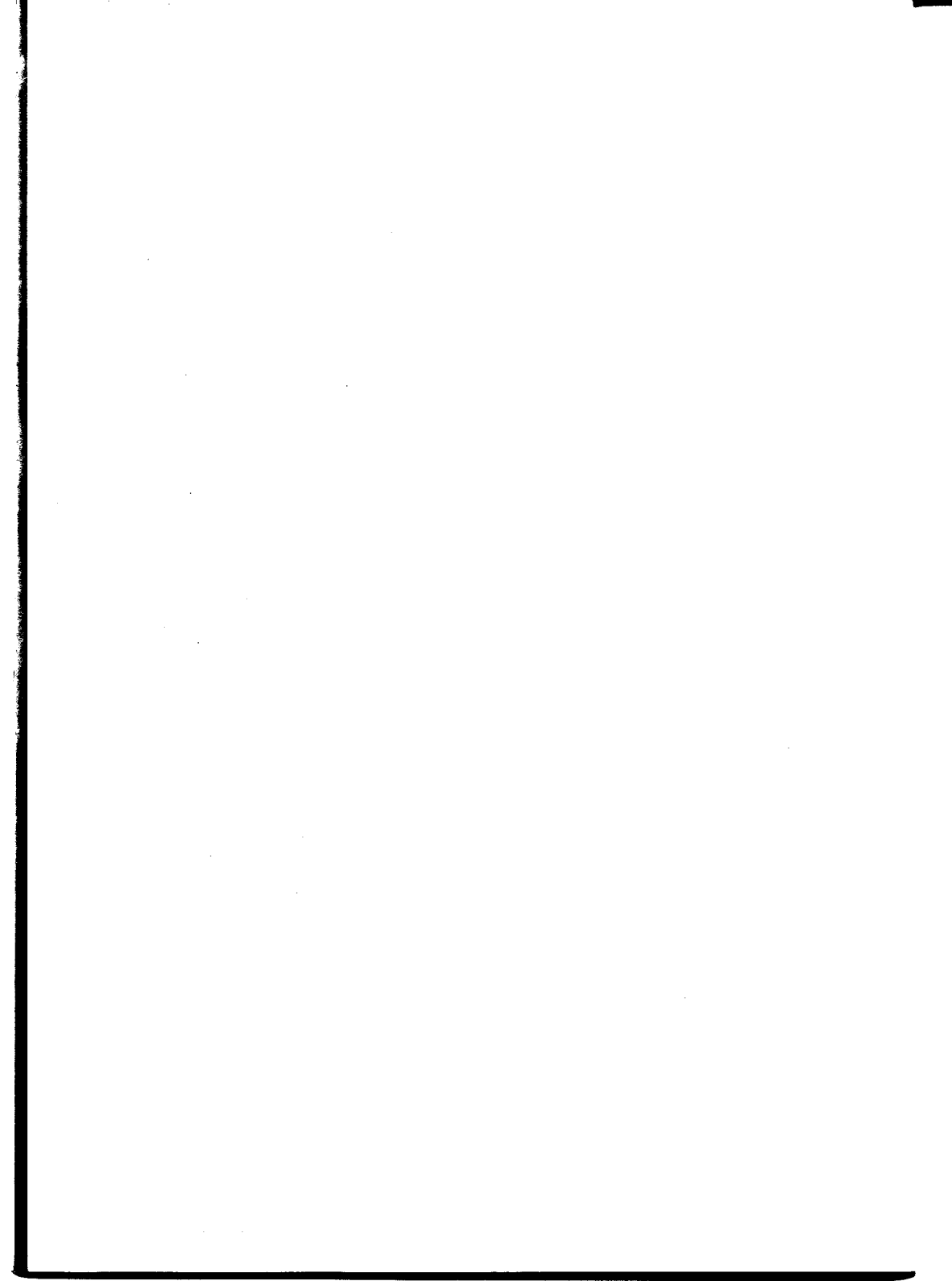


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WHY THE SOCIETY?

From Soil Degradation to Soil Conservation

On November 4th, 1988, 18 experts representing Portugal, Spain, Italy, Greece, France, W.Germany, Great Britain, Denmark, the Netherlands and Belgium founded at Leuven (Belgium) the European Society for Soil Conservation, the E.S.S.C. Since then they have been joined by Switzerland, Luxemburg and Sweden. Launching the Society was a matter of all due speed, supported by an overall enthusiasm. In fact, it resulted from a general consciousness of soil degradation being a reality on our continent and of the awareness of a necessary conservation policy to be developed in Europe within the next decades.

Soil conservation cannot be the sake of academics only. They know already something about the nature of soil resources and the theory of good management. But a major question is how to persuade the large public to manage and use those resources better. Conserving soil fertility, combating physical and chemical degradation of soils, including soil erosion, is the concern of all Europeans. Therefore, we also have to analyze and compare sceneries beyond and across the borders of our small territories. Greece, for example, is facing problems that in many aspects are comparable to Spain. Soil degradation in northern France or southern England is basically representative for hazards assessed all over the European loess loamy areas, eastwards into Ukraine. Our mountain ranges experience similar problems of forest and soil degradation, and related slope instability. Hence, the necessity of a European conservation community and of the E.S.S.C., a Society which has to promote exchange of information and comparative studies.

Therefore, too, the wish of the founders of the E.S.S.C. to come to a multidisciplinary union and to bring together people and professions that are all involved in the effort to preserve our lands and soils: farmers and agricultural consultants, geoscientists and ecologists, foresters and land reclamation and improvement specialists, industries and governmental institutions, teachers and journalists. Scientists may have to discuss the extent to which man is really responsible for the actual situation and they have to promulgate possible proper solutions. But there will be no conservation issue if the public and the politicians are not convinced of their arguments and of the goals they propose. There the E.S.S.C. can play an important role to "sell good ideas".

Last year Sahel countries, Amazonia and Bangladesh came again in the news with sometimes catastrophic events related to soil degradation. Europe is definitely interested in these environmental problems that touch the international community. But will it pass over in silence its own problems?

The first Newsletter of the E.S.S.C. is not merely the presentation of a new scientific association. It is more a call to all Europeans to preserve our soil resources, from the Atlantic Ocean to the Ural.

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E.S.S.C. - Membership

According to the letter of our President, Prof. Dr. Jan de Ploey, Leuven (Belgium), the European Society for Soil Conservation was founded in November 1988 "to promote research on soil degradation and practices of soil conservation all over the continent. The E.S.S.C. as multidisciplinary society will try to integrate all parts that are involved in the above cited subjects ..."

For this aim we need a strong and active organization, which brings together scientists, planners, farmers, industries and governmental institutions all over Europe. From December 1988 to February 1989 more than 160 persons and institutions from 10 European countries have declared their membership. This is really a comprising beginning. But for the realization of our aims we need more collaboration, more activity and more people, which agree to our aims and are ready to become a member of the E.S.S.C.

Please use the membership application form on the back of this newsletter or write to the Secretary of E.S.S.C., Prof. Dr. Gerold Richter, D-5500 Trier, Postfach 3825, University of Trier.

We will provide you with four newsletters a year, give you an overview on all, what happens in the field of soil conservation, and inform you about workshops, regional conferences and congresses of the E.S.S.C.

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REPORTS FROM EUROPEAN COUNTRIES

BELGIUM

Soil degradation and related research in Belgium

Among the various processes reducing the current and/or potential capability of soils to produce goods or services, physical degradation and soil erosion play a dominant role in Belgium. Locally there are serious problems of heavy metal pollution.

Water erosion is quite important in the loess loam and the sandy loam belt, an area covering approximately one third (10.000 km²) of the country. According to DE PLOEY (1986), 10 to 20% of this belt experiences soil loss rates of 10 to 100 tons/ha/year, caused by interrill-, rill- and gully erosion. There are indications that these soil loss rates have increased over the last decades and this is thought to be related not only to changes in agricultural practices (such as landuse, crops, mechanisation, parcel sizes, etc.) leading for instance to the degradation of soil structure and its stability, but also to an increase of rainfall erosivity (increase of monthly rainfall in spring and summer; POESEN et al. 1988). Besides important on-site-effects, these soil degradation processes cause important off-site damage: i.e. sediment deposition on roads, in houses, ponds, streams as well as flooding and infrastructural breakdown. Estimated minimum damage costs for important rainfall events during the last years amount to several millions of ECU: e.g. 5.7 million ECU in the area around Oudenaarde (June 1985), 3.4 million ECU in the area between Leuven and Brussels (June 1986), 11.3 million ECU in Gerpinnes (August 1987), and 1.5 million ECU in the area between Riemst and Bilzen (Mai 1988).

Wind erosion problems are restricted to areas with sandy soils; i.e. in the coastal dunes, the field parcels of the Flemish sandbelt as well as of the eastern and northern Kempen.

In Wallonia, important soil erosion research was conducted by BOLLINNE. The topic is still in the field of interest of the University of Liège, the Faculty of Agronomy of Gembloux, and the association "Inter-Environment Wallonie".

In 1985, Belgian scientists (i.e. geomorphologists, agronomists, and engineers) established the "Flanders Research Center for Soil Erosion and Soil Conservation", a joint venture of the Laboratory of Experimental Geomorphology, Catholic University of Leuven, the Department of Soil Physics, State University of Ghent, and the Research Unit of Physical Geography, Free University of Brussels.

The Center participates in the organisation of symposia and workshops, meetings of the "Contact Group of Soil Erosion and Weathering" and the post-graduate course on "Soil Erosion and Soil Conservation", sponsored by the National Fund for Scientific Research.

The Laboratory of Physical Geography at the University of Ghent and the Division Land Management of the Catholic University of Leuven are also interested in some aspects of soil conservation.

Finally, soil conservation is also a matter of concern of environmental organizations: the "Committee Jean Pain International", the "Stichting Leefmilieu (Kredietbank)", the "Bond Beter Leefmilieu", and others.

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DENMARK

In Denmark the total agricultural land is 2.8 million hectares, of which 90 per cent is used for arable farming. About 60 per cent of the area comprises flat sandy soils, and 40 per cent more hilly areas of sandy loam.

Wind erosion can be a serious problem on sandy soils in spring time. In the region with hazard of wind erosion, shelter hedges were established during the last century. These hedges are maintained by the farmers. Renewing the shelter belts are organized by the Danish Land Development Service and supported by the Danish Government.

Traffic by vehicles of high axle load sometimes gives compaction and soil degradation in the subsoil.

Soil tillage has a great influence on soil structure and soil degradation in the soil surface. Research on soil tillage and soil compaction on crop production and on soil physics is carried out at Department of Soil Tillage, Soil Physics and Irrigation. Reduced tillage, incorporation of straw and catch crop increase soil structure and prevent soil degradation.

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Bodenerosion und Bodenschutz in der Bundesrepublik Deutschland

Vor fast 25 Jahren kam ein umfangreiches Gutachten über die Bodenerosion in der Bundesrepublik zu dem Ergebnis, daß die Verkürzung der Bodenprofile an beackerten Hängen ein weit verbreitetes Phänomen darstellt und daß es auch heute eine Reihe von Problemräumen bedeutender aktueller Bodenabtragung durch Wind, Wasser und Schwerkraft gibt (RICHTER 1965).

Das Problem der Winderosion besteht vor allem auf den Sandern, Talsanden und Flugsanddecken des Norddeutschen Tieflandes sowie auf den entwässerten Niedermooren des Alpenvorlandes. Die Hauptverbreitungsgebiete der Wassererosion sind die Hügelländer und niederen Mittelgebirge, wo auf schluffreichen Böden aus mesozoischen oder tertiären Gesteinen sowie auf quartärem Löß bei z.T. beträchtlichen Hangneigungen bis 10° ein intensiver Ackerbau betrieben wird. Es handelt sich hier um die Lößhügelländer, die Mittelgebirge vom Südniedersächsischen Bergland über das Hessische Bergland bis zum Nordpfälzer Bergland und um das Niederbayerische Tertiärhügelland. Besonders Probleme bereiten die Weinbaugebiete, deren Rebflächen z.T. auf Steillagen bis über 35° Neigung fußen. Zur Wassererosion tritt hier die Gefahr der schwerkraftbedingten Hangrutschung, ebenso wie in den Weidegebieten der Alpen.

Während die Anfälligkeit jeder Region gegenüber der Bodenerosion aufgrund der konstanten naturgeographischen Verhältnisse gleichbleibt, kann sich die aktuelle Gefährdung durch Änderungen in der Landnutzung innerhalb von Jahrzehnten wandeln. Das Aufgeben von Grenzertragsböden, die Vergrünlandung und Aufforstung hat die aktuelle Gefährdung in den höheren Mittelgebirgen merklich verringert. Das Programm der Flächenstilllegung zielt in dieselbe Richtung. In den Vorzugsräumen des Ackerbaues besteht dagegen die Tendenz zur weiteren Intensivierung, wobei die Ausweitung der Hackfruchtfläche, vor allem des Maisanbaues die aktuelle Gefährdung erhöht.

So ist in Bayern die Maisanbaufläche von 1960-1982 von ca. 25.000 ha auf ca. 400.000 ha gestiegen. Gleichzeitig sank der Anbau von Fleegras von ca. 200.000 ha auf 100.000 ha. Der Mais konzentriert sich auf hängige Landschaften Unterfrankens und Niederbayerns, in denen häufig dünnere Lößdecken auf härteren Gesteinen oder sandig-kiesigen Sedimenten liegen; er ist in den letzten Jahren eher auch auf ungünstige Grenzlagen ausgedehnt worden. In den Hauptmaisbaugebieten, in denen die Toleranzgrenzen auf 5-10 t/ha festgesetzt wurden, beträgt der jährliche Abtrag ca. 20 t/ha. Typische Erosionsparameter für solche Gebiete sind R-Faktoren von 60-80 N/h ($=\text{kJ/m}^2 \cdot \text{mm/ha}$), K-Faktoren von 0,4-0,5 und C-Faktoren von 0,15-0,40 je nach Maisanteil in der Fruchtfolge.

Bodenerosion und Massenversatz in den Alpen sind durch Almbeweidung, Touristik und vielleicht auch durch neuzeitliche Waldschäden verstärkt worden. Eine Beispiels-Hangstabilitätskarte (1:25.000) wurde bereits 1973 erstellt, in neuerer Zeit wurden 36 (von 52) Blätter einer hydrographisch-morphologischen Karte vom Bayerischen Landesamt für Wasserwirtschaft im Maßstab 1:25.000 produziert. Hangstabilitätsmaßnahmen und Wildbachverbauung wurden beispielhaft mit hohem finanziellen Aufwand in einem sehr labilen Gebiet (Halblech) durchgeführt (KARL). Die zeitliche Entwicklung von Massenversatz wurde vergleichend aus alten und neueren Luftbildern abgeleitet (POPP, 1984). In jüngerer Zeit wurde eine messende Forschung des Bodenabtrags in den Alpen begonnen.

Größere planerische Eingriffe haben einen Umbau der Fluren zur Folge. So wurde z.B. die Neuordnung der Fluren durch das "Programm Nord" in Nord-schleswig in den Folgejahren von erheblichen Winderosionsschäden begleitet.

Auf die Flurbereinigung in den steilen Weinbergslagen an der Mosel folgten wachsende Probleme der Wassererosion und Hangrutschung. Dies zeigt, daß die Integration des Bodenschutzes bei solchen insgesamt notwendigen Eingriffen bisher nicht zufriedenstellend gelang.

In dem Gutachten von 1965 wurde konstatiert, daß dem Bodenschutz in der landwirtschaftlichen Praxis damals nur wenig Beachtung geschenkt wurde. Das gilt im Prinzip auch heute noch. Inzwischen ist zwar das Umweltbewußtsein der Öffentlichkeit geweckt worden, gibt es eine Bodenschutz-Konzeption der Bundesregierung. In der Erforschung der Grundlagen und Maßnahmen des Bodenschutzes sind Fortschritte erzielt worden. Bodenkundliche, geographische und landwirtschaftliche Institute der Universitäten machen Abtragsmessungen, experimentieren mit Regensimulatoren und arbeiten an der Modellbildung von Abtrag und Schutzwirkung.

So wurden für Bayern und Baden-Württemberg Isoerodentkarten erstellt und in Bayern K- und C-Faktoren mit Regensimulatoren ermittelt. Die Ergebnisse wurden in einem Handbuch zur Abtragsvorhersage zusammengefaßt (SCHWERTMANN, VOGL und KAINZ, 1987). Gleichzeitig wurden Schutzmaßnahmen getestet, von denen sich für Mais und Zuckerrüben Mulchverfahren bereits bewährt haben (C-Faktor 0.04-0.08). Die Bayerische Landesanstalt für Bodenkunde und Pflanzenbau mißt den Bodenabtrag in Fangkästen auf 16 Dauerparzellen, die über das ganze Land verteilt sind und den Abfluß mit Kippwaagen an 3 Stationen. Beispielhaft wurde vor kurzem eine Flurbereinigung mit Erosionsschutz durchgeführt (ANKENBRAND und VOGL, 1988), die mit einem Staatspreis ausgezeichnet wurde.

Von diesen ersten erfolgversprechenden Ansätzen abgesehen fehlt es an der praktischen Verwertung der gewonnenen Erkenntnisse. Eine wichtige Aufgabe der nächsten Jahre muß es daher sein, die Ergebnisse der Forschung zusammenzufassen und für die Praxis des Bodenschutzes aufzuarbeiten. In der Frage ihrer Anwendung wird man jedoch nur weiterkommen, wenn Forschung, Politik, Behörden und Landwirte zusammengehen. E.S.S.C. könnte hier europaweit der Katalysator sein.

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FRANCE

Recherches Concertées sur l'Erosion Hydrique en France

Plusieurs équipes françaises de Géographie physique:

- "Géomorphologie", CAEN (C.N.R.S.),
- "Ecogéographie", STRASBOURG (Univ. L.Pasteur - C.N.R.S.),
- "Biogéographie et Ecologie", SAINT-CLOUD (E.N.S. - C.N.R.S.),
- "Géographie physique", MEUDON (U. PARIS I - PARIS IV - C.N.R.S.),
- "Géographie physique" d'AIX-en-PROVENCE (Univ. AIX-MARSEILLE - C.N.R.S.),
- Mouvements de terrain, érosion hydrique et risques associés, CRETEIL (U. PARIS XII - C.N.R.S.)

effectuant des recherches sur l'érosion hydrique en milieu tempéré, joignent actuellement leurs efforts: échanges d'information, mise en commun de moyens (laboratoires, expérimentations, documentation, formation de jeunes chercheurs) avec le souci d'être un partenaire pour les administrations et les autres organismes intervenant dans le domaine de l'érosion.

Les recherches en cours portent sur les aspects géomorphologiques et biogéographiques de l'érosion, ainsi que sur ses conséquences sur la valorisation des terres agricoles. Elles concernent les terres limoneuses du Nord de la France (en collaboration avec l'I.N.R.A.), les versants des Baronnies (Drôme), de Provence et du Languedoc, des zones de pastoralisme de la bordure du Massif Central.

Un programme consacré à l'étude de l'érosion hydrique en conditions climatiques et topographiques modérées a été mis en place par l'I.N.R.A., au début de 1988. Une dizaine d'équipes françaises appartenant à l'I.N.R.A., (Science du Sol, Agronomie, Systèmes Agraires, Biométrie, Intelligence Artificielle), au C.N.R.S. (Géographie physique, hydrologie et mécanique) et une équipe Belge (Géomorphologie - LEUVEN) y collaborent. Trois axes de recherches principaux ont été retenus:

- Essai de prévision des formes et risques d'érosion des sols cultivés dans la moitié Nord de la France: typologie des processus en fonction des paysages agraires, modélisation de l'influence des systèmes de culture sur l'érosion par ruissellement concentré.
- Formation, structure et propriétés hydrodynamiques des croûtes superficielles.
- Processus locaux du déclenchement du ruissellement: description de la microtopographie de surface, analyse de l'infiltration verticale et du couplage entre ruissellement et infiltration sur sols encroûtés.

(Informations complémentaires auprès de G. Monnier, Laboratoire de Science du Sol, Centre de Recherches I.N.R.A., d'Avignon, 84140 MONTFAVET, France).

Des informations sur d'autres recherches sur l'érosion conduites en France par le CEMAGREF, le B.R.G.M., etc. seront fournies dans une prochaine lettre de l'E.S.S.C.

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GREECE

Soil Degradation and Conservation Problems in Greece

In Greece soil degradation occurs either in the form of soil erosion or soil chemical degradation (salinization, sodification, acidification).

The main factors which influence erosion intensity are climate, slopes and physical-chemical properties of soils. The main climatic factors are the rainfall distribution during the seasons when soils are unprotected (winter) as well as the stormy character of the autumns when soils are uncovered and still dry. Other reasons are the improper cultivation practices due to the small size of the fields (mean size 2.5 ha).

The chemical degradation is due to salinization and sodification processes, common in mediterranean areas, while acidification is due to uncorrect use of fertilizers in decalcified soils.

Research on soil degradation and conservation in Greece is very limited when erosion is concerned but considerable on chemical degradation and conservation.

Erosion research is mainly directed on registering erosion sites and mapping erosion classes. In the frame of the soil map construction of Greece (field scale 1:5.000 and publishing scale 1:20.000) erosion class of each mapping units is part of the taxonomic unit.

University Soil Laboratories and Soil Institutes present considerable work on soil chemical degradation and conservation either as basic or applied research.

The Applied Soil Science Laboratory of the Aristotelian University of Thessaloniki has recently undertaken a new project, fund by the Ministry of Agriculture, concerning research in field and laboratory aided by the use of remote sensing techniques for the study of the soil physical and chemical degradation and conservation as well. The alluvial Axios plain is the survey area, west of Thessaloniki, which presents a complex status of productive and problematic soils.

As far as upland erosion is concerned the Forestry Institutes and University Labs are working mainly on gully erosion due to uncovered soils because of fires and grazing.

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ITALY

Environmental variability of the Italian territory makes it difficult to summarize the main problems in relation to soil degradation and soil conservation.

However it was clearly demonstrated that in the latter 30-40 years, the changes in land-use and management and the introduction of new technologies in agro-forestry exploitation of the land have resulted in many cases in an increase of water disorder, soil erosion and pollution.

In the mountainous areas, deforestation has gone on for centuries. However, such a calamity was not adequately corrected in the recent past. The treat of fire, the inadequacy of reforestation programmes, the selvi-cultural mismanagement, the increasing unplanned utilization of the mountainous areas for holidays and tourist settlements and recreational resorts has more often than not, lead to increasing water disorder and soil degradation, creating tremendous in-site and off-site problems.

In the hilly cultivated areas, crops and animal husbandry specialization, pervasive mechanization and large-scale intensive application of chemicals have determined wide-spread changes, sometimes reflecting in the same landscape features, with the final result of increasing, also in these areas, water disorder, soil degradation and pollution from slopes to the water bodies.

In the plain areas of the country, crop specialization, enlargement of the fields and elimination of mechanical landreclamation structures enhanced water disorder. Moreover, largescale mechanization and application of chemicals is producing soil organic matter depletion, degradation of soil structure and underground and surface water pollution.

What above may appear as a "Cassandra syndrome" partly can be attributable to an enlarged specialist point of view. However, it may be difficult to dispute that soil and water conservation represents the priority problem for the socio-economical development of our technological post-industrial society, in a country where human settlements have used the land for millennia, in a more or less friendly way, but nevertheless consenting its conservation up to the actual time.

There are yet ample possibilities to reverse such perverse tendencies. The actual scientific and technical state-of-the-art can provide the means to improve the situation a great deal, providing that adequate land-use and management measures for soil and water conservation can be made adoptable by a socio-economical and political point of view.

Public opinion has become more and more aware of such problems recently, also in our country. However, operative interventions remain quite below the safeguard level.

Ecological education, multidisciplinary research, survey, assessment, and planning for socio-economic development taking into account soil and water conservation seem the main lines for future action to control soil and water degradation.

In relation to ecological education a conference of the Deans of the Italian and URRS Universities has recently debated on the place of the University in ecological education and formation (Palermo, 12-15 October, 1988).

Scientific conferences have been recently held in Italy on anthropization and degradation of physical environment (Florence 12-15 December 1988) and on forest and soil conservation (Rome, 21 April 1988), the latter within the framework of the European Year of the Environment.

Moreover, it can be said that many Italian Territorial Agencies give increasing attention and try to act on the problem of controlling soil and

water degradation. For example, the conference on regional planning hold in Palermo on January 18th, 1989, by the Sicilian Region Government may be mentioned.

Research activities are carried on to a large extent in Italy, whatever disorderly, in the framework of the research activities carried out by the three main Research Agencies of our country: Universities, C.N.R. and Ministries. One of the main problems is the inadequacy of coordination, after the end of the soil and water conservation finalized project (1977-1982) sponsored and financed by C.N.R.

It is almost impossible to resume such research activities here. Hence, we mention the research in progress on soil and water conservation in Italy by referring to the EC Catalogue of Research Institutions and Activities published by EC-DG IV (RICKSON & MORGAN (eds.), 1988).

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PORTUGAL

Portugal, although having no mediterranean shore line, has the mediterranean type climate with rainy winters and dry summers. The average annual precipitation ranges from about 400 mm in the southern part of the country to 2000 mm in the northern one and the mean annual daily temperature ranges from 8°C to 18°C respectively. This pattern of rainfall and temperature distribution splits the plant growing season in two periods, one during early fall, and another during late winter and spring.

Most of the Portuguese territory is on the Meseta Iberica which is a very old plateau with a rolling topography gently tilted to southwest. The shore line is marked by high cliffs where the border of the Meseta reaches the sea.

Wind erosion is not relevant because it only takes place in a few spots along the shore line where there are no cliffs and it is under control, since long ago, due to pine tree plantations. Other forms of erosion like piping and mass movement are confined to particular conditions generally related to other forms of land use but agriculture.

Gully erosion is important in limited areas, where the soils are deep enough and the bedrock is soft, nowadays most of them are stabilized. Sheet erosion is the form of erosion that is present all over the country in connection with the dry land farming, mainly winter small grain, olive groves and vineyards.

Under small grain, the soil remains almost without protection from fall, when the crop is planted, until late winter, and during this period about 80% of the annual rainfall occurs. The concentration of the rain in a period of limited plant development leads to the formation of perched water tables, which damage the crop growth.

In vineyards and olive groves the main goal is to conserve water during spring in order to enlarge the growing season. Regular tilling or spraying with herbicides, as soon as the growing season starts, is a common practice to prevent weed development. The consequences of sheet erosion in the soil productive potential are not evident, due to the increasing use of fertilizers and to the formation of the perched water tables during the rainy period. The assessment of these problems depends on the understanding, under a multidisciplinary approach, of the behaviour of the different soils during the erosion process in relation to soil water movement and runoff.

It turns out that, in most cases, farmers are more concerned with the surface drainage, than with sheet erosion control practices. When transferring knowledge to the field and in extension programs, erosion control practices, surface drainage, or other more appealing problems should be coupled, otherwise the cost of soil conservation with no direct and immediate benefits will discourage any action.

The share of the knowledge and experience among people, with different backgrounds, but equally interested in the development of a common knowledge and understanding of soil use and conservation in Europe, is one of the challenges that this new scientific society should face. Consequently we intend to organize in Portugal during the summer 1990 a workshop on sheet erosion, control practices and transfer of knowledge to the field in the mediterranean region.

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Investigación sobre Conservación en España

Recientemente y en el marco del Plan Nacional de Investigación Científica y Desarrollo Tecnológico ha sido aprobado por el Pleno de la Comisión Interministerial de Ciencia y Tecnología, la propuesta del Programa Nacional de Investigación titulado "Conservación del Patrimonio Natural y Procesos de Degradación Ambiental". Este programa se centra en el estudio de la dinámica de los sistemas naturales y sus procesos de degradación así como en el establecimiento de bases científicas para su gestión. El desarrollo del programa se orienta en dos vertientes, una de ellas es el estudio de la estructura y funcionalismo de una serie de sistemas naturales entre los que se encuentran los sistemas terrestres con grave riesgo de degradación y los sistemas terrestres con excepcional valor científico y sin paragón en Europa.

La otra vertiente es el estudio de los diversos procesos de degradación que afectan a los sistemas naturales españoles. De estos procesos, el Programa aborda, como tema prioritario y fundamental, el proceso de desertificación por sus graves connotaciones naturales y socioeconómicas para el país. Entre los objetivos científicos y tecnológicos se encuentran temas como: procesos de erosionabilidad natural y antrópica, erodibilidad, salinización-alcalinización del suelo, contaminación, restauración de sistemas degradados, etc.

Este Programa Nacional ha sido muy bien acogido, sobre todo en medios científicos y conservacionistas, ya que cubre una importante temática que no había sido incluida hasta la fecha entre los objetivos del citado Plan Nacional de Investigación Científica y Desarrollo Tecnológico.

También recientemente se firmó un convenio de colaboración científica entre el Consejo Superior de Investigaciones Científicas (CSIC) y el Instituto Nacional para la Conservación de la Naturaleza (ICONA) para llevar a cabo un programa de investigación sobre procesos de degradación y restauración de áreas de montaña y bosque mediterráneo cuyo título genérico es "Contribución del CSIC al proyecto LUCDEME (Lucha Contra la Desertificación en el Mediterráneo)". Este proyecto integra un importantísimo equipo de investigación en el que participan unos 150 científicos de siete Institutos del CSIC, de diez Universidades y de diferentes centros de Comunidades Autónomas, además de la colaboración con grupos de investigación de países europeos y americanos. En el programa participa también la Unidad Mixta de Investigación sobre Desertificación, constituida en mayo de 1987 a partir de una Unidad del Instituto de Agroquímica y Tecnología de Alimentos (CSIC) y un departamento del Instituto Valenciano de Investigaciones Agrarias (Generalitat Valenciana). La Unidad de Desertificación participa en el citado programa con dos proyectos de investigación centrados por una parte en el desarrollo de una Cartografía Integrada de Suelos y por otra parte en el estudio de los efectos de la degradación del suelo sobre los procesos de desertificación.

En el acto de constitución de la Unidad de Desertificación se firmó una declaración de principios en materia de investigación sobre ecosistemas mediterráneos por parte de Ministro de Educación y Ciencia y del Presidente de la Generalitat Valenciana. Esta declaración se orienta a apoyar las infraestructuras de investigación necesarias para contribuir al freno de los procesos de degradación de los ambientes terrestres mediterráneos españoles.

José L. Rubio, Instituto de Agroquímica y Tecnología de Alimentos
Jaime Roig 11, 46010 Valencia, Spain

La Sociedad Española de Geomorfología, creada en 1987, dedica especial atención a los problemas de erosión. En 1988 se organizó en Barcelona, con la colaboración del Departamento de Geografía de la Universidad y el Instituto Jaime Almera del C.S.I.C., un Curso sobre "Métodos y técnicas para la medición en el campo de los procesos de erosión", fruto del cual es la publicación de una Monografía con los principales temas del curso. Durante el presente año 1989 tendrá lugar del 12 al 15 de junio en Barcelona un Curso sobre "Estabilidad de taludes y laderas naturales" organizado por el Departamento de Ingeniería del Terreno de la Universidad Politécnica de Catalunya. Para más información dirigirse a: Sociedad Española de Geomorfología, Departamento de Ciencias de la Tierra, Universidad de Zaragoza, 50009 Zaragoza.

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SWEDEN

Acid Rain, Heavy Metals, Decreasing Humus Content, Erosion Compaction Threats to the productivity of Swedish soils

A large part of Sweden is forest land. Here, from the soil conservation point of view, the major concern is acid rain, which causes soil acidification, reduced production, and risks of increased losses of plant nutrients to the water ecosystems. To maintain productivity, lime and fertilizers may be applied, but this is expensive and may increase the leakage of plant nutrients still more.

Another serious threat is heavy metals and persistent, poisonous organic compounds, spread in various ways in nature. If steps to substantially reduce the spreading of such substances are not taken, the soils may either gradually become less productive, or our food products may become less wholesome.

In Swedish arable soils the percentage of organic matter seems to be slowly decreasing. Whether there has been a reduction of the total amount of humus or just a dilution caused by an increased ploughing depth has not been studied. Since a too low percentage of humus may seriously impair the function of the soils, the amount and distribution of the humus should be paid much more attention in the future.

The soil erosion problems are fortunately less severe in Sweden than in most other countries. The rain intensity is mainly low. Most of the arable land is flat, although with only limited areas of open plains, and the soils are normally frozen and/or covered by snow in the winter. Locally, however, especially in southern Sweden, severe wind or water erosion may occur.

Much attention is paid by Swedish farmers and soil scientists to soil compaction by heavy machinery. When using machines with moderate axle loads, compaction is mainly restricted to the plough layer, where annual ploughing and freezing alleviates the effects within a few years. When using machines with high axle loads, on the other hand, compaction penetrates into deep subsoil layers. Here, the effects may be permanent, and repeated traffic may cause cumulative effects. Subsoil compaction is likely to be the most serious long-term, physical threat to the productivity of Swedish arable soils, if the development towards increasing axle loads is not broken. Even in forestry, heavy machines may cause severe compaction problems.

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SWITZERLAND

Bodenschutz in der Schweiz

Angesichts der zunehmenden Gefährdung des nutzbaren Bodens in quantitativer und qualitativer Hinsicht wurden in der Schweiz in den vergangenen Jahren Maßnahmen auf verschiedener Ebene in die Wege geleitet. Auf Gesetzesebene wurde der quantitative Bodenschutz im Raumplanungsgesetz (1979) und der qualitative Bodenschutz im Umweltschutzgesetz (1985) verankert. Die Details dazu wurden in verschiedenen Verordnungen geregelt, so in der Verordnung über die Raumplanung und in der Verordnung über die Schadstoffe im Boden (VSBo), in welcher vorläufig Richtwerte für Schwermetalle und Fluor festgelegt sind. Zur Erfassung der aktuellen und zukünftigen Belastung des Bodens mit Schadstoffen wurde das nationale Beobachtungsnetz Boden (NABO) ins Leben gerufen. Im Rahmen des NABO werden die 11 in der VSBo aufgeführten Elemente an 100 über das ganze Land verteilten Standorten periodisch erfaßt. Weitere Schadstoffe wie PCB, PAH sollen dazu kommen, sobald die notwendigen Grundlagen dazu vorhanden sind.

Auf Forschungsebene ist 1986 das Nationale Forschungsprogramm Nutzung des Bodens in der Schweiz angelaufen. Ziel dieses praxisorientierten Programms ist es, Lösungsvorschläge für eine häusliche Nutzung des Bodens zu erarbeiten. Im Hinblick auf ein neues Verhältnis des Menschen zur Natur sollen Wege aufgezeigt werden, um

- die Bodenfruchtbarkeit langfristig zu erhalten,
- den Bodenverbrauch zu vermindern und
- die Bodennutzung besser zu verteilen.

In einer ersten Phase, welche zur Zeit läuft, werden im Rahmen von 55 ausgewählten Projekten die Grundlagen erforscht und Lösungsmöglichkeiten für Einzelprobleme erarbeitet. In einer zweiten Phase werden die Ergebnisse der einzelnen Untersuchungen zusammengeführt und die Aus- und Wechselwirkungen der vorgeschlagenen Maßnahmen studiert. Das Programm soll schließlich in eine Nationale Bodenschutzstrategie ausmünden. (Nähere Auskünfte zum Forschungsprogramm erteilt die Programmleitung, wo auch die Forschungsberichte bezogen werden können. Adresse: NFP Boden, Programmleitung, Schwarzenburgstraße 179, CH-3097 Liebefeld).

Auch an den Hochschulen des Landes wird dem Bodenschutz vermehrt Beachtung geschenkt. An der Universität Bern wurde eine Professur für Bodenkunde neu geschaffen. An der ETH Zürich läuft zur Zeit das Berufungsverfahren für eine Professur für Bodenschutz; eine Professur für Bodenbiologie ist geplant.

Hans Sticher
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UNITED KINGDOM

Soil erosion continues to be increasingly recognised as a problem in the United Kingdom. The events at Rottingdean in the South Downs, when heavy rainfall on 7 October 1987 caused severe erosion and flooding of the village with £1 million worth of damage, continue to provide a stimulus for activity. This event is one of several which have affected the chalky soils of the South Downs in the last decade. In order to review the situation and discuss proposals for future research to combat the problem, the Ministry of Agriculture, Fisheries and Food (MAFF) held a meeting of their own scientists and other researchers at Lewes on 10 November 1988.

Erosion in the uplands remains a controversial issue, especially between environmentalists and farmers where overgrazing is concerned. The problem in the Lake District was discussed at a meeting last October organised by the Freshwater Biological Association at which scientists from several universities, representatives of MAFF and local farmers were present.

One of the largest meetings on soil erosion in recent years in the UK was held at Coventry, 3-6 January 1989, and attended by over 100 scientists (cf. meetings). The first afternoon was devoted to a symposium on "Soil conservation: policies and practices", organised by the World Association of Soil and Water Conservation as the inaugural meeting of their European branch and the British Geomorphological Research Group (BGRG). This session was attended by scientists from USA, Hungary, Yugoslavia, Italy and Poland as well as several west European countries. Considerable discussion was generated on the question of setting-up appropriate legal frameworks and the wisdom of using coercion or otherwise to encourage the take-up of soil conservation measures. This session made sufficient impact to be reported in the national press the following day, particular attention being given to the need for a European soil conservation policy.

The rest of the meeting, organised by the BGRG as its contribution to the Annual Conference of the Institute of British Geographers, dealt with the problem of soil erosion on agricultural land. Virtually all aspects of the impacts and measurement of erosion at field and watershed scale were addressed with discussion focussing particularly on the role of models and the provision of data to validate them. A short presentation on the aims of the European Society for Soil Conservation was also made at the meeting. The proceedings of the complete programme will be published in a book to be edited by John Boardman who should be congratulated on organising such an excellent meeting.

Roy P. C. Morgan
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AIM - ANNOUNCEMENTS, INFORMATIONS, MEETINGS

Dear member of the E.S.S.C.,

this part of our newsletter has the title "AIM". Its aim is, to make announcements, to give informations and to refer to meetings, which may find our interest.

But it shouldn't be only the place for announcements of the Executive Committee. Our target is, to make AIM to a news service, which is also arranged by our members and for our members. Therefore feel free to contribute to AIM short informations, comments and inquiries, which may be of general interest.

In the case of special informations and inquiries, which may concern only regional interest, please inform the E.S.S.C.-council-members of your country. They will care for the regional distribution of your message. A list of all council-members with their full addresses can be found at the end of this newsletter.

Yours

Gerold Richter
Secretary and Treasurer
Geographie/Geowissenschaften
Universität Trier
D-5500 Trier
FRG

ANNOUNCEMENTS

Vera Marcelino, a Portuguese PhD research fellow working with Prof. G. Stoops at the Laboratory of Mineralogy, Petrography and Micropedology, State University of Ghent, Krijgslaan 281, B-9000 Ghent, Belgium, is looking for soil samples from erosion plots in the Mediterranean region. She is studying soil erodibility from a micromorphological and mineralogical point of view. Who can help her?

Don Gabriels
Department of Soil Physics, State University of Ghent
Coupure Links 653
9000 Ghent, Belgium

INFORMATIONS

How to pay?

We are a young society and we have in time no experience, how to handle the question of membership subscription and payment in an international organization. At first we have opened a bank account at the "Deutsche Bank Trier", number 501 932 on the name of the treasurer, Prof. Dr. Gerold Richter, E.S.S.C. May-be that we open in future other bank accounts in the different countries of the European Community.

In the meantime please pay attention to the following activities:

1. The best way to pay your annual membership fee is to send us an Eurocheque with control number on the back. In this case the charges are low, and ESSC gets the full amount of your subscription.
2. Another way is to send us a personal cheque or a bank cheque, if you are not disposing of an Eurocheque. In this case E.S.S.C. receives your remittance, but deducting the bank charge of normally about 3.--DM.
3. If you try to transfer money directly from your bank account to E.S.S.C., you have to expect higher charges, which will enlarge your annual membership fee. And E.S.S.C. gets no more.
4. Payment by use of your credit card is not possible.

As soon as we have more experience how to make your payment easier, we will give you new recommendations.

Gerold Richter
Geographie/Geowissenschaften
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MEETING REPORTS

CONFERENCE "SOIL EROSION ON AGRICULTURAL LAND"

3-6 January 1989

Coventry Polytechnic, England

A four day meeting was organised by the British Geomorphological Research Group as part of the Annual Conference of the Institute of British Geographers. This took place at Coventry Polytechnic, England, 3-6 January 1989. The meeting was attended by about 120 people and there were 35 oral presentations and 20 posters. In addition to the indoor sessions there were two field excursions to see erosion plots with Dr. Mike Fullen and to see an instrumented lake catchment with Drs. John Dearing and Ian Foster. On a cold day Mike Fullen's provision of tea and cakes in a tent was most welcome!

The Conference sessions dealt with conservation policies, the impact of erosion on the landscape, measurement and assessment of erosion, sediment transport, modelling, prediction, experimental approaches and erosion in the Third World. Review papers were given by several invited speakers including Dr. R. Evans (Cambridge) on historical erosion; Professor F. Oldfield (Liverpool) on lake sediment studies; Professor D. Walling (Exeter) on sediment delivery; Professor George Foster (Minnesota) on process-based modelling; Professor Trevor Dickinson (Guelph) on model building; Professor Anton Imeson (Amsterdam) on the wetting of soils; Professor J. de Ploey and Dr. J. Poesen (Leuven) on laboratory experiments and Professor Anders Rapp (Lund) on management of drylands.

Useful discussions also took place which highlighted several areas of interest and concern. These included the relationship of field experimental work to model building and the need for groups of workers with diverse interests to work together in order to improve existing models. The lack of validation of the models was noted by a number of speakers. Professor Thornes (Bristol) suggested that models were becoming redundant before they had been tested and Trevor Dickinson suggested that research money which was needed for experimental work to provide input into models was being diverted to modelling. This is because models are attractive to decision makers whether they have been adequately tested or not! On the same theme, Anton Imeson questioned the value of GIS if the database was inadequate; again, maps produced in this way are attractive to the politician looking for easy answers. Bob Evans argued the case for long-term monitoring of erosion-prone areas so that rates and causes can be established. The role of the scientist as a provider of information in a politically sensitive area was debated: Professor Morgan (Silsoe) suggested that politicians in Europe were unconvinced of the need for conservation and that more data had to be collected.

The proceedings of the conference will be published by John Wiley and edited by Drs. Boardman, Foster and Dearing who were also responsible for convening the meeting.

John Boardman
Brighton Polytechnic, Countryside Research Unit
Falmer Brighton BN1 9PH
United Kingdom

WORKSHOP ON THE STATE OF RAINFALL EROSION IN THE MEDITERRANEAN REGION

23-25 November 1988

Murcia, Spain

National delegates from Mediterranean countries attended a workshop organised in Murcia by ICONA, the Spanish Ministry of Agriculture and UNEP's Regional Activity Centre (Priority Action programme). The meeting formed part of the UNEP project "Inventory and network of erosion measurements for environmentally sound land management". The major part of the meeting considered national reports on the state of erosion mapping and of erosion measurement programmes in the individual countries. The national reports on the state of erosion could provide important source documents for those interested in the extent and severity of soil erosion in the Mediterranean region. One purpose of the workshop was to facilitate cooperation between the different countries so that uniform standards for mapping and measurement can be developed. There was much enthusiasm to continue and expand cooperation within the framework of the current programme. Very many useful recommendations were made concerning the future activities related to rainfall-induced erosion.

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MEETING ANNOUNCEMENTS

INTERNATIONAL SYMPOSIUM ON FERTILIZATION AND THE ENVIRONMENT

27-30 August 1989

Katholieke Universiteit Leuven, Belgium

For informations about the symposium please write to:
Prof. K. Vlassak, Laboratory of Soil Fertility and Soil Biology, Kardinaal
Mercierlaan 92, B-3030 Leuven, Belgium

HEINRICH ROHDENBURG MEMORIAL SYMPOSIUM ON THEORY AND SIMULATION OF INFILTRATION, OVERLAND FLOW, EROSION, AND DEPOSITION PROCESSES AND THEIR RELEVANCE TO LANDSCAPE EVOLUTION

30 August - 2 September 1989

Technical University of Braunschweig, Federal Republic of Germany

COMTAG will hold a symposium in Braunschweig, FRG, in conjunction with the Second International Conference on Geomorphology. The symposium is focussing on the analysis of the water transport and erosional processes that are relevant for the evolution of the landscape. Methods that help to identify, to quantify, to describe, to simulate and to forecast the water fluxes on the soil surface and in the soil as well as the erosional processes and the complex interactions between these processes should be presented and evaluated.

The tentative program is as follows:

- | | |
|---------------------------|---|
| August 30 th | Morning and afternoon: Paper session |
| August 31 st | Excursion to soil profiles in southern Lower Saxony: Soil erosion and soil development during the past 1,500 years |
| September 1 st | Morning: Paper and poster session
Afternoon: Excursion to the research catchment of the Special Collaborative Program "Water and Matter Dynamics in Agroecosystems". |
| September 2 nd | Morning and afternoon: Paper and poster session |

For more information please write to:

Prof. H.-R. Bork, Institute of Geography and Geoecology, Technical University, Langer Kamp 19c, D-3300 Braunschweig, FRG

COLLEGE ON SOIL PHYSICS

9-29 October 1989

International Center for Theoretical Physics, Trieste, Italy

The college is intended for students and professionals with varied backgrounds in the engineering, agricultural and environmental sciences. The course will be in part descriptive and theoretical, but special attention will also be given to the measurement of soil physical properties and the modeling of physical processes in the soil and to the practical interpretation and application of the different subjects.

The college will be organized in such a way that subject matter coordinators will give a general overview of the subject by problem presentations. The problems will then be analyzed and discussed by working groups.

The college will be directed by Dr. D. Gabriels (Department of Soil Physics, State University of Ghent, Belgium), Dr. E. Skidmore (USDA, Kansas State University, Manhattan, Kansas, USA) and Prof. I. Pla Sentis (Facultad de Agronomia, Universidad central de Venezuela, Maracay, Venezuela) and co-sponsored by the Italian Dipartimento per la Cooperazione allo Sviluppo). Fellowships are available. The closing date for requesting participation in the college is 30. April 1989.

THE E.S.S.C.

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