu méditerranéen, il semble admis par plusieurs chercheurs que l'érosion en nappe n'est pas la cause principale de l'érosion des versants (or c'est celle que les modèles tentent de prévoir), ni de l'abondante sédimentation dans les barrages. Poesen en particulier a insisté pour qu'on mesure l'érosion due aux techniques culturales (tillage erosion), au ravinement et aux glissements de terrain ainsi qu'à l'érosion des rivières, en particulier dans les vallées étroites.
- Très peu de travaux cherchent à améliorer des méthodes de lutte antiérosive (LAE) et à quantifier l'effet des méthodes de conservation des sols et plus particulièrement de la stabilisation des ravines. A l'avenir, il nous faudrait faire un effort pour dépasser les études de processus de dégradation (toujours très négatives) pour rechercher des méthodes efficaces pour résoudre les problèmes de conservation et de restauration de la productivité des sols à différentes échelles. Cela ne peut se faire sans une étude préalable des fonctionnements : d'où l'intérêt des approches naturalistes et des indicateurs de fonctionnement.
- Ces indicateurs nous permettraient de justifier nos recherches et de donner des orientations aux politiciens pour qu'ils prennent les dispositions légales pour améliorer la gestion des ressources naturelles.
- L'analyse des systèmes traditionnels de gestion des eaux et des terres , très diversifiées en milieu semi-aride et méditerranéens, peuvent nous éclairer sur les limites socio-économiques de ces approches, sur les conditions écologiques de leur extension et par retour, sur les conditions écologiques régionales. Leur étude peut être une bonne occasion pour « apprivoiser » les villageois (en apprenant d'eux) et tenter d'améliorer ces systèmes en y introduisant des technologies modernes comme l'apport de nutriments qui limitent l'influence de l'eau sur la production végétale.
- Certains chercheurs trouvent qu'il manque de recherches aux champs au contact avec les praticiens : les contrats avec les chambres d'Agriculture en France permettent ces études ponctuelles sur des sujets précis qui

intéressent les praticiens.

- D'autres chercheurs estiment qu'on manque d'observatoire de longue durée pour analyser l'effet des techniques culturales sur la qualité et la conservation des sols, sur l'intérêt économique des systèmes de production et le coût des systèmes de LAE.

Le comité a déjà distribué les « Key notes », et les résumés : il se propose de publier les comptes rendus sous forme d'un volume réunissant une sélection des communications chez un éditeur régional ou international.

Le nouveau comité exécutif (10 membres élus) a décidé que le prochain congrès principal aurait lieu en Hongrie en 2004 avec deux visites de terrain sur la CES et la salinisation.

En attendant, une première conférence est proposée à Montpellier en septembre 2001 sur le thème « naissance du ruissellement et de l'érosion sur fortes pentes (>15%) hors des terres soumises aux croûtes de battance ». Elle sera organisée conjointement par le Réseau Erosion (Roose et Lamachère) et par l'ESSC (Professeur Kertesz) et concernera la protection des vignobles, oliveraies, fruitiers et autres cultures en milieux méditerranéens et tropicaux.

Les participants français étant peu nombreux à l'ESSC, le nouveau président (J.L.Rubio) souhaiterait qu'un effort particulier soit fait pour appeler les chercheurs, formateurs et praticiens français à s'inscrire à l'ESSC s'ils sont concernés par l'érosion et les sols européens et au Réseau Erosion s'ils sont plutôt concernés par les pays méditerranéens et tropicaux.

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III CONGRESO DE LA SOCIEDAD EUROPEA PARA LA CONSERVACIÓN DEL SUELO, VALENCIA, 28 DE MARZO A 1 DE ABRIL DE 2000.

A finales del pasado mes de marzo se celebró en Valencia el Tercer Congreso de la Sociedad Europea para la Conservación del Suelo, organizado por el Centro de Investigaciones sobre la Desertificación (CIDE, CSIC-Universitat de València). El comité organizador, formado por un numeroso grupo de investigadores y colaboradores de dicho centro y dirigido por el Dr. J.L. Rubio, llevó a cabo un gran esfuerzo y aportó un enorme entusiasmo para que el congreso culminase con un evidente éxito a todos los niveles, hospitalario, logístico y científico.

El congreso tuvo lugar en el Museo de las Ciencias de la ciudad de Valencia, un marco a la altura de la relevancia de la reunión científica. A pesar de unos pocos inconvenientes producto de la juventud de las instalaciones, el Museo de las Ciencias permitió un magnífico clima de comunicación y relación científica. La organización puso a disposición de los congresistas todos los medios para que las jornadas transcurrieran de manera agradable y satisfactoria.

Bajo el lema *Hombre y Suelo en el Tercer Milenio*, el congreso reunió a un buen número de investigadores integrantes tanto de la ESSC como de otras sociedades e instituciones científicas, siendo un hecho reseñable la presencia de numerosos investigadores de países del Este de Europa y Latinoamérica. El esfuerzo de la organización y el acierto de las temáticas propuestas, contribuyeron a que el alcance y la difusión del congreso fuesen máximos. Prueba de ello fue la presentación de alrededor de 350 trabajos entre comunicaciones orales y pósters (casi al cincuenta por ciento).

El organigrama científico del congreso se articuló en ocho sesiones temáticas: Suelo y Sociedad; Suelo y Ciclo del Agua; Interconexiones entre Cambio Climático, Biodiversidad y Recursos Edáficos; Sistemas Tradicionales de Conservación de Suelo y Agua; Funciones del Suelo, Calidad e Indicadores; Desertificación, Degradación y Conservación del Suelo; Contaminación del Suelo; Nuevas Tecnologías y Evaluación del Suelo. Como ocurre siempre, todos los temas no suscitaron el mismo interés, en términos de número de trabajos presentados. En este sentido, destacaron las sesiones dedicadas a Funciones del Suelo, Calidad e Indicadores, y Desertificación, Degradación y Conservación del Suelo, sumando ambas casi la mitad de los trabajos presentados. Se pone en evidencia que el estudio de los procesos de degradación del suelo, en general, concitan el máximo interés entre los investigadores. Asimismo, era de esperar que en un congreso de la ESSC celebrado a orillas del Mediterráneo en España, el tema de la desertificación y la conservación del suelo fuera uno de los más destacados. Las relaciones suelo-agua y los sistemas de conservación de ambos recursos, tuvieron un notable protagonismo (alrededor de cincuenta trabajos presentados). A la vista del lema del congreso, podría pensarse que son esos los temas que más preocupan a la comunidad de la Ciencia del Suelo europea en los albores del tercer milenio.

Cada una de las sesiones temáticas fue introducida mediante ponencias sobre temas-clave pronunciadas por destacados especialistas en cada uno de ellos, y editadas previamente al congreso. Las conferencias trataron sobre aspectos como las relaciones entre conservación-restauración-explotación del suelo y el efecto invernadero (R. Lal, P. Bielek) o el cambio climático (A. Imeson); la erosión del suelo desde diferentes ópticas (R.P.C. Morgan, M. Nearing, J. Poesen, D. Torri, D. Gabriels); nuevas perspectivas sobre conservación del suelo (A. Kertesz) o de los recursos suelo-agua (I. Pla, E. Roose); indicadores de calidad del suelo (E.H. Blum) y procesos de degradación desde diferentes ámbitos (N. Misopolinos, G. Zalidis, N. Yassoglou); o el *European Soil Information System* (N. Montanarella).

Tanto los temas-clave elegidos y los conferenciantes invitados como las sesiones temáticas en las que se estructuró el congreso, permitieron lograr una perspectiva sobre los aspectos que más preocupan y que más interés despiertan en la comunidad científica relacionada con la conservación de suelos en Europa. La calidad de la mayoría de los trabajos presentados, las temáticas y metodologías propuestas, así como el gran número de casos y trabajos de campo expuestos, hablan suficientemente acerca del buen nivel del congreso.

Una de las jornadas consistió en una excursión por una extensa zona del sur de la Comunidad Autónoma de Valencia. La salida permitió obtener una visión general tanto de los diferentes ámbitos geográficos de ese territorio (litoral, llanuras aluviales y montañas del interior), como de los aspectos más relevantes de la problemática edáfica en cada uno de los casos. Destacaron los problemas relacionados con la contaminación de suelos y aguas en las zonas de agricultura intensiva, y la degradación y erosión del suelo derivados del abandono de la agricultura tradicional, la puesta en cultivo de áreas marginales, la deforestación o los incendios. Se abordaron, por tanto, problemas específicos de esa región pero que lo son, al mismo tiempo, de extensas zonas de los países ribereños del Mediterráneo. El gran número de participantes en la excursión (cerca de trescientos) no permitió un tratamiento muy específico y particularizado de esos aspectos, como en otras ocasiones se ha hecho, pero las paradas seleccionadas y el esfuerzo del comité organizador, consiguieron que los congresistas obtuvieran, al menos, una visión de conjunto.

Indudablemente ha habido aspectos formales en el congreso que podrían haber sido de otra manera. Quizá se tendría que haber dedicado una sesión específica para discusión de pósters o, por lo menos, haber propiciado explícitamente esta tarea. También se podría haber organizado la excursión para analizar temas específicos, por grupos de interés. Sin embargo, estos aspectos, que son opinables, no deben ocultar el éxito organizativo y científico del congreso.

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THE EUROPEAN SOCIETY FOR SOIL CONSERVATION 3RD CONGRESS VALENCIA, SPAIN 28 MARCH – 1 APRIL 2000

The Congress theme, *Man and Soil at the Third Millennium*, succinctly stated the significance of this Congress, as the ESSC charts its course into the New Millennium. The Congress took place in the impressive surroundings of the Museo de las Ciencias Príncipe Felipe and was well attended, with about 450 participants from 45 countries. An impressive number of papers were presented, covering diverse themes. Much attention was devoted to clarifying terminology and the meaning of such concepts as 'soil quality', 'soil health' and 'soil resilience'. The amount and quality of Congress documentation were very impressive.

Interesting visits were arranged as part of the Congress, in particular a one-day field trip to soil investigations in the Alicante-Valencia area, including visits to terrace field systems, areas eroded after burning by forest fires and erosion sequences in badlands. An informative visit was also arranged to the Centro de Investigaciones sobre Desertificación (CIDE).

A notable feature of the Congress was the highly successful efforts to explain the work of the ESSC through the media. This was greatly helped by the official opening of the Congress by His Royal Highness Prince Filipe. The event attracted considerable coverage in newspapers and television. Other welcome developments were the participation and presentation of research results from beyond Europe, with delegates and papers from Africa, Asia, Australia and North and South America. Furthermore, Eastern European participation was much in evidence. This extended participation will help to enmesh the ESSC within the broader soil science community.

To some extent, the Congress was a victim of its own success. There were a very large number of papers over the three and a half days of paper presentations. The programme stated there were 183 oral papers and 181 poster presentations. Many puzzled over how to present their work in 10 minutes! The ability to cope with this success will be an interesting challenge for the organisers of the 4th ESSC Congress, to be held in Hungary in 2004.

The organisation and professionalism of the organising team are to be congratulated and we are much indebted to our Spanish colleagues for such an interesting, informative and enjoyable congress.

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ESSC COUNCIL MEETING, MUSEO DE LAS CIENCIAS, VALENCIA, SPAIN, 27 MARCH 2000

Present: Dr J.L.Rubio (Spain), Prof. C.Coelho (Portugal), Dr C.Dazzi (Italy), Dr A.Kertész (Hungary), Dr Y.Le Bissonnais (France), Prof. N.Misopolinos (Greece), Prof. R.Morgan (UK), Prof. P.Skłodowski (Poland), Prof. R.Shakesby (UK), Prof. I.Pla Sentis (Spain), Dr D.Torri (Italy), Prof. J.Poesen (Belgium), Prof. D.Gabriels (Belgium).

This report summarises the main topics discussed at the meeting and the decisions made.

1. The President, Dr J.Rubio, gave an overview of the international meetings where he represented the ESSC. For more information related to this, see *A presidential viewpoint* (ESSC Newsletter 2000/1, pp. 3-4).

2. A financial report prepared by the Treasurer, Dr K.Helming, was discussed. The report is to be found in this Newsletter.

3. The Secretary, Prof. J.Poesen, reported on the archive of the ESSC. After the death of our past-president, Prof. G.Richter, all material related to the ESSC was transferred from Trier to Leuven, where it is stored in the Institute of Earth Sciences. Anyone interested in working on the history of the ESSC should contact J.Poesen.

4. The Editor-in-Chief, Prof. R.Morgan gave an account of his activities and thanked in particular Dr K.Helming for helping with the printing of the Newsletter at a reduced price.

5. Prof. D.Gabriels reported on the activities of the various Task Forces (see previous Newsletters or the ESSC homepage for more information).

6. The ESSC Council then decided to give the Gerold Richter Award for outstanding contributions to soil conservation and protection in Europe to Prof. Roy Morgan (Cranfield University); and The Young Person's Award for understanding and promotion of soil conservation in Europe to Dr Stefan Doerr (University of Wales, Swansea).

7. Following the rules of the ESSC, the Council nominated six members of the present Council (1996-2000) to serve on the new Council (2000-2004), namely: R.Morgan, D.Gabriels, D.Torri, R.Shakesby, J.L.Rubio and J.Poesen.

8. A list of nominated persons for election to the new Council was established, based on the vacancies published in Newsletter 2000/1. To this list, an additional

member was agreed for Italy.

J.L.Rubio, ESSC President
J.Poesen, ESSC Secretary

ESSC FINANCIAL REPORT 1997 - 1999

The financial transactions during the past three years (1997, 1998, 1999) are listed in the table below. Over this period, the income via membership contributions rose without raising the membership fee. Similarly, the costs of printing and mailing the newsletters fell. As a result, the budget increased in 1999. The membership contribution could be increased by repeatedly sending reminders to those members who do not pay their subscription. If the situation does not change drastically, we will be able to continue the production and distribution of three or four newsletters per year.

The number of members of the ESSC decreased in 1998 and 1998 but rose again in 1999. Currently, the Society has 524 members, 268 of which pay the full subscription (€ 25.00), 53 pay the reduced subscription (€ 10.00) and 203 are exempt from payment.

Year	1997	1998	1999
Budget January 1 (€)	9026.69	7181.64	3643.14
Income (€)			
Membership contribution	4806.14	5890.08	7176.86
Interest (bank account)	6.56	19.63	10.09
Books sold	132.93	30.17	
Conferences	1022.58		
Other	19.88		
Total	5988.09	5939.88	7186.95
Expenses (€)			
Newsletters	7092.74	8807.17	4702.98
Bank account	113.10	60.23	16.16
Mailing costs	389.72	149.50	200.94
Money transfer	173.67	223.23	312.09
Conferences		119.77	
Other	63.91	118.48	160.89
Total	7833.14	9478.38	5393.06
Budget December 31 (€)	7181.64	3643.14	5437.03

Katharina Helming, ESSC Treasurer

ESSC COUNCIL MEETING, MUSEO DE LAS CIENCIAS, VALENCIA, SPAIN, 31 MARCH 2000

Present : José L. Rubio (Spain), Donald Gabriels (Belgium), Roy Morgan, (UK), Antonio Rodríguez Rodríguez (Spain), Nistur Dumitru (Romania), Ion Ioniţă (Romania), Mike Fullen (UK), Nicola Fohrer (Germany), Eric Roose (France), Ildefonso Pla Sentis (Spain), Adam Kertész (Hungary), Carmelo Dazzi (Italy), Vito Ferro (Italy), Pavol Bielek (Slovakia), Raimo Kõlli (Estonia), Miguel Azeveido Coutinho (Portugal), Dino Torri (Italy), Jean Poesen (Belgium), Gerard Govers (Belgium).

1. J. Rubio welcomed the council members and asked them to present themselves briefly. After this introduction, the president gave a short overview of the status of the society and which points require in his view special attention within the next four years. It is positive that the membership of the society is increasing again, after a period of membership decline. Also the interest in the activities of the society is certainly not decreasing at the moment. However, there are also some negative points:

- there has been a lack of activity of the council members in some countries, resulting in very low membership numbers.
- The task forces do have potential : some have worked well, others not
- Over 200 members are not paying a membership fee : this situation will need some correction in the near future : A. Kertész and K. Helming will look into this and try to formulate a proposal
- The newsletter is fulfilling its role as a platform for information exchange and discussion : however, there may be ways to improve its efficiency

Considering this situation, J. Rubio proposes the following points for concrete action in the next four years

- The society should strive towards a better public awareness of soil problems
- The society should promote that the analysis of as well as the solutions proposed for soil problems should be of the highest scientific quality
- The society should try to make sure that soil problems are incorporated in the Global Environmental Agenda
- The number of publications of the society should be increased
- The relationships of the society with other organisations/institutions dealing with soil problems should be enhanced
- The number of members in underrepresented areas should be increased

2. Discussion

- K. Helming will be asked to send the most recent version of the ESSC-leaflet to all council members : they can then use this for promotion at their local level.

- The newsletter is not containing enough news. Council members should make sure that there are regular contributions to the newsletter : we are not striving towards long contributions, but rather short announcements of PhD theses, projects etc
- The ESSC should make an effort to present itself more assertively at congresses. The fact that there was no possibility at this congress for individuals to become members was felt a missed opportunity by some council members.
- Ways should be sought to make the newsletter more attractive : however, it is questionable whether longer contributions on specific topics are a way to go. However, we could strive towards the inclusion of more reports on meetings (council members should write such a short meeting report when they attend a meeting that is of interest to ESSC members)
- We should consider whether an electronic publication of the newsletter is feasible/interesting.
- The council members should be stimulated to actively promote the society in their country : a proposal by R. Morgan to have each council member make an activity proposal by the end of april is accepted. In this proposal, the council members should be indicate what the situation is in their country and how they propose to improve the situation.
- Don Gabriëls states that the society should also reflect on what it has to offer to its members. At present this is a newsletter and a reduction of the participation fee at some congresses. Can more be done ?

3. Publications

The publication of the proceedings of the 3rd conference is under consideration. There is interest from two national Spanish publishers. Roy Morgan will contact CAB to see if they are interested. There is no precise time schedule or procedure as yet : the organisers of the conference will see to this as soon as possible.

4. Next Executive Committee meeting

The next meeting of the executive committee will take place in conjunction with the COST 623 meeting in Almeria, Spain, 8-10 Sep. 2000. Gerard Govers will contact John Wainwright, the organiser, to see if such a meeting can be organised.

5. Next Council meeting

The next council meeting will take place in conjunction with a joint ESSC-Réseau Erosion meeting to be held in Montpellier in Sep-Oct 2001.

J L Rubio, ESSC President
G Govers, ESSC Secretary

ELECTION OF ESSC COUNCIL 2000-2004

The procedures for the election of the 2000-2004 Council were published in Newsletter 2000/1. The six members nominated by the outgoing Council were decided at the Council meeting on 27 March 2000.

The list of candidates was accepted unanimously by the General Assembly on 30 March 2000:

Austria	No nomination; vacant	
Belgium	G.Govers	Leuven
	D.Gabriëls	Gent
	J.Poesen	Leuven
Bulgaria	S.Rousseva	Sofiya
Czech Rep.	No nomination; vacant	
Denmark	P.Schjønning	Foulum
Estonia	R.Kõlli	Tartu
France	E.Roose	Montpellier
Germany	K.Helming	Müncheberg
	N.Fohrer	Gießen
Greece	N.Misopolinos	Thessaloniki
	G.Zalidis	Thessaloniki
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	V.Ferro	Gallina di Reggio
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	I.Ioniţă	Barlad
Russia	G.Glazunov	Moscow
	M.Kuznetsov	Moscow
Slovakia	P.Bielek	Bratislava
Spain	I.Pla Sentis	Lleida
	J.L.Rubio	Valencia
	A.Rodríguez Rodríguez	La Laguna
Sweden	No nomination; vacant	
Switzerland	No nomination; vacant	

Ukraine	V.Medvedev	Kharkov
	S.Bulygin	Kharkov
United Kingdom	M.Fullen	Wolverhampton
	R.P.C.Morgan	Cranfield (Silsoe)
	R.Shakesby	Swansea

The new Council will endeavour to fill the vacant places by co-option.

ESSC EXECUTIVE COMMITTEE 2000-2004

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EUROPEAN SOCIETY FOR SOIL CONSERVATION
GEROLD RICHTER AWARD 2000

Professor Roy Morgan

Roy Morgan obtained his BA degree in Geography from the University of Southampton, an MA from the University of London and then a PhD from the University of Malaya, Kuala Lumpur. Returning to the UK from Malaysia in 1971, he joined Silsoe College, now part of Cranfield University. He recognised soil erosion as a problem on arable lands in England and, against a background of a disbelieving public and Ministry of Agriculture, set out to collect data in the field to prove it. He made contact with like-minded researchers on other European countries and became Secretary to a Working Group on Soil Erosion in the European Community in Directorate-General VI of the European Commission. Working with enthusiastic colleagues on this Committee, he helped to organise meetings to increase awareness of the problem throughout Europe.

Working as a geomorphologist with an interest in erosion control, he began studies on the effect of crop canopies on rainfall properties and detachment of soil particles by raindrop impact. This interest in the interaction between vegetation and erosion process developed into a major research area with later studies on the effect of contour grass barriers.

One of the Workshops he organised for the European Union was on erosion assessment and modelling. In the closing session of this he convinced a group of European colleagues that a sufficient European research base existed from which a European effort could be mounted in erosion modelling which would rival the work in the United States. From this, the European Soil Erosion Model (EUROSEM) began. Roy Morgan saw EUROSEM through two EU-funded projects before handing over the coordinating role. He still maintains an active interest in the model's development.

Roy Morgan was a founder member of the ESSC and served initially as Vice-President before being elected President at the Second Congress in 1992. He relinquished the post in 1996, believing that no one should serve more than one complete term of office, and became Editor of the Newsletter, a position he still holds.

In recognition of these contributions to soil conservation and protection in Europe, Professor Roy Morgan receives the Gerold Richter Award of the European Society for Soil Conservation for the year 2000.

EUROPEAN SOCIETY FOR SOIL CONSERVATION
YOUNG PERSON'S AWARD 2000

Dr Stefan Doerr

Stefan Doerr embarked on an academic career comparatively late in life, at least by British standards. After obtaining a Diplom in Geography and a Subdiplom in Geology and Botany at Tübingen, he started a self-funded PhD in 1994 entitled *Soil hydrophobicity in wet Mediterranean pine and eucalyptus forests, Agueda Basin, north-central Portugal*. He completed an excellent PhD late in 1997 despite having to recover from a serious operation to remove a brain tumour.

Prior to submitting his doctorate thesis and continuing up to the present day, Stefan Doerr has published and had accepted in prestigious international journals a number of very good single-authored and multi-authored papers. Within the short period of little more than three years, he has established himself as a leading scientist in the field of soil hydrophobicity. This rapid rise was recognised in 1998 when he was aked to join an EU-funded research contract on the *Development of amelioration strategies to reduce environmental deterioration and agricultural production losses in water repellent regions* co-ordinated by Coen Ritsema at Wageningen and involving experts from The Netherlands, USA, Australia and Greece.

Exploratory work by Stefan Doerr in the UK has demonstrated that a wide range of soils across the country attain levels of hydrophobicity up to the maximum levels reported in the literature; previous literature on the subject in the UK is virtually non-existent. It is likely that enhanced runoff and erosion recorded after prolonged dry spells has been wrongly attributed in the past to causes other than hydrophobicity.

The work to which Stefan Doerr has so far devoted his academic life has important soil conservation implications. In recognition of his contribution, Dr Doerr receives the Young Person's Award of the European Society for Soil Conservation for 2000.

INTERCULTURES ET GESTION SPÉCIFIQUE DU RUISSELLEMENT ET DE L'ÉROSION DIFFUSE SUR LES PLATEAUX LIMONEUX DU NORD-OUEST DE L'EUROPE

L'interculture (période comprise entre la récolte du précédent cultural et l'implantation de la culture suivante) est une période privilégiée de lutte contre les phénomènes érosifs compte tenu de la facilité avec laquelle les agriculteurs peuvent intervenir sur leurs parcelles pour fragmenter la croûte de battance et restaurer la rugosité de surface. Des enquêtes en exploitation agricoles réalisées dans le Pays de Caux (France) ont montré une grande diversité de pratiques agricoles en interculture. Pour orienter le conseil nous avons testé cinq itinéraires techniques sur trois états à la récolte différents. Les 15 traitements expérimentaux ainsi obtenus sont conduits sous pluies naturelles sur des surfaces de 20 m². Le sol est un limon moyen sableux avec une pente homogène de 2%. L'essai a été conduit du 14/09/1993 au 8/02/1994.

Les états à la récolte (début d'interculture) sont les suivants :

BB : Blé paille broyée sur place (100 % de couverture du sol par les résidus végétaux).

BE : Blé paille exportée (50 % de couverture du sol par les résidus végétaux).

POIS93 : Pois protéagineux de printemps fanes exportées (30 % de couverture du sol par les résidus).

Les 5 itinéraires techniques retenus sont :

SOC : déchaumage fin août à l'aide d'une déchaumeuse à socs (petite charrue) qui donne une surface très rugueuse mais enfouit tout résidu végétal.

MOUT : implantation fin août d'une culture intermédiaire de moutarde. Labour + semis sur BB et BE :; semis direct sur POIS93.

Néopré : déchaumage fin août à l'aide d'un néodéchaumeur. Outils à dents qui confère à la surface un modelé très billonné et n'enfouit que partiellement les résidus végétaux.

Néotar : déchaumage début octobre à l'aide d'un néodéchaumeur. En octobre les conditions sont plus humides qu'en août on s'attend début octobre à une dégradation plus rapide de la surface.

O : aucune intervention pendant toute l'interculture.

Les résultats obtenus en fin d'interculture sont repris sur la figure 1. Cette figure donne la position des 5 itinéraires techniques selon le ruissellement et les départs de terre en moyenne pour les trois états à la récolte. Les traits horizontaux et verticaux délimitent des groupes statistiquement homogènes (test de Newmans-Keuls à 95 %) respectivement pour les départs de terre et le ruissellement.

On note des différences significatives entre itinéraires techniques. Néotar ruisselle 4 fois plus que MOUT et conduit à des départs de terre 9 fois plus importants qu'avec O. Certaines interventions en interculture permettent de réduire significativement le

ruissellement par rapport à des surfaces non traitées (SOC et MOUT par rapport à O). Par contre toute intervention culturale conduit à des départs de terre supérieurs ou égaux à ce que l'on constate sur les surfaces non traitées.

De façon plus générale, cette figure montre clairement que le ruissellement et l'érosion diffuse ne sont pas systématiquement corrélés ; la corrélation semble dépendre des états de surface créés sur les parcelles. Il découle de ce constat que le choix d'un itinéraire technique en interculture pourra dépendre du risque que l'on souhaite réduire en priorité : soit le ruissellement soit le départ de terre. L'itinéraire SOC permet de réduire le ruissellement mais conduit à un accroissement des départs de terre. Seul MOUT conduit à une réduction du ruissellement sans accroissement des départs de terre. Toutefois cet itinéraire est plus coûteux en temps et en argent (semences à acheter, couvert à détruire avant l'implantation de la culture suivante) et ne peut donc pas être appliqué aussi facilement.

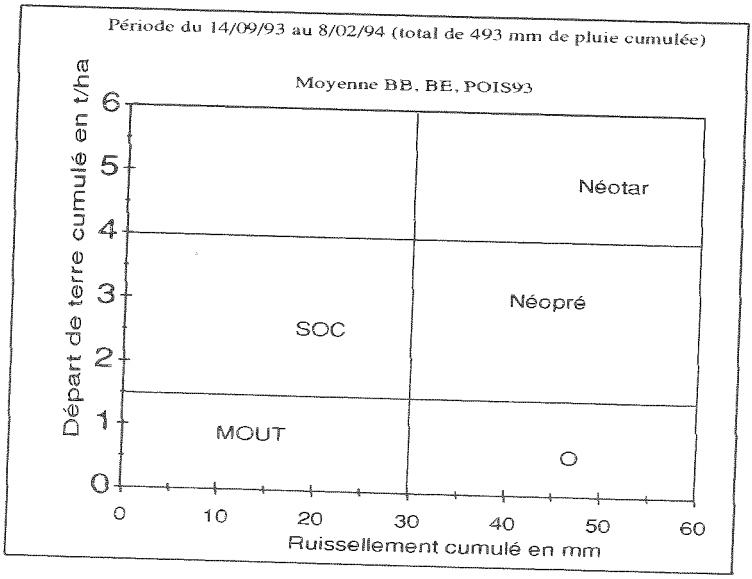

Figure 1 : Classement des itinéraires techniques

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Cet article reprend certains résultats de la thèse de docteur en Agronomie de l'INA-PG soutenue par l'auteur le 24/02/1997 : *Martin P., 1997. Pratiques culturales ruissellement et érosion diffuse sur les plateaux limoneux du Nord-Ouest de l'Europe. Application aux intercultures du Pays de Caux. Thèse de docteur de l'INA-PG.*

MAPPING OF SOIL AND TERRAIN VULNERABILITY IN CENTRAL AND EASTERN EUROPE (SOVEUR PROJECT)

Introduction

The quality of Europe's environment has deteriorated as a result of soil degradation and pollution. These processes can severely affect food production, the quality of surface and groundwater, and ultimately biodiversity and human health. Policy measures and conservation methodologies are needed to halt and reverse this trend. It is in this overall context that the project entitled 'Mapping of Soil and Terrain Vulnerability in Central and Eastern Europe' (SOVEUR) was implemented at ISRIC in 1997 under a subcontract with FAO. The project involved close collaboration with experts from soil institutions in 13 countries — Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, the Russian Federation (west of the Urals), Slovakia and Ukraine — who collated the primary data.

Results

The aims of the SOVEUR project are to strengthen regional awareness of the significant role soils play in protecting food and water supplies, and to demonstrate the need for environmental protection by preparing soil degradation and vulnerability maps that can focus attention upon the areas most at risk (scale 1:2,500,000). This has been achieved by: (1) developing a soil and terrain (SOTER) digital database, (2) mapping the current status of soil degradation, and (3) assessing the soil's vulnerability to selected categories of pollutants.

Preliminary results were discussed during a concluding workshop in Romania, which included correlation sessions. This led to a number of revisions, which have been incorporated in the final databases and derived interpretations. The four main types of soil degradation in the region are: soil compaction (22%), water erosion (16%), fertility decline and reduction in organic matter (11%) and crusting (10%). Pollution of land by excessive use of fertilizers and pesticides and by contaminants such as heavy metals, persistent organic pollutants and radionucleides are of a more 'regional' occurrence (van Lynden, 2000).

Various sets of 'derived soil properties', including organic matter content, pH and cation exchange capacity, were developed for the SOVEUR area. These data sets and expert knowledge of pollutant behaviour in the soil were then used to identify broad areas considered vulnerable to Cd mobilization, inducible by acid deposition (Batjes, 2000a). In the future, this information may be combined with data on Cd loads and acid deposition to show where areas considered at risk occur; this would, however, require unlimited access to these auxiliary databases (Batjes, 2000b).

The final attribute and spatial data bases, and accompanying technical reports will be published as No. 9 in FAO's *Land and water media series*, by autumn 2000.

Conclusions

- Working at the scale of 1:2.5 million is an excellent exercise for integrating data and expertise from a range of countries.
- Results of the soil degradation status and soil vulnerability mapping exercise will mainly be applicable to large areas as a whole. They can help to increase awareness of possible (adverse) effects of human intervention on the quality of soil resources.
- Uncertainties associated with data and model errors are prone to be significant at the considered scale (Batjes, 1999). The various types of uncertainties are difficult to evaluate, and they will vary amongst the various data sets and models used.

Acknowledgements

The SOVEUR project was implemented by ISRIC within the framework of the Cooperative Programme of the Food and Agriculture Organization of the United Nations and Netherlands Government (Project: GCP/RER/007/NET). The contributions from the 13 national collaborators, and their teams, as well as of SOVEUR project staff at ISRIC and FAO are gratefully acknowledged.

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NEW PUBLICATIONS

van Dijk, P.M. and Kwaad, F.J.P.M. 1999. ***The supply of sediment to the river Rhine drainage network. The impact of climate and land use change on soil erosion and sediment transport to stream channels.*** **ICG-Report 99/5, University of Amsterdam, 89 pp.**

Asselman, N.E.M. 1999. ***The impacts of changes in climate and land use on transport and deposition of fine suspended sediment in the river Rhine.*** **University of Utrecht, 116 pp.**

The reports are two of a series of twelve reports of NRP-Project no. 952210 of the Dutch National Programme on Global Change on *The impact of climate change on the river Rhine and implications for water management in the Netherlands.* The research was funded by the Dutch Government and was carried out by scientists of several Dutch research institutes (University of Utrecht, University of Amsterdam and Rijkswaterstaat, Carthago). The reports can be obtained by sending an e-mail message to: kwaad.frans@worldmail.nl or to nathalie.asselman@wldelft.nl

Other reports of the Rhine project deal with climate scenarios, the impact of climate change on the water discharge of the river Rhine (RHINEFLOW-2) and the impact on Dutch inland water systems. For more details, please, contact F.J.P.M. Kwaad at the first e-mail address.

A summary report of Rhine NRP-project no. 952210 by H. Middelkoop (editor) (price 25 Dutch guilders) can be ordered at: riza@cabri.nl

Botschek, J. 1999. Zum Bodenerosionspotential von Oberflächen- und Zwischenabfluß. - Bonner Bodenkundl. Abh. 29, 174 S.

Soil loss can be caused by different soil erosion processes depending on the parameter constellations. In this study soil erosion potentials of surface and subsurface flow are demonstrated in two small catchments of the Pleiser Hügelland and in the Bergisches Land in Northrhine-Westphalia, Germany.

In both catchments soil erosion status is described by means of interpretation of geomorphological units and soil horizons. Particularly on the investigated lands of the Pleiser Hügelland, high amounts of soil disappeared due to soil erosion, on the other hand large accumulations of eroded soil material were deposited in the catchment. In contrast, the soils of the investigation site in the Bergisches Land are mainly eroded by interflow. The surface and subsurface erosion forms indicate an advanced stage of that soil erosion process. For the first time Ground Penetrating Radar was tested to locate

tunnels and the technique proved to be suitable for exploration of subsurface erosion.

The eroding potential of surface runoff was examined by the following methods: (1) Two official Northrhine-Westphalian large-scale soil maps (1:5 000) were available to provide soils data, particularly on properties related to soil texture. (2) A recently established pedological information system for connecting and aggregating heterogenous data sets. High quality data like laboratory results is combined with low quality data, e.g. field estimations, with no loss of meta-information. Results corresponded well with those of the soil map interpretation. (3) Surface runoff and soil loss were simulated with the EROSION-2D-model. The soil erosion potential of several sites was documented from experiments with artificial rains. These data were now used to verify and adapt the erosion model. The suitability of the model is good though some improvement, especially in the soil hydrology submodel, seems to be necassary.

Assessment of soil erosion potential of subsurface flow was based on the following methods: (1) Physical and chemical analysis of soils and substrata aimed at the identification of process parameters. Different stability tests indicate high erodibilities of the silty soils although definite physical or chemical indices for those soil horizons particularly affected by subsurface erosion were not found. Water permeability seems to be more important for the susceptibility of the soils for tunneling. That parameter is mainly determined by macro porosity. (2) According to measurements of concentrated subsurface flow and sediment transport in tunnels a single rain caused up to 6.5 m discharge and up to 132 kg soil loss from one tunnel outlet. Dissolved and particle bound loads were also determined. (3) Repeated survey of surficial erosion forms indicate high dynamics of that erosion process. Within three months 14.9 t of soil were lost on the 1 ha-investigation site.

Subsurface erosion heavily affects land use on the investigated slope but it may also have some importance for water quality in the nearby drinking-water reservoir.

The monograph is availabel at: Institut für Bodenkunde, Nussallee 13, 53115 Bonn, Germany (Price not yet fixed).

Wicherek, S. (dir), 2000. ***Paysages agraires et environnement. Principes écologiques et gestion en Europe et au Canada.*** **CNRS Editions, Paris, 412 pp. FF 290.00.**

Cet ouvrage traite des relations entre les activités agricoles, l'évolutions des paysages agraires, la qualité de l'environnement et la santé humaine. Il s'agit à la fois d'un sujet de débat de société, au travers d'enjeux socio-économiques, et d'un objet de recherche d'une complexité écologique exemplaire. Il met en valeur la multifonctionnalité des

paysages agraires qui sont également le reflet du dysfonctionnement agro-écologique : d'une part l'activité agricole pollue les sols et les eaux, d'autre part l'agriculture est aussie un récupérateur des pollutions urbaines et industrielles. Les objectifs principaux sont de concilier les nécessités productives d'une agriculture compétitive avec ses nouvelles fonctions de gestion des ressources naturelles.

L'ouvrage est composé de quatre parties : relations environnement/agriculture; évolutions des pratiques culturales et biodiversité; transferts de polluants en terres de grande culture; relations sylvosystèmes/agrosystèmes/hydrosystèmes. La télédétection, les systèmes d'informations géographique (SIG), le césium-137 comme marqueur de la dégradation de l'environnement sont ici pleinement utilisés pour la compréhension du fonctionnement de ces milieux.

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NEW PhD THESES

Muddy floods, retention pond sedimentation and assessment of the sediment delivery in central Belgium

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Promotor(s): Prof. dr. Jean Poesen and Prof. dr. Gerard Govers (co-promotor)

Soil erosion by water has many detrimental off-site effects in central Belgium. After local, but intense rain events, 53 municipalities in central Belgium are confronted with muddy floods, up to several times a year. The genesis of muddy floods is controlled by the intensity of the rain event, the vulnerability of the landscape to runoff and erosion, and the vulnerability of housing properties and infrastructure to runoff. Soil erosion is also responsible for high sediment loads in rivers, causing high siltation rates of riverbeds and retention ponds. Due to more strict environmental regulations, dredging of these sediment deposits has become very expensive. A correct assessment of the sediment delivery to rivers is a necessity which should be achieved prior to the implementation of a regulating policy.

Based on sedimentation rates in retention ponds, this study reports on collected data on the yearly sediment supply to rivers in central Belgium. Measured sediment volumes in retention ponds need to be corrected for sediment dry bulk density (dBD) and sediment trap efficiency (TE). Measurements of the dBD showed that it varies strongly (0.8-1.35 tonnes/m^3) and that it is primarily controlled by the hydrologic condition of the pond and secondly by sediment texture. Existing relations, which are primarily based on sediment texture, cannot therefore be applied. Empirical and theoretical models to predict the TE of the ponds are not suitable for the studied ponds. A newly-developed TE-model (STEP), however, provided reasonable predictions for experiments run with a small retention pond and was used to predict the yearly TE of the studied retention ponds in central Belgium. For these retention ponds, mean annual TE varies from 10 to 80%. For catchments of 7 to 4,970 ha, sediment yield ranges from 50 to 4,400 tonnes/ year. A multiple regression model for catchments smaller than 50 km^2 explains 83% of the observed variability in sediment yields (n=26) using simple catchment properties: topography, maximum horizontal distance and hypsometric integral. This model can be used to assess the total sediment supply to rivers in central Belgium. A proposed integrated watershed management, in co-operation with environmental planning, should contribute to a significant reduction of sediment supply to rivers, a reduction in the impacts of muddy floods and a limitation of the financial costs caused by dredging and dumping polluted sediments.

Soil erosion and conservation on arable subtropical Ultisols in Yunnan Province, China

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Soil erosion in Yunnan Province, south-west China is a major environmental problem affecting widespread areas. With some 95% of the Province being mountainous, and the valleys and plains already fully utilised for agriculture, industry and urban growth, pressure on remaining land resources is high. Thus, cultivation has steadily encroached on to steep, marginal slopes. Increasing population pressure has also intensified agricultural practices, which further accelerates erosion rates. Detrimental effects of soil erosion include decreased soil productivity, with subsequent adverse effects on crop yields. Little published data are available on actual erosion rates in Yunnan Province and few studies have examined potential soil conservation measures.

To contribute information, a collaborative research programme was initiated between Yunnan Agricultural University (YAU) and The University of Wolverhampton to study several possible soil conservation measures. An existing project using 30 runoff plots on the experimental farm of YAU was used as a framework to investigate the effectiveness of the following treatments: conventional tillage (control), no-tillage, straw mulch (4 t ha^{-1}), clear polythene mulch and intercropping with soya bean (*Glycine ussuriensis*). The treatments were tested with maize (*Zea mays*) sown along the contour and in a downslope direction, on three slope angles, 3°, 10° and 27° (Slopes I, II and III, respectively). The runoff plots in Slopes I and II measured 24 m^2 while those in Slope III were 7.2 m^2. Data on runoff and erosion rates were collected after each rainfall event during the main growing seasons (May to October) in 1995 and 1996. Measurements of plant height and green leaf area were made at regular intervals to assess treatment effects. In addition, several soil properties (infiltration rate, bulk density, penetrometer resistance, aggregate stability, moisture and temperature) were investigated to assess treatment effects on soil physical characteristics. Using plot soil samples from 1994 and 1996, an attempt was also made to identify short-term changes in selected soil properties, including total and available nitrogen, phosphorus and potassium, exchangeable calcium and magnesium, organic matter, pH and particle size distribution.

The 1995 and 1996 seasons were very different in terms of rainfall amount and distribution. The 1995 seasonal total (18 May-4 October) was 876.3 mm compared to 619.7 mm in 1996 (18 May-4 October). The 1995 season was the most erosive, with 47% of the rainfall causing erosion, compared to only 27% in 1996. Therefore, in terms of runoff and erosion, the 1995 values were much higher than in 1996, with mean runoff and erosion rates equal to 470.04 m^3 ha^{-1} and 7.56 t ha^{-1}, respectively, compared to equivalent values of 29.27 m^3 ha^{-1} and 0.051 t ha^{-1} in 1996.

In terms of individual treatments, straw mulch was very effective for soil conservation. During the 1995 season, straw mulch erosion rates on the contour plots were 27, 78 and 76% less than those under conventional tillage on Slopes I, II and III, respectively. With downslope cultivation, the equivalent values were 68, 75 and 89%. Straw mulch was also effective for decreasing runoff, although the percentage reductions were not as pronounced as the erosion rates. It is postulated that the straw mulch, through reducing soil particle detachment by raindrops, maintains topsoil structure and encourages infiltration, thereby reducing runoff and erosion. Conversely, erosion rates under conventional tillage were high, exceeding 21 t ha^{-1} after one intense 1995 storm. No additional soil surface protection was provided and therefore topsoil deterioration through rainsplash action occurred, which decreased infiltration rates and encouraged surface runoff. Polythene mulch exacerbated runoff and erosion problems, as infiltration was effectively decreased, thereby concentrating runoff and channelling it towards exposed soil between the mulch strips. However, maize development and grain yields were consistently higher than those under the other treatments, believed to be due to the effects of the plastic mulch on soil moisture and temperature regimes. Contour cultivation showed positive effects on runoff and erosion rates, particularly on Slopes II and III. Mean erosion rates from contouring were 34 and 25% less than those for downslope cultivation for Slopes II and III, respectively. Although there were few apparent trends relating to changes in soil properties over the 1994-1996 period, exploratory correlation analyses indicated that there were significant relationships between cumulative erosion and changes in available nitrogen, exchangeable potassium and organic matter for Slope I and available N, exchangeable Mg and available P for Slope II. However, further and more prolonged replicated studies are required to verify these results.

Sediment deposition by overland flow: an experimental and modelling approach

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Soil erosion is the main contributor to the sediment load of and the sediment-sorbed pollutants in river systems. However, not all sediment eroded from hillslopes reaches the river system. Considerable amounts of detached sediment are deposited within agricultural catchments. Sediment deposition is a highly size-selective process. Consequently, transported sediment becomes enriched in fines and their associated nutrients and contaminants when transported over areas of net deposition. This has important consequences for the off-site effects of soil erosion. Although a vast number of studies on different aspects of soil erosion at various spatial and temporal scales exists, there are very few detailed studies on net sediment deposition by overland flow. The objectives of this study are to gain a deeper understanding of the processes occurring during net deposition, to assess and quantify the size selectivity of the

deposition process and to evaluate thoroughly existing physically-based net sediment deposition routines. Flume experiments were conducted to evaluate the influence of slope, sediment size, inflow sediment concentration, flow discharge and rainfall on the net deposition process and on the sediment sorting during transport over an area of net deposition. The experimental data show that the hydraulic conditions where net deposition occurs can be divided into two domains. The first domain is characterised by hydraulic conditions where transport capacity is negligible. In this domain sediment deposition can be modelled by a multi-class simple settling theory, assuming continuous mixing of the water and sediment. In the second domain net deposition still occurs, but transport capacity is significant.

Evaluation of existing physically-based net deposition routines shows that these routines yield similar expressions for the description of sediment transport by overland flow over an area of net deposition. Confrontation of the experimental results with the predictions of existing net deposition theories shows that size-selective settling and unselective flow re-entrainment and rain re-detachment by rainfall impact describe well the observed sediment sorting.

Finally, the impact of soil-aggregates on the sediment deposition process is assessed. Field surveys and flume experiments show that the size selectivity of the net deposition process is compensated for by the presence of soil-aggregates in the deposited sediment. The next challenge in sediment deposition modelling is therefore the accurate incorporation of the impact of soil aggregates on the net deposition process.

REQUEST FOR HELP

Soil erosion prediction

I am writing a book chapter on empirical methods of predicting soil erosion by water. I am up on the USLE, MUSLE, Onstad-Foster and RUSLE and know of several others. I would appreciate your help in identifying other and furnishing sources of information about these. If you could send me e-mail addresses, literature citations etc., even the models and their documentation, I would be most grateful.

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JOURNAL OF BALKAN ECOLOGY

We would like to inform you about the two-year existence of the international *Journal of Balkan Ecology* published in the English language in Bulgaria. The Journal started in 1998 and is published in four issues per year. For the subscribers of all countries, except those in Europe, the total cost is US$ 220 per year for 2000, and with 20 % discounts for 1998 and 1999. For the subscribers of the European countries, the total cost is US$ 200 per year, applying the same discount rate for 1998 and 1999. The Journal publishes scientific surveys, research articles and short communications. We publish also all kinds of ecological advertisements deluxe in colour, at very low price. We show luxurious colour photos of world's ecological reserves. The Journal is financially based solely on the subscription fees.

Researchers and authors are kindly invited to submit papers for considering and publishing in the *Journal of Balkan Ecology*, free of charge. We would like to ask you to invite your Organizations for subscribing and/or distributing the *Journal of Balkan Ecology*. Please, inform the Editor-in-Chief about your requests by e-mail or by post. We will send you issues of the Journal. We shall appreciate very much indeed your help.

On behalf of the Editorial Board,

Prof. Dr. Ilia D. Christov
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FORTHCOMING MEETINGS

28-30 March 2001

International symposium on snowmelt erosion and related problems
Oslo, Norway

Meeting held in cooperation with COST action 623: Soil Erosion and global change; European Society for Soil Conservation; International Geograpical Union, Commision for Land Degradation and Desertification; Department of Soil and Water Science Agricultural University of Norway; and Jordforsk, Centre for Soil and Environmental Research

The general objective of the seminar is to highlight issues of particular importance for soil erosion processes in northern regions, including modelling and scenario analyses for potential effects of climate changes. The seminar is designated to reviews of current understanding and latest findings, and identification of priorities for future research in snow melt erosion and related problems. Items of particular interest:

- hydrological processes and properties in frozen or partly frozen soils
- soil erodibility during winter periods
- modelling of erosion for winter conditions
- potential effects of climatic change
- scale issues in relation to field measurements and modelling
- alteration of soil physical and mechanical properties by freezing and thawing.

The seminar will gather together scientists working with different issues related to processes occurring during winter time like: hydrology, soil physics, soil erosion, soil management, land use, scale and modelling issues.

Interest reply form and more details can be found on www.jordforsk.nlh.no/ snowmelt.htm or contact:

Lillian Øygarden, Jordforsk, Centre for Soil and Environmental Research, N-1432 Aas.

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18-25 April 2001

Forests in a changing landscape (16th Commonwealth Forestry Conference and 19th Biennial Conference of the Institute of Foresters of Australia)
Fremantle, Western Australia

The main theme of the Conference is: *Forests in a changing landscape.*

Sessions are based on four sub-themes: (1) Landscape change: managing conflicting land pressure at the site and community level; (2) The policy landscape: political will and the National Forest Estate; (3) The global landscape: frameworks for cooperation; and (4) Technology and the forest landscape: rapid changes and their real impacts.

Programme also includes a one-day field tour to look at emerging pine and other species plantations on private land and their role in reducing land degradation, increasing pulpwood industry on private land and recent advances in restoring threatened species of plants and animals. There is a 3-day post-conference tour to the southwest of Western Australia.

Abstract deadline: 25 July 2000.
Download abstract form from: www.promaco.com.au

Further details from: Promaco Conventions Pty Ltd., ABN 68 008 784 585, P O Box 890 Canning Bridge, Western Australia 6153, Australia
tel: + 61 (0)8 9332 2900
fax: + 61 (0)8 9332 2911
e-mail: promaco@promaco.com.au
Internet: www.promaco.com.au

20-24 May 2000

World Water and Environmental Resources Congress 2001
Orlando, Florida

Organised by the Environmental and Water Resources Institute of the American Society of Civil Engineers. The aim is to explore new ways for engineering and environmental communities to work together for an environmentally sustainable future.

Sessions on: sustainable water resources; wetlands and river restoration; water delivery systems - planning and management; invasive species; sedimentation and the

environment; watershed and wetland processes; watershed management; water regulations, laws and policies; emerging technologies for water treatment; emerging technologies for waste water treatment; economics of the environment; value of natural systems; waste management; beneficial use of waste by-products; water sustainability and recycling; stormwater detention and drainage; inland waterways; ports and habours; coastal zone environment, management and engineering; hydrology, hydraulics and the environment.

Abstracts deadline: 12 September 2000
Submit online at: www.asce.org/conferences/wwercongress

AIMS OF THE SOCIETY

The ESSC is an interdisciplinary, non-political association, which is dedicated to investigating and realising 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,
by informing the public about major questions of soil conservation in Europe,
by collaborating with institutions and persons involved in practical conservation work in Europe

The ESSC aims at coordinating 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 Öffentlichkeit 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 problèmes 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-política, dedicada a la investigación y a la realización de acciones orientadas a la conservaciòn del suelo en Europa. La ESSC persigue sus objectivos en los sectores científicos, 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.zalf.de/essc/essc.htm

MEMBERSHIP FEES

I wish to (please mark appropriate box):

- ❑ join the ESSC
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- ❑ know whether I have outstanding membership contributions to pay

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50% reduction on above rates for two years
Written confirmation of student status should be provided by your supervisor

❑	DM 25.00 (€12.50)
❑	DM 10.00 (€ 5.00)

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

- ❑ enclosed Eurocheque
- ❑ bank transfer
  (bank account: ESSC, Sparkasse Märkisch Oderland, BLZ 17054040
  account number 3000255329
- ❑ Eurocard / Mastercard
- ❑ American Express Card
- ❑ Visa Card

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NAME: .....

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Please send this form to: ESSC Treasurer, Dr Katharina Helming, ZALF, Eberswalder Str. 84, D-15374, Müncheberg, Germany