



**ISSS-AISS-IBG
1924-1994**

Bulletin

of the International Society of Soil Science

Bulletin

de l' Association Internationale de la Science du Sol

Mitteilungsblatt

der Internationalen Bodenkundlichen Gesellschaft

Boletín

de la Sociedad Internacional de la Ciencia del Suelo

No. 85

1994/1

Edited and published by/rédigé et publié par/
redigiert und publiziert von:

**INTERNATIONAL SOCIETY OF SOIL SCIENCE
ASSOCIATION INTERNATIONALE DE LA SCIENCE DU SOL
INTERNATIONALE BODENKUNDLICHE GESELLSCHAFT**

Founded/Fondée/Gegründet: 19-05-1924. Individual membership/Membres individuels/Individuelle Mitgliedschaft: 7000. Affiliated national and regional Societies/Associations nationales et régionales affiliées/Ange-schlossene nationale und regionale Gesellschaften: 65. A scientific union member of ICSU since/Membre scien-tifique du CIUS depuis/Wissenschaftliches Mitglied von ICSU seit: 1993.

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International Society of Soil Science (ISSS)
Association Internationale de la Science du Sol (AISS)
Internationale Bodenkundliche Gesellschaft (IBG)
Sociedad Internacional de la Ciencia del Suelo (SICS)

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ISSN: 0374-0447

Copyright: ISSS, Gregor Mendel-Str. 33
A-1180 Vienna/Austria
Tel: +43-1-3106026
Fax: +43-1-3106027

Printed by: LUIGARD DRUCKHAUS OBERLAA
Druck- und Verlags-Gesellschaft m.b.H.
Johann-Pölzer-Gasse 3, 1100 Wien

Orders to: Dr. P.U. Luescher, ISSS Treasurer
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Subscribers are requested to notify Dr. Luescher of changes of address

Price of a single copy: 25.00 US\$

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EDITORIAL

ISSS - NEW UNION MEMBER OF THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS (ICSU)

In October 1993, on the eve of its 70th anniversary, ISSS was accepted as a new Scientific Union Member by the General Assembly of ICSU at a meeting in Santiago/Chile, together with two other members, the International Union of Anthropological and Ethnological Sciences (IUAES) and the International Brain Research Organization (IBRO).

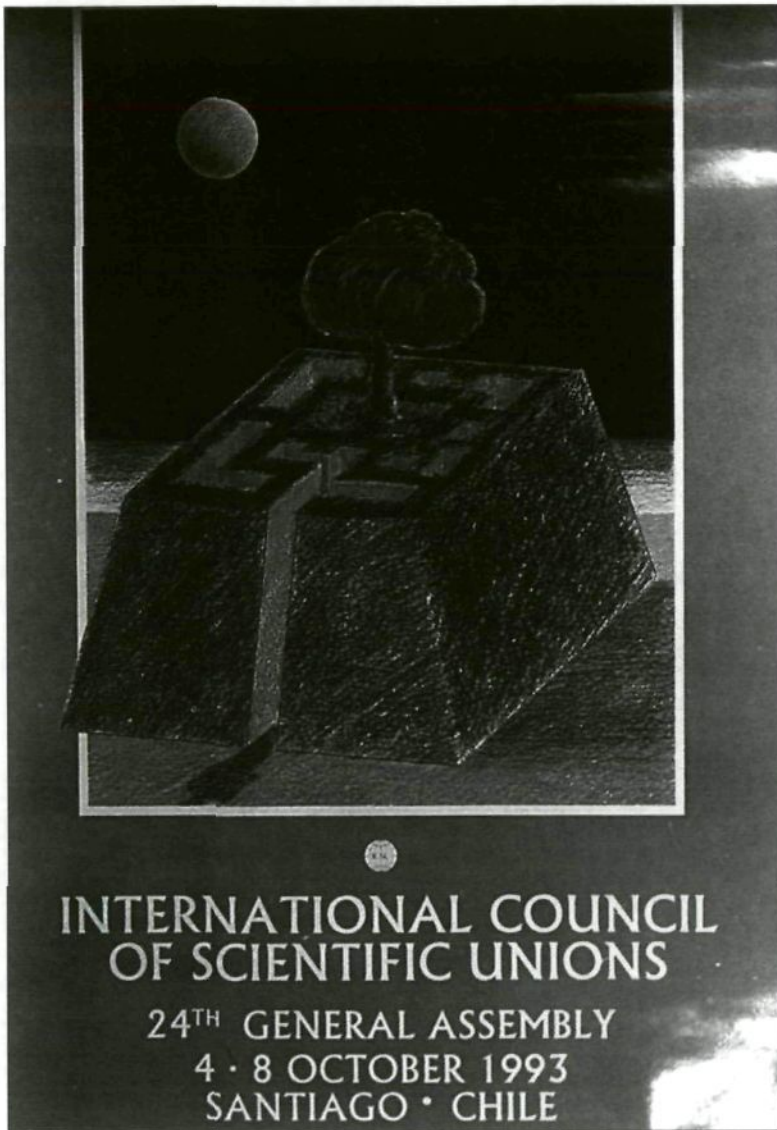
After a long period of preparation and negotiations to become a full member of ICSU, and through joint efforts of many officers of the Society, including the former Secretary-General of ISSS, Dr. Wim Sombroek, ICSU has accepted us as a new Full Union Member. During the discussions in Santiago, the President of the Society and the Deputy Secretary-General, together with the Secretary-General were present and answered questions of the General Assembly relating to its acceptance.

ISSS is now associated with 22 other international scientific unions, such as the International Union of Geodesy and Geophysics (IUGG), the International Union of Pure and Applied Chemistry (IUPAC), the International Union of Pure and Applied Physics (IUPAP), the International Union of Biological Sciences (IUBS), the International Union of Geological Sciences (IUGS), and the International Geographic Union (IGU), citing a few organizations that are or might be of importance for future cooperation. Under the umbrella of ICSU we are also linked to 92 National Academies of Sciences.

The International Council of Scientific Unions was created in 1931 to promote international scientific activity in the different branches of science and their applications for the benefit of humanity. ICSU is a non-governmental organization with two categories of membership: Scientific Unions, which are international, disciplinary organizations (23 members) and Scientific Academies or Research Councils, which are national, multi-disciplinary bodies (92 members). The complement of these two groups provides a wide spectrum of scientific expertise, enabling members to address major international, interdisciplinary issues, which none of them could handle alone. In addition, ICSU has 29 Scientific Associates.

Already, ISSS is cooperating closely with ICSU's "Interdisciplinary Bodies", such as the Scientific Committee on Problems of the Environment (SCOPE), the International Geosphere-Biosphere Programme (IGBP), the Ad Hoc Group on Agriculture, Aquaculture and Forestry, looking into a new follow-up initiative for CASAFA, the former Committee for the Application of Science to Agriculture, Forestry and Aquaculture, and others.

Moreover, within ICSU, ISSS is also associated with "Joint Initiatives", like the Global Climate Observing System (GCOS), the World Climate Research Programme (WCRP) and other standing committees which may be of importance for future cooperation in the international sphere. Finally, it can be stated, not without pride, that by this acceptance, soil science is also confirmed as a basic science within the world community of sciences.



During the next three years, the Secretary-General will represent ISSS on the General Committee of ICSU, a body of 52 members, representing the Scientific Union Members, National Scientific Members and Officers of ICSU, at its annual meetings.

Any comments or proposals in relation to the cooperation of ISSS with this new body should be addressed to the Secretary-General.

For ISSS, this new status is a challenge for further and more intensive cooperation with other sciences all over the world.

Winfried E.H. Blum
Secretary-General

ACAPULCO WELCOMES YOU

BIENVENUE A ACAPULCO

WILLKOMMEN IN ACAPULCO

BIENVENIDO EN ACAPULCO

ACAPULCO, MEXICO

July 10-16, 1994

15TH WORLD CONGRESS OF SOIL SCIENCE

Soil utilisation in harmony with nature

**15^{IÈME} CONGRES MONDIAL DE LA SCIENCE DU
SOL**

**Utilisation du sol en equilibre avec la nature
Apprendre du passé pour faire face au futur**

15. BODENKUNDLICHER WELTKONGRESS

**Bodennutzung in Einklang mit der Natur
Aus der Vergangenheit lernen, um die Zukunft zu bewältigen**

**15^º CONGRESO MUNDIAL DE LA CIENCIA DEL
SUELO**

**Uso del suelo en armonía con la naturaleza
Aprender del pasado para enfrentar el futuro**



XVth INTERNATIONAL CONGRESS OF SOIL SCIENCE

July 10 - 16, 1994

Acapulco, Guerrero, Mexico

SOIL UTILIZATION IN HARMONY WITH NATURE

Learning from the past to face the future



The Earth's GODDESS

**XV. WORLD CONGRESS OF SOIL SCIENCE
TIME SCHEDULE**

	Sun 10	Mon 11	Tue 12	Wen 13	Thu 14	Fri 15	Sat 16	
8:30	***** ***** ***** *****	O P E N I N G	IB D ID-10	IA IIIA VA	IIB ID-25 ID-11	ID-2 IIA ID-19	ID-26 ID-21 ID-7	8:30
10:00	R E G I S T R A T I O N		COFFEE BREAK					
12:00			VB ID-5	C VIIB	B ID-27	ID-8 VIB	ID-23 CNA	12:00
14:00		lunch	POSTER SESSIONS				closing	14:00
14:30		lectures	ID-18 ID-3 ID-22	A IIIB IVA	ID-12 ID-14 ID-1	ID-20 IVB ID-15		14:30
16:00			COFFEE BREAK					16:00
16:20		lectures	ID-6 VIIA	ID-4 ID-9	ID-13 ID-16	VIA ID-17		16:20
18:00								18:00

REPORT OF THE ISSS SECRETARIAT AND TREASURY, 1990 - 1994

In compliance with the Rules of the Society, the report of the ISSS Secretariat and Treasury over the period between the last Congress (Kyoto/Japan, August, 1990) and the new Congress (Acapulco/Mexico, July, 1994) is printed in the Bulletin immediately preceding the latter. Highlights of this report will be mentioned at the inaugural session of the Acapulco Congress and details will be discussed and evaluated in the ISSS Council as convening during the Congress.

SCIENTIFIC ACTIVITIES

Scientific activities inbetween the two Congresses are reported by the Chairmen of the seven scientific Commissions and the four Subcommissions, including in part the activities of the 16 Working Groups, in the annex to this report. From these, it becomes clear that the scientific activities of the different Commissions, Subcommissions and Working Groups varied considerably.

About 50 official inter-congress activities are reported, which do not entirely concur with the official list of inter-congress meetings reported in the Bulletins No. 78 and 79. This means that some of the activities planned during the last Congress could be organized, whereas others could not. Instead, new activities were organized more or less spontaneously, according to the needs felt by the different organizations within ISSS. This development leads to the conclusion that more flexibility will be needed in the future, in order to meet the necessities of scientific interrelations and exchange within our Society and with others.

As it was decided by the Secretariat in accordance with the Executive Committee, during the Mid-term Meeting 1992, that in the future no payments for administrative support of the organization of inter-congress activities can be given by the treasurer, due to a lack of funds for this purpose. Moreover, it was concluded that such small amounts of support as 250 US\$ per year give no reasonable advantage to the respective organizers but is a considerable loss of funds for the annual budget of the Society.

Of specific importance among the scientific activities is the progress of the Working Group on World Reference Base for Soil Resources, formed after the ISSS Congress in Hamburg/Germany, 1986, which should be highlighted, because they were able to compile the draft for the new World Soil Reference Base, which will be distributed during the forthcoming Congress for further scrutiny and discussion by the members of our Society. This means that after very long approaches and attempts, a common language in the form of an international reference base for soil classification was finally established under the name of World Reference Base (WRB). ISSS has to congratulate this group for its efforts.

In many of the a.m. scientific activities, officers of the Society were present, as well as at many annual meetings of National Societies. Moreover, the officers also represented ISSS at meetings, organized by UN Organizations, by ICSU as well as by other international organisations. Countries visited one or more times by the officers during the past four years were: Algeria, Argentina, Belgium, Brazil, Bulgaria, Canada, Chile, Czech Republic, Denmark, Egypt, France, Germany, Ghana, Hongkong, Hungary, India, Italy, Japan, Mexico, Nepal, The Netherlands, Poland, Portugal, Russia, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, and USA.

INTERNATIONAL COOPERATION

There were many events dedicated to international cooperation, including those with Union Members of ICSU, such as IUBS, IUGG, IGU and also, recently in India with IUPAC.

There were also cooperations within ICSU's Interdisciplinary Bodies and their projects, like with the International Geosphere-Biosphere Programme (IGBP), and here especially related to the role of soils in Global Change of Terrestrial Ecosystems (GCTE). There were also cooperations with ICSU's joint initiatives, such as COSTED-IBN and others. On these activities, reports were given in the different bulletins since the last Congress in Kyoto/Japan.

Of specific interest is the acceptance of ISSS as a Full Union Member of ICSU (see editorial in the same Bulletin), which enables ISSS to cooperate still more intensively with ICSU and its adhered bodies in the near future.

This new development will also influence the structure of our Society, especially the different Committees, such as the Committee on International Programmes. A new possible structure has to be discussed at the Council Meetings of the next Congress.

ADMINISTRATION AND FINANCES

The number of registered members increased since April 1990 from 6158 to 6812 in April 1994. As in the previous Reports of the ISSS Secretariat and Treasury, it is also to be stated here that this slight increase and the total number of registered members is not in accordance with the total number of soil scientists all over the world, which now amounts approximately to 50,000. - Also the life memberships did not increase considerably, it rose only from 46 in April 1990 to 69 in April 1994. - At the Council Meeting in Acapulco, some decisions have to be taken in order to increase the number of registered members in the near future.

The financial situation of the Society, compare page 19, is just enough for surviving and does not allow any special activity, except the printing of the Bulletin, apart from the necessary administration.

Without the voluntary contribution of the Austrian Ministry of Agriculture and Forestry, with a donation of about 22,000 US\$ per year since 1990, the Secretariat-General would not be able to do its duty. Moreover, the Austrian Ministry of Science and Research allocated one secretarial post entirely to the ISSS Secretariat, without which it would not be possible to run this Secretariat. Due to these contributions and also the consent of the boards of the institutions where the Secretary-General, the Deputy Secretary-General and the Treasurer are professionally employed, the ISSS could fulfill its administrative tasks, mentioning in addition, that all officers are carrying out their societal duties on a honorary basis only.

The Fellows Fund, or Young Scientists' Travel Fund, which started in 1984, is not functioning any more since August 1990, that means after the last Congress in Kyoto/Japan, due to a lack of funds. Therefore, the Secretary-General tried to allocate a new fund, which was possible through the generous contribution of the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ - German Agency for Technical Cooperation), see Bulletin No. 80. The total sum allocated by GTZ amounted to around 60,000 US\$ and was mainly used to support scientists from developing countries to participate in congresses, workshops and other scientific activities of ISSS in developing countries. A considerable part of this fund was also allocated to invite scientists from those countries to the Congress in Acapulco.

Because the actual fund will be finished by the end of 1994, we hope sincerely that a new donor will be found in the near future.

The cooperating journal scheme, providing substantial discount rates for personal members could be extended from four to seven cooperating journals and there is a need to define a new policy of ISSS with regard to further cooperating journals applying in the near future.

Due to the breakdown of the former USSR and its splitting up into many new countries and due to some new members from countries of the Third World, the total number of countries represented by individual members in ISSS stands now at 145, which means that ISSS is among all International Unions of ICSU the Society which comprises most countries of the world. In 1990, the total number of countries with ISSS members was 117.

Even regarding this increase with some pride, it means that the administrative expenses for the cooperation with all these countries will still increase and needs more financial support in the near future. Moreover, two new Regional Societies were founded since 1990, the West and Central Afri-

can Soil Science Association (AWCACS) with its Secretariat in Ouagadougou/Burkina Faso and the East and Southeast Asia Federation of Soil Science Societies (ESAFS) with its Secretariat actually in Nanjing, PR China. The Secretariat of the Regional Society of Southeast and East Asia changes every two years from one affiliated National Society to another.

NECROLOGUE

Since 1990, several prominent members of our Society passed away and were remembered in the In Memoriam section of the Bulletin. Among them were the ISSS Honorary Members Prof.Dr. Hans Jenny, Prof.Dr. Victor A. Kovda, Prof.Dr. René J. Tavernier and Prof.Dr. Lorenzo A. Richards. We also mourn the death of other prominent members, among them Prof. Dr. K. Apostolakis, President of the Hellenic Society of Soil Science, Prof.Dr. Ramón Fernández Gonzalez, former President of the Mexican Society of Soil Science, Prof.Dr. W. Koinow, former President of the Bulgarian Society of Soil Science, Prof.Dr. G. Obrejanu, former President of the Romanian Society of Soil Science, Prof.Dr. J. de Ploey, President of the European Society of Soil Conservation (ESSC), Prof.Dr. M. Sillanpää, former President of the Finnish Society of Soil Science.

BULLETIN

8 issues of the ISSS Bulletin, including the present one, were published since the Kyoto Congress and we apologize not only for the poor technical quality of some of them, but also for the delay in the delivery, hoping that in the near future the publication of the Bulletin will be in line with the needs of distribution of information amongst our Society.

Due to an increase of information and activities, the Bulletin was extended from about 80 pages to 130-140 pages, which means also a considerable increase of costs which could still be managed through the word-processing of the text and special rates from the printers.

THANKS

The three Bureau officers wish to thank all members for the confidence and the moral support over the past four years and hope that the contacts between the Secretariat and Treasury and the members of the Society will be improved and strengthened in the near future.

RAPPORT DU SECRETARIAT ET DE LA TRESORERIE DE L'AISS, 1990-1994

En accord avec les règles de l'Association, le rapport du Secrétariat et de la Trésorerie de l'AISS sur la période entre le dernier congrès (Kyoto, Japon, Août 1991) et le prochain congrès (Acapulco, Mexique, Juillet 1994) est inclus dans le Bulletin précédant immédiatement le congrès. Les points importants de ce rapport seront mentionnés au cours de la session inaugurale du congrès d'Acapulco, et les détails en seront discutés et évalués par le Conseil de l'AISS pendant le congrès.

ACTIVITES SCIENTIFIQUES

Les activités scientifiques ayant eu lieu dans l'intervalle des deux congrès sont rapportées en annexe au présent rapport par les présidents des sept Commissions et des quatre Sous-commissions scientifiques, comprenant en partie les activités des 16 groupes de travail. Il apparaît que les activités scientifiques des différentes Commissions, Sous-Commissions et Groupes de travail varient considérablement.

Environ 50 activités officielles inter-congrès sont rapportées; elles ne coïncident pas entièrement avec la liste officielle des réunions inter-congrès mentionnée dans les Bulletins 78 et 79. Certaines activités prévues lors du dernier congrès ont donc pu être organisées, d'autres pas. En contre partie, d'autres activités ont été organisées, de façon plus ou moins spontanée, selon les besoins ressentis par les différents groupes au sein de l'AISS. Cette évolution amène à la conclusion suivante: il faudra, dans l'avenir, faire preuve de plus de flexibilité pour satisfaire aux nécessités des relations et des échanges scientifiques internes à l'AISS aussi bien qu'externes.

En accord avec le Comité Exécutif, le Secrétariat a décidé au cours de la réunion Inter-Congrès de 1992, que, dans l'avenir, aucun paiement ne sera accordé par le trésorier pour le soutien administratif de l'organisation d'une activité inter-congrès, faute de fonds. De plus, il s'est avéré que des montants aussi restreints (250 US\$ par an) ne sont pas en mesure d'aider substantiellement les organisateurs mais sont des pertes importantes pour le budget annuel de l'Association.

Parmi les activités scientifiques particulièrement importantes, il faut souligner la progression du Groupe de travail sur la World Reference Base pour les ressources en sol (WRB), formé après le congrès de l'AISS de Hambourg (Allemagne), qui a réussi à établir l'ébauche d'une nouvelle base mondiale de référence pour les ressources en sol, laquelle sera distribuée au cours du prochain congrès pour être minutieusement examinée et discutée par les membres de notre Association. Ceci signifie qu'après une longue période de tentatives et d'approches différentes, un langage commun a été établi sous la forme d'une base de référence internationale pour la classification du sol: la World-Reference Base (WRB). L'AISS tient à féliciter ce groupe pour ses efforts.

Plusieurs membres du bureau de l'Association ont participé à un grand nombre des activités scientifiques mentionnées ci-dessus, ainsi qu'à plusieurs réunions annuelles des Associations Nationales. De plus, les membres du bureau ont également représenté l'AISS à des réunions organisées par des organisations des Nations-Unies, des Comités de l'ICSU ainsi que par d'autres organisations internationales. Ils se sont rendus, au cours des quatre dernières années, une ou plusieurs fois dans les pays suivants: Algérie, Allemagne, Argentine, Belgique, Brésil, Bulgarie, Canada, Chili, République Tchèque, Danemark, Egypte, Espagne, Etats-Unis, France, Ghana, Hongkong, Hongrie, Inde, Italie, Japon, Mexique, Népal, Pays-Bas, Pologne, Portugal, Royaume Uni, Russie, République Slovaque, Suède, Suisse, et Turquie.

COOPERATION INTERNATIONALE

Beaucoup d'événements ont été consacrés à la coopération internationale, particulièrement en collaboration avec des Unions membres de l'ICSU telles que l'IUBS, l'IUGG, l'IGU et aussi, plus récemment en Inde, avec l'IUPAC.

Il y a également eu une certaine forme de coopération au sein des Comités Interdisciplinaires de l'ICSU, tels que le Programme International Géosphère-Biosphère (IGBP), et concernant principale-

ment le rôle des sols dans les changements climatiques mondiaux dus aux influences anthropogéniques. D'autres coopérations ont eu lieu avec des initiatives de l'ICSU, telles que COSTED-IBN et d'autres. Des rapports de ces activités ont été inclus dans les différents bulletins parus depuis le congrès de Kyoto (Japon).

Une mention particulière doit être faite de l'acceptation de l'AISS en tant que membre à part entière de l'ICSU (voir éditorial dans ce bulletin), ce qui permettra prochainement à l'AISS de coopérer de façon de plus en plus intense avec l'ICSU et les différents organismes membres.

Ces nouveaux développements influenceront également la structure de notre Association, spécialement en ce qui concerne les différents Comités tels que le Comité sur les Programmes Internationaux; il faudra discuter de la possibilité d'une nouvelle structure au cours des réunions du Conseil lors du prochain congrès.

ADMINISTRATION ET FINANCES

Le nombre de membres inscrits est passé de 6158 en avril 1990 à 6812 en avril 1994. Comme dans les précédents Rapports du Secrétariat et de la Trésorerie, il faut mentionner que cette légère augmentation ainsi que le nombre total des membres ne reflètent pas le nombre de pédologues du monde entier, qui se monte environ à 50.000! - Le nombre d'affiliation à vie n'a pas considérablement augmenté: il est passé de 46 en avril 1990 à 69 en avril 1994. - A la réunion du conseil à Acapulco, quelques décisions devront être prises pour accroître rapidement le nombre des membres affiliés.

La situation financière de l'Association (cf. page 19) est juste suffisante pour sa survie et ne permet aucune activité particulière en dehors de l'administration nécessaire, excepté l'impression du Bulletin.

Sans la contribution volontaire du Ministère Autrichien de l'Agriculture et des Forêts, dont les dons se montent à environ 22.000 US\$ par an depuis 1990, le Secrétariat Général ne pourrait pas fonctionner correctement. De plus, le Ministère Autrichien de la Science et de la Recherche pourvoit le secrétariat de l'AISS d'un poste de secrétaire à temps complet. Grâce à ces contributions, et également au consentement de la direction des instituts qui emploient le Secrétaire Général, le Secrétaire Général Adjoint, et le Trésorier, l'AISS peut s'acquitter de ses tâches administratives; il faut également ajouter que tous les membres du bureau accomplissent leur travail associatif de façon bénévole.

Le "Fonds pour Aspirants", ou Fond de Voyage pour Jeunes Scientifiques, créé en 1984, ne fonctionne plus depuis août 1990, c'est-à-dire après le congrès de Kyoto (Japon), du fait d'un manque de fonds. Pour cela, le Secrétaire Général essaie d'attribuer de nouveaux fonds, ce qui a été possible grâce à la généreuse contribution de la Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ - Agence Allemande pour la Coopération Technique), voir Bulletin N° 80. Le montant total attribué par GTZ se montait à environ 60.000 US\$, et a été principalement utilisé pour aider les scientifiques des pays en développement à participer à des congrès, ateliers ou autres activités scientifiques de l'AISS tenues dans des pays en développement. Une grande partie de ces fonds ont été utilisées pour inviter des scientifiques de ces pays à participer au congrès d'Acapulco.

Nous espérons sincèrement trouver rapidement un nouveau donateur, du fait que les fonds actuels seront épuisés fin 1994.

Le programme des "Journaux Coopérants", accordant une remise considérable sur le prix de l'abonnement pour les membres à titre personnel, a pu être étendu de quatre à sept journaux. Il est maintenant nécessaire de définir une nouvelle politique au sein de l'AISS pour les autres revues professionnelles qui désireraient adhérer à ce programme.

Du fait de la dissolution de l'ex-USSR et de sa division en un grand nombre de pays, ainsi qu'aux nouvelles adhésions de pays du Tiers-monde, le nombre total de pays représentés par l'inter-

médiaire des membres individuels dans l'AISS se monte actuellement à 145, ce qui signifie que l'AISS est, parmi toutes les Unions Internationales de l'ICSU, l'Association qui regroupe le plus grand nombre de pays. En 1990, il y avait des membres de l'AISS dans 117 pays.

Même si l'on peut considérer cette augmentation avec une certaine fierté, elle implique également un accroissement continu des dépenses administratives pour la coopération de tous ces pays, et *requerra dans un futur proche un support financier plus important. En outre, deux nouvelles Associations Régionales ont été créées depuis 1990: l'Association Ouest et Centre Africaine de la Science du Sol (AOCASS), ayant son secrétariat à Ouagadougou (Burkina Faso), et la Fédération des Associations de Science du Sol de l'Asie de l'Est et du Sud-est (ESAFS), ayant actuellement son secrétariat à Nankin (Rép. Populaire de Chine). Le siège de ce secrétariat passe tous les deux ans d'une association nationale affiliée à l'autre.*

NECROLOGIE

Depuis 1990, plusieurs membres éminents de notre Association sont décédés et ont été commémorés dans la rubrique In Memoriam du Bulletin. Parmi eux, quatre membres d'honneur: Prof.Dr. Hans Jenny, Prof.Dr. Victor A. Kovda, Prof.Dr. René J. Tavernier et Prof.Dr. Lorenzo A. Richards. Nous regrettons également le départ d'autres membres éminents, parmi lesquels Prof.Dr. K. Apostolakis, président de l'Association Hellénique de Science du Sol, Prof.Dr. Ramón Fernández González, ancien président de l'Association Mexicaine de Science du Sol, Prof.Dr. W. Koinow, ancien président de l'Association Bulgare de Science du Sol, Prof.Dr. G. Obrejanu, ancien président de l'Association Roumaine de Science du Sol, Prof.Dr. J. de Ploey, président de l'Association Européenne de Conservation du Sol (ESSC), Prof.Dr. M. Sillanpää, ancien président de l'Association Finnoise de la Science du Sol.

BULLETIN

Depuis le congrès de l'AISS de Kyoto, 8 Bulletins ont été publiés, y compris celui-ci; nous tenons à présenter nos excuses, non seulement pour la médiocre qualité de certains numéros, mais aussi pour le délai de diffusion. Nous espérons que désormais la publication du Bulletin sera conforme aux exigences de distribution de l'information au sein de l'Association.

Du fait de l'augmentation d'activités et d'information, le Bulletin est passé de 80 pages environ à plus de 130 pages, ce qui entraîne également une augmentation considérable des dépenses. Jusqu'à présent, le traitement de texte et les tarifs préférentiels des imprimeurs ont permis à l'Association de s'acquitter de ces dépenses.

REMERCIEMENTS

Les trois membres du Bureau de l'Association tiennent à remercier tous les membres de la confiance et du soutien moral qu'ils leur ont accordés, et espèrent que les contacts entre le Secrétariat et la Trésorerie d'une part, et les membres de l'Association d'autre part, s'amélioreront et se renforceront dans l'avenir.

BERICHT DES IBG-SEKRETARIATS UND DES SCHATZMEISTERS, 1990 - 1994

Gemäß den Statuten der Gesellschaft wird der Bericht des Generalsekretariats und des Schatzmeisters über den Zeitraum zwischen dem letzten Kongreß (Kyoto, Japan, August 1990) und dem nächsten (Acapulco, Mexiko, Juli 1994) in dem Mitteilungsblatt abgedruckt, das unmittelbar vor dem letzteren erscheint. Schwerpunkte des folgenden Berichtes werden in der Eröffnungssitzung des Kongresses in Acapulco vorgestellt, Einzelheiten anläßlich der Sitzungen des Beirates während des Kongresses diskutiert werden.

WISSENSCHAFTLICHE AKTIVITÄTEN

Im Anhang zu diesem Bericht werden die wissenschaftlichen Aktivitäten der sieben Kommissionen und vier Unter-Kommissionen in der Zeit während der beiden Kongresse durch deren Vorsitzende vorgestellt. So weit möglich, wird dort auch über die Aktivitäten der 16 Arbeitsgruppen berichtet. Aus diesen Berichten wird deutlich, daß die wissenschaftlichen Aktivitäten der verschiedenen Kommissionen, Unter-Kommissionen und Arbeitsgruppen sehr unterschiedlich waren.

Insgesamt wurde über ca. 50 offizielle Zwischen-Kongreß Aktivitäten berichtet, welche nicht immer mit der offiziellen Liste, wie sie in den Mitteilungsblättern Nr. 78 und 79 publiziert wurde, übereinstimmen. Dies bedeutet, daß einige der Aktivitäten auch so durchgeführt wurden, wie sie während des letzten Kongresses in Kyoto, Japan, geplant worden waren, andere hingegen nicht. Dafür wurden neue Veranstaltungen mehr oder weniger spontan durchgeführt, entsprechend den Wünschen und Prioritäten der verschiedenen Organisationen innerhalb der IBG. Dies läßt den Schluß zu, daß in Zukunft mehr Flexibilität notwendig sein wird, um wissenschaftliche Kontakte und Aktivitäten innerhalb unserer Gesellschaft, wie auch in Zusammenarbeit mit anderen Organisationen durchzuführen.

In Übereinstimmung mit dem Verwaltungsausschuß wurde während des Zwischenkongreß-Treffens 1992 vom Vorstand entschieden, daß in Zukunft keine Zahlungen mehr zur administrativen Unterstützung von Zwischenkongreß-Aktivitäten durch den Schatzmeister geleistet werden, da hierfür zu wenig Mittel vorhanden sind. Diese Entscheidung erfolgte aufgrund der Tatsache, daß kleine Unterstützungsbeträge, wie z.B. 250 US\$ pro Jahr, für die entsprechenden Organisatoren keine wesentliche finanzielle Entlastung bringen, sich jedoch für das jährliche Budget der Gesellschaft zu erheblichen Verlusten summieren.

Unter den wichtigen wissenschaftlichen Aktivitäten der Gesellschaft sind auch Fortschritte der Arbeitsgruppe "World Reference Base for Soil Resources", die nach dem IBG-Kongreß in Hamburg, Deutschland, 1986 gegründet wurde zu vermerken. Diese Arbeitsgruppe konnte inzwischen einen Entwurf für eine neue "World Soil Reference Base" erarbeiten, der während des bevorstehenden Kongresses zur weiteren Diskussion an die Mitglieder der Gesellschaft verteilt werden wird. Dies bedeutet nunmehr, daß nach sehr langen und umfangreichen Anstrengungen eine gemeinsame Sprache in Form einer internationalen Referenzbasis für eine weltweit gültige Bodenklassifizierung unter dem Titel "World Reference Base (WRB)" erstellt werden konnte. Die IBG gratuliert dieser Arbeitsgruppe zu ihrer erfolgreichen Arbeit.

An vielen der o.g. wissenschaftlichen Aktivitäten waren Mitglieder des Vorstandes aktiv beteiligt, ebenso an zahlreichen Jahrestreffen nationaler Gesellschaften. Darüber hinaus waren die Mitglieder des Vorstandes auch an Treffen von zahlreichen Internationalen Organisationen, z.B. der Vereinten Nationen, des International Council of Scientific Unions (ICSU) sowie an weiteren Veranstaltungen aktiv beteiligt. Während der letzten vier Jahre wurden dabei folgende Länder einmal oder mehrere Male besucht: Ägypten, Algerien, Argentinien, Belgien, Brasilien, Bulgarien, Chile, Dänemark, Deutschland, Frankreich, Ghana, Großbritannien, Hongkong, Indien, Italien, Japan, Mexiko, Nepal, die Niederlande, Kanada, Polen, Portugal, Russland, Slowakische Republik, Schweden, Schweiz, Spanien, Tschechische Republik, Türkei, Ungarn und die USA.

INTERNATIONALE ZUSAMMENARBEIT

Während der letzten vier Jahre gab es zahlreiche Ereignisse, die der internationalen Zusammen-

arbeit gewidmet waren, einschließlich solcher mit Mitgliedsgesellschaften von ICSU, wie z.B. UIBS, IUGG, IGU und, in jüngster Zeit in Indien mit IUPAC.

Darüberhinaus erfolgte eine intensive Zusammenarbeit mit interdisziplinären Organisationen von ICSU und deren wissenschaftlichen Projekten, wie z.B. innerhalb des International Geosphere-Biosphere Programme (IGBP) und hier speziell bezüglich der Rolle von Böden im Rahmen globaler Veränderungen in terrestrischen Ökosystemen (GCTE). Darüber hinaus bestand eine Zusammenarbeit mit den institutionalisierten Initiativprogrammen, wie z.B. mit COSTED-IBN und anderen. Über diese Aktivitäten wurden in den zurückliegenden Bulletins seit dem Kongreß in Kyoto wiederholt berichtet.

Von besonderer Bedeutung ist die Aufnahme der Internationalen Bodenkundlichen Gesellschaft als volles Mitglied in den International Council of Scientific Unions (ICSU) (vgl. auch das Editorial im selben Mitteilungsblatt). Diese Aufnahme als volles Mitglied befähigt die IBG in Zukunft noch intensiver mit ICSU und seinen verschiedenen Institutionen zusammenzuarbeiten. Dabei wird diese neue Entwicklung auch die Struktur unserer Gesellschaft beeinflussen, speziell die verschiedenen Komitees, wie z.B. das Komitee für Internationale Programme. Derartige Änderungen in der Struktur der Gesellschaft müssen während der Sitzungen des Beirates anlässlich des bevorstehenden Kongresses diskutiert werden.

VERWALTUNG UND FINANZEN

Die Anzahl von Mitgliedern wuchs seit April 1990 von 6158 auf 6812 im April 1994 an. Wie schon in früheren Berichten des IBG Generalsekretariats und des Schatzmeisters, muß auch hier wieder festgehalten werden, daß dieser sehr geringe Zuwachs sowie die gesamte Anzahl von Mitgliedern der Gesellschaft bei weitem nicht in Einklang mit der geschätzten Zahl von Bodenkundlern auf der gesamten Welt übereinstimmen, die mit ungefähr 50.000 angenommen werden kann. - Auch die Lebensmitgliedschaften sind nicht wesentlich gewachsen und nur von 46 im April 1990 auf 69 im April 1994 angestiegen. - Während der Sitzungen des Beirates in Acapulco werden einige Entscheidungen zu treffen sein, um in Zukunft die Anzahl der Mitglieder in der IBG zu erhöhen.

Die finanzielle Situation in der Gesellschaft ist auf Seite 19 dargestellt. Daraus geht hervor, daß die finanzielle Basis gerade für ein Überleben der Gesellschaft ausreichend ist, jedoch außer dem Druck des Mitteilungsblattes sowie der Durchführung der notwendigsten Administration keinerlei spezielle Aktivitäten zuläßt. - Ohne die freiwillige Unterstützung des österreichischen Ministeriums für Land- und Forstwirtschaft mit einem jährlichen Unterstützungsbeitrag von ca. 22.000 US\$ seit 1990 und der Unterstützung des österreichischen Ministeriums für Wissenschaft und Forschung, das eine volle Sekretariatskraft zur Verfügung gestellt hat, könnte das Generalsekretariat seine Arbeit nicht durchführen. Aufgrund dieser Beiträge und auch aufgrund der Zustimmung der Institutionen, an denen der Generalsekretär, der stellvertretende Generalsekretär und der Schatzmeister beschäftigt sind, kann die IBG ihre administrative Verantwortung wahrnehmen, wobei zusätzlich Erwähnung finden sollte, daß alle Mitglieder des Vorstands ihre Verpflichtungen innerhalb der Gesellschaft ehrenamtlich durchführen.

Der "Fellows Fund", oder "Reisefonds für junge Wissenschaftler", der 1984 ins Leben gerufen wurde, ist seit August 1990 nicht mehr in Funktion, d.h. er wurde im Anschluß an den XIV. Internationalen Kongreß in Kyoto, Japan, infolge mangelnder Finanzmittel eingestellt. Aus diesem Grund hat der Generalsekretär versucht, einen neuen Fonds zu errichten, was durch die großzügige Unterstützung der Deutschen Gesellschaft für Technische Zusammenarbeit (GTZ) möglich wurde (siehe Mitteilungsblatt No. 80). Der Gesamtbetrag, der von der GTZ zur Verfügung gestellt werden konnte, betrug ca. 60.000 US\$, und wurde bisher vor allem dazu benutzt, Wissenschaftler aus Entwicklungsländern zu fördern, damit diese an Kongressen, Arbeitstreffen und anderen wissenschaftlichen Aktivitäten der IBG in Entwicklungsländern teilnehmen konnten. Ein erheblicher Teil dieses Fonds wurde auch dazu benutzt, Wissenschaftler aus solchen Ländern zum XV Weltkongreß in Acapulco einzuladen. - Da der aktuelle Fonds zum Ende des Jahres 1994 erschöpft sein wird, hoffen wir sehr, daß ein neuer Sponsor in naher Zukunft gefunden werden kann.

Das Programm der "Cooperating Journals", das umfangreiche Rabatte bei persönlicher Mitgliedschaft bietet, wurde von 4 auf 7 Zeitschriften erhöht, und es erscheint notwendig, eine neue Politik der IBG gegenüber zukünftigen wissenschaftlichen Zeitschriften zu definieren, die den Status eines "Cooperating Journals" zu erhalten wünschen.

Wegen des Zusammenbruchs der früheren UdSSR und ihrer Aufteilung in zahlreiche neue Länder und wegen Aufnahme neuer Mitglieder aus Ländern der Dritten Welt, ist die gesamte Anzahl von Ländern, in denen Mitglieder der IBG beheimatet sind, auf 145 angewachsen. Dies bedeutet, daß die IBG unter allen internationalen Gesellschaften von ICSU diejenige ist, die Mitglieder in den meisten Ländern der Welt vereinigt. Die gesamte Anzahl von Ländern, in denen IBG-Mitglieder 1990 beheimatet waren, betrug nur 117.

Trotzdem wir diesen Zuwachs mit einigem Stolz betrachten, bedeutet er andererseits, daß zusätzliche administrative Ausgaben für die Zusammenarbeit mit den Mitgliedern in all diesen Ländern benötigt werden und zusätzlicher Bedarf an Finanzmitteln in der nahen Zukunft besteht. Darüberhinaus ist anzumerken, daß zwei neue regionale Gesellschaften seit 1990 gegründet wurden, die "Bodenkundliche Vereinigung von West- und Zentralafrika" (AWCACS), mit dem Sekretariat in Ouagadougou/Burkina Faso und die Föderation der Bodenkundlichen Gesellschaften in Ost- und Südostasien (ESAFS), deren Sekretariat sich derzeit in Nanjing, VR China befindet. Das Sekretariat der regionalen Gesellschaft von Ost- und Südostasien wechselt alle zwei Jahr zwischen den in dieser Regionalgesellschaft vereinigten nationalen Mitgliedern.

NACHRUF

Seit 1990 sind mehrere prominente Mitglieder unserer Gesellschaft verstorben. Es wurde Ihrer in den früheren Mitteilungsblättern gedacht. Unter ihnen sind folgende Ehrenmitglieder der IBG zu beklagen: Prof.Dr. Hans Jenny, Prof. Dr. Victor A. Kovda, Prof.Dr. René J. Tavernier und Prof.Dr. Lorenzo A. Richards. Wir bedauern ebenfalls den Tod weiterer herausragender Mitglieder unserer Gesellschaft, unter ihnen Prof.Dr. K. Apostolakis, Präsident der Griechischen Bodenkundlichen Gesellschaft, Prof.Dr. Ramón Fernández Gonzalez, früherer Präsident der Mexikanischen Bodenkundlichen Gesellschaft, Prof.Dr. W. Koinow, früherer Präsident der Bulgarischen Bodenkundlichen Gesellschaft, Prof. Dr. G. Obrejanu, früherer Präsident der Rumänischen Bodenkundlichen Gesellschaft sowie Prof. Dr. J. de Ploey, Präsident der Europäischen Gesellschaft für Bodenschutz (ESSC) und Prof. Dr. M. Sillanpää, früherer Präsident der Finnischen Bodenkundlichen Gesellschaft.

MITTEILUNGSBLATT

Seit dem Kongreß in Kyoto wurden 8 IBG-Mitteilungsblätter veröffentlicht, einschließlich des vorliegenden, und wir bitten um Nachsicht für die teilweise schlechte technische Qualität sowie für zeitliche Verzögerung in der Auslieferung derselben. Wir hoffen, daß in naher Zukunft die Veröffentlichung der Mitteilungsblätter in Übereinstimmung mit den Erfordernissen nach Information und deren Verteilung innerhalb unserer Gesellschaft erfolgen wird.

Infolge starker Zunahme der Aktivitäten innerhalb unserer Gesellschaft und daraus resultierender Informationsflüsse wurde das Mitteilungsblatt inzwischen von ca. 80 auf 130 - 140 Seiten pro Ausgabe erweitert, was ebenfalls einen beträchtlichen Kostenaufwand nach sich zog, der jedoch durch computergestützte Druckverfahren und spezielle Vereinbarungen mit den Druckereien im finanziell erträglichen Rahmen gehalten werden konnte.

DANKSAGUNG

Die drei Mitglieder des Vorstands (Generalsekretariat und Schatzmeister) danken allen Mitgliedern der Gesellschaft für ihr Vertrauen und Ihre moralische Unterstützung während der vergangenen vier Jahre und hoffen, daß die Kontakte zwischen dem Generalsekretariat und dem Schatzmeister einerseits und den Mitgliedern der Gesellschaft andererseits weiter verbessert und in naher Zukunft vertieft werden können.

FINANCIAL REPORT OF ISSS

RECEIPTS ACCOUNT FOR 1992 AND 1993* (in US\$)

	1992	1993
Membership Fees	48,612.00	64,999.32
Sale of Address Labels	660.70	2,648.28
Advertisements	—	1,050.00
Bank Interests	—	1,264.31
Total Receipts	49,272.70	69,961.91

PAYMENTS ACCOUNT FOR 1992 AND 1993 (in US\$)

Printing of Bulletin	22,535.60	15,643.95**
Mailing of Bulletin	23,000.00	25,172.41
Administration Costs/Board of Dir.	2,410.71	2,695.59
Mid-term Meeting	11,224.00	—
Financial Support Meetings (Commiss.)	2,022.45	2,245.90
ICSU-Contributions	513.32	500.00
Address Management	4,482.14	3,965.52
Office Supplies	553.71	501.72
Mailing Expenses Birmensdorf	998.29	222.76
Bank Charges (Cheques etc.)	92.87	624.03
Total Payments	67,833.09	51,571.88

Surplus of Payments 1992	- 18,560.39	
Surplus of Receipts 1993		18,390.03

*Until the end of 1992 Dr. D. Gabriels was Treasurer of the ISSS. The Financial Report on the years 1990 - 1992 will be published at a later date, after coordination of Dr. Gabriels' and Dr. Lüscher's accounts.

**only part of the costs for Bulletin 82/83 (1992/2 & 1993/1) have been paid.

REPORTS OF CHAIRPERSONS OF COMMISSIONS AND SUBCOMMISSIONS for the period 1990 - 1994

Report of COMMISSION II (Soil Chemistry)

Meetings

A new Working Group (MO) Interactions of Soil Minerals with Organic Components and Micro-organisms, which originated from Commission II, held its first workshop, entitled 'Impact of interactions of inorganic, organic and microbiological soil components on environmental quality' in Edmonton, Canada, 11-15 August 1992, with the support of Commission II. This was a very successful meeting, which attracted approximately 120 participants from 20 countries. A selection of the papers presented will be published by Lewis Publishers as a book which is currently in press. The meeting was an excellent start for the activities of the new Working Group, and the participants resolved to hold a second workshop in 1996, most probably in Nancy, France. Working Group MO was formed in 1990 at the Kyoto meeting and, in part, its activities superseded those of the previous Commission II Working Group (CO) The Nature and Properties of Soil Colloid Surfaces.

Commission II of the ISSS continued its fruitful association with the International Humic Substances Society (IHSS) at the 6th International Meeting of IHSS, held in Monopoli, Italy, 20-25 September 1992. During this meeting, a joint ISSS/IHSS symposium entitled 'Humic substances in soil and crop production' was held. This very successful meeting was held in a superb location, and attracted around 240 delegates and was well organised by Prof. N. Senesi, first vice-Chairman of Commission II, and his colleagues. The IHSS originally grew out of an ISSS Working Group and, although the IHSS incorporates considerable aquatic as well as soil interests, it is highly appropriate that these productive associations should continue.

Through its current Chairman, Prof. R. Swift, Commission II was involved, along with other ISSS Commissions, in the Symposium and Workshop on 'Soil Resilience and Sustainable Land Use' held in Budapest, Hungary, 28 September - 2 October 1992. Prof. Swift was a member of the International Advisory Committee, as well as the Program and Organising Committee for this meeting. The meeting attracted over 130 participants from 30 countries, and built on the achievements of earlier workshops held at the Royal Society, London, in 1990 and at Chiang Rai, Thailand in 1991. The proceedings of the symposium and the deliberations of the Workshop

are due to be published by CABI during 1993, and will form a valuable addition to the literature on this topical subject.

Publications

Since the last ISSS Congress in Kyoto, two major books have been published as a result of the activities of Commission II through its Working Group (CO), The Nature and Properties of Soil Colloid Surfaces. The production of these books involved a major effort by many members of the Working Group and the Commission. Amongst those involved in this collaborative international venture

were: M.H.B. Hayes (UK); M.F. de Boodt (Belgium); G.H. Bolt (Holland); A. Herbillion (Belgium/France); J.P. Quirk (Australia); H. Schwertmann (Germany); M.B. McBride (USA); and R.S. Swift (UK/Australia). The meetings on which the books were based were held as NATO Workshops, and the books have been published within the well-known NATO Advanced Science Institute Series.

The first of these books, entitled 'Soil Colloids and Their Associations in Aggregates' is edited by M.F. de Boodt, M.H.B. Hayes and A. Herbillion (598 + xvii pages), published by Plenum Press and, within the NATO ASI series, it is identified as Series B: Physics Vol. 215. The book contains 21 chapters, and is divided into five sections dealing with: soil inorganic colloids; soil organic colloids; water and clays; soil aggregates; soil conditioners and soil aggregates. The chapters are written by leading authorities in their field, and collectively they provide a valuable insight into in-

dividual topics, as well as a useful integration across the subject. In order to aid the integration, the editors provide a helpful overview and summary at the commencement of each section.

The second book, entitled 'Interactions at the Soil Colloid-Soil Solution Interface', is edited by G.H. Bolt, M.F. de Boodt, M.H.B. Hayes and M.B. McBride (603 + xv pages), published by Kluwer Academic Publishers, and within the NATO ASI series it is identified as Series E: Applied Sciences - Vol. 190. The book has 17 chapters, including an introductory chapter deals with soil colloids and soil solution. This is followed by chapters arranged in four parts addressing the following topics: sorption in soil-theoretical considerations; selected cases of specific binding of ions by soil constituents; interactions in soil involving small and large organic molecules; and environmental problems associated by unbalanced inputs. The authors are prestigious international scientists who address the wide-ranging topics from a sound theoretical basis.

Anyone working on the properties and behaviour of soil colloids will find these books to be a valuable source of information and ideas. Following the production of these books, the 'Soil Colloids' Working Group considered that it had fulfilled most of its original objective, and voted to disband itself. It is expected that Working Group (MO) will deal with some of the areas of activity relinquished.

Together with other Commissions and Sub-Commissions, Commission II has worked actively with our Mexican colleagues to help formulate a stimulating program of lectures and symposia for the next Congress in Acapulco.

R.S. Swift, Australia

Report of COMMISSION III (Soil Biology)

At the Congress in Kyoto it was agreed that it would be useful to develop a close working relationship between the Commission and the OECD Co-operative Research Programme on Biological Resource Management. Theme I of that programme is "Modification of plant/soil/microbial interactions to reduce inputs in farming systems" and focuses on the role of micro-organisms in these managed ecosystems and their relevance to crop production and protection. This has been facilitated by the Chairman of the Commission also being the OECD Co-ordinator. The two major mid-term meetings of the Commission have therefore been joint with OECD, the latter organisation providing much of the funding.

Firstly, in Wageningen, Netherlands, over 200 people met in November 1991 at a conference on Methods of Research and Soil Structure/Soil Biota Interrelationships. The meeting was convened by Professor Lijbert Brussard and, together with Dr. M.J. Kooistra, he edited a very useful volume of the proceedings which were published to a title of "Soil Structure/Soil Biota Interrelationships" by Elsevier in Amsterdam in 1993.

The second meeting was held jointly with Commission II, CAB International, the Hungarian Academy of Sciences and OECD in Budapest in October 1992. The topic of "Soil Resilience and sustainable Land Use" attracted much inter-disciplinary discussion by about 160 participants. A volume has been edited by Professors D.J. Greenland and I. Szabolcs and will be published by CAB International shortly. The planning of this meeting involved regular meetings over a two-year period between several ISSS Council Members.

The Sixth International Congress of Microbial Ecology was held in Barcelona in September 1992 and many Commission members participated. It also provided an opportunity for the Chairman and First and Second Vice-Chairman to hold a "Committee Meeting" to plan the XVth Congress programme, which the Chairman went to discuss with the Third Vice-Chairman in Acapulco in November 1992 at the mid-term Council meeting.

The Secretary General on behalf of the ISSS nominated Professors Lynch, Tiedje and van Veen for the prestigious 1993 Carlos J. Finlay Prize for Microbiology, which is awarded by UNESCO. The nomination was successful and the prize was presented in Paris in November 1993. The acceptance speech was made by Professor Lynch.

J.M. Lynch, Great Britain

(Professor Lynch's speech is printed in a later chapter of this Bulletin)

Report of COMMISSION V (Soil Genesis, Classification and Cartography)

The last five years have seen dramatic changes in research and development emphasis in agricultural research. Many of these are propelled by the political impetus generated by the United Nations Conference on the Environment and Development — UNCED, the "Earth Summit" — held in Rio de Janeiro, Brazil, in June 1992 which focused the world's attention on the harmful impact of development on the Earth's life-sustaining capacity. UNCED generated eloquent and passionate rhetoric and became the culmination of the work of the Brundtland Commission which emphasized the finite limits and fragility of global resources.

Agenda 21 of UNCED has become a blueprint for the activities of soil scientists and specifically for Commission V. In the last few decades, emphasis and funds for activities in soil survey, genesis, and classification have gradually dwindled but the new focus on environment has provided the necessary invigorating thrust. Developments in information technology, particularly computer technology, have also had major impact in the contributions of Commission V. Availability of affordable computers, and tools such as Geographic Information Systems and Expert Systems, are beginning to revolutionize research and information generation in the mandate areas of Commission V. Many of the inter-Congress workshops and symposia have amply demonstrated the fact that work at the cutting edge of technology are being used by the scientists.

Commission V recognizes that much of its work is relevant and may even form the basis for the other disciplines. In this respect, it has made a serious attempt to join forces with the other Commissions, Subcommissions, and Working Groups when organizing workshops and symposia. This is also in the spirit of the ISSS Council desires and we believe that the rewards and impacts have been great.

The following are the inter-Congress meetings sponsored by Commission V or organized in collaboration with others:

DATE LOCATION AND TITLE OF MEETING

1991

- | | |
|----------|---|
| Apr. 26 | Agadir, Morocco: Conference on agricultural management in salt affected areas.
- Subcomm. A |
| Sept. 09 | Volvograd, Russia: Symposium on genesis and control of fertility of salt-affected soils. - Subcomm. A |
| Sept. 15 | Chiang Rai, Thailand: Workshop on evaluation for sustainable land management - Working Group LI |
| Dec. 10 | Braunschweig, Germany: Symposium on "Importance of micromorphology in applied soil science" - Subcom. B |

1992

- Jan. 13 Montpellier, France: World Reference Base for soil resources - Commission V
- Feb. 17 Bangkok, Thailand: Symposium on strategies for utilizing salt-affected soils - Subcom. A
- May 04 Pushchino, Russia: Evolution of soils and soil cover - Comm. V
- July 12 Townesville, Australia: Working Meeting on Soil Micromorphology - Subcommission B
- July 26 Ithaca, USA: Operational methods to characterize soil behavior in space and time. - Working Group MV
- July 29 C. Guayana, Venezuela: Symposium on Forest Soils - ISSS
- Sept. 01 Wageningen, Netherlands: 1st Conference on Pedometrics - Working Group PM
- Sept. 15 Nanjing, China: Symposium on paddy soils - Working Group PS
- Sept. 28 Budapest, Hungary: Symposium on Soil Resilience and sustainable land use - Commission V
- Oct. 05 Silsoe, England: World Reference Base for soil resources - Commission V
- Nov. 10 Pushchino, Russia: Conference on Cryopedology - Commission V

1993

- Apr. 12 Rome, Italy: World Reference Base for soil resources - Commission V
- May 09 Adana, Turkey: International meeting on Red Mediterranean soils - Commission V
- June 07 Lublin, Poland: International Seminar on Agriculture and Environmental aspects - ISSS
- June 20 Lethbridge, Canada: Workshop on Sustainable Land Management - Working Group LI
- Aug. 18 Urumqi, China: Classification and management of desert soils - Commission V
- Sept. 24 Bangalore, India: Managing red and lateritic soils - Commission V

Some of the major issues that need to be addressed in the immediate future and where Commission V will have an important role to play include:

* Limits of land resources. With much of the arable land already under the plow, increased food and fiber production must result primarily from increased production per unit area rather than an increase in the area of cultivated land. More detailed resource inventories will assist in the selection of land for its different uses.

* Land degradation. Degradation and, to a lesser degree, urbanization of arable land reduces the area of productive land at accelerated rates. This causes increased use of marginal and fragile lands which are difficult to maintain under sustainable production. There is an urgent need to develop early warning indicators to be able to predict degradation.

* Weak institutional research and development framework in the NARS. There is a continuous lack of infrastructure, capital, and human resources in the National Agricultural Research Systems (NARS) to respond to changing needs. In many developing countries lack of detailed soil resource information is still a major obstacle to developmental planning and targeting mitigating technologies. There is a need to develop cost-effective technologies to assist these countries.

* Research emphasis on past concerns rather than future problems. Greater emphasis must be placed on systems-based information technology and resource-focused rather than commodity-oriented research. New paradigms are needed to direct research and development with respect to soil resources.

* Global climate change. Alternative strategies must be developed to reduce the risks of an uncertain future. The impact of GCC on soil resources and the converse which is the impact of changing land uses on GCC requires a more concerted effort.

* Public policy. Scientists must develop the databases and decision tools to allow decision makers to formulate environment-conscious public policy.

Commission V and the International Society of Soil Science are strategically poised to make important contributions to society's changing needs and I am sure we can and will play the role entrusted to us

H. Eswaran, USA

Report of Commission VI (Soil Technology)

During the last 3 years, Commission VI has cooperated in the organization of 3 international symposia.

A symposium on "Nutrient Management for Sustained Productivity" was organized by Dr. M.S. Bajwa of the Department of Soils, Punjab Agricultural University, Ludhiana, India, on February 10 - 12, 1992. Lead papers were contributed by 40 authors from outside India, 24 papers came from Indian institutions, 8 of which from Punjab Agricultural University.

A very successful symposium on "Soil Resilience and Sustainable Land Use" was organized by Prof. Dr. I. Szabolcs, of the Hungarian Academy of Sciences in cooperation with Prof. Dr. D.J. Greenland of the Commonwealth Agricultural Bureau, in Budapest, Hungary. The symposium was followed by meetings of the working group, which formulated several recommendations for purposeful action. As one follow-up, an inter-disciplinary seminar has been arranged at the XV Congress of ISS at Acapulco, Mexico.

An international symposium on "Managing Red and Lateritic Soils for Sustainable Agriculture" was organized by Dr. J.L. Sehgal of the National Bureau of Soil Survey & Land Use Planning, Nagpur, on September 24 to 28, 1993 in Bangalore, India, which was very well attended. The subjects for discussion included: Soil and climate resource base and Land evaluation: land degradation and resource management. Working group meetings were held to draw up action programmes for a follow-up. Inter-symposium visits and post-symposium field tours were organized.

G.S. Sekhon, India

Report of COMMISSION VII (Soil Mineralogy)

Since the Kyoto Congress Commission VII has participated in the organisation, conference activities and field tours of two major and partly ISSS sponsored international meetings, both coincidentally held in Australia. There was a substantial soil mineralogy component among the contributors to the International Working Meeting on Soil Micromorphology organised by ISSS Subcommittee B held in Townsville, Queensland 12-18th July 1992. The field tours in several regions of Australia included examinations of the mineralogy of soils formed under diverse climatic regimes. The soil mineralogy component of the 10th AIPEA International Clay Conference in Adelaide, South Australia 18-23 July 1993 was organised by officers of Commission VII. This was the major inter-Congress meeting of Commission VII and continued the close association with AIPEA initiated by the Strasbourg AIPEA Conference in 1989. There were approximately 100 papers and posters with a soil mineralogy emphasis and several sessions were devoted to soil mineralogy themes. Keith Norrish presented a plenary paper describing an unusual halloysite consisting of very long and perfect tubes that give unusual XRD patterns. One day field trips before and after the conference were led by Dr Rob Fitzpatrick of CSIRO Division of Soils and concentrated on the mineralogy of soils in the Adelaide hills. A highlight of this tour was a visit to the type locality for the newly described iron oxyhydroxide-sulphate mineral schwertmanite. A leisurely lunch was held at a Barossa Valley winery and gave ample opportunity to consider the possible interactions between soil mineralogy and wine quality. The pre and post-conference tours associated with this conference were held in New Zealand and several Australian States.

Each tour provided a major content of soil mineralogy which ranged from poorly crystalline silicates in the young volcanic ash soils of North Island-New Zealand through desert soils with precious opal in South Australia to 100+m deep gold bearing laterite and bauxite profiles in south-western Australia. One of the outcomes of these Commission VII activities in Australia has been the development of several cooperative research projects between Australian and overseas scientists.

The elected officers of Commission VII (Bob Gilkes, Karl Stahr, Caroline Olson) met in Perth, Western Australia in August 1993 to complete arrangements for the organisation of Commission VII activities in Acapulco 1994. Local organisation is the responsibility of the Mexican co-chairman Nicolas Aguilera Herrera and Norma Garcia-Calderon as secretary. The plenary paper for Commission VII will be delivered by Karl Stahr on the topic of Soil minerals in time and space.

The two Commission VII symposia are being organised by Caroline Olson and Jeff Wilson together with their Mexican counterparts who are Drs N. Aguilera and M.A. Valera respectively. The symposia will consist mostly of invited and complementary papers by active workers from a wide range of countries. One symposium will be directed towards processes responsible for the formation of soil minerals and the other to the influence of minerals on the behaviour and management of the soil environment. There will also be a strong Commission VII contribution to an interdisciplinary symposium dealing with organo-mineral associations.

R.J. Gilkes, Australia

Report of SUBCOMMISSION A (Salt Affected Soils)

During the term of 1990-94, Subcommittee "A", ISSS, with the support of other relevant institutions, had organized and held two international Symposia on salt affected soils.

1. The Subcommittee of Salt Affected Soils of the International Soil Science Society, the Dokuchaev Soil Institute, and the All-Union Soil Science Society of the USSR and organized an International Symposium on "Genesis and control of fertility of salt affected soils" in Volgograd (USSR), 9-15 Sept. 1991. The Symposium was attended by over 100 participants, representing 7 countries. The ISSS was represented by the Secretary-General, Professor W. H. Blum. 4 keynote lectures and

altogether 29 papers were presented on the following problems:

- Genesis, diagnostics and investigation methods of saline and alkali soils
- The use, reclamation and agrogenic evolution of saline and alkali soils under different environmental conditions
- Preventive control of secondary salinization and alkalization in soils under irrigation.

Concurrently 19 posters were exhibited.

The papers were published in the Proceedings of the Symposium. Excursions were organized to demonstrate soil profiles of solonchic complexes of the Low Volga light chestnut subzone, long term soil reclamation methods, agricultural production of collective farms on solonchic lands, and the extension work of the Dokuchaev Soil Institute and other scientific institutions.

The representatives of the ISSS, the Subcommittee and all participants agreed in the following evaluation and conclusions: soil salinity and alkalinity is a world problem, having not only agronomical but also more and wider environmental aspects. The handling of the problem must be integrated into general soil protection and soil conservation programmes, on local, country and international levels. The participants highly evaluated the achievements in the field of study and utilization of solonchic soils gained by the Institutes and farms of Volgograd region, where similar soils occur.

2. The Subcommittee of Salt Affected Soils of the ISSS in cooperation with the Ministry of Agriculture and Cooperatives, the Agricultural Societies of Thailand organized another International Symposium on "Strategies for Utilizing Salt Affected Lands" in Bangkok, 17-21 February 1992, sponsored by a number of international and local organizations.

Approximately 200 attendees from 19 countries, including 130 native and 70 foreign residents in Thailand, participated in this symposium. The program consisted of four days of technical sessions, a one-day mid-symposium field trip to observe coastal saline soils involving 80 participants and a four day post-symposium tour of inland saline soils and land use in Northeast Thailand with 57 participants.

Professor I. Szabolcs of Hungary and Dr. Somsri Arunin of Thailand respectively presented keynote lectures on "Overview of Salt-Affected Lands in the World" and "Strategies of Utilizing Salt-Affected Lands in Thailand". Forty eight papers were presented in the Technical Sessions addressing:

- Genesis, Characteristics and Mapping Techniques;
- Use of Saline Water for Irrigation;
- Management of Salt-Affected Lands;
- Ecology and Environment;
- Salt Tolerance of Crops and Management, and
- Halophytes.

Concurrently, 17 posters were exhibited.

The following evaluation and main recommendations were accepted by the participants:

- of particular interest were the progress made on the use of salt affected lands in Thailand
- International cooperation to assess more accurately and economically, existing and potential global salinity. Focus was taken to the East and South Asian region. One example of an international regional programme is planned to be presented on the XV-th World Congress of ISSS.

The Proceeding of the Symposium, which was published in 1993, is of outmost interest to those involved in the use of saline and sodic soils.

During the Symposium, the Subcommittee A, Salt Affected Soils held business meetings presided over by chairman Professor Zhao-Qiguo (China). Recommendations for future activities of the Subcommittee, especially the preparation to the XV-th World Congress of Soil Science (Acapulco,

Mexico) and recommendations for organizing one of the next Symposia of Subcommittee "A" in Valencia (Spain), have been set up.

The last business meeting of Subcommittee "A" was held in Budapest (Hungary) on the 29-th Sept. 1992. The meeting was presided by Professor Zhao Qiguo. Invited participants were: The President, the vice President and the Secretary-General of the ISSS and other guests.

On the agenda was: the appropriate presentation of soil salinity - as a world problem - on the XV-th World Congress of Soil Science (Acapulco, Mexico, 1994). The author and title of a plenary lecture, the title and topic of the Symposium of Subcommittee "A" on the Congress, were discussed and decisions were made. Furthermore, information on, and proposals for organizing the forthcoming Symposia, were given.

Marianne Rédly, Hungary

Report of SUBCOMMISSION B (Soil Micromorphology)

1) Activities in the form of meetings, seminars, workshops, congresses etc.

Subcommission B held the 9th International Working Meeting on Soil Micromorphology in Townsville, Queensland, Australia in mid July 1992. It was the first meeting of the subcommission to be held in the tropics and the first in the southern hemisphere. The meeting was attended by approximately 120 delegates and accompanying guests, representing Argentina, Australia, Belgium, Brazil, Canada, China, Hungary, India, Indonesia, Israel, Italy, Japan, Malaysia, France French West Indies, Germany, Great Britain, The Netherlands, Niger, Philippines, Thailand, and the USA.

In keeping with the venue the micromorphology of tropical soils was a major theme, although other sessions covered, volcanic soils, paleosols, soil biota and soil management in a very full program. The meeting was preceeded by a well attended field trip along the wet tropical coast of Queensland and into the semi-arid landscapes of the wet and dry tropics. Post conference trips from Canberra to Broken Hill in south-eastern Australia and a trip around the south-western portion of Western Australia were also well supported. A feature of the meeting was the exceptionally high standard of the poster presentations and a strong impression that micromorphology is moving away from the purely descriptive into the realm of being used as an explanatory tool used to explain many static and dynamic soil properties and processes. The refereed proceedings of the meeting will be published by Elsevier in the Developments in Soil Science series under the title "Soil Micromorphology: studies in management and genesis" and edited by A.J. Ringrose-Voase and G.S. Humphreys in early 1994.

2) Other Activities:

The Subcommittee newsletter continues to be published periodically and is viewed as a useful informal channel for expression of news and views, which helps to keep members in contact.

Members of the subcommission have also played prominent roles in assisting with the development of training courses in micromorphology in the Netherlands, the USA and Mexico.

A preliminary programme has been developed for the 10th International Working Meeting on Soil Micromorphology, which is to be held in Moscow, Russia in August 1996 with Professor S. Shoba as Chairman of the Organizing Committee. The meeting will provide an excellent forum for micromorphologists to catch up on interesting new work conducted in Russia over the last several years, very little of which has been published in western journals. It is intended that the meeting will include sessions on cryogenic soils, soils with texture contrast, saline soils and paleosols. Field trips crossing climatic gradients and associated classical changes in soil properties are also anticipated.

C.J. Chartres, Australia

Report of SUBCOMMISSION C (Soil Conservation and Environment)

Chairman:	Ildefonso Pla Sentís (Venezuela)
1st Vice-Chairman:	Ch. Valentin (France)
2nd " :	B.A. Stewart (USA)
3rd " :	Manuel Anaya (México)
Secretary:	J.L. Oropeza (México)

The main activities of Subcommission C in the period 1990-93 have been:

1. Co-sponsoring the **VII International Conference on Soil Conservation (Sydney, Australia) in September 1992**, which was sponsored by the International Organization of Soil Conservation (ISCO). The next ISCO Conference, also co-sponsored by Subcommission C of ISSS, will be held in New Delhi (India) in December 1994.

2. Organization of the **International Workshop on "Soil Erosion Processes on Steep Lands. Evaluation and Modeling" (Mérida, Venezuela, May 16-20 1993)**, with 140 participants from 14 countries of all around the world. The Workshop was co-sponsored by the Venezuelan Society of Soil Science (SVCS), the World Association of Soil and Water Conservation (WASWC), the Soil and Water Conservation Society (SWCS) and the European Society of Soil Conservation (ESSC). The subjects covered in the invited keynote lectures (S. El Swaify, USA; I. Pla, Venezuela; J. Quinton, UK; J. Williams, USA; and Eric Roose, France), and on the voluntary oral (20) and poster (10) presentations, were:

- a) Erosion processes on steep lands under different edaphoclimatic conditions.
- b) Methodology for the evaluation of different soil erosion processes on steep lands.
- c) Development and validation of new models to predict water erosion on steep lands.
- d) Soil conservation practices and systems to control soil erosion processes on steep lands.

Besides, a discussion panel, with participation of J.M. Romkens (USA), Q.G. Cai (China), J.L. Rubio (Spain), J. Quinton (UK), S. El Swaify (USA), E. Roose (France), I. Pla (Venezuela) and R. López (Venezuela), was held on the topic "Empirical vs process-based models to predict soil erosion on steep lands". Three field excursions, to the Andes and Guayana regions of Venezuela, completed the activities programmed for the Workshop.

The proceedings of the Workshop, with all papers, discussions and conclusions are being published with the cooperation of the SVCS and the Universidad Central de Venezuela. The keynote lectures and a selection of the voluntary oral presentations are being published in English in a book for international diffusion.

3. Co-sponsoring of the **2nd Workshop of the Latin American Network on Conservation Tillage (Guanare, Venezuela, November 1993)**, together with FAO and FONAIAP (Venezuela), with 40 participants from 10 Latin American countries, besides invited lecturers from the USA (W. Larson and P. Unger), Argentina (R. Díaz), and Venezuela (I. Pla and R. Schargel). The main topic of the workshop is "Effects of tillage systems and practices on the degradation and productivity of soils".

4. Publication, together with the SWCS of the **2nd edition of the book "Soil Erosion Research Methods", edited by R. Lal**. The 1st edition, also published by Subcommission C, ISSS and the SWCS, appeared in 1988.

5. Publication (now in process of final revision) of a book on **"Terminology of Soil Erosion and Conservation", prepared for Subcommission C, ISSS by Dr. Elscó Bergsma (The Netherlands)** and some collaborators from other countries, which includes concepts, definitions and a multilingual list of terms in English, Spanish, French and German.

6. Selection, organization and coordination of the activities of Subcommittee C in the XV ISSS Congress in Acapulco (México) in 1994, which includes:

- a) Participation in the **Mid-Term Meeting of the Executive Committee of the ISSS, in Acapulco (México) in November 1992.**
- b) **Symposium on the "Assessment of Long Term Soil Degradation and Rehabilitation. Field Methodology and Modeling."**
- c) **State of the Art plenary lecture on "Soil degradation and climate induced risks of crop production in the tropics"**
- d) Co-sponsoring the interdisciplinary symposia on **"Alternatives to slash-and-burn agriculture"** and **"The role of soil scientists in the design and development of soil conservation policies"**.
- e) Promotion of the activities of Subcommittee C, ISSS on several international meetings and courses where the Chairman was invited to give lectures, among them: **"Seminario Internacional sobre Manejo de los Recursos Naturales en Ecosistemas Tropicales para una Agricultura Sostenible"** (Bogotá, Colombia, 1990); **"Seminario sobre Procesos de Desertificación en Condiciones Ambientales Mediterráneas"**. (Valencia, Spain, 1991); **Seminario Internacional sobre Erosión en Suelos y Procesos de Desertización en Ecosistemas Insulares"** (Lanzarote, Spain, 1991); **"III Panel Latinoamericano sobre Suelos Derivados de Cenizas Volcánicas"** (Manizales, Colombia, 1991); **"XII Latin American Congress of Soil Science (Salamanca, Spain, 1993).**

I. Pla Sentís, Venezuela

Report of SUBCOMMISSION D (Soil Zoology)

Since the creation of a "zoology bureau" at the IV International Soil Science Congress in Paris, 1956), Subcommittee D organizes its own colloquia. The XI International Soil Zoology Colloquium was held in Jyväskylä, Finland, August 10-14, 1992. The theme for this colloquium was **"Soil Organisms and Soil Health"**, 191 participants from 32 countries (from Europe, Asia, Africa, Australia and North America) attended the meeting.

The reviewed proceedings of this meeting (approx. 110 papers) will be published in *Acta Zoologica Fennica* in early 1994.

The VIII International Colloquium on Apterygota was held following the XI Soil Zoology Colloquium in Jyväskylä. 58 participants from 22 countries attended this colloquium. The proceedings (ca. 45 papers) will also be published in *Acta Zoologica Fennica* in early 1994.

During the XI Soil Zoology Colloquium a new bureau was elected:

Chairman: D. Parkinson (Canada); **Secretary:** J.C. Kühle (Germany); **Honorary Chairman:** H. Franz (Austria); **Vice-Chairpersons:** I. Barois (Mexico); J. Curry (Eire); V. Huhta (Finland), **Past Chairpersons:** M.B. Bouché (France); K. Lee (Australia); **Members:** J.M. Anderson (UK); D.C. Coleman (USA); C.A. Edwards (USA); H. Eijsackers (Netherlands); D.A. Krivolutsky (Russia); P. Lebrun (Belgium); T. Persson (Sweden); A.J. Reinecke (S.Africa); G.K. Veeresh (India); H. Watanabe (Japan); A.Zicsi (Hungary). **Ex officio members:** J. Rusek (Czech Republic), co-ordinator for Apterygota, and G. Wauthy (Belgium) as secretary of the bulletin *Pedofauna*.

The XII International Soil Zoology Colloquium will be held in Dublin (Eire), July 22-26, 1996. The provisional theme for this colloquium will be "Soil biological concepts and resource management". This colloquium will be followed by the IX International Colloquium on Apterygota (July 29-31, 1996).

At the XV World Congress of Soil Science in July, 1994, Subcommittee D will organize a symposium on **"Soil function changes resulting from faunal alterations"** (convenors: I. Barois and D.C. Coleman).

Subcommittee D strongly supports the V International Symposium on Earthworm Ecology, which will be held in Columbus, USA, July 4-9, 1994.

In the staffs of various journals, changes have occurred over the past four years. In 1993, M. Schaefer (Göttingen), J. Schauer mann (Göttingen) and G. Weigmann (Berlin) became Editors-in-Chief of *Pedobiologia*. They took this position following the resignation of Dr. E. von Törne, who founded the journal in 1961. Sincere thanks are due to Dr. von Törne for his dedication and efforts in maintaining excellence in this journal.

In 1992, *Revue d'Écologie et de Biologie du Sol* was re-titled European Journal of Soil Biology and the editorial board was reorganized (the first issue under the new title appeared in 1993).

A new journal, *Applied Soil Ecology*, was founded in 1993. This is published by Elsevier, Amsterdam. C.A. Edwards (Columbus, USA) and L. Brussard (Wageningen, The Netherlands) are Editors-in-Chief. This journal provides a valuable addition to the journals which are actively supported by members of Subcommittee D.

D. Parkinson, Canada

ANNOUNCEMENTS of MEETINGS*

*For registration please use form in the annex

III Escuela Latinoamericana de Física de Suelos

(III ELAFIS) 18 - 30 de Septiembre de 1994 Colegio de Postgraduados, Montecillo, Estado de México, México

Este curso es organizado por el Centro de Edafología del Colegio de Postgraduados, México, la Comisión Nacional de las Zonas Áridas, México, el Centro Latinoamericano de Física, Rio de Janeiro, Brasil y el Centro Internacional de Física Teórica, Trieste, Italia.

Objetivos generales: (1) Actualizar el conocimiento de los alumnos en los aspectos teóricos y prácticos de la física de suelos. (2) Motivar el desarrollo constante de la investigación básica y aplicada en física de suelos. (3) Contribuir a la integración de científicos y técnicos Latinoamericanos vinculados con el desarrollo de la física del suelo. (4) Analizar de forma interdisciplinaria la problemática de la producción de alimentos en Latinoamérica considerando el mejoramiento ambiental.

Los profesores responsables de impartir la cátedra teórico práctica, son 9 investigadores nacionales y 11 internacionales con amplia trayectoria y experiencia en el campo de cada tópico que será tratado.

Para ser candidato a participar en la III ELAFIS, enviar solicitud de ingreso antes del 30 de Abril de 1994, junto con los documentos siguientes: (a) Carta de propuesta oficial por parte de la institución de procedencia, (b) Curriculum Vitae completo e impreso en forma nítida y (c) Artículo sobre un tema relacionado de la III ELAFIS. Capturado en Microsoft WORD V.2.0 ó WORDPERFECT V.5.1, para WINDOWS y enviarlo en diskette de 3.5". Los resultados sobre los candidatos seleccionados serán comunicados antes del 30 de Junio de 1994. Dirigir correspondencia a:

Dr. Manuel Anaya Garduño/M.C. Rafael Zárate Zárate
Colegio de Postgraduados,
Centro de Edafología, Sección de Física de Suelos
Carretera México-Texcoco, km. 35,5 Montecillo,
Estado de México, MEXICO CP. 56230
Tel: (52-595) 4-57-01; Fax: (52-595)4-57-23

8th INTERNATIONAL SOIL CONSERVATION CONFERENCE (ISCO)
"SOIL AND WATER CONSERVATION: CHALLENGES AND OPPORTUNITIES"
New Delhi, India, December 4 - 8, 1994

The Organizing Committee is pleased to extend a very cordial invitation to all potential participants to the 8th ISCO Conference. The details of the Conference Program will be sent to all responding to this invitation.

Some of the topics which the Conference will focus on, include:

Soil Degradation-Assessment, Erosion and Productivity, Watershed Management, Learning from Involving People, Role of Financial Institutions, Making Conservation Cost Effective, Conservation for Environmental Security, etc.

The official language of the Conference will be English.

Please direct your enquiries to:

The Secretariat
8th ISCO Conference
Central Soil and Water Conservation
Research and Training Institute
218, Kaulagarh Road,
Dehradun - 248 195
INDIA

Telex: 585-237 SCRI-IN

Phone: (0135) 24213 / (0135) 23385

Telegram: SOILCONS, Dehradun, India

Sols Contamines - Contaminated Soils

**THIRD INTERNATIONAL CONFERENCE ON THE BIOGEOCHEMISTRY
OF TRACE ELEMENTS**
Paris, France, May 15 - 19, 1995

The Conference will be held under the auspices of the French Ministry of the Environment

Information on the content of the Conference:

In the unsaturated zone of soils, pores are filled with air and water, which facilitates the exchange of trace elements between the solid, liquid and gas phases. Nevertheless, their mobility and bioavailability strongly depend on their speciation and localisation in soil constituents.

Contamination of soils by toxic elements or substances generates scientific, legal and economic problems. Because of the heterogeneity and complexity of soils it is difficult to obtain definitive data for guidelines.

The main objectives of the Conference are therefore to discuss new advances in the field of trace element speciation, mobility, bioavailability, etc., in order to improve the validity of data needed for establishment of soil quality guidelines. Symposia will consider contamination indicators (water, plants, etc.), risk assessment and treatment of contaminated soils.

Language: papers and oral presentations must be in French or English.

For more information please contact:

Ministere de l'environnement
Rene PROST
Conference Internationale sur la Biogeochimie des Elements Traces
DGAD/SRAE
20, avenue de Segur
75302 Paris 07 SP
FRANCE
Tel: 33(1)42 19 17 57 or 33(1)30 83 32 50
Fax: 33(1)42 19 17 71 or 33(1)30 83 32 59

XII INTERNATIONAL SYMPOSIUM ON ENVIRONMENTAL BIOCHEMISTRY

Rio de Janeiro, 4 - 8 September 1995

“BIOSPHERE AND ATMOSPHERIC CHANGES”

Main Topics:

- 1 - Biosphere influencing atmospheric composition and climate
- 2 - Influence of climate changes on plants and microorganisms
- 3 - Effect of increasing UV radiation upon plants
- 4 - The role of the atmosphere in the cycling of bio-associated elements
- 5 - Ocean-atmosphere interaction
- 6 - Oceanic new primary production and the biological pump
- 7 - Control of atmospheric CO₂ increase by energy alternatives and standing biomass
- 8 - Effects of anthropogenic activities on biogeochemical cycles

NATIONAL COMMITTEE: A. de Luca R. Wagener (Chairperson), L.H. Melges (General Secretary), C. Cerri, J. Döbereiner, A.A. Franco, J.S. Lourenço, G. Mitchell, C.A. Nobre, E. Salati, R.L. Santelli.

IF YOU ARE INTERESTED IN ATTENDING THE XII ISEB PLEASE RETURN
THE FOLLOWING INFORMATION TO THE GIVEN ADDRESS:

Name:

Title:

Institution:

Address:

Telephone: Fax:

Electronic mail:

I am interested in attending the XII ISEB: Yes..... No.....

I am interested in presenting a paper on topic nr.:

I know of other scientists who wish to attend the XII ISEB:

.....
.....

PLEASE RETURN BEFORE FEBRUARY 94 TO:

Secretariat of the XII ISEB

Prof. Luis Henrique Melges

Instituto de Geociências - UERJ

R.S. Francisco Xavier, 524 - s. 4019 B

20550-013 Rio de Janeiro, Brazil

Email: iseb@bruerj; Fax: 55-(0)21-248-4870



ISSS-AISS-IBG

Notice of Intent/Registration Form
Note d'Intérêt/Fiche d'Inscription
Absichtserklärung/Anmeldeformular

To: Organizing Committee of

.....
.....
.....

From: Name and title

.....

full address:

.....

.....

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**ACCEPTANCE SPEECH
FOR THE CARLOS J FINLAY PRIZE FOR MICROBIOLOGY 1993
AWARDED BY UNESCO**

Director General, Ladies and Gentlemen,

It is with the greatest pleasure and honour that I stand here today on behalf of a triumvirate which includes Professor Jim Tiedje of Michigan State University in the United States and Professor Hans van Veen of the Research Institute for Plant Protection in Wageningen in the Netherlands and myself from the University of Surrey, England, to accept gratefully the Carlos J Finlay Prize for Microbiology. As I look at the distinguished list of previous recipients of the Award back to 1980, where most branches of microbiology have been recognised, it gives great pleasure that environmental microbiology and microbial ecology are recognised for the first time. Amongst the microbial kingdom is a range of harmful and beneficial species. Unfortunately public perception is often focused at the harmful organisms which cause diseases of man, animals and plants; but there are of course as many beneficial organisms as there are harmful.

The purpose of our mission has been quite simple. It has been to provide the ground and scope to understand the microbial population balance of soil and to balance it to allow the sensitive management of the environment in favour of beneficial species, without placing an excessive chemical loading on it. We have been greatly assisted in our efforts by developments in other branches of microbiology. In particular, the techniques developed by molecular biologists have allowed us to use marker genes and DNA probes which enable us to track both the populations and functions of micro-organisms naturally present in soil and those which we introduce. We have been also dependent on modern developments in mathematical techniques which enable us to analyse quantitatively the dynamics of micro-organisms in the natural environment. Such analyses can help us to make predictions of microbial behaviour and to analyse the risks and benefits of the manipulation of the soil population balance. Microbial activity is the primary driving force of cycling of life-essential elements such as carbon and nitrogen throughout the globe. More particularly, the focus of our endeavours has been to provide options which would lead to optimisation of crop productivity. For example micro-organisms provide the basic supply of nutrients for plant growth and they can also produce metabolites which either promote plant growth directly or control the pests and diseases to which crops are vulnerable. Another example of major concern internationally is the entry of a wide range of pollutants into managed and natural ecosystems and again this is where micro-organisms can bring about the detoxification of those pollutant loadings. Each of us, as recipients of this Prize, has been heavily involved in the analysis of any hazards and risks that could result from the introduction of genetically-engineered organisms into the environment and we have assisted both national and international agencies in developing regulatory procedures. However we have also recognised that the construction of the genetically-engineered organism has provided us with a tool in which to search for wild-type strains amongst the vast pool of biodiversity which is present in natural environments; we believe there is a major opportunity to deploy that biodiversity in improving our environment.



*Professor J. Lynch, delivering the acceptance speech
for the Carlos J. Finlay Prize*

Director General, by awarding us this prestigious prize I hope that you will have increased the public awareness of the potential of the management of the biota in the environment and especially in the soil to protect our natural resources. Whilst thanking you sincerely for this prize I think that we would all wish to point out to you that none of our achievements would have been possible without the teams of researchers who have worked with us. We have been extremely fortunate in having groups of co-workers and research students which have given us a critical mass in our own laboratories and also in the extensive co-operation we have been able to have being involved with other laboratories internationally working in the same area. I should also acknowledge the strong support of our sponsors for this award, The International Society of Soil Science, who have provided an international framework to exchange concepts and ideas in this area and we hope that in the World Congress of Soil Science, which will take place in Acapulco next July, we will hear more of the exploitation of biotic systems to the benefit of man.

Thank you.

Professor J. Lynch

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**REPORTS OF MEETINGS
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**International Workshop on Soil Erosion Processes on Steep Lands.
Evaluation and Modeling**

Merida, Venezuela, May 16 - 20, 1993

General Report

The "International Workshop on Soil Erosion Processes on Steep Lands. Evaluation and Modeling" was successfully held in Merida, Venezuela, from 16 - 20 May, 1993. It was sponsored by the International Society of Soil Science (ISSS) - Subcommittee C on Soil Conservation and Environment, The Venezuelan Society of Soil Science, the World Association of Soil and Water Conservation (WASWC), the Soil and Water Conservation Society (SWCS), the European Society of Soil Conservation (ESSC), the Interamerican Centre for Land and Water Development (CIDIAT), together with the Ministry of Environment and Natural Resources of Venezuela, and three Venezuelan Universities (Central, Llanos and Andes). It was attended by 140 participants from 14 countries of all around the world. The Chairman of Subcommittee C of ISSS, one Vice-President of ESSC, and three Vice-Presidents of WASWC were among the participants. 5 invited keynote lectures and 30 additional voluntary papers (20 oral and 10 posters) were presented on the topics: "Erosion processes on steep lands under different edaphoclimatic conditions"; "Methodology for the evaluation of different soil erosion processes on steep lands"; "Development and validation of new models to predict water erosion on steep lands"; and "Soil conservation practices and systems to control soil erosion processes on steep lands". The topics and lecturers of the keynote presentations were:

- "Climatic, soil and land factors affecting conservation needs of tropical steplands" by S. El-Swaify (USA)
- "A soil-water balance model for monitoring soil erosion processes and effects on steep lands" by I. Pla Sentís (Venezuela)
- "The European soil erosion model: Structure and initial validation" by J. Quinton (UK)
- "A system of erosion sediment yield models" by J. Williams (USA)
- "Agroforestry, water and soil fertility management in African tropical mountains" by E. Roose (France)

A discussion panel on "Empirical vs process-based models to predict soil erosion on steep lands" was held at the end of the Workshop, being members of the panel the keynote speakers and Q.G.Cai (China), J.M. Romkens (USA), and J.L. Rubio (Spain), I. Pla (Venezuela) acting as chairman and R. López (Venezuela) as secretary.

The discussions generated by the keynote lectures and the presentations at the different sessions and at the panel were very active and focused on the main topic and objectives of the Workshop. The main conclusions derived from the presentations and the discussion are:

- There is not a clear-cut slope limit to define steep lands. The lower limit generally ranges from 8 - 30 % slope, depending on the potential erosion processes, which are also affected by climatic, vegetation and soil characteristics.

- The erosion processes occurring on steep lands are generally different to the ones in lands with gentle to moderate slopes. On steep lands the erosion processes affected by gravity are more common, including landslides, mass movements, gully erosion, etc.
- Modeling may be a very useful and unique tool to integrate the complicated factors, processes and effects of erosion on steep lands, required to evaluate present problems and to make predictions and foresee risks.
- Models and remote sensing cannot substitute careful observation and measurements "in situ" of the erosion processes, but they are a powerful tool to integrate and extrapolate the information obtained on those direct observations and measurements.
- Methodologies and models to evaluate and predict erosion processes and effects have been mainly developed and tested in lands with gentle to moderate slopes. Therefore, most of them cannot, and must not be used to monitor and predict erosion on steep lands.
- Empirically-based models cannot be used for making soil erosion predictions out of the particular conditions of soils, climate and slopes where they were developed and validated. In spite of this, empirical models, especially the "Universal Soil Loss Equation (USLE), have been and are being used in many tropical undeveloped countries to predict erosion and to guide conservation practices on very steep lands, with large-scale and costly failures in many cases.
- Models based on physical processes have to be preferred to empirical models to predict land degradation in general, and especially to predict soil erosion on steep lands. Very few of those models are being used in developing countries, mostly due to their complexity and the great requirement of actual data. When they are used without having adequate information about the values of the required input parameters, the possibility of errors in the output may be even greater than when using empirical models.
- Testing and validation of models, especially if these are empirical, through costly isolated trial & error experiments, without sufficient continuity, are generally of very low value, due to the commonly high variability, both in space and in time, of soil and climatic conditions. The human and economical resources used for this kind of experiments could be better used for direct observations, complemented with simple measurements and monitoring of erosion processes and effects in different sites, under different climatic conditions.
- When the input data required by a model are available, its application for recommendations of soil management and conservation practices to prevent erosion on steep lands, has to be followed by a continuous monitoring of their effectivity, because field conditions generally are different to the experimental conditions where they were validated.
- There are urgent requirements for the development and use of more simple physically-based models, making use of soil and climate data already available, or of soil properties easily evaluated, covering the most critical or important causing factors. These models must be flexible, sensible to changes in management systems and practices, and open to improvements. They may be validated along with their use and monitoring under field conditions, but their effectivity may also be validated through the correspondence of historical information about the erosion problems in the area, and the predictions made by the model for those particular conditions.
- The effective application of soil management and conservation practices on steep lands requires an appropriate identification and field evaluation of the erosion processes, causes and effects, under each particular combination of soils, climate, vegetation, slope and management. For this it is necessary to make appropriate field observations and monitoring, to evaluate important parameters, which can be integrated through simple hydrological models.

The keynote lectures, a selection of the voluntary papers, and the conclusions of the different sessions, of the discussion panel, and of the Workshop as a whole will soon be published in a book of international diffusion.

Three field tours completed the activities programmed for the Workshop. Two of them, including the one day field trip during the Workshop, and one of the three days field tours after it, were held in the Venezuelan Andes region. Steep lands (10 to more than 100% slopes) in the Chama and Uribante watersheds, at altitudes of 1000-4000 m a.s.l. and with semiarid to humid climates, with accelerated erosion partially due to geological processes but mainly to deforestations, overgrazing, agricultural use and practices, etc. were observed. Besides those erosion problems "in situ", problems of accelerated sedimentation in water reservoirs recently built for the generation of hydroelectricity were also observed, as well as the effectivity of different conservation systems and management practices on controlling erosion.

The other post-conference field tour was held in the Guayana region at the SE of Venezuela, and mainly in the Caroní and Paragua watersheds, which feed the Guri reservoir before reaching the Orinoco river. The Guri system is one of the largest hydroelectric complexes in the whole world, and generates more than 90 % of the electric power of Venezuela. A one day trip by helicopter allowed the visit to the upper Caroní watershed, close to the borders of Brazil and Guyana. Here, one could observe the extensive and increasing degradation of vegetation and soils due to deforestation, repeated fires, and gold-mining operations. In some areas a complete and irreversible "desertification" of the land has already been reached, under an average rainfall of 1200 mm/year, because the remaining soils - derived from quartzite - are very poor in nutrients and have a very low water-holding capacity. In the Paragua watershed, with more than 2000 mm/year of rainfall, accelerated erosion problems on steep lands (10 - 30 % slopes) were observed, with Ultisols and Alfisols derived from granite rocks, and used for continuous cropping with corn. The severe erosion problems are due to sealing and surface runoff in the Alfisols, and to the slide downslope movement of the loose and aggregated soil in the shallow surface tilled layer in the Ultisols. Both types of processes are leading to a complete loss of the soils' agricultural productivity within 5 - 10 years. Some conservation practices are presently being tested to control this erosion. The increasing degradation of vegetation and soils, if it continues at the present rate, may change the hydrology of the whole Caroní and Paragua basin in the next 20 - 30 years, with decreasing water supply and increasing sedimentation in the Guri reservoir. Both effects will then endanger the main source of electric power in Venezuela and all the associated investments and developemtns.

Ildelfonso Pla Sentis
Chairman of Subcommission C, ISSS
(Soil Conservation and Environment)

1993 International Symposium on Soil Testing and Plant Analysis "Precision Nutrient Management"

The Evergreen State College, Olympia, Washington, August 14 - 19, 1993

A total of 171 delegates from 34 countries attended the 1993 International Symposium on Soil Testing and Plant Analysis held in Olympia, Washington. The demographic distribution was as follows: Australia (1), Austria (1), Belgium (2), Brazil (1), Cameroon (1), Canada (24), Chile (1), China (1), Costa Rica (2), Denmark (1), Dominican Republic (1), Finland (1), Germany (1), Greece (1), Guam (2), Hungary (2), India (2), Israel (1), Mexico (4), Mozambique (1), The Netherlands (2), New Zealand (2), Philippines (1), Saudi Arabia (1), Slovakia (1), South Africa (2), Spain (6), Switzerland (1), Syria (1), Thailand (4), United Kingdom (1), U.S.A. (74), and Venezuela (1). The purpose of the symposium was to bring together scientists from the developed and developing countries to exchange research findings and practical information on soil and plant analysis.

Invited papers were presented in the panel discussion and plenary sessions. In the panel discussion session, papers were presented by the following eight scientists who provided information on the status of soil and plant analysis in their countries: Dr. Lindsay Campbell (Australia), Dr. Marty Fari-

na (South Africa), Dr. Victor Houba (The Netherlands), Mr. Yash Kalra (Canada), Dr. Ewald Schnug (Germany), Dr. Bernardo Van Raij (Brazil), Dr. Gyorgy Varallyay (Hungary), and Dr. Byron Vaughan (USA). The plenary papers were presented in four sessions:

- | | |
|---|---|
| 1. Improving the quality of soil and plant samples | Dr. Marty Farina
Dr. Bob Beck |
| 2. New diagnostic techniques, universal extracants | Dr. Bernardo Van Raij
Dr. Jim Schepers |
| 3. Laboratory accreditation
Dr. J.B. Jones, Jr. | Dr. Victor Houba |
| 4. Precision nutrient management-impact on the environment and needs for the future
Dr. Ewald Schnug | Dr. Gyorgy Varallyay
Dr. Lindsay Campbell
Dr. Fred Swader |

The additional invited papers were as follows:

- | | |
|--|-----------------------|
| 1. Methods for measuring soil pH | Dr. Malcolm E. Sumner |
| 2. Presentation on Mount St. Helens | Dr. Bob Stevens |
| 3. Laboratory management for quality assurance | Dr. Mark Tatro |

Moderators for the sessions were Mr. Nat Dellavalle, Dr. J.B. Jones Jr., Mr. Yash Kalra, Dr. Owen Plank, Dr. Wayne Sabbe, and Dr. Byron Vaughan.

The 111 volunteer papers were scheduled in three poster sessions. Five training sessions were held:

1. DRIS - Dr. Reuben Beverly
2. Soil and plant tissue preparation and analysis for S and N - Drs. Ewald Schnug, John Watkinson, and J.B. Jones, Jr.
3. Microwave digestion - Dr. R.O. Miller
4. Techniques of soil and plant analysis interpretation - Drs. Paul Fixen and Tim Righetti
5. Methods of heavy metal determination - Dr. Maurice Watson.

The instrument exhibits included the latest products from Hach Company, Lachat Instruments, Leco Corporation, Pulse Instruments, Soil Scientist, and Spectrum Technologies, Inc. In addition, there were displays and demonstrations of videos, slide sets, manuals, books, and computer programs related to soil testing and plant analysis and to nutrient management.

Four tours were offered (arranged by Mrs. Georgia Jones of ALA' Board Express) to those symposium participants interested in additional activities. A tour of San Juan Islands and Friday Harbor explored the breathtaking waters of Puget Sound aboard a Washington State ferry. The magnificent Mount St. Helens tour included a morning drive to the National Volcano Interpretive Center to learn details of the unforgettable eruption on May 18, 1980 at 8:32 a.m.; the tour then traveled the million-dollar-a-mile road to the crater's edge for a bird's-eye view of this special place in the Pacific Northwest. A day long tour visited the Weyerhaeuser Nursery for forest research outside Tenino and the Puyallup Research Station in Western Washington. The Columbia Laboratories tour was also well received by those participating in it.

The J. Benton Jones, Jr. award was presented in 1993 to Mr. Yash Kalra, Canadian Forest Service, Edmonton, Alberta for his outstanding contribution to soil and plant analysis. Mr. Kalra is a life member of the International Society of Soil Science. He is co-founder of the Western Enviro-Agricultural Laboratory Association and founder of the Group of Analytical Laboratories; he has also

served as Chair of these organizations. He is a Marquis biographee in the "Who's Who in Science and Engineering. Mr. Kalra is also Associate Referee for an international collaborative study on pH measurements in soils, conducted jointly by the AOAC International and the Soil Science Society of America. This is the first study of soils methods to be validated through this arrangement.

The symposium was organized by the Council on Soil and Plant Analysis, Inc, under the direction of Dr. Owen Plank, President of the Council and the Organizing Committee, who is to be complimented on an excellent meeting. Full papers will be reviewed and the accepted papers published in Communications in Soil Science and Plant Analysis. The Council wishes to thank the following sponsors for their generous financial support of the symposium: United Nations Environment Programme, United States Department of Agriculture-Soil Conservation Service, United States Department of Agriculture-Office of International Cooperation and Development, Potash and Phosphate Institute, The Fertilizer Institute, and The Sulphur Institute.

The Council also acknowledges the remarkable work of the Arrangements Committee (Mr. Don Horneck and Dr. Robert Stevens) in ensuring the success of the symposium, and it is grateful for the assistance of the conference Services Staff (Ms. Donnagene Ward, Mr. John Dlouhy, and Mr. Brad Aiken) of the Evergreen State College.

Further information on the Council can be obtained from:

Dr. J. Benton Jones, Jr., Secretary-Treasurer
Soil and Plant Analysis Council, Inc., Georgia University Station
P.O. Box 2007
Athens, GA 30612-0007, USA
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4th International Symposium on Acid Sulphate Soils Ho Chi Minh City, Vietnam, March 2 - 6, 1992

The fourth Symposium on "Acid Sulphate Soils" was organized by The Agricultural University of Wageningen (Netherlands) and the University of Can Tho (Vietnam), in cooperation with the "Working Group on Acid Sulphate Soils of the International Soil Science Society, from March 2 - 6, 1992 in Ho Chi Min City (Vietnam).

Several donor agencies financially supported the Symposium, partly, as a result of which 193 participants from 22 countries attended the meeting.

The purpose of this meeting was to bring together scientists and developers for an exchange of knowledge and new research findings, since the Dakar Symposium in March, 1986, on Acid sulphate soils management and plant improvement in acid and saline field conditions, in developed and developing countries.

The program included plenary and poster sessions and a field tour. 24 invited oral papers and 25 posters were presented in the plenary session, and in seven sessions:

- **Session 1:** Survey, genesis and classification;
- **Session 2:** Land use systems and methods of improvement;
- **Session 3:** *Land evaluation*;
- **Session 4:** Fertility;
- **Session 5:** Modeling of processes;
- **Session 6:** Water management;
- **Session 7:** Environmental management.

After the plenary sessions, the participants were divided into four groups for discussions on the status of research advances in order to point out constraints and future aims of research.

Group session discussions have pointed out many relevant aspects and, therefore, some recommendations on:

- **Survey, genesis and classification:** There is much concern about the diagnosing of ASS and a need of standardization of soil survey; therefore, more standardization is needed, as well as the adoption of a proposal for improvement of soil taxonomy in soil survey.
- **Land use:** An increase of interest in land use and land evaluation was noticed, but it is still inadequate with regard to field reality; therefore, development of techniques of land evaluation using an integrated farmer-expert based approach is required.
- **Modeling:** Great progress has been made, but various problems, however, still need to be resolved. It was recommended that model development and application should always be accompanied by extensive model validation in close cooperation between modellers, soil scientists, environmental scientists, farmers etc.



The participants of the Symposium on Acid Sulphate Soils

- **Environmental problems:** Most studies have been site specific on a small scale, therefore land use planning has to be linked to environment considerations in order to avoid long-term environmental damage. Legislation is required to specify acceptable levels for oxidation products and guidelines for environmental management

A field tour was organized from March 7 - 10, to the Mekong Delta, during which acid sulphate soil profiles were described by the participants. The discussions were focussed on the diagnosis of soil characteristics and their management related to the specific requirements of crops.

At the closing session, the participants expressed their appreciation for the progress of research carried out since the third symposium of Dakar, and underlined the great importance of further development of research on acid sulphate soil management. Soil scientists involved in acid sulphate soil studies have to be aware of multidisciplinary collaboration, because there are many interactions of environmental and plant growth factors.

As Chairan of the Acid Sulphate Soils Working Group, Dr. Syaka Sadio has suggested to participants the need of organizing workshops on national and subregional levels, in order to have correlation between various research carried out in the same field. All participants involved in acid sulphate soil research or management are invited to contribute to the ASS-Working Group Newsletters by sending in any useful news or papers relating to this subject.

The participants expressed their thanks to the organizing committee, the Government of Vietnam and, particularly, to the Can Tho University.

In the final plenary session, Jakarta, the capital of Indonesia, was chosen to host the fifth symposium in 1996.

S. Sadio, Dakar, Senegal

XI International Symposium on Environmental Biogeochemistry (ISEB XI) Salamanca, Spain, September 27 to October 1, 1993

The **ISEB XI** was held at the Palacio de Congresos de Castilla y León, in Salamanca, Spain. This biannual Symposium was focused on Biogeochemistry of the Ecosystems, and was divided into 5 sessions: a) Biogeochemistry and quality of water bodies (29 contributions); b) Microbial processes in biogeochemistry (47); c) Bioweathering of minerals and bioconcentration of elements (23); d) Biogeochemistry of forest ecosystems and rangelands (48), and e) Anthropogenic impacts on the environment (70).

170 scientists from 25 countries attended the **ISEB XI**, approx. 50 of them came from Spain. Five invited speakers took part in the Symposium and two plenary conferences were held. In addition to the oral contributions there were 130 posters.

During the pre-Congress tour some soil profiles of the south-west of the province of Salamanca could be seen, as well as forest ecosystems of the "Sierra de Gata" mountains, near the Portuguese border.

There was no nomination for the Wolf Wishniac Award, because of the scarceness of proposals.

The **ISEB** Committee thanks for the assistance received from the D.G.-XII/European Community, the DGCYT/Spanish Educational Ministry, and the "Junta de Castilla y León", which provided the Congress Palace. The **ISEB** Secretariat granted economic support of more than 3 million Spanish Ptas. to a considerable number of scientists and students.

The next symposium, **ISEB XII**, will be held in Rio de Janeiro (Brazil), on September 1995. Additional information can be obtained from:

Dra Angela Luca-Rebello,
Instituto de Geociências, U.E.R.J.,
rua Sao Francisco Xavier, 524 Maracanã,
Rio de Janeiro 20550-013, Brazil;
Fax: 55-21-2484-870.

J.F. Gallardo Lancho, Spain

International Workshop on Managing Red and Lateritic Soils for Sustainable Agriculture

Bangalore, India, September 24 - 28, 1993

An International Seminar on Managing Red and Lateritic Soils for Sustainable Agriculture was organised by the Indian Society of Soil Survey and Land Use Planning under the auspices of the International Society of Soil Science at Bangalore on September 24 - 28, 1993. The objectives of the seminar were to focus attention on soil and climate resource base, soil qualities and management parameters, *soil-site parameters for land evaluation and international cooperation in framing strategies* for future development.

The seminar comprised 5 days of technical sessions on (1) Soil and climate resource base, (2) Land evaluation, (3) Land degradation and sustainability, (4) Resource management, (5) Future challenges and strategies. In all, 40 invited papers, including 29 on specific themes from leading scientists of the world, and 60 poster session papers were presented.

Mr. M. Veerappa Moily, Hon'ble Chief Minister of Karnataka (India) inaugurated the seminar on Sept. 24, 1993 in the presence of Mr. N. Hucha Masti Gowda, Hon'ble Minister for Agriculture, Karnataka, Prof. V.L. Chopra, Director General, Indian Council of Agricultural Research and Prof. Dr. J.S. Kanwar, Dy. Director General (Emeritus), ICRISAT. Prof. W.E.H. Blum, Secretary-General, ISSS, presided over the function attended by over 200 delegates from 20 countries of the developing and developed world.



The participants in the International Workshop on Managing Red and Lateritic Soils for Sustainable Agriculture

The red and lateritic soils form the third most important group of soils and occupy about 13 % of land area of the continents. In India alone, these soils occupy 70 m. ha. Besides India, these soils occur in South America, Africa, South Asia, China and Australia. These soils are highly leached and have low nutrient reserve. The low fertility coupled with poor management relegate these soils to low productivity levels. The soils, however hold promise of high productivity with proper soil and land management. Major land use in India on the soils is plantation crops. such as rubber, coconut, cashewnut and arecanut and export-oriented crops, like pepper, cardamom, coffee and cinnamon.

Based on deliberations, four working groups were constituted for detailed discussions on:

- I. Resource data base
- II. Land evaluation for rational land use
- III. Resource utilization
- IV. Resource management

The working groups framed certain recommendations which were presented in the plenary session and the following ones were adopted:

- The soil resource maps on 1:1 m scale at the global level and 1:250,000 and 1:50,000 at the regional and county level be prepared using remote sensing techniques in view of the spatial variability of the soils. The same methodology should be used for mapping land use and monitoring temporal changes in land degradation.
- The computer based geographical information system (GIS) be used for data storage and retrieval and to develop a decision support system for land evaluation and management. For the purpose of coding of soil, climate, terrain and environment, information needs to be standardised.
- The quality of laboratory data be improved and data obtained using uniform methodology.
- The land evaluation for land use planning requires greater understanding of definition and methodology and should be oriented towards initial objectives. An integrated approach linking sectoral aspects be followed. A checklist be prepared for data collection, in terms of soil, climate and topography for proper matching of land use requirements.

- Land use and its impact on soil qualities need to be considered. Land utilization plans be made in view of physical, chemical and socio-economic constraints. Fundamental and applied research in nutrients, bio-mass, soil and water management should continue to provide support for sustainable land use management. A mechanism for soil scientists to interact with farmers, extension workers and policy makers is essential.

- Land resource management recommendations should be related to specific soil and climate systems. These systems must be recognised, defined, understood and measured by scientists, planners and land users. A holistic approach for sustainable land use considering the above recommendations should be used. The heart of sustained land use systems lies in the harmonisation of different land uses, viz. biomass production, buffering, gene reserves of flora and fauna, infrastructure development, raw material sources and preservation of geographic and cultural heritage.

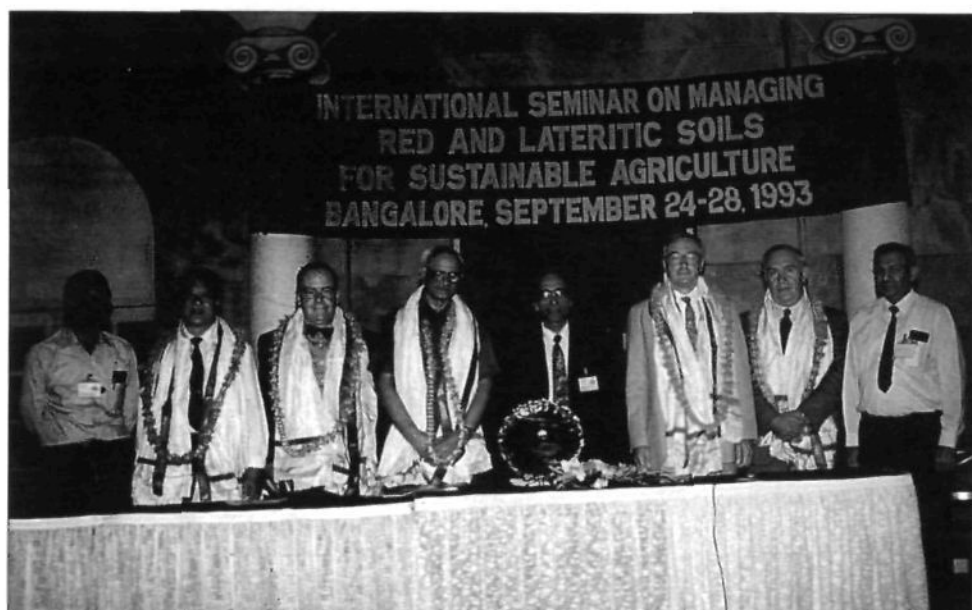
- A global network of benchmark red and lateritic soils with international cooperation could lead to efficient utilisation of human and physical resources for higher production from these soils. FAO and IBSRAM already have a recognised global cooperation programme that could be extended to incorporate the global benchmark network.

- Human resource development was considered an important component in sustained land use management. For this purpose an International Training Center (ITC) on land resource management was recommended to be established at the National Bureau of Soil Survey & Land Use Planning, Nagpur, to cater to the needs of the tropical and subtropical world.

The mid-seminar field tour to the Rajankute Watershed in Red and Lateritic Soils on Sept. 26 and the post-seminar field tour through a cross-section of red and lateritic soils from Bangalore, Karnataka, to Kochi (Kerala) from Sept. 29 to Oct. 3 provided the participants with an opportunity to study the soils in their natural setting and to discuss their evolution, classification and management to optimise land use with special reference to export-oriented spices and plantation crops.



Participants in the field tour



From left to right: Dr. Q. Zhao, Dr. W.E.H. Blum, Dr. J.S. Kanwar, Dr. J.L. Sehgal, Dr. P. Bullock, Dr. W. Verheye

To recognise the services of eminent scientists in the field of soil survey and land use planning, the Indian Society of Soil Survey and Land Use Planning honoured Dr. W.E.H. Blum, Secretary General, ISSS, Prof. Peter Bullock, Director, SSLRC, U.K., Dr. W. Verheye, Gent, Belgium, Prof. Zhao Qiguo, Director, Soils Institute and President, Chinese Society of Soil Science, Prof. J.S. Kanwar, Dy. Director General (Emeritus), ICRISAT, Hyderabad, and Prof. J. Sehgal, Director, NBSSLUP, Nagpur by conferring on them the "Fellow of the Society".

J. Sehgal, India

XII Congreso Latinoamericano de la Ciencia del Suelo (XII CLCS) Salamanca-Sevilla, 18 a 25 Septiembre de 1993

Se ha celebrado el XII CLCS los días 18 al 25 de Septiembre de 1993, siendo la primera vez que se celebra en España un Congreso de la Sociedad Latinoamericana de la Ciencia del Suelo (SLCS). El Congreso se inauguró en Sevilla el sábado tarde, 18 de Septiembre, con una Conferencia ("Desarrollo y retos de la Ciencia del Suelo") a cargo del Prof. A. Aguilar, Presidente de la ISSS. El domingo se visitó La Cartuja y la Ciudad de Sevilla. El lunes, día 20, se inició una excursión pre-Congreso durante la cual se observaron y discutieron perfiles de suelos de la Sierra Morena, continuando el martes con otros perfiles de las dehesas extremeñas, visitando el Parque Natural de Monfragüe. Se realizaron también visitas turísticas a los enclaves romanos de Mérida y los recintos medievales de Cáceres y Trujillo. La excursión, después de atravesar verticalmente Extremadura, finalizó en Salamanca la noche del día 21. El número de participantes de dicha excursión giró en torno de 70 personas y, salvo los organizadores, prácticamente en su totalidad fueron científicos americanos.

El miércoles 22 se iniciaron las jornadas científicas en el Palacio de Congresos de Castilla y León (Salamanca), con una conferencia a cargo del Dr. Pla Sentís ("Uso, manejo y degradación de suelos en América latina: Situación actual y perspectivas de futuro"). El Programa científico se dividió en ocho secciones, a saber: 1. Física del Suelo (25 comunicaciones); 2. Química del Suelo (36), 3. Biología del Suelo (16); 4. Fertilidad del Suelo (51), 5. Génesis y cartografía del Suelo



The participants of the XII Congreso Latinoamericano de la Ciencia del Suelo

(49); 6. Tecnología de suelos (52); 7. Mineralogía del Suelo (19); y 8. Ecología del Suelo (33). Se expusieron alrededor de 40 comunicaciones orales y cerca de 200 en forma de carteles.

Paralelamente a esas sesiones, se desarrollaron cuatro mesas redondas: la primera presidida por el Dr. J.F. Gallardo (SLCS, por ausencia del Dr. W. Franco) discutió la temática de los suelos forestales, dado su enorme interés en la actualidad (bien, en el Viejo Continente, debido a la reforestación de antiguas tierras labradas o marginales, bien por la deforestación y puesta en cultivo de terrenos boscosos existentes en el Nuevo Continente), participando como ponentes ocho científicos, que enfatizaron la importancia de la materia orgánica en el subsistema edáfico forestal: la segunda, presidida por el Dr. J. Celecia (UNESCO), versó sobre los suelos urbanos y periurbanos, de gran interés en los países con megalópolis con exigentes necesidades alimenticias, siendo ponentes cinco científicos que concluyeron la necesidad de la constitución de un Grupo de trabajo permanente en la ISSS; la tercera fue presidida por el Dr. J.M. Hernandez (SECS), que versó sobre léxico y didáctica de la Edafología en Iberoamérica, y destacó la necesidad de existencia de Grupos de trabajo sobre enseñanza de la Ciencia del Suelo y terminología edafológica, y de un banco de datos bibliográficos iberoamericano, tomando parte cuatro ponentes; la cuarta y última estuvo presidida por el Dr. M. Cattizzone (D.G. XII/CEE), que mantuvo una dinámica discusión sobre la investigación edafológica en los países en desarrollo, tomando parte siete científicos como ponentes, quienes elaborarán un manifiesto conjunto sobre dicha problemática. En distintas mesas redondas se enfatizó la necesidad de una revista iberoamericana de la Ciencia del Suelo.

El sábado día 25 se desarrolló la Asamblea General de la SLCS, aprobándose finalmente los Estatutos de la Sociedad (sólo este logro ya justificó en sí el Congreso), prorrogándose el mandato del Dr. Silva Mojica como Secretario de la SLCS y se designó Brasil (Piracicaba, Sao Paulo) como sede del próximo XIII CLCS (1996), designándose, consecuentemente, Presidente de la SLCS el Presidente de la SBCS Dr. R. Aloisi. Seguidamente se desarrolló la Sesión General de Paneles.

Por último, en el Paraninfo de la Universidad de Salamanca, se realizó el Acto de Clausura del XII CLCS, otorgándose los siguientes Premios: 1) Premio 'Huguet del Villar' (50.000 Ptas) al trabajo de mayor impacto científico: Dr. R.B. Zuccardi (R. Argentina); 2) Premio 'Camino Real' (25.000 Ptas) a la temática más original: Dra. M.E. Rodriguez (Cuba); y c) Premio 'Ruta de la Plata' (25.000 Ptas.) a la mejor presentación artística en cartel: T. de Figueiredo y F. Fonseca (coautores portugueses).

En total acudieron a la cita del XII CLCS alrededor de 280 científicos pertenecientes a 18 países, de los cuales más de un centenar eran americanos. Los países que más contribuyeron fueron España, Argentina, Portugal, Brasil y Méjico. Se concedieron unos cinco millones de Ptas. de ayudas, gracias a los apoyos de la D.G.XII/CEE, de la DGICYT/MoEC, y de la Junta de Castilla y León, quien también sufragó los costos del Palacio de Congresos de Salamanca; además el Ministerio de Agricultura (MoAPA) español editó una selección de los trabajos presentados en el XII CLCS.

Existió también una excursión post-Congreso, durante la cual se mostraron suelos de la zona Suroeste de la Provincia de Salamanca, con dos opciones finales, bien una visita a La Alberca y la Peña de Francia (Provincia de Salamanca), o a los ecosistemas forestales de la Sierra de Gata, en la zona limítrofe con Portugal. La asistencia fué de un total de 40 personas, algunas pertenecientes también al XI Simposium Internacional sobre Biogeoquímica Ambiental (ISEB XI).

Los organizadores desean hacer constar el agradecimiento, no sólo a las organismos citados, sino también a las personas integrantes de los diferentes Comités (de Honor - presidido por S.M. El Rey, Internacional, Científico y de Organización) y de la Secretaría del Congreso; en la coordinación del esfuerzo de todos ellos ha radicado el éxito del XII CLCS.

!Hasta siempre!

J.F. Gallardo Lancho, España

International Workshop on Classification and Management of Desert Soils

Urumuqi, China, August 21 - 29, 1993

The Soil Science Society of China, the International Society of Soil Science, and several local Chinese Institutions organized the International Workshop on "Classification and Management of Desert Soils" in the Xinjiang Province of North West China.

The Workshop was attended by about 100 participants, about 20 of whom were foreigners. There were four days of technical sessions and five days of field tours. Some of the issues that prompted the Workshop are:

1. Population pressures are increasing in most desertic areas of the world and in some places the carrying capacity of the land is being exceeded;
2. Deserts are fragile ecosystems and many desert soils are being degraded by overgrazing and misuse;
3. The oases, which traditionally were the foci of settlements and agriculture, are being stressed due to population increases and greater demands of the finite water supply. Oases are drying out or are being salinized;
4. Canal irrigation is destroying the fragile desert ecosystem and upsetting natural ecological balances in many countries;
5. Land degradation, the result of a combination of the above, is rampant.

Some of these concerns were demonstrated during the field tours to old oases. The most important oasis is the city of Turpan (Tulufan) which is more than 2,000 years old and was an important trading post of the Silk Road. Due to intensified agriculture and greater consumptive use of water, traditional and historical methods of irrigation are no more adequate and so pumping of aquifers is taking place. The population is no more confined to the oasis but has spilled over onto the adjacent bare lands. There is ample evidence of unsustainability in the system.

Major discussions during the technical sessions and the field tours focused on the classification of desert soils. It was recognized that some progress has been made in the last twenty years on the classification of desert soils but lack of detailed studies and supporting data resulted in discussions. There was unanimous support for developing an international database on desert soils which would serve not only to evaluate classification systems but also support work on sustainable agriculture and global climate change. There was also general consensus that the aridic soil moisture conditions should not be used at a high level to classify soils of desertic areas. The Chinese classification, similar to recent proposals in the FAO-UNESCO legend of the Soil Map of the World, has proposed the use of an aridic or yermic epipedon. There was wide support for this and it was suggested that this concept be developed and refined. Other features, unique to desert soils, must be developed to better evaluate such soils. Dr. Zhao Qui-guo's proposal for the establishment of an international network to consider these and other suggestions was unanimously supported.



Dr. Hari Eswaran, addressing the audience of the Workshop

Some of the workshop conclusions include:

1. An international working group be established to evaluate the characterization, classification, and management of desert soils.
2. There is an urgent need to develop indicators of unsustainability/sustainability in these ecosystems and establish long term monitoring sites to evaluate ecosystem quality.
3. There is a need to evaluate traditional irrigated lands to evaluate their sustainability and/or rates of degradation. In addition, it would be useful to examine the resilience of these ecosystems to regenerate them.
4. International organizations such as FAO and USDA-SCS/WSR have been called upon to assist Central Asian countries of the former Soviet block in evaluating their desert resources and their management.
5. There is a need to assemble global databases on desert soils of the world for use in sustainable agriculture and global climate change evaluation.

The Workshop also recommended that an international committee, under the auspices of FAO and ISSS be established to assist in the development of databases and classifications of desert soils. This committee will be the nucleus of an international network and will consider the possibility of

establishing soil-environmental monitoring sites in the desert areas of the world, so that we can obtain better data on processes in deserts.

The Proceedings of the Workshop are already published and may be obtained at cost (US\$ 50.00) from Dr. Gong-Zi-Tong, Soil Science Institute, Academia Sinica, P.O.Box 821, Nanjing, China.

Hari Eswaran
Washington, USA

Gong Zitong,
Nanjing, China

**Report on the International Workshop
"Sustainable Land Management for the 21st Century"
June 20 - 26, Lethbridge, Canada**

The objectives of the workshop were to identify and develop indicators for evaluation of sustainable land management, and to formulate recommendations for technology transfer and research. The plenary papers provided the background for the workshop by describing the current status of sustainable land management in Canada and on a global basis, and identifying principles under which indicators could be developed. The focus groups were organized according to the major climatic regions of the world, and charged with identifying indicators for specific land uses in their regions. These activities were complemented by the mid-workshop tours to the conservation farms and research trials.

The workshop was held in the excellent facilities of the University of Lethbridge. There were 28 commissioned plenary papers, 12 focus groups, a computer/software laboratory, three mid-workshop tours and two post workshop tours. The tours featured on-farm visits to innovative conservation farmers, as well as the research plots at the Lethbridge Research Station. The workshop was well attended, with 270 registrants from 36 countries. In addition, there was representation from five International Agricultural Research Centres.

The workshop brought together a broad spectrum of interests and it enabled several of the major stakeholders in sustainable land management to bring their issues forward. By enabling and facilitating the dialogue between agriculture and the other major stakeholders, including wildlife, rangelands, trade, policies, etc., it positioned agriculture to take the initiative and to be seen as the solution to environmental problems, rather than one of the major causes. In addition, it was clear that some countries had already taken major strides towards sustainable land management, and that much could be learned from these experiences. The proceedings from the workshop will be available in 1994.

The workshop was organised by the Agricultural Institute of Canada (AIC) in cooperation with several of its member organisations, namely the Canadian Society of Soil Science (CSSS), Canadian Society of Agronomy (CSA) and Canadian Agricultural Economics and Farm Management Society (CAEFMS). The AIC and the CSSS provided seed money for the workshop. Further sponsors were Agriculture Canada, Alberta Agriculture, Environment Canada, International Board for Soil Research and Management (IBSRAM), the EEC Commission for Technical Assistance (CTA), Alberta Pool - Conservation 2000, and several private sector companies. Other cooperating organisations were ISSS, FAO and Soil Conservation Canada. The AIC International program sponsored the keynote speaker, the Honourable Flora MacDonald, as well as five participants from developing countries. In addition, CTA and IBSRAM sponsored scientists from developing countries.

J. Dumanski, Chair WG-LI, ISSS
Agriculture Canada, Ottawa, Ontario, Canada

International Congress on Chestnut

Spoleto, Italy, October 20 - 23, 1993

The International Congress on Chestnut, organized jointly by the Istituto di Coltivazioni arboree, University of Perugia, and the *Comunità Montana "Monti Martani and Serano"* of Spoleto was held in Spoleto, Italy, from October 20 - 23, 1993.

265 participants were registered, coming from 21 countries (Albania, Australia, Austria, China, Chile, Republic of Korea, Croatia, France, Germany, Greece, Hungary, Italy, Japan, New Zealand, Portugal, Slovakia, Slovenia, Spain, Switzerland, Turkey, USA). At the Congress 64 oral and 65 poster contributions were presented.

The Scientific program was divided into 7 sessions, each with an introductory lecture followed by communications:

- Economy and marketing;
- Biology, physiology and ecology;
- Propagation, training system and orchard management;
- Variety and breeding;
- Exploitation of traditional chestnut groves;
- Harvest, storage and processing;
- Plant protection;

The discussion following each session covered a wide spectrum of subjects regarding chestnut growing. Posters were exhibited in one special session. In addition to the ordinary sessions three workshops were held: the I.S.H.S. Nut Crops Working Group; the F.A.O. Chestnut Network Meeting and the European Chestnut Network (ECN) Meeting.

The Vice President of I.S.H.S. Nut Crops Working Group, Dr. Francesco Monastra, welcomed the members present and introduced the participants to the discussion about the Working Group activity and the organization of the next congress on chestnut.

The meeting of FAO was conducted by Dr. J. Boyazoglu (F.A.O., Regional Officer), Dr. J. Gomes Pereira and J.F. Vargas Garcia and an open discussion was carried out to establish cooperative research programs.

Dr. E. Wilhelm, Dr. M. Conedera and Dr. V. Heiniger presented the aims of the European Chestnut Network: to offer a multidisciplinary platform to all European scientists in the field of chestnut research and promote exchange of information, experiences and ideas with the goal of initiating a European Cooperative.

During the Congress a chestnut fruit exhibition (174 fruit samples of *Castanea sativa*, of *Castanea crenata* and of hybrids of both) was particularly successful. It was organized by the Istituto di Coltivazioni arboree, University of Perugia, *Comunità Montana* of Spoleto and the Italian Society for Horticultural Science (S.O.I.).

An excursion at the end of the Congress to the Montebibico area offered a look at chestnut growing in the Central part of Italy.

The proceedings of the Congress will be published in 1994. The next International Congress on Chestnut will be held at Bordeaux (France) in 1997, under the auspices of I.S.H.S. and the convener will be Dr. Salesses of I.N.R.A., C.R. of Bordeaux.

E. Antognozzi
Faculty of Agriculture
University of Perugia

IVth International Conference on Desert Development

Mexico City, July 25 - 30, 1993

The Conference with the motto "Sustainable Development for our Common Future" was held in Mexico City at the Hotel Maria Isabel Sheraton with the exception of the Inaugural Session, for which the venue was laid in the famous Anthropology and History Museum in Mexico City. The Conference was organized by the International Desert Development Commission (IDDC) with the collaboration and sponsorship of numerous Mexican and international organizations. Of the national organizations the Department of Agricultural and Hydraulic Resources, the Graduate College of Agricultural Sciences, Montecillo, Mexico, the Department of Social Development, the National Commission of Arid Zones, and the National Council of Science and Technology (CONACYT), and of the international organizations the United Nations' Environment Program, the Food and Agricultural Organization of the UN, the Rockefeller Foundation, the United Nations' Educational, Scientific and Cultural Organization, and the International Science Foundation deserve special mention.

The Conference was attended by nearly four hundred participants from about fifty countries national, and international organizations.

The Inaugural Session which took place in the morning of July 26 was opened by Dr. Adli Bis-hay, President of the IDDC. Dr. Till Darnhofer on behalf of UNEP, Dr. Santiago Funes on behalf of FAO in Mexico, Lic. Marco A. Pascual Moncayo on behalf of the National Commission of Arid Zones and Lic. Carlos Salinas de Gortari on behalf of the Constitutional President of the Mexican United States addressed the meeting and emphasized the actuality and importance of the problem of desertification and of the fight against it.

In the second part of this session four plenary lectures were delivered underlining the tasks to be carried out through the international activities, their aims as well as the results of research, policy and actions to control desertification.

The professional sessions dealt with the following topics:

Diagnosis and evaluation of land degradation

Environmental management

Socioeconomical aspects

Rehabilitation of saline soils

Reforestation

Watershed management

Forage and animal production in arid zones

Most of the sessions were held simultaneously in two or three auditoria and the total number of presented papers surpassed 300. More than 75 posters were exhibited at the venue of the Conference.

On the 30th, after the technical session, the closing ceremony took place, summarizing the results of the Conference and recommending further tasks and programmes on the subjects of the meeting. In the afternoon of the 30th, a local excursion to the "San Antonio" Ranch, Texaco, Mexico, was organized, followed by a nice farewell party.

The abstracts of all submitted papers were printed prior to the meeting, both in English and Spanish, and distributed to the participants at registration. The proceedings will be published later.

The Conference was followed by technical tours to the arid areas of the country with a very good professional and sightseeing programme.

In some respects the conference was among others a prelude to the 15th International Congress of Soil Science to be held in Acapulco, Mexico, in July 1994. Its participants got acquainted not only with soil problems of Mexico and with the attractiveness of Nature in this country and the kindness of its people but also with the good progress made in the preparation of the Congress by the Mexican colleagues.

The IVth International Conference on Desert Development was a successful and important meeting which will have its place in the history of international activities on this subject. It does credit to the organizers for preparing and conducting the meeting and for the warm hospitality extended to the guests.

I. Szabolcs, Budapest

Third International Symposium on Plant-Soil Interactions at Low pH

Brisbane, Queensland, Australia, September 12 - 16, 1993

The Third International Symposium on Plant-Soil Interactions at Low pH was held at the Hyatt Regency Coolom, which is located on the Sunshine Coast, just north of Brisbane. The Symposium was attended by 208 delegates and 36 accompanying persons from 32 countries. The symposium sponsors included the Department of Agriculture of the University of Queensland, Incitec Ltd, the Queensland Government, the Soil Science Society of Australia, Inc., the Grains Research and Development Corporation, the Sugar Research and Development Corporation, the Wool Research and Development Corporation, and the Limestone Association of Australia, Inc. Assoc. Prof. David Edwards, Mr. Phil Moody and Dr. Pax Blamey served as Chairman, Secretary and Treasurer of the Organizing Committee. Assoc. Prof. Clive Bell arranged the program and Dr. Dick Date will edit the Symposium Proceedings which are to be published by Kluwer Academic Publishers in mid-1994.

Financial assistance to attend the symposium for participants from lesser-developed countries was provided by the Australian International Development Assistance Bureau (AIDAB) and by the International Science Foundation (ISF). Recipients of AIDAB support were Dr. Nurhajati Hakim of Andalas University, Indonesia, Assoc. Prof. Isabelo Mugot of Central Mindanao University, the Philippines; Dr. R. Pathirana, University of Ruhuna, Sri Lanka; Dr. U.C. Sharma of ICAR, Meghalaya, India; and Dr. Nguyen Tu Siem of the Institute for Soils and Fertilisers, Vietnam. ISF supported the attendance of Dr. Natalia Budagovskaya, Moscow State University, Russia and Prof. V.D. Gadjiev, Academy of Science, Azerbaijan.

The symposium commenced with an out-of-doors barbecue on Sunday night. The symposium was officially opened by Dr. Paul Murrmann, Chairman of the International Steering Committee on Monday morning, 12 September 1993. The Symposium Banquet was held on Tuesday night; the guest speaker was Dr. M.W. Silvey of Queensland Department of Primary Industries, Brisbane.

The technical program included sessions on Chemistry and Physics of Acid Soils, Microbial and Faunal Activity in Acid Soils, Mechanisms of Acid Tolerance of Plants, Selection and Breeding of Acid Tolerant Plants, Diagnosis and Correction of Acid Soil Infertility, Socio-economic Aspects of Acid Soil Management and Management Systems for Agriculture, Horticulture and Forestry on Acid Soils. The symposium consisted of 9 invited review papers, 55 contributed oral papers and 121 poster papers. The symposium commenced with an excellent invited overview paper entitled "Global Extent, Development and Economic Impact of Acid Soils" which was prepared by H.R. von Uexkull and E. Mutert of the Potash and Phosphate Institute, East and Southeast Asia Program, Singapore; the paper was excellently presented by Dr. Mutert. The other review papers were presented by scientists from Australia, UK, France, New Zealand, Canada, Colombia, USA and Thailand.

A pre-Symposium tour of 2 days' duration in southeast Queensland attracted 39 participants. This tour was coordinated by Mr. Bob Aitken and focussed on the utilization of acid soils in the region for agriculture and forestry. A post-Symposium tour of 4 days' duration commenced in Canberra on 17 September and concluded in Melbourne on 20 September. It focussed on acid soils and the problems faced by farmers and research scientists on those soils in southern New South Wales and northern Victoria.

The International Steering Committee met during the Symposium under the chairmanship of Dr. Paul Murrmann (USDA-ARS, Beckley, WV, USA). An important decision taken at this meeting was the award of the Fourth International Symposium to Brazil; it will be held in Belo Horizonte in September 1996. The new 20 person International Steering Committee for the period 1993-1996 was also elected at this meeting. Assoc. Prof. David Edwards (University of Queensland, Australia) was elected Chairman of the International Steering Committee over this period.

Finally, as Chairman of the Organizing Committee, I wish to put on record my appreciation of the outstanding support provided by members of that committee and of the various sub-committees

which ensured the success of the Symposium. The professional assistance from Mrs. Anette Palm and her colleagues of Australian Convention and Travel Services, Canberra, ACT, who managed the symposium, could not be faulted.

D.G. Edwards, Brisbane, Queensland, Australia

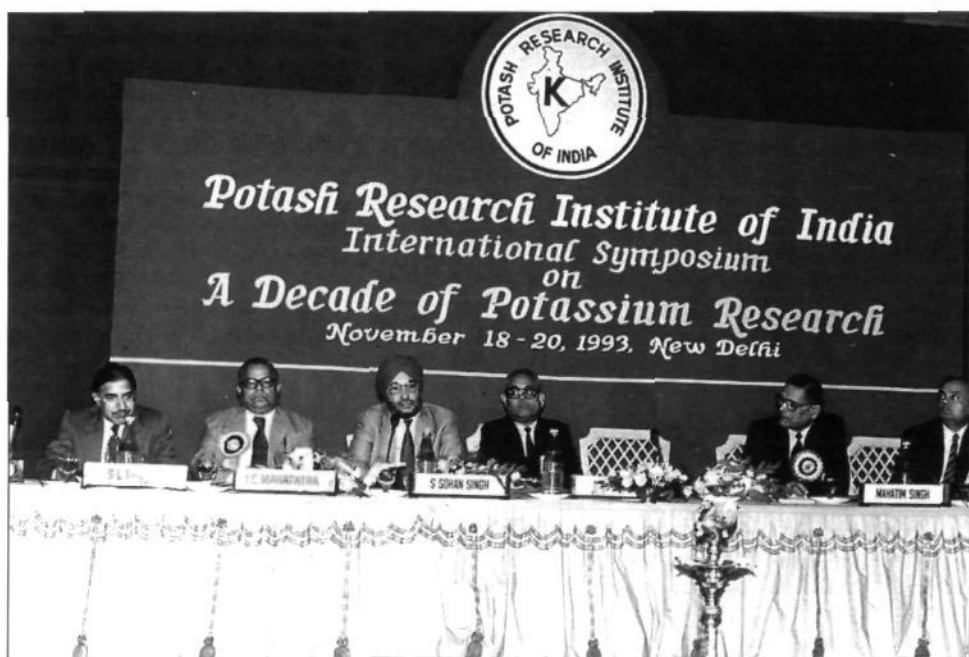
International Symposium on a Decade of Potassium Research

New Delhi, India, November 18 - 20, 1993

The Potash Research Institute of India organized the International Symposium on a Decade of Potassium Research. It was held at the Hotel Taj Palace in New Delhi, and more than 250 scientists from Canada, France, Germany, Greece, India, Pakistan, and Switzerland participated. The symposium was organized by the Institute to mark the tenth anniversary of the establishment of its laboratories.

The inaugural session was chaired by S. Sohan Singh. The chairmen for the six technical sessions were Dr. I.P. Abrol, Dr. F. Etourneau, Dr. S.B. Kadrekar, Mr. Y.P. Kalra, Dr. A. Krauss, and Dr. G.S. Sekhon. The plenary session was chaired by Dr. K.L. Chadha.

National and international invited papers (14) were considered as lead papers. A number of contributed papers (33) were also selected for oral presentation. All the other accepted papers (94) were presented in two poster sessions. Extended summaries of papers were provided to all the delegates at the time of registration. Full papers will be published in the proceedings.



Left to right: Mr. S.L. Thakor, Dr. I.C. Mahapatra, S. Sohan Singh, Dr. I.P. Abrol, Dr. Mahatim Singh, and Dr. Ramendra Singh



Left to right: Prof.Dr. A. Krauss (Germany), Dr. F. Etourneaud (Switzerland), Mr. Y.P. Kalra (Canada), Dr. M.T. Saleem (Pakistan), and Dr. Ramendra Singh (India)

The purpose of the symposium was to enable scientists from developing and developed countries to exchange knowledge, new ideas, and experiences in K research. Themes for the sessions included global availability of K fertilizers and indigenous sources; K fertility of Indian soils; Soil testing for K; evaluation of K status; changing pattern of K use and needs; K and resistance to water stress, diseases, and insect pests; K interaction with other nutrients; K and crop quality; extension education to promote K use; marketing of K fertilizers; and economics of K fertilization.

Dr. Mahatim Singh and Dr. M.K. Mishra are to be complimented on their organization of a successful symposium. The excellent Indian hospitality made it a memorable experience. Further information is available from Dr. Mahatim Singh, Director, Potash Research Institute of India, Sector 19, Gurgaon-122001, Haryana, India.

Y.P. Kalra, Edmonton, Alberta, Canada

**NEWS FROM REGIONAL AND NATIONAL SOCIETIES
NOUVELLES DES ASSOCIATIONS REGIONALES ET NATIONALES
BERICHTE VON REGIONALEN UND NATIONALEN GESELLSCHAFTEN**

**ASSOCIATION OUEST ET CENTRE AFRICAINE DE LA SCIENCE DU SOL
WEST AND CENTRAL AFRICAN ASSOCIATION OF SOIL SCIENCE**

La Association Ouest et Centre Africaine de la Science du Sol nous a envoyé cette information:

Secrétaire Général/Secretary-General: Dr. L. Thiombiano,
06 BP 9046, Ouagadougou 06
Burkina Faso

Trésorier/Treasurer: Mme R.D. Fall,
B.P. 6225, Dakar Etoile,
Dakar, Sénégal

Droits d'adhésion/Registration fee: 5000 CFA

Cotisation annuelle/
Annual membership fee: 1000 CFA
(1 US\$ = appr. 300 CFA)

Cotisation à vie/
Life membership fee: US\$ 300

SOIL SCIENCE SOCIETY OF BANGLADESH

From Prof. T.H. Kahn, Past Secretary-General of the above Society, we received the following information:

On May 19th, 1993, elections to the Council of the Soil Science Society of Bangladesh were held.

Mr. S.M. Saheed, Director, SRDI, Dhaka, was elected President and
Dr. S.M. Imamul Huq, Professor, Department of Soil Science, University of Dhaka, Dhaka-1000, Bangladesh, was elected **Secretary-General**.

All correspondence for the Soil Science Society of Bangladesh should kindly be addressed to Prof. Huq.

SOIL SCIENCE SOCIETY OF BOSNIA AND HERZEGOVINA

A letter reached us from the Soil Science Society of Bosnia and Herzegovina, with the names of the members of the newly-elected board:

President: Prof.Dr. Bahrija Saciragic, Faculty of Agriculture, Sarajevo

Hon.Presidents: Dr. Vojna Jaksic
Prof.Dr. Husnija Resulovic

Vice-President: Prof.Dr. Esmā Velagic-Habul, Faculty of Agriculture

Secr. General: Dipl.Eng. Esad Bukalo, Institute for Agropedology, Sarajevo
Secretary: Dipl.Eng. Branko Timotijevic, Institute for Agropedology, Sarajevo
Treasurer: Dipl.Eng. Tomislav Martinov, Institute for Agropedology, Sarajevo

The address of the Society is:

Institute for Agropedology
Dipl.Eng. Esad Bukalo
Albanska 6
Sarajevo
R. Bosnia & Herzegovina

SOIL SCIENCE SOCIETY OF BRAZIL

The XXIV Congress of the Soil Science Society of Brazil was held in Goiânia, Goiás, from July 25 - 31, 1993, on Campus II of the Federal University of Goiás State, to debate the topic: "Savannah, the Agriculture Frontier for the XXI Century". Over 1000 scientists and students attended the Congress. 9.6 % of the participants came from northeastern Brazil, 30.8 % from the southeast, 44 % from the midwest, 1.7 % from the north and 13.5 % from the south of Brazil. Six foreign scientists took part in the event.

A total of 516 scientific papers were received for presentation, of the following fields: Soil Physics - 30, Soil Chemistry and Mineralogy - 56, Soil Biology - 57, Soil Fertility and Plant Nutrition - 132, Soil Genesis and Classification - 82, Soil and Water Management and Conservation - 99, Soil Science Teaching - 3, Fertilizers - 44, and Soil Pollution and Environmental Quality - 13. The limitations and potential of agriculture of the savannah region were discussed more specifically in a seminar which had the title of the Congress. Two conferences were presented by foreign scientists: "Improvement of Soil Productive Potential in the Tropics", by Dr. Thomas Francis Shaxson from England and "Diversity of Strategies of Conservation of the Soils of Soudano-Sahelian Savannahs: Proposition of Management for Conservation of Water and Soil Fertility" by Dr. Eric Roose, from France.

During the Congress, round tables, oral presentations, poster sessions and meetings of technical commissions were held simultaneously in six auditoria. A fruitful experience was the Field Day that took place at the Experimental Station of the Goiânia State Agricultural Company, where the participants could appreciate the State Research and Extension Program. Three technical excursions were organized: 1) "Pedology" to Goiânia-Silvânia-Brasília; 2) "Soil Management and Conservation" to Piracanjuba-Morrinhos-Caldas Novas; 3) "Systems of Agricultural Production in the Savannah Region" to Inhumas-Itaberaí-Aruanã.

During the General Assembly of the Congress, diverse motions were discussed, concerning technical issues, low salaries of researchers and teachers and the participation of the Brazilian Soil Science Society in the National Campaign to fight hunger and misery. It was decided that the XXV Brazilian Soil Science Congress will be held in 1995 on the Campus of the Federal University of Viçosa, Minas Gerais State under the Presidency of Prof. Luiz Eduardo F. Fontes. At the end of the assembly, the new office bearers for the years 1993 - 1995 were nominated and elected:

President.	Prof. Egon Klamt (reelected)
1st Vice-President	Prof. Luiz Eduardo F. Fontes
2nd Vice-President	Dr. Antonio Carlos Moniz (reelected)
Treasurer:	Dr. João R.F. Menk
Secretary:	Dra. Sonia C.F. Dechem

Committee Members: Drs. Marcos J. Vieira, Caio Vidor,
Dejair L. Almeida, José Xavier de Almeida
Neto, Antonio R. Dechen and Maria Leonor
L. Assad.

ASSOCIATION BURUNDAISE DE LA SCIENCE DU SOL

L'A.B.S.S. nous a avisé que le numéro de la boîte postale qui nous a été transmis pour la publication dans notre Bulletin No 84 était incorrect. L'adresse correcte est:

A.B.S.S.
c/o FACAGRO
B.P. 2940 Bujumbura
Burundi.
Tél: 257-22-43-57; Fax: 257-222500

CANADIAN SOCIETY OF SOIL SCIENCE (CSSS)

This is the new Council of the CSSS, elected for the period 1993 - 1994:

Past President:	Dr.W.B. McGill, University of Alberta, Edmonton
President:	Dr.K.B. MacDonald, Agriculture Canada, Guelph, Ontario
President Elect:	Dr.A. Fedkenheuer, NOVA, Calgary, Alberta
Secretary:	Dr.Y.P. Kalra, Canadian Forest Service, Edmonton, Alberta
Treasurer:	Dr.D.W. McAndrew, Agriculture Canada, Vegreville, Alberta
Eastern Councillor:	Dr.R.R. Simard, Agriculture Canada, Sainte-Foy, Quebec
Western “:	Dr.V.E. Klaassen, Manitoba Agriculture, Carman
AIC Repres.:	Dr.W.W. Pettapiece, Agriculture Canada, Edmonton, Alberta
Business address:	Canadian Society of Soil Science Box 21018, Westend Postal Outlet Brandon, Manitoba Canada R7B 3W8 Tel: (204) 725-4336; Fax: (204) 725-0624
Address for correspondence:	Y.P. Kalra, Secretary, CSSS 5320-122 Street, Edmonton, AB T6H 3S5 Tel: (403)435-7220; Fax: (403)435-7359 E-mail: YKALRA@NOFC.FORESTRY.CA

CROATIAN SOCIETY OF SOIL SCIENCE

A letter has reached us from Croatia, informing us of the election of the Board of the Croatian Society of Soil Science (Hrvatsko Društvo Za Proučavanje Tla):

President: Prof.Dr. Ferdo Basic, M.Sc., Grad.Eng. of Agr.
Faculty of Agriculture, University of Zagreb.

Secretary: Prof. Dr. Matko Bogunovic, M.Sc., Grad.Eng. of
Agr., Faculty of Agriculture, University of
Zagreb.

Members of the Executive Board:

- Prof. Dr. Stjepan Madar, M.Sc., Grad.Eng.,
Faculty of Agriculture, University J.J. Strossmayer-Osijek
- M.Sc. Nikola Pernar, Grad.Eng. of Forest.,
Faculty of Forestry, University of Zagreb.
- Ivan Gaspar, Grad.Eng. of Agr.,
Factory of mineral fertilizers, Kutina.

Address:

Croatian Society of Soil Science
Prof.Dr. Ferdo Basic, President
Svetosimunska 25
41 000 Zagreb
Republic of Croatia

Tel: 385-41-235-777, Fax: 385-41-233-519

DEUTSCHE BODENKUNDLICHE GESELLSCHAFT

Anlässlich der Jahrestagung 1993 in Kiel wurde ein neuer DBG-Vorstand für die Wahlperiode 01.01.1994 bis 31.12.1995 gewählt:

Präsident:	Prof.Dr. Blume, Kiel
Vize-Präsidenten:	Prof.Dr. Lieberoth, MdB, Bonn/Eberswalde Prof.Dr. Wiechmann, Hamburg
Kommission I Bodenphysik	Prof.Dr. Horn, Kiel (Stellvertr. Prof.Dr. Bohne, Rostock)
Kommission II Bodenchemie	Prof.Dr. Sticher, Zürich (Stellvertr. Prof.Dr. Fischer, Hohenheim)
Kommission III Bodenbiologie	Prof.Dr. Weidemann, Bremen (Stellv. Prof.Dr. Munch, Völkrode)
Kommission IV Bodenfruchtbarkeit u. Pflanzenernährung	Prof.Dr. Körschens, Bad Lauchstädt (Stellv. Dr. Broll, Münster)
Kommission V Bodengenetik, Klassifizierung u. Kartierung	Dr. Schrapf, GLA Krefeld (Stellv. Dr. Altermann, Halle)

Kommission VI Bodentechnologie	Dr. Auerswald, Weißenstephan (Stellv. Prof.Dr. Widmoser, Kiel)
Kommission VII Bodenmineralogie	Prof.Dr. Stahr, Hohenheim (Stellv. Dr. Stanjek, Weißenstephan)
Geschäftsführer:	Dr. Hugenroth, Oldenburg

Arbeitsgruppen:

Wasserschutz- und -schongebiete	Dr. Gäth, Gießen
Bodenschutz	Prof.Dr. Müller-Wegener, Berlin
Ungesättigte Zone	Dr. Becker, Göttingen
Bodenerosion	Prof.Dr. Frielinghaus, Müncheberg

Arbeitskreise:

Bodensystematik	Dr. Wittmann, München
Waldhumusformen	Dr. v. Zezschwitz, Krefeld
Forstböden	Dr. Hildebrand, Freiburg
Paläoböden	Prof.Dr. Stremme, Kiel
Stadtböden	Prof.Dr. Burghardt, Essen

Zu Ehrenmitgliedern wurden ernannt:

Prof.Dr. Stremme Kiel und Prof.Dr. Dr.h.c. Dr.h.c. Fiedler, Tharandt

INDIAN SOCIETY OF SOIL SCIENCE

The **58th Annual Convention** of this Society was held in Dehradun from October 8 - 12, 1993. Dr. DN Tiwari, Director General, Indian Council of Forestry Research and Education inaugurated the Convention. Around 200 delegates attended the Convention, which consisted of the following items:

- (a) **National Seminar** on "Developments in Soil Science - 1993" (170 papers were presented in oral and poster sessions)
- (b) **Special symposium** on "Soil management in relation to land degradation and environment" (14 invitational papers listed in this symposium will be published in the form of a Bulletin of the Society)
- (c) Two **Special Lectures** arranged annually during the Convention of the Society were delivered by Dr. SB Kadrekar, Vice-Chancellor, Konkan Agricultural University (Maharashtra) and Dr. SS Khanna, Vice-Chancellor, ND University of Agriculture and Technology (Uttar Pradesh).
- (d) **Annual General Meeting** chaired by Dr. NN Goswami, President.

Dr. N.N. Goswami as the President and **Dr. G. Narayanasamy** as the Secretary of the Society elected for the biennium 1993 - 1994 continued to hold the respective positions.

This Society is preparing to celebrate Diamond Jubilee from November 28 to December 1, 1994, in commemoration of its 60th year of foundation.

Address of the Society:

Honorary Secretary
Indian Society of Soil Science
Div. of Soil Sci. & Agric. Chemistry
Indian Agric. Res. Institute
New Delhi - 110012 (India)
Tel.: (011) 5720991, (011) 5781494
Telegramm: KRISHIPUSA-SOILS

SOCIEDAD LATINOAMERICANA DE LA CIENCIA DEL SUELO

The XII Congress of the SLCS was held in Salamanca, Spain, in September 1993, sponsored by the Spanish Soil Science Society, with Dr. Carlos Roquero as President and Juan Gallardo as Coordinator.

The Congress, inaugurated by the President of the ISSS, Prof. Andrés Aguilar, was attended by over 300 delegates from Latin America, Spain and other countries. In 4 symposia, 45 lectures were presented, as well as 244 posters.

On the last day of the Congress, the Asamblea General of the SLCS approved the Rules of the Society and elected Francisco Silva Mojica General Secretary.

The next Congress will be held in Piracicaba, Brazil, in 1996, sponsored by the Brazilian Soil Science Society under its President Dr. Rafael Aloisi.

You can reach the SLCS under this address:

Francisco Silva Mojica
Secretary General, SLCS
Santafé de Bogotá
Cra. 11 No 66-34
Of. 204
Colombia
Fax: (571) 2113383

THE NETHERLANDS SOCIETY OF SOIL SCIENCE

This is the executive committee of the Netherlands Society of Soil Science (Nederlandse Bodemkundige Vereniging):

Chairman: Prof. Dr. Jan Sevink
Vice-Chairman: Dr. Peter Buurman
Secretary-Treasurer: Dr. Job F. Th. Schoute

Address: Netherlands Society of Soil Science (NBV)
c/o Winand Staring Centre for Integrated Land,
Soil and Water Research (SC-DLO)
Marijkeweg 11, P.O. Box 125
6700 AC Wageningen, The Netherlands
Tel: +31-8370-74200/74274/74506/74497, Fax: +31-8370-24812

ÖSTERREICHISCHE BODENKUNDLICHE GESELLSCHAFT

Dies ist die Zusammensetzung des neugewählten Vorstandes der Österreichischen Bodenkundlichen Gesellschaft:

Präsident:	Univ.Doz. Dipl.Ing. Dr. Eduard Klaghofer
Vizepräsident:	Univ.Doz. Dipl.Ing. Dr. Otto H. Danneberg
Altpräsident:	Dipl.Ing. Dr. Walter Kilian
Generalsekretär:	Dr. Andreas Baumgarten
Schatzmeister:	Univ.Doz. Dipl.Ing. Dr. Martin Gerzabek
Schriftleiter:	Univ.Prof. Dipl.Ing. Dr. Othmar Nestroy
Beisitzer:	Univ.Prof. Dipl.Ing. Dr. W.E.H. Blum Dipl.Ing. Alfred Pehamberger

Erweiterer Vorstand:

Dipl.Ing. Dr. Karl Aichberger
Prof. Dipl.Ing. Dr. Walther Beck
Dr. Maximilian Eisenhut
Univ.Prof. Dipl.Ing. Dr. Gerhard Glatzel
Dr. Ellen Kandeler
Dipl.Ing. Arnold Köchl
Dipl.Ing. Josef Wagner

Postadresse:

Österreichische Bodenkundliche Gesellschaft
c/o Universität für Bodenkultur
Gregor Mendel-Straße 33
1180 Wien
Österreich

SOIL SCIENCE SOCIETY OF RUSSIA

Following the reorganization of the USSR Academy of Sciences into the Russian Academy of Sciences (RAS), the former All-Union Soil Science Society of the USSR was reorganized into the Russian Soil Science Society of the RAS. The branches and divisions of the All-Union SSS in the former republics of the USSR were transformed into national societies of independent states (Armenia, Azerbaijan, Bielorus, Estonia, Georgia, Kazakhstan, Kirghizstan, Latvia, Lithuania, Moldova, Tadzikistan, Turkmenistan, Ukraine, Uzbekistan).

The Founding Delegates' Congress of Soil Scientists of Russia was held on June 18-19, 1992 in Moscow, where the Russian Soil Science Society was established.

The Congress discussed the goals and programme of the Society activities, accepted its charter and elected the president and the central council of the Society. Prof. G.V. Dobrovolskiy, academician of RAS, Professor of the Moscow University was elected president of the RSSS. The vice presidents are Prof. A.D. Voronin (Soil Science Faculty, Moscow State University); Dr. B.F. Aparin (Dokuchaev's Central Museum of Soil Science, St. Petersburg); Prof. I.M. Gadziev (Inst. of Soil Science and Agrochemistry, Novosibirsk); Dr. A.N. Kastanov, academician of the Russian Academy of Agriculture, Moscow; Prof. V.O. Targulian (Inst. of Geography of RAS, Moscow), Dr. L.L. Shishov, academician of the Russian Academy of Agriculture (Dokuchaev's Soil Science Institute, Moscow).

Special attention of the Congress was drawn to the necessity of extending and strengthening the relationships between Russian and International Soil Science Societies and also to maintaining the old creative contacts with soil scientists of the former republics of the USSR - now Independent States. The Congress included in this resolution the necessity to organize an Association of Soil Science Societies of the former republics of the Union.

The Congress accepted the proposal to hold the Jubilee National Congress of Soil Science in 1996 in St. Petersburg, dedicated to the 150th birthday of V.V. Dokuchaev. An intention to invite leading soil scientists from foreign countries as extensively as possible to attend this Congress was expressed.

Information on the activities of the Society may be obtained from the Secretary of the RSSS:

Dr. Galina Pogodina

RSSS, Pyzhevski per. 7, Moscow 109017, RUSSIA; Tel: 095-231-4359

Prof. G. Dobrovolskiy

Lengori, MGU, Moscow 117234, RUSSIA;

Tel: 095-939-3523; Fax: 095-939-0989; Telex: 411-483 MGU SU

Dr. V. Targulian

Inst. of Geography, Staromonetny-29, Moscow 109017, RUSSIA;

Tel: 095-238-1867; Fax: 095-230-2090; Telex: 441-781 GLOBE SU

VENEZUELAN SOCIETY OF SOIL SCIENCE

This is the new board of the Venezuelan Society of Soil Science (1993 - 95):

President:	Prof. Dr. Ildefonso Pla Sentís (UCV)
Vice President:	Dr. Francisco Ovalles (FONAIAP)
Secretary:	M.Sc. Evelyn Cabrera de Bisbal (FONAIAP)
Vice-Secretary:	M.Sc. Sobeida Sánchez (FONAIAP)
Treasurer:	Prof. Deyanira Lobo (UCV)
Vice-Treasurer:	M.Sc. Rodolfo Delgado (FONAIAP)
Member:	Ing. Zenaida Lozano (FUSAGRI)
Member:	M.Sc. Carlos Bravo (USB)

Commissions:

Soil Physics:	R. López (CIDIAT), R. Morales (UNELLEZ)
Soil Chemistry:	A.M. Salas (UCV), F. Pino (UDO)
Soil Genesis & Classification:	S. Torres (UCV, P.R. Marvez (UNELLEZ)
Soil Biology:	R. Gutiérrez (FONAIAP), O. Vallejo (UNELLEZ)
Soil Fertility:	I. Meléndez (LUZ), T. Rodríguez (FONAIAP)
Soil Management & Conservation:	C. Sánchez (IUT), S. Cabrera (FONAIAP)
Soil Education:	J. Viloria (UCV), F. Delgado (UNELLEZ)
Publications:	Julia Brito (FONAIAP)

**INTERNATIONAL RELATIONS
RELATIONS INTERNATIONALES
INTERNATIONALE BEZIEHUNGEN**

I C S U - International Council of Scientific Unions

(see Editorial)

CIFOR - Centre for International Forestry Research

The Centre for International Forestry Research (CIFOR) came of age on 5 March, when the Establishment Agreement was signed by the sponsoring governments of Australia, Sweden and Switzerland. CIFOR is now a legally constituted autonomous international organization and will commence operations in its own right.

After an exhaustive selection process, the CIFOR Board has appointed Mr. Jeffrey Sayer as the first Director General of the organization.

**APPOINTMENTS, HONOURS
NOMINATIONS, DISTINCTIONS
ERNENNUNGEN, AUSZEICHNUNGEN**

Professor J.M. Lynch, School of Biological Sciences, Guildford, U.K., Professor J. Tiedje, Michigan State University, USA and Professor Hans van Veen, Research Institute for Plant Protection, Wageningen, the Netherlands were awarded the Carlos J. Finlay Prize for Microbiology 1993 by the UNESCO. (see also Professor Lynch's acceptance speech, printed in this issue)

The ISSS congratulates the three scientists on their award.

Dr. Eng. Diego de la Rosa, Professor of Land Evaluation, has been elected Director of the Institute for Natural Resources and Agrobiology, Sevilla (IRNAS, formerly CEBAC), for a four-year term. IRNAS, founded in 1953, is one of the research centres of the Spanish Council for Scientific Research (CSIC) which now comprises more than 100 staff, of whom 28 are professional scientists. General aims of research are to study the spatial variation in soil/plant/water properties and its consequences for agricultural and environmental management. The IRNAS annual output of publication is about 45 articles in scientific journals.

Yash P. Kalra received the J. Benton Jones award at the International Symposium on Soil Testing and Plant Analysis held at Olympia, Washington, August 14 - 19, 1993. Mr. Kalra is a soil chemist at the Canadian Forest Service in Edmonton, Alberta, Canada. The award recognizes dedicated service to the development of soil testing and plant analysis.



Julian Dumanski was elected a Fellow of the Agricultural Institute of Canada. He has been a pioneer and a leader in the development of soil information systems and in the application of models in land evaluation research. He is a recognized national and international authority in these fields. He has developed and led a national program in land evaluation and is chairman of the ISSS Working Group on Land Evaluation Information Systems. He also provides program, policy and project advice to CIDA, IBSRAM, AIC and CSSS on projects in Africa, Asia and South America.

W. Wayne Pettapiece was elected a Fellow of the Canadian Society of Soil Science in recognition of his untiring efforts to develop high quality information about the properties and spatial distribution of soils and his leadership in promoting the use and interpretation of this information for wise land use decision making. He has achieved wide recognition as an authority on northern soils and has represented Canadian Soil Scientists internationally in the former USSR, Kenya, Japan, Britain and the USA. He is active in several scientific organizations and has served on the executive of CSS, AIC, AIA and as associated editor of CJSS.

Larry P. Wilding, was elected President of the SSSA. **John E. Foss** and **David E. Kissel** are the new Presidents-Elect, **Robert F. Barnes** is Executive Vice President, and **Dennis R. Keeney** and **Darrell W. Nelson** are the Past Presidents.

We wish them good luck and success!

During the 1993 Annual Meeting of the SSSA in Cincinnati, the following members of ISS were honoured:

Darrell G. Schulze received the Marion L. & Chrystie M. Jackson Soil Science Award. Dr. Schulze is Associate Professor of Soil Science at Purdue University. He earned degrees from Texas A&M University and the Technische Universität München, Germany. His research focuses on soil iron and manganese oxide mineralogy, soil colour, applications of mineralogy in pharmacy and plant pathology, and synchrotron x-ray techniques. He served as Programme Chair for the joint SSSA and Clay Minerals Society Meeting in 1992 and is serving as Associate Editor of the Soil Science Society of America Journal and Chair of Division S-9 of ASA.

John M. Bremner received the Soil Science Distinguished Service Award. He is a Distinguished Professor Emeritus at Iowa State University. He earned degrees from the University of Glasgow and the University of London. His research has been in the areas of soil chemistry, soil biochemistry and soil microbiology and has focused on soil organic matter, soil nitrogen, and environmental problems related to agriculture. He has served on numerous SSSA and ASA committees. Dr. Bremner also has served as Associate Editor of Soil Science Society of America Proceedings and as a consultant or technical expert for several international organizations, including the International Atomic Energy Agency and the Organization of American States.

William H. Patrick, Jr. received the Soil Science Research Award. He is Boyd Professor and Director of the Wetland Biogeochemistry Institute at Louisiana State University. He earned a Ph.D. degree from Louisiana State University and a Doctor Honoris Causa from the University of Ghent. His research focuses on the redox chemistry of wetland soils and sediments. He has carried out his research projects on wetland soils in the USA, Thailand, Indonesia, India, and Europe. He has authored or coauthored more than 300 publications. Dr. Patrick is a Fellow of ASA, SSSA, and the American Association for the Advancement of Science.

Dwayne G. Westfall received the Soil Science Applied Research Award. He is a Professor in the Department of Agronomy at Colorado State University. He earned a B.S. degree from the University of Idaho and a Ph.D. Degree from Washington State University. His research focuses on soil fertility and management of intensive dryland cropping systems, and nitrogen fertilizer management to protect groundwater quality, while maintaining economical production. He teaches soil fertility and management and environmental soil science. Dr. Westfall has received the ASA Agronomic Achievement Award-Soils. He has served on the Board of Directors for ASA and SSSA, as well as Associate Editor for the Soil Science Society of America Journal and Agronomy Journal. He is serving as Editor of the Journal of Production Agriculture. Dr. Westfall is a Fellow of ASA and SSSA.

Klaus W. Flach received the Soil Science Professional Service Award. He directed the National Cooperative Soil Survey and Coordinated research for the USDA. He earned degrees from the Technical University of Munich and Cornell University. He conducted and supervised research in soil

classification and genesis and contributed to the development of soil taxonomy. Dr. Flach helped give soil science an effective role in shaping national environmental policy through his support of modeling systems and by establishing effective working relationships between natural resource and research agencies.

Pedro A. Sanchez received the International Soil Science Award. He is the Director of the International Center for Research in Agroforestry in Nairobi, Kenya, and Professor Emeritus of Soil Science and Forestry at North Carolina State University. He earned degrees from Cronell University. Dr. Sanchez's research focuses on the alleviation of rural poverty, tropical deforestation, and land depletion through the use of improved agroforestry systems. He served as Chairman and Board Representative of the International Agronomy Division of the ASA. He is a Fellow of ASA and SSSA.

Dennis J. Greenland was awarded an Honorary Membership of the SSSA. He has just retired from the position of Director of Scientific Services with CAB-International. He was previously Head of Soil Science at Reading University in England and Adelaide University in Australia and directed research programs of the International Rice Research Institute and the International Institute of Tropical Agriculture for several years. He now has an Honorary Visiting Professorship at Reading. He is a former President of the British Society of Soil Science.

Michael H.B. Hayes also was elected Honorary Member of the SSSA. He is a Senior Lecturer in the School of Chemistry of the University of Birmingham. After earning a Ph.D. degree from Ohio State University, he joined the faculty at Birmingham. He also earned degrees from the National University of Ireland and Cornell University. The focus of his research includes the structures and interactions of the organic macromolecules of the soil environment, and the extent and the mechanisms by which these, as well as water and synthetic polymers, interact with clays. He is a former Chairman of Commission II of ISSS and he is President of the International Humic Substances Society.

The following ISSS members were elected SSSA Fellows:

Constantine A. Campbell, who is Principal Research Scientist with Agriculture Canada, Swift Current, Saskatchewan. His research focuses on soil organic matter dynamics, nitrogen cycling, crop rotations, conservation tillage systems, water conservation and utilization, crop production economics and fertilizer use efficiency. He has received the Agronomy Merit Award from Western Co-Op Fertilizers, the Distinguished Agrologist Award from the Saskatchewan Institute of Agrologists, and Outstanding Research Award from the Canadian Society of Agronomy. Dr. Campbell is a Fellow of the Canadian Society of Soil Science, and Agricultural Institute of Canada.

William M. Edwards, who is a Soil Scientist with the USDA-ARS at the North Appalachian Experiment Watershed in Coshocton, OH, and an Adjunct Faculty Member at Ohio State University. He earned degrees from the University of Illinois and Iowa State University. His research focuses on evaluating the effects of management on infiltration, runoff, erosion, the movement of chemicals through the soil, and the effects of preferential flow in macropores on these processes. Dr. Edwards received the Alexander von Humboldt Research Fellowship. He has also served as Associate Editor of the Soil Science Society of America Journal.

Hari Eswaran, who is the National Leader of the World Soil Resources for the USDA-SCS in Washington, DC. He earned degrees from the University of Malaya, Malaysia; the Agricultural University, Wageningen, the Netherlands, and the University of Gent, Belgium. His major contributions are in the area of mineralogy and micromorphology of soil of the tropics. He provides technical assistance to developing countries in the areas of the use of soil information, sustainable agriculture, and global climate change. Dr. Eswaran is also Chairman of Commission V of ISSS.

Konrad M. Haider, who was a Director and Professor at the Federal Agricultural Research Center at Braunschweig, Germany, until 1992. He earned degrees from the University of Munich and the University of Frankfurt. His research focuses on soil and plant interactions, humus formation, and humus activities in buffering toxic influences of natural and anthropogenic chemicals. He

serves as Chairman of Commission III of the German Soil Science Society and on the Editorial Boards of several scientific journals.

Georges Vachaud, who is Director of Research for the National Center for Scientific Research and works at the University of Grenoble. He earned a degree in Hydraulics Engineering from the Polytechnics of Grenoble, was trained in Soil Physics at the University of California and then earned his doctorate at the University of Grenoble. His research focuses on the soil water management problems in developed countries and on the environmental aspect of soil water. He is President of Commission I - Soil Physics of ISSS, Chairman of a European network of the European Science Foundation, and elected President of the European Geophysical Society.

The following distinguished scientists were honoured during the 1993 annual meetings of the American Society of Agronomy:

Alfred M. Blackmer, Iowa State University; V.P. Evangelou, University of Kentucky; Robert Horton, Iowa State University; George W. Langdale, USDA-ARS; Arvin R. Mosier, USDA-ARS; David L. Nofziger, Oklahoma State University; Gerald E. Schuman, USDA-ARS; John F. Stone, Oklahoma State University; Joseph W. Stucki, University of Illinois.

Inder Pal Abrol has recently been appointed Member of the IGBP Scientific Committee. He is Deputy Director General (Resource Management) of the Indian Council of Agricultural Research, New Delhi. His national scientific responsibilities cover guiding research in resource management: cropping systems, soil and water management, agrometeorology, agroforestry, and salinity management in different agroclimatic regions of India. He is a member of many national and international professional organizations, among them founding member of the Society for Promotion of Wastelands Development, India. Dr. Abrol has been Vice-Chair and Chair of the Commission on Soil Technology of the International Society of Soil Science.

James S. Schepers has been awarded the Agronomic Achievement Award - Soils. He is a Soil Scientist with the USDA-ARS and an adjunct professor in the Agronomy Department at the University of Nebraska. His research has focused on integrating nitrogen and water management practices into practical cropping systems that minimize the potential for nitrate leaching. The award is presented to recognize the best recent contribution to high yields of crops, focusing on applied research and extension activities.

Pierre Lasserre (France) has been nominated Director of the Division of Ecological Sciences and Secretary of the International Coordinating Council for the MAB Programme by the Director-General of UNESCO.

IN MEMORIAM

Lorenzo A. Richards

Lorenzo A. Richards, pioneer soil physicist, died 12 March, 1993 in Carmel, CA, at the age of 88.

Dr. Richards was born in 1904 in Fielding UT, and was educated at Utah State and Cornell Universities.

Over his long reaearch career, Dr. Richards made numerous contributions to the understanding of how water becomes available to growing plants. He made continuous improvements in the design and operation of the instruments used to provide a quantitative understanding of the energy status of water in soil.

Wilford Gardner, Dean of the College of Natural Resources at the University of California at Berkeley, wrote, "*More than any other single individual, Dr. Richards developed soil water physics into a quantitative laboratory science.*"

Much of Dr. Richards' work led to practical benefits for agriculture. In particular, he initiated and edited the influential USDA handbook entitled, "Diagnosis and Improvement of Saline and Alkali Soils". Dr. Richards was the recipient of many awards, including honorary Doctor of Science degrees from the Israel Institute of Technology in Haifa and from his alma mater, Utah State University, where he earned a B.S. in 1926 and an M.A. in 1927. He earned his Ph.D. from Cornell University in 1931. The Journal "Soil Science" dedicated its April 1972 issue to Dr. Richards. He is an ASA Fellow and received the ASA Stevenson Award in 1949. In 1968, Dr. Richards was made Honorary Member of ISSS. The American Geophysical Union organized a symposium on the impact of the Richards Equation in 1981, the 50th anniversary of his early work. He served as president of SSSA and ASA. He was a man of great personal charm who had the ability to work harmoniously with associates and the general public.

Dr. Richards is survived by his wife, Zilla, two sons and one daughter.

FREDERICK TILGHMAN BOYD

Frederick Tilghman Boyd, 80, Professor Emeritus at the University of Florida, died on October 8, 1993 in Gainesville, Fla., following a lengthy illness. Dr. Boyd was born on March 9, 1913 in St. Paul, MN, as the fifth of eight children. He graduated with a B.S. in agronomy and education from the University of Wisconsin, in 1934. He continued graduate work in agronomy and soil science at the University of Wisconsin and earned his Ph.D. in 1938. Upon graduation, Dr. Boyd was appointed assistant professor at the University of Florida Everglades Experiment Station in Belle Glade. He served both in World War II and in the Korean Conflict. From 1952 to 1968, Dr. Boyd was station chief scientist at the Plantation Field Lab, Ft. Lauderdale, FL. In 1968, he transferred to the University of Florida's main agricultural experiment station in Gainesville as agronomist and professor. Dr. Boyd retired from the University of Florida in 1975. He was an eminent scientist and member of many societies and institutions, p.ex. of the ASA, the SSSA the CSSA and the International Soil Science Society. Dr. Boyd is survived by his wife, a son and four daughters.

DR. AHMED M. OSMAN



On Saturday, March 19, Dr. Ahmed Osman passed away at the age of 64 at his home on Ottawa, Canada. Ahmed was born in Tripoli, Lebanon. After his early education in Beirut, he went to France and Belgium for his advanced studies. He obtained his PhD under the late Professor Tavernier at Ghent, Belgium. In 1960, he joined the Institute de Recherche Agronomique at Tel Amara, Lebanon, where he became the Head of the Soil Division in 1968 and later in 1972, the Director of the Institute. In 1977 he became the Director of the Soil Science Division of the Arab Center for the Study of Arid Zones and Dry Lands (ACSAD) in Damascus, Syria until his retirement in 1990.

Dr. Osman's extremely congenial personality and his ability to deal with people was his notable characteristic which attracted a number of soil scientists from around the world to collaborate with him. One of his outstanding contributions to Soil Science was the Soil Map of the Arab World. Despite funding and other constraints, he was able to rally soil scientists from the Arab countries. The first map to be published was that of Lebanon and Syria and this was followed by that of Tunisia. Other countries have maps at all stages of completion. In 1984, Dr. Osman was appointed by the USDA Soil Conservation Service as Chairman of the International Committee on Aridisols (ICOMID). The proposals submitted by this Committee was accepted by SCS and Soil Taxonomy has been modified accordingly. Dr. Osman has also served on many international committees and the most notable is his service as a Board member to the International Board for Soil Research and Management (IBSRAM) and on the Advisory Committee of the Soil Management Support Services.

Thus, he was truly an international person who lived to work for others and whose contribution to his chosen profession is truly outstanding. He had established himself as one of the most notable Arab Soil Scientists. We miss him and we are sure that all those who have associated him will have fond memories. He is survived by his wife, Houda, his daughters Nada and Samar, and his two sons Walid and Sami.

Hari Eswaran, Washington DC

**MEETINGS, CONFERENCES, SYMPOSIA
REUNIONS, CONFERENCES, SYMPOSIA
TAGUNGEN, KONFERENZEN, SYMPOSIEN**

Meetings etc. marked with (*), are organized or approved by ISSS.

Les réunions, etc., marquées d'un astérisque (*) sont organisées ou autorisées par l'AISS.

Tagungen usw., versehen mit (*) werden von der IBG organisiert oder sind von dieser autorisiert.

Las reuniones, etc. marcadas con un asterisco (*) son organizadas o autorizadas por la SICS.

Important Notice

ISSS, as a Scientific Union Member of the International Council of Scientific Unions (ICSU), subscribes to the principle of free movement of bona fide scientists; patronage or sponsoring will therefore automatically be withdrawn if the country of venue denies or purposely delays visa awarding to any ISSS member who wishes to participate in the meeting concerned.

1994

5th International Symposium on Earthworm Ecology (ISEE5), Columbus, Ohio, USA,
July 4 - 9, 1994.

Information: Dr. Clive A. Edwards, Dept. of Entomology, Ohio State University, 1735 Neil Ave.,
Columbus, OH 43210, USA

International Symposium on Spectral Sensing Research '94 (ISSSR '94), San Diego, California,
July 10 - 15, 1994.

Information: Ms. Judy C. Cole, Symposium Coordinator, Science and Technology Corporation, 101
Research Drive, Hampton, Virginia 23666; Tel: (804)865-7604, Telefax: (804) 865-8721.

XV. International Congress of Soil Science (ICSS), Acapulco, Mexico, July 10 - 16, 1994.

Information: XVICSS Secretariat, Centro de Edafología, Colegio de Postgraduados, P.O. Box 45,
56230 Chapingo, México, FAX +52-595-45723

**FAO/IAEA Symposium on the Use of Nuclear and Related Techniques in Soil/Plant Studies
with Special Emphasis on Environmental Preservation and Sustainable Agriculture**, Acapulco,
Mexico, July 10 - 16, 1994 (held as part of the XV ICSS, see above)

Information: Dr. Christian Hera, Head of Soil Fertility, Irrigation and Crop Production Section, Joint
FAO/IAEA Division, Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria.

Second International Symposium on Artificial Recharge of Ground Water, Orlando, Florida,
USA, July 17 - 22, 1994.

Information: Ivan Johnson, Inc., 7474 Upham Court, Arvada, Colorado 80003, USA.

13. ISTRO Conference Soil Tillage for Crop Production and Protection of Environment,
Aalborg, Denmark, July 24-July 29 1994.

Information: ISTRO Conference 1994, Aalborg Convention Bureau, Osteraa 8, DK-9000 Aalborg,
Denmark (Tel.: +45 98 12 63 55; Fax: +45 98 16 69 22).

Global to Local: Ecological Land Classification, Thunder Bay, Ontario, Canada,
August 15 - 17, 1994.

Information: Global to Local: Ecol. Land Classification, c/o Canadian Forest Service, P.O.Box 490,
1219 Queen Street East, Sault Ste. Maire, Ontario, Canada, P6A 5M7.

Tel: 705-949-9461; Fax: 705-759-5700; E-mail: ELC@FCOR.GLFC.FORESTRY.CA.

INTECOL - 6th International Congress of Ecology, Manchester, England, August 20 - 26, 1994
Information: The Secretary, VI International Congress of Ecology, Department of Environmental Biology, The University, Manchester, M13 9PL, U.K.

IGU Regional Conference on Environment and Quality of Life in Central Europe, Prague, Czechoslovakia, 22-26 August 1994.
Information: Dr. L.A. Kosinski, Secretary General IGU, Dept. of Geography, University of Alberta, Edmonton, Alberta, Canada T6G 244.

16th General Meeting of the International Mineralogical Association (IMA), Pisa, Italy, 4 - 9 September 1994.
Information: Stefano Merlino, organizing committee IMA '94, Dipartimento di Scienze della Terra, Università di Pisa, Via S.Maria 53, I-56126 Pisa, Italy;
FAX: 39-(0)50-40976, E-mail: IMA94@ICNUCEVM

Geotrop-94, Environmental Chemistry and Geochemistry in the Tropics, Kingston, Jamaica, September 12 - 15, 1994.
Information: Prof. B.E. Davies, Pro-Vice-Chancellor, Univ. of Bradford, Dept. of Environmental Science, Bradford BD7 1DP, England; Fax: +44-274-384231.
or: Prof. G.C. Lalor, Principal, The University of the West Indies, Senate House, Kingston 7, Jamaica; Fax: +1-809-927-2156.

3rd International Symposium on Environmental Geochemistry, Krakow, Poland, September 12 - 15, 1994.
Information: Dr. hab. Edeltrauda Helios Rybicka, Faculty of Geology, Geophysics and Environmental Protection, University of Mining and Metallurgy, Al. Mickiewicza 30, 30-059 Kraków, Poland. Tel.: +48-12-333290, Fax: +48-12-332936

5th Anniversary Symposium of the DLO Winand Staring Centre for Integrated Land, Soil and Water Research "Scenario Studies for the Rural Environment", Wageningen, The Netherlands, September 12 - 15, 1994
Information: International Agricultural Centre, Section OCC, P.O. Box 88, 6700 AB Wageningen, The Netherlands; Tel: 31-8370-90111; Fax: 31-8370-18552.

6th Conference of the African Association for Biological Nitrogen Fixation (AABNF), Harare, Zimbabwe, September 12 - 17, 1994.
Information: The Secretary, AABNF 6th Conference, Department of Soil Science, University of Zimbabwe, Box MP167, Mount Pleasant, Harare, Zimbabwe.
Tel: 263-4-303-211-1412; Fax: 263-4-732-828; Telex 26580 univz zw, Telegrams: university

III Escuela Latinoamericana de Física de Suelos (III ELAFIS), Montecillo, México, 18 - 30 de Septiembre de 1994.
Información: Dr. Manuel Anaya Garduño/M.C. Rafael Zárate Zárate, Colegio de Postgraduados. Centro de Edafología, Sección de Física de Suelos, Carretera México-Texcoco, km 35.5 Montecillo, Estado de México, México. CP 56230; Tel: (52-595) 4-57-01; Fax: (52-595) 4-57-23.

Conference on the Economic Benefits of Meteorological and Hydrological Services, Geneva, Switzerland, September 19 - 23, 1994.
Information: The Secretary-General, World Meteorological Organization, 41, av. Giuseppe Motta, Case Postale No. 2300, CH-1211 Geneva 2, Switzerland.

Second International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe, Budapest, Hungary, September 20 - 23, 1994.
Information: Peter I. Richter, Symposium Co-Chairman, Technical University Budapest/CHAERSE. Department of Atomic Physics, Budafoki ut. 8, H-1111 Budapest, Hungary;
Tel and Fax: (36 1)1853-230;

11ème Journées du Réseau Erosion - L'Environnement Humain de l'Erosion, Paris, France,
21 - 22 septembre 1994

Information: G. De Noni, J.F. Nouvelot et E. Roose, Centre ORSTOM-Laboratoire d'Etude du
Comportement des Sols Cultivés (LCSC), BP 5045, 34032 Montpellier cedex 1, France

VIII International Symposium CIEC "Fertilizers and Environment", Salamanca, Spain,
September 26 - 29, 1994.

Information: Dr. C. Rodríguez-Barrueco, Instituto de Recursos Naturales y Agrobiología-C.S.I.C.
Apartado, 257, 37071 Salamanca, Spain. Tel: 34-23-267874; Fax: 34-23-

International Symposium on Resource and Environmental Monitoring, Rio de Janeiro, Brazil,
September 26 - 30, 1994

Information: ECO-RIO '94, INPE c/o Monica Oliveira, CRI PO Box 515, Av. dos Astronautas,
1758, 12227-010 Sao José dos Campos, SP, Brazil. Fax: +55-123-21-8543 / 22-9325.

International Conference "Modern Agriculture and the Environment", Jerusalem, Israel,
October 2 - 6, 1994;

Information: Conference Secretariat, Agriculture and Environment Conference Peltours-Te'Um,
P.O.B. 8388, Jerusalem 91082, Israel; Tel: 972-2-617402; Fax: 972-2-637572.

**FAO/IAEA International Symposium on Nuclear and Related Techniques in Soil/Plant Studies
on Sustainable Agriculture and Environmental Preservation**, Vienna, Austria,

October 17 - 21, 1994.

Information: Dr. Christian Hera, Head of Soil Fertility, Irrigation and Crop Production Section, Joint
FAO/IAEA Division, Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria.

IUFRO International Workshop on Sustainable Forest Managements, Furano, Hokkaido,
Japan, October 17 - 21, 1994.

Information: Dr. Yuji IDE, Office of Organizing Committee, Research Division, The University Fo-
rests, The University of Tokoy, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113, Japan.

IV Reunión de la Red Latinoamericana de Roca Fosfórica (RELARF), La Habana, Cuba,
1 - 4 de noviembre, 1994

Información: Dr. Rafael Villegas D., Ave. Van Troi # 17 203, CP 19 210, Boyeros, C. Habana,
Cuba; Fax: 053-7-228382/331218.

Systems-Oriented Research in Agriculture and Rural Development, Montpellier, France,
21 - 25 November, 1994.

Information: Secrétariat du symposium sur les recherches-système, Bât. Les Moulins B-10,
BP 5035, F-34032 Montpellier Cedex 1, France.

**VIIIth IWRA World Water Congress on "Satisfying Future National and Global Water De-
mands"**, Cairo, Egypt, November 21 - 26, 1994.

Information: IWRA, Water Research Centre, 22 El-Gala Street, Bulak, Cairo, Egypt.
Tel: +76-0474, 773678; Fax: +202-773678

or

Glenn E. Stout, International Water Resources Association, 205 N. Mathews Avenue, Urbana,
IL 61801, USA. Tel: +217-333-0536, Fax: +217-244-6633.

International Symposium/Workshop on Biological Nitrogen Fixation Associated With Rice,
Dahka, Bangladesh, November 28 - December 2, 1994.

Information: Dr. Mustafizur Rahman, Coordinator, Post Box: GPO-4151, Dhaka-1000, Bangladesh.
Tel: 500191, Fax: 880-2-863-476 or 880-2-863-794, Telex: 632345

**8th International Soil Conservation Conference, "Soil and Water Conservation: Challenges
and Opportunities"**, New Delhi, India, December 4 - 8, 1994.

Information: The Secretariat, 8th ISCO Conference, Central Soil and Water Conservation Research

& Training Institute, 218, Kaulagarh Road, Dehradun - 248 195, India;
Tel: (0135)24213, (0135)23385; Telex: 585-237 scri in; Telegram: soilcons, Dehradun, India.

1995

International Symposium of the Working Groups Remote Sensing for Soil Survey and World Soils and Terrain Digital Data Base: "Remote Sensing and GIS as tools for soil inventory", Ouagadougou, Burkina Faso, February 6 - 10, 1995

The symposium is organized in cooperation with the West and Central African Association of Soil Science.

Information: Dr. M. Mulders, Chairman, WGRS-ISSS, Dept. of Soil Science & Geology, Wageningen Agric. University, P.O. Box 37, 6700 AA Wageningen, The Netherlands;
Tel: +31-8370-82413, Fax: +31-8370-82419; E-mail: Michel.Mulders@Bodlan.BenG.Wau.NI

Preparatory meeting for the World Summit for Social Development, Copenhagen, Denmark, March 11 - 12, 1995

(see entry for March 1996)

Information: Mr. Delmar Blasco, Executive Director, ICVA, Case postale 216, 1211 Geneva 21, Switzerland; Tel: +41-22-732-6600, Fax: +41-22-738-9904; E-mail: DIALCOM: TCN4092 and UNX024

or:

Ms. Sirpa Utriainen, Secretary General, ICSW, Koestlergasse 1/29, 1030 Vienna, Austria;
Tel: +43-1-587-8164; Fax: +43-1-587-9951

Dahlia Greidinger International Symposium on Fertigation, Haifa, Israel, March 26 - April 2, 1995.

Information: Prof. em. Josef Hagin, Agricultural Eng., Technion - Israel Institute of Technology, Haifa 32000, Israel; Fax: 972-4-221529.

5th International Microirrigation Congress: Microirrigation for a Changing World, Orlando, Florida, April 2 - 6, 1995.

Information: Allen Smajstrla, Co-chair, Univ. of Florida, Agr.Eng.Dept., Gainesville, Florida 32611.
Tel: +904-392-9295, Fax: +904-392-4092;
BITNET AGS@IFASGNV, INTERNET AGS@AGEN.UFL.EDU

3rd International Conference on the Biogeochemistry of Trace Elements "Contaminated Soils", Paris, France, May 15 - 19, 1995.

Information: Ministère de l'Environnement, René Prost, Conférence Internationale sur la Biogéochimie, DGAD/SRAE, 20, Avenue de Segur, 75302 Paris 07 SP, France.
Tel: +33(1)4219-1757; Fax: 33(1)4219-1771

International Conference on "Organic-Mineral Interactions in Sediments and Soils", Newcastle-upon-Tyne, U.K., June 28 - 29, 1995.

Information: Dr. D. Rimmer, Dept. of Environmental Sciences, University of Newcastle, Newcastle-upon-Tyne NE1 7RU, U.K.

XIV International Congress of the International Union for Quaternary Research, Berlin, Germany, August 3 - 10, 1995.

Information: Congress Partner GmbH, Emmastr. 220, 28213 Bremen;
Tel: +49-421-219073, Fax: +49-421-216419

XX IUFRO (International Union of Forestry Research Organizations) World Congress, Tampere, August 6 - 12, 1995.

Information: Prof. Risto Seppälä, The Finnish Forest Research Institute, IUFRO'95 Secretariat, Unioninkatu 40A, SF-00170 Helsinki; Tel.: +358-0-857-051; Fax: +358-0-625-308

ECGA Euroclay '95, Leuven, Belgium, August 19 - 25, 1995.

Prof. P. Grobet, Secretary Euroclay '95, Centrum voor Oppervlaktechemie en Katalyse,
K.U. Leuven, K. Mercierlaan 92, B-3001 Heverlee, Belgium.
Tel: +32-16-220931; Fax: +32-16-295126.

3rd All African Soil Science Conference, Ibadan, Nigeria, August 19 - 26, 1995

Information: Dr. Charles R. Obatolu, Secretary LOC, 3rd All African Soil Science Conference, c/o
Department of Agronomy, University of Ibadan, Ibadan, Nigeria. Fax: 022-310-491

1996

World Summit for Social Development, Copenhagen, Denmark, March 11 - 12, 1996

Information: Mr. Delmar Blasco, Executive Director, ICVA, Case postale 216, 1211 Geneva 21,
Switzerland; Tel: +41-22-732-6600, Fax: +41-22-738-9904;

E-mail: DIALCOM: TCN4092 and UNX024

or:

Ms. Sirpa Utriainen, Secretary General, ICSW, Koestlergasse 1/29, 1030 Vienna, Austria;

Tel: +43-1-587-8164; Fax: +43-1-587-9951

10th International Working Meeting on Soil Micromorphology, Moscow, Russia, June 1996.

Information: Prof. M.I. Gerasimova, Moscow State University, Dept. of Landscape, Geochemistry
and Soil Geography, 117234 Moscow, Russia.

28th International Geographical Congress, The Hague, The Netherlands, 4-10 August 1996.

INTERNATIONAL TRAINING COURSES
COURS INTERNATIONAUX DE FORMATION
INTERNATIONALE FORTBILDUNGSKURSE

First Course on Soil Degradation and Conservation in the Tropics, August 29 - September 16, 1994, University of Hohenheim, Stuttgart, Germany.

Information: Annette Mechal, Course Coordinator, University of Hohenheim, Schwarzstrasse 33, 70599 Stuttgart, Germany; Telex: 722 959; Fax: +49-(0)711-459-3315; Tel: +49-(0)711-459-3742.

New Waves in Soil Science. Refresher Course for Alumni from tropical Africa of the ITC for Post-Graduate Soil Scientists, Gent, Belgium, September 5 - 15, 1994

Apart from the alumni, a limited number of other African Soil Scientists will be admitted.

Information: Prof. Dr. G. Stoops, ITC-Gent, Krijgslaan 281/S8, B-9000 Gent, Belgium; Tel: +32-9-264-45-61; Fax: +32-9-264-49-91.

ITC Postgraduate Diploma and MSc Degree Courses, Enschede, The Netherlands, starting in autumn of 1994

ITC offers a wide range of courses on

- Applied Geomorphological and Engineering Geological
- Surveys
- Water Resources Surveys - Groundwater Resources Surveys
- Water Resources Surveys - Watershed Management and
- Conservation
- Information Management for Natural Resource Development

Information: ITC, P.O.Box 6, 7500 AA Enschede, The Netherlands, Tel: +31-53-874-206; Fax: +31-53-874-238; Telex: 44525 itc nl.

ITC Postgraduate Diploma and MSc Degree Courses, Enschede, The Netherlands, 1994.

- Environmental Systems Analysis and Monitoring (LARUS-version) starting in August, and -

- Environmental Systems Analysis and Monitoring (ERS-version) starting in September

Information: ITC Student Registration Office, Attn. Ms. A. Scheggetman, P.O.Box 6, 7500 AA Enschede, The Netherlands, Tel: +31-53-874-206; Fax: +31-53-874-238; Telex: 44525 itc nl.

Utah State University, Logan, Utah, USA, offers a wide range of courses for 1994, e.g.:

Applied Microcomputer Use in Irrigation and Drainage;

On-Farm Irrigation Design, Evaluation and Scheduling;

Workshop on Implementing National Irrigation Programs;

On-Farm Water Management;

Irrigation Water Management Study Tour of U.S. Western States;

Environmental Management of Agricultural Lands;

Environmental Management Study Tour of U.S. Mid-Western States;

Design of Wells and Pumps for Irrigation;

Maintenance of Pumping System Components;

Operation, Maintenance and Management of Irrigation Delivery Systems;

Information: Admissions Committee, International Irrigation Center, Utah State University, Logan, Utah 84322-4150

Tel: +801-750-2800; Fax: +801-750-1248

MSc Degree Course in Survey Integration for Resource Development, ITC, Enschede, The Netherlands, duration: 11 months, starting March 1, 1994

Information: Mrs. A Scheggetman, Student Registration Office, ITC, P.O.Box 6, NL-7500 AA Enschede, The Netherlands

Phone: +31-53-874-205, Fax: 053-874-238, Telex: 44525 ITC NL

Postgraduate Course in Soil Survey and Applications of Soil Information, ITC, Enschede, The Netherlands, duration: 11 months, starting August 1, 1994.

A wide range of other courses is also offered, information on demand.

Information: Mrs. A Scheggetman, Student Registration Office, ITC, P.O.Box 6, NL-7500 AA Enschede, The Netherlands;

Phone: +31-53-874-205, Fax: 053-874-238, Telex: 44525 ITC NL

International Course on Nutrient Management for Sustainable Agriculture, IAC, Wageningen, The Netherlands, August 28 - September 24, 1994;

Information: International Agricultural Centre, P.O.Box 88, Lawickse Allee 11, 6700 AB Wageningen, The Netherlands; Tel: +31-8370-90111, Fax: +31-8370-18552, Telex: 45888-intas nl;

E-mail: IAC@IAC.AGRO.NL.

- **International Training Programme on Environmental Technology and Sustainable Land Use**, IAC, Wageningen, The Netherlands,
- **International Course on Environmental Problem Analysis and Decision-Making**, Oct. 23 - Nov. 5, 1994, (organized together with Leiden University, Centre of Environmental Science)
- **International Course on Gender in Policy Development for Sustainable Land Use**, Nov. 6 - 19, 1994, (organized together with ETC - Consultants for Development Programmes, Leusden)
- **International Course on the Design of Soil and Water Conservation Programmes under Sub-humid and Semi-arid Conditions**, Nov. 20 - Dec. 3, 1994 (organized together with the Vrije Universiteit VUA, Amsterdam and the Royal Tropical Institute (KIT), Amsterdam)

Information: International Agricultural Centre, P.O.Box 88, Lawickse Allee 11, 6700 AB Wageningen, The Netherlands; Tel: +31-8370-90111, Fax: +31-8370-18552, Telex: 45888-intas nl;

E-mail: IAC@IAC.AGRO.NL.

5th International Postgraduate Course on Soil and Plant Analysis and Data Handling, Wageningen, The Netherlands, October 3 - December 2, 1994;

Information: International Agricultural Centre, P.O.Box 88, 6700 AB Wageningen,

The Netherlands; Telegrams: INTAS; Tel: +31-8370-90111; Telex: 45888 INTAS NL;

Fax: +31-8370-18552

Silsoe College, Bedford, England, offers a wide range of post-graduate courses and studies, e.g.: **Agribusiness Management and Technology (MSc.)**, **Agroforestry (MSc.)**, **Land Resource Management and Planning (MSc. and Postgraduate Diploma programmes)**, **Engineering for Rural Development (MSc.)**, **Agricultural Engineering (Agrochemicals Application Technology - MSc., etc.)**, **Management for Agricultural Development (MSc.)**, **Agricultural and Food Marketing (MSc. and PD)**, **Agricultural Water Management (MSc.)**, **Crop Production Technology (MSc.)**, **Information Technology (MSc.)**, etc.

Information: The Student Recruitment Executive, Silsoe College, Silsoe, Bedford MK45 4DT, U.K.; Tel: (0525) 860428; Fax: (0525) 861527; Telex: 826383 silcam g

Cursos de Magister en Ciencias Agrícolas (Suelos y Producción Vegetal) y Doctorado en Agronomía de aproximadamente 2 y 4 años de duración en la Universidad Nacional del Sur (UNS)

Bahía Blanca, Argentina. Idioma: Español. Frecuencia: permanente.

Informes: Prof.Dr. R.A. Rosell, Agronomía, UNS, 8000 BAHIA BLANCA, ARGENTINA (Tel.: 54-91-30024/26533; Fax: 54-91-27876; Telex: 81712 DUJOR AR).

ICRAF Training Materials for Agroforestry, Nairobi, Kenya.

Information: International Council for Research in Agroforestry, P.O.Box 30677, Nairobi, Kenya (Tel.: 254-2-521450; Fax: 521001; Telex: 22048).

External Programme, specialised courses on Managing Agricultural Development, Environmental Management in Agricultural Development, Kent, UK.

Information: The External Programme, Wye College, University of London, Ashford, Kent TN25 5AH UK (Tel.: 0233 812401; Fax: 0233 813320; Telex: 94017832 WYEGG).

Masters, Postgraduate Diploma and Graduate Certificate Courses in Soil Management and Conservation, Adelaide, Australia.

Information: The Head, Department of Soil Science, Waite Agricultural Research Institute, University of Adelaide, P.M.B. 1, Glen Osmond, South Australia 5064 (Tel.: +61 8 303 7210; Fax: +61 8 303 6511; Telex: UNIVAD AA 89141).

2-Year Master Programme and 1-Year Diploma Programme in Irrigation Engineering.

Information: Center for Irrigation Engineering, Programme coordinator, K.U.Leuven, Kardinaal Mercierlaan 92, 3001 Leuven (Heverlee), Belgium.

M.Sc. Programmes at the Department of Agricultural Engineering, University of Nairobi, Kenya, 1991/1993.

Information: University of Nairobi, Dept. of Agricultural Engineering, P.O. Box 30197, Nairobi, Kenya.

MSC Programme in Survey Integration for Resources Development

- Land Use Planning and Resources Management or
- Project Planning and Implementation or
- Rural Energy and Development
- Environmental Systems Analysis and Monitoring

Postgraduate Diploma and MSc Degree Courses on Soil Survey and Applications of Soil Information

International Institute for Aerospace Survey and Earth Sciences, Enschede, The Netherlands
Information: ITC Student Registration Office, P.O. Box 6, NL-7500 AA Enschede, The Netherlands, Tel: +31 53 874 205, FAX: 053 874 238, Telex: 44525 itc nl

Master of Science in Eremology (Interdisciplinary, 2-Year, Post-Graduate Programme in Desert Science), Ghent, Belgium, starting each year in October.

Information: The International Center for Eremology, Faculty of Agricultural and Applied Biological Sciences, University of Ghent, Coupure Links 653, B-9000 Gent, Belgium.
Tel.: +32-9-2646036; Fax: +32-9-2646247; Telex: 12754 rugent b 4

M.Sc. Courses in "Irrigation Engineering" and "Soil Conservation and Land Reclamation".

Information: Information: The Course Administrator, Effective Irrigation Management Short Course, Institute of Irrigation Studies, The University, Southampton SO9 5NH, UK (Tel.: (0703) 593728; Fax: (0703) 593017; Telex: 47661 (a/b sotonu g).

Course in "Soil Science, Plant Nutrition and Fodder Crops", Technical College of Tropical Agriculture Basel.

Information: Swiss Tropical Institute, Socinstrasse 57, 4051 Basel, Switzerland (Tel.: (061) 23 38 96); Technikum für tropische Landwirtschaft, Andreas Heusler-Strasse 41, 4052 Basel, Switzerland (Tel.: (061) 50 80 10).

Graduate Study and Training in Development, School of Development Studies, Norwich, UK.

Wide range of M.A. and M.Sc. Studies, e.g. M.Sc. in Land Use Planning, etc.
Information: The School Clerk (Admissions), School of Development Studies, University of East Anglia, Norwich, NR4 7TJ, U.K.; Tel.: (+44-603) 56161/ext. 2331; Fax: (+44-603) 505262; Telex: 975247 chacom g "Attn: DEV".

Irrigation Engineering Principles, a videotape course, Logan, Utah, USA.

Information: Utah State University Foundation, Logan, Utah, 84322-9300, U.S.A. (Tel.: (801) 750-2603; Fax: (801) 750-1248; Telex: 3789426 UTAHSTATEU).

Applied Hydraulics, a videotape course and textbook, Logan, Utah, USA.

Information: Utah State University Foundation, Logan, Utah, 84322-9300, U.S.A. (Tel.: (801) 750-2603; Fax: (801) 750-1248; Telex: 3789426 UTAHSTATEU).

Soil and Water Management Research and Training, African Academy of Sciences, Nairobi, Kenya.

Information: Head of Programmes, African Academy of Sciences, P.O. Box 14798, Nairobi, Kenya (Tel.: 802182/3, 802176; Fax: (02) 802185; Telex: 25446 AFACS KE).

M.Sc.Course in Soil Science and Water Management, Wageningen, The Netherlands.

Information: Director of Studies of MSc-Courses, P.O. Box 453, 6700 AL Wageningen, the Netherlands.

MSc Programmes: Agricultural Engineering, Animal Science and Aquaculture, Biotechnology, Crop Science, Ecological Agriculture, Geographic Information Systems, Management of Agriculture Knowledge Systems, Soil and Water, Tropical Forestry,

Wageningen, The Netherlands.

Information: Wageningen Agricultural University, Dean's Office for Foreign Students, P.O. Box 453, 6700 AL Wageningen, The Netherlands (Tel.: (08370)82680; Fax: (08370)84464; Telex: 45854 LUWAG).

Master's and Advanced Course in Soil Science, Ghent, Belgium.

Information: Prof. Dr. G. Stoops, Director ITC, Geological Institute, University of Ghent, Krijgslaan 281/S8, B-9000 Ghent, Belgium. Tel.: +32-91-64-45-61; Telex: 12754 rugent; Fax: +32-91-64-49-91; E-mail: ADM@ITC.RUG.AC.BE.

Cours de 3e cycle en Protection de l'Environnement, EPFL, Lausanne, Suisse.

Information: Prof. L.Y. Maystre, Inst. de génie de l'environnement, EPFL-Ecublens, CH-1015 Lausanne, Suisse (tél: (21) 693.27.15).

Sponsored Training Courses on Use of Isotope Techniques in Soil Research and Plant Nutrition, International Atomic Energy Agency, Seibersdorf, Austria.

Information: IAEA Headquarters, Joint FAO/IAEA Division, Vienna International Center, Wagramerstr. 5, P.O. Box 100, A-1400 Vienna, Austria.

M.Sc. in Conservation of Soil Fertility, Canterbury, England.

Information: Dr. R.G. Burns, Biological Laboratory, University of Kent, Canterbury, Kent CT2 7NJ, U.K.

M.Sc. and Post-graduate Diploma courses in : Agricultural Engineering, Land and Water Management, Rural Engineering, Applied Remote Sensing, Rural Land Use, Agricultural Water Management, Agroforestry, Silsoe College, Cranfield Institute of Technology, England.

Information: The Student Recruitment Executive, Silsoe College, Silsoe, Bedford MK45 4DT, UK (Tel.: (0525)60428; Fax: (0525)61527).

Post-graduate Training Courses in Soil Science and Plant Biology, Granada/ Sevilla, Spain.

Information: Dr. M.L. Garrido, Estacion Experimental del Zaidin, Avenida de Cervantes, Apdo. 419, Granada, Spain.

Interuniversity Post-graduate Programme in Hydrology, Free University of Brussels, Belgium.

Information: Prof.Dr.Ir. A. van der Beke, Director of the Hydrology Programme, Laboratory of Hydrology, Vrije Universiteit Brussel, Pleinlaan 2, B-1050 Brussels, Belgium.

Farming Systems Approaches to Upland Conservation and Watershed Management in the Tropics, University of Hawaii.

Information: S.A. El-Swaify, Chairman, Dept. of Agronomy and Soil Science, College of Tropical Agriculture and Human Resources, University of Hawaii, Honolulu, Hawaii 96822.

Programme for Ph.D. in Environmental Chemistry and Technology, Lublin, Poland.

Information: Prof. Lucjan Pawlowski, Dept. of Water and Wastewater Technology, the Technical University of Lublin, 40 Nadbystrzycka Str., 20-618 Lublin, Poland.

Advances in Biological Nitrogen Fixation, Puerto Rico, USA.

Information: Dr. E.C. Schroder, Dept. of Agronomy and Soils, College of Agricultural Sciences, University of Puerto Rico, Mayaguez, Puerto Rico 00709-5000, USA.

Post-graduate Courses in Soil Science, Univ. of Reading, Dept. of Soil Science, U.K.

Information: The Secretary, Department of Soil Science, University of Reading, London Road, Reading RG1 5AQ, England.

Post-graduate Course in Soil Science, Maracay, Venezuela.

Information: Universidad Central de Venezuela, Facultad de Agronomía, Comisión de Estudios de Postgrado, Curso de Postgrado en Ciencia del Suelo, Avda. Principal el Limón, Apartado Postal 4579, Maracay, Estado Aragua, Venezuela, S.A.

International Post-graduate Training Course in Eremology, (Desert Science), Ghent, Belgium.

Information: The International Center for Eremology, University of Ghent, Coupure Links 653, B-9000 Ghent, Belgium (Tel.: ++32-91-646036; Fax: ++32-91-646247).

M.Sc. Course in Resource Assessment for Development Planning, University of East Anglia, Norwich, England.

Information: Dr. David Dent, School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, England.

Cursos de Postgrado en Desarrollo de los Recursos de Aguas y Tierras, Merida, Venezuela.

Information: CIDIAT, Apartado 219, Merida, Venezuela.

Training Course in Soil and Plant Analysis, at the Royal Tropical Institute, Amsterdam, The Netherlands.

Information: The Course Coordinator, Soil and Plant Analysis, Royal Tropical Institute (KIT), 63 Mauritskade, 1092 AD Amsterdam, The Netherlands.

Centro Internacional de Altos Estudios Agronomicos Mediterraneo, Zaragoza, Spain.

Curso superior de diez meses sobre Ordenación Rural en función del Medio Ambiente.

Information: Instituto Agronómico Mediterráneo de Zaragoza, Apartado 202, 50080 Zaragoza, España.

Cours de Formation Spécialisée sur les Aménagements de Terrain, Le Havre, France.

Information: ISTOM, CHCI Quai George V, 76600 Le Havre, France.

International Course on Soil Reference Collections, ISRIC, Wageningen, The Netherlands.

Information: the Director, ISRIC, P.O. Box 353, 6700 AJ Wageningen, The Netherlands.

College of Soil Physics, Trieste, Italy.

Information: International Centre for Theoretical Physics, College on Soil Physics, P.O. Box 586, I-34100 Trieste, Italy.

International Fertilizer Development Center, USA.

Information: International Fertilizer Development Centre, P.O. Box 2040, Muscle Shoals, Alabama 35662, USA.

Courses in Agricultural and Rural Development by the USDA and US Universities.

Information: Ralph Otto, Acting Director, International Training Division, USDA/OICD, Washington, D.C. 20250-4300, U.S.A.

Courses in Project Planning and Management, Bradford, England.

Information: The Director, Development and Project Planning Centre, University of Bradford, Bradford, West Yorkshire BD7 1DP, England.

Courses in Soil and Plant Analysis, University of Reading, England.

Information: Dr. A.A. Jones, Department of Soil Science, University of Reading, London Road, Reading, RG1 5AG, England.

Arid Lands Resource Sciences Ph.D. Program, The University of Arizona, Tucson, Arizona. Information: Graduate College, University of Arizona, Tucson, Arizona 85721, USA (Tel.: (602)621-3132; Fax: (602)621-7112).

School of Development Studies, University of East Anglia, Norwich, England. Different courses, e.g.: Agricultural and rural development policy: efficiency, equity and the environment; Vertebrate pest management and crop protection; etc.

Information: The School Clerk (Admissions), School of Development Studies, University of East Anglia, Norwich, NR4 7TJ, U.K. Tel: (0603)56161; Fax: (0603)505262;

Telex: 975197 ueacpc g for odg

Master's and Advanced Course in Soil Science, International Training Centre for Post-Graduate Soil Scientists, Ghent, Belgium.

Information: Prof. Dr. G. Stoops, Director ITC, Geological Institute, University of Ghent, Krijgslaan 281/S8, B-9000 Gent, Belgium;

Tel: +32-91-644561, Telex: 12754 RUGENT, Fax: +32-91-644991;

E-mail: ADM@ITC.RUG.AC.BE

International Postgraduate Course on Soil and Plant Analysis and Data Handling. A nine-week course in the months of October-November, dealing with: instrumental analysis, soil analysis, plant analysis, laboratory management and data handling.

Information: Dr. V. Houba, Wageningen Agricultural University, P.O.Box 8005, 6700 EC Wageningen, the Netherlands. Fax: +31 8370-83766.

ITC, The International Institute for Aerospace Survey and Earth Sciences, Enschede, The Netherlands offers post-graduate a wide range of different courses in various fields, e.g.:

- Geoinformatics
- Land Resource and Urban Sciences
- Earth Resources

Information: The International Institute for Aerospace Survey and Earth Sciences (ITC), 350 Boulevard 1945, P.O. Box 6, 7500 AA Enschede, The Netherlands (Tel.: (31) 53 874 444; Fax: (31) 53 874 400; Telex 44525 ITC NL).

International Institute for Infrastructural, Hydraulic and Environmental Engineering (IHE), Delft, The Netherlands, offers a wide range of MSc. programmes, diploma courses and short courses in the fields of Water, Environment and Transport.

Information on all courses available on demand.

Information: IHE, Student Affairs Office, P.O. Box 3015, 2601 DA Delft, The Netherlands

Tel: +31-15-151700 or 151715; cable: interwater, Telex: 38099 ihe nl, FAX: +31-15-122921

M.Sc. Course "Environmental Analysis and Assessment", Imperial College of Science, Technology & Medicine (Centre for Analytical Research in the Environment) Ascot, Berkshire; and Royal Holloway University of London (Department of Geology) Egham, Surrey.

Information: The Registrar (Admissions), Imperial College of Science, Technology & Medicine, London SW7 2AZ, U.K.; or Dr. P. Smith, Graduate Office, Royal Holloway & Bedford New College, Egham, Surrey, TW20 0EX, U.K.

Post-graduate Courses in Soil Science, Plant Production, and Ecology. MSc and PhD Degree, Universidad de Buenos Aires, Argentina.

Information: Fax. Agronomía. UBA, Escuela para Graduados, Av. San Martín 4453. (1417) Buenos Aires, Argentina. Tel: +51-7577/52-1006/522-3805; Fax: (541)522-1687.

NEW PUBLICATIONS
NOUVELLES PUBLICATIONS
NEUE VERÖFFENTLICHUNGEN

Titles of new publications are listed here for information. Orders can not be handled by the ISSS Secretariat but should be placed through a bookstore or directly with the publishers. Nearly all publications mentioned can however be viewed at the office of the Deputy Secretary-General of the Society, the International Soil Reference and Information Centre (ISRIC) in Wageningen, the Netherlands.

Les titres de nouvelles publications sont mentionnés à titre d'information. Veuillez adresser vos commandes non pas au Secrétariat de l'AISS, mais à une librairie ou directement aux éditeurs. Presque toutes les publications mentionnées peuvent être consultées au bureau du Secrétaire-Général Adjoint de l'AISS, Centre International de Référence et d'Information Pédologique (ISRIC) à Wageningen, Pays-Bas.

Die Titel neuer Veröffentlichungen sind hier zu Information angeführt. Bitte richten Sie Ihre Bestellungen nicht an das IBG Sekretariat sondern an den Buchhandel oder direkt an die Verlage. Fast alle Veröffentlichungen können jedoch in den Geschäftsräumen des Stellv. Generalsekretärs der IBG, Internationales Bodenreferenz- und Informations- Zentrum (ISRIC) in Wageningen, Holland, eingesehen werden.

Los títulos de nuevas publicaciones son citados para su información. Las peticiones deben ser dirigidas a través de una librería o directamente al editorial. Sin embargo casi todas las publicaciones mencionadas pueden ser consultadas en la oficina del vicesecretario general de la SICS en el Centro Internacional de Referencia e Información de Suelos en Wageningen, Holanda.

Environmentally Sound Socio-Economic Development in the Humid Tropics. M. Clüsener-Godt, I. Sachs and J.I. Uitto. UNAMAZ, MAB/UNESCO, UNU, TWAS, 1992, vi + 74 p.

This is the final report of the Conference on Environmentally Sound Socio-Economic Development in the Humid Tropics, held in Brazil in June 1992. This conference was the first follow-up to the UNCED, aiming to transform into action the recommendations of Agenda 21 adopted in Rio de Janeiro.

This conference was action-oriented and had four interrelated objectives: (1) to review the state of knowledge in selected areas of research, with a view at identifying some research priorities, with special reference to the areas where

cooperation among scholars and practitioners working in similar ecosystems situated in different cultural areas might be of special interest; (2) to identify the means to strengthen institutionally the local capabilities for research and training and to recommend possible actions in this realm; (3) to discuss a cooperative South-South programme to improve the exchange of information and experiences, as well as scholars, to undertake parallel and joint research projects, and to disseminate knowledge in the form of comparative publications; and (4) to identify the possible contributions of sponsoring institutions and other international organizations to the above programme.

Orders to: Division of Ecological Sciences, UNESCO, 7 place de Fontenoy, 75700 Paris., France.

Amazonia Peruana. Vegetación húmeda tropical en el llano subandino. R. Kalliola, M. Puhakka y W. Danjoy, editores. Turku University, Turku, 1993, x + 265 p. + 1 carta. ISBN 952-90-4387-2.

Este libro se basa en una aproximación poco utilizada. Combinando los datos de geología, geomorfología y vegetación, los catorce capítulos examinan la historia y las dinámicas de la Amazonia peruana como un mosaico de diferentes unidades de paisaje. El tema dominante es recalcar que la región es una planicie que está localizada cerca de los Andes geológicamente activos. Como tal, está caracterizado por los procesos tectónicos de hundimiento y levantamiento; las áreas anteriores están inundadas y tienen ríos altamente inestables, mientras que otras son más estables, pero todavía están siendo modificadas por otros procesos geológicos. La vegetación varía tanto dentro como entre estas unidades de paisaje según las condiciones de crecimiento. Estos aspectos hacen que la selva baja peruana sea única en el mundo.

Precio: US\$ 20 + postage

Orden a: Turku University Library, SF-20500 Turku, Finland.

Multipurpose Trees for Agroforestry and Wasteland Utilisation. R.K. Gupta. International Science Publisher, New York, 1993, xv + 562 p. ISBN 1-881570-09-6. Hardback.

Deforestation is considered to be synonymous with environmental degradation and soil erosion which is followed by droughts and floods. Almost all the third world developing nations suffer from these ills and have experienced a negative trend between afforestation and deforestation.

This book provides an overview of rehabilitation and utilisation problems facing professionals and extension workers in the field of forestry, agriculture and soil conservation, with detailed summaries of the characteristics of several species having wide phytoplasmicity which are useful for planning field operations in the arid to subhumid tropics. The book also focuses peoples' effort for government participation in peoples' programme and not vice versa where planning is done from the top and executed from bottom.

Price: USD 59.95

Orders to: International Science Publisher, 2840 Broadway, New York, NY 10025, U.S.A. or: Oxford & IBH Publishing, 66 Janpath, New Delhi 110 001, India.

Agroforestry. Principles and Practices. A.P. Dwivedi. Oxford & IBH Publishing, New Delhi, 1992, xiv + 365 p., ISBN 81-204-0703-2. Hardback.

The recent agroforestry systems involve a combination of crops and trees and sometimes animals in the land use in such a way so as to obtain maximum production of food, fodder, wood and other products and provide greater financial return. The combinations and crop types vary from region to region.

All existing agroforestry systems as practised in India are discussed in this book, including the crop composition and crop interaction. Several other factors, such as the criteria for the selection of suitable species, the interaction of trees with agricultural crops, their effect on the total yield and income of the farmers, management considerations, economics and ecological aspects, etc., which are relevant to the agroforesters, are also discussed. The silvicultural and general information of about 150 tree species commonly grown in different regions of India, given in the book, will be useful to practising agroforesters and other interested in agroforestry.

Price: US\$ 24.50

Orders to: Oxford & IBH Publishing Co. Pvt. Ltd., 66 Janpath, New Delhi 110 001, India.

Soil and Water Conservation in Sub-Saharan Africa. Towards sustainable production by the rural poor. Prepared by the Centre for Development Cooperation Services, Free University Amsterdam for the International Fund for Agricultural Development (IFAD), Rome, 1992, 110 p. Paperback.

Soil and water conservation has the potential to contribute substantially to reversing the degradation of the

productive capacity of the land. Degradation results in lower and less reliable crop yields, a reduced biomass for grazing and browsing, and poorer fuelwood supplies.

It is only recently that more encouraging and positive trends in soil and water conservation programmes have emerged. It is acknowledged that technical remedies can only succeed if they are attuned to socio-economic constraints, and the participation of the resource users themselves is vital to the success of conservation programmes. Making use of traditional skills, working through existing local institutions, and involving the intended beneficiaries in the processes of programme identification, design and implementation, must be the criteria.

These views and aims are the subject of this report, which outlines the problems of, and responses to, land degradation and poverty, and soil and water conservation.

Orders to: IFAD Africa Division, 107 via del Serafico, 00142 Rome, Italy.

CO₂ and the Biosphere. Advances in vegetation science 14. J. Rozema, H. Lambers, S.C. van de Geijn and M.L. Cambridge, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1992, x + 484 p. ISBN 0-7923-2044-1. Hardcover.

An international workshop on 'CO₂ and the Biosphere' was held in Wageningen, the Netherlands in November 1991, as part of the activities of the CO₂ Commission of the Netherlands Organization for Scientific Research: this volume includes 32 papers presented at the workshop. The CO₂

Commission stimulates and coordinates a broad range of research projects related to the greenhouse effect. This is reflected in the scope of papers presented, ranging from detailed analyses of ecological and physiological effects of atmospheric CO₂ enrichment to biosphere-atmosphere aspects, such as regional evaporation, energy balance and ecosystem responses. Relevant directions for future research are indicated by presentations on carbon fluxes in the soil, secondary plant metabolism and plant-insect interactions.

Price: NLG 450; US\$ 302; UK£ 180

Orders to: see below.

Integration of Ecosystem Theories: A Pattern. Ecology and Environment 1. S.E. Jorgensen. Kluwer Academic Publishers, Dordrecht, Boston, 1992, 383 p. ISBN 0-7923-1985-0. Hardcover.

The book combines existing (and different) ecosystem theories into an integral pattern, which shows that systems ecology can offer a full theoretical pattern. This may be of importance for development of ecology, ecosystem theory and environmental science. A holistic view is required to solve global problems.

The book consists of the following chapters: 1) Introduction: recent trends in science; 2) Do we need a new, holistic ecology? 3) Models in ecology; 4) Energy and ecology; 5) Entropy and ecology; 6) Exergy and ecology; 7) Network and hierarchical concepts of eco-systems; 8) Utility theory, indirect effect and ascendancy; 9) Catastrophe theory and ecology; 10) Chaos, fractals and ecology; 11) Dynamic of ecosystems; and 12) A tentative pattern of ecosystem theories.

Price: NLG 250; US\$ 165; UK£ 87.50

Orders to: In U.S.A. and Canada: Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061, U.S.A.

Elsewhere: Kluwer Academic Publ. Group, P.O. Box 322, 3300 AH Dordrecht, The Netherlands.

Concept's Dictionary of Agricultural Sciences. I.C. Gupta and S.K. Gupta. Concept Publishing Company, New Delhi, 1992, vi + 500 p. ISBN 81-7022-301-6. Hardcover.

Agriculture being a multi-disciplinary approach, specialists in one discipline often come across words with which they are not familiar. This dictionary contains definitions of terms commonly encountered by the researchers, planners and common man related to the field of agriculture. The scope of the book has been broadened by including terms from varying disciplines such as agronomy, agricultural engineering, botany, breeding, chemistry, climatology, entomology, genetics, geology, plant physiology, social sciences and soil science. This compilation lists very commonly encountered terms.

Price: US\$ 19.60

Orders to: Concept Publishing Company, A/15-16, Commercial Block, Mohan Garden, New Delhi 110059, India.

Arab Republic of Egypt: An Agricultural Strategy for the 1990s. A World Bank Country Study. The World Bank, Washington D.C., 1993, xxii + 124 p. ISBN 0-8213-2337-7. Paperback.

In outlining an agricultural strategy for the 1990s, this study is to build on the momentum created by the reforms initiated by Government. In a period of worldwide change, measures are increasingly being adopted in numerous countries, including Egypt, which emphasize the need for revising earlier held views on the role of the Government in managing economic decision making, without compromising the underlying tenets of Government responsibility for ensuring growth and the basic needs of the people. After presenting a macroeconomic context of Egyptian agriculture and prospects for growth, the authors give information on water and land resources and discuss production and market prospects, the role of the Government and institutions. It closes with presenting key elements of a strategy.

Price: US\$ 9.95

Orders to: World Bank Headquarters, 1818 H Street, N.W., Washington, DC 20433, USA.

Management of Geological Databases. Computer Methods in the Geosciences 11. J. Frizado. Pergamon Press, Oxford, New York, 1992, xiii + 250 p. ISBN 0-08-037951-6. Hardbound.

This publication introduces geologists to microcomputer database management techniques as applied to geological data. The first section of the book is an introduction to two different database management systems (dBase and PC-File) and techniques of electronic data manipulation. Each

chapter includes exercises enabling the user to readily absorb and apply the material. The second half offers different applications of database management to geological problems. The book will enable geologists to appreciate the general structure of database management programs and how they can be applied to individual problems.

Price: £ 55

Orders to: Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, U.K.

Data for Discovery. P.S. Glaeser, editor. CODATA, Paris, 1992, xxxiii + 478 p. ISBN 1-56700-002-9. Hardbound.

This book presents the proceedings of the 12th International CODATA Conference held in Columbus in July 1990. It focuses on presenting the data requirements for the rapidly expanding studies of human impact on the biosphere and geosphere. The first section of this volume discusses plans and programmes for quality control, storage, generation, dissemination, and use of the data involved in major aspects of global change.

The second section of the book features discussion on generic aspects of data handling, including expert systems, storage and retrieval strategies, and knowledge tools. New developments in information that may have applications in various types of scientific data management are addressed. Subsequent sections in the book deal with database developments in specific scientific fields, particularly in materials science, chemistry and chemical engineering, and molecular biology. Finally, there are several papers reviewing CODATA's role in international data management programmes.

Price: \$ 110

Orders to: CODATA Secretariat, 51 bd. de Montmorency, F-75016 Paris, France.

Soils. Their Properties and Management. A Soil Conservation Handbook for New South Wales. P.E.V. Charman

and B.W. Murphy, editors. Sydney University Press in association with Oxford University Press Australia, Melbourne, 1992, xx + 363 p. ISBN 0-424-00183-7.

Soil is one of Australia's most vital resources. Over the last ten years or so, community awareness of the need to protect and preserve this resource has increased dramatically. This new found awareness, and subsequent careful management, can be seen in reclamation techniques now used in mining areas and along the Australian coastline. It can also be seen in the swing away from traditional farming practices towards conservation farming further inland.

This book addresses the complex issues of the nature and needs of the Australian soils in a clear and practical manner. Written by soil conservation experts, this revised and updated book will give its readers a good understanding of soils and soil conservation decisions in a New South Wales context. It is meant for soil conservationists, agricultural scientists, land users and managers, farmers, teachers and students.

Price: Au\$ 42.50

Orders to: Oxford University Press Australia, GPO Box 2784Y, Melbourne 3001, Australia

Manuel de Laboratoire de Pédologie. Publications Agricoles 28. J.M. Pauwels, E. van Ranst, M. Verloo and A. Mvondo Ze. Administration Générale de la Coopération au Développement, Bruxelles, 1992, xiv + 265 p. Cartonné.

Ce manuel de laboratoire peut servir comme guide pratique et détaillé des travaux de laboratoire de pédologie. Il concerne les méthodes d'analyses de sols et de plantes, Equipement, Gestion de stocks de verrerie et de produits chimiques.

La première partie est consacrée aux analyses de sols. Elle décrit: échantillonnage, préparation d'échantillon, pH, azote total, azote minéral, matière organique, capacité d'échange cationique à pH 7, bases échangeables, acidité échangeable, phosphore assimilable, phosphore organique, phosphore total, Fe_2O_3 & Al_2O_3 amorphes, Fe_2O_3 & Al_2O_3 libres, calcaire total, conductivité électrique, sels solubles, extractions multi-éléments et dosages, soufre, bore, teneur en eau, densité apparente, analyse granulométrique, fractionnement granulométrique et réserve d'eau utile.

La deuxième partie couvre les analyses de plante avec échantillonnage et traitement d'échantillon, matière sèche, teneur en eau et cendres, azote total, azote ammoniacal et nitrique, minéralisation, éléments majeurs, oligo-éléments et métaux lourds, et chlorures.

Prix: distribué gratuitement

Requêtes à: AGCD, Place du Champ de Mars 5, Boîte 57, B-1050, Bruxelles, Belgique.

Méthodes d'Analyse des Sols Forestiers et des Tissus Végétaux. Y.P. Kalra and D.G. Maynard. Forêts Canada, 1992, viii + 129 p. ISBN 0-662-97715-7.

Sont réunies dans le présent guide les méthodes utilisées pour l'analyse des plantes et des sols au Laboratoire des services d'analyse du Centre de foresterie du Nord de Forêts Canada - Région du Nord-Ouest. L'objectif de ce guide n'est pas tant de recommander certaines méthodes de préférence à d'autres, mais d'indiquer celles qui sont utilisées dans ce laboratoire, la raison de leur utilisation, l'exactitude et la précision que l'on peut attendre de leurs résultats, leurs points forts et leurs points faibles.

Methods Manual for Forest Soil and Plant Analysis.

This manual is a compilation of methods used for soil and plant analysis at the Analytical services laboratory of the Northern Forestry Centre of Forestry Canada's Northwest Region. The intent of this manual is not so much to recommend certain procedures over others, but to indicate methods used in this laboratory, why these methods are used, their expected precision and accuracy, and their strengths and weaknesses.

Prix: Gratuit.

Commandes à: Forêts Canada, Région du Nord-Ouest, Centre de Foresterie du Nord, 5320 - 122 Street, Edmonton, Alberta, Canada T6H 3S5.

Munsell Soil Color Charts 1992. Revised edition. Macbeth, Division of Kollmorgen Instruments Corp., 1992.

This set of charts, developed with the US Soil Conservation Service for classifying the colour of various soils, is also used to judge the colour of rocks, other archaeological specimens, animal pelage and many natural products in this colour range. Approximately 200 matte colour chips are permanently mounted on charts for the basic collection of eight hues (10 R-5 Y, plus Grey) with apertures between the chips to facilitate observations. Supplementary charts (7.5R and 5R) are available.

In comparison with earlier editions, some major changes are: (1) full grey scale is added to the grey chart, which is now included in all sets; (2) all seven original charts now include 11 chroma colours.

Blue loose leaf binder holds set of eight charts (11 x 18,5 cm), colour name diagrams, instructions and masks.

Price: US\$ 96

Orders to: Macbeth, Division of Kollmorgen Instruments Corp., P.O.Box 230, Newburgh, NY 12551-0230, U.S.A. or: D.G. Colour Ltd., 121 Bouverie Avenue South, Salisbury, Wilts. SP2 8EA, England.

Compte-Rendu du Séminaire sur l'Aménagement Intégré des Forêts Denses Humides et des Zones Agricoles Périphériques. Série de Tropenbos 1. A.P. Vooren, W. Schork, W.A. Blokhuis et A.J.C. Spijkerman (éditeurs). La Fondation Tropenbos, 1992, 307 p. ISBN 90-5113-012-0. Cartoné.

L'objectif général de ce séminaire a été de poser les bases de la deuxième phase du projet Tai. Pour atteindre cet objectif, les organisateurs ont voulu d'abord présenter les résultats des travaux sur le terrain même; puis cet horizon a été progressivement élargi, d'abord au plan thématique avec l'inclusion d'une dimension médicale, floristique, historique et culturelle; ensuite au plan géographique avec la présentation d'expériences vécues au Zaïre, au Mexique, au Cameroun et en Tanzanie. Les conclusions soulignent l'importance de l'effort conjoint des programmes de recherches et d'actions pour sauvegarder les dernières zones de forêts en Côte d'Ivoire.

Prix: NLG 62,50 + frais de port

Commandes à: La Fondation Tropenbos, P.O.Box 232, 6700 AE Wageningen, Pays-Bas.

Soil Map of Denmark, Finland, Norway and Sweden, 1:2.000.000. K. Rasmussen, J. Sippola, J. Lag, T. Troedsson and M. Wiberg. Landbruksforlaget, Oslo, 1991, 16 p. + map (1989). ISBN 82-529-1429-2.

This is the first Nordic soil map. Previously parts appeared in several European and world maps. The classification used is based upon the FAO-Unesco Soil Map of the World legend (1979) but some changes in, notably, the Podzols and Histosols and in the Cambisols and Luvisols, have been made. Overall, a nice soil inventory of this part of Europe!

Orders to: Landbruksforlaget, Oslo, Norway.

Soil Structure/Soil Biota Interrelationships. Special issue of *Geoderma*, Vol.56 Nos.1/4, Vol.57 Nos.1/2. L. Brussaard and M.J. Kooistra, editors. Elsevier, Amsterdam, New York, 1993, Part I: xvi + 648 p. Part II: viii + 181p. ISSN 0016-7061. Paperback.

The aims of the conference on *Methods of Research on Soil Structure/Soil Biota Interrelationships*, held in November 1991, was to provide a thorough review of established and innovative methods of study and assessment at the microscopic scale, that can be used in all aspects of research on this subject in soil ecology and soil science. It appears that much research on the transformation and transport of elements such as carbon and nitrogen is either concerned with soil biota/plant relationships or with soil structure/plant relationships, but very few studies explicitly take the interrelationships between soil structure and soil biota into account.

Although the conference was on innovative methodology in the first place, also a number of excellent contributions were received in which conventional methods were applied. It was therefore decided not to restrict the proceedings entirely to methodology.

Orders to: in the USA and Canada: Elsevier Science Publishing Co. Inc., P.O.Box 882, Madison Square Station, New York NY 10159, USA;

Elsewhere: Elsevier Science Publishers, P.O.Box 211, 1000 AE Amsterdam, the Netherlands.

Pedotechnical Approaches to Sustainable Agriculture. Special issue of *Soil Technology*, Vol.6 No.1. R. Horn, editor. Catena Verlag, Cremlingen, 1993, 119 p. ISSN 0933-3630. Paperback.

During the last decade, the discussions about 'sustainable agriculture' were enhanced while dealing with the multifunctional aspects of the various types of ecosystems and the transformation and/or the transitions between them. These discussions also profited from the shift of the monocausal research approach to a multifunctional and multidisciplinary one which resulted in an enormous increase in knowledge.

How far chemical, physical and biological site properties as well as external inputs can prevent or affect transitions or changes in the various types of ecosystems are also addressed. One of the main topics to consider is the adjusted but still 'elastic' type of an ecosystem, in which soil properties can be assumed quasi stationary as the first

approach. Thus, Pedotechnique -as such a new 'interdisciplinary' research group- tries to deal with these various aspects and tries to link the results for a better understanding of the processes in the various ecosystems.

The aim of this publication is to show results and to use them for soil mapping and with respect to interpret and to explain processes under in situ conditions. Another paper discusses soil mechanical properties, both on macro- and microscale. Such results help to better understand processes and they give insight in functioning of ecosystems. Computer models can then also be created and validated. A major task is thereafter the adoption of 'technical activities' as shown by a technical paper. Finally also instructions for soil and/or land reclamation can be derived from all these papers.

Orders to: see below.

Biomining. Processes of Iron and Manganese. Catena Supplement 21. H.C.W. Skinner and R.W. Fitzpatrick, editors. Catena, Cremlingen, 1992, 432 p. ISBN 3-923381-30-1. Hardbound.

This volume explores the interrelationship between biology and inorganic deposits focusing on Fe and Mn mineral deposition in surficial environments. Contributions from mineralogists, biochemists, physicians, hydrologists and marine scientists demonstrate that interest in Fe and Mn biomining is not constrained by discipline, by investigative procedures nor by application.

The papers in this volume present an overview of the mineral species, possible mechanisms involved in their precipitation, and the range of depositional environments recorded for Fe and Mn minerals in surficial environments.

Price: DM 198; US\$ 141.

Orders to: Catena Verlag, Brockenblick 8, W-3302 Cremlingen 4, Germany; or: Catena Verlag, P.O.Box 1897, Lawrence, KS 66044-8897, U.S.A.

A Review of Soil Factors and Processes that Control Fluxes of Heat, Moisture and Greenhouse Gases. Technical Paper 23. N.H. Batjes and E.M. Bridges. International Soil Reference and Information Centre, 1992, viii + 201 p. ISBN 90-6672-048-4. Paperback.

This Technical Paper is derived from the background booklet prepared for the International Workshop on "World Inventory of Soil Emission Potentials" (WISE) which was held at the Interna-

tional Soil Reference and Information Centre in August 1992, within the wider framework of the Netherlands National Research Programme on Global Air Pollution and Climate Change (NOP-MLK). After an introduction on the role of soils in global change, the soil factors and processes that control fluxes of heat and moisture are considered (Chapter 2), and the processes of production and emission of methane, nitrous oxide and carbon dioxide (Chapters 3 to 5) from soils to the atmosphere and possible global modelling approaches are reviewed. These chapters served to identify the data requirements for a global soil database, currently under development at ISRIC. The proposed structure and list of attributes for the database are presented in Chapter 6. The booklet includes an extensive list of references and a glossary.

Price: NLG 35 (including surface mail postage)

Orders to: ISRIC, P.O.Box 353, 6700 AJ Wageningen, the Netherlands.

Klimaänderung gefährdet globale Entwicklung. Zukunft sichern - Jetzt handeln. Enquete-Kommission "Schutz der Erdatmosphäre" des Deutschen Bundestages. Economica Verlag, Bonn, Verlag C.F. Müller, Karlsruhe, 1992, xii + 238 p. ISBN 3-87081-332-6 (Economica Verlag) 3-7880-7448-5 (Verlag C.F. Müller).

Spätestens seit dem Erscheinen des dritten, international renommierten Berichts der Enquete-Kommission "Vorsorge zum Schutz der Erdatmosphäre" im Jahr 1990, ist die Öffentlichkeit über die katastrophalen Folgen der drohenden Klimaänderung informiert. Seitdem hat die Wissenschaft erhebliche Fortschritte gemacht. Anfängliche Verdachtsmomente einer Klimaveränderung sind wissenschaftlich abgesichert, die ersten Anzeichen der von Menschen verursachten Katastrophe sind bereits sichtbar. Vor dem Hintergrund der UNCED in Rio de Janeiro stellt der erste Bericht der durch den 12. Deutschen Bundestag neu eingerichteten Enquete-Kommission "Schutz der Erdatmosphäre" den aktualisierten Stand der Klimaforschung einer interessierten Öffentlichkeit vor. Wissenschaftlich fundiert und in verständlichen Worten zeichnet der Bericht ein umfassendes Bild des Treibhauseffektes, der Zerstörung der Ozonschicht und der drohenden Klimakatastrophe. Gleichzeitig ist er aber auch ein Appell an die politisch Verantwortlichen und die Weltöffentlichkeit, neue Wege der internationalen Zusammenarbeit und zur Überwindung des Nord-Süd Konfliktes zu beschreiten. Nur wenn sich alle der drohenden Gefahr bewusst werden, haben wir eine Chance, die sich abzeichnende Katastrophe noch abzuwenden. Dieser Bericht will einen Beitrag zu dieser drängenden Aufgabe leisten.

Bestellungen an: Economica Verlag, Fontanestrasse 12, W-5300 Bonn 2, Deutschland.

The State of Canada's Environment. Minister of Supply and Services Canada, 1991, xxxi + 719 p. ISBN 0-660-14237-6. Hardbound. (In English or French).

Each of the 27 chapters of this book examines environmental conditions from a different perspective. The first section describes ecological processes and sets Canada in the global scene. The second section comprises 13 chapters which examine environmental components and the human activities that affect them. Sections three and four focus on, respectively, topics of concern in selected parts of the country, and 6 of the most pressing environmental issues. The final section sums up the book and assesses Canada's progress towards a sustainable relationship with the environment.

Price: Can\$ 29.95

Orders to: State of the Environment Reporting, Environment Canada, Ottawa, Ontario, Canada K1A 0H3.

Advances in Theoretical Hydrology. A tribute to James Dooge. European Geophysical Society Series on Hydrological Sciences, 1. J.P. O'Kane, editor. Elsevier, Amsterdam, New York, 1992, xxx + 254 p. ISBN 0-444-89831-X. Hard cover.

This Festschrift containing sixteen invited essays and papers is a tribute to the distinguished Irish hydrologist James Dooge on the occasion of his 70th birthday. His former students, colleagues and friends in fourteen countries, have provided a varied selection on his favourite topics: flow in open channels and unsaturated soil, and also from his major interest of recent years, large scale hydrology and global change.

The book has three sections. The first section on hydrological hydrology contains six papers. The second section on large scale hydrology has four papers. Six historical, reflective and philosophical essays on the past and future of the hydrological sciences form the third section of the book.

Price: US\$ 150; NLG 240

Orders to: see below.

Humus, its Structure and Role in Agriculture and Environment. Developments in Agricultural and Managed-Forest Ecology, 25. J. Kubát, editor. Elsevier, Amsterdam, New York, 1992, ix + 201 p. ISBN 0-444-88980-9. Hardcover.

This volume presents the proceedings of the 10th international symposium *Humus et Planta*, held in Prague in August 1991. The main topics of this book are devoted to recent advances in fundamental and applied research of humic substances, the most abundant of the naturally occurring macromolecules of nature, the understanding of their nature and how they react and interact in their natural environments. Texts are included on the structure, physical and chemical properties of humic substances; the relationships among humus, soil properties and fertility; the biotransformations of organic substances in the soil; the relationships between humic substances and plants and the interactions of humus and xenobiotic substances. This book presents recent knowledge of the complicated and challenging humic substances. It will be of interest not only to scientists, but also to University teachers and students of agricultural and environmental sciences.

Price: US\$ 111.50; NLG 195

Orders to: see below.

Structure and Functioning of Seminatural Meadows. Developments in Agricultural and Managed-Forest Ecology, 27. M. Rychnovská, editor. Elsevier, Amsterdam, New York, 1993, 386 p. ISBN 0-444-98669-3. Hardcover.

Twelve years' analysis of natural grassland and experimentally managed meadows have produced this unique set of data on the structures and physiological functions of primary producers, consumers and decomposers. Obtained during the 1973-1985 Ecosystem Study on Highland Meadows in Czechoslovakia, such original information is rare in scientific literature. The aim of the study was to define the functioning of these grasslands and their changes under different impact of man, and to examine the ecological function of those ecosystems in the intensively managed catchment area. Hence, this book contains deep analyses of soil microorganisms, their functions in decomposition and soil forming processes - leading to the evaluation of the whole carbon cycle - as well as dealing with nitrogen pathways in the experimental plots - resulting in precise determination of the full nitrogen cycle. Procedures used in practical agriculture, such as cutting, fertilization and renovation, have also been applied, producing evaluations from both ecological and economical view-points.

Price: US\$ 206; NLG 330

Orders to: see below.

Principles of Contaminant Transport in Soils. Developments in Geotechnical Engineering, 73. R.N. Yong, A.M.O. Mohamed and B.P. Warkentin. Elsevier, Amsterdam, New York, 1992, xiii + 327 p. ISBN 0-444-89819-0 (Paperback) 0-444-88293-6 (Hard cover).

In landfilling technology, it is accepted that the soil substrate underlying the landfill can be used as a physical and chemical buffer (i.e. to accumulate and attenuate contaminant leachates emanating from the waste pile). This places a great responsibility on the landfill constructor to determine correctly the capability of the soil substrate to perform its buffering functions. This book covers the physico-chemical processes which control the transport of aqueous and nonaqueous phase liquids in soils, and aims to provide a viable and reliable transport model for accurate forecasting of transport performance of contaminant plume for the time period of concern.

Price: US\$ 68.50; NLG 120 (Paperback) US\$ 137; NLG 240 (Hard cover).

Orders to: in the USA and Canada: Elsevier Science Publishing Co. Inc., P.O.Box 882, Madison Square Station, New York NY 10159, USA;

Elsewhere: Elsevier Science Publishers, P.O.Box 211, 1000 AE Amsterdam, the Netherlands.

Manual for Chemical Soil Analyses. B. van Lagen, editor. Dept. of Soil Science and Geology, Agricultural University Wageningen, 1993, 100 p. Paperback.

This manual is a new version of *Methods of Chemical Analysis for Soils and Waters* by L.Th. Begheijn. Since 1980 many changes took place. Computers have entered the laboratory, methods have further developed, new methods were introduced, world-wide and national standardization took place and new equipment was acquired. The first part of this manual consists of the common chemical soil parameters. The second part contains procedures for sulphur fractionation, including a set especially developed for acid sulphate soils, other recent marine soils, and various other sulphur determinations.

Together with the next publication, it is mainly written for internal use.

Orders to: see below.

Manual for Chemical Water Analyses. E.J. Velthorst. Agricultural University Wageningen, 1993, 109 p. Paperback.

This manual contains selected, well-known analytical methods, in which emphasis is given to methods related to 'acid rain'. After a chapter on the collection and preservation of water samples, the manual contains sections about the analyses of 25 elements, including those with graphite furnace.

Orders to: Department of Soil Science and Geology, Wageningen Agricultural University, P.O.Box 37, 6700 AA Wageningen, The Netherlands.

Forage on Red Soils in China. ACIAR Proceedings No. 38. P.M. Horne, D.A. MacLeod and J.M. Scott, editors. Australian Centre for International Agricultural Research, 1992, 141 p. ISBN 1-86320-061-4. Paperback.

While China will continue to rely heavily on grains and will have to continue to increase production in this area, there is a rapidly increasing demand for animal products. Present indications are that this increasing demand cannot be met from further intensification of existing animal production systems.

The red soils region of south central China has been the focus of recent research as it encompasses large areas of under-utilised and waste lands that could be developed for both upland cropping and animal enterprises. However, the region presents some difficult and unique problems in relation to soils, climate, land tenure, transportation and marketing. These proceedings are the outcome of the first major forum bringing together scientists from China and overseas to discuss the research results. Topics covered include soil science, forage agronomy, climatology, animal husbandry, forestry, sociology and agricultural economics.

Price: \$A 32

Orders to: see below.

A Search for Strategies for Sustainable Dryland Cropping in Semi-arid Eastern Kenya. ACIAR Proceedings No. 41. M.E. Probert, editor. Australian Centre for International Agricultural Research, 1992, iv + 134 p. ISBN 1-86320-068-1. Paperback.

Farmers in semi-arid lands in eastern Kenya face reduced productivity as the fertility of their land declines. ACIAR has sponsored six years of research in the region to identify the major constraints to productive farming and to determine ways of predicting seasonal outcomes in a highly variable climate. These proceedings give details of the maize crop model developed by the researchers to explore interactions between water supply, nitrogen nutrition and agronomic practices such as planting time and crop density. The model also simulates crop performance using historical weather data. Other aspects addressed are the human side of the changes needed to ensure adoption of new technologies, and future strategies for developing sustainable farming in the region.

Price: \$A 26

Orders to: ACIAR, GPO Box 1571, Canberra, ACT 2601, Australia.

Soil Biochemistry. J.-M. Bollag and G. Stotzky. Marcel Dekker, New York, Basel, 1993, x + 418 p. ISBN 0-8247-9044-8. Hardbound.

Stressing the potential application of biochemical processes in soil to environmental biotechnology, this state-of-art reference book considers the vital role that such biochemical processes have in the environment, emphasizing the activity of microorganisms in soil.

This up-to-date analysis of biological reactions in soil highlights traditional as well as molecular and immunological techniques for detecting specific microorganisms in soil; the fate of introduced genetically modified organisms; the problem of competition by the indigenous microbial populations with the introduced organisms; the use of a white-rot fungus, *Phanerochaete chrysosporium*, for bioremediative purposes in soil; the interaction of xenobiotics, such as pesticides, with soil organisms; generic microbial metabolism and degradation pathways; the inhibition of the nitrification process by allelochemicals released by plants; the microbial mineralization of various compounds under anaerobic conditions; the formation of soil organic matter, particularly in forest soils; CPMAS ¹³C-NMR spectroscopy; and more.

Price: USD 99.75

Orders to: Marcel Dekker Inc., 270 Madison Avenue, New York NY 10016, U.S.A.

Recent Advances in Dryland Agriculture. Scientific Publishers, 1993, Jodhpur. Part 1: xxiv + 251 p. ISBN 81-7233-057-X; Part 2: xvi + 475 p. ISBN 81-7233-058-8. (ISBN Set: 81-7233-059-6). Hardbound.

The importance of dryland agriculture in India needs no emphasis. Considerable research efforts have been made in the last two decades to develop new technologies. The drought of 1987 has created a situation compelling to pay attention for research and development in drylands at much faster pace in India's national perspective.

This book is the proceedings of the "National Symposium on Recent Advances in Dryland Agriculture" jointly organised by the Indian Society of Dryland Agriculture, Central Research Institute for Dryland Agriculture (CRIDA) and Indian Council of Agricultural Research (ICAR) held at Hyderabad in September 1988.

These proceedings review the progress in research and identifies the research gaps in different aspects of dryland agriculture. It includes papers presented by scientists, policy planners and research managers. Besides this, original research papers pertaining to crop-weather relationship, drought management, climatically efficient cropping systems, crop improvement, crop management, fertility management, farm machinery and energy utilization, soil and water conservation, etc., in relation to drylands are included. The experience gained in transfer of technology constitutes an important part of these proceedings.

Orders to: Scientific Publishers, 5A New Pali Road, P.O.Box 91, Jodhpur - 342 001, India.

History of Soil Science. From its inception to the present. I.A. Krupenikov. Oxonian Press, New Delhi, 1992, x + 352 p. ISBN 81-7087-077-1.

This is a detailed book translated from Russian, devoted to the history of soil science, from the earliest times to the present. The author examines the development of man's knowledge regarding soils during the era of ancient civilizations of Greece and Rome with developed irrigation, in the feudal period in the Orient, in western Europe, and in Russia. He traces the history of ideas about soil in nineteenth century Europe, the founding of modern genetic soil science by V.V. Dokuchaev, and its further development by P.A. Kostychev, N.M. Sibirtsev, K.D. Glinka, and others.

He also reviews the roles played by Volney, Ramann, and Hilgard in the making of this new science, the great development of soil science in Russia, and the modern developments in soil research in the USA, western Europe, and Japan. He has identified the main trends in the history of soil science and designated appropriate historical periods.

Price: USD 15.80

Orders to: see below.

Land and Soils. T.N. Khoshoo and B.L. Deekshatulu, editors. Indian National Science Academy, 1992, 408 p. ISBN 81-241-0006-3. Hardbound.

The book embodies the proceedings of a Discussion Meeting on Land and Soil convened under the aegis of Indian National Science Academy (INSA). As a result of the deliberations, it emerged that on one hand, there has been soil-degradation due to erosion on account of increased human activity, on the other, production of food grains over the past 3-4 decades has increased at least by 3 times due to increase in irrigation, application of science and technology and better management practices. Several problems of land and soil have been identified. It has also been emphasized that land and soil are only part of the total ecosystems and an integrated approach is necessary to tackle these problems. Action-oriented programmes need to be initiated.

Price: USD 15.80

Orders to: Prints India, Prints House, 11 Darya Ganj., New Delhi - 110 002, India.

Tropical Soil Biology and Fertility: A Handbook of Methods. Second edition. J.M. Anderson and J.S.I. Ingram, editors. CAB International, Wallingford, Tucson, 1993, xv + 221 p. ISBN 0-85198-821-0. Paperback.

Based on the work of the Tropical Soil Biology and Fertility (TSBF) Programme, this handbook provides recommended and validated methods for the characterisation and analysis of soils, with emphasis on the tropics, with the aim of achieving sustainable use of soil resources. Many of the

methods described are also applicable to temperate soils. Since publication of the first edition in 1989, the methods have been tested in a wide variety of field and laboratory environments, leading to their further development and refinement. The text has been substantially revised and expanded for the second edition, with an additional chapter on laboratory practice and quality control and new appendices on mycorrhizas, roots, most probable number analysis for rhizobia, isotope studies and a description of the CENTURY Plant-Soil Environmental Simulation Model. The seven main chapters cover: the TSBF Programme, site description, field procedures, sampling, laboratory practice, chemical analysis and soil physical analysis. The second half of the book includes 15 appendices which comprise state-of-the-art methodological reviews.

The methods given are endorsed by the International Society of Soil Science and are part of the International Union of Biological Sciences/UNESCO 'Man and the Biosphere' Programme. The book is an indispensable handbook for students and professional soil scientists, as well as ecologists, agronomists and foresters concerned with tropical systems.

Price: GBP 19.95 (USD 38, Americas only)

Orders to: CAB International, Wallingford, Oxon OX10 DE, U.K. or: CAB International, 845 North Park Avenue, Tucson, AZ 85719, U.S.A.

N.B. ISSS members can order a copy from ISSS, P.O.Box 353, 6700 AJ Wageningen, the Netherlands, for a reduced rate.

Handbuch des Bodenschutzes. Bodenökologie und -belastung Vorbeugende und abwehrende Schutzmassnahmen. 2. Auflage. H.-P. Blume. Ecomed Verlagsgesellschaft, Landsberg am Lech, 1992, xxii + 794 S. ISBN 3-609-65850-9.

Bereits 2 Jahre nach Erscheinen des Handbuches wurde wegen der starken Nachfrage eine Neuauflage erforderlich. Neu hinzugekommen sind Kapitel über die Modellierung des Chemikalienverhaltens in Böden, über die Technik der Bodeninventur nebst Aussagemöglichkeiten von Bodenkarten, über Umweltverträglichkeitsprüfung, über die Renaturierung von Mooren und anderen Feuchtgebieten, über den Bodenschutz durch Erziehung sowie über die Rechtsgrundlagen der Bodensanierung. Völlig neu bearbeitet und erweitert wurde das Kapitel über die Sanierung kontaminierter Böden und Substrate. Gründlich überarbeitet wurden auch die Kapitel über Böden als Pflanzenstandorte, über Bodenverdichtungen, über Pflanzenschutzmittel und über Böden städtisch-industrieller Verdichtungsräume.

Preis: DM 178

Bestellungen an: Ecomed Verlagsgesellschaft, Justus-von-Liebig-Str. 1, W-8910 Landsberg a. Lech, Bundesrepublik Deutschland

Ernährungsstörungen bei Kulturpflanzen. Entstehung, visuelle und analytische Diagnose

3. Auflage. W. Bergmann. Gustav Fischer Verlag, Jena, Stuttgart, 1993, 835 S. ISBN 3-334-60414-4.

Diese 3. Auflage bietet zahlreiche neue Abschnitte und einen insgesamt aktualisierten Wissensstand an. Einbesonderer Gewinn sind 14 zusätzliche Tabellen über "Entwicklungsabhängige ausreichende Mineralstoffgehalte" bei verschiedenen landwirtschaftlichen Kulturpflanzen zur Spezifizierung der Pflanzenanalyse. Die ohnehin schon reiche Bildausstattung wurde um 71 neue Farbbilder erweitert.

Preis: DM 198

Bestellungen an: Gustav Fischer Verlag, Villengang 2, Postfach 10 05 37, D-07705 Jena, Bundesrepublik Deutschland.

Modern Physical Geography. 4th edition. A.H. Strahler and A.N. Strahler. John Wiley & Sons, Chichester, New York, 1992, xii + 638 p. ISBN 0-471-53392-0. Hardback.

This comprehensive physical geography text is grounded in sound principles of natural science. These principles are selected from atmospheric science, hydrology, geosciences, soil science, ecology and biogeography.

This new edition features changes in four categories. First is the updating of text and figures, including the introduction of new topics of current interest. Second is a group of rearrangements of subjects and chapters. Third is the expansion of environmental and resource topics of vital concern to humans. Fourth is a new design that allows the use of full-color illustrations throughout the entire book.

Price: GBP 21.50

Orders to: see below.

Soil and Water Conservation Engineering. 4th edition. G.O. Schwab, D.D. Fangmeier, W.J. Elliott and R.K. Frevert. John Wiley & Sons, Chichester, New York, 1993, xiv + 507 p. ISBN 0-471-59994-8. Paperback.

In this edition the text material has been brought up to date, but it continues to emphasize engineering design of soil and water conservation practices and their impact on the environment, primarily air and water quality. Furthermore, the production of food and fiber remains an important consideration because of increasing world population. Subject matter on all the engineering phases of soil and water conservation is included, as is a limited section on hydrology. The first chapter covers general aspects with some worldwide implications. Furthermore this book presents 3 chapters on hydrology, 4 chapters on erosion and its control, one chapter on conservation structures, one on earth dams, one on flood control, 4 chapters on drainage and 6 chapters on irrigation.

Price: GBP 16.95

Orders to: see below.

Nitrate. Processes, Patterns and Management. T.P. Burt, A.L. Heathwaite and S.T. Trudgill, editors. John Wiley & Sons, Chichester, New York, 1993, xi + 444 p. ISBN 0-471-93476-3. Hardback.

The control of nitrate in surface and ground waters is a pressing problem. This book attempts to provide an integrated review of the nitrate issue by placing it within a drainage basin context.

The first section of the book presents detailed accounts of nitrogen cycles and nitrate production in atmospheric, terrestrial and aquatic systems. These form the basis for the second section which deals with patterns of nitrate transport within the hydrological environment in both time and space. This section gives a deliberately geographical perspective and emphasises the fundamental importance of the drainage basin as the primary unit for water quality management. The third section considers various strategies for managing nitrate pollution and includes legislative, land use and water treatment options.

This book provides a research-level text on nitrate that takes an integrated approach at a catchment scale. It emphasises and highlights the need for an understanding of nitrogen-cycling processes as a basis for such management.

Price: GBP 65.00

Orders to: John Wiley & Sons, 605 Third Avenue, New York NY 10158-0012, U.S.A. or: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England.

Metodologías de Estudio de los Procesos de Erosión Hídrica del Suelo en España. Cuadernos del Area de Ciencias Agrarias No.12. F. Díaz-Fierros and J.L. Rubio, editores. Seminario de Estudios Galegos, Ediciones do Castro, La Coruña, 1992, 49 p. ISBN 84-7492-619-X.

Se trata del resumen de una reunión científica sobre los aspectos prácticos y metodológicos de los estudios de erosión en España. El breve libro incluye una reseña sobre la evolución histórica de las actividades de investigación española sobre estos temas, las conclusiones de cada una de las ponencias temáticas expuestas durante la reunión, una relación bibliográfica y la lista y direcciones de grupos españoles trabajando actualmente sobre distintos aspectos relacionados con los procesos erosivos.

Las ponencias fueron: Datos climáticos, Flujos de agua en el suelo, Escorrentias, caudales y transporte en cuencas, Erosionabilidad y otras propiedades del suelo, Vegetación (cobertura, biomasa y enraizamiento), Medidas microtopográficas de la erosión, Medida de la erosión en parcelas experimentales y Fotointerpretación y erosión.

Pedidos: Seminario de Estudios Galegos, Santiago de Compostela, 15706 (La Coruña), España.

Land Reclamation: Advances in Research & Technology. T. Younos, P. Diplas and S. Mostaghimi, editors. American Society of Agricultural Engineers, St. Joseph, 1992, ix + 381 p. ISBN 0-929355-37-7. Paperback.

Land reclamation encompasses remediation of industrial wasteland, improvement of infertile land for agricultural production, preservation of wetlands, and restoration of disturbed areas. Land reclamation is an integral part of sustainable development which aims to reconcile economic productivity with environmental preservation. During the 1980s, significant progress was achieved in the application of advanced technologies to sustainable development projects. The goal of the international symposium held at Nashville in December 1992, was to serve as a forum to review current research and state-of-the-art technology dealing with various aspects of land reclamation, and provi-

de an opportunity for professional interaction and exchange of information in a multi-disciplinary setting. This volume contains the proceedings of this symposium. The keynote address focused on a systems approach in land restoration projects and challenges facing scientists in global biotic impoverishment. Other topics discussed in ten technical sessions include development and applications of computer models, geographic information systems, remote sensing technology, salinity problems, surface and ground water monitoring, reclamation of mined areas, soil amendment methods and impacts, wetland restoration techniques, and land use planning for resource protection.

Price: USD 48 (+ USD 3.50 for postage and handling)

Orders to: see below.

Drainage and Water Table Control. R.L. Bengtson and C.E. Carter, editors. American Society of Agricultural Engineers, St. Joseph, 1992, xiv + 501 p. ISBN 0-929355-34-2. Paperback.

This is the proceedings of the 6th International Drainage Symposium held at Nashville in December 1992. Session topics reflected both continuing and emerging issues in drainage and water management. Environment impacts, wetlands, and sustainability of drainage systems have emerged as major issues and concerns since the 5th Drainage Symposium. These and other topics are being emphasized in much of the newer research in drainage and water management technology. High priority research involving drainage as a part of total water management systems, particularly as it relates to water quality issues, continues to receive major emphasis in many parts of the world. The development and validation of computer simulation models to predict the performance of integrated water management and crop production systems, and the transport of soil, plant nutrients, and agrochemicals in drainage waters, continues to be of high priority. Several papers are included on these subjects as well as a session that reported on new measurement techniques and drainage research instrumentation.

Price: USD 54 (+ USD 3.50 postage and handling)

Orders to: ASAE, Dept. 1626, 2950 Niles Road, St. Joseph, MI 49085-9659, U.S.A.

ASTM Standards on Geosynthetics. 3rd edition. P.C. Fazio, E.L. Gutman *et al.*, editors. American Society for Testing & Materials (ASTM), Philadelphia, 1993, vii + 128 p. ISBN 0-8031-1769-8. Paperback. Publication code Nr. 03-435093-38.

This compilation contains 29 standards, including specifications, test methods, practices, and terminology, covering mechanical, endurance, permeability, and filtration properties. This third edition contains seven new standards. In addition, six of the 22 standards of the previous edition have been revised.

This compilation is intended as a technical resource for civil, geotechnical, environmental, and structural engineers for evaluating or for designing uses of geosynthetics.

Price: GBP 49

Orders to: see below

1993 Annual Book of ASTM Standards. Section 11: Water and Environmental Technology. P.C. Fazio, E.L. Gutman *et al.*, editors. American Society for Testing & Materials (ASTM), Philadelphia, 1993, xxvii + 737 p. ISBN 0-8031-1960-7. Paperback.

This is the first of two volumes containing standard procedures for assessing water. It is divided into four sections. Section one presents several standards covering terminology, reagents, and the reporting of results. The second section features several tests and practices which fix procedures for sampling and flow measurement. Over 20 tests and practices fall into section three, which is titled general properties of water. They present standard techniques for assessing such properties as pH, turbidity, corrosivity, and specific gravity. The fourth section, under the heading of inorganic constituents, features over 70 tests and practices for determining such constituents.

Price: in Europe: GBP 56

Orders to: in Europe: American Technical Publishers Ltd. 27-29 Knowl Piece, Wilbury Way, Hitchin, Herts, SG4 0SX, England; *Elsewhere:* ASTM, 1916 Race Street, Philadelphia, PA 19103, USA.

ASTM Standards International. American Society for Testing and Materials (ASTM), Philadelphia, 1993. The American Society for Testing & Materials, one of world's largest standards development organizations, is publishing this international newsletter. It will provide the global standards

community with the latest scientific and technical information on the standards development activities of ASTM's 131 technical committees. The newsletter, which is free of charge and will be published periodically, will benefit those in industry, government, and academia by serving as a medium for the exchange of information and ideas. The first issue is available in English and Spanish. Future editions may be printed in other languages.

Topics of interest include ASTM's cooperative efforts with other international standards development organizations; international issues of environmental concern (such as radon testing, biodegradability, and recycling); current ASTM standards development activities; information on the newest ASTM publications; and announcements of ASTM meetings and Standards Technology Training Courses.

Organized in 1898, ASTM presently has over 34,000 technically-qualified members throughout the world. It has developed almost 9,000 standard test methods, specifications, practices, guides, classifications, and terminology, covering a wide range of areas.

Requests: Ellen McGlinchey, ASTM, 1916 Race Street, Philadelphia, PA 19103, USA.

Commercialization of Agriculture under Population Pressure: Effects on Production, Consumption, and Nutrition in Rwanda. Research Report 85. J. von Braun, H. de Haen and J. Blanken. International Food Policy Research Institute, Washington, 1991, 123 p. ISBN 0-89629-087-5. Paperback.

This study highlights the potentials of agricultural development for the employment, income, and consumption of the poor, but also stresses that nonagricultural rural growth and employment expansion are keys to improved food security and nutrition in this setting. The authors show that the delivery of public goods - health services, sanitation, and education- has to move ahead in order to maintain and improve the human capital foundation in this stressed environment.

Price: free of charge

Orders to: IFPRI, 1200 17th Street, N.W., Washington, D.C. 20036-3006, U.S.A.

Relating Land Use and Global Land-Cover Change. Global Change Report 24. B.L. Turner II, R.H. Moss and D.L. Skole, editors. IGBP, Stockholm, 1993, 65 p. ISSN 0284-8015. Paperback.

This report presents the main findings of the ad hoc working group formed by the International Geosphere-Biosphere Programme (IGBP) and the Human Dimensions of Global Environmental Change Programme (HDP). It describes the research questions defined by the working group and identifies the next steps needed to address the human causes of global land-cover change and to understand its overall importance. The plan outlined by the working group calls for the development of a system to classify land-cover changes according to their socio-economic driving

forces. Selected case studies will be carried out according to a common protocol and will provide detailed settings in which to refine the classification of socio-economic situations and land-cover changes. In the final step of the plan, the knowledge gained regarding the human determinants of land use and the driving forces of land-cover change will be used to develop a global land use and land-cover change model.

Price: free of charge.

Requests to: IGBP Secretariat, The Royal Swedish Academy of Sciences, Box 50005, S-10405 Stockholm, Sweden.

Biogeochemistry of Trace Metals. Advances in Trace Substances Research. D.C. Adriano, editor. Lewis Publishers, Boca Raton, London, 1992, 513 p. ISBN 0-87371-523-3. Hardbound.

This volume is a compendium of the most recent information available on the effects of trace metals in soil quality and its potential threat on the transfer of these contaminants to consumers. Topics discussed include background levels of metals in soils and/or plants; metal cycling and transfer in the food chain in agroecosystems; uptake and accumulation of metals by bacteria, fungi, and invertebrates; mechanistic aspects of metals; the microbial aspects of soil selenium losses; and manganese sorption on soil constituents.

Orders to: CRC Press, 2000 Corporate Blvd., N.W., Boca Raton, FL 33431, USA.

Evaluation of Land Surfaces Cleared from Forests by Prehistoric Man in Early Neolithic Times and the Time of Migrating Germanic Tribes. B. Frenzel, editor. Akademie der Wissenschaften und der Literatur, Mainz, 1992, xi + 225 p. ISBN 3-437-30708-8 (US-ISBN 1-56081-363-6). Paperback.

The papers given at the third workshop of the programme "The European Palaeoclimate and Man since the Last Glaciation" are published in this volume. This workshop was held in Mainz in March 1990, and was attended by more than 40 scientists from the whole of Europe, assembled for a review not only of the data base and state of research but especially to discuss future work and point out existing deficiencies. An important result of the discussions was that human impact on the environment in the Early Neolithic had generally not been too grave. The areas cleared from forests will hardly have exceeded 10%, thus a noticeable impact on the climate would not have taken place. There is evidence however that the effects of human impact were greater in dry regions of Central Europe than in the atlantic zones. Additionally it became evident that for the time-slice of around 500 A.D. relatively large gaps exist in our knowledge which should be followed up in a further workshop.

Price: DM 74

Orders to: Gustav Fischer Verlag, Postfach 72 01 43, D-70577 Stuttgart, Germany. In USA and Canada: VCH Publishers Inc., 303 N.W. 12th Avenue, Deerfield Beach, FL 33442-1705, U.S.A.

Fertiliser Recommendations for Oilseed Crops. A guidebook. 2nd edition. H.L.S. Tandon, editor. Fertiliser Development and Consultation Organisation, New Delhi, 1993, 95 p. ISBN 81-85116-26-1. Paperback.

Oilseeds represent the second largest agricultural produce in India, after foodgrains. Research has shown that the production of oilseeds can at least be doubled by adopting improved crop production technologies now available. On the whole, fertiliser usage on oilseeds is both low and unbalanced. The time is ripe for large scale popularisation of fertilisers among oilseed growers, particularly in view of the encouraging research findings.

This second edition updates the various statistics and also the economic aspects have been revised in view of major changes in fertiliser prices.

Price: in India Rs 80; outside India: USD 18

Orders to: see below.

Fertilizer Management in Rainfed Dryland Agriculture. A Guidebook. 2nd edition. H.L.S. Tandon, editor. Fertiliser Development and Consultation Organisation, New Delhi, 1993, 103 p. ISBN 81-85116-25-3. Paperback.

The importance of dryland-rainfed farming, which is the dominant sector in Indian agriculture is increasing. Over 70% of the net sown area falls under rainfed dryland agriculture, due to the fact that inadequate and/or poorly distributed rainfall results in frequent periods of water stress for the crops.

It is crucial to improve the productivity of dryland areas, not only to increase their contribution in overall agricultural production and to reduce the outgo of foreign exchange spent in importing pulses and oilseeds, but also to improve the incomes and living standards of millions of farmers who live off these lands. The second edition of the book was prepared in view of the important place occupied by fertilisers in improved dryland technologies. It is based on the latest available information.

Price: in India Rs 80; outside India: USD 18

Orders to: see below.

Methods of Analysis of Soils, Plants, Waters and Fertilisers. H.L.S. Tandon, editor. Fertiliser Development and Consultation Organisation, New Delhi, 1993, 144 p. ISBN 81-85116-31-8. Hardback.

A knowledge of the chemical constituents and their forms in various agricultural inputs is of vital use and is continuously sought by many. Methods of analysis of soils, plants, fertilisers and irrigation waters have been described in this book. These pertain to the estimation of essential plant nutrients in these materials. In case of water due emphasis is given to water quality aspects. In case of soils, the methods deal with the estimation of those forms which are considered to be available from crop production point of view.

Standard methods are described in detail. Elements covered are N, P, K, S, Ca, Mg, B, Cu, Fe, Mn, Mo and Zn. Practical tips and suggestions are also offered for ensuring accurate and trouble-free analysis. Wherever required, interpretation of analytical results in also included.

Price: in India Rs 200; outside India: USD 60, *Orders to:* see below.

Fertiliser Management in Food Crops. H.L.S. Tandon, editor. Fertiliser Development and Consultation Organisation, New Delhi, 1993, 192 p. ISBN 81-85116-27-X (Hard cover); 81-85116-28-8 (soft cover).

Production and access to adequate food has been mankind's major concern. Food production must increase to meet the needs of a growing population, its rising living standards and for food processing industry. Application of fertilisers and other sources of plant nutrients is very important for increasing food production and sustaining it as well.

The advances made in fertiliser management for major food crops are summarised and analyzed in this book. In addition to synthesising available information, results of practical utility have been brought out and areas requiring further research identified. The crops covered are rice, wheat, maize, sorghum, millets, pulses, potato, cassava and vegetables. All nutrients (major and micro) have been dealt with.

Price: Softcover: In India Rs 180; outside India: USD 50. Hardcover: In India Rs 240; outside India: USD 60

Orders to: see below.

Fertiliser Management in Commercial Crops. H.L.S. Tandon, editor. Fertiliser Development and Consultation Organisation, New Delhi, 1993, 176 p. ISBN 81-85116-29-6 (Hard cover); 81-85116-30-X (soft cover).

Commercial crops and food crops are the two major sectors of agriculture. The economic significance of commercial crops is far greater than their share of agricultural area. Fertiliser is a proven input for increasing the productivity and profitability of these crops. This volume provides the latest available information on fertiliser management in major commercial crops. In addition, results of practical utility have been brought out and areas

requiring further research identified. The crops covered are sugarcane, cotton, jute, oilseeds, tea, coffee, rubber and coconut. All nutrients (major and micro) have been dealt with.

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Orders to: Fertiliser Development and Consultation Organisation (FDCO), 204-204A Bhanot Corner, 1-2 Pamposh Enclave, New Delhi 110048, India.

Soil Chemistry and its Applications. Cambridge Environmental Chemistry Series 5. M. Cresser, K. Killham and T. Edwards. Cambridge University Press, Cambridge, New York, 1993, xiii + 192 p. ISBN 0-521-31134-9. Paperback.

The central role of soil chemistry in the ecosystem is becoming increasingly evident. The effects of increased levels of atmospheric carbon dioxide, and the widespread use of pesticides, on soil fertility and nutrient cycling for example have been the focus of much high level debate.

This text, written for undergraduate students in soil and environmental sciences, begins by defining the relationship between soil chemistry and other fields as diverse as plant science and pollution science. A detailed description of the components of soil follows, including inorganic, mineral and organic matter. The book addresses cogent issues such as soil fertility and soil pollution. In a concluding chapter, a review of future analytic advances in the study of soil chemistry is given, emphasising the importance of the soil chemist in equitable and sustainable land use and agricultural policy.

Orders to: see below.

Crop Ecology. Productivity and management in agricultural systems. R.S. Loomis and D.J. Connor. Cambridge University Press, Cambridge, New York, 1992, xiv + 538 p. ISBN 0-521-38776-0 (Paperback) 0-521-38379-X (Hardback).

The 'production processes' of crops and pastures - photosynthesis and use of water and nutrients in fields - provide the unifying theme of this new text on the ecology of crop production. This book provides a combination of great breadth and depth in its treatment of production processes and systems problems. The approach is explanatory and integrative, with a firm basis in environmental physics, soils, physiology, and morphology. Systems concepts are introduced early and expanded as the book proceeds, giving emphasis to quantitative approaches, to management strategies and tactics employed by farmers, and to environmental issues. The systems approach is brought together in the final chapters, where production and nutrient cycling are analyzed, drawing on examples from Ame-

rican and Australian farms. The concluding chapter looks at trends in population growth and food supply and considers how the challenges of an uncertain future can be met.

Price: GBP 22.95, USD 39.95 (Paperback); GBP 60, USD 100 (Hardback).

Orders to: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, U.K. *or:* Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211, U.S.A.

Optical Mineralogy: Principles & Practice. C.D. Gribble and A.J. Hall. UCL Press, London, 1992, xv + 303 p. ISBN 1-85728-014-8 (Paperback) 1-85728-013-X (Hardback).

This introductory text deals in detail with the main optical properties of rock-forming minerals that can be recognized under the microscope. Written specifically with the needs of the student in mind, it provides a firm foundation upon which to base more advanced studies of mineral associations and paragenesis, their chemistry and other parameters. It encompasses both the silicate and non-silicate minerals, translucent and opaque. The treatment systematically discusses what the optical properties are and how the student can recognize them in laboratory studies.

The theory of transmitted-and-reflected-light optics is dealt with in considerable detail, so that the precise nature of an optical property can be understood. Diagrams of the optically more complex minerals accompany their descriptions, and these serve to simplify the relationship between the optical properties and the crystallography of a particular mineral. Rarer minerals are also included. Each mineral description is accompanied by a brief synopsis of the mineral's occurrence: in which rocks it is found and which other minerals are associated with it.

Price: GBP 17.95 (Paperback); GBP 50 (Hardback).

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The Sulfate-Reducing Bacteria: Contemporary Perspectives. J.M. Odom and R. Singleton, Jr., editors. Springer-Verlag, New York, Berlin, 1993, ix + 289 p. ISBN 0-387-97865-8 (US edition) 3-540-97865-8 (German edition). Hardcover.

Sulfate-reducing bacteria comprise a diverse and ecologically interactive group of anaerobic prokaryotes which share an extraordinary trait: growth by sulfate respiration with hydrogen sulfide as a major end-product. Sulfate-reducers are found in environments ranging from estuaries to geological oil-bearing formations. They have attracted considerable scientific and commercial interest and are implicated in costly industrial problems such as anaerobic corrosion of metal structures and the deterioration of oil reservoirs due to sulfide contamination. The unusual biochemistry of sulfate-reduction has led to the discovery of many novel enzymes, and investigations on the evolutionary history of these organisms has stimulated new insights into the basic relationships of prokaryotes.

Sulfate-reducing bacteria have been actively investigated by researchers interested in microbial energetics, protein chemistry, ecology, and molecular biology. This interest has increased greatly over the past decade, and this volume presents the first book-length summary in nearly 10 years of our knowledge about sulfate-reducing bacteria. Featuring comprehensive reviews from recognized authorities, this book will be of interest to microbiologists in physiology, evolution, and ecology.

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Application of Geographic Information Systems in Hydrology and Water Resources Management. IAHS Publication No. 211. K. Kovar and H.P. Nachtnebel, editors. International Association of Hydrological Sciences, Wallingford, 1993, xi + 693 p. ISBN 0-947571-48-5. Paperback.

Hydrological modelling and water resources management are primarily related to spatial and dynamic processes. Until recently, the complexity of spatially distributed hydrological data sets prevented detailed modelling but stimulated the application of spatially averaged models. The rapid progress in computer technology has promoted the development of spatial data base systems, of efficient object-related map manipulation routines and of high resolution visualization techniques. In general, these tools are integrated into Geographic Information Systems (GIS) for which many software packages are commercially available.

This book is the proceedings of the Conference on the Application of Geographic Information Systems in Hydrology and Water Resources Management (HydroGIS 93) held in Vienna, April

1993. The objectives of the conference were to exchange experiences in the application of GIS and to identify research needs with respect to the specific requirements of hydrology and water resources related management. The 69 papers included in this volume are grouped under the following topics: Decision support and expert systems; Methodological aspects and application of GIS in remote sensing; Digital terrain models and GIS; Application of GIS in three- and four-dimensional problems; Coupling GIS with hydrological models; Application of GIS in water and environmental management; Application of GIS in surface water systems; and Application of GIS in groundwater systems.

This volume is a contribution to the evaluation of the benefits and drawbacks of the application of GIS in hydrological sciences, and it identifies specific requirements to achieve successful application of GIS in hydrology and water resources management.

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Orders to: IAHS Press, Institute of Hydrology, Wallingford, Oxfordshire, OX10 8BB, U.K.

Genesis of the soil salinity in deserts (examples on deserts of Mongolia and Central Asian republics of the former USSR). Y.I. Pankova. Moscow, 1992. 136 p. ISBN 5-7010-0257-8. Paperback.

One of the major problems related to desertification is the occurrence and development of soil salinity in dry areas. This important problem is dealt with in the book based mainly on the experiences from one of the most significant desert areas of Eurasia, namely Mongolia and the Central Asian republics of the former USSR.

After characterizing salinity and desertification in the 1st Chapter the physico-geographical properties of the arid territories in Mongolia and Central Asia are described. The author defines the different degrees of aridity and salinity and gives geographical and cartographical identifications of the described areas.

In Chapter 2 the salt affected soils of Mongolia are characterized with extended experimental material of their geographical, chemical, physical and agronomical evaluation. Particular attention is paid to the ecological conditions of the Gobi Desert. The interrelation between soil salinization and the given ecosystems is also characterized and discussed. The different types of salt affected soils related to the elements of relief and to the factors of geomorphology are covered with particular care and illustrated with detailed physical, chemical, and geological data.

In Chapter 3 the Central Asian republics of the former USSR are described as the subjects of desertification and salinization. Particular attention is paid to the valleys of the rivers Syr Darya and Amu Darya as well as to the district of the Aral Sea with description of adverse processes caused by improper methods of irrigation and land use, leading to intensive salt accumulation.

In Chapter 4 general problems of salt accumulation in dry areas are described. The author distinguishes regional and facial salt accumulation processes both in Mongolia and Central Asia.

The book is written in Russian, contains an extended list of references, and has an English title page, list of contents as well as a short summary. It is an original and valuable contribution of contemporary knowledge on desertification and soil salinization and will be useful not only to soil scientists but also to readers involved in other branches of science, in technology, ecology and/or decision-making.

Orders to: Y.I. Pankova, V.V. Dokuchaev Soil Institute, 7, Pyzhevsky Lane, 109017 Moscow, Russia. I. Szabolcs, Budapest

New Journals/Nouveaux Périodiques/Neue Zeitschriften

Wetlands Ecology and Management. SPB Academic Publishing, The Hague. R.R. Sharitz, editor-in-chief. ISSN 0923-4861.

This journal publishes original articles in the field of wetlands ecology, the science of the structure and functioning of wetlands for their transformation, utilization, preservation and management on a sustainable basis. It also publishes book reviews, notices of scientific meetings, and summaries of proceedings.

Subscription price (of volume 2): NLG 205 or USD 120 (postage and handling included).

Orders to: SPB Academic Publishing, P.O.Box 97747, 2509 GC The Hague, The Netherlands.

Development Policy Management Network (DPMN) Bulletin. Thrice-yearly published by Development Policy Management Network, Maastricht, 1993. S. Please, interim editor. ISSN: 0928-6195.

This bulletin is intended as a means of communication between researchers and officials involved in the process of development policy management. It is especially interested in the interface between economic policy analysis and the institutional processes through which policy is formulated and implemented.

The bulletin is not a research publication. However, its intention is to contribute to the deepening of the understanding of development policy management by defining the constraints which administrators and others see as impeding an improvement in policy management and reviewing measures which have been taken to address these constraints. In this way it is expected that hypotheses and questions will emerge for further research by economists, public administration specialists, sociologists, political scientists and others, thus stimulating a more informed and productive relationship between administrators and researchers. Each issue of the bulletin will focus on one topic or theme.

Contact: DPMN Bulletin, c/o ECDPM (Ms. E. de Rijk), Onze Lieve Vrouweplein 21, 6211 HE Maastricht, the Netherlands.

Journal of Agricultural & Food Information. Quarterly published by The Haworth Press, Binghamton, 1993. R.C. Frank, editor. ISSN 1049-6505.

This journal serves as a forum for the exchange and dissemination of research, knowledge, and innovative practice related to the broad spectrum of agricultural and food information. Agriculture and food are defined in their broadest sense to include not only the traditional subjects of plant and animal husbandry, but also food and nutrition science, nutrition education, aquaculture, animal welfare, agricultural economics, rural development, youth development, water quality, sustainable agriculture, biotechnology, and global change.

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Journal of Ecological Chemistry. Quarterly published by Alga-Fund, St. Petersburg, 1993. V.A. Isidorov, editor. ISSN 0869-3498.

The journal is devoted to study of man's interaction with his environment. Specifically, it is concerned with changes in the influence of industrial and agricultural activity of man. The subjects covered include: 1) observation and modeling of time-dimensional distribution of the pollutants in environment (atmosphere, hydrosphere and soils); 2) results of the investigation of different sources and sinks of organic and inorganic pollutants; 3) the role of chemical elements and compounds in biogeochemical cycles; 4) chemical interactions in the atmosphere, ocean, land surface and man-made perturbations in these interactions; 5) laboratory investigations of the chemical reactions in environment, especially transformation of pollutants; and 6) development and application of analytical techniques and methods to ecological problems.

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Ecumene. Quarterly published by Edward Arnold, Sevenoaks, 1993. D. Cosgrove and J.S. Duncan, joint editors. ISSN 0967-4608.

This journal publishes research, commentary and review on the cultural appropriation, both material and imaginative, of the earth and its environments for human life. It offers a forum not only for academic geographers, but for the increasing numbers of scholars in cognate disciplines of the humanities and social and environmental sciences; those concerned with the ways in which human cultures imagine, interpret, give meaning to and transform their physical and social worlds.

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Orders to: Edward Arnold, Hodder & Stoughton Publishers, Mill Road, Dunton Green, Sevenoaks, Kent TN13 2YA, U.K.

Applied Soil Ecology. Quarterly published by Elsevier Science Publishers, Amsterdam, 1994. Editors-in-chief: C.A. Edwards (for the Americas) and L. Brussaard (for the rest of the world). ISSN 0929-1393.

This new journal addresses the role of soil organisms and their interactions in relation to: agricultural productivity, nutrient cycling and other soil processes, the maintenance of soil structure and fertility, the impact of human activities and xenobiotics on soil ecosystems and bio(techno)logical control of soil-inhabiting pests, diseases and weeds. Such issues are the basis of sustainable agricultural and forestry systems and the long-term conservation of soils in both the temperate and tropical regions.

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Rice Literature Update. Quarterly published by the International Rice Research Institute, Los Baños, 1993.

This journal has become a quarterly publication and has been expanded to take the place of the International Bibliography of Rice Research. It contains the latest publications on rice acquired by the IRRI Library and Documentation Service, as well as references published earlier that are not included in previous supplements.

The arrangements are classified. An author index and a keyword index are provided. A list of translations available in the IRRI Library is included. There are 6 main entries: General; The rice plant; Rice growing; Plant protection; The rice product; and Economic and social aspects. In the second main entry section (Rice growing) publications are arranged under the following chapters: Agricultural meteorology, and crop weather relations; Soils; Water supply, water requirements and soil-plant-water relations; Agronomy; Irrigation, drainage, and water management; Mechanization; and Seeds.

Orders to: Documentation Service, IRRI, P.O.Box 933, Manila 1099, Philippines.

Umweltwissenschaften und Schadstoff-Forschung. Zeitschrift für Umweltchemie und Ökotoxikologie. O. Hutzinger (Hrsg.). Ecomed, Landsberg. ISSN 0934-3504.

Organ der Arbeitsgemeinschaft Umweltchemie und Ökotoxikologie der GdCh sowie des Verbandes für Geoökologie in Deutschland und der ECOINFORMA.

"Umweltwissenschaften und Schadstoff-Forschung" ist die erste Zeitschrift im deutschsprachigen und internationalen Bereich, in der sich die Wissenschaften schadstoffkonzentriert mit dem Verhalten, den Wirkungen und der Bewertung chemischer Stoffe beschäftigen. Im Mittelpunkt steht der chemische Stoff, der zum Schadstoff wird. Der breite Ansatz der Zeitschrift bringt es mit sich, daß auch Erkenntnisse und Verfahren der grundlegenden Forschung sowie der industriellen Forschungspraxis in den Beiträgen zum Ausdruck kommen.

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36421	MALTZ I.	ISRAEL	N 93-L	139 ISRAEL
36422	MARGILUS L.	ISRAEL	N 93-L	139 ISRAEL
36332	MARGULIES L.	ISRAEL	N 93-L	312 U.S.A.
36423	NEWMAN P.	ISRAEL	N 93-L	139 ISRAEL
36424	OREN A.	ISRAEL	N 93-L	139 ISRAEL
36425	RAVITZ E.	ISRAEL	N 93-L	139 ISRAEL
36426	SHAVIV A.	ISRAEL	N 93-L	139 ISRAEL
36427	SHPIRO E.	ISRAEL	N 93-L	139 ISRAEL

36428	SHPIRO M.	ISRAEL	N 93-L	139 ISRAEL
36429	TEOMIN N.	ISRAEL	N 93-L	139 ISRAEL
36430	TZATZKIN A.	ISRAEL	N 93-L	139 ISRAEL
36431	ZILBERMAN A.	ISRAEL	N 93-L	139 ISRAEL
36281	AUYEUNG M.T.	JAPAN	N 93-L	312 U.S.A.
36432	KATAYAMA A. DR.	JAPAN	N 93-I	144 JAPAN
36241	MIHARA M. DR.	JAPAN	1996-I	144 JAPAN
36443	ARIAS MILLA F.R.	KENYA	N 93-I	149 KENYA
36265	ALONSO VELASCO R.	MEXICO	N 93-L	186 MEXICO
36266	ALVAREZ GALLEGOS M.	MEXICO	N 93-L	186 MEXICO
36284	BELL M.A.Dr.	MEXICO	1993-L	312 U.S.A.
36276	CAZARES MORAN RAFAEL	MEXICO	N 93-L	186 MEXICO
36269	GARCIA SOTO M. JESUS	MEXICO	N 93-L	186 MEXICO
36267	HILARIO GABALLERO J.	MEXICO	N 93-L	186 MEXICO
36268	HUITRON RAMIREZ M.V.	MEXICO	N 93-L	186 MEXICO
36270	JUAREZ HERNANDEZ M.J.	MEXICO	N 93-L	186 MEXICO
36271	NEVAREZ REYES P.	MEXICO	N 93-L	186 MEXICO
36272	ORTIZ E.	MEXICO	N 93-L	186 MEXICO
36273	ORTIZ FRANCO P.	MEXICO	N 93-L	186 MEXICO
36274	SEPULVEDA PERALES R.	MEXICO	N 93-L	186 MEXICO
36275	VALDEZ GASCON B.	MEXICO	N 93-L	186 MEXICO
36258	LOUKILI M.	MOROCCO	N93-I	191 MOROCCO
36383	YISHAWU A.S.	NIGERIA	NW93-L	211 NIGERIA
36250	ARSTEIN A.	NORWAY	N 93-L	213 NORWAY
36251	BLOM H.	NORWAY	N 93-L	213 NORWAY
36252	ESSER K.	NORWAY	N 93-L	213 NORWAY
36253	FROGNER T.	NORWAY	N 93-L	213 NORWAY
36254	ROGNERUD B.	NORWAY	N 93-L	213 NORWAY
36255	SKOIEN S.	NORWAY	N 93-L	213 NORWAY
36283	BALOCH A.A.	PAKISTAN	N 93-L	312 U.S.A.
36311	HAMID A.	PAKISTAN	N 93-L	312 U.S.A.
36369	HOMBUNAKA P.H.	PAPUA NEW GUINEA	NW93-I	222 PAPUA NEW GUIN.
36298	DOBERMANN A.	PHILIPPINES	N 93-L	312 U.S.A.
36398	KARCZEWSKA A. DR.	POLAND	NW93-L	228 POLAND
36232	GROBBER P.	SENEGAL	NW93-I	256 SENEGAL
36257	ZAUJEC A. DR.	SLOVAKIA	1996-I	264 SLOVAKIA
36180	BOTHA J.A.	SOUTH AFRICA	N 93-L	269 SOUTH AFRICA
36181	SCHOONWINKEL D.	SOUTH AFRICA	N 93-L	269 SOUTH AFRICA
36182	STRYDOM H.L.	SOUTH AFRICA	N 93-L	269 SOUTH AFRICA
36202	BAUTISTA I. DR.	SPAIN	N 93-I	275 SPAIN
36333	MARTINEZ-COB A.	SPAIN	N 93-I	312 U.S.A.
36444	ANDERSON B.S.M.E.	SWEDEN	NW93-L	286 SWEDEN
36440	HOLMGREN P.	SWEDEN	NW93-L	286 SWEDEN
36244	BLATTER R.	SWITZERLAND	2000-I	287 SWITZERLAND
36386	EGLI M.	SWITZERLAND	N93-I	287 SWITZERLAND
36237	LAESER H.P.	SWITZERLAND	1996-I	287 SWITZERLAND
36437	NIEDERER + POZZI	SWITZERLAND	N93-I	287 SWITZERLAND
36233	NIEVERGELT J.	SWITZERLAND	N 93-I	287 SWITZERLAND
36292	CHAO C.	TAIWAN ROC.	N 93-L	312 U.S.A.
36318	HOUNG K.H.	TAIWAN ROC.	N 93-L	312 U.S.A.
36328	LEE D.Y.	TAIWAN ROC.	N 93-L	312 U.S.A.
36361	WANG M.K.	TAIWAN ROC.	N 93-L	312 U.S.A.
36199	DABBAKULA NA AYUDHYA M.	THAILAND	N 93-I	292 THAILAND
36197	JITHAVECH P.	THAILAND	N 93-I	292 THAILAND
36198	YOOTHONG K.	THAILAND	N 93-I	292 THAILAND
36438	KAUFFMAN J.H.	THE NETHERLANDS	NW93-L	197 THE. NETHERL.
36305	FULLERTON T.P.	TRINIDAD & TOBAGO	N 93-L	312 U.S.A.

36240	AKIN A.	TURKEY	NW93-I	303 TURKEY
36278	ALDRICH M.V.	U.S.A.	1994-L	312 U.S.A.
36277	ALOZ M.M.	U.S.A.	N93-L	312 U.S.A.
36280	ANWAR C.	U.S.A.	N93-L	312 U.S.A.
36282	BALI K.M.	U.S.A.	N93-L	312 U.S.A.
36288	BRYANT R.B.	U.S.A.	N93-L	312 U.S.A.
36289	BURT R.	U.S.A.	N93-L	312 U.S.A.
36290	BUSCHER D.P.	U.S.A.	1994-L	312 U.S.A.
36294	COLE K.M.	U.S.A.	N93-L	312 U.S.A.
36295	CORTES M.	U.S.A.	N93-L	312 U.S.A.
36296	DAVENPORT D.W.	U.S.A.	N93-L	312 U.S.A.
36226	DE MARS B.G.	U.S.A.	1994-I	312 U.S.A.
36297	DEMENT J.A.	U.S.A.	N93-L	312 U.S.A.
36299	DOYLE J.D.	U.S.A.	N93-L	312 U.S.A.
36300	DYSART P.L.	U.S.A.	N93-L	312 U.S.A.
36303	FISK A.C.	U.S.A.	N93-L	312 U.S.A.
36304	FUKUMURA K.	U.S.A.	N93-L	312 U.S.A.
36234	GEHRING A.U. DR.	U.S.A.	1996-I	287 SWITZERLAND
36308	GOUBE M.G.	U.S.A.	1994-L	312 U.S.A.
36309	GREENBERG W.A.	U.S.A.	1994-L	312 U.S.A.
36315	HARRIMAN R.C.	U.S.A.	N93-L	312 U.S.A.
36312	HAVERLAND R.L.	U.S.A.	N93-L	312 U.S.A.
36313	HECKMAN J.R.	U.S.A.	N93-L	312 U.S.A.
36314	HELMS D.	U.S.A.	N93-L	312 U.S.A.
36316	HODGSON L.M.	U.S.A.	N93-L	312 U.S.A.
36317	HOOSBECK M.R.	U.S.A.	N93-L	312 U.S.A.
36319	HUCKETT S.P.	U.S.A.	N93-L	312 U.S.A.
36320	IANNI J.P.	U.S.A.	N93-L	312 U.S.A.
36322	JOHNSON B.K.	U.S.A.	N93-L	312 U.S.A.
36323	JOHNSON D.W.	U.S.A.	N93-L	312 U.S.A.
36324	JOHNSON T.R.	U.S.A.	N93-L	312 U.S.A.
36325	KANAMPUI F.K.	U.S.A.	N93-L	312 U.S.A.
36326	KLICH I.	U.S.A.	N93-L	312 U.S.A.
36327	KNOEPP I.D.	U.S.A.	N93-L	312 U.S.A.
36329	LEE G.B.	U.S.A.	N93-L	312 U.S.A.
36334	MOENNE-LOCCOZ Y.	U.S.A.	N93-L	312 U.S.A.
36335	MOLINA J.A.	U.S.A.	N93-L	312 U.S.A.
36336	NGUYEN P.V.	U.S.A.	N93-L	312 U.S.A.
36337	NUBEL N.A.	U.S.A.	N93-L	312 U.S.A.
36338	OZTAS T.	U.S.A.	N93-L	312 U.S.A.
36339	PATTERSON N.T.	U.S.A.	N93-L	312 U.S.A.
36340	PETERSEN G.W.	U.S.A.	N93-L	312 U.S.A.
36343	REICHGEL J.E.	U.S.A.	N93-L	312 U.S.A.
36344	REICH P.F.	U.S.A.	N93-L	312 U.S.A.
36345	REINSCH T.G.	U.S.A.	N93-L	312 U.S.A.
36347	RUPPERT D.A.	U.S.A.	N93-L	312 U.S.A.
36349	SALMAN A.A.	U.S.A.	N93-L	312 U.S.A.
36351	SCHNORR R.J.	U.S.A.	N93-L	312 U.S.A.
36352	SPARROW E.B.	U.S.A.	N93-L	312 U.S.A.
36353	STEINHARDT G.C.	U.S.A.	N93-L	312 U.S.A.
36354	SWEENEY M.D.	U.S.A.	N93-L	312 U.S.A.
36355	TEMPLETON W.E.	U.S.A.	1994-L	312 U.S.A.
36356	THAPA B.B.	U.S.A.	N93-L	312 U.S.A.
36357	TORDSEN K.R.	U.S.A.	N93-L	312 U.S.A.
36358	TUKAKI O'CONNOR J.L.	U.S.A.	N93-L	312 U.S.A.
36359	VAANDRAGER C.	U.S.A.	N93-L	312 U.S.A.
36360	VAN REMORTEL R.D.	U.S.A.	N93-L	312 U.S.A.

36362	WEITKAMP W.A.	U.S.A.	N 93-L	312 U.S.A.
36363	WILLE J.N.	U.S.A.	N 93-L	312 U.S.A.
36364	WILSON G.R.	U.S.A.	1994-L	312 U.S.A.
36365	WRIGHT W.R.	U.S.A.	N 93-L	312 U.S.A.
36366	YAO T.M.	U.S.A.	N 93-L	312 U.S.A.
36367	ZAHOW M.F.	U.S.A.	N 93-L	312 U.S.A.
36190	BERBARA R.L.L.	U. K.	NW93-L	114 U. K.
36441	EVE C.	U. K.	NW93-L	114 U. K.
36191	GRIFFITHS B.S. DR.	U. K.	NW93-L	114 U. K.
36388	HALLETT P.D.	U. K.	NW93-L	114 U. K.
36368	HARIA A.H.	U.K.	NW93-L	114 U.K.
36389	LOGAN E.M.	U.K.	NW93-L	114 U.K.
36391	PENN M.	U.K.	NW93-L	114 U.K.
36342	RAGAB R.A.	U.K.	N 93-L	312 U.S.A.
36390	SANGER L.	U.K.	NW93-L	114 U.K.
36188	TURNER V.	U.K.	NW93-L	114 U.K.
36189	WILLIAMS G.B.	U.K.	NW93-L	114 U.K.
36387	YANG J.	U.K.	NW93-I	114 U.K.
36183	ISMATOV D.R. PROF.	UZBEKISTAN	1994-L	315 UZBEKISTAN
36184	KAMILOV O.K. PROF.	UZBEKISTAN	1994-L	315 UZBEKISTAN
36245	NIQMATOV A. DR.	UZBEKISTAN	1994-L	315 UZBEKISTAN
36185	PIRAHUNOV T.P. PROF.	UZBEKISTAN	1994-L	315 UZBEKISTAN
36186	TURSUNOV A.A. DR.	UZBEKISTAN	1994-L	315 UZBEKISTAN
36187	TURSUNOV L.T. PROF.	UZBEKISTAN	1994-L	315 UZBEKISTAN
36442	RENGEL L.E.	VENEZUELA	N 93-I	316 VENEZUELA

New ISSS-Members from 01.08.93 to 31.12.93

Nr.	Name	Country	Payment
36571	PASCHEN H.	ALGERIA	NW I
36521	MICHELENA R.O.	ARGENTINA	1993 L
36523	SFEIR A.J.	ARGENTINA	1993 I
36465	WENZEL W.	AUSTRIA	NW L
36593	RICHARDSON K.V.	BAHAMAS	1993 L
36603	BIONTE Y.	BRAZIL	1993 I
36475	CAMARGOS S.L.	BRAZIL	1993 L
36474	CATTELAN A.J.	BRAZIL	1993 L
36477	CHITOLINA J.C.	BRAZIL	1993 L
36473	CRESTANA S. DR.	BRAZIL	1993 L
36472	DE CASTRO S.S.	BRAZIL	1993 L
36476	DO VALE F.R.	BRAZIL	1993 L
36469	HERNANI L.C.	BRAZIL	1993 L
36471	MARTHE L.A.Q.	BRAZIL	1993 L
36478	STRECK E.V.	BRAZIL	1993 L
36470	WEFFORT A.B.	BRAZIL	1993 L
36513	PALLO F.J.	BURKINA FASO	1993 L
36520	HAUSER S. DR.	CAMEROON	NW L
36532	CARTER M.R.	CANADA	1993 L
36525	HOFFMAN D.W. DR.	CANADA	1993 L
36529	LIMBRID A.G. DR.	CANADA	1993 L
36528	MCKENZIE D.B. DR.	CANADA	1993 L
36526	MILNE R.A.	CANADA	1993 L
36531	PARKINSON D.	CANADA	1993 L

36527	POTTINGER E.L.	CANADA	1993	L
36533	ROWLES C.A. DR.	CANADA	1993	L
36534	TOPP E.	CANADA	1993	L
36530	WHITE W.	CANADA	1993	L
36567	THOMAS R.J. DR.	COLOMBIA	1993	I
36583	CHACON R.	COSTA RICA	1993	L
36524	COLLINET J.	COSTA RICA	1993	I
36576	MALLER T. DR.	DENMARK	NW	L
36569	KOTB M.M.	EGYPT	1997	I
36595	SALEH H.H.	EGYPT	1993	L
36463	DI PIETRO L.	FRANCE	1993	I
36620	QUIQUAMPOIX H. DR.	FRANCE	1993	I
36604	BONGARD B.	GERMANY	NW	L
36577	GRIMM J. DR.	GERMANY	NW	L
36464	KNAPPE S.	GERMANY	1993	L
36575	KIRSCHENS M. PROF.	GERMANY	NW	L
36466	KRATZ W.	GERMANY	NW	L
36574	RAKEI A. DR.	GERMANY	NW	L
36625	SEILER E. DR.	GERMANY	1997	I
36627	FOSU M.	GHANA	1993	I
36598	VELESTINO S.A.	GREECE	1993	L
36517	TRIOMPHE B.L.	HONDURAS	1993	L
36538	ZOLTAN GYIRI DR.	HUNGARY	NW	I
36607	CHELLAMUTHU S. DR.	INDIA	1993	L
36608	FERNANDES PHILIPS E.	INDIA	1993	L
36609	KRISHNASAMY R. DR.	INDIA	1993	L
36610	LAVANYA P.G. DR.	INDIA	1993	L
36611	NIMGADE N.M. DR.	INDIA	1993	L
36565	PALANIAPPAN S.DR	INDIA	1993	L
36542	PERIASWAMY S. PROF.	INDIA	NW	L
36612	RAJARAJAN P.P. DR.	INDIA	1993	L
36613	RAMASWAMI P.P. DR.	INDIA	1993	L
36615	SANKARAN K. DR.	INDIA	1993	L
36618	SAVITHRI P. DR.	INDIA	1993	L
36616	SELVAKUMARI G. DR.	INDIA	1993	L
36617	SINGARAM P. DR.	INDIA	1993	L
36614	SUNWAR C.B. DR.	INDIA	1993	L
36509	HUSAIN J.	INDONESIA	1993	L
36499	BELLINO F. DR.	ITALY	1993	L
36500	BRUNETTI G.	ITALY	1993	L
36501	SARNO G. DR.	ITALY	1993	L
36626	CAMPBELL V.A.	JAMAICA	1996	I
36502	ARIMA Y. DR.	JAPAN	1993	L
36503	FUMOTO T.	JAPAN	1993	L
36504	HIGUCHI T. DR.	JAPAN	1993	L
36573	KATSUJI WATANABE DR.	JAPAN	1993	L
36540	MIZUHIKO N.	JAPAN	1993	I
36505	MORISADA K.	JAPAN	1993	L
36506	YASUMOTO K.	JAPAN	1993	L
36624	NAVAR J. DE J.	MEXICO	NW	I
36460	GHIMIRE U.P.S.	NEPAL	1993	I
36606	MILNE J.D.	NEW ZEALAND	1993	L
36468	O'CONNOR K.F. PROF.	NEW ZEALAND	1993	L
36514	SCHWAMBERGER E.C.	PAPUA NEW GUINEA	1993	L
36572	HUANES M.	PERU	1993	I
36580	ARROBAS M.M.P.	PORTUGAL	NW	L
36543	AKHTYRTSEV B.P. PROF.	RUSSIA	1993	L

36544	BELOBROV V.P. DR.	RUSSIA	1993	L
36545	FEDORETS N.G. DR.	RUSSIA	1993	L
36546	FIRSOVA V.P. PROF.	RUSSIA	1993	L
36547	FOKIN A.D. PROF.	RUSSIA	1993	L
36548	GAMZIKOV G.P. PROF.	RUSSIA	1993	L
36549	GILICHINSKY D.A. DR.	RUSSIA	1993	L
36550	GUBIN S.V. DR.	RUSSIA	1993	L
36551	KOPOSOV G.F. PROF.	RUSSIA	1993	L
36552	KUDEYAROV V.N. PROF.	RUSSIA	1993	L
36553	KULESHOV L.N. DR.	RUSSIA	1993	L
36554	MATINYAN N.N. DR.	RUSSIA	1993	L
36555	MINEEV V.G. PROF.	RUSSIA	1993	L
36556	OZNOBIKHIN V.I. DR.	RUSSIA	1993	L
36557	PEREVERSEV V.N. DR.	RUSSIA	1993	L
36558	POGODINA G.S. PROF.	RUSSIA	1993	L
36559	PUPONIN A.I. PROF.	RUSSIA	1993	L
36560	RUSANOV A.M. DR.	RUSSIA	1993	L
36561	SAVOSTIANOV V.K. DR.	RUSSIA	1993	L
36562	TASHNINOVA L.N. DR.	RUSSIA	1993	L
36563	YAKOVLEV A.S. DR.	RUSSIA	1993	L
36564	ZALIBEKOV Z.G. PROF.	RUSSIA	1993	L
36459	MUHAMMAD A.A	SAUDI ARABIA	1993	I
36535	DU PLESSIS C.A.	SOUTH AFRICA	1993	L
36536	JACOBS E.O.	SOUTH AFRICA	1993	L
36581	NORMAN C.W.	SOUTH AFRICA	NW	L
36537	OBERHOLZER A.S.	SOUTH AFRICA	1993	L
36495	ALONSO HERRERO E.	SPAIN	1993	L
36496	ARRICIBITA VIDEGAIN F.J.	SPAIN	1993	L
36497	BESCANS MIGUEL P.	SPAIN	1993	L
36480	CASERMEIRO MARTINEZ M.A.	SPAIN	1993	L
36479	CASTILLO CAMPOS J.J.	SPAIN	1993	L
36619	CROMVOETS J.	SPAIN	1993	I
36491	DE CASTILLA Y LEON J.	SPAIN	1993	L
36601	DE LA HORRA RUIZ J.L.	SPAIN	1993	L
36481	GARZON GIMENO J.E.	SPAIN	1993	L
36482	GOYANES RUBIO A.	SPAIN	1993	L
36484	ITURRONDOBEITIA BILBAD J.C.	SPAIN	1993	L
36492	LLINARES I PALACIOS J.	SPAIN	1993	L
36483	LOBO BEDMAR C.	SPAIN	1993	L
36493	MASAGUER RODRIGUEZ A.	SPAIN	1993	L
36498	MOLINER ARAMENDIA A.	SPAIN	1993	L
36485	NEGRIN MEDINA M.A.	SPAIN	1993	L
36494	PEREZ DE LOS REYES C.	SPAIN	1993	L
36486	ROBLES LLAMAZARES J.A.	SPAIN	1993	L
36602	RUBIO SANCHEZ A.	SPAIN	1993	L
36487	RUILOPE PINEDA R.	SPAIN	1993	L
36488	SANCHEZ MARANON M.	SPAIN	1993	L
36515	TAGUAS-COEJO F.J.	SPAIN	1993	L
36490	TRESSERRAS J.J.	SPAIN	1993	L
36489	VIGUERA GARCIA R.	SPAIN	1993	L
36570	ABUZIED HUSSIEN	SUDAN	1997	I
36568	WARFVINGE PER DR.	SWEDEN	NW	I
36621	VON STEIGER B.	SWITZERLAND	NW	I
36587	HSEU Z. Y.	TAIWAN ROC.	1993	L
36588	LIU J.C.	TAIWAN ROC.	1993	L
36508	CHAIYAPARN J.	THAILAND	1993	L
36623	DROOGERS P.	THE NETHERLANDS	NW	L

36566	KUNWAR Lok Bahadur	THE NETHERLANDS	1993	I
36605	OLDEMAN L.R.	THE NETHERLANDS	1993	I
36516	VAN DER VAT M.	THE NETHERLANDS	1993	L
36507	ALMARAZ R.A.	U.S.A.	1993	L
36584	DECHERT T.V.	U.S.A.	1993	L
36585	DULOHERY C.J.	U.S.A.	1993	L
36586	FOX R.H.	U.S.A.	1993	L
36467	HALLMARK W.B.	U.S.A.	1993	I
36510	JAYAWEERA G.R.	U.S.A.	1993	L
36511	KHOURI N.	U.S.A.	1993	L
36589	LOWELL K.	U.S.A.	1993	L
36590	MORAN L.P.	U.S.A.	1993	L
36591	MUAMBA N.P.	U.S.A.	1993	L
36592	MUGENDI D.N.	U.S.A.	1993	L
36512	MUNANKARMY R.C.	U.S.A.	1993	L
36461	PIERZYNSKI G.M.	U.S.A.	1993	I
36594	SALAZAR E.	U.S.A.	1993	L
36597	SANCHEZ G.A.	U.S.A.	1993	L
36596	SHAFFER P.W.	U.S.A.	1993	L
36599	WIDIYATMANTO H.E.	U.S.A.	1993	L
36600	WILLSON T.C.	U.S.A.	1993	L
36518	WINKLERPRINS A.	U.S.A.	1993	L
36519	ZAZUETA F.S.	U.S.A.	1993	L
36582	ATKINS G.J.	U. K.	1993	L
36541	DEBNEY S.M.	U. K.	1993	I
36579	LATIMER K.E.	U. K.	1993	L
36578	SINGH B. DR.	U. K.	1993	L
36522	FERNANDEZ DE ANDRADE L.	VENEZUELA	1993	L
36622	SCHARGEL R. DR.	VENEZUELA	1993	I
36539	MAKUKU KAKONI L.	ZAIRE	NW	I



Membership Application Form Fiche de Demande d'Affiliation Aufnahmeantragsformular

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Specially interested in the activities of/intérêt particulier pour les activités/besonders an folgenden Bereichen interessiert:

(C) Commissions/Commissions/Kommissionen

- I Soil Physics/Physique du Sol/Bodenphysik
- II Soil Chemistry/Chimie du Sol/Bodenchemie
- III Soil Biology/Biologie du Sol/Bodenbiologie
- IV Soil Fertility and Plant Nutrition/Fertilité du Sol et Nutrition des Plantes/Bodenfruchtbarkeit und Pflanzenernährung
- V Soil Genesis, Classification and Cartography/Genèse du Sol, Classification et Cartographie/Bodengenetik, Klassifikation und Kartographie
- VI Soil Technology/Technologie du Sol/Bodentechnologie
- VII Soil Mineralogy/Minéralogie du Sol/Bodenmineralogie

Subcommissions/Sous-commissions/Subkommissionen

- A Salt affected soils/Sols salins/Salzböden
- B Soil Micromorphology/Micromorphologie du Sol/Bodenmikromorphologie
- C Soil Conservation and Environment/Conservation du Sol et Environnement/Bodenerhaltung und Umwelt
- D Soil Zoology/Zoologie du Sol/Bodenzoologie (with/avec/mit UBS)

Preferred language/Langue préférée/Gewünschte Sprache

- English
- Français
- Deutsch
- Espanol

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- as Unesco coupons/sous forme de bons de l'Unesco/mit Unesco-Kupons
- life membership/affiliation pour la vie/Mitgliedschaft auf Lebenszeit (US\$ 300 or equivalent, after four years of regular membership/dollars E.U. 300 ou leur équivalent, après quatre ans d'affiliation régulière/US\$ 300 oder Gegenwert, nach 4 Jahren Normalmitgliedschaft)

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Subcommissions/Sous-Commissions/Subkommissionen - Chairmen/Présidents/Vorsitzende:

A. Salt Affected Soils/Sols Salins/Salzböden

Prof. Dr. Zhao Qui-guo, Inst. of Soil Science, Academia Sinica, P.O.Box 821,
Nanjing, 21008, PR of China

B. Soil Micromorphology/Micromorphologie du Sol/Bodenmikromorphologie

Dr. C.J. Chartres, CSIRO Division of Soils, P.O. Box 639, Canberra City, ACT2601, Australia

**C. Soil Conservation and Environment/Conservation du Sol et Environnement/
/Bodenerhaltung und Umwelt**

Prof. Dr. I. Pla-Sentis, Las Acacias, Apartado 1131, Maracay, Venezuela

D. Soil Zoology/Zoologie du Sol/Bodenzoologie (with/avec/mit IUBS)

Prof. D. Parkinson, Dept. Of Biological Sciences, University
of Calgary, 2500 University Drive N.W., Calgary, Alberta T2N 1N4, Canada;

Working Groups/Groupes de Travail/Arbeitsgruppen - Chairmen/Présidents/Vorsitzende:

AS Acid Sulphate Soils/Sols Sulphatés Acides/Saure Sulfatböden

Dr. S. Sadio, ISRA/ORSTOM, B.P. 1386, Dakar, Senegal

**DM World Soils and Terrain Digital Data Base/Carte Internationale Numérique des Sols et des Terrains/
/Digitalisierte Internationale Boden- und Landkarte (SOTER)**

Prof. Dr. M.F. Baumgardner, Dept. of Agronomy, Purdue University, West Lafayette IN 47907, USA

FS Forest-Soil Relationships/Relations Sol-Forêt/Beziehungen Wald-Boden

Dr. P.K. Khanna, CSIRO, Div. of Forest Research, P.O. Box 4008, Canberra ACT 2600, Australia

FT Soil Fertility Trials/Essais de Fertilité des Sols/Bodenfruchtbarkeitsversuche

Dr. S.K. De Datta, IIRRI, P.O.Box 933, Manila, Philippines

**HP History, Philosophy and Sociology of Soil Science/Histoire, Philosophie et Sociologie de la Science du
Sol/Geschichte, Philosophie und Soziologie der Bodenkunde**

Prof. Dr. D.H. Yaalon, Dept. of Geology, Hebrew University, Jerusalem 91000, Israel

**LI Land Evaluation Information Systems/Informatique de l'Evaluation des Terres/
/Informationssysteme zur Landbewertung**

Dr. J. Dumanski, Land Resources Research Institute, Agric. Canada, Ottawa, Ontario, Canada K1A 0C6

**MO Interactions of Soil Minerals with Organic Components and Microorganisms/Interactions entre les
Minéraux du Sol, les Composés Organiques et les Microbes/Wechselwirkungen zwischen Boden-
mineralen, organischen Substanzen und Mikroorganismen**

Prof. Dr. P.M. Huang, Univ. of Saskatchewan, Dept. of Soil Science, Saskatoon, Sask., Canada S7N 0W0

**MV Soil and Moisture Variability in Time and Space/Variabilité du Sol et de l'Humidité dans le Temps et
l'Espace/Boden- und Feuchtigkeitsvariabilität in Raum und Zeit**

Prof. Dr. J. Bouma, Dept. of Soil Science and Geology, Agric. University, P.O. Box 37,
6700 AA Wageningen, The Netherlands

PM Pedometrics/Pedométrie/Pedometrik

Prof. Dr. D.E. Myers, Dept. of Mathematics, Univ. of Arizona, Tucson AZ 85721, USA

PP Paleopedology/Paléopédologie/Paläopedologie

Prof. Dr. J.A. Catt, Rothamsted Exp. Station, Soil Science Department, Harpenden,
Herts, AL5 2JQ, United Kingdom

PS Paddy Soils Fertility/Fertilité des Sols Rizicoles Irrigués/Fruchtbarkeit von Reisböden

Dr. Tasnee Attanandana, Dept. of Soil Science, Faculty of Agric., Kasetsart University,
Bangkok, 10903, Thailand

PT Pedotechnique/Pédotechnique/Pedotechnik

Prof. Dr. R. Horn, Inst. für Pflanzenernährung und Bodenkunde,
Olshausenstrasse 40-60, 24118 Kiel, Germany

RS Remote Sensing for Soil Survey/Pédologie et Télédétection/Fernerkundung für Bodenkartographie

Dr. M. Mulders, Dept. of Soil Science & Geology, Wageningen
Agric. University, P.O. Box 37, 6700 AA Wageningen, The Netherlands

RZ Rhizosphere/Rhizosphère/Rhizosphäre

Prof. Dr. A. Jungk, Inst. f. Agrilkulturchemie, Von Sieboldstrasse 6, 37075 Göttingen, Germany

SG Soils and Geomedicine/Sols et Géomédecine/Böden und Geomedizin

Prof. Dr. J. Låg, Dept. of Soil Science - AUN, P.O.Box 28, 1432 Ås-NLH, Norway

SP Soil and Groundwater Pollution/Pollution du Sol et des Eaux

Souterraines/Boden- und Grundwasserverschmutzung
Prof. Dr. P.J. Wieringa, Univ. of Arizona, Soil & Water Science, Tucson AZ 85721, USA

Standing Committees/Comités Permanents/Ständige Komitees - Chairmen/Présidents/Vorsitzende:

CSS Committee on Statute and Structure/Comité sur Statuts et Structures/Komitee für Statuten und Struktur

Prof. Dr. P.B. Tinker, GCTE Associate Project Office, Department of Plant Sciences,
University of Oxford, South Parks Road, Oxford OX1 3RB, UK

**CIP Committee on International Programmes/Comité sur les Programmes Internationaux/
/Komitee für Internationale Programme**

Prof. Dr. H. Scharpenseel, Inst. für Bodenkunde, Allende-Platz 2, 20146 Hamburg, Germany

CST Committee on Standardization/Comité sur la Standardisation/Standardisierungskomitee

Prof. Dr. H-P. Blume, Inst. für Pflanzenern.u. Bodenkunde, Olshausenstr. 40-60, 24118 Kiel, Germany

CBF Committee on Budget and Finances/Comité sur Budget et Finances/Budget- und Finanzkomitee

Prof. Dr. W.R. Gardner, USA, College of Natural Resources, Univ. of California, Berkeley, Calif. 94720, USA.

**CES Committee on Education in Soil Science/Comité pour l'Enseignement de la Pédologie/
/Komitee für Bodenkundeausbildung**

Prof. Dr. A. Ruellan, 2, Bd. Berthelot, F-34000 Montpellier, France

Cooperating Journals/Journaux Coopérants/Kooperierende Zeitschriften

ARID SOIL RESEARCH AND REHABILITATION; BIOLOGY & FERTILITY OF SOILS;
CATENA; GEODERMA; SOIL BIOLOGY & BIOCHEMISTRY; SOIL TECHNOLOGY;

ISSS MEMBERSHIP

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