



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. 84

1993/2

**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/Angeschlossene nationale und regionale Gesellschaften: 65. A scientific-associate member of ICSU since/Membre associé scientifique de l'ICSU depuis/Wissenschaftlich-assoziiertes Mitglied der ICSU seit: 1972.

Seat/Siège/Sitz: c/o Institut für Bodenforschung, Universität für Bodenkultur, Gregor-Mendel-Strasse 33, A-1180 Vienna, Austria. Phone: +43 1 3106026; Fax.: +43 1 3106027.

Officers/Bureau/Vorstand

President/Président/Präsident

Prof.Dr. A. AGUILAR Santelises, Universidad Autonoma de Chapingo, Apartado Postal 45, 56230 Chapingo, Mexico.

Vice President/Vice-Président/Vizepräsident

Prof.Dr. R. NUNEZ Escobar, Colegio de Postgraduados, 56230 Montecillo, Chapingo, Mexico.

1st Past President/1er Ancien Président/1. Altpräsident

Prof.Dr. A. Tanaka, Hokkaido Univ., Faculty of Agric. Kita 9 nishi 9 Kita-ku, Sapporo 060, Japan

2nd Past President/2ème Ancien Président/2. Altpräsident

Prof.Dr. K.H. Hartge, Institut für Bodenkunde der Universität Hannover, Herrenhäuser Strasse 2, D-3000 Hannover 21, Germany

3rd Past President/3ème Ancien Président/3. Altpräsident

Dr. J.S. Kanwar, Plot No. 17, Krishi Nagar, ICRISAT Colony-Phase II, Hashmathpet Road, Secunderabad 500 011 A.P., India

Secretary-General/Secrétaire Général/Generalsekretär

Prof.Dr. W.E.H. Blum, Institut für Bodenforschung, Universität für Bodenkultur, Gregor-Mendel-Strasse 33, A-1180 Vienna, Austria.

Deputy Secretary-General/Secrétaire Général adjoint/Stellvertretender Generalsekretär

Drs. J.H.V. van Baren, ISRIC, P.O.Box 353, 6700 AJ Wageningen, The Netherlands.

Treasurer/Trésorier/Schatzmeister

Dr. P.U.Lüscher, Eidg. Forschungsanstalt für Wald, Schnee u. Landschaft (WSL), Zürcherstr.111, CH-8903 Birmensdorf, Switzerland

Honorary Members/Membres d'Honneur/Ehrenmitglieder

Prof. Dr. G. Aubert (France), Dr. G. Barbier (France), Prof.Dr. Ph. Duchaufour (France), Prof.Dr. W. Flaig (Germany), Prof.Dr. E.G. Hallsworth (Australia), Dr. V. Ignatieff (Canada), Dr. Y. Ishizuka (Japan), J.S. Kanwar (India), Dr. D. Kirkham (USA), Prof.Dr. E. Mückenhausen (Germany), Dr. S.K. Mukherjee (India), Dr. L.A. Richards (USA), Prof.Dr. E.W. Russel (UK), Prof.Dr P. Schachtschabel (Germany), Dr. R. Simonson, (USA), Prof.Dr.I. Szabolcs (Hungary).

Commissions/Commissions/Kommissionen - Chairmen/Présidents/Vorsitzende:

I. Soil Physics/Physique du Sol/Bodenphysik

Dr. G. Vachaud, Institut de Mécanique (IMG), B.P. 53 X, F-38041 Grenoble, France

II. Soil Chemistry/Chimie du Sol/Bodenchemie

Prof. Dr. R.S. Swift, CSIRO Division of Soils, P.M.B.2, Glen Osmond, Adelaide 5064, Australia

III. Soil Biology/Biologie du Sol/Bodenbiologie

Prof. Dr. J.M. Lynch, University of Surrey, Guildford, Surrey, GU2 5XH, United Kingdom

IV. Soil Fertility and Plant Nutrition/Fertilité du Sol et Nutrition des

Plantes/Bodenfruchtbarkeit und Pflanzenernährung
Prof.Dr. C.J. Asher, Dept. of Agriculture, University of Queensland, St. Lucia, QLD 4072, Australia

V. Soil Genesis, Classification and Cartography/Genèse, Classification et

Cartographie du Sol/Bodengenetik, Klassifikation und Kartographie
Dr. H. Eswaran, USDA Soil Conservation Service, P.O. Box 2890, Washington DC 20013, USA

VI. Soil Technology/Technologie du Sol/Bodentechnologie

Prof.Dr. G.S. Sekhon, Dept. of Soils, Punjab Agric. Univ., Ludhiana 141 004 Punjab, India

VII. Soil Mineralogy/Minéralogie du Sol/Bodenmineralogie

Prof.Dr. R.J. Gilkes, University of W.A., Dept. of Soil Science, Nedlands, WA 6009, Australia



Agroforestry in soil conservation:

Hedgerow intercropping: maize growth after seven years of intercropping with **Gliricidia sepium**, Dry Zone Research Station, Maha Illuppallama, Sri Lanka. On control plots without hedgerows, maize yields have fallen close to zero.

From A. Young (1989) **Agroforestry for soil conservation**, by permission of CAB International and ICRAF.

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

Editor: Prof.Dr. Winfried E.H. Blum
Secretary-General of ISSS
Universitaet fuer Bodenkultur
Gregor Mendel-Str. 33
A-1180 Vienna/Austria

Co-Editor and Book Review Editor:
Drs. J. Hans V. van Baren
Deputy Secretary-General of ISSS
ISRIC, P.O. Box 353
6700 AJ Wageningen/The Netherlands
(all correspondence concerning book
reviews should be sent to this address)

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
WSL, Zürcherstr. 111
CH-8903 Birmensdorf/Switzerland
Subscribers are requested to notify Dr. Luescher
of changes of address

Price of a single copy: 25.00 US\$

CONTENTS - SOMMAIRE - INHALT

XVth World Congress of Soil Science.....	4
Application Form	6
Information on Poster Presentations for the XVth WCSS.....	7
ISSS Membership Number and its Meaning.....	10
Numéro d'Affiliation de l'AISS et sa Signification.....	10
IBG- Mitgliedsnummer und ihre Bedeutung	11
Soils, All Over These Lands.....	12
Soil Science in the Eyes of the Beholder.....	13
Initiative for the Establishment of an International Soil Remediation Center	15
The Third World Academy of Sciences (TWAS)	16
What is the Road to Sustainability?	17
Addresses of the Officers and Chairmen of Commissions, Subcommissions, Working Groups and Standing Committees of ISSS	22
ISSS Committees and Representatives	27
Activities of the Commissions and Working Groups Activités des Commissions et Groupes de Travail.....	28
Aus der Tätigkeit von Kommissionen und Arbeitsgruppen Reports of Meetings Compte-rendus de Réunions	32
Tagungsberichte News from regional and national Societies Nouvelles des Associations régionales et nationales	41
Berichte der regionalen und nationalen Gesellschaften International Relations Relations internationales	45
Internationale Beziehungen Appointments, Honours Nominations, Distinctions.....	63
Ernennungen, Auszeichnungen In Memoriam.....	65
Meetings, Conferences, Symposia Réunions, Conférences, Symposia.....	67
Tagungen, Konferenzen, Symposien Registration Form for ISSS Events.....	73
International Training Courses Cours internationaux de Formation.....	74
Internationale Fortbildungskurse New Publications Nouvelles Publications.....	80
Neue Veröffentlichungen ISSS Cooperating Journals Journaux coopérants de l'AISS.....	129
IBG kooperierende Zeitschriften Subscription Form - Cooperating Journals Fiche d'Abonnement - Journaux Coopérants.....	130
Bestellformular - Kooperierende Zeitschriften New ISSS Members	131
ISSS Membership Application Form AISS Fiche de Demande d'Affiliation.....	135
IBG Aufnahmeantragsformular	

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

The Earth's Goddess is nurtured by the blood of the gods in sacrifice, Macuilxóchtli, Lord of the flowers (to the right), and Quetzalcóatl, the Feathered Snake (to the left). The corn plant emerges from the center of the Earth's Goddess, leant on Cipactli, the crocodile, showing the male and female duality manifested by the red and yellow colors of its cobs. Quetzatlólotl, the richly feathered bird, poses on the top of the plant.

The Earth's Goddess destroys and builds, circled by dark aureoles which represent a lake.

(Original picture in colour)

Codex Borgia

DEESSE DE LA TERRE

La déesse de la terre est nourriée par le sang des dieux sacrifiés, Macuilxóchtli dieu des fleurs à droite et Quetzalcóatl le serpent à plumes à gauche. Une plante de maiz émerge du centre de la Déesse de la Terre qui reste couchée sûr Cipactli, le crocodile, en montrant la dualité masculine et féminine par les couleurs rouge et jaune des épis. Sür la partie supérieure de la plante reste Quetzatlólotl, l'oiseau aux plumes luxueuses.

Avec une aureole des cercles representant un lac, la Déesse de la Terre détruite et construite au même temps.

(Tableau original en couleurs)

Codice Borgia

GÖTTIN DER ERDE

Die Göttin der Erde wird durch das Blut von zwei Göttern, Macuilxóchtli, dem Gott der Blumen (rechts) und Quetzalcóatl, dem Gott der Gefiederten Schlange (links) ernährt. Eine Maispflanze wächst aus der Göttin der Erde empor, die auf Cipactli, dem Krokodil ruht. Die Pflanze zeigt durch die rote und braune Farbe der Maiskolben die männliche und weibliche Dualität auf. Oben auf der Pflanze sitzt Quetzatlólotl, der reich gefiederte Vogel.

Die Göttin der Erde baut auf und zerstört zur selben Zeit, umgeben von dunklen Kreisen, die einen See darstellen.

(Originalbild in Farbe)

Kodex Borgia

NOTICE OF INTENT
XV INTERNATIONAL CONGRESS OF SOIL SCIENCE
10-16 JULY, 1994, ACAPULCO, Guerrero, Mexico
(Please, type or print in block letters)

Prof., Dr., Mr., Mrs., Miss.

Surname First name Middle initial

Mailing Address:

Telephone No. _____ Fax No. _____

I expect to attend the XV ICSS Sure _____ probably _____

I expect to be accompanied by _____ persons

I expect, yes ____ or not ____ to present a voluntary paper to the (sub-) Commission

Tentative title: _____

My preferences for technical tours are: (X)

Pre-congress tours: (1) (2) (3) (4) (5)

Post-congress tours: (6) (7) (8) (9) (10) (11) (12) (13) (14)

One day tours in Acapulco ()

My hotel preferences are:

in U.S. cy

Category	Single room	Double room
A	() \$80 or more	() \$100 or more
B	() \$70 - 80	() \$ 90 - 100
C	() \$60 - 70	() \$ 80 - 90
D	() \$30 - 60	() \$ 40 - 80

Please, mail this form before December 1993 to:

XV ICSS Secretariat, Centro de Edafología,

Colegio de Postgraduados, P.O. Box 45

56230, Chapingo, México.

Fax +52 (595) 457-23

Keep a copy for your files.

POSTER PRESENTATIONS FOR THE 15th WORLD CONGRESS OF SOIL SCIENCE

10 - 16 July, 1994, Acapulco, Mexico

IMPORTANT INFORMATION

The available space for a poster is 96 cm (3') high and 246 cm (8') wide. The board is white hard plastic material. Therefore only adhesive tapes can be used for fixing the poster.

The presenter is requested by the organizers to be in attendance during at least one hour. The exact time will be communicated. The poster is left unattended for the entire day. Thus, the text needs to be self-explanatory; especially for those periods when the presenter is off duty.

*Each block of posters will be displayed one day,
from 8 a.m. to 7 p.m.*

SOME SUGGESTIONS

Many organizers of conferences, symposia and meetings consider the presentation of information in a poster display an appropriate and effective means of communication. During the past decade poster sessions have become increasingly popular. Although conference organizers usually send more or less detailed instructions for poster displays, it is useful to provide some general suggestions for the preparation of posters and related information.

A poster presentation provides an ideal medium for a less formal exchange of ideas and discussion between speaker and audience. There is time for more satisfying, detailed discussions than in a formal paper session. The audience can choose the posters they wish to study and are not held 'captive' as in a formal paper session.

A poster presentation, although similar in many respects to an oral presentation, requires some modifications in preparation. The following suggestions are intended to help in the preparation of an effective poster display, which will mutually benefit the author and the audience.

Three basic criteria for an effective display, aside from scientific content, are that it be attractive, well-organized, and largely self-explanatory. The appearance, both of the display as a whole and of individual illustrations is obviously important. A cluttered and disorganized display detracts from the scientific content and will not stimulate much interest. The display should be largely self-explanatory but key points can be highlighted to encourage questions from viewers. An observer should be able to view the data and follow the argument through to the interpretations and conclusions with minimal input on the author's part.

Preferably the author should be present during the poster session. This serves two purposes: first to coordinate the illustrative materials into a complete, well documented presentation; secondly and most importantly, to promote communication between the author and the audience. A well-organized and self-explanatory display would avoid unnecessary repetitious descriptions of each illustration, and allow discussion.

The following suggestions may aid the preparation and presentation of an effective and successful poster.

1. Select a few major ideas, do not overwhelm the audience with data. Use summary-type diagrams and emphasize interpretations, applications, and/or conclusions. Ideas peripheral to the main theme can be brought out in discussion.

2. The contents of a poster may be divided into individual panels containing an abstract, an introduction, the results and a discussion. The abstract should list the pertinent results and conclusions. The introduction should provide a background summary and state the purpose of the study in relation to previous work in the field. The results should be divided, using sub-headings which indicate the most important finding to be illustrated in the respective section. In general, a few results attractively presented will attract attention, whereas a cluttered poster will discourage further enquiry. There is no obligation to fill the entire space available with information! The discussion panel should give an interpretation and the significance of the results.

A brief (one page) summary of the conclusions as a 'hand-out' is always popular for conference delegates to take home. It should contain the author's full address for follow-up communications.

3. The individual boards with text, tables and illustrations should be arranged in a sequential order (by numbers, letters, or arrows) with data leading progressively from the introduction, through the results to the conclusions. Arrangement of material can be used effectively to provoke thoughtful questions from the audience.

4. The title of the presentation, as it appears in the programme, should be included in the display. Individual illustrations or displayed articles should have a brief explanatory caption. Caption and lettering on illustrations should be sufficiently large to be read at a distance of 2 meters. All lettering should be at least 15 mm (5/8 inch) high, preferably in a bold facttype. The use of only capitals is discouraged, since lower case letters can be better read. Typescript should be photo-enlarged with a minimum magnification of 3.

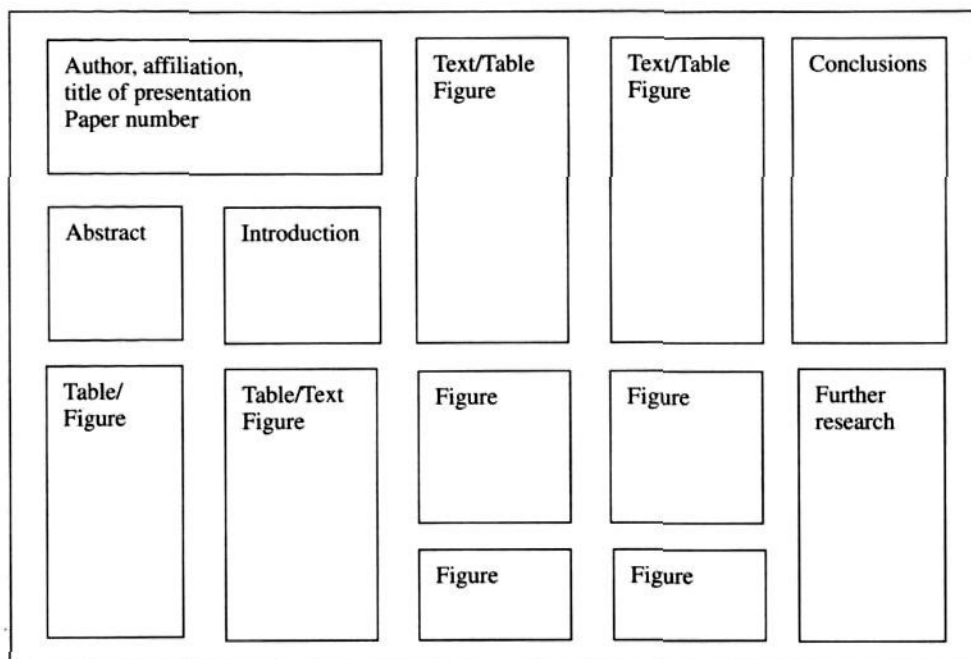
5. Unnecessary details in charts, drawings and illustrations should be avoided. Try to keep everything as simple as possible. Avoid 'arty' or ornate presentations. Block colouring can be useful to add emphasis and clarity. All lines should be heavily drawn and at least 2 mm thick. Hand-lettered material should be at least 25 mm high. Use more than one colour in preparing graphs and lettering of the poster, but red and green in one picture should not be used.

6. Ideally, a poster should be self-explanatory. The poster session potentially provides an intimate forum for informal discussion. However, this becomes difficult if too much time has to be spent explaining the poster to a succession of visitors. A brief 3 - 5 minute oral presentation should be prepared which can be made periodically to small groups. This can be used to present the aims and objectives of the study, provide background material, lend additional continuity to the poster sequence, and reiterate conclusions.

7. To assist with any detailed explanations to interested viewers it is suggested to have one or two felt marking pens, pencils or ballpoints and a tablet of suitable sketch paper (A4 or 9x12 inch) available. Also, copies of the expanded text, with tables of data, figures, etc, should be available for people requesting detailed information on the topic of the display. This text should include the author's full address.

8. Transporting a poster display to a conference can be a problem and depends largely on the means of transport, and size of the individual panels of the presentation. The display should in any case not be mounted on heavy board, triplex, fibreboard, or other heavy materials, because these may be too heavy to transport economically and too heavy to affix on the display panels. It is handy to prepare a display on light-weight cardboard which can be rolled and placed in a heavy-duty cardboard tube. Alternatively, individual panels could be made to fit inside a suitcase for flat transport. At the conference posters can be mounted by means of adhesive tape of a removable type. This will be provided by the organizers. Writing and painting on the poster boards should be strongly discouraged and is not allowed.

9. Before preparing the final presentation, it is useful to make a small-scale model, taking into consideration the size of the poster boards and supplementary wishes or information of the organizers.



Possible assemblage of the poster for the World Congress of Soil Science

ISSS MEMBERSHIP NUMBER AND ITS MEANING

Example for an ISSS membership number (see e.g. the first line on your address-label):

1. eight-digit registration number (xxx-yyyyy) consisting of:

xxx = three-digit country code which generally indicates the country of residence or of the national society, to which the member is affiliated.

yyyyy = five-digit current registration number of the ISSS

2. supplementary code

for new members:

N 92 = new member 1992, contribution paid
NW92 = new member 1992, contribution not yet paid

for others:

92-L = the contribution for 1992 has been paid through the national society
92-I = the contribution for 1992 has been paid by the member directly to the ISSS.

Attention: This supplementary code informs you about your current payments, e.g. 90-L would mean that your last fee was paid through your national society in 1990.

NUMERO D'AFFILIATION DE L'AISS ET SA SIGNIFICATION

votre numéro d'affiliation se trouve p.ex. sur votre étiquette d'adresse en premier ligne (voire enveloppe du bulletin de l'AISS).

1. Numéro d'enregistrement de huit chiffres (xxx-yyyyy) qui s'explique comme suit:

xxx = code du pays de trois chiffres qui indique en général le pays de résidence ou de l'association nationale, à laquelle le membre est affilié

yyyyy = code d'enregistrement interne de l'AISS de cinq chiffres

2. Codes supplémentaires

pour les nouveaux membres:

N 92 = nouveau membre en 1992, cotisation annuelle payée
NW92 = nouveau membre en 1992, cotisation annuelle encore à payer

pour les autres membres:

92-L = cotisation annuelle de 1992 payé par l'association nationale
92-I = cotisation annuelle de 1992 payé directement à l'AISS.

Attention: Ce code informe toujours sur l'état actuelle de votre cotisation, p.ex. 90-L signifie, que la dernière cotisation fût payée en 1990 par votre association nationale.

IBG MITGLIEDERNUMMER UND IHRE BEDEUTUNG

Beispiel einer IBG Mitgliedernummer (wie z. B. in der ersten Zeile Ihrer Adressetikette):

1. achtstellige Registrier-Nummer (xxx-yyyzz) bestehend aus:

xxx = dreistelliger Ländernummer. Diese bezeichnet in der Regel das Land, in dem das Mitglied wohnt oder dessen nationaler Gesellschaft es angehört.

yyyzz = laufender fünfstelliger Nummer unserer internen IBG-Registrierung.

2. Zusatzcode

bei neuen Mitgliedern:

N 92 = neues Mitglied 1992, Beitrag 1992 bezahlt

NW92 = neues Mitglied 1992, Beitrag 1992 noch nicht bezahlt

sonst:

92-L = Beitrag 1992 wurde über die nationale Gesellschaft bezahlt

92-I = Beitrag 1992 wurde vom Mitglied direkt an die IBG bezahlt.

Achtung: Dieser Zusatzcode informiert Sie über den aktuellen Stand Ihrer Beitragszahlungen. z.B. bedeutet 90-L, daß die letzte Beitragszahlung durch Ihre nationale Gesellschaft 1990 erfolgte.

Soils, All Over These Lands

(Words by F.D. Hole, 1989)

The musical score is written on a single treble clef staff in 4/4 time. It consists of four lines of music. The first line starts with a C7 chord and ends with an F chord. The second line starts with an A chord, followed by D, G7, and C7. The third line starts with a D chord and ends with a Bb chord. The fourth line starts with a G7 chord and ends with an F chord. The lyrics are placed below the notes, with some words aligned with specific notes or rests.

There are soils in south New Zealand. There are soils in China West. There are

soils in Argentina's pampas. There are soils in Hawaii's islands blest. There are

soils all over these vast landscapes, in whatever land your foot steps fall; But the

*..... they are the very best of all!

*Select line from choices below:

- (1) soils of southern steppes of Russia
- (2) prairie soils of North America
- (3) regur clays of central India
- (4) plaggen soils of the dear old Netherlands
- (5) volcanic soils of Indonesia
- (6) alluvial soils of upper Amazon

Printed with kind permission of Sherri H. Mickelson
 Managing Editor Soil Survey Horizons
 Madison, WI 53711, USA

SOIL SCIENCE IN THE EYES OF THE BEHOLDER: BETTER UNDERSTANDING OF SOIL PROCESSES AND OF PEDOLOGY URGED

Soils mean different things to different people. Their study is both a basic and applied science (Fig. 1), depending on one's outlook. For the agronomist or farmer it is a medium for plant growth, for the engineer it is the foundation material from/on which he builds various engineering structures. As such it is a unique earth resource and in both cases the applied or empirical aspects need to be well founded on the basic pedological tenets which view the soil as an independent body of nature and as part of the broader field of earth sciences. Pedology is a rather young field of science and practised by a relatively small number of scientists. Its relevance to the two applied sectors of soil science and to several other fields of science, like environmental change and protection, geomorphology or archeology is however increasing. The question thus is how to promote this and to make best use of the increased needs.

Traditionally most soil scientists work with agricultural soils on goal oriented research to devise better means to manage the soils for increased and sustained agricultural production - with remarkable successes - rather than on basic soil research to widen conceptual principles and to improve the understanding of the multitude of processes operating in soils over time. In a similar way more geologists are working on research and development of the mining and oil industry than on basic geologic research. The large difference between the two is that basic geologic research is vigorously pursued at universities and sponsored by governments and other funding agencies, whereas basic soil research is not. There are probably historical reasons for this development but this does not mean that it is satisfactory or needs to remain so.

There is no doubt that basic soil research is underrepresented at universities, including in large soils departments in schools of agronomy. The Soil Science Society of America has recently compiled a booklet on Opportunities in Basic Soil Science Research (G. Sposito and R.J. Reginato, editors. SSSA, 1992), listing some goals for the future, and essentially addressed it to funding agencies in the hope of obtaining a greater slice of their research funds. One cannot but wish that the report reaches a wide audience and succeeds in its aims of promoting basic soil research and improving the image and standing of soil science within the scientific community at large.

One way to do so is to promote soil science research in non-agricultural science departments or schools. After all, arable soils represent only 11 or 12 % of the land surface and managed forest soils and pastures about the same amount. The fundamental aspects of soil and landscape evolution and variability are better elucidated by basic research on open non-agricultural landscapes, the biogeochemical cycling of nutrients and other elements - in which the soil environment plays a major role - needs a broader outlook than just the arable field, and the reconstruction of past environments from paleosols in order to predict the impact of future environmental changes needs to look at soils much deeper than just the arable layer or the top one meter only. The inclusion of soil scientists and soil research in earth sciences, geology, geomorphology, land resources, environmental engineering or ecology departments, institutes and projects should thus be of first importance in endeavors to expand basic soil science research. A corollary of this is that graduate students in soils with good training in basic sciences and earth sciences should be promoted.

Improving the quality of research and of papers submitted for publication must be another major aim. The great variability and regional limitations of soils means that transfer of knowledge from one place to another is not automatic but needs to be frequently retested. Such research is necessary but not necessarily innovative. Yet the results obtained are frequently prepared for publication as a matter of record of the work carried out. Such reports should not fill the pages of international and "reputable" journals. The editors of these journals have the responsibility to publish novel, convincing and relevant papers. Improving the quality of the major soil science journals and publishing also in multidisciplinary journals will enhance the image of soil science.

The aspects discussed are not the only ways to promote basic soil research and a wider application or a better understanding of soil processes and of pedology in general in other sciences. We all should contribute our share in promoting these aims, both locally and internationally. The International Soil Science Society, as the foremost learned society for soil science, should also act in this direction and incorporate such activities in its programmes. It should provide the intellectual leadership for these endeavors.

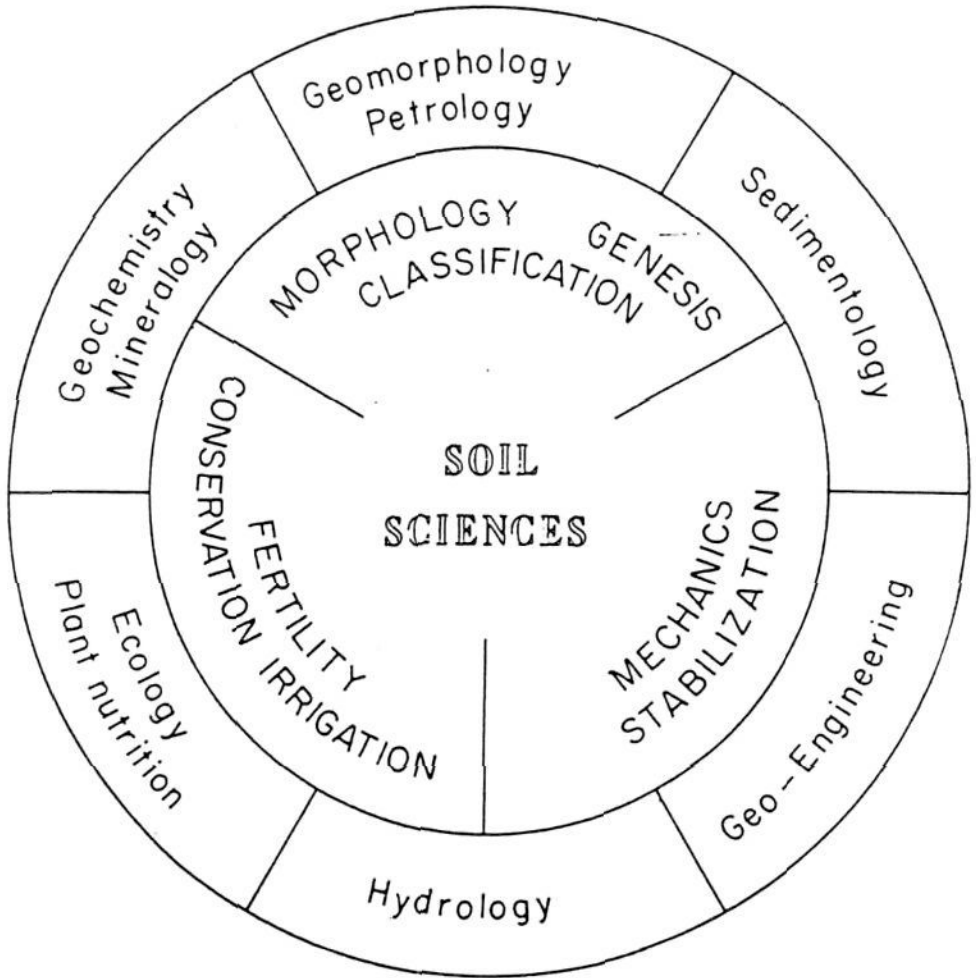


Fig.1. The inner circle indicates the three sectors of soil science - the basic sector of pedology dealing with soils as independent bodies in nature, and the two equally important applied sectors of agricultural soil science dealing with soil behavior for fertility and conservation, and the sector of soil mechanics for behavior in geo-engineering. The outer circle lists other sciences which are most significant in the interaction with the respective sectors.

Dan H. Yaalon
Jerusalem, Israel

SOIL SCIENTISTS HEADING UP INITIATIVE TO ESTABLISH AN INTERNATIONAL SOIL REMEDIATION RESEARCH CENTER

An international task force consisting of soil scientists, geochemists, biologists, and ecologists is looking into the feasibility of establishing an International Soil Remediation Research Center focused on remediating chemically-degraded soils. Since research has shown that polluted soils can lead to tainted foodstuff and drinking water from the groundwater aquifers, it is hoped that this facility, through research of its principal scientists, will provide information on how to restore or protect the health of soils so that the quality of the foodchain and water resources will be enhanced. The center is also planned to educate and train students, scientists, educators and regulators on the science and technology of soil remediation and their applications to solving real world problems. In addition, the center will foster cooperation between industry, governments and academia in remediating contaminated soils. "The soil is perhaps our most important resource whose health determines its sustainability and the quality of the foodchain, surface water and groundwater," said Dr. Adriano, Professor of environmental soil science and Head of the Biogeochemical Ecology Division at the University of Georgia's Savannah River Ecology Laboratory. Polluted soils may also lead to declining food and fiber production and pose health risks to humans, animals, and other consumers. In other words, a sick soil may not only imperil our life support system, but may also directly threaten our own health. The research approach is to be an interdisciplinary one for cleaning up polluted soils. Agricultural as well as natural areas will be included in the research program. The project has already been endorsed by the Soil Science Society of America, The American Society of Agronomy, The International Soil Science Society, The International Association for Ecology and other professional societies. In addition, key scientists, department chairs, and former presidents of professional societies have endorsed it. Dr. Adriano is co-chairing a meeting for the center's Feasibility Study Committee with Prof. W. Blum of Austria (Director of the Soil Science Institute at the University of Agriculture in Vienna and Secretary-General for the International Soil Science Society) this July 13-14 to discuss the center's mission and formalize its strategic plan. Dr. Darrell Nelson, President of the Soil Science Society of America, Dr. A. Aguilar, President of the International Soil Science Society, and Dr. Wolfgang Haber, President of the International Association of Ecology are committee members. Five other members of the committee represent various regions of the world as well as other relevant disciplines: Prof. M. Chino of the University of Tokyo, Prof. B. Davies of the University of Bradford, U.K., Dr. Lech Ryszkowski, Director of the Institute of Agricultural and Forest Environment, Poland, Prof. G. Varallyay, Director of the Research Institute of Soil Science and Agricultural Chemistry, Budapest and Dr. W. Wenzel, University of Agriculture, Vienna. The tentative strategic plan for the center includes 3 phases: Phase I — Workshop on the nature and extent of soil pollution in Central and Eastern Europe including Russia, Ukraine, Belarus, Poland, Hungary, Czech Republic, Slovakia, Romania and Bulgaria; Phase II — Field assessment study - this involves on-site evaluation of the state of soil pollution in these countries and analysis of its ecological consequences, its potential socio-economic impacts as well as its effects on human health; Phase III — Development of the center - this will include discussions for the location of the center, center's mission and scope of research, the organizational structure, its staffing and financial support for its construction and operation. For additional information about the center initiative, contact Dr. Adriano or Prof. Blum. The center's committee will appreciate receiving comments and ideas for the center by writing to Dr. Domy Adriano, University of Georgia, Savannah River Ecology Laboratory, Drawer E, Aiken, SC 29802, Tel: 803/725-2472; Fax: 803/725-3309 or Prof. W. Blum, Secretary-General, ISSS and Director, Institute of Soil Science, University of Agriculture, Gregor Mendel-Strasse 33, A-1180 Vienna, Austria, Tel: 43-1-476543101; Fax: 43-1-3106027.

The Third World Academy of Sciences (TWAS)

SOUTH-SOUTH FELLOWSHIPS

The Third World Academy of Sciences (TWAS) invites applications for travel grants from scientists in developing countries, normally with research experience and with positions in universities and/or research institutions in these countries, who wish to visit scientific institutions in Third World countries other than their own for the purpose of undertaking joint research with other scientists from the South and/or learning new techniques in scientific research.

The aim of the TWAS South-South Fellowship Scheme is to facilitate and promote mutual contacts between research scientists in the South and to further relations between their scientific institutions.

Host institutions are normally expected to cover the living expenses of visiting fellows. In particular, TWAS has formal agreements with organizations in Argentina, Bahrain, Brazil, Chile, China, Colombia, Ghana, India, the Islamic Republic of Iran, Jordan, Kenya, Korea DPR, Madagascar, Mexico, Peru, the Philippines, Syria, Trinidad and Tobago, Venezuela, Vietnam, and Zaire to cover the subsistence costs of visitors to institutions in their respective countries. A booklet containing information about scientific institutions in these countries has been published by the Academy and is available for distribution.

In general, the fellowships envisage a minimum stay of one month and a maximum of two to three months. Within the general programme, the Academy has, however, established a number of special joint schemes with Brazil, China, India and Mexico for long-term visits of up to one year.

Further details and application forms can be obtained from:

Ms. Helen Grant, The Third World Academy of Sciences
c/o ICTP, Strada Costiera 11, 34136 Trieste, Italy

Phone: +39-40-2240-387; Telex: 460392 ictp i; Fax: +39-40-224559;
E-Mail: TWAS@ITSICTP.BITNET.

WHAT IS THE ROAD TO SUSTAINABILITY? *

Frank Golley, Jacques Baudry, R.J. Berry, Reinhold Bornkamm, Ken Dahlberg, Ann Marie Jansson, Jane King, John Lee, Roman Lenz, Rebecca Sharitz, and Uno Svedin.
INTECOL, The Institute of Ecology, The University of Georgia, Athens, GA 30602, USA.

INTRODUCTION

Introduction of the Concept

The term, sustainable development, was made popular through the Brundtland report¹, which called for a change in the economic world order to reduce the destruction of the environment and solve social ills. The Brundtland report received widespread support and approbation and the term sustainable development has become a code phrase among the international agencies, scholars and practitioners working in the global arena. Because of its popularity the term has been defined in many ways to fit many different purposes.

Definition of Sustainable Development

At first glance the word sustainable development seems to be an oxymoron. Development refers to the verb "to develop" which means to expand through growth, to unfold, to make active, to disclose, to advance, to evolve. Its synonyms are grow, unfold, appear, expand, mature, ripen. Sustain means to maintain, keep up, support, continue, to prolong. Thus, sustainable development might be defined as prolonged or continuous growth. Prolonged growth of individual humans or populations of humans is impossible. Eventually a growth limit is reached and growth ceases. Sustainable development used in this context is the population explosion, gigantism, or cancer.

However, the Brundtland report focused on the global human community and the global environment. At that level sustainable development can mean managing human populations and the global environment so that human life on the planet can continue to evolve and change, while at the same time the health of the natural environment is maintained. Accomplishment of this goal requires that we address several questions. First, what does continuous development of human life mean? What is required to maintain the health and viability of the natural environment? And, how is the dyad of human population and natural environment connected?

The Implications of the Definition

Modern Western science describes the earth as a dynamic, ever-changing system. For example, the solid earth, the lithosphere, consists of great plates, resting on a viscous magma, which are in a continual state of development, movement to and reabsorption in the central core. These tectonic processes produce earthquakes, volcanism, and mountain building. The oceans, making up the hydrosphere, are more liquid than the lithosphere and move in great currents which link the oceans together. The atmosphere is the most mobile of all the spheres of the planet. The air masses which compose it are driven by solar energy in spirals across the ocean and land creating the earth climate and our weather. The model of the earth, ocean and atmospheric sciences is a dynamic, far from equilibrium, physical global system.

Life evolved on the physical system as a modulating film across the land and water surface. Life penetrates the lithosphere, atmosphere and hydrosphere only a few meters. Life is extremely diverse. It comes in millions of genetically distinct forms, called species, and it is characterized by its capacity to continually produce more new variety in structure and function. Variety, diversity, and creativity are the essence of life.

In the interaction of living organisms with the lithosphere, hydrosphere, and atmosphere, there is a continuing process of selection of these varieties which have the properties most effective for survival at the moment in time. These organisms survive, reproduce and pass their characteristics on to future generations. The genetic properties of those organisms selected against are lost from the biosphere. Life exists on the planet Earth because it has the property of generating new variety in such quantities that environmental pressures and stresses can never eliminate all of it.

The human species is unique, of course. But it shares with all life this creative property. Human creativity is expressed largely in cultural and linguistic forms and in invention and technology. Our creativity has enabled us to modify and create environments, so that today most humans live in built environments with little direct, day to day contact with the natural environment.

* Reprinted with kind permission of the authors

Continuous Human Development

Sustainable development means that this dynamic and ever changing human life and culture will be sustained without destruction of the dynamic processes of the natural environment. Expressed in this way what does continuous human development mean? Obviously there are quantitative and qualitative aspects to this question. Human populations have been in a state of explosive growth for several hundred years. Can this growth be sustained? Human population have increased their demands per capita on the environment for new resources and services. Does continuous development mean expanding the per capita use of resources and the material life associated with such use? Humans are ever inventive and creative. Does continuous development mean a qualitative improvement of cultural life, the arts and intellectual understanding of the world? Continuous development in each of these senses means very different interactions with the global environment and very different human value systems.

IMPORTANT ISSUES THAT NEED ATTENTION

Development of a global commitment to sustainable development is an urgent need. The technical literature and the popular media have reported the growing problems associated with each of the global spheres and the role that humans play in accelerating environmental change. The Brundtland Report considered six problem areas of special need. These were the human population and resources, food security, species and ecosystems, energy, industry producing more with less, and the urban challenge. While these titles in themselves do not describe the problem areas adequately, the problems are sufficiently well enough known that there is little need to repeat the evidence. What is important is to consider several issues or areas that, while recognized in the Brundtland report, were not adequately explored.

The Human Population

The first issue concerns management of human populations. Human populations in general have been growing exponentially especially in developing countries. This means that the demand for resources and services per capita must also grow exponentially to maintain parity with the present, unsatisfactory levels, otherwise the human condition will deteriorate in these regions of the earth. The only possible way to allow these rates of growth to continue without further deterioration of the environment is to transfer resources from the developed to the developing regions, reducing the difference between them. But this solution would be a temporary expedient. Eventually, human societies have to face the inevitable fact that human population growth must be managed to stay within acceptable bounds of society and environment.

But this idea contradicts our biological drives and characteristics; it confronts our deepest religious and philosophical beliefs. The question is so threatening to many people, that it can not even be brought to the table for discussion. How we move from a biologically and historically justified freedom to procreate at will to a condition where culture and society regulate reproduction and death is an overwhelming problem for humankind. As scientists we believe that if it is not solved, *human death rates eventually will be controlled by environmental selection processes. As a consequence death rates will increase and/or birth rates will decline to bring the populations into balance with their resource bases and with the capacity of human creativity and technology to invent new resources.* It is curious that we celebrate invention that deals with the physical and chemical world but deprecate invention that concerns the biological processes of human populations. This physical-chemical bias must be replaced by a wholism that applies human thought to the entire biosphere, including humans, not only to one part.

Providing Food and Fiber

The second issue involves human food and fiber requirements. Currently human beings use 40% of the total carbon fixed through the process of photosynthesis by green plants (called primary production)². About seventy years ago humans used only 10% of the primary production. If human populations and their demand for primary production continues to double, as in the past, by about 2025 humans will require 80%. This rate of consumption is impossible to sustain. While these estimates are relatively imprecise since they are based on extrapolation from relatively small areas to geographical regions of the biosphere, they indicate a crisis in food and fiber production within our life time. Primary production is threatened by erosion of soil, by loss of the genetic diversity of

crop plants, by desertification and exhaustion of water resources, by contamination of farmland with salts and chemical pollutants, by evolution of resistance in pest species, by conversion of farmland to urban land and so on. Clearly, we need a global food policy and an end to current policies that treat agriculture as agribusiness and as an integral part of the economic competition between countries.

Pollution of the Environment

The third issue concerns pollution. Industrial development coupled with increased human populations has resulted in the production of ever greater quantities of wastes. These wastes have contaminated the atmosphere, hydrosphere or lithosphere, altering these environments and negatively affecting the life of the biosphere. Modern industrial development depends upon our collecting resources which are distributed diffusely in the environment, often in very small quantities, concentration of these materials in useable source materials and conversion of these concentrated materials into products for human use. Following use, these products are dispersed back into the environment. In concentrated form the products and the byproducts of the industrial processes create serious hazards to health and well being. Even in a dispersed form these products and byproducts may be spread widely and gradually become concentrated and dangerous. The modern industrial throughput system requires greater and greater quantities of resources to meet the growing demands of an expanding human population and as a consequence produces greater and greater quantities of pollution.

Theoretically, natural resources can be recycled and these recycled materials can become, in their turn, new resources for industry and production. However, accounting systems which neglect environmental and social costs or discount long-term costs support the status quo and there is little motivation to invent and manage recycling systems. If developed countries recycled at rates nearer the theoretical limits, their collection of natural resources would be greatly reduced and developing countries could use those resources to develop. Development may well be tied closely to recycling.

Human Health

A further issue involves the impact of these and other environmental and social changes on human health and well being. The concentration of people in small areas, the increased stress and violence engendered by these concentrations, the decreased security of life contribute to growing stress and psychological disturbance³. These problems are especially apparent among urban poor, in war zones and in refugee camps. Human diseases are caused by pollution, contaminated food and water, air filled with chemical products and by-products, and excessive noise. Public health becomes more and more difficult to maintain as economic conditions deteriorate. Under stress the body is less resistant to acute and chronic diseases. Further, the new conditions in the environment and the stressed human body create conditions for mutation of disease-causing organisms. Human mobility permits new forms of disease to move quickly from one dense population to another. Disease organisms and parasites adapt to control procedures and evolve into resistant strains. All of these biological processes are to be expected; they represent the creativity of living organisms. The consequence of ill health to human populations is decreased productivity, early death and diminished reproduction. While environmental deterioration is often expressed as loss of species, destruction of rain forest, change in climate and the alteration of other nonhuman end points, the ultimate impact of these changes is on humans through diminished health and well being. No humans can isolate themselves from such global impacts.

Coupling the Issues Together

These issues are coupled together. Pollution decreases our capacity to produce healthy food and water; ill health decreases our ability to deal with crises and to benefit from creativity, diminished performance and enthusiasm limits political will and so on. Human life is integrated and is coupled to the environment. The whole global system acts as a single complex in which each part is in a dynamic relationship to the others. While human beings are uniquely different from other forms of life, we are not exempt from the physical, chemical and biological rules that govern the dynamic behavior of the global ecological systems.

Changing Culture and Values

The complex problem caused by human population size and a changing global environment can be addressed from a variety of entry points. But no matter where we enter the problem we quickly come to recognize that the problem concerns changing human values, and expressing these changed values culturally through new institutions and altered allocations of resources. Human cultures have evolved, in part, to fit human populations to their environments and they are as varied as the earth is varied. Frequently cultural value systems are contradictory. Frequently their character is more the result of their history or circumstance, than it is direct adaptation to resources and space. Cultures have evolved many different ways of solving the same problem. These differences create a background of mistrust and disagreement that severely limit building a common approach to global problems. These differences have been ignored or disregarded by most global studies, including the Brundtland report. In order to hear the frustration of the alternative and neglected voices it is necessary to go to the people directly and read the marginal literature⁴. If such frustration is ignored it may be expressed as violence and war. We suggest that this issue is so fundamental to achieving sustainable development in a global system inhabited by humans with such strongly different cultural perspectives that it must be a prime focus of our attention. In order to learn tolerance for different cultural value systems and find common purpose our formal and informal education systems need to be reorganized.

The Need for New Information

While our knowledge of the earth may be adequate to describe the nature of sustainable development, *the nature of dynamic response systems is that they produce ever new demands and problems*. The need for monitoring, for new information and new methods of responding to problems is never ending. For this reason, the earth human population must care for its intellectual community, assuring that it is tightly coupled to problem solving and is fully capable of being organized to address serious issues that arise unexpectedly.

These communities need to evolve from self justified and self defined communities, in competition with each other for limited support, into integrated, responsive, socially responsible communities which preserve the individual creativity and enthusiasm required for high performance. The intellectual community should be guided by a desire to maintain human health and well being, care for human culture and society, educate all ages of society to apply knowledge effectively and create new knowledge that can be applied to the current problems of the day. These problems require communities of scholars working together.

It is entirely, we believe, within the capacity of the human race to implement these fundamental concepts leading to sustainable development. Human civilization in its diversity and human survival depend upon it. Further, the industrialized, developed countries are the only sources of expertise and wealth sufficient to create a shift in action and perspective. Since their wealth has been partly created through exploitation of the developing world it is especially difficult to overcome this history and create a global community of trust and common purpose. The task of the future is to do so. But let us not be confused! Management of the global commons for the global human population requires changes in the dimensions of human freedom of action and in human value systems. We cannot merely do what was successful in the past harder in the future. The future requires a diversity of strategies fitting the environmental, social, and cultural nature of each people and place. It is essential that we directly face these challenges of sustainability now because they are central to any long term solution to the global problem.

CONCLUSIONS

The continued increase in numbers of humans and expansion of human demands upon the natural environment can not continue indefinitely. The problems of maldistribution of material life which far exceeds the geographic distribution of resources must be solved. If left to continue, these issues will cause destruction of the natural environment on which humans depend and a disparity among nations which will cause a spiral of crises from which no country is exempt. We are optimistic that human creativity can produce solutions to this dilemma. But solutions will only be effective if they deal directly with the widely different cultural perceptions and value systems relating to human population and natural resources. And, if they are consistent with the dynamic and ever-changing nature of the global ecosystem, recognizing that cultural diversity also must be ever-changing and human creativity must be left unbounded.

EndNotes

- 1 The Brundtland Report is published as the book *Our Common Future* (1987), Oxford University Press, New York.
- 2 The estimates come from the technical paper of Vitousek, P.M., P.R. Erlich, A.H. Erlich, and P.A. Matson. 1986. Human Appropriation of the Products of Photosynthesis. *Bioscience*, vol. 34, pp 368-373.
- 3 The problems of mental health in Asia situation where mental health can be found in the article of Sudhir Kakar (1991) *Western Science, Eastern Minds*, published in the *Wilson Quarterly*, Winter, vol. 15, number 1, pp 109-116.
- 4 An example of this type of literature is the IFDA Dossier (IFDA means international foundation for development alternatives), see the May/June 1990 issue, number 77, and the papers by Hilka Pietila, *Environment and Sustainable Development*, pp 61-70, and by Ted Trainer, *A Rejection of the Brundtland Report*, pp 71-84.

ADDRESSES
of
**THE OFFICERS AND CHAIRMEN OF COMMISSIONS, SUBCOMMISSIONS,
WORKING GROUPS AND STANDING COMMITTEES OF ISSS**

OFFICERS:

- President:** Prof.Dr.A.Aguilar Santelises, Apartado Postal 45, 56230 Chapingo, Mexico.
- Vice president:** Prof.Dr.R. Nunez Escobar, Colegio de Postgraduados, 56230 Montecillo, Chapingo, Mexico.
- 1st Past president:** Prof.Dr.A.Tanaka, Hokkaido Univ., Faculty of Agric. Kita 9 nishi 9 Kita-ku, Sapporo 060, Japan.
- 2nd Past president:** Prof.Dr.K.H.Hartge, Institut für Bodenkunde der Universität Hannover, Herrenhäuser Strasse 2, D-3000 Hannover 21, Germany.
- 3rd Past president:** Dr.J.S.Kanwar, Plot No. 17, Krishi Nagar, ICRISAT Colony-Phase II, Hashmathpet Road, Secunderabad 500 011 A.P., India.
- Secretary general:** Prof.Dr.W.E.H.Blum, Institut für Bodenkunde der Universität für Bodenkultur, Gregor Mendel-Str.33, A-1180 Wien, Austria.
- Deputy-Secret.Gen.:** Ir.J.H.V. van Baren, ISRIC, P.O. Box 353, 6700 AJ Wageningen, The Netherlands.
- Treasurer:** Dr. P.U.Lüscher, Eidg. Forschungsanstalt für Wald, Schnee u.Landschaft (WSL), Zürcherstr.111, CH-8903 Birmensdorf, Switzerland.

COMMISSION I:

- Chairman:** Dr.G.Vachaud, Institut de Mécanique (IMG), B.P. 53 X, F-38041 Grenoble, France.
- Past Chairman:** Prof.Dr.M.Kutilek, Faculty of Civil Engineering, Technical Univ., Thakurova 7, 166 29 Prague 6, Czechoslovakia.
- 1st Vice Chairman:** Prof.Dr.S.Iwata, Ibaraki University, Faculty of Agriculture, Ami-Machi, Inashiki, Ibaraki 305, Japan.
- 2nd Vice Chairman:** Prof.Dr.D.E.Rolston, University of California, Dept. of L.A.W.R., Davis, CA 95616, USA.
- 3rd Vice Chairman:** Prof.Dr.L.Rendon Pimentel, Colegio de Postgraduados, Centro de Hidrociencias, 56230 Chapingo, Mexico.
- Secretary:** Dr.Hector Arias Rojo, Mexico.

COMMISSION II:

- Chairman:** Prof.Dr.Roger S.Swift, Chief, Division of Soils, CSIRO, P.M.B.2, Glen Osmond, Adelaide, South Australia 5064, Australia
- Past Chairman:** Prof.Dr.Ir.G.H.Bolt, Dept. of Soil Science and Plant Nutrition. De Dreijen 3, 6703 BC Wageningen, The Netherlands.
- 1st Vice Chairman:** Prof.Dr.N.Senesi, Instituto Chimica Agraria, Via Amendola 165/A, I-70100 Bari, Italy.
- 2nd Vice Chairman:** Prof.Dr.W.H.van Riemsdijk, Dept. of Soil Science and Plant Nutrition, Agric.Univ., P.O.Box 8005, 6700 EC Wageningen, The Netherlands.
- 3rd Vice Chairman:** Prof.Dr.L.J.Cajuste, Colegio de Postgraduados, Centro do Edafologia, 56230 Chapingo, Mexico.
- Secretary:** M.Sc.Margarita E.Gutiérrez Ruiz, Mexico.

COMMISSION III:

- Chairman:** Prof.Dr.J.M.Lynch, Head, School of Biological Sciences, University of Surrey, Guildford, Surrey, GU2 5XH, United Kingdom.
- Past Chairman:** Prof.Dr.J.C.G. Ottow, Inst. f. Mikrobiologie, Justus-Liebig-Universität, Senckenbergstrasse 3, D-630 Giessen, Germany.
- 1st Vice Chairman:** Prof.Dr.J.M.Tiedje, Michigan State University, Dept. of Crop & Soil Science, East Lansing MI 48824, USA.

- 2nd Vice Chairman: Dr.J.A. van Veen, Inst. for Soil Fertility Research, P.O.Box 48, 6700 AA Wageningen, The Netherlands.
- 3rd Vice Chairman: Prof.Dr.R.Ferrera-Cerrato, Colegio de Postgraduados, Centro de Edafologia, 56230 Chapingo, Mexico.
- Secretary: Dr. Carlos Casas Campillo, Mexico.
- COMMISSION IV:**
- Chairman: Prof.Dr.C.J.Asher, Dept. of Agriculture, The University of Queensland, St. Lucia, QLD 4072, Australia.
- Past Chairman: Dr.N.N.Goswami, Indian Agricultural Research Institute, New Delhi 110 012, India.
- 1st Vice Chairman: Prof.Dr.H.Hirata, Tokyo University Agr. Techn., 3-5-B Saiwai-cho, Fuchui, Tokyo 183, Japan.
- 2nd Vice Chairman: Dr.S.S.Khanna, Planning Commission, New Delhi-110 001, India.
- 3rd Vice Chairman: Dr. Javier Z. Castellanos, CAEB, INIFAP, P.O.Box 112, 38000 Celaya, Gto., Mexico.
- Secretary: NN
- COMMISSION V:**
- Chairman: Dr.H.Eswaran, USDA Soil Conservation Service, P.O.Box 2890, Washington DC 20013, USA.
- Past Chairman: Prof.Dr.A.Ruellan, 2 Boulevard Berthelot, F-34000 Montpellier, France.
- 1st Vice Chairman: Prof.Dr.H.-P.Blume, Inst. für Pflanzenernährung und Bodenkunde, Olshausenstr.40-60, HS 20 A, D-2300 Kiel 1, Germany.
- 2nd Vice Chairman: Prof.Dr.V.O.Targulian, Inst. of Geography, 29 Staromonetny Lane, Moscow 109017, USSR.
- 3rd Vice Chairman: Dr.Charles Leo Jacques Depto. de Suelos, Universidad Autonoma Chapingo, 56230 Chapingo, Mexico.
- Secretary: M.Sc.Carlos A. Ortiz Solorio, Mexico.
- COMMISSION VI:**
- Chairman: Prof.Dr.G.S.Sekhon, Dept. of Soils, Punjab Agric. University, Ludhiana 141 004, Punjab, India.
- Past Chairman: Dr.I.P.Abrol, c/o ICAR, Krishi Bhavan, New Delhi 11001 India.
- 1st Vice Chairman: Dr.R.C. Dalal, Queensland Wheat Research Inst., 13 Holberton Street, Toowoomba, QLD 4350, Australia.
- 2nd Vice Chairman: Prof.Dr.N.Ahmad, Univ. of the West Indies, Fac. of Agriculture, St. Augustine, Trinidad & Tobago.
- 3rd Vice Chairman: Prof.Dr.Fernandez Gonzales, Colegio de Postgraduados, Centro de Edafologia, 56230 Chapingo, Mexico.
- Secretary: Dr.Antonio Trinidad Santos, Mexico.
- COMMISSION VII:**
- Chairman: Prof.Dr.R.J.Gilkes, University of W.A., Dept.of Soil Science, Nedlands, WA 6009, Australia.
- Past Chairman: Prof.Dr.A.Herbillion, CNRS Centre de Pédologie Biol., B.P.5, 54501 Vandoeuvre-les-Nancy.
- 1st Vice Chairman: Ms.Dr.C.G.Olson, USDA Soil Conservation Service, 100 Centennial Mall North, Lincoln NE 68508-3866, USA.
- 2nd Vice Chairman: Prof.Dr.K.Stahr, Univ. Hohenheim/Bodenkunde, Emil-Wolff-Str.27, D-7000 Stuttgart 70, Germany.
- 3rd Vice Chairman: Prof.M.Sc.N.Aguilera Herrera, Instituto de Geologia, Departamento de Edafologia, UNAM, Ciudad Universitaria, 04515, México D.F., Mexico.
- Secretary: Dra.Norma Eugenia Garcia Calderón, Mexico.

SUBCOMMISSION A:

- Chairman: Prof.Dr.Zhao Qi-guo, Nanjing Inst. of Soil Science, Academia Sinica,P.O.Box 821 Nanjing, P.R. of China.
- 1st Vice Chairman: Mrs.Dr.M.Redly, Res.Inst. Soil Science and Agricultural Chemistry, Herman Otto ut 15, 1022 Budapest, Hungary.
- 2nd Vice Chairman: Prof.Dr.J.Breburda, Justus Liebig Univ., Otto Nehagel Str.10/D - 6300 Giessen, Germany.
- 3rd Vice Chairman: Prof.Dr.M.Ortega Escobar, Colegio de Postgraduados, Centro de Hidrociencias, 56230 Chapingo, Mexico.
- Secretary: Lyubimova, USSR; Lic.Beatriz Vera López, Mexico.

SUBCOMMISSION B:

- Chairman: Dr. C.J. Chartres, CSIRO Division of Soils, P.O.Box 639, Canberra City, ACT 2601, Australia.
- 1st Vice Chairman: Prof.Dr.P.Goldberg, Hebrew Univ., Inst. of Archeology, Jerusalem 91-905, Israel.
- 2nd Vice Chairman: Dr.C.J.Chartres, CSIRO, Div. of Soils, P.O.Box 639, Canberra City, ACT 2601, Australia.
- 3rd Vice Chairman: Dra.K.Oleschko, Colegio de Postgraduados, Centro de Edafologia, 56230 Chapingo, Mexico.
- Secretary: Mrs.Dr.M.J.Kooistra, Winand Staring Centre, P.O.Box 125, 6700 AC Wageningen, The Netherlands; Dra.Magdalena Meza Sánchez, Mexico.

SUBCOMMISSION C:

- Chairman: Prof.Dr.Pla-Sentis, Las Acacias, Apartado 1131, Maracay, Venezuela.
- 1st Vice Chairman: Dr.C.Valentin, ORSTOM, 70-74 Route d'Aulnay, F-93140 Bondy, France.
- 2nd Vice Chairman: Dr.B.A.Stewart, USDA-SEA-AR/Cons.& Prod.Research, P.O.Drawer 10, Bushland TX 79012, USA;
- 3rd Vice Chairman: Prof.Dr.M.Anaya Garduno, Colegio de Postgraduados, Centro de Edafologia, 56230 Chapingo, Mexico.
- Secretary: Dr.José Luis Oropeza, Mota, Mexico.

SUBCOMMISSION D:

- Chairman: Dennis Parkinson, University of Calgary, Department of Biological Sciences, Calgary, Alberta T2N IN4, Canada.
- 1st Vice Chairman: Isabelle Barois, Instituto de Ecología, A.Postal 63, 91000 Xalapa Veracruz, Mexico.
- 2nd Vice Chairman: James Curry, Faculty of Agriculture, UCD, Dept. of Env. Resource Management, Belfield, Dublin 4, Ireland
- Secretary: Jürgen Kühle, ITEC GmbH, Grimlinghauser Str. 21, D.W.4000 Düsseldorf, Germany

WORKING GROUP AS:

- Chairman: Dr.S.Sadio, ISRA/ORSTOM, B.P. 1386, Dakar, Senegal.

WORKING GROUP DM:

- Chairman: Prof.Dr.M.F.Baumgardner, Dept. of Agronomy, Purdue Univ., West-Lafayette IN 47907, USA.

WORKING GROUP FS:

- Chairman: Dr.P.K.Khanna, CSIRO, Div. of Forest Research, P.O.Box 4008, Queen Victoria Terrace, Canberra ACT 2600, Australia.

WORKING GROUP FT:

- Chairman: Dr.S.K.De Datta, IRRI, P.O.Box 933, Manila, Philippines.

WORKING GROUP HP:

Chairman: Prof.Dr.D.H.Yaalon, Dept. of Geology, Hebrew Univ.,
Jerusalem 91000, Israel.

WORKING GROUP LI:

Chairman: Dr.J.Dumanski, Land Resources Research Institute, Agric. Canada,
Ottawa, Ontario, Canada K1A 0C6.

WORKING GROUP MO:

Chairman: Prof.Dr.P.M.Huang, Univ. of Saskatchewan, Dept. of Soil Science,
Saskatoon, Sask., Canada S7N 0W0.

WORKING GROUP MV:

Chairman: Prof.Dr.J.Bouma, Dept. of Soil Science, Agric. University, P.O.Box 37,
6700 AA Wageningen, The Netherlands.

WORKING GROUP PM:

Chairman: Prof.Dr.D.E.Myers, Dept. of Mathematics, University of Arizona,
Tucson, Arizona 85721, USA.

WORKING GROUP PP:

Chairman: Prof.Dr.J.A.Catt, Rothamsted Experimental Station, Soil Science
Department, Harpenden, Herts, AL5 2JQ,
United Kingdom.

WORKING GROUP PS:

Chairman: Prof.Dr.Zhu-Zhaoliang, Inst. of Soil Science, Academia Sinica, P.O.Box
821, Nanjing, PR of China.

WORKING GROUP PT:

Chairman: Prof.Dr.R.Horn, Inst. of Plant Nutrition & Soil Science,
Olshausenstr.40-60 HS 20A, 2300 Kiel 1, Germany.

WORKING GROUP RS:

Chairman: Dr.M. Mulders, Dept. of Soil Science & Geology, Wageningen
Agricultural University, P.O.Box 37, 6700 AA Wageningen,
The Netherlands.

WORKING GROUP RZ:

Chairman: Prof.Dr.A.Jungk, Inst. f. Agrikulturchemie, Von Sieboldstrasse 6,
D-3400 Göttingen, Germany.

WORKING GROUP SG:

Chairman: Prof.Dr.J.Låg Dept. of Soil Science - AUN, P.O.Box 28, 1432 As-
NLH, Norway.

WORKING GROUP SP:

Chairman: Prof.Dr.P.J.Wieringa, Univ. of Arizona, Soil & Water Science, Tucson
AZ 85721, USA.

Standing Committee on Statute and Structure (CSS):

Chairman: Prof.Dr.P.B.Tinker, GCTE Associate Project Office, Deptmt. of Plant
Sciences, University of Oxford,
South Parks Road, Oxford OX1 3RB, U.K.

Standing Committee on International Programmes (CIP):

Chairman: Prof.Dr.H.Scharpenseel, Inst. für Bodenkunde, Allende-Platz 2, 2000
Hamburg 13, Germany.

Standing Committee on Standardization (CST):

Chairman: Prof.Dr.H-P.Blume, Inst. für Pflanzenern. u. Bodenkunde,
Olshausenstr.40-60, 2300 Kiel 1, Germany.

Standing Committee on Budget and Finances (CBF):

Chairman: Prof.Dr.W.R. Gardner, College of Natural Resources, Univ. of
California, Berkeley, CA 94720, USA.

Standing Committee on Education in Soil Science (CES):

Chairman: Prof.Dr.A.Ruellan, 2 Bd. Berthelot, F-34000 Montpellier, France.

Das Standardwerk zum Bodenschutz in 2. Auflage

Grundlagen der Bodenökologie und -belastung

Vorbeugende und abwehrende Schutzmaßnahmen



H.-P. Blume

Handbuch des Bodenschutzes

2. Auflage 1992, 794 Seiten,
Leinen-Hardcover, Format 17 x 24 cm,
ISBN 3-609-65850-9

DM 148,-

Mit der nun vorliegenden 2. Auflage des Handbuches wurden bestehende Kapitel erweitert, aber auch neue Beiträge aufgenommen.

Neu sind Kapitel über die Modellierung des Chemikalienverhaltens in Böden, über die Technik der Bodeninventur nebst Aussagemöglichkeiten von Bodenkarten, über Umweltverträglichkeitsprüfungen, über die Renaturierung von Mooren und anderen Feuchtgebieten, über den Bodenschutz durch Erziehung sowie über die Rechtsgrundlagen der Bodensanierung.

Das Werk gliedert sich jetzt in 5 Teile:

Das erste Hauptkapitel informiert über die **Eigenschaften und Funktionen** von Böden, insbesondere über Boden- und Landschaftswasserhaushalt, Böden als Lebensraum von Organismen und Wurzelraum für Pflanzen, Böden als Filter, Puffer und Transformatoren sowie Böden als erd- und landschaftsgeschichtliche Urkunden.

Der zweite Teil des Werkes befaßt sich mit den **Veränderungen und Belastungen** von Böden durch verschiedene Faktoren wie Bodenversiegelung, Bearbeitung, Be- und Entwässerung, Düngen, Verdichtung, Erosion, Kontamination und Belastungen mit u.a. Schwermetallen, Säuren, Salzen sowie die Problematik bei der Deponierung von festen und flüssigen Abfällen.

Der dritte Teil befaßt sich mit der **Bodeninventur** als Grundlage des Bodenschutzes.

Im vierten Teil wird der **Schutz von Böden** im engeren Sinn dargestellt: Gesetzliche Möglichkeiten und Vorsorgemaßnahmen.

Den fünften Schwerpunkt bilden die Bereiche **Sanierung, Sicherung und Renaturierung** belasteter bzw. veränderter Böden (Technik, Planungsschritte, Rechtsgrundlagen).

Zu beziehen über:

ecommed
verlagsgesellschaft

Rudolf-Diesel-Straße 3
86899 Landsberg
Telefon (081 91) 125-428
Telefax (081 91) 125-526

Bestellcoupon



Ja, hiermit bestelle/n ich/wir mit garantiertem Rückgaberecht innerhalb von 14 Tagen nach Erhalt:

_____ Ex. **Handbuch des Bodenschutzes**
ISBN 3-609-65850-9 DM 148,-

Name/Firma

Anschrift

Datum/Unterschrift

Kauf ohne Risiko: ich weiß, daß ich bei Nichtgefallen volles Widerrufsrecht für meine Bestellung innerhalb von 14 Tagen nach Erhalt habe. Zur Wahrung der 14-Tage-Frist genügt die rechtzeitige und ausreichend frankierte Rücksendung der Lieferung.

Datum/Unterschrift

ISSS-Committees and Representatives

Committee on Statute and Structure (CSS), to ensure correct application of Statutes and Bylaws of ISSS, and to propose changes in the organizational structure as required. **Chairman:** Prof. Dr. P.B. Tinker, GCTE Associate Project Office, Department of Plant Sciences, University of Oxford, South Parks Road, Oxford OX1 3RB, U.K. **Members:** Prof. Dr. W.E.H. Blum (Austria), Dr. S. El-Swaify (USA-Hawaii), Dr. N.N. Goswami (India), Prof. Dr. K.H. Hartge (Germany), Prof. Dr. K. Kyuma (Japan), Dr. F.N. Muchena (Kenya), Prof. Dr. I. Pla-Sentis (Venezuela), Prof. Dr. B.G. Rozanov (USSR), Dr. W.G. Sombroek (The Netherlands) and Dr. G. Varallyay (Hungary).

Committee on International Programmes (CIP), to liaise with international organizations and to promote joint programmes. **Chairman:** Prof. Dr. H.W. Scharpenseel, c/o Institut f. Bodenkunde, Univ. Hamburg, Allende-Platz 2, D-2000 Hamburg 13, Germany. **Members:** Prof. Dr. A. Aguilar Santelises (Mexico), Dr. I.P. Abrol (India), Dr. R.W. Arnold (USA), Prof. Dr. W.E.H. Blum (Austria), Prof. Dr. A.M. Elgala (Egypt), Dr. D.J. Greenland (UK), Prof. Dr. K. Kyuma (Japan), Prof. Dr. B.G. Rozanov (USSR), Prof. Dr. P.A. Sanchez (USA/Peru), Dr. W.G. Sombroek (The Netherlands), Prof. J.W.B. Stewart (Canada), Prof. Dr. P.B. Tinker (UK), Dr. G. Vachaud (France), Dr. G. Varallyay (Hungary), Prof. Dr. D.H. Yaalon (Israel).

Committee on Standardization (CST), to liaise with the International Standardization Organization (ISO, Geneva-Switzerland) and its Technical Committee on Soil Quality (ISO/TC 190, NNI, Delft, The Netherlands).

Chairman: Prof. Dr. H.P. Blume (Comm.V) c/o Inst. f. Pflanzenernährung und Bodenkunde, Olshausenstrasse 40, D-2300 Kiel 1, Germany. **Members:** Dr. C. Dirksen (The Netherlands, Comm.I), Dr. P. Arnold (UK, Comm.II), vacancy (Comm.III), Dr. S.A. Barber (USA, Comm.IV), vacancy (Comm.VI), Prof. Dr. A. Herbillon (France, Comm.VII), vacancy (Subcomm.A), Prof. Dr. G. Stoops (Belgium, Subcomm.B), Dr. M. Romkens (USA, Subcomm.C) and Dr. M.B. Bouché (France, Subcomm.D). Technical Secretariat of ISRIC-Wageningen (Dr. J. Gerits).

Committee on Budget and Finances (CBF), instead of ad-hoc committees at Congresses.

Chairman: Dr. W.R. Gardner, College of Natural Resources, Univ. of California, Berkeley, CA 94720, USA.

Members: Prof. Dr. W.E.H. Blum (Austria), Dr. D. Gabriels (Belgium), Dr. P.U. Luescher (Switzerland), Dr. W.G. Sombroek (The Netherlands) and one representative of the regional Society of Africa, East/Southeast Asia and Latin America.

Committee on Education in Soil Science (CES), with particular attention to secondary school/college level

Chairman: Prof. Dr. A. Ruellan, 2, Bd. Berthelot, F-34000 Montpellier, France. **Members:** to be defined

ISSS Representatives in Committees/Commissions of International Organizations:

- ICSU-SCOPE Scientific Committee on Problems of the Environment:
Dr. F. Fournier (France).
- ICSU-CASAFA Inter-Union Commission on the Application of Science to Agriculture, Forestry and Aquaculture: Prof. Dr. W.E.H. Blum (Austria).
- ICSU-IBN International Biosciences Networks: Prof. Dr. P.A. Sanchez (U.S.A.).
- ICSU-IGBP International Geosphere-Biosphere Programme:
Prof. Dr. H.W. Scharpenseel (Germany).
- ICSU-COSPAR Committee on Space Research: Dr. Karale (India).
- ICSU-CODATA Committee on Data for Science and Technology:
Prof. Dr. M.F. Baumgardner (U.S.A.).
- IUBS-UNESCO-TSBF Tropical Soil Biology and Fertility: Prof. Dr. H.W. Scharpenseel (Germany)

Activities of Commissions and Working Groups
Activités des Commissions et Groups de Travail
Aus der Tätigkeit von Kommissionen und Arbeitsgruppen

REPORT ON THE INTER-CONGRESS CONFERENCE OF COMMISSION IV

The Inter-Congress Conference of Commission IV of ISSS was held on 1-3 December 1992 at Dhaka, Bangladesh. The conference was jointly organized by SSSB and BARC under the auspices of ISSS. The theme of the conference was "Improving Soil Management for Intensive Cropping in the Tropics and Sub-Tropics".

The conference was inaugurated by the Hon'ble Minister for Agriculture, Irrigation and Flood Control, Mr. M.Majid-ul-Huq. The President of the ISSS Prof.Dr. Andrés Aguilar Santelises was present at the conference and spoke at the inaugural session besides presenting a paper in the technical session. Also present on the rostrum were Dr. M. Amirul Islam, an eminent soil scientist of the country, Mr. A.N.M. Eusuf, the Agriculture Secretary to the Govt. of the People's Republic of Bangladesh, Dr. A.K.M. Habibullah, President of the SSSB, Dr. Z. Karim, Chairman of the organizing committee. The vote of thanks was delivered by Prof. Dr. S.M. Imamul Huq, the organizing secretary of the conference.

There were as many as 325 local participants and 24 foreign participants. The foreign participants included scientists from India, Pakistan, Sri-Lanka, Thailand, Indonesia, Venezuela, Mexico, Uganda, Canada, the USA, Australia, the UK, Vietnam and Hongkong.

Of the 349 participants, 106 submitted abstracts for presentation in the technical sessions. Almost all the abstracts were reviewed by a panel of reviewers drawn from various institutes and were selected either for oral or poster presentation. As such, 94 abstracts were selected for oral presentation and 12 for poster sessions. The whole conference was segmented into 11 sessions including one for inaugural, one for panel discussion and one for recommendations. Due to time constraints all 94 papers could not be accommodated for oral presentation. Only 54 papers were selected for presentation. However, all papers received in full and in time will be included in the proceedings which is likely to be published sometime in June-July, 1993. Most of the presentations were good and the papers were of good quality.

The organizing committee and the SSSB supplied the participants with brief-cases, coatpins and other conference material. The conference was rounded off with a musical soiree and a sumptuous dinner.

REPORT OF SUBCOMMISSION B (SOIL MICROMORPHOLOGY)

The business meeting of Subcommittee B (Soil Micromorphology) of the International Society of Soil Science was held on 17 July 1992 on the campus of James Cook University in Townsville, Queensland, Australia. The meeting was in conjunction with the 9th International Working Meeting on Soil Micromorphology (IWMSM). The following officers for the subcommission were elected:

Chairman :	Dr. Colin Chartres (Australia)
First Vice-Chairman :	Dr. Keith Tovey (Great Britain)
Second Vice-Chairman:	To be chosen from the host country of the next IWMSM
Third Vice-Chairman:	Dr. Klaudia Oleschko (Mexico)
Secretary:	Dr. Mickey Ransom (USA)
Past Chairman:	Dr. Larry Wilding (USA)

Invitations to host the next IWMSM in 1996 were received from the Russian Society of Soil Science and Dr. Klaudia Oleschko of Mexico. The delegates selected Russia as their first choice for the location of the 1996 IWMSM.

M. D. Ransom, Manhattan, Kansas, USA

**1st International Conference on Cryopedology
Cryogenic Soils: Genesis, Evolution and Use
Pushchino, Moscow Region, Russia, November 10 - 14, 1992**

This conference was organized by the Institute of Soil Science and Photosynthesis of the Russian Academy of Sciences (RAS), Russian and International Societies of Soil Science, and the Scientific Council for Earth Cryology of the RAS. Immediately after this conference a joint Russian-American Seminar on Cryopedology and Global Change was held.

92 papers were presented at the conference and 22 at the seminar. Foreign authors of the main papers included: Dr. R.W. Arnold, Dr. J. Brown, Prof. J.G. Bockheim, M.H. Clark, Prof. K.R. Everett, Dr. J.M. Kimble, Dr. R.L. Malcolm, Prof. J. McGrath, J.P. Moore, Prof. F.E. Nelson, Dr. C.L. Ping, R.S.S. Letten, D.K. Swenson, S.C. Smith, S. Wagener, Dr. C. Tarnocai, Dr. Q. Guodim, Dr. M. Bolter, Dr. G. Broll, S. Ehrich, H. Janssen, Dr. C. Siegert, Prof. H.P. Blume, Prof. J. Låg, Dr. B.E. Ryden, Dr. B. Jakobsen, T. Christiansen, Dr. F. Ugolini, Prof. L.B. Campbell and others.

The majority of the papers were presented by Russian soil scientists. Below we will give a brief review of the main topics of the meeting:

I. Genesis, geography, evolution and classification of cryogenic soils. (Heads: Prof. O.V. Makeev and Dr. S.V. Gubin). In the first paper on this topic Prof. O.V. Makeev said that "Cryopedology is a branch of soil science and geocryology, which is studying soil as an object of cryogenic action i.e. cryide (freezing)". In connection with this conception the most significant material was a paper of Jerry Brown "A Circumpolar Map of Permafrost and Ground Ice Condition". This new map may be used for compiling the soil maps of these territories.

In other papers of this section the connection between genesis and geography of cryogenic soils was considered. Absolutely new were data from such territories as the Antarctic and Greenland. In McMurdo Sould soils show little pedogenic development and their properties are a result of a complex pedogenetic history. In northern Greenland with its high-arctic climate and strong polar desert affinities, arctic desert soils, salt-encrusted soils, arctic brown soils, hydromorphous tundra soils, hummocky soils and fell-field areas are shown.

Much progress has been made concerning the territories with permafrost affected soils in Eurasia and North America. In Canada, soils containing permafrost in their control section occupy approximately 40 % of the land area. The soil temperatures give rise to cryoturbation, cryostatic pressure development, frost heave, sorting and migration of water with the result of ice build-up. In the interior of Alaska/USA, redoximorphic features of some cryoturbated soils were examined. They are a result of permafrost thawing. In large areas in Svalbard the vegetation is rich in species, but only bluegreen algae fix nitrogen. In relatively favourable areas arctic brown soils are developed.

The participants of the 1st International Conference on Cryopedology and the joint Russian-American Seminar on Cryopedology and Global Change, Pushchino, 1992

The well-known Russian soil scientists S.V. Goryachkin and V.O. Targulian distinguished the main soil groups in accordance with their potential climate changeabilities, particularly in soil area margins. I.A. Sokolov, E.U. Naumov and D.E. Konyuschkov reported on the soils of the northern Eurasia, saying that the proposed materials could be used as a base for programmes of northern ecosystems monitoring and for the models of pedosphere evolution under the global biosphere changes.

Papers were presented on mountain tundra soils of China and north-eastern Siberia and about the classification of permafrost affected soils.

II. Physico-chemical processes in cryogenic soils (experiment and modelling). The meeting of this section was opened by Dr. V.E. Ostroumov. In his papers, he and his co-authors gave significant data of ion transfer under specific cryogenic conditions and the role of the surface of frozen soils. They show that the main channel on ion transfer in permafrost is the aqueous film on the surface of an ice crystal. A.V. Pavlov showed in his paper that in northern soils the technogenic impact results in decreasing the surface albedo and at the same time in increasing the summer evaporation 1,5 to 2 times, a considerable rise of heat flow into the soil is observed (up to 60 %), the depth of seasonal thawing is increased, and the soil temperature becomes higher.

In Yakutsk experiments showed that under freezing-thawing cycles the soil thermal conductivity decreases to 40 %, depending on clay content and moisture.

Specific changes in minerals under gleying of cryogenic soils (T.S. Zvereva) and the question of minerals as indicators of dynamics of landscape conditions for ice complex formation (Kh. Sigert) contain interesting new data.



The participants of the 1st International Conference on Cryopedology and the joint Russian-American Seminar on Cryopedology and Global Change, Pushchino, 1992

III. Microflora and biochemical processes in cryogenic soils. Most of the participants were present at the meeting of this section. The main paper was that of D.A. Gilichinsky: "Variable microorganisms in permafrost - the spectrum of possible applications to new investigations". The author established that in the far east of Siberia, in a depth of down to 100 m there are numerous and various microorganisms able to survive and being presented "in situ" under permafrost conditions (- 12°C), during hundreds of thousands and even millions of years. Cryoprotector for microorganisms is the thin layer of unfrozen water which surrounds the surface of mineral particles. Reconstructions of global change in high latitudes based on paleomicrobiological data are unique in relation not only to the morphology of fossil organisms, but also to their functional parameters.

The microflora in cryogenic soils is also highly interesting. For example, it was found that strong acidic conditions and low temperature suppress bacterial growth. Acid and psychrotolerant microflora in soils under study are only represented by microfungi.

The topic of some papers was the gas function of cryogenic soils. They showed that the influence of cryogenesis on the content of carbon dioxide in soils and its emission into the atmosphere has many aspects. They include the creation of overmoistured conditions, which have a great influence on diffuse properties of the soil, the stimulation of the low level of breathing activity of soil microorganisms and the direct impact of permafrost on the gas conduct. (D.G. Fedorov-Davidov).

New investigations on methane biogeochemistry carried out by V.A. Samarkin, E.M. Rivkina and co-authors assumed that if the water temperature of the Arctic Ocean rose, the thickness and average temperature of the active layer of the coast land area would increase, which would lead to a rise of methane production and emission in wet lands.

Conclusion:

1. The main global issues for the evolution of Cryopedology are:
 - a) the cryopedosphere conception, a part of the earth's soil envelope (pedosphere), where both positive and negative temperatures are essential;
 - b) the multitude of soil types of high latitudes;
 - c) new regularities of the evolution of arctic and subarctic soils and peculiarities of their microflora content of viable microorganisms in Permafrost.

O.V. Makeev
D.A. Gilichinsky

Working Group Remote Sensing for Soil Survey

The working group has got a new chairman, dr. M.A. Mulders, formerly vice-chairman. The present activities are focused on the organisation of a symposium to be held in February of 1995 in West Africa. The symposium will be organized in cooperation with the Working Group "World Soils and Terrain Digital Data Base" and the "West and Central African Association of Soil Science".

The symposia themes are concentrated on the techniques to compose sets of ground gathered data and their combination with remote sensing data in GIS as well as the optimization of this information in soil inventory, aspects of land evaluation and studies on land degradation. We hope to meet many colleagues to exchange our findings of the last years and are looking forward to discussions with our colleagues active in Central and West Africa.

There will be no activities of the working group on the 15th International Congress in Acapulco. Therefore, we request to communicate ideas and comments, either to the chairman (Tel: +31.8370.82413; Fax: +31.8370.82419) or to the secretary of the Working Group: dr. Richard Escadafal, Mission ORSTOM en Tunisie, B.P. 434, 1004 El Menzah, Tunisia (Tel: +216.1.750009; Fax: +216.1.750254).

**Reports of Meetings
Compte-rendus de Réunions
Tagungsberichte**

Soil Erosion at the Memorial Symposium Prof. J. de Ploey

Experimental Geomorphology and Landscape Ecosystem Changes

Leuven, Belgium, March 22 - 26, 1993

This memorial symposium honouring the recently deceased Prof. Jan de Ploey, the founder of the Laboratory of Experimental Geomorphology at the University of Leuven, and cofounder of the European Society of Soil Conservation (600 members) was attended by nearly 120 participants from 20 countries. Though the soil erosion topic as such did not appear in the symposium title, about half of the 50 orally presented papers, and most of the two dozen posters, dealt with soil erosion processes, their measurements and modelling, and thus by implication with various soil and land use effects in different geographic regions. The US-Soil Conservation Service approach and USLE data remain the major framework of comparison for the new data obtained with a vast array of frequently sophisticated equipment, but more and more physically based functions and modelling systems are replacing it. A better knowledge of basic pedogeomorphologic relations is also gradually becoming evident. An even closer cooperation of soil scientists with geomorphologists on this array of topics would no doubt be beneficial to both.

The Symposium was excellently organized by the Laboratory of Experimental Geomorphology, whose members also demonstrated the various experiments and equipment used during a visit to the institute. It was co-sponsored by the European Society of Soil Conservation and GERTEC, which is the newly established and already very active commission of the International Geographical Union (and at the same time a working group of the International Association of Geomorphologists). GERTEC stands for Geomorphological Responses to Environmental Change. It will focus its activity on earth process-oriented measurements and modelling, including as a major component soil erosion and land degradation, with the object of predicting expected global and regional changes. Interested persons should contact Rorke Bryan, Soil Erosion Laboratory, University of Toronto, Scarborough, Ontario M1C 1A4, Canada.

D.H. Yaalon, Jerusalem, Israel

9th INTERNATIONAL WORKING MEETING ON SOIL MICROMORPHOLOGY
Townsville, Queensland, Australia, July 12-17, 1992

The 9th International Working Meeting on Soil Micromorphology was held on the campus of James Cook University in Townsville, Queensland, Australia. This was an official meeting of Sub-commission B (Soil Micromorphology) of ISSS. The conference was attended by 108 participants from 19 countries. The co-sponsoring agencies of the conference included ISSS, the Australian Society of Soil Science, and CSIRO Division of Soils. Dr. Colin Chartres and Dr. Anthony Ringrose-Voase served as Chairman and Secretary of the Organizing Committee, respectively. Dr. Ringrose-Voase and Dr. Geoff Humphreys arranged the program and will be co-editors of the conference proceedings.

Financial assistance to attend the conference for participants from developing countries was provided by the Australian International Development Assistance Bureau (AIDAB). Recipients of these AIDAB Awards included Ms. Adelaida Bourmarlong of the Tarlac College of Agriculture, the Philippines; Prof. Zi-Quin Gao of the Academia Sinica Institute of Applied Ecology, Peoples Republic of China; Dr. Azwar Maas of Gajah Mada University, Indonesia; Dr. Anchalee Suddhiprakarn of Kasetsart University, Thailand; and Dr. Siti Zauyah of the Agricultural University of Malaysia.

An opening reception of the meeting was held Sunday night at the Great Barrier Reef Wonderland, a magnificent aquarium at the Townsville harbor. The Honorable E. Lindsay, Federal Member of Parliament for Herbert, officially opened the meeting Monday morning. The conference dinner Thursday night was in the Latitude 19 Resort Hotel on Magnetic Island and followed a memorable, chartered boat ride from the mainland to the island.



Participants of the 9th International Working Meeting on Soil Micromorphology, 12 - 17 July 1992, Townsville, Queensland, Australia.

Themes of the meeting sessions included Soils of the Tropics, General Pedology, Soil Biota, Laterites, Soil Structure, Soils with Fe/Mn Concretions, Hydromorphic Soils, Volcanic Soils, Vertisols, Paleosols, Soil Management, Soils with Gypsum or Carbonate, Soils with Crusts or Hardsetting Properties, and Archaeology. The sessions consisted of 8 keynote lectures, 60 oral presentations, and approximately 55 poster papers.

A pre—conference field trip of tropical Queensland was coordinated by Mr. Ray Isbell and Dr. Ross Coventry of the CSIRO Division of Soils. Mr. Isbell, Dr. Coventry, and Dr. Janis Boettinger of Utah State University, USA, led a mid-conference tour of the Burdekin Delta region of Queensland. Post-conference tours of Southeast Australia and Southwest Australia were organized by Dr. Richard Greene, CSIRO Division of Wildlife and Ecology, and by Dr. Bob Gilkes, University of Western Australia, respectively.

Dr. Larry Wilding, Texas A&M University, USA and Chairman of Subcommittee B, presided at the business meeting of Subcommittee B. Dr. Colin Chartres, CSIRO Division of Soils, Australia is the incoming Chairman of Subcommittee B. Invitations to host the next IWMSM meeting were received from Russia and Mexico. Conference delegates selected Russia as the next meeting location in 1996. Elections were held for the offices of 1st Vice-Chairman and Secretary. Dr. Keith Tovey of the University of East Anglia, Great Britain and Dr. Mickey Ransom of Kansas State University, USA were elected to these respective offices.

The Kubierna Award was presented during the business meeting to Professor Georges Stoops of the Geologisch Institut, Gent, Belgium. The Kubierna Award commemorates an outstanding soil micromorphologist who has made distinguished and major contributions to the theory, application, and utilization of micromorphology.

Special appreciation should be extended to the co-sponsoring agencies, financial sponsors, members of the organizing committee, and employees of CSIRO who organized an outstanding meeting that will be most memorable for all participants.

M. D. Ransom, Manhattan, Kansas, USA

pre-conference field trip A
JULY 6-11, 1992

Field trip A was both a stimulating and pleasant trip in which 49 people, including 7 spouses, participated. It was most ably conducted by Ray Isbell, Ross Coventry, and colleagues. The trip, in northern Queensland, started at Cairns and ended at Townsville, the site of the conference. The first night's food and lodging, which were excellent, reflected the quality of the entire trip.

The initial part of the trip, under the leadership of Ray Isbell, examined soils and land use of the coastal lowlands and the interior tablelands. Two Oxisols and a Ultisol were examined in the Atherton Tablelands. An Entisol/Spodosol, Inceptisol, Ultisol, and Alfisol with a natric horizon were examined in the coastal lowlands. Sugar cane was clearly the dominant cultivated crop. It was grown mainly in the coastal lowlands, but extended onto some of the more sloping (up to 15 or 20 percent) soils of the Atherton Tablelands. Concern was expressed regarding the effects of soil erosion on both the soil and the adjacent Great Barrier Reef.

The second part of the trip, under the leadership of Ross Coventry, went inland from Townsville into the dryer (as low as 450 mm of precipitation) regions—the outback. The soils were mostly Alfisols but included a Vertisol and Aridisol. Soil distribution patterns of Red, Yellow, and Grey Earths (Alfisols) were shown to be controlled by bedrock depths rather than landscape position. The group considered: (1) the effects of burning on ferruginous minerals, (2) the pedological effects of mound-building termites, (3) the effects of tree clearing on the accumulation of salt in soils, and (4) the instability effects of vertisols and vertic soils on underground fiber glass cable. The group also engaged in extensive discussions regarding the age of geomorphic surfaces.

After visiting the dinosaur display at Hughenden and a rousing round of Waltzing Matilda, the group returned to Townsville for the conference.

post-conference field trip C
JULY 20-27, 1992

This tour, lead by Richard Greene and colleagues, generally made an east-west traverse in New South Wales. The 19 participants traveled about 2500 km through sub-humid, mediterranean, semi-arid, and arid climates and had an outstanding trip. Land use, both intensive and extensive, and soil development were considered on soils of variable texture which were mainly Alfisols, Vertisols and Aridisols. The trip started at Canberra and ended at Sydney.

The first stop, in the wheat and sheep country, was an Alfisol which was developed in parna. Parna, an aeolian dust which often consists of silt size aggregates of clay, was seen and discussed at many subsequent stops.

Soil salinization following clearing of trees was a concern in New South Wales as in other parts of Australia and of the world. One salinization study was observed. Other stops concerned acidification and liming studies. The deterioration of soil structure and resulting loss of infiltration as well as increased runoff were subjects of several stops. Other stops concerned soil crusting, hardsetting, minimum tillage and the use of conservation terraces. Cotton and row crop production and management were considered on Vertisols high in sodium.

Two large sheep stations were visited. At the first, we examined efforts to pond water on crusted areas (scalds) and thus aid the establishment of natural vegetation on Aridisols. At the second station, we observed grazing management studies on Aridisols in dune and swale topography. At this station, we were provided the noon meal by the owners and visited with students of the Australian distance school. We observed as they studied one lesson over the radio.

The group spent two nights at an arid region experiment station at Fowler's Gap. Here we observed more pama and Aridisols and most notably, pama over silcrete. On our return trip, we observed the relation between soil surface conditions and the production of vegetation.

The tour participants certainly enjoyed the trip and learned much about soils and land use of New South Wales. The leaders were able and well prepared. The interaction and camaraderie among the group was most enjoyable. Everyone liked the local cuisine as well as seeing Kangaroo, emu, galah, and cockatoo.

E.M. Rutledge, Fayetteville, Arkansas, USA

International Seminar on Agricultural and Environmental Aspects of Soil Structure in Lublin

The well known Institute of Agrophysics of the Polish Academy of Sciences held an international Seminar from June 7 to 9, 1993, in cooperation with the Agricultural University of Lublin. The organization of this event was in the experienced hands of the director of the Institute of Agrophysics, Prof. Dr. Jan Glinski.

The seminar was presided by an honorary committee consisting of the professors W.E.H. Blum (Secretary-General, ISSS), J. Haman (State Committee for Scientific Research, Poland) S. Moskal (President, Polish Soil Science Society), J. Nurzynski (Rector, Agricultural University, Lublin), E. Prost (President, Lublin Scientific Society) and S. Zawadzki (Secretary, Section Agric. & Forestry Science, Polish Academy of Sciences)

There were more than 80 participants from Austria, Belgium, Belorussia, Bulgaria, Germany, Hungary, Japan, Russia, Slovakia, Spain and the Ukraine.

The programme included invited papers read by speakers from five countries, a poster session containing about 50 presentations and several social events.

The oral presentations as well as the posters lead to very lively discussions. The latter met with particularly high attention because the organizers had thoughtfully provided ample time for them, without other parts of the program competing with them.



Participants in the International Seminar on Agricultural and Environmental Aspects of Soil Structure in Lublin

The whole event took place in a most pleasant atmosphere, filled with the enthusiasm of colleagues working together on problems of soil structure. A quite particular feature of this meeting was the high number of countries which were represented by scientists - most of whom already knew each other at least from literature. This was certainly due to the high reputation, which the host institute and its staff enjoy within the soil science community. This reputation is not limited to the scientific aspect, all participants highly enjoyed the hospitality of the institute and of the Polish Academy of Sciences, the perfect organization and the famous personal charm of the hosts.

Purposely coinciding with the seminar was still another event which is of importance to our society: The degree of DOCTOR HONORIS CAUSA of the Agricultural University of Lublin was bestowed upon the Secretary General of our Society, Prof. Dr. W.E.H. Blum. This is a high appreciation of his activity and efficiency for Prof. Blum and at the same time an honour for our society. The procedure was performed with the full academic ceremony in the Auditorium Maximum of the University.

It is a pleasure for me to finally confirm that the whole programme - from the scientific main effort to the charmingly offered social events - will certainly find its firm place in my memory and in the memories of all participants.

International Meeting on Red Mediterranean Soils

Adana, Turkey, May 9 - 14, 1993

The Soil Science Department, University of Çukurova in collaboration with the Turkish Society of Soil Science, ISSS, FAO and the Turkish Scientific and Technical Council (TÜBİTAK) organized the meeting. This was the second meeting on Red Mediterranean soils after 27 years (the first one was in Spain in 1966). The meeting attracted over 60 foreign visitors from 15 countries (Azerbaijan, Bulgaria, Canada, China, Egypt, France, Germany, Greece, Israel, Italy, Lebanon, The Netherlands, Spain, Syria and USA, and about equal amounts of Turkish scientists and graduate students.

The meeting consisted of two parts:

Part I - Opening lectures

Dr. C. Özsahinoglu, President of the Çukurova University
Dr. O Tekinel, Dean of the Faculty of Agriculture
Dr. H. Özbek, Chairman of the Organizing Committee
Dr. J.R. Benites, FAO, Rome
Dr. J. Aguilar, Rep. of the 1st meeting
Dr. A.R. Mermut, Chairman of the Internat. Committee

Part II - Plenary Lectures

Dr. D.H. Yaalon, The Hebrew University, Israel
Dr. T. de Meester, The State University, Wageningen, The Netherlands

Discussions were centered around classification, land use and management, land use classification, land degradation, clay mineralogy, horizon designation in non-regular profiles (tube soils), regeneration of soils by wind erosion, and terminology used to define carbonatic features in Red Mediterranean soils. Participants urged that scientists interested in the subject matter should cooperate and coordinate their research efforts.

One day field trip to highly degraded lands in the Adana-Mersin region, through the fast rural and industrial developments, attracted attention of all the foreign participants. The field tour was organized by Drs. U. Dinç, S. Kapur (Secretary of the meeting) and S. Aksoy.

During the panel discussions, the delegates urged to establish a working group to coordinate regular meetings. The following individuals were elected for the working groups: Dr. A.R. Mermut (Chairman of the Working Group, Canada); M. Badraoui (Morocco); N. Fedoroff (France), E.A. FitzPatrick (U.K.); S. Kapur (Turkey); C. Roquero (Spain), A. Singer (Israel), N.I. Yassoglu (Greece). Three countries, Greece, Spain, and Morocco, were nominated to organize the third international meeting. The newly created working group agreed to work on this issue and make a decision on the place and time of the meeting.

The typical Turkish hospitality of the organizers made the meeting an unforgettable event for all the participants.

In addition to short papers and abstracts produced by the Çukurova University, reviewed and accepted papers will be published in a special issue of *Catena* Verlag in Germany.

A.R. Mermut, Saskatoon, Canada



Participants of the meeting at the beach of the Mediterranean Sea



A group of the foreign participants at Göreme, Central Turkey

Soil and Environmental Chemistry Workshop
Olympia, Washington, USA, June 24-25, 1993

The Soil and Environmental Chemistry Workshop took place during the general meeting of the AOAC International Pacific Northwest Regional Section held at The Evergreen State College (TESC), Olympia, Washington, USA. There were 225 registrants at the meeting.

Premeeting training courses on June 23 included GC/HPLC troubleshooting and maintenance, and ICP-MS. In addition, there were instrument exhibits at the Scientific Expo on June 24.

Andrew Held, Chair of the Planning Committee, welcomed the participants. The AOAC International was represented by Henry Conacher, President, who also addressed the delegates. The keynote address was delivered by Chris Jonietz-Trisler. The general meeting consisted of nine component workshops: drug analysis, environmental analysis (GC/MS), food chemistry, microbiology, microscopy, pesticide residues, soil and environmental chemistry, spectroscopy, and utility analysis. The Soil and Environmental Chemistry Workshop program consisted of the following papers: AOAC/SSSA collaborative study on pH measurements in soil (Yash P. Kalra, Forestry Canada, Edmonton, Alberta); AOAC/SSSA collaborative study on nitrogen determination in soil (Robert Miller, University of California, Davis, California); Arsenic speciation by ion chromatography and hydride generation atomic absorption spectrophotometry (Steve McGeehan, University of Idaho, Moscow, Idaho); and Determination of Sn and Sb in Pb/n mining waste and soils by hydride generation atomic absorption spectrophotometry (William Walker, Walsh and Associates, Sacramento, California).

The planning committee is to be complimented for a successful meeting. The next AOAC International Pacific Northwest Regional Section meeting is tentatively scheduled for June 1994 at the same venue. Further information on the Soil and Environmental Chemistry Workshop can be obtained from:

William J. Walker
James P. Walsh and Associates, Inc.
1913 Capitol Ave., Suite E
Sacramento, California 95814
USA

Phone: (916) 443-3025
Fax: (916) 442-6891

Yash P. Kalra
Northern Forestry Centre
Forestry Canada
5320 - 122 Street
Edmonton, Alberta T6H 3S5
Canada

Phone: (403) 435-7210
Fax: (403) 435-7359

News from Regional and National Societies
Nouvelles des Associations régionales et nationales
Berichte der regionalen und nationalen Gesellschaften

First, we would like to present two new National Societies, of which we have received notice:

AZERBAIJANIAN SOCIETY OF SOIL SCIENCE

The President of the ASSS is Prof.Dr. R.G. Mamedov, the Scientific Secretary for International Relations is Prof.Dr. F.P. Gerairade, its address is:

c/o Institute of Soil Science
Mamed Arif Str. 5
370073 Baku
Azerbaijan

GEORGIAN SOIL SCIENCE SOCIETY

The GSSS has 300 members, its head is Dr.prof. T. Urushadse, its address is

c/o Georgian Academy of Sciences
Rustareli avenue 52
Tbilisi 8
Republic of Georgia

COSTA RICA SOIL SCIENCE SOCIETY

At the 1993 Annual Meeting of the Costa Rica Soil Science Society, the following officers were elected:

President:	Dr. Jorge A. Briceño-Salazar
Vice-President:	M.Sc. José Soto-Acosta
Secretary:	Ing.Agr. Gilberto Cabalceta-Aguilar
Treasurer:	M.Sc. Floria Bertsch-Hernández
Officer:	Ing.Agr. Marco Ugalde
Officer:	M.Sc. Lidiette Uribe-Lorío
Officer:	Ing.Agr. Amelia Paniagua Vásquez
Controller:	Ing.Agr. Fernando Mojica

Address:

Costa Rica Soil Science Society
Dr. Jorge A. Briceño-Salazar
President
Centro de Investigaciones Agronómicas
Universidad de Costa Rica
S.Pedro, M. de Oca, San José
Costa Rica

Phone: (506) 24-3712
Fax: (506) 34-1627
E-mail: JBRICENO@UCRVM2

ASSOCIATION BURUNDAISE DE LA SCIENCE DU SOL (A.B.S.S.)

Les officiers de l'A.B.S.S. sont:

Président:	Dr. F. Ntiburumusi, ISABU/FAVA
1er Vice-Président:	Ir. T. Rishirumuhirwa, IRAZ
2ème Vice Président:	Ir. D. Ntaguzwa, FACAGRO, sol/eau
Secrétaire:	Dr. P. Hennebert, FACAGRO
Trésorier:	Ir. J. van Looij, ISABU

Adresse: A.B.S.S.
c/o FACAGRO
B.P. 2490 Bujumbura
Burundi
Tél: 22-43-57

INDIAN SOCIETY OF SOIL SCIENCE

The 57th Annual Convention of this Society was held in Hyderabad from November 26 - 29, 1992. The Convention was inaugurated by Mr. K. Jana Reddy, Minister for Agriculture, Andhra Pradesh. Around 250 delegates attended the Convention, which consisted of the following items:

- (a) National Seminar on "Developments in Soil Science" (130 papers were presented in oral and poster sessions)
- (b) Special symposium on "Soil management for sustained agriculture in dryland areas" (12 invitation papers presented in this symposium will be published in the form of a Bulletin of the Society)
- (c) Two Special Lectures on "Some aspects of cation exchange equilibria in soils" by Dr. Raj Pal and "New tools and techniques of land use planning" by Dr. R L Karale.
- (d) A Panel Discussion on "Indian agriculture towards 21st Century: Challenges and tasks in soil management research" moderated by Dr. J.S. Kanwar.
- (e) Annual General Meeting chaired by Dr. I.P. Abrol, President.

Dr. N.N. Goswami as the President and Dr. G. Narayanasamy as the Secretary of the Society were elected for the biennium 1993 - 1994.

This society plans to celebrate Diamond Jubilee during 1994, as it is the 60th year of its foundation.

Address of the Society:

Honorary Secretary
Indian Society of Soil Science
Div. of Soil Sci & Agric. Chemistry
Indian Agric. Research Institute
New Delhi - 110012 (India)

Tel: (011) 57-20991 or (011) 57-81494
Telegram: KRISHIPUSA-SOILS

Dr. G. Narayanasamy
Honorary Secretary
Indian Society of Soil Science

NEW ZEALAND SOCIETY OF SOIL SCIENCE

40th Anniversary

The New Zealand Society of Soil Science celebrated its 40th anniversary at its biennial conference held at Rotorua from November 16 - 20, 1992. The theme for the conference, organized for the Society by the N.Z. Forest Research Institute, was "Soils and Trees". The meeting consisted of both oral and poster presentations and field trips related to the conference theme. A pleasing aspect of the conference was the high quality of presentations made by the younger members of the Society, mainly postgraduate students.

At the Biennial General Meeting of the Society, the following officers and Council members were elected for the period 1992-4:

President:	Dr. K.C. Cameron, Department of Soil Science, Lincoln University
Vice President:	Dr. V.A. Orchard, Landcare Research, Taita
Past President:	Dr. H.K.J. Powell, Chemistry Department, University of Canterbury
Secretary:	Dr. R.G. McLaren, Department of Soil Science, Lincoln University
Treasurer:	Dr. I.B. Campbell, Nelson
Members:	M.R. Balks, University of Waikato, Dr. L.R. Basher, Landcare Research, Lincoln, Dr. R.J. Haynes, Food and Crop, Lincoln, Dr. M.J.S. Floate, AgResearch, Palmerston North, Dr. A.S. Palmer, Massey University.

The Society's new prestigious M.L. Leamy award, for the most meritorious N.Z. contribution to published soil science, was made (1992) to Dr. B.E. Clothier, Hort Research, Palmerston North. The L.C. Blakemore award for outstanding performance as a soil science technician was made to N.P. Smith, Department of Soil Science, Lincoln University. Dr. D. Scotter, Department of Soil Science, Massey University presented the Norman Taylor memorial lecture entitled "An alternative view of solute movement in soil and the dilemma of the three hats". The outgoing President (Dr. H.K.J. Powell) delivered his Presidential Address "40 Years On". The 1994 biennial conference of the NZSSS will take place in November 1994 at Lincoln University.

This is the address of the New Zealand Society of Soil Science:

c/o Department of Soil Science
PO Box 84, Lincoln University
Canterbury, New Zealand

Dr. R.G. McLaren,
Secretary, NZSS

SOCIETAS PEDOLOGICA, SLOVAKIA

This is the organizational structure of the Slovakian Soil Science Society, which has been established on January 1, 1993:

Chairman:	Dr. Pavel Jambor
Vice-Chairman:	Dr. Pavol Bielek
Secretary:	Dr. Judita Briedová

In addition the Society comprises a committee with 135 members.

At present, the emphasis of the Society's work lies in the field of education and soil research.

This is the address:

Societas Pedologica, Slovakia
Gagarinova 10
827 13 Bratislava
Slovakia

Phone: +42-7-238-640

Fax: +42-7-295-487

Dr. Pavel Jambor

**International Relations
Relations internationales
Internationale Beziehungen**

**Earth Council: Establishment of an Organization for the
implementation of the UNCED resolutions**

The Earth Summit produced agreement on basic principles, incorporated in the Rio Declaration, and a comprehensive and far-ranging programme of action in Agenda 21 designed to launch the world community onto a new pathway towards a more secure sustainable and equitable future in environmental, economic and social terms. But the ultimate impact of these agreements - and the international environmental treaties - will depend on effective arrangements for public monitoring, reviewing and facilitating the follow-up and implementation of these decisions.

The unprecedented level of involvement of those outside government in the Earth Summit was the key to its political significance. There is a need to maintain this global effort and broaden the opportunities for an expanded role of independent organizations, particularly those of a grassroots nature to ensure transparency, accountability and broad public participation.

Political will is the critical factor in effective follow-up and implementation of the Earth Summit. And this must be nourished by the continuing concern of an aware, informed public which will relentlessly focus attention on the issues addressed at Rio and progress in dealing with them.

To help meet these needs is one reason the Earth Council will be established in the spring of 1993. The Earth Council is envisaged as a non-governmental entity, independent of governments but recognized by them, by the United Nations and the international community as an important counterpart of the people and the civil society in ensuring follow-up and implementation of the decisions taken at the Rio conference. As an independent standing commission it will consist of 15 to 25 distinguished citizens, scientists and others serving in their personal capacities. The Secretariat has already been established in San Jose with headquarters provided by the Government of Costa Rica. The Organizing Committee has also been receiving institutional support from the Inter-American Institute for Cooperation on Agriculture (IICA).

The council will not be a confrontational organization or an advocate of any particular ideology; rather it will be committed to the principles of objectivity, transparency, openness, participation and dialogue amongst parties of diverse interests and points of view. Out of this will evolve evaluations of the progress of governments and others in achieving sustainable development and recommendations for improvements. It is intended to bring the sustainable development issues more strongly into the public eye.

The Council will seek to complement and facilitate the work of existing nongovernmental organizations. Three of the leading world federations with broad international membership have agreed to participate actively. These are: the IUCN-World Conservation Union, the International Council of Scientific Unions (ICSU), and the Society of International Development (SID). The Centre for Our *Common Future*, *International Development Research Centre (IDRC)*, the *International Institute for Sustainable Development (IISD)*, the Stockholm Environment Institute (SEI), and the World Resources Institute (WRI) have become sources of cooperation to the Secretariat

Further information can be obtained from:

The Earth Council Organizing Committee
P.O.Box 323-1001
San José
Costa Rica
Tel: (506) 23-3418
Fax: (506) 55-2197

from: ATSAF-Circular 32/93

Biological Diversity Conservation: A Global Challenge that Calls for Global - and Local - Measures

“When biodiversity is lost, it is usually lost as a side-effect of something else, as an accident. It is rare that anyone goes out to destroy biodiversity on purpose”.

Therefore, it should not be impossible to take measures - incentives and disincentives - to limit the losses, according to Jeffrey McNeely, Chief Conservation Officer at the World Conservation Union. Unfortunately, the perverse incentives that encourage the destruction of biodiversity outweigh the positive ones at present. But there is potential for change, he said.

“Biodiversity as an issue has emerged quite recently. In the Brundtland report on Environment and Development, the word is not mentioned once,” Mr. McNeely pointed out.

Mr. McNeely was one of the speakers at the scientific symposium organized on January 26 and 27 in conjunction with the 12th International Coordinating Council of the Man and Biosphere Programme (MAB) held from 25 to 29 January. The symposium discussed issues relevant to the future of MAB, in the light of the Earth Summit and the implementation of its Agenda 21.

To conserve biological diversity it is necessary to save it, study it and use it, Mr. McNeely said, adding that the biosphere reserve concept pioneered by MAB is very well adapted to this purpose.

However, there are some fundamental obstacles facing these efforts. Most of the trained ecologists and professionals are not in the countries where biological diversity is the greatest. It almost seems that there is an inverse relation between the number of species and the number of scientists, Mr. McNeely said.

Referring to the future directions of MAB, McNeely pointed out that the programme had always suffered from insufficient funds. He suggested that the programme be concentrated further and be made more accessible to politicians and decision-makers.

“And add at least one zero when you request funding”, he told the participants. Mr. McNeely pointed out that even though Agenda 21 calls for USD 3.5 billion to be spent on biodiversity research, this represents only one percent of the amount spent each year on agricultural subsidies by the member countries of the Organization for Economic Cooperation and Development (OECD).

Gonzalo Halffter, director of Mexico’s Institute of Ecology, said that all the protected areas in the world would not be enough to conserve a significant proportion of the world’s biodiversity. Biodiversity will have to be protected elsewhere as well, in areas already affected by humans. It is population pressures which constitute the greatest threat to its conservation.

“Ecology professors everywhere keep repeating that no single species can expand indefinitely. This applies to humans as well as to other species”, he said.

It is the inter-tropical zones that are most exposed to the chaotic use of resources for short-term gains. Biodiversity is lost and landscapes are degraded as a consequence, Mr. Halffter said. Integrated management of landscapes coupled with an efficient system of protected areas are the only solution for conserving a significant portion of biological diversity.

Talal Younès, secretary of the International Union of Biological Sciences (IUBS), presented the research project Diversitas. He pointed out that in spite of the Convention of Biological Diversity, not much is known yet about what the convention is supposed to protect.

“Biodiversity is seen as some kind of sacred thing, but we do not really know what it is”, he pointed out.

Not enough is known about the origins, function, mechanisms or changes of biological diversity, he

said. Diversitas, a joint initiative of IUBS, the Scientific Committee on Problems of the Environment and UNESCO, seeks to fill the gaps in this knowledge. And they are many.

"Marine biodiversity is very different from terrestrial biodiversity, yet the general assumptions are based on what has been studied on land", Mr. Younès said.

Diversitas has many goals - it seeks more exact knowledge about biodiversity, promotes the neglected discipline of taxonomy, trains scientists and establishes sites for long-term ecological monitoring. Public information to increase awareness of biological diversity is another. Although the subject many seem abstract, it is present in many contexts. Mr. Younès said.

"Take a Mediterranean meal of mezzes; you will have 40 different dishes on the table - and over a hundred different species. A plate of French seafood is another fine example" he said.

from: UNESCOPRESSE

**International Workshop for Heads of National Soil Survey
Organisations (ITC)
November 23 - 25, 1992**

This workshop, organized by the International Institute for Aerospace Survey and Earth Sciences (ITC) at Enschede in the Netherlands, was attended by heads of soil surveys from nineteen countries in Asia, the Middle East, Africa, Latin America and Europe. A total of over 40 persons actively participated at the presentation and group discussions.

The main objectives were to consider the perspectives and outstanding issues for soil survey especially in the developing countries, to formulate strategies for its development into the 21st century, and to provide first-hand information on training priorities which could be incorporated in ITC training and research programmes.

The background was outlined by the Rector of ITC (K.I. Beek) the principal organizer (J.A. Zinck) and four keynote speakers. P.A. Burrough (Utrecht) illustrated various modern technologies and emphasized that they must provide quantitative information on soil changes in space and time in response to natural and human-induced impacts. R. Schargel (Guanare, Venezuela) described the changes in demand for series information towards quantitative information for multipurpose applications. M.F. Purnell (FAO) suggested that soil survey must increasingly supply accessible information for modelling economic and environmental priorities particularly those flagged by the UN Conference on Environment and Development (UNCED) and that resources for introducing modern methods and training will depend on enhancing the status of soil scientists and their ability to persuade *the financing agencies*.

J. Dumanski (Agriculture Canada) described several approaches to soil science: traditional concepts relate well to soils as a structural mantle and medium for plant growth but less well as water-transmitting layer or as an ecosystem component. Future soil surveys would need to be oriented towards problem-solving and applied research and to secure financial support must be expressed as political priorities.

Three working groups were formed, two of heads and staff of surveys and one for other participants (ensuring that the developing country discussions and conclusions were not diluted by intervention of academic staff). Plenary sessions compiled the conclusions and recommendations. There is widespread recognition, clearly implied by UNCED, of the need for soil survey to gather data and generate interpretations for the use, management and conservation of land resources. To meet these demands with modern methods and training, soil scientists will need to improve their ability to gain support by enhancing the status of soil science and the fund-raising capacity of soils institutions. Interestingly, whereas the keynote speakers emphasized the great changes about to occur in soil survey methods and applications, the heads of surveys preferred a more cautious approach with a steady absorption of innovations controlled by the human and budgetary resources of national surveys.

The country reports, keynote speeches and workshop conclusions will be published as a joint ITC-FAO publication as well as in the ITC Journal. The recommendations will help from the strategies adopted by national soil surveys in the coming years. It is intended that the group should reconvene in three years' time to discuss progress; meanwhile many of the participants will meet again at the XV ISSS Congress in 1994 in Mexico. This was a timely, well organized and interesting meeting and its proceedings should be of wide interest to soil scientists.

M.F. Purnell

International Workshop for Heads of National Soil Survey Organizations

ITC-Enschede, 23-25 November 1992

An International Workshop for Heads of National Soil Survey Organizations was held at the International Institute for Aerospace Survey and Earth Sciences (ITC) from 23 to 25 November 1992 as part of the celebrations commemorating the 40th anniversary of the Institute.

ITC provides postgraduate education, performs applied research and offers advisory services with the special mission to serve developing countries, where the majority of the students is coming from. In this context, training university-educated professionals in soil survey and applications of soil information is a relevant component of ITC's educational programme. The purpose of the workshop is directly related to the concern of the Institute for collecting first-hand information on needs, demands and priorities of soil survey organizations in order to update its education and research programmes.

Soil survey is at a cross-roads. Over the last couple of years pessimistic views have been expressed about its future. Some of the reasons forwarded are external to soil survey and strongly influenced by the general economic situation. Among these conjunctural issues figure budget restrictions as an effect of on-going economic recession, decreasing governmental land use planning, and nearly completion of systematic soil map coverage in some leading western countries. Criticism concerns also internal, structural issues, related mainly to the surveyor-user interface. Inadequate display and poor accuracy of soil information, together with high survey costs, are often to blame. The rapid dissemination of new information technologies imposes additional constraints on soil survey organizations.

Against this background, the core lemma of the workshop was set to focus on "Soil Survey: Perspectives and Strategies for the 21st Century". Concrete objectives were geared towards: (1) identifying and discussing issues and perspectives of soil survey in developing countries; and (2) formulating strategies for its development and consolidation. Issues to be discussed belong to the institutional, technological, educational and financial domains.

Four discussion themes were selected in such a way that new trends in survey techniques and technologies, survey applications, information demand, and survey development strategies could be successively addressed. Each theme was introduced by a keynote speaker such as follows:

Theme 1: The technological paradox in soil survey: new techniques of data capture and handling (P.A. Burrough, University of Utrecht, The Netherlands).

Theme 2: Multipurpose applications of soil survey information (R. Schargel, University of Guanare, Venezuela).

Theme 3: Offer and demand of soil survey information. International policies and stimulation programmes (M. Purnell, FAO-Rome, Italy).

Theme 4: Strategies for development of soil surveys and dissemination of soil information (J. Dumas, Agriculture Canada, Ottawa).

The meeting was attended by 41 persons who actively participated in the group discussions following the presentation of each keynote speech. In total, 19 countries were represented by their respective national soil survey heads, including countries from Asia (Bangladesh, China, India, Philip-

pines, Thailand, Vietnam), Middle East (Egypt, Iran), Africa (Cameroon, Kenya, Nigeria, Zimbabwe), Latin America (Brasil, Colombia, Mexico, Perú, Venezuela) and Europe (Poland, Spain). Additionally, staff members from ISRIC (Wageningen), Winand Staring Center (Wageningen) and ITC interacted with soil survey heads and the four keynote speakers.

It was recognized that soil survey remains a vital activity for gathering data and generating interpreted information on the use, management and conservation of the soil resource. There are still ample needs in developing countries to justify the continuation of systematic, multipurpose-oriented surveys. However, traditional demand sources, at national and international levels, are either drying up or changing their requests towards more purpose-specific soil information to be integrated into large sustainable development or environmental management projects. To enhance their institutional stature and improve their fund raising capability, soil survey organizations must undergo a modernization process, supported by the implementation of new soil concepts, the use of advances survey techniques and information technologies, and the development of innovative and diversified applications. In many countries, the renovation process might be severely hindered by institutional, educational, technological and financial constraints.

Recommendations were also formulated in terms of prioritization of training needs and identification of relevant cooperative research projects. Soil survey applications, supported by land evaluation for land use planning and environmental management, are considered of top priority. Also of high priority is the training in the use of new techniques and technologies (e.g. remote sensing, GIS, geostatistics) for data capture, storage, analysis, modelling and monitoring.

The keynote speeches and expanded reporting on the workshop conclusions and recommendations will be published in the ITC Journal 1993-1. The same information together with the individual country reports on the status and perspectives of soil survey is planned to be disseminated in a joint FAO/ITC publication.

J.A. Zinck/Enschede/The Netherlands

GCOS/JSTC Task Group of Land Surface Processes (Geneva, 13 - 16 October 1992)

Concern about the possibility of significant global climate change has arisen because of the observed increases in concentrations of greenhouse gases in the atmosphere. The Second World Climate Conference (SWCC) held in Geneva in 1990 recognized the urgent need for better understanding of global climate and recommended the establishment of a Global Climate Observing System (GCOS) as a vital step toward achieving such understanding. An ad hoc meeting, sponsored by WMO, IOC, and ICSU, was convened in Winchester, U.K. in January 1991 to consider the objectives of a global observing system. Following the signature of a Memorandum of Understanding in early 1992 establishing a Joint Scientific and Technical Committee (JSTC), the inaugural meeting of the JSTC was held in April 1992 in Geneva. The consensus from these meetings was that GCOS should be an ongoing system designed to promote and coordinate the collection, processing, and archival of the data descriptive of global climate and constituent processes.

The data to be collected by GCOS are intended to enable and improve, in order of priority:

1. prediction of global climate,
2. monitoring of global climate,
3. detection of global climate change,
4. monitoring of the effects of climate change, especially on terrestrial ecosystems, and
5. planning and decision-making for economic development.

Upon the recommendation of the JSTC, task groups with special expertise in the different components of the Earth's climate system were organized to formulate initial specific plans for realizing the GCOS concept. Recent research has shown the need for an interdisciplinary approach to the study of climate variability and predictability.

A meeting of the GCOS Task Group on Land Surface Processes (LSP-TG) was held at the World Meteorological Organization in Geneva from 13 to 16 October 1992. The purpose of the meeting was to:

1. identify the properties and processes of the global land surface that should be included in GCOS to meet its objectives,
2. develop a suitable strategy for GCOS implementation with respect to land surface processes, and
3. recommend to the JSTC a programme of short and long-term actions to realize the proposed strategy.

Conclusions and Recommendations

The data needs and uses of land surface process-related data identified for GCOS are often different from, and more demanding than, those addressed by existing observation systems. Thus for GCOS to be effective in achieving its objectives, the existing systems must in many cases be enhanced both in scope and performance. Recommendations for action on immediate and short term and longer time scales are presented below.

Short-Term Actions

1. Detailed requirements for system enhancements should be based on an explicit, well-founded experimental design. Development of such an experimental design should be addressed as a next step in the GCOS planning process.
2. Maintain Existing Global Observation Networks and Systems.
3. Enhance Existing Networks.
4. Enhance Other Observation Networks and Systems.

Longer-Term Actions

1. Update and augment GCOS by including new observation types and algorithms as their utility is demonstrated in process studies such as WCRP (World Climate Research Programme) and IGBP (International Geosphere-Biosphere Programme).
2. Encourage that GCIP (Continental-scale International Projekt) and HAPEX (Hydrological / Atmospheric Pilot Experiment) focus on area-average rainfall estimates using multiple data sources.
3. Soil moisture is an essential hydrological variable for climate prediction but no reliable, global data source currently exists. Space agencies should be encouraged to develop improved satellite techniques.

IV INTECOL Wetlands Conference

“Global Wetlands - Old World and New”

Ohio State University, Columbus, Ohio

September 13 - 18, 1992

***Whereas:**

Wetlands are invaluable natural resources and their continued degradation and loss involves numerous direct and indirect consequences at many dimensions of society.

***Be it Resolved, that:**

The Conference Participants:

- (1) Encourage the community of all wetland scientists to find ways in which their research can help meet the wider needs of human society, especially communities of developing countries;
- (2) Urge the research funding agencies to support projects internationally, as well as nationally, to meet the urgent need for wetland conservation and sustainable utilization;
- (3) Seek the commitment on the part of government to ensure that agricultural, fiscal and other policies support the conservation and wise use of wetland resources, rather than their continued degradation and loss.

***Whereas:**

The US Congress recently rejected a proposal to provide \$ 160 million for restoring wetlands on agricultural lands,

***Be it resolved, that:**

The Conference Participants regret that development; we support National Programs to restore wetlands on agricultural and other lands. Such programs in the US and elsewhere would contribute positively towards the economic and social welfare of the country, and provide environmental leadership.

***Whereas:**

An internationally accepted wetland classification system and the national inventories based on it have many benefits, including:

- (1) a universally accepted terminology for use in scientific research, international conservation projects and wetland management projects;
- (2) a framework for implementing international legal instruments for wetland conservation; and,
- (3) a framework for disseminating information on wetlands to planners, policy makers, managers and decision makers in international government and non-government agencies.

***Be it resolved, that:**

The Conference Participants encourage the development and adoption of an international wetland classification system and guidelines for national wetland inventories as a contribution to achieving the goals of the Ramsar Convention.

Conference on the Role of Science in Rebuilding Central and Eastern Europe

Conference Statement

The International Council of Scientific Unions(ICSU) with UNESCO and the Commission of European Communities convened a Conference on the Role of Science in Rebuilding Central and Eastern Europe at Leeds Castle, Kent, U.K., in April 1993. The 2-day Conference was attended by 33 persons from 15 countries and 6 international organizations, including a number of leading international scientists, ministers, parliamentarians and officials responsible for policy-making. The purpose of the Conference was to draw high level attention to the serious problems facing science in Central and Eastern Europe (not on this occasion including the countries in the Former Soviet Union) and to explore strategies for solutions.

After extensive discussion, participants were unanimous in stressing the important role of science and technology both in achieving economic progress and prosperity, and as part of a nation's cultural heritage. It was emphasized that it is essential to include science in national policies, utilizing existing talents and involving a full range of partners, including industry, academic and professional bodies. Science should have a central place in educational curricula from the earliest level and university science teaching must be combined with strong research activity.

It was recognized that priority-setting among different needs of society entails difficult decisions, especially at a time of economic restructuring and financial stringency; nevertheless it is vital that governments make adequate provision to safeguard science since it is very difficult to re-esta-

blish the necessary human capital and infrastructure once these have been dissipated. Scientists must constantly seek to influence decision-makers and the public using all available channels. As regards the balance between basic research and its application in a market-setting, it was recognized that both must be supported and that increased interaction between scientists and industry is imperative if the full benefits are to be realized for society.

Recommendations of a more specific nature included:

- establishment of a clearinghouse or a network to provide information on existing international opportunities to assist science and scientists in Central and Eastern Europe;
- setting up of a programme of chairs and exchange programmes to strengthen university teaching and research;
- support to outstanding individuals to allow them to pursue their teaching and research;
- increased provision of training and educational opportunities for young scientists in their own countries and abroad;
- expanding existing programmes and strategies to secure academic and professional equivalence at a regional and international level;
- introduction of financial and material incentives to discourage brain drain;
- support of increased research on technology transfer between East and West and between basic research and industry;
- undertaking independent assessments of science and technology capacity and potential in the countries of Central and Eastern Europe and disseminating the results widely;
- development of appropriate legislation in Central and Eastern European countries to meet changing conditions in science and technology, including questions of intellectual property rights, patents, and fiscal matters;
- expansion of cooperation through innovative groupings and partnerships of all kinds (e.g. joint ventures, research, networking, etc.) on a regional or multilateral basis, involving appropriate professional bodies and international organizations;
- convening periodic meetings of the type held in Leeds Castle to assess needs for the development of science.

Finally, participants requested the three organizers of the meeting, ICSU, UNESCO and the Commission of European Communities, to follow up all these recommendations by concrete action wherever possible.

Bandung Initiative for Global Partnership in Sustainable Forest Development

We, the participants of the Global Forest Conference in Bandung, Indonesia on 17 - 20 February 1993, pledge our commitment towards achieving the conservation and sustainable development of global forests in:

Recognizing that global partnership is essential to realize the potential of forests to make increased contribution to meet basic socio-economic and environmental needs,

Considering that the conservation and sustainable development of global forests involves harmoni-

zing complex relationships between socio-economic, cultural, and environmental dimensions, Building on the agreements reached during the Earth Summit held in Rio, Brazil on 3 - 14 June 1992, that require conservation and sustainable development of all types of forests,

Call on the world leaders, the Secretary General of the United Nations, governments, heads of the national forest agencies, leaders of the private forest sector, professionals, NGO's as well as others concerned with the conservation of global forests, to undertake immediate actions to develop, enhance and strengthen global partnership by:

- * Achieving international trade and financial arrangements that strengthen national capacities to sustain growing investment in ecological functions.
- * Promoting and expanding efforts to increase the area of forests, to enhance the protection, sustainable management and conservation of all types of forests and enlarge the carbon sink of the world.
- * Promoting active participation of all sectors of the society in forest-related activities to address the challenge of meeting the basic human needs including food, fuel, shelter and social and economic opportunities for an expanding population from a shrinking resource base.
- * Promoting human resources development by integrating environmental factors into all forms of education in order to improve the interest and capability of people to advance sustainable forest development.
- * Strengthening global mobilization of scientific research to resolve central problems in the sustainability of forests.

We call upon the existing organizations within the United Nations system and its specialized agencies, scientific and other institutions from around the world to increase their efforts to work toward attaining sustainable forest development.

We also appeal to the United Nations Commission on Sustainable Development to accord the highest priority to global forestry issues in their agenda due to the vital role and impact of forests on local, regional and global environments.

We strongly support the establishment by the Secretary General of the United Nations of an independent World Commission on Forests and Sustainable Development of limited duration to examine international institutional arrangements for advancing forestry issues as part of the mainstream of socio-economic development.

We urge all forestry related institutions to consider committing themselves to this Bandung Initiative for Global Partnership in Sustainable Forest Development

Bandung, Indonesia, February 1993

New Drainage and Irrigation Network

The International Programme for Technological Research in Irrigation and Drainage (IPTRID) network aims to improve the exchange and flow of research results in the field of irrigation and drainage. It has two main functions: to assist developing countries and organizations to set up research programmes and to encourage collaborative research and technology transfer by establishing networks and developing human resources.

The central IPTRID network includes organizations from several countries which have both archive capacity and access to information.

Members of the network can communicate with one another and with the central network and can use its services: bibliographical research, document supply, and the publication of a half-yearly review, GRID, in English, French and Spanish.

At présent the central network consists of four organizations - H R Wallingford (UK), ILRI (Holland), CEMAGREF (France) and IPTRID's office at the World Bank (USA) - but more may be added in the future.

Information: H R Wallingford, Howberry Park, Wallingford, Oxon OX10 8BA, UK.

Le réseau zones arides

CEFE/CNRS, BP 5051, F-34033, Montpellier Cedex
ORSTOM, BP 5045, F-34032, Montpellier Cedex

Crée en 1984 à l'initiative de l'ORSTOM (Institut français de recherche scientifique pour le développement en coopération) et du CNRS (Centre national de la recherche scientifique) le Réseau zones arides (RZA) est un groupe informel de chercheurs*, le plus souvent d'expression française, dont les travaux concernent les milieux arides et semi-arides, méditerranéens et tropicaux, qui occupent le tiers des terres émergées et sont peuplés par près de 15 % de la population mondiale.

Le RZA s'est fixé un double objectif:

- d'une part favoriser les échanges entre les scientifiques de différents pays et les disciplines concernées;
- d'autre part promouvoir la dissémination des connaissances sur les zones arides du globe.

Le domaine scientifique du RZA couvre non seulement les manifestations de l'aridité, comme les caractéristiques des milieux secs ou l'adaptation des plantes et des animaux à de telles conditions, mais aussi les possibilités d'interventions humaines. Le domaine privilégié du RZA inclut les problèmes de l'érosion des sols, de la dégradation et de la régénération de la végétation, de la lutte contre la désertification, de la reconstitution du potentiel productif et de l'aménagement des ressources hydriques ainsi que la détermination des conditions nécessaires pour le maintien de l'activité humaine dans ces régions défavorisées. De ce fait, le RZA s'efforce de couvrir non seulement les phénomènes qui ressortissent au domaine des sciences de la terre et du climat, ou encore les aspects plus biologiques de croissance des plantes et de comportement des animaux, mais aussi les manifestations des activités des agriculteurs et des éleveurs, avec leurs conséquences d'ordre économique ou social. Plusieurs disciplines scientifiques sont donc représentées au RZA.

La répartition actuelle des membres du réseau (plus de 20 pays du pourtour méditerranéen, de l'Afrique tropicale et de l'Amérique latine) reflète les multiples facettes de leur objet d'étude

Par ses orientations en matière d'aridité, le RZA rejoint les objectifs de l'Observatoire du Sahara et du Sahel puisqu'il est, depuis 1986, un des principaux liens scientifiques spécialisés en matière de régions sèches, de problème d'aridité et un forum d'échanges multidisciplinaires et interorganismes. Le RZA est en liaison constante avec d'autres réseaux (Érosion et Humus de l'ORSTOM, l'Association française de pastoralisme, le réseau de l'International Institute for Environment and Development) ainsi que plusieurs instituts internationaux de recherche en agriculture. En outre, le RZA, en raison de ses actions dans l'esprit du programme "l'Homme et la Biosphère de l'Unesco, a reçu le label du Comité français du MAB.

Pour diffuser l'information, le RZA réunit annuellement ses membres autour d'un thème scientifique d'actualité, édite un bulletin trimestriel, entretient une base de données bibliographiques et promeut des actions telles que l'édition d'ouvrages collectifs dont celui-ci est le premier exemple.

* L'adhésion au réseau est gratuite et se fait à titre individuel, Elle n'engage qu'à participer aux efforts du groupe d'animation.

Resolutions of the 7th ISCO Conference

During the 7th International Soil Conservation Organisation (ISCO) Conference, a number of resolutions relating to land degradation were adopted by 327 leading land conservationists from 36 countries around the world. The resolutions emerged out of the delegates' genuine concern that land conservation programs should become more focused and effective. As a consequence, these resolutions should be regarded by governments and other relevant agencies as addressing issues of real concern in today's world.

The resolutions are submitted for adoption by the United Nations Organization and its associated organizations; all Local, Regional, State, and National Governments; all Confederations of National Governments which influence land allocation, use and management; all Non Government Organizations (NGOs) concerned with the conservation of the natural environment; all Donor Governments and Organisations concerned with the world's natural environment and its conservation; all Local, Regional, State, National, and International financial institutions whose operations impinge on the use and conservation of natural resources; all community based organizations involved in land repair and conservation.

The Resolutions are as follows:

Resolution 1 - Importance of Applied Research. This Conference recognizes that the development of sound technologies for soil and water research are hampered by extreme global diversity. The delegates request the enhancement of government and donor support for research activities aimed at developing appropriate practical technologies and for investigation of means of transferring established technologies across geographic and cultural boundaries.

Resolution 2 - Increasing National Commitment to Soil Conservation. Soil erosion is the process which will have the most profound impact on the environmental health and social well-being of people of all nations in the next century. The delegates call upon all governments to give a higher priority to conserving soil resources of their respective nations and to recognise the immediate need for a greater allocation from the national budgets to prevent and control further deterioration of land and water resources.

Resolution 3 - Call for National Assessment of Land Degradation. The delegates express their concern at the increasing extent of land degradation affecting all continents and call on all governments to assess the extent to which their nations's land is affected by soil erosion and determine the impact of soil erosion on their country's future agricultural productivity.

Resolution 4 - Support for Principle 4 of the Rio Declaration on Environment and Development. This Conference supports Principle 4 of the Rio Declaration on Environment and Development, namely that "In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it"

Resolution 5 - Involvement of Land Users in the Development of National Policies and Programs. The theme "People Protecting Their Land", adopted by this Conference, stresses the need for all governments to include those persons with direct responsibility for land use and management on a daily basis in the process of developing policies and programs to achieve soil conservation and production objectives.

Resolution 6 - Broadening the Scope of Tertiary Studies for Extension Workers. This Conference strongly supports the principle that tertiary institutes teaching agriculture increase the range of skills of their graduates by including relevant courses in the social sciences and communications. Leaders of community groups should also have access to, and be given the opportunity to participate in, courses to improve their skills in motivation and community leadership as a part of government sponsored programs.

Resolution 7 - Review of the Effectiveness of Existing Incentive Schemes. The Conference Proceedings contain many case studies of recently applied incentive schemes that have attracted an increased level of participation by farming communities. The delegates recommend that all governments, international aid agencies, and financial institutions review the effectiveness and mode of operation of existing incentive schemes in the light of the outstanding progress being achieved in programs discussed at this Conference.

Resolution 8 - Analysis of Land Conservation Programs. The delegates strongly recommend to governments, donors, and financial institutions that all soil and land conservation programs seeking to treat land degradation problems should be subjected to a thorough analysis prior to commencement to ensure that they are properly coordinated and have

considered all aspects of the problem including: population pressures; land attributes; social issues; policy, institutional, and financial structures; and the operational capabilities of the relevant government agencies and the land users involved in order to maximize the chance of success.

Bob Junor
Immediate Past President of ISCO
From: WASWC Newsletter, Vol. 9, No. 1, Feb. 1993

ISO* 9000 FORUM **A communications support for ISO 9000 users**

Companies and organizations embarking on quality management and quality assurance programmes dispose of the necessary guidelines in the ISO 9000 series of International Standards. When it comes to implementing and operating the standards, however, practical assistance is needed.

Straight answers may be needed to dozens of specific questions, such as:

- Where can I find more information about certification and conformity assessment?
- Where can I obtain a list of assessment bodies recognized in country X?
- Will being assessed and registered to an ISO 9000 standard in country A by assessor B bring my company the same recognition in countries X, Y and Z?
- Will there be a large number of sector-specific versions of the ISO 9000 standards?
- ... or, quite simply: Who/where do I ask?

Answers can be provided by several sources, but these have first to be identified. A central "clearing house" for information can help save precious time, either by providing answers directly, or indicating the most qualified relevant source. This is part of what ISO has done in creating the ISO 9000 Forum. This service is an international communications facilitator to support the implementation of the ISO 9000 series of standards.

Forum services

The ISO 9000 Forum provides access for users and potential users of ISO 9000 standards to information from experts and problem-solvers. By subscribing to the Forum, members are entitled to a range of services, including the following:

- ISO 9000 News, a newsletter on quality management standards, published six times a year;
- Discounts on new and revised editions of the ISO 9000 series;
- Reviews of topical books and articles on quality management and quality assurance;
- Listings of third-party registrars of quality systems, and of auditor accreditation bodies
- Information on sources of training materials; and
- The opportunity to attend ISO 9000 Forum Application Symposia at a reduced charge.

The Forum is intended to answer the numerous requests from companies on how they can qualify for ISO 9000 status. The aim is to put the answers to the basic questions into one package so that businesses can find what they need to know about the ISO 9000 standards as quickly and inexpensively as possible.

One of the most important tools at the disposal of the Forum is its newsletter. ISO 9000 News is a regular source of information on the multiple and multi-faceted developments in the field of quality. Coverage of ISO 9000-related issues is both comprehensive and international in its scope.

It has included detailed interviews with some of the major contributors in the quality arena, such as Reg Shaughnessy and Peter Ford, respectively Chairman and Secretary of the ISO Technical Committee 176 which developed the ISO 9000 series. Jacques Repussard, Secretary-General of the European Committee for Standardization (CEN), has, in turn, answered questions on the application of ISO 9000 within the context of the European Community.

International developments

Being published by the ISO Central Secretariat, ISO 9000 News has close links with national member bodies of ISO's worldwide network and can thus provide readers with a direct line to new international developments, such as the efforts by the ISO Council Committee on conformity assessment to promote mutual recognition of ISO 9000 certificates.

The international perspective is provided by such services as a table giving ISO 9000 News readers a quick reference to ISO 9000 identical, or equivalent, standards, throughout the world.

Reports of recent ISO 9000 Forum symposia in Paris, Tokyo, Brussels, Brisbane and Mexico City have indicated the current preoccupations of quality professionals, and the experience of ISO 9000 implementation in different countries and cultures. In-depth articles on ISO 9000 developments within ASEAN and in South America have helped fill in the global picture. A regular feature, "Country focus", has already put the spotlight on the progress of ISO 9000 in Mexico, Israel, Spain, Italy and Germany.

Guest contributors are encouraged to highlight specific issues. This has led, for example, to an examination of the reluctance of some companies in the United States who fear ISO 9000 as a barrier to prevent them from trading with the European Community. US perceptions, however, are changing in a positive direction and articles in ISO 9000 News have helped explain why.

The concerns of developing countries that ISO 9000 certificates issued by local auditors will not be recognized internationally have also been featured. Airing controversial views and reporting negative experiences is part of the mission of the ISO 9000 Forum because it is intended to encourage an environment for debate.

In recognition of the learning needs of many readers, particular attention is given to reporting on training material that becomes available, as well as special features casting light on particular issues, such as Memoranda of Understanding (MoU's) between quality system registrars.

One of the Forum services is that subscribers receive free, or at reduced rates, publications dealing with quality management and quality assurance. Publications of the ISO 9000 Forum Library include a list of relevant ISO/IEC (International Electrotechnical Commission) guides and associated documents, and a worldwide directory of national third-party registration bodies, of which the second edition will soon be available.

ISO 9000 News regularly reviews new books, such as the ISO/IEC publication, Certification and related activities: Assessment and verification of conformity to standards and technical specifications, which will prove to be a useful reference source for suppliers in industry, legislators and government officials concerned with trade and consumer affairs, the personnel belonging to the statutory authorities or commercial organizations who carry out assessment and verification programmes, operators of testing laboratories, and the purchaser/end users of products and services themselves.

Lastly, Forum members receive free of charge the monthly ISO Bulletin, which keeps them updated on developments in international standardization in general.

Two-way flow

The flow of information is intended to be two-way. The columns of ISO 9000 News are also open to those who wish to comment on, query and debate any of the issues so far dealt with - or those which they think should be. The ISO 9000 Forum aims to facilitate communications between newcomers to quality standardization and those who, having already trod the path, have experience to draw on and advice to share. Regular news on ISO 9000 implementation in companies and organization in sectors as varied as those of land mobile radio communications and the leisure industry contributes to this aim.

The future direction of the ISO 9000 Forum will depend on the interaction generated with ISO 9000 users and those who wish to join their ranks. One potential development has been identified by Reg Shaughnessy, who has made the following comments on the launching of the Forum initiative:

Initially, this initiative was envisaged as a 'think tank' educational network. As the issues associated with global quality systems become clearer, it is possible that a network for consensus and debate by the parties of direct interest will be essential. The ISO 9000 Forum could provide such a vehicle.

It can be readily envisaged that national chapters of 'Forum 9000' could provide the locus for dialogue and debate with properly constituted international 'Forum 9000' conventions providing the

locus for global resolution.

Information: Anke Varcin and Roger Frost
Promotion and Press Services
ISO Central Secretariat
1, rue de Varembe
Case postale 56
CH-1211 Genève 20

Tel: +41-22-749-01-11

Fax: +41-22-733-34-30

**ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies from some 90 countries. The objective is to promote the development of standardization and related activities throughout the world, with a view to facilitating the international exchange of goods and services, and to developing cooperation in the spheres of intellectual, scientific, technological and economic activity.*

WHAT IS GRID?

Problems of the environment are many-tiered. Until recently, scientists from different fields of study tended to examine these problems independently. Today, rapid developments in the fields of computer technology and software systems offer opportunities to investigate the global environment as one interacting system.

GRID, the Global Resource Information Database, helps to describe and understand environmental interactions using advanced computer technology. GRID aims to provide timely and reliable environmental information and access to a unique international data management service, to help address environmental issues at global, regional and national levels, in order to bridge the gap between scientific understanding of earth processes and sound management of the environment.

GRID uses the latest computer technologies in the form of Geographic Information Systems (GIS) and satellite image-processing systems to collate information from maps, satellite images, aerial photographs, tables and other sources. GRID supports scientists in monitoring trends and studying interactions between environmental variables.

GRID is part of Earthwatch, which is the family of environmental assessment activities within the UN system coordinated by UNEP. UNEP was established at the 1972 Stockholm UN Conference on the Human Environment. UNEP has the role of coordinating Earthwatch and operating Programme Activity Centres which deal with environmental information such as GEMS (the Global Environment Monitoring System), INFOTERRA, IRPTC (International Register of Potentially Toxic Chemicals) and GRID.

The key areas of concern for UNEP and thus to GRID are climate, biological diversity, freshwater resources, oceans and coastal areas, land degradation and threats to human health and well-being. GRID brings together the available data from GEMS and other environmental databanks, organises this information so that scientists and planners can quickly assimilate and use it, and makes the data available to national and international decision-makers throughout the world. GRID's strength is its capacity to examine the interactions between different environmental datasets. By overlaying these datasets, GRID can be used by sectoral experts, for example, to locate areas within a region with specified soil, climatic and vegetational attributes and within a specified distance of major centres of high human population density.

Also, the information provided by GRID can be used to investigate how the size and location of the areas specified might alter, for example, as human populations grow or as climatic conditions change as a result of greenhouse heating of the atmosphere. At the beginning of the 1990s, there is strong concern for the environment and its future. The decisions we make on managing this planet and her resources are determined by how much we know. GRID technology is designed to help broaden our understanding of the interacting Earth system in which we live.

GRID Data Holdings

GRID is a distributed data management system. While individual GRID centres are responsible for maintenance of specific types of data sets, data can be ordered from any centre. No charges apply; however, users are requested to supply media. Details of parameters, data formats and storage requirements of particular datasets can be obtained from any GRID centre.

Global data sets include: political and natural boundaries, elevation, soils and soil degradation, vegetation, weekly vegetation index, human population, cultivation intensity, ecosystems, lifezones, wetlands, precipitation and temperature anomalies, temperature and moisture availability surfaces, and ozone distribution, all derived from specialist sectoral sources. Continental data sets may be derived from global datasets. Data sets for Africa include: political and natural boundaries, elevation, slope and aspect, soils, soil degradation and desertification, elephant distribution, human population, roads and railways, hydrology and watersheds, protected areas, cattle and buffalo distribution, East Coast Fever, *ecoclimatic suitability indices*, *tsetse distribution*, *vegetation and land cover*, weekly vegetation index, cultivation intensity, ecosystems, temperature, rainfall, evaporation and wind-speed. National datasets are also available for a number of countries in Africa, Latin America and Asia.

For specific information on GRID regional activities, data requests and project development, please contact:

Africa, West Asia and Latin America - N. Fernandez, Manager, GRID-Nairobi UNEP, Box 30552, Nairobi, KENYA; Tel: 254-2-230800 x 4187; Fax: 254-2-226491; e-mail: hcroze@nasa-mail.nasa.gov; DIALCOM 141 UNE008

Asia and Pacific Area - Manager GRID-Bangkok, GPO Box 2754, Bangkok 10501, THAILAND; Tel: 66-2-516-2124; Fax: 66-2-516-2125; DIALCOM 141:UNE096; e-mail: grid@ait.th

Global and Europe - O. Hebin; Manager GRID-Geneva, 6, rue de la Gabelle, Carouge CH 1227, Geneva, SWITZERLAND; Tel: 41-223-438-660; 41-223-438-862; e-mail: hebin@cgegrdl-bitner; DIALCOM 141:UNE060

Himalayan and Hindukush - Surendra Shrestha, Chief Administrator, ICIMOD, PO Box 3226, Kathmandu, NEPAL; Tel: 977-1-526313; Fax: 977-1-524509.

Japan - Shuzo Nishioka, Director, GRID-Tsukuba Centre for Global Environmental Research, National Institute for Environmental Studies, 16-2 Onogawa, Tsukuba, Ibaraki 305, Japan; Tel: 81-298-516111; Fax: 81-298-582645.

North America - A. Singh; GRID-Sioux Falls; EROS Data Center; US Geological Survey; Sioux Falls SD 57198, USA; Tel: 605-594-6107/6511; Fax: 605-594-6589; e-mail: grid@grid1.cr.usgs.gov.

Poland - M. Baranowski, Facility Manager, GRID-Warsaw, ul. Jasna 2/4, 00-950, Warszawa, POLAND; Tel: 48-22-26-4231/ext. 331; Fax: 48-22-27-0328

(Norway and) Polar Zones - S. Tveitdal, Manager, GRID-Arendal; TK-Senteret, Longum Park; PO Box 1602, Myrene, N-4801 Arendal, NORWAY. Tel: 47-41-35500; Fax: 47-41-35050; e-mail: hesjedal@grida.no; DIALCOM 141:UNE061

South America - Marcio Nogueira Barbosa, GRID-Sao Jose dos Campos, INPE, Avienda dos Astronautas, 1758 Sao Jose dos Campos, Brazil; Tel: 55-123-218743; Fax: 55-123-218743

International Foundation for Science (IFS) A Brief Description

The International Foundation for Science, founded in 1972, is a non-governmental organization with a membership of 93 scientific academies and research councils in 79 countries, of which three-fourths are in developing countries and one-fourth in industrial countries.

The Foundation is governed by an international Board of Trustees, which is elected every three years at the General Assembly. The Secretariat is located in Stockholm, Sweden.

The Programme

The Foundation supports young developing country scientists of merit. Their research must fall within the areas of aquatic resources, animal production, crop science, forestry/agroforestry, food science and natural products. *Besides being from a developing country, the researcher must also carry out the research in a developing country. His or her institution is expected to provide salaries and basic research facilities.*

The support provided by the IFS is of the following nature:

- Financial support in the form of research grants enables researchers to purchase equipment, expendable supplies, literature, etc. The grants amount up to US\$ 12,000 and are renewable two times.
- The IFS Purchasing Department can arrange workshops and training courses. These scientific gatherings, also attended by senior scientists, give grantees an opportunity to share ideas and acquaint themselves with up-to-date techniques.
- Supplementary travel grants may be awarded in order that grantees may attend scientific meetings.

The Granting Process

Research grant applications are submitted directly to the IFS Secretariat, which relies on a worldwide network of senior scientists to evaluate the proposed research project.

Applications must be made on the IFS application form (in English or French), which is available from the IFS Secretariat.

IFS Research Areas

IFS will consider applications for projects dealing with research on most aspects of its research areas. (The following descriptions give a general idea of research topics related to soil science; they are by no means all-inclusive.) The projects should be relevant to developing countries, and research-oriented and not a transfer of technology. All research proposals should aim at contributing to ecologically, socially, and economically sustainable development.

Crop Science: Research on production of agricultural and horticultural crops; farming systems; crop management including soil, water, fertilizer studies; plant-microorganism relationships; disease, pest and weed control; plant breeding; genetic engineering of crops.

Forestry/Agroforestry: Research in this area includes tree production, forest management and agroforestry systems; regeneration and afforestation; multipurpose, fuelwood and fruit trees; timber quality; genetics; taxonomy; physiology; ecology; disease and pest control; soil studies; tree-microorganism relationships.

Criteria for an IFS Grant

1. Applicants shall be:

- native to a developing country
- in possession of an academic degree (not less than an M.Sc. or the equivalent)
- currently employed at a university or research institution in a developing country
- young (normally under 40 at the time of first application for a grant) and at the beginning of their research career.

2. Research proposed by applicants shall be:
 - conducted in a developing country
 - relevant to the needs of a developing country
 - on a specific project which falls within the IFS areas, listed above

For further information please contact:
International Foundation for Science (IFS)
Grevturegatan 19
S-114 38 Stockholm
Sweden
Tel: (8) 791 2900
Fax: (8) 660 26 18

From: ATSF Circular

Request for Cooperation with Biological Field Stations

Biological Field Stations are the places where the main part of ecological research is conducted. They are frequently situated near unique and beautiful natural features and ecosystems, and they are entrusted with the task of monitoring the well-being of the Earth's natural systems. We are interested in communicating with field station directors, personnel and scientists about the possibility of forming an International Organization of Biological Field Stations (IOBFS).

The Organization of Biological Field Stations (OBFS) was established to ensure the advancement of biological sciences through the development of research and teaching programs at field stations, to implement cooperation among field stations, and to disseminate information about them. There are about 150 member stations in the organization today, most of them from North and Central America and the Caribbean.

The OBFS has advised national funding agencies about the needs of field stations and recommended programs to help field stations develop facilities and instrumentations to carry out their tasks. The OBFS annually distributes a poster and brochures to colleges and universities to inform students of station programs and activities, and it periodically publishes a directory describing member stations. In addition, a member station hosts the annual meeting of OBFS where directors, managers, and scientists discuss topics of concern to field stations such as research priorities, educational activities, management problems, public relations, and fund raising.

The OBFS has established an International Committee whose task is to determine the potential of enlarging the membership of OBFS and to consider the possibility of an international role of OBFS. Goals of the International Committee include fostering 1) the development of regional organizations of field stations, and perhaps 2) establishment of a separate global organization of biological field stations. We wish to build an international network to facilitate the flow of information about infrastructure, staff, station programs, training, research priorities, funding availability, and events of interest to field stations. We would like to discuss the desirability and feasibility of establishing a global network among field stations with field station directors, personnel and scientists. If you are interested in learning more about OBFS and discussing an international role for OBFS, please let us know.

Contact: Dr. R.L. Wyman, Chair OBFS International Committee, The Edmund Niles Huyck Preserve Inc., and Biological Research Station, P.O. Box 188, Rensselaerville, NY 12147, USA.

SOILCD. C.A.B International, Wallingford, 1992.

SOILCD contains all you ever wanted to know about soils, water and land management. It contains nearly 20 years of bibliographic records, almost all with informative abstracts, and it will be updated annually. Subjects covered on this comprehensive CD-ROM include: soil science; soil & water management; crop plant/water relations; land management; agricultural meteorology; fertilizers; soil amendments; irrigation; drainage; hydrology.

All that is needed to use the CD-ROM is an IBM PC (or 100% compatible) with 640K RAM, DOS version 3.1 or higher, Microsoft Extensions version 2.0 or higher and a CD-ROM drive with controller card. SOILCD can also be used with Macintosh hardware.

The Price (including software, full documentation and shipping) is £ 3000/US\$5400 for the archival disc and £ 1000/US\$1800 for the 1992 update. Discounts are given to organizations in CABI member countries. SOILCD is available to try free in your own library or office. Price: Archival disc (1973-1992): £ 2625 member countries, \$ 6650 Americas, £ 3500 rest of world; Annual update (1993): £ 825 member countries, \$ 2090 Americas, £ 1100 rest of world;

Requests should be sent to: Andrea Powell, C.A.B International, Wallingford, Oxon OX10 8DE, U.K.

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

Prof. M.P. Salema, the First Secretary General of the Africa Soil Science Society (ASSS), currently working as a full-time consultant at the Joint FAO/IAEA Division of the International Atomic Energy Agency in Vienna, has been elected Chairman of the International Board of Management of TSBF (Tropical Soil Biology and Fertility Programme) with headquarters in Nairobi, Kenya effective March 1993. Professor Salema replaces Professor Pedro Sanchez, currently Director General of ICRAF following completion of his three-year term.

Prof. Johanna Döbereiner received the Mexico Prize for Science and Technology from the President of Mexico on 12 December 1992. The Prize - US\$ 30,000 - is awarded every year to a Latin American, Portuguese or Spanish scientist for outstanding achievements in science or in any other field contributing to the integration of Latin American science or to the training of scientists on that region. Prof. Döbereiner is internationally known for her work on soil microbiology, biological nitrogen fixation and identification of new nitrogen fixing bacteria. She works at the Soil Biology Centre of EMBRAPA, Seropédica, Rio de Janeiro, Brazil.

Elizabeth Dowdeswell, the former Assistant Deputy Minister at Environment Canada, took over as UNEP's new Executive Director on January 1, 1993. Prior to that she had been head of the Canadian government's Atmospheric Environment Service - the Canadian government's weather and environment agency and has considerable international experience. She was Canada's delegate to the Intergovernmental Panel on Climate Change and co-chairperson of a working group in the negotiations leading up to the climate change convention which was presented to the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. Her international experience in environmental affairs goes back for some considerable time. She was Canada's permanent representative to the World Meteorological Organization, twice being elected to its Executive Council. She was also Canadian Chair of the Great Lakes Water Quality Board for the Canada-United States International Joint Commission.

Dr. Georges Stoops, Professor and Head of the Geology and Soil Science Department of the State University of Ghent, Belgium, received the KUBIENA AWARD at the 9th International Working Meeting on Soil Micromorphology held July 12 -17, 1992 at Townsville, Queensland, Australia. The Kubiena Award is presented to Stoops by Subcommittee B (Soil Micromorphology) of ISSS to commemorate an outstanding soil micromorphologist. Dr. Stoops was recognized for his distinguished and major contributions to soil micromorphology over his career.



Dr Georges Stoops receiving the Kubiena Award from Dr. Larry Wilding, Past-Chairman of Subcommittee B.

Dr. John E. Witty, National Leader, Soil Classification, National Soil Survey Center, Soil Conservation Service (SCS), Lincoln, Nebraska, has retired April 30, 1993. He started his Federal career in 1953, later he completed his MS degree in soils and pursued a PhD at Cornell University from 1963 - 1968. Later on he was soil correlator in the Northeast NTC, Chester, Pennsylvania. In 1979, Dr. Witty transferred to Washington, D.C., as Assistant Director, Soil Classification. After returning from a foreign assignment in Saudi Arabia (1981 - 84) he received his current position as National Leader, Soil Classification. Dr. Witty has made immense contributions to the further development of Soil Taxonomy. For years, he and his wife, Ilse, spent many extra hours preparing, entering and editing materials such as Keys to Soil Taxonomy. He built a global network of contributing scientists and presided over major improvements in Soil Taxonomy, which are embodied in the Keys. ISSS wishes Dr. Witty and his wife that they may enjoy their time on their farm in Adrian, Oregon, where they are moving after retirement.



Dr. H.A. Fitzhugh is designated new Director General of the International Livestock Centre for Africa (ILCA). Dr. H. A. Fitzhugh is expected to take up his duties at ILCA in Addis Ababa, Ethiopia, following the completion of Dr. John Walsh's term of office on 1 August 1993. Dr. Walsh wishes to relinquish his position as Director General after 7 very successful years in that office in order to resume his career in Ireland.

Dr. Fitzhugh is an animal scientist and systems specialist with more than 30 years experience in agricultural research and development. He has authored or co-authored more than 130 publications with emphasis on improvement of agricultural production systems and on animal breeding and management and has served in technical and managerial capacities in publicly supported research and development institutions and in private non-profit organizations.

Prof. Dr. H. Th. Verstappen, emeritus professor in geomorphology, ITC, Enschede, the Netherlands, has been appointed President of the International Geographical Union of ICSU for the period 1992-1996. Prof. Verstappen was Vice-President since 8 years. The next IGU Congress will be held in The Netherlands in 1996.

Prof. Winfried E.H. Blum, Secretary-General of ISSS, received the Doctor honoris causa from the Agricultural University of Lublin/Poland in June, 1993 for his achievements in the field of soil science and especially in bilateral Austrian-Polish and international cooperation.



IN MEMORIAM

Prof. Dr. Tiurin's Centenary

In November 1992 the Russian Society of Soil Science celebrated the centenary of Prof. Dr. I.V. Tiurin, an outstanding researcher, who is well known as the founder of a school on soil humus in Russia.

Prof. Dr. I.V. Tiurin was born in a small village of the Ufa district. After graduation from the Timiriazev Agricultural Academy he carried out research work at

Kazan University (1919-1930), concentrated his scientific interest on soils of this region and published his first work on genesis and classification of forest-steppe and forest soils.

Prof. Tiurin's research work on forest soils was continued at the Forestry Academy and the State University of Leningrad and at the V.V. Dokuchaev Soil Institute in Moscow. As a result of his comprehensive studies the first textbook on soil science appeared, taking into account the role of vegetation and the organic matter in the genesis of forest soils.

Prof. Tiurin's works on organic matter and soil humus proved to be of great importance. His experience in this field has been summarized in the book "Soil Organic Matter" (1937). Investigation methods to subdivide humic substances as a definite class of specific compounds, elaborated by Prof. Tiurin, made it possible to determine the humus quality in the main soil types and to estimate its role in soil profile formation.

After appearance of his works "On the Nature of Fulvic Acids in Soil Humus (1940), "Studies of the Podzolization" (1944) the concept of fulvic acids became generally adopted to estimate their role in the course of the podzolization process.

Prof. Tiurin's work "Geographical Regularities of Humus Formation" (1949) should be considered as a summit of his scientific activities. For more than 40 years it has been serving as a handbook for soil scientists and the scientific value of this book is still far from being exhausted. The book contains data on humus and nitrogen supply and humus quality in Russian soils. It has been established that both qualitative and quantitative aspects of humus formation are subject to soil-geographical regularities, which dictate the trends in the transformation of plant residues. Due attention is also paid to Prof. Tiurin's ideas on the role of the vegetation cover, the enrichment of parent rocks and soils with Ca and sesquioxides as well as the hydrothermic factor to regulate the processes of hydrolysis and synthesis, soil pH and the abundance of plant residues and soil nitrogen. Differences in the composition of brown and grey humic acids, the ways and conditions for their transformation are first shown in his book. According to Prof. Tiurin, the humus state is determined as a relationship between humus substances and the soil mineral content.

Prof. Tiurin's works on the importance of the biological factor in soil-forming processes are highly estimated. His theoretical concepts have been put into practice and are found to be of great value now: "Soil Organic Matter" (1937), "Soil Fertility and the Problem of Nitrogen in Soil Science" (1956), "The Role of Soil Science in Further Development of Agriculture in the USSR" (1960), "Nitrogen Balance in the Farming of the Non-Chernozem-Zone in Russia", etc.

Between 1949 and 1962 Prof. Tiurin was Director of the V.V. Dokuchaev Soil Institute. At a time when Lysenko's ideas were predominant in agricultural science in the USSR, Prof. Tiurin courageously defended the fate of Russian soil science. He was a very competent head of a researchers'



collective, whose names are well known not only in Russia but also abroad: I.P. Gerasimov, Ye.I. Ivanova, V.A. Kovda, A.A. Rode, A.V. Sokolov, M.M. Kononova, N.A. Kachinsky, I.N. Antipov-Karataev, N.I. Gorbunov, Yu.A. Liverovsky, V.A. Chernov and others. In 1958 he became President of the All-Union Society of Soil Scientists and editor-in-chief of the journal "Pochvovedenie".

Prof. Tiurin was very active in the International Society of Soil Science. In 1927, at the first ISSS Congress, he presented a paper on achievements of Russian soil science. He took part in many ISSS Congresses, heading Soviet delegations. He was elected Chairman of Commission IV of ISSS. Being an honorary member of the Academy of Sciences in Poland and the former GDR, Prof. Tiurin's authority was internationally recognized. In the last years of his life Prof. Tiurin paid much attention to problems related to compiling soil maps of Europe and of the world.

Prof. I.V. Tiurin is remembered with respect and affection. To keep Prof. Tiurin's memory alive, soil scientists should make joint efforts to study and further develop his ideas on organic matter, soil genesis and fertility as well as to make significant and decisive contributions to environment conservation for the present generation and generations to come.

L.L. Shishov,
Director,
V.V. Dokuchaev Soil Institute

G.V. Dobrovolsky
President,
Russian Society of Soil Scientists

**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 an associate member of the International Council of Scientific Unions, 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.

1993

Second International Conference on the Biogeochemistry of Trace Elements, Taipei, Taiwan, Republic of China, September 5-10, 1993.

Information: Dr. Shang-Shyng Yang, Dept. of Agricultural Chemistry, National Taiwan University, Taipei, Taiwan, 106, R.O.C. (Tel.: 886-2-3621519; Fax: 886-2-3633123).

International Conference on Nuclear Waste Management and Environmental Remediation, Prague, Czechoslovakia, 5 - 11 September, 1993

Information: Mr. Radovan Kohout, Ontario Hydro (H11 A20), 700 University Avenue, Toronto, Ontario, Canada M5G 1X6,
Tel: 416/592-5384, FAX 416/592-4485

International Conference on Groundwater Quality Management, Tallin, Estonia, 6-9 September 1993.

Information: GQM 93, c/o Institute of Ecology and Marine Research, Paldiski Road 1, 200 001 Tallinn, Estonia (Tel.: +7 (0142) 451634; Fax: +7 (0142) 453748).

International Symposium on the Structure of the Soil Cover, Pushchino, Russia, September 6 - 11, 1993

Information: Organizing Committee on SCS, V.V. Dokuchaev Soil Institute, Pygevsky per. 7., 109017 Moscow, Russia.

3rd International Symposium on Plant-Soil Interactions at Low pH, Brisbane, Queensland, Australia, 12-16 September, 1993.

Information: Low pH Symposium, Australian Convention and Travel Services Pty Ltd, GPO Box 2200, Canberra A.C.T. 2601 Australia (Tel.: +61-6-2573299; Fax: +61-6-2573256).

13th Long Ashton International Symposium "Arable Ecosystems for the 21st Century", Bristol, England, September 14 - 16, 1993.

Information: Mr. H.M. Anderson, Department of Agricultural Sciences, University of Bristol, AFRC Institute of Arable Crops Research, Long Ashton Research Station, Long Ashton, Bristol, BS18 9AF, UK;
Tel.: +44-275-392181, Fax: +44-275-394007

10th Meeting of the Erosion Network: The Contribution of Livestock and Agroforestry to the Control of Soil Erosion and to the Restoration of Soil Fertility, Montpellier, France, September 15 - 18, 1993.

Information: Eric Roose s/c ORSTOM, Réseau érosion, B.P. 5045, Montpellier 34032, France; Tel: +33-67-61-75-65; Fax: +33-67-54-78-00.

1st International IAWPRC Specialised Conference on Diffuse (Nonpoint) Pollution: Sources, Prevention, Impact and Abatement, Chicago, IL, USA, September 20 - 24, 1993.

Information: IAWPRC Conference, c/o Dr. Vladimir Novotny, Dept. of Civil and Environmental Engineering, Marquette University, 1515 West Wisconsin Avenue, Milwaukee, WI 53233, USA.

NATO Advanced Research Workshop: Soil Responses to Climate Change, Silsoe, England, September 20 - 24, 1993.

Information: Dr. P. Loveland, Soil Survey and Land Research Centre, Silsoe Campus, Silsoe, England MK45 4DT. Fax: 44-525-861147; E-Mail: pjl@uk.ac.cranfield.silsoe

*** 12th International Plant Nutrition Colloquium**, Perth, Australia, September 21-26, 1993.

Information: Plant Nutrition Secretariat, The Conference Office, The University of Western Australia, Nedlands WA 6009, Australia (Fax: +61 9-382-2029).

XII Congreso Latinoamericano de la Ciencia del Suelo, Salamanca, Spain,

September 23 - 26, 1993.

Information: Juan Gallardo Lanco / Secretario, Instituto de Ecología Terrestre / CSIC, Apartado 257, 28006 Salamanca, España

Fax: (9) 15640800; Tel: (9) 12625020

*** Managing Red and Lateritic Soils for Sustainable Agriculture**, Bangalore, India, 24 - 28 September, 1993

Information: Prof. J. Sehgal, National Bureau of Soil Survey and Land Use Planning, Amravati Road, P.Box 426,

Nagpur-440 010 (Maharashtra) India.

Global Forum on Environmental and Development Education, New Delhi, India, September 24 - 28, 1993.

Information: Indian Environmental Society, U - 112, (3rd floor), Vidhata House, Vikas Marg, Shakarpur, Delhi, 110092 India; Tel: (91-11)222-3311, Fax: (91-11)331-7301

XI International Symposium on Environmental Biogeochemistry, Salamanca, España, 27 al 30 setiembre 1993.

Information: I.E.T. / CSIC, Apartado 257, 37071 Salamanca, España (Fax: (9) 23-219609).

International Conference on Environmental Pollution (ICEP.2), Barcelona, September 28 - October 1, 1993.

Information: ICEP Conference Office, ICTR Secretariat, 11-12 Pall Mall, London SW1Y 5LU, U.K. Tel: +44-71-930-6825; Fax: +44-71-976-1587; Telex: 925312 reico g

IUFRO S1.02.06 Technical Meeting on "Site Classification and Evaluation", Clermont-Ferrand, France, October 19-22, 1993.

Information: Alain Franc, CEMAGREF, Division Techniques Forestières, Domaine de Lалуas, F-63 200 RIOM, France (Tel.: (33) 73382052; Fax: (33) 73387641).

*** Geomedical Problems Related to Aluminium, Iron and Manganese**. Symposium organized by the ISSS working Group Soils and Geomedicine at the Norwegian Academy of Science and Letters, Oslo, Norway, November 18 - 19, 1993.

Information: Prof. Dr. J. Låg, Dept. of Soil Sciences, Agricultural University of Norway NLH, P.O.Box 28, N-1432 Ås, Norway; Tel: 47-9-948212; Fax: 47-9-948211.

Symposium on "A decade of potassium research", New Delhi, India, November 18 - 20, 1993.
Information: The Director, Potash Research Institute of India, Sector 19, Dundaheera, GURGAON - 122001, Haryana, India.

Livestock and Sustainable Nutrient Cycling in Mixed Farming Systems of Sub-Saharan Africa, Addis Ababa, Ethiopia, November 22 - 26, 1993.

Information: J. Mark Powell, Organizer, Nutrient Cycling Conference ILCA, ICRISAT Sahelian Center, BP 12404, Niamey, Niger. Fax: 227-73-43-29; Telex: 5406NI or 5560NI; E-Mail: 157: CGI 504.

Ier Colloque International: Gestion durable des sols et Environnement en Afrique intertropicale, Ouagadougou, Burkina Faso, 6 - 10 Décembre 1993

Information: Dr. L. Thiombiano, Secrétaire Général AOCASS/WCASS 06 BP 9046 Ouagadougou 06, Burkina Faso,
Tel: 31-92-02; Fax: 31-92-06

Integrated Farm Management and Landscape Modification for Environmental Protection - "Total Resource Management", Chicago, Illinois, USA, December 13 - 14, 1993.

Information: Saied Mostaghimi, VPI & SU, Agricultural Engineering Department, 308 Seitz Hall, Blacksburg, VA 24061, Fax: 703-231-3199

1994

International Symposium on Nitrogen Economy in Tropical Soils, St. Augustine, Trinidad, West Indies, January 9 - 14, 1994

Information: Chairman, Organizing Committee, Department of Soil Science, The University of the West Indies, St. Augustine, Trinidad, West Indies.
Tel: 1-809-662-2002; Fax: 1-809-663-9686

ASTM Symposium Remote Sensing and GIS, January 27 - 28, 1994

Information: Dr. Vern Singhroy, Canada Centre for Remote Sensing, 588 Booth Street, Ottawa, Ontario K1A 0Y7, Canada, Tel: 613-947-1215, Fax: 613-947-1385
or: Ivan Johnson, 7474 Upham Court, Arvada, CO 80003, USA,
Tel: 303-425-5610

or: Doug Nebert, Water Resources Division, U.S.G.S. National Centre, Mail Stop 445, Reston, VA 22092, USA, Tel: 703-648-5691, Fax: 703-959-5691

International Conference on Efficient Utilization & Management of Water Resources in Africa, Khartoum, Sudan, February 1 - 4, 1994.

Information: Dr. Gamal M. Abdo, Faculty of Engineering & Architecture, University of Khartoum, P.O.Box 321, Khartoum, Sudan. Telex: 22738 kup sd; Tel: 011-75931; Fax: 249-11-448985.

2nd International Symposium on Sealing, Crusting and Hardsetting Soils: Productivity and Conservation, Brisbane, Queensland, Australia, February 7 - 11, 1994

Information: Secretariat, Soil Crusting Symposium, Continuing Professional Education, The University of Queensland, Qld 4072, Australia; Tel.: +61-7-365-7100, Fax: +61-7-365-7099

International Inter-INQUA Field Conference and Workshop on Tephrochronology, Loess, and Paleopedology, Hamilton, New Zealand, February 7 - 12, 1994

Information: Dr. D.J. Lowe, Conference Convenor, Department of Earth Sciences, University of Waikato, Private Bag 3105, Hamilton, New Zealand; Tel: +64-7-856-2889; Fax: +64-7-856-0115; email: dlowe@waikato.ac.nz

International Workshop on Ecology and Management of Aquatic-Terristrial Ecotones, University of Washington, Seattle, USA, February 14 - 19, 1994.

Information: International Workshop on Ecotones, Continuing Education Office, College of Forest Resources, University of Washington, AR-10, Seattle, WA 98195, USA

International Symposium on Climate Change and Rice, Los Baños, Laguna, Philippines, March 15 - 17, 1994.

Information: Dr. Keith T. Ingram, IRRI, P.O. Box 933, 1099 Manila, Phillippines, Fax: +63-2-818-2087

Annual Conference 1994 of the British Society of Soil Science, Silsoe, U.K., April 11 - 14, 1994.
Information: Prof. Peter Bullock, BSSS Easter Meeting Secretariat, Soil Survey and Land Research Centre, Cranfield Institute of Technology, Silsoe Campus, Silsoe, Bedfordshire MK 45 4DT

International Land Reclamation and Mine Drainage Conference
and

Third International Conference on Abatement of Acidic Drainage, Pittsburgh, Pennsylvania, USA, April 24 - 29, 1994.

Information: D. Lowanse, U.S. Bureau of Mines, P.O. Box 18070, Pittsburgh, PA, 15236, USA; Fax: (412)892-4067.

International Symposium on Integrated Exploitation and Sustainable Development in Red Soil Area (ISIESDRS '94), Nanchang, China, June, 1994.

Information: Mr. Zhang Zhonglian, CICCST/ISIESDRS '94, 44, Ke Xue Yuan Nan Lu, Shuang Yu Shu, Haidian District, Beijing 100086, China.

Symposium: Land and Soil Protection, Ecological, Economical and Political Consequences, Tallinn, Estonia, June 6 - 12, 1994.

Information: Dr. Edvin Nugis, Chairman, Estonian Research Institute of Agriculture and Land Improvement, EE3400 Saku, Harju County, Estonia; Tel: +372-2-721-564, Fax: +372-2-771-385

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).

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, 3 - 8 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

6th Conference of the African Association for Biological Nitrogen Fixation (AABNF), Harare, Zimbabwe, September 12 - 17, 1994.

Information: Secretary, AABNF, c/o Department of Soil Science and Agricultural Engineering, University of Zimbabwe, Box MP167, Mount Pleasant, Harare, Zimbabwe.

Tel: 263-4-303-211-1412; Fax: 263-4-732-828

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 Forests, The University of Tokoy, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113, Japan.

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.

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. R. Escadafal, Secretary, Working Group RS, B.P. 434, 1004 El Menzah, Tunisia.

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

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

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

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

Information: The 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

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



Notice of Intent/Registration Form

Note d'Intérêt/Fiche d'Inscription

ISSS-AISS-IBG Absichtserklärung/Anmeldeformular

To: Organizing Committee of

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

From: Name and title

.....

full address:

.....
.....

telephone:

fax:

Dear Madam, Sir,

0 I intend to participate in the conference, meeting, seminar, workshop* mentioned above. Please send me detailed information.

0 I intend to present a paper/poster*, entitled:

.....

Comments:

0 I register for participation in the conference, meeting, seminar, workshop*, mentioned above.

Comments:

Date:

Signature:

* please delete if not applicable

**INTERNATIONAL TRAINING COURSES
COURS INTERNATIONAUX DE FORMATION
INTERNATIONALE FORTBILDUNGSKURSE**

1st Training Session of the "Soil and Plant Analytical Laboratories Network of Africa (SPAL-NA), Ibadan, Nigeria, October 3 - 17, 1993.

Information: Joseph L. Pleysier, University of Nigeria, Nsukka. Fax: 229-30-1466

17th International Course on Soil Fertility Management for Sustainable Agriculture (Former: International Course on Fertilizer Use and Extension), Wageningen, The Netherlands, August 22 - October 16, 1993.

Information: International Agricultural Centre (IAC), P.O.Box 88, NL-6700 AB Wageningen, The Netherlands;

Tel: 03870-90111; Fax: 08370-18552

International Postgraduate Course on Soil and Plant Analysis and Data Handling. October 4 to December 3, 1993 dealing with: instrumental analysis, soil and plant analysis, laboratory management and data handling.

Information: International Agricultural Centre, P.O.Box 88, NL-6700 AB Wageningen, the Netherlands. Fax: +31 8370-18552.

10th International Course on Food and Nutrition Programme Management, Wageningen, The Netherlands, October 24 - December 4, 1993;

Information: International Agricultural Centre (IAC), P.O. Box 88, NL-6700 AB Wageningen, The Netherlands; Tel: +31-8370-90111, Fax: +31-8370-18552.

The Jacob Blaustein Graduate Program for Desert Studies, Israel, announces a series of graduate courses on:

The Environmental Physical Sciences (with emphasis on arid zone phenomena), October 12 - November 22, 1993

Information: Yair Zarmi, Center for Energy & Environmental Physics, The Jacob Blaustein Institute for Desert Research, Sede Boker Campus, Israel, 84993

3

International Course on Integrated Pest Management, Wageningen, The Netherlands, March 20 - July 2, 1994.

Information: International Agricultural Centre (IAC), P.O.Box 88, 6700 AB Wageningen, The Netherlands. Tel: +31-8370-90111; Telegrams: INTAS; Telex: 45888-intas nl; Telefax: +31-8370-18552.

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.

International course on Operation, Maintenance and Management of Irrigation Delivery Systems, Utah State University, Logan, Utah, USA, September 26 - November 6, 1993; languages: English and Spanish.

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

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

Utah State University, Logan, Utah, USA, offers a wide range of courses for 1993 and 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: 053-874-444, Fax: 053-874-400, Telex: 44525 ITC NL

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).

Courses in Soil Conservation, Adelaide, Australia.

Information: The Chairman, Department of Soil Science, Waite Agricultural Research Institute, P.M.B. 1, Glen Osmond 5064, South Australia (Tel.: 08 372 2210; Fax: 08 338 1757; 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

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: 053 874 444, FAX: 053 874 400, 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 3

Post-Graduate Diploma Course in Forestry for Rural Development, Enschede, The Netherlands.

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).

2

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.

Information: Senior Administration Assistant, School of Development Studies, University of East Anglia, Norwich, NR4 7TJ, U.K. (Tel.: (0603) 56161; Fax: (0603) 58553; Telex: 995801 GLOTLX-G).

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 Agricultural 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; Fax: 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 dr Beken, 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 Mediterraneos, Zaragoza, Spain.

Curso superior de diez meses sobre Ordenacion Rural en funcion del Medio Ambiente.

Informacion: 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

3

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.

3

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.

3

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).

3

International Institute for Hydraulic and Environmental Engineering (IHE), Delft, The Netherlands,

offers courses a wide range of different courses, e.g.: Hydraulic Engineering, Hydrology, Sanitary Engineering, Environmental Science & Technology, Water Quality Management, Advanced Environmental Sanitation, Transportation & Road Engineering in Development;

M.Sc. and Ph.D. Programme and a wide range of other courses available on demand.

Information: IHE, Student Affairs Office, P.O. Box 3015,

NL-2601 DA Delft, The Netherlands

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

3

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.

3

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'AïSS, mais à une librairie ou directement aux éditeurs. Presque toutes les publications mentionnées peuvent être consultées au bureau du Secrétaire-Général Adjoint de l'AïSS, Centre International de Référence et d'Information Pédologique (ISRIC) à Wageningen, Pays-Bas.

Die Titel neuer Veröffentlichungen sind hier zur 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 pedidas 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.

Elsevier's Dictionary of Terrestrial Plant Ecology. English-Spanish, Spanish-English. H. Resinger and J.M. Gómez Gutiérrez. Elsevier, Amsterdam, London, 1992, xvi + 664 p. ISBN 0-444-88977-9. Hardbound.

In the field of ecology, a young and ever-expanding science, there has been a surprising lack of adequate tools for making the abundant literature published in English linguistically available to the Spanish-speaking world, and vice versa. The present dictionary has been compiled in order to fill this gap. The cooperation of a professional translator and an ecologist has produced a work which combines thorough scientific treatment with pragmatic evaluation of needs. The user of this dictionary will find terminology on plant ecology and complementary sciences such as plant physiology, edaphology, biostatistics, environmental science, forestry, climatology, plant geography etc., both in English and in Spanish, with concise definitions or explanations, as well as corresponding or equivalent terms in the other language.

Price: US\$ 157, Dfl 275.

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.

Methodologies for the Assessment and Mapping of Critical Loads and of the Impact of Abatement Strategies on Forest Soils. Report 46. W. de Vries. Winand Staring Centre, 1991, 109 p. ISSN 0924-3062. Paperback.

Methodologies are described for assessing and mapping critical acid loads and the impact of abatement strategies for forest soils. The various steps which are discussed are: determination of critical chemical values, selection of a computation model, collection of input data and procedures for mapping critical loads. Furthermore, the various sources of uncertainty are discussed. The computation models described are the steady-state and dynamic soil acidification models START, MACAL, SMARD and RESAM, that are the part of integrated acidification models. Major emphasis is given to the description of these models and the collection of input data to apply them on a national scale (the Netherlands) and on a European scale.

Orders to: Winand Staring Centre, P.O. Box 125, 6700 AC Wageningen, the Netherlands.

ASTM Standards on Precision and Bias for Various Applications. 4th edition. 476 p. ISBN 0-8031-1757-4. Publication code 03-511092-34. Paperback.

This fourth edition features about 50 standards, of which 31 new and revised standards are not found in the previous edition. The standards apply to the testing of construction materials, paper, textiles, rubber, petroleum, paint, plastics, metals, water, and atmospheres. This volume is of interest to anyone working with the testing of materials or products who needs to prepare precision and bias documents.

Price: £ 40 in U.K.

Orders to: American Technical Publishers Ltd., 27-29 Knowl Piece, Wilbury Way, Hitchin, Herts SG4 0SX, U.K. or: ASTM, 1916 Race St., Philadelphia, PA 19103, U.S.A.

Référentiel Pédologique. Principaux Sols d'Europe. Techniques et Pratiques. D. Baize et M.-C. Girard, Institut National de la Recherche Agronomique, Paris, 1992, 221 p. ISBN 2-7380-0410-5.

Cet ouvrage est une typologie pédologique. Il fait le point complet de tout ce que l'on sait sur les sols de France, à ce jour. Établi à partir de concepts clarifiés et modernisés, ce livre propose un langage clair et bien défini. Il présente une façon d'organiser nos connaissances mais surtout c'est un outil efficace pour transmettre une information la plus riche possible et permettre des corrélations entre différentes régions. Ce Référentiel Pédologique remplacera désormais la Classification des Sols de 1967 (dite CPCS).

Commandes à: INRA, 147, rue de l'Université, 75007 Paris, France.

Indonesia: Resources, Ecology, and Environment. J. Hardjono, editor. Oxford University Press, Oxford, New York, 1991, xvii + 262 p. ISBN 0-19-588992-4. Hardbound

This book consists of papers on major environmental issues in Indonesia presented at a conference entitled "Indonesia's New Order: Past, Present and Future", held at Canberra in December 1989. The topics covered include a general examination of the dimensions of Indonesia's present environmental problems, the management of land resources, the ecology of rice production, environmental aspects of cash-crop development, problems related to land use in Java, the utilization of fishery resources, and exploitation of timber resources in Kalimantan. The writers look at government policies and their environmental implications in a number of fields and pinpoint some of the major concerns that are now becoming evident. The question of sustainability is raised in the context of plans for national development in coming years.

Most contributors to the book reach the same conclusion: that while great progress has been made in Indonesia since the mid-1960s, efforts to maintain momentum will have to give much greater consideration to ecological and environmental matters if development is to be genuinely sustainable.

Orders to: Oxford University Press, Walton Street, Oxford OX2 6DP, England.

Prairies, Forests, and Wetlands. The restoration of natural landscape communities in Iowa. J.R. Thompson. University of Iowa Press, Iowa City, 1992, ix + 139 p. ISBN 0-87745-371-3 (paperback), 0-87745-372-1 (cloth).

Euro-American settlement of Iowa in the mid-1800s began a period of rapid and devastating change for the landscape ecology of the state. Before settlement, prairies and prairie-wetland complexes dominated Iowa's rolling landscape. During the last 150 years these original natural communities have been nearly eliminated by conversion of over 95 percent of the land to agricultural and urban uses.

This book combines a nontechnical natural history of each native community with a how-to manual for restorationists dedicated to reconstructing Iowa's natural landscape. The author presents the collective experience of professionals active in restoring the natural areas of Iowa and throughout the Midwest. She includes a useful list of sources for plant materials in and near Iowa as well as information on the diverse birds, mammals, reptiles, and amphibians of these landscapes.

Price: US\$ 10.95 (paperback), US\$ 24.95 (cloth).

Orders to: University of Iowa Press, Iowa City, IA 52242, U.S.A.

Environmental Change and Acute Conflict (series)

This project was initiated to investigate how environmental degradation and depletion of natural resources might contribute to social strife and conflict in many parts of the world. Through a series of case studies and conferences in 1991-92, the project has looked specifically at the links between environmental change and conflict in three areas: water scarcity, population displacement, and the economic repercussions of reduced agricultural and resource productivity. *Water and Conflict* by P.H.

Gleick and West Bank Water Resources and the Resolution of Conflict in the MiddleEast, by M.R. Lowi. Environmental Change and Acute Conflict, N° 1, September 1992.

These two papers were presented at a workshop held in Toronto in June 1991, and represent the first of several project case studies to be published. The first one provides a global overview of the potential for conflict over water resources, while the second analyzes the relationship of water degradation and scarcity to the Israeli-Palestinian and wider Middle East conflicts.

Orders to: Dr. T. Homer-Dixon, University College, University of Toronto, Toronto, M5S 1A1, Canada.

Sustainable Mountain Agriculture. N.S. Jodha, M. Banskota, Tej Partap, editors. Oxford and IBH Publishing, New Delhi, with International Centre for Integrated Mountain Development, Kathmandu, 1992. Vol.1: Perspectives and Issues, xv + 389 p. ISBN 81-204-0621-4, Hardbound; Vol.2: Farmers' Strategies and Innovative Approaches, xv + 417 p. ISBN 81-204-0622-2, Hardbound. ISBN (set) 81-204-0620-6.

The present book synthesizes results of ICIMOD studies in selected hill areas of India, China, Nepal and Pakistan, which were presented at an International Symposium on Strategies for Sustainable Agriculture in Mountain Regions. The themes covered are public policies and programmes, farmers' resource management strategies, some successful development initiatives, long-term issues in sustainability and zonation as a tool for designing development strategies for diverse mountain areas. Contributions from Andes mountain agriculture enrich the text, which otherwise is confined to the Hindu Kush Himalayan Region. This is an effort to identify approaches and options for sustainable development of mountain areas and mountain agriculture. The important message is to learn from the past and have a fresh look at the conventional development approaches to mountain areas.

Price: US\$ 79.50 (set of 2 books)

Orders to: see below.

Advances in Management and Conservation of Soil Fauna. G.K. Veeresh, D. Rajagopal and C.A. Viraktamath, editors. Oxford and IBH Publishing, New Delhi, 1991, xvi + 925 p. ISBN 81-204-0598-6. Hardbound.

This book contains the papers presented at the 10th International Soil Zoology Colloquium and 7th International Colloquium on Apterygota held at Bangalore in August 1988. All the papers presenting in nine sessions appear under respective chapters: 1) Apterygota, (2) Termites, 3) Harmful soil fauna and their management, 4) Impact of agronomic practices including pesticides and animal wastes on soil fauna, 5) Impact of forest denudation and silvicultural practices, 6) Role of soil fauna in nutrient cycling, 7) Functional relationship between soil microorganisms and soil fauna, 8) Morphology, ecophysiology and systematics of soil fauna, and 9) Soil fauna as bio-indicators. In addition, there are review articles presented as plenary lectures included in this volume.

Price: US\$ 95.50

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

European Forest Decline: The effects of air pollutants and suggested remedial policies. S. Nilsson, editor. International Institute for Applied Systems Analysis, Laxenburg, 1991, xvii + 228 p. Paperback.

This report by IIASA shows that forest decline in Europe is much worse than earlier assessments. What is happening to our forests, tropical and temperate, is not due to any kind of uncontrollable natural disaster as one might think. It is all provoked by human consumption and production activities. Forest destruction is only one example of environmental degeneration and global change.

This book includes the nine papers presented by the scientific team of The Forest Study of the IIASA and affiliated collaborators. They deal with the following subjects: 1) The critical/target load concept, 2) Further development of the critical/target load concept, 3) Forest potentials and policy implications for Eastern and Western Europe, 4) Air pollution in the European USSR, 5) The state and future development of forests in the European USSR, 6) Economic impacts, 7) European commercial wood at risk from sulfur and nitrogen deposition, 8) Combined reductions for sulfur and nitrogen, and 9) Forest decline and air pollution in Europe and major policy implications.

Price: US\$ 35

Orders to: The Royal Swedish Academy of Agriculture and Forestry, P.O. Box 6806, S-113 86 Stockholm, Sweden.

State of the Environment Norway. A preliminary set of environmental indicators. Users' guide for a PC based information product. GRID-Arendal, Arendal, 1992, 11 p. + 2 disks.

This is a presentation of environmental indicators for Norway, including: Global warming; Changes in the ozone layer; Contamination; Eutrophication; Acid rain; Landscape changes; Changes in biodiversity; health effects. It is PC based and has the following characteristics: Simple installation; Simple, intuitive use; Runs on a standard PC with mouse and colour VGA screen; Click on green text and buttons to navigate in the information; Export functions for data; Export functions for figures; Make as many copies you like - for free.

Orders to: GRID-Arendal, P.O.Box 1602 Myrene, 4801 Arendal, Norway.

Field Crop Production in Tropical Africa. I.C. Onwueme and T.D. Sinha. Technical Centre for Agricultural and Rural Co-operation (CTA), Ede, 1991, v + 480 p. ISBN 92-9081-086-6. Paperback.

Part I of this book looks at agronomic practices generally and particularly at climatic factors, soil fertility and conservation, irrigation and drainage. Part II covers each crop in detail within categories such as cereals, roots and tubers, grain legumes, oilseed crops, and fibre crops. Sugarcane, tobacco, tea, coffee, cocoa and para rubber are also covered. Botanical descriptions of each crop are followed by details of cultivation and crop protection methods. The book is illustrated with line drawings and black-and-white photographs. Although the book is written mainly for undergraduate students, it may also be useful to postgraduate students of agronomy, research workers, agricultural extension officers and progressive farmers.

Price: free of charge for individuals and institutions in ACP countries.

Orders to: CTA, P.O.Box 380, 6700 AJ Wageningen, the Netherlands.

Proceedings of the International Symposium on the Role of Sulphur, Magnesium and Micronutrients in Balanced Plant Nutrition. The Sulphur Institute, Washington, 1991, xiii + 418 p. Paperback.

This book includes 49 papers presented at this International Symposium held in China in 1991. For several thousand years, China's traditional agricultural systems successfully satisfied the needs of its populace. These systems were based on the preservation of soil fertility by extensive cycling of nutrients supplied in various organic materials including crop residues, composts, animal and human manure, and soil and plant material from off-farm locations.

The relatively low but dependable crop yields provided by China's historical agricultural practices quickly became inadequate after 1945 because of the extremely rapid increase in China's population which doubled from 500 million in 1949 to over one billion by the late 1980s. As a consequence, it became necessary to shift to modern science based agricultural systems involving new high yielding crop varieties and hybrids which were fertilizer responsive, greater use of manufactured fertilizers, better control of weeds, insects, and diseases, and other improved agronomic practices.

During the 1980s the concept and favourable influence of balanced fertilization with N, P, and K gained considerable recognition. Modern crop production systems are not sustainable when there is significant depletion of plant nutrients from the soil. The much higher crop yields which became commonplace in China after the mid-1960s, combined with less use of organic materials and greater cropping intensity, have, not unexpectedly, resulted in much greater removal of all nutrients with increasing frequency and extent of deficiencies of other plant nutrients. The status of these nutrients under current soil/cropping conditions in China was the focus of this Symposium, the papers of which are included in the present publication.

Orders to: The Sulphur Institute, 1140 Connecticut Avenue, N.W., Suite 612, Washington, DC 20036, U.S.A.

Remote Sensing of the Earth's Surface and Atmosphere. Advances in Space Research Vol.12, N°17. R.P. Singh, A. Tabbagh, J.F.R. Gower et al. (editors). Pergamon Press, Oxford, 1992, x + 458 p. ISBN 0-08-041853-8. Paperback.

The sixty-six papers contained in this volume have been divided into four main chapters. Resource Mapping and Geophysical Surveys using Space Technology features four main areas. Firstly, the potentiality of MAGSAT data reduction to allocate crustal anomaly; secondly, the application of geophysical and geochemical data for mineral exploration; thirdly, the application of gamma-ray survey to locate the source of radioactive materials and lastly the importance of ground truths obtained by conventional geophysical surveys in the interpretation of satellite data. The chapter on Ice and Cloud Motions deduced from Satellite Imagery is in two sections, Cloud Winds-Methods and Accuracies

and Ice Motion - Methods and Accuracies. Chapter 3 entitled Weather Analysis and Forecasting-Nowcasting to Extended Range Predictions focuses on the current status and future use of satellite observations in weather analysis and forecasting. Global weather predictions are expected to improve due to improved satellite observations and from the inclusion of small-scale physics supported by finer space and time resolution of the numerical models. Analytical Techniques and Results for Multiple Satellite Sensors and Sensors with High Resolution are covered in the final chapter.

Price: £ 80

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

Environmental Indicators for Sustainable Agriculture. A. Hamblin, editor. Commonwealth of Australia, 1992, 96 p. ISBN 0-642-17519-5. Paperback.

In recent years, a great increase worldwide in concern for sustainable development, following the World Commission on Environment and Development's report on "Our Common Future" has resulted in a number of international conventions and agreements on the issues of climate change, threats to world natural resources, and the sustainability of lands used for agriculture.

In Australia, government initiatives in 1990 led to the Ecologically Sustainable Development Strategy, which is appraising all aspects of economic activity. In agriculture we have been considering how to evaluate the sustainability of our agricultural systems. This publication results from a national workshop held in November 1991 on the subject of indicators for sustainable agriculture. It represents a concerted attempt by scientists, administrators and statisticians to define the scope and type of indicators required to estimate current status and trends in agricultural sustainability. In providing some framework for such indicators we hope to move consideration of sustainability from the conceptual to the quantitative.

Orders to: Bureau of Rural Resources, Dept. of Primary Industries and Energy, P.O.Box E11, Queen Victoria Terrace, Parkes, ACT 2600, Australia.

Desertified Grasslands. Their Biology and Management. Linnean Society Symposium Series No.13. G.P. Chapman, editor. Academic Press, London, New York, 1992, xiii + 360 p. ISBN 0-12-168570-5. Hardcover.

Arid and semi-arid grasslands cover an enormous area of the globe and are home to many of the world's poorest people. Massive population increase within these fragile environments augurs human misery amid ecological collapse on an awesome scale.

Grasses lie at the heart of these dry ecosystems. They stabilize otherwise mobile soil, provide fodder for animals and are the source of all cereals. An awareness of the rich diversity of grass species and their ecology is essential for enlightened management of such environments - how else can there be informed social and political choice to help avert catastrophe?

This book is a response to the problems of arid and semi-arid grasslands. It examines the rich resources of grasses available and our present understanding of desertification. It presents contrasted examples of management from areas as diverse as Australia, the Gobi desert, the Sahel and South Africa and it explores how, for example, alternative mechanisms of photosynthesis, their ability to cope with salty soils and their genetic versatility aid grasses in adaptation to such environments.

Price: £ 47.50, US\$ 99.50

Orders to: Academic Press, 24-28 Oval Road, London NW1 1YA, U.K. or: Academic Press, Inc., San Diego, CA 92101, U.S.A.

Soil Management for Sustainable Rice Production in the Tropics. S. Panichapong and H. Wada, editors. IBSRAM Monograph No.2. International Board for Soil Research and Management, Bangkok, 1991, 436 p. ISBN 974-7087-07-3. Paperback.

This volume is a selection of twenty-two edited papers from the First International Symposium on Paddy Soil Fertility (Chiang-Mai, Thailand, December 1988). Although there is only a limited selection of the papers presented at the symposium, this volume nevertheless covers the major themes of the meeting in a representative manner. There are sections on rice and soils, sustaining chemical soil fertility, biological inputs, fertilizers, and the management of physical soil properties.

This volume gives a representative picture of the state of the art of this important topic, and in this condensed and more "polished" version of the preliminary proceedings, it should retain substantial interest for soil scientists and other researchers in related fields for some time to come.

Price: US\$ 25

Orders to: IBSRAM, P.O.Box 9-109, Bangkok, Bangkok 10900, Thailand.

Thermodynamics of the Adsorption of Organic Cations on Kaolinite. Temperature Dependence and Calorimetry. T. Mehrian Isfahany. PhD Thesis, Wageningen Agricultural University, 1992, iv + 199 p. Paperback.

This study is aimed at understanding the interactions involved in the adsorption of cationic surfactants on heterogeneous surfaces. The relevance of the study derives from the environmental aspects of the adsorption of small organic molecules onto soil constituents. This thesis emphasizes the experimental aspects.

In order to achieve a better understanding of the driving forces involved in the adsorption process, classical equilibrium thermodynamics is used to estimate the energetic and entropic parameters of the system. The main experimental systems were a homo-ionic kaolinite in an aqueous electrolyte solution which contained a cationic surfactant with a dodecyl tail and either a pyridinium chloride (DPC), or a trimethylammonium bromide head group (DTAB).

Orders to: Dr. T. Mehrian Isfahany, Tarthorst 739, 6708 JA Wageningen, the Netherlands.

Suffering under God's Environment: a vertical study of the predicament of peasants in northcentral Ethiopia. M. Wolde-Mariam. African Mountains Association and Geographica Bernensia, Berne, 1991, xii + 220 p. + 1 map. ISBN 3-906290-65-4. Hardcover.

This book is based on six years of intensive research on the general theme of peasant's perceptions of their environment. Between 1986 and 1988, the author, together with a large number of field research assistants, made a survey of 1425 households in 285 sample villages in the rural areas of northern Shewa and southern Wello. The wide distribution of these villages made it possible to analyze the results according to altitudinal and agroecological positions.

Following the hypothesis that development in the rural Ethiopian context has been a meandering downhill movement, the author draws comprehensive and concrete conclusions, which are relevant to national and regional development in Ethiopia at all levels and to international development cooperation in particular.

Orders to: Geographica Bernensia, Institute of Geography, University of Berne, Hallerstrasse 12, 3012 Berne, Switzerland.

African Mountains and Highlands: Problems and Perspectives. B. Messerli and H. Hurni, editors. African Mountains Association, 1990, xi + 450 p. ISBN 3-906290-62-X. Hardcover.

This book presents the contributions and results of the first AMA (African Mountains Association) workshop. Papers which give an overview stress the importance of mountains in Africa as centres of cultural history and concentrations of peoples, and hence as ecosystems where there is a high risk and degree of degradation of natural resources. Case studies and country reports deal with questions of climate, soil, and water. Vegetation and wildlife are threatened by human activities in mountains, especially agriculture and livestock raising. This results in serious socioeconomic and land-use issues described in a separate part of the book. Impressions of visitors to Ethiopia and the workshop resolutions, which appear in the final section, call for greater effort and concerted action to turn African mountains into stable and sustainable ecosystems which provide basic needs and a decent life for their inhabitants.

Orders to: AMA, c/o Group for Development and Environment, Institute of Geography, University of Berne, Quartiergasse 16, 3013 Berne, Switzerland.

The Soil Stack. An interactive, introductory guide to the science, technology, degradation, management and care of the soil. A.B. McBratney, S.R. Cattle, J.B. Stewart, P.E. Tolmie, J.G. Walsh, D.B. Yates, S.R. Young and K.L. Elton. The University of Sydney, 1991, 40 p. + 4 disks. ISBN 0-86758-573-0. Flexicover.

This is an educational software tool, running on Macintosh computers, that provides teaching and learning material dealing primarily with the nature of our soil and the processes by which it has become degraded. It emphasizes the fact the soil is a resource vital to the well-being of the nation as a whole. The modular nature of this software allows teachers to either focus on those subjects most relevant to their curriculum, or to cover the full range of soil subjects. Being comprehensive, it is also suitable as a staff training tool for government departments or private companies that require its employees to have a good background knowledge of soil science.

Primarily, it addresses the five main types of soil degradation in Australia: acidification, contamination, erosion, salinization and structural decline. The separate sections cover such issues as the distribution of the degradation, the causes, the resulting problems, and the prevention and ameliora-

tion of this degradation.

Price: Aust.\$ 55

Orders to: The Soil Stack, Soil Science, School of Crop Sciences, University of Sydney NSW 2006, Australia.

Auswirkungen Luftbürtiger Stickstoffeinträge in Waldökosysteme. Special issue *Agrokémia és Talajtan* (Agrochemie und Bodenkunde). 41 (1992) No.1-2, Budapest, 1992, 175 p. Paperback.

Der Wald ist für unsere Umwelt und für den menschlichen Lebensbereich ein bestimmendes und formendes Element. Er ist ein sensibles System, das bereits in vielen Fällen solche Umweltveränderungen anzeigt, die mit Hilfe der Wissenschaft noch nicht eindeutig nachweisbar sind.

Die zunehmende Verschlechterung des Gesundheitszustandes der Waldökosysteme steht mit der ständig wachsenden Luftverunreinigung unter bestimmten Umständen in Zusammenhang. Die Wissenschaftler beschäftigen sich weltweit sehr intensiv mit den Fragen des Waldsterbens und der Luftverunreinigung. Es laufen international abgestimmte Untersuchungen, so z.R. führen die Hessische und die Ungarische Forstliche Versuchsanstalt bereits seit fast 3 Jahren diesbezügliche Messungen durch. Die am 21-22 August 1991 in Budafa mit Unterstützung des Forst- und Holzwirtschaftsbetriebes des Kom. Zala organisierte Workshop "Auswirkungen Luftbürtiger Stickstoffeinträge in Waldökosysteme" diente zur Darlegung der bisher erzielten Ergebnisse.

Diese Veröffentlichung enthält die Berichten dieser Tagung. Bestellungen an: Schriftleitung *Agrokémia és Talajtan*, Herman Ottó út.15, H-1022 Budapest II, Hungary.

Bestimmung des Bodenerodierbarkeitsfaktors für winderosionsgefährdete Böden Norddeutschlands. W. Neemann. *Geologisches Jahrbuch*, Reihe F, Heft 25. Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, 1991, 131 p. ISSN 0341-6445. Paperback.

Zur Quantifizierung der Bodenverluste durch Winderosion wurden sowohl Windkanal- als auch Feldversuche durchgeführt. Während die Windkanalversuche zur Parameterisierung der Bodenerodierbarkeit eingesetzt wurden, dienten die Feldmessungen der Quantifizierung von Boden- und Nährstoffverlusten und der Überprüfung der im Windkanal gewonnenen Erkenntnisse.

Die Boden- und Nährstoffverluste durch Wind können die von der Bodenerosion durch Wasser her bekannten Größenordnungen erreichen. So wurden Bodenabträge bis 170 t/ha durch ein zweitägiges Erosionsereignis quantifiziert. Die Auswirkungen auf den Umwelt- und Wirtschaftsfaktor Boden werden diskutiert.

Bodenabträge im Feld und K-Faktoren aus Windkanalversuchen sind relativ vergleichbar, und erste Verknüpfungen deuten sogar eine annähernd lineare Beziehung an. Die regionale Verteilung von K-Faktoren in Norddeutschland wird dargestellt und geowissenschaftlich gedeutet.

Bestellungen an: Siehe unten.

Die Bedeutung der räumlichen Variabilität bodenkundlicher Basisdaten für aktuelle und zukünftige Kartiertechniken. V. Hennings. *Geologisches Jahrbuch*, Reihe F, Heft 28. Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, 1991, 143 p. ISSN 0341-6445. Paperback.

Die vorliegende Arbeit hat zum Ziel, den Einfluß der räumlichen Variabilität bodenkundlicher Basisdaten auf die Güte der vom Niedersächsischen Landesamt für Bodenforschung herausgegebenen bodenkundlichen Kartenwerke quantitativ zu bewerten.

Zukünftig zum Einsatz gelangende Verfahren versuchen, digital verfügbare Informationen für die Herstellung von Bodenkarten optimal zu nutzen. Im Vergleich mit anderen Informationsebenen (Geologie, Relief, historische Nutzung) entfällt der bei weitem größte Anteil bodenkundlichen Interpretationspotentials auf die Daten der Bodenschätzung, da eine additive Einbeziehung der übrigen Daten in ein räumliches Vorhersagemodell die Quote richtiger Prognose des Haupttyps kaum noch zu steigern vermag. Allein nach regelbasiertem Wissen ohne Kontrollbohrungen im Gelände ist noch mit einem Restfehler von ca. 30-40% zu rechnen.

Bestellungen an: E. Schweizerbart'sche Verlagsbuchhandlung, Johannesstrasse 3 A, W-7000 Stuttgart 1, Germany.

Developing Environmental Sustainability. Special Issue of *Development*, 1992:2. M. Williams, editor-in-chief. Society for International Development, Rome, 1992, 11 p. ISSN 1011-6370. Paperback.

This issue, produced for distribution at UNCED Earth Summit and Global Forum and as a resource for SID members in the follow up to the Rio meeting, deepens the many issues raised over the last

years in SID's publications and activities on environment and development. The various articles look at the pluralistic vision needed if we are to find the strategies for environmental sustainability which correspond to different global realities. The introduction presents a discussion of the key themes at UNCED. Section one looks at the changes necessary in future decision making processes; section 2 sets out some of the current challenges to the mainstream development paradigm; and section 3 looks at the successful actions undertaken by the "ordinary people" of both the North and the South towards saving human and natural resources. SID Global Round-up and SID Debates Sustainability and Development both continue the environmental theme with discussions of SID members' activities and expert opinions of the "heresies" of development. The journal issue also features a "green" book review section with the latest literature on environmental sustainable development.

Orders to: Society for International Development, Palazzo Civiltà del Lavoro - EUR, Rome 00144, Italy.

Agriculture and Natural Resources. Planning for Educational Priorities for the 21st Century. Social Behavior and Natural Resources Series. W.G. Haney and D.R. Field, editors. Westview Press, Boulder, Oxford, 1991, xiii + 179 p. ISBN 0-8133-8345-5. Paperback.

In a finite, interdependent, and rapidly changing world, the maintenance of strong food, fiber, and forest production systems along with the protection and wise use of our natural resources is imperative. However, agriculture and natural resource programs have entered a time of uncertainty. Whereas American agricultural and forestry production were once unchallenged in the North American marketplace, they are now integrated into a world market. Agriculture, forestry, wildlife, fisheries, and recreation management—formerly examined as independent activities—are now combined in an interdependent resource system and policy formulation process. This book identifies issues and trends in agriculture, natural resources, and rural communities along with implications for our educational system as future academic and research programs are planned.

Price: £ 19

Orders to: Westview Press, Inc., 5500 Central Avenue, Boulder, CO 80301, U.S.A.; or: Westview Press, 36 Lonsdale Road, Summertown, Oxford OX2 7EW, England

Soil Variability as an Indicator of Erosion in Sloping Landscapes. M.E. Armanto. Schriftenreihe Nr.18. Institut für Pflanzenernährung und Bodenkunde, Universität Kiel, 1992, vi + 201 p. ISSN 0933-680X.

This book includes comparative investigations in Easter Holstein and South Sumatra. Investigations of soil variability as an indicator of soil erosion on sloping landscapes were carried out in Kuehnen (Germany) and in Gunung Madu (Lampung, Indonesia). A general aim of this research is to develop and test indices of erosion applied to landscapes based on field surveys, laboratory analyses and geostatistical evaluation of total soils. The indices of erosion are presented as follows: 1) Decalcification depths and colluvium thickness, 2) Krokos (concretion) depths, 3) Particle-size distributions, 4) Total and available P, and 5) Soil taxa. These indices have proved to be fair to good indicators of the erosional status in the landscapes. Remote sensing images help to characterize the boundaries of soil variability.

Orders to: Institut für Pflanzenernährung und Bodenkunde, Christian-Albrechts-Universität Kiel, Olshausenstrasse 40, W-2300 Kiel, Germany.

World Inventory of Soil Emission Potentials (WISE). N.H. Batjes and E.M. Bridges, editors. Netherlands National Research Programme on Global Air Pollution and Climate Change and International Soil Reference and Information Centre, 1992, iv + 122p. ISBN 90-6672-049-2. Paperback.

These proceedings contain the papers of an international workshop held at Wageningen, the Netherlands, under the auspices of the project called 'World Inventory of Soil Emission Potentials' (WISE). The function of the workshop was to provide an opportunity for the input of advice from acknowledged international experts into the research programme, and to refine the approach to be adopted in subsequent investigations. The synopsis of these activities is presented in the first part which is devoted to an executive summary of the workshop.

The second part is devoted to papers presented by invited speakers who were asked to report on their recent research activities as part of the workshop proceedings. These communications include a consideration of the broad consequences of climate change for soils, sediments and groundwaters, and an assessment of the importance of the spatial and temporal variation of soil temperature and heat flux. A sequence of experiments upon methane emissions from the soils of rice paddies in Ja-

pan and Thailand is reported and this is complemented by studies from the Philippines. Problems of the global assessment of nitrous oxide emissions from soils and those of global carbon cycling are addressed.

Price: NLG 50, £ 15, US\$ 30.

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

Special Papers on Quality of Land Restoration. Land Degradation and Rehabilitation, Volume 3, No.3. John Wiley & Sons, Chichester, October 1992, 41p. ISSN 0898-5812. Paperback.

This section of the volume contains 5 papers, dealing with the following themes: Quality of land restoration, Land reclamation in Wales, Re-establishing life in restored topsoils, Degradation of 'reclaimed' lands previously disturbed by coal mining in Wales, and Geographical information system techniques in land use assessment within landscape types in eastern Poland.

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.

Journal of Sustainable Agriculture. Volume 2, No.3. R.P. Poincelot, editor. The Haworth Press, London, Binghamton, 1992, 161 p. ISSN 1044-0046. Paperback.

This special issue gives a complete coverage of the proceedings "Integrating Sustainable Agriculture, Ecology and Environmental Policy", which are the result of a workshop held in Arlington, Virginia, in July 1991. Issues addressed at the workshop centered around the application of ecological knowledge for the development of a sustainable agriculture within the constraints imposed by socioeconomic and political realities.

Orders to: The Haworth Press Inc., 10 Alice Street, Binghamton, NY 13904-1580, U.S.A. or: Eurospan/Haworth, 3 Henrietta Street, Covent Garden, London WC2E 8LU, U.K.

Soil Classification. A Taxonomic System for South Africa. Soil Classification Working Group. Department of Agricultural Development, 1991, xv + 257 p. Hard cover.

This is the second edition of the Soil Classification System, first published in 1977. The entire classification system was reviewed with the aim of making whatever changes were needed to reflect the current state of knowledge. The basic structure and underlying principles of the first edition have, with one exception, largely been retained in the second. The changes reflect an improved understanding of the soils of South Africa and of the differences which need to be reflected by soil classes. The exception involves a change in principle: to include in the classification only those classes which, on the whole, satisfactorily accommodate similar, naturally occurring, more or less uniform soil bodies, and to exclude arbitrarily chosen classes which continually cause uniform soil bodies to be split artificially by class boundaries. The system recognizes nearly 60 soil forms at the highest level, each subdivided into 2-16 soil families.

Price: ZAR 40 (plus ZAR 6 for surface postage).

Orders to: The Director, Institute for Soil Climate and Water, Private Bag X79, 0001 Pretoria, Republic of South Africa.

Economic Models of Agricultural Land Conservation and Environmental Improvement. E.O. Heady and G.F. Vocke, editors. Iowa State University Press, Ames, 1992, xii + 275 p. ISBN 0-8138-0523-6. Hardback.

The authors present both mathematical programming and econometric models, with results that apply to such specific resource problems as: Interregional assessment of soil conservancy programs for agriculture; Adequacy of land and water resources for U.S. agriculture under environmental improvement programs; Evaluation for U.S. agriculture of sediment-control programs for the nation's waterways; Appraisal of the long-term productivity of the U.S. agricultural land base; Incorporation of demand response in environmental models of U.S. agriculture.

The authors do not concentrate on one approach or favour it over another. Their emphasis is on the use of types of models that are most appropriate for particular purposes. The models and their development are explained, and the results of different policies and alternatives analyzed with them are discussed. For most of the problems analyzed in the book, the question posed is: "What might be the potentials, possibilities, restraints, and conditions if we try programs in the future that have not been tried in the past?"

Price: US\$ 44.95

Orders to: Iowa State University Press, 2121 S. State Avenue, Ames, Iowa 50010, U.S.A.

XIII Congreso Argentino de la Ciencia del Suelo. Asociación Argentina de la Ciencia del Suelo, Buenos Aires, 1992, 252 p. Paperback.

Las actas del congreso comprenden 5 partes: 1) Física de Suelos, 2) Microbiología y Bioquímica de Suelos, 3) Química, Físico-química y Fertilidad de Suelos, 4) Manejo y Conservación de Suelos y Aguas, Riego y Drenaje, y 5) Génesis, Clasificación, Cartografía y Mineralogía de Suelos.

Orden a: Asociación Argentina de la Ciencia del Suelo, J.R. de Velasco 847, 1414 Buenos Aires, Argentina.

Soil Geomorphology. An Integration of Pedology and Geomorphology. J. Gerrard. Chapman & Hall, London, New York, 1992, xi + 269 p. ISBN 0-412-44180-2. Paperback.

Soil formation is related to the nature of landforms on which that formation takes place. The nature of the soil affects some of the processes shaping the landforms and which cause landscape change. An accurate assessment of the evolution of landforms, and of the patterns of soil formation, is possible only if the interdependence of soils and landforms is recognized. This book provides an integration of geomorphology and pedology to fully assess this relationship.

After an opening chapter outlining the approach adopted, specific chapters examine the relationship between soil formation and specific suites of landform assemblages. The highly influential catena concept is followed by an analysis of soils within drainage holes, on erosion surfaces, flood plains, river terraces, coastal plains, glacial and fluvio-glacial landforms, deserts, and periglacial landforms. The concluding chapter addresses the way in which soils can be used to assess major phases in landscape evolution.

Orders to: Chapman & Hall, 2-6 Boundary Row, London SE1 8HN, England; or: Chapman & Hall, 29 West 35th Street, New York, NY 10001-2291, U.S.A.

Management of Nutrient Interactions in Agriculture. H.L.S. Tandon, editor. Fertiliser Development and Consultation Organisation, New Delhi, 1992, vi + 142 p. ISBN 81-85116-22-9 (Hardcover) 81-85116-23-7 (Softcover).

Interaction between two or more nutrients can be positive, negative, or even absent. An understanding of the nature of different interactions, factors which affect them and ways and means of managing these for useful purposes is vital for developing, advocating and practising balanced and efficient crop nutrition. This book is divided into eight chapters. Two chapters are devoted exclusively to two interactions, between nitrogen and phosphorus and between nitrogen and potassium. The book is intended to cover all plant nutrients, whether called major/macro or minor/micro/trace elements. It also covers a wide range of soils, crops and nutrient carriers.

Price: Hardcover: in India Rs 200, outside US\$ 50. Softcover: in India Rs.150, outside US\$ 40.

Orders to: see below.

Fertiliser Guide. H.L.S. Tandon. Fertiliser Development and Consultation Organisation, New Delhi, 1992, ii + 156 p. ISBN 81-85116-24-5. Softcover.

Fertiliser application is one of the most widely-accepted practices for increasing crop yields and farm profits. Fertiliser being a popular but costly input, information on its correct use is always sought and needed. Extension workers, farm advisory staff, field officers of the industry, trainers, dealers, mass media and community leaders are important sources of information on improved fertiliser practices for millions of farmers.

Because many aspects of fertiliser use are area and site-specific, the author has tried to cover those aspects which are widely-applicable and which deal with the basic knowledge for successful fertiliser use. The emphasis is on explaining common experiences with scientific reasons and to deal with why, how and when in addition to what. The numerous fertiliser recommendations for different crops, soils and states have not been reproduced here. A self-test has been specially designed and given at the end of the book to allow the reader to test the level of their knowledge.

Price: In India: Rs 120, outside US\$ 30.

Orders to: see below.

Non-traditional Sectors for Fertiliser Use. H.L.S. Tandon, editor. Fertiliser Development and Consultation Organisation, New Delhi, 1992, viii + 144 p. ISBN 81-85116-18-0 (Hard cover) 81-85116-19-9 (Softcover).

There is more to agriculture than rice and wheat. It is time to examine other non-traditional sectors where crops, animals or other agro-industrial commodities can benefit from nutrient applicati-

on. All such sectors are of considerable agro-economic value and all those who are engaged in agricultural development in its broadest sense will do well to seriously evaluate the role which fertiliser can play. Without going into the question of what does or does not make a sector non-traditional, this book takes stock of the available information, potentials, constraints and areas requiring future attention for fertiliser use in the following sectors: Fish ponds; Rainfed/dryland areas; Fortification of organic manures and composts; Agroforestry; Forest plantations; Forage and pasture production; Medicinal and aromatic plants; Sericulture; Fortification of animal feeds.

Price: Hardcover: in India Rs 220, outside US\$ 50. Softcover: in India Rs.160, outside US\$ 45.

Orders to: Fertiliser Development and Consultation Organisation, attn. Dr. H.L.S. Tandon, 204-204A Bhanot Corner, 1-2 Pamposh Enclave, New Delhi - 110 048, India.

The Biodiversity of Microorganisms and Invertebrates: Its Role in Sustainable Agriculture. CA-SAFA Report Series No. 4. D.L. Hawksworth, editor. CAB International, Wallingford, 1991, xxi + 302 p. ISBN 0-85198-722-2. Hardcover.

It is only recently that the implications of declining biodiversity for sustainable agricultural production and environmental protection have been recognized. However, while justifiable concern is expressed at the need to conserve and prevent from extinction the larger flora and fauna of the world, the importance of microorganisms and invertebrates in the stable functioning of ecosystems has attracted less overt attention. Nevertheless, this subject is now recognized as of major significance for a number of issues, such as maintenance of soil fertility and provision of natural enemies for the biological control of pests and pathogens.

This book addresses a number of these key issues and is based on the workshop on the Ecological Foundations of Sustainable Agriculture held in London in July 1990. The four main subjects areas covered are: the importance of invertebrates and microorganisms as components of biodiversity; the importance of biodiversity in sustaining soil productivity; the importance of biodiversity to pest occurrence and management; and biotechnology and biodiversity among invertebrates and microorganisms.

Price including postage: £ 40 (US\$76 Americas only)

Orders to: see below.

Nitrogen Fixation in Tropical Cropping Systems. K.E. Giller and K.J. Wilson. CAB International, Wallingford, 1991, xii + 313 p. ISBN 0-85198-671-4. Hard cover.

Soil fertility is an overriding constraint to food production in the tropics, yet in many less developed countries fertilizers are unavailable or beyond the reach of subsistence farmers. The biological fixation of atmospheric nitrogen is the only way that plants can manufacture their own nitrogenous fertilizer and is the main input of nitrogen in many tropical cropping systems. This book provides a comprehensive review of the main nitrogen-fixing grain crops, fodder plants and trees in the tropics and shows how the inputs of nitrogen can be most efficiently utilized for sustainable agricultural production. It will therefore interest a wide range of students, research workers and professionals in tropical soil science and agronomy, as well as those concerned specifically with nitrogen fixation.

Price including postage: £ 30 (US\$57 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.

Agricultural Zoology Reviews. Series Editor: Dr. Ken Evans

This annual review series draws together information about agriculturally important animals, both beneficial and injurious —information which is at present scattered throughout many primary research journals. Each volume contains 9 or 10 up-to-date review articles written by internationally acknowledged experts. These volumes will be particularly useful to agricultural zoologists and applied biologists worldwide, and to academic staff and students, who are concerned with biology and environmental science, at both undergraduate and post-graduate levels.

Volume 5 was published in 1992, volume 6 will be issued in September 1993.

Orders to: Intercept Ltd., P.O.Box 716, Andover, Hants, SP10 6YG, England.

CROPWAT. A Computer Program for Irrigation Planning and Management. FAO Irrigation and Drainage Paper 46. Developed by M. Smith. FAO, Rome, 1992, viii + 126 p. + 1 diskette. ISBN 92-5-103106-1. Paperback.

CROPWAT is a computer program to calculate crop water requirements and irrigation require-

ments from climatic and crop data. Furthermore, the program allows the development of irrigation schedules for different management conditions and the calculation of scheme water supply for varying cropping patterns. The program will run on any IBM compatible computer with a minimum of 360 Kb.

The program is meant as a practical tool to help both the irrigation engineer and irrigation agronomist to carry out standard calculations for design and management of irrigation schemes. It will further help in the development of recommendations for improved irrigation practices and the planning of irrigation schedules under varying water supply conditions.

Orders to: see below.

CLIMWAT for CROPWAT. FAO, Rome, 1991, 93 p. + 5 diskettes. Paperback.

CLIMWAT is a data base of climatic data to be used in combination with the computer program CROPWAT. Data from a total of 3262 meteorological stations are available from 144 countries divided into six major regions.

The climatological data included are maximum and minimum temperature, mean daily relative humidity, sunshine hours, windspeed, precipitation and calculated values for reference evapotranspiration and effective rainfall. The data base is contained in five diskettes arranged according to continent and country and includes a number of auxiliary programs to facilitate the selection of suitable climatic stations from the concerned countries and to address properly the various directories in which the data are stored.

Orders to: FAO sales agents, or: Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Conservation Policies for Sustainable Hillslope Farming. S. Arsyad, I. Amien, T. Sheng and W. Moldenhauer, editors. Soil and Water Conservation Society, Ankeny, 1992, xi + 364 p. ISBN 0-935734-28-7. Hard cover.

Proper conservation policy and planning for cultivation of hillslopes is the focus of this book. As population pressures and food shortages force more and more marginal land, especially hillslope land, into cultivation, there is increasing pressure on governments to create a constructive agricultural development scheme. This book offers policymakers, scientists, and conservation technicians examples of conservation policymaking, analysis of legal and land tenure issues, and descriptions of institutional development that have been used in many countries around the world, particularly Indonesia.

This volume is the third book in a series on sustainable hillslope farming and is based on a 1991 conference held in Solo, Indonesia. It is meant for agricultural leaders in conservation research, extension, and policymaking and for others involved with the development of hillslope land for agricultural purposes.

Price: US\$ 30

Orders to: Soil and Water Conservation Society, 7515 Northeast Ankeny Road, Ankeny, Iowa 50021-9764, U.S.A.

Fens and Bogs in the Netherlands: Vegetation, History, Nutrient Dynamics and Conservation. Geobotany No.18. J.T.A. Verhoeven, editor. Kluwer Academic Publishers, Dordrecht, Boston, 1992, vii + 490 p. ISBN 0-7923-1387-9. Hardbound.

Although the Dutch people are well-known worldwide because of their history of large-scale reclamations of peatlands, information on the vegetation of the remnants of the Dutch peat mires, on their ecology, geologic history, functioning and conservation is largely lacking or rather scattered in the international literature.

This volume focuses on the geology, land use history, palaeoecology, ecology and conservation of peatlands (fens and bogs) in the Netherlands. This well-illustrated volume provides detailed accounts that, together, give a representative picture of the studies that have been carried out in the Dutch mires over the past 25 years. It will not only be useful for Dutch scientists, but also for other persons interested in peatlands.

Price: Dfl 390; US\$ 239; UK£ 135.50

Orders to: see below.

Physiology of the Plant Root System. Developments in Plant and Soil Sciences 46. J. Kolek and V. Kozinka, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1992, xii + 361 p. ISBN 0-7923-

1205-8. Hardbound.

The interest of plant physiologists in the root structure and function, as compared with above-ground organs, was until recently rather limited. Irrespective of the amount of data obtained in agricultural research, where the root is understood as an organ of water and nutrient uptake, studies on the roots have become extraordinarily intensive in recent years. Undoubtedly, the change in evaluation of the root function has been the result of the general knowledge about the transport of substances across biological cell membranes. This led to an increased interest in studies on ion uptake and transport from a novel point of view. In parallel, the complexity of the histological structure of the root made it necessary to study this structure in relation to processes taking place in the root. The complex evaluation of these relationships is concentrated in the present book on recent findings concerning the anatomical structure of the root in relation to its functional manifestations. Based on this principle, i.e. structure and function, the metabolic processes in the root, as well as the uptake and transport of water and ions are dealt with, the emphasis being on structural features. Finally, a short chapter has been included about the root under conditions of environmental stress.

Price: Dfl 210; US\$ 123; UK£ 72

Orders to: see below.

Tropical Forests and Climate. N. Myers, editor. Kluwer Academic Publishers, Dordrecht, Boston, 1992. vi + 265 p. ISBN 0-7923-1688-6. Hardbound.

Tropical forests affect climate, and the removal of the forests will change climate. Or not? This book discusses basic questions on how far, if at all, tropical deforestation leads to climatic change. The question of this uncertainty is particularly addressed. One important consequence of the uncertainties of whether deforestation affects climate is how scientific findings best illuminate the policy-making process.

Price: Dfl 190; US\$ 114; UK£ 66

Orders to: see below.

Quercus ilex L. ecosystems: function, dynamics and management. F. Romane and J. Terradas, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1992. viii + 377 p. ISBN 0-7923-1764-5. Hardbound.

Holm oak (*Quercus ilex* L.) forests and woodlands have been considered as a paradigm for Mediterranean terrestrial ecosystems. In the western part of the Mediterranean Basin, these forests and woodlands occupy large areas and thus play a very important role in the landscape. A number of research projects are currently focusing on *Q. ilex* ecosystems, and a number of problems have appeared concerning not only basic knowledge but also management aspects. For this reason, the workshop on *Quercus ilex* L. ecosystems was organized in Montpellier and Barcelona in September 1990. The present volume consists of a selection of papers presented during the workshop and other papers contributed after the workshop. The papers are divided into five sections. Biogeography and History; Structure, Productivity and Dynamics; Water relationships; Nutrient cycling; and Management.

Price: Dfl 450; US\$ 265; UK£ 155

Orders to: see below.

Biological Nitrogen Fixation for Sustainable Agriculture. Developments in Plant and Soil Science 49. J.K. Ladha, T. George and B.B. Bohlool, editors. Kluwer Academic Publishers, Dordrecht, Boston, in cooperation with the International Rice Research Institute, Los Baños, 1992. xi + 209 p. ISBN 0-7923-1774-2. Hard cover. (Reprint from *Plant and Soil*, Vol. 141 (1992)).

This book is an outcome of the symposium "Role of the Biological Nitrogen Fixation in Sustainable Agriculture", jointly organized by the International Society of Soil Science and the International Rice Research Institute at the 13th International Congress of Soil Science, Kyoto, Japan, 1990.

Papers on Biological N fixation (BNF) in major crops and cropping systems were augmented by discussions of integrated cropping systems involving BNF, soil and N management, recycling of crop residues, and multipurpose legumes. Recent work on promising BNF systems and their potential for exploitation were discussed. This volume brings together extended versions of all technical papers presented, and a perspective paper on BNF for sustainable agriculture.

Price: NLG 170

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.

Mapping Agrotopoclimates. ITC Publication No. 14. M. de Zuviría. Doctoral Thesis, University of Amsterdam, 1992, xvi + 183 p. ISBN 90-6164-077-6. Paperback.

In this study, a method is developed for mapping agrotopoclimates in areas of complex relief, by integrating land ecological, topographic and meteorological data in a geographic information system (GIS). This method is applied in producing an agrotopoclimatic map of the Lom Sak area, in north central Thailand.

Price: NGL 60

Orders to: ITC, P.O.Box 6, 7500 AA Enschede, the Netherlands

The Fungal Community: Its Organization and Role in the Ecosystem. 2nd Edition. G.C. Carroll and D.T. Wicklow, editors. Marcel Dekker, New York, Basel, 1992, xxiv + 976 p. ISBN 0-8247-8605-X. Hardbound.

Entirely rewritten and updated throughout, this second edition maintains and enhances the features of the first edition. It continues to cover the entire spectrum of fungal ecology, from studies of individual fungal populations to the functional role of fungi at the ecosystem level, and to present mycological ecology as a rational, organized body of knowledge. Acting as a bridge between mycological data and ecological theory, this book offers such new features as an emphasis on the nonequilibrium perspective, including the impact of habitat disturbance and environmental stress; more information on the ecological genetics of fungal populations; a chapter on the fitness of genetically altered fungi when released into the environment; an examination of fungal morphological and physiological adaptations from the evolutionary ecologist's point of view; an explication of the effect of fungi and insect interactions on fungal community structure and decomposition processes; a section on the importance of fungi in determining patterns of plant community development; a chapter on modeling fungal contributions to decomposition and nutrient cycling in ecosystems, etc.

Price: US\$ 225

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

Research on Integrated Farming Systems in the Netherlands. Issue 40/3 of the Netherlands Journal of Agricultural Science. Royal Netherlands Society for Agricultural Science. 1992, 130 p. ISSN 0028-2928.

Farming systems are complicated and a broad expertise is required to study them. Hence, farming systems research is still scarce compared to research on components such as cultivation, fertilization and protection of single crops. Moreover, most farming systems research is analytic and descriptive. As a result, the crucial question of sustainability of agriculture is mostly studied on current systems and answered in negative terms. Such research does not provide a base on which to build 'our common future'! Therefore, constructive research is needed, following a methodic way of defining, elaborating, testing and improving more sustainable farming systems. This special issue offers a survey of activities in the Netherlands on this new and complicated field of research.

Orders to: Netherlands Journal of Agricultural Science, P.O.Box 79, 6700 AB Wageningen, the Netherlands.

Sustainable Use of Groundwater: Problems and Threats in the European Communities. National Institute of Public Health and Environmental Protection, Bilthove, and Institute for Inland Water Management and Waste Water Treatment, Lelystad, 1991, 80 p. ISBN 90-6960-020-X. Paperback.

In the European Community, current practices lead to non-sustainable use of groundwater systems. The main problem areas are found in the agricultural and industrial core regions. The scale and complexity of the problems varies per region. The present publication addresses the most serious problems: (1) pollution from pesticides and nitrate; (2) pollution from industrial and urban areas; (3) overexploitation and intensified drainage leading to lowering of groundwater levels; and salt-water intrusion; and (4) point pollution from illegal or improper dumping of municipal, industrial mining and hazardous waste.

Provided that in the coming years proper measures are implemented the recovery time will vary from centuries for the first two problems to decades for the latter two. As a result the multifunctional use of the groundwater systems, now and in the future, and the diversity of groundwater-related ecosystems are in danger all over the EC.

Modern agriculture has turned into a source of groundwater pollution with large extent. In some member states the use of fertilizers, manure and pesticides has reached levels which cause leaching of nitrates and (persistent) pesticides towards the groundwater.

The role of the groundwater system is often underestimated, partially due to the fact that it is invisible. At the same time groundwater is of enormous importance as a source for public and industrial water supply; about 75% of the inhabitants of the EC depend on groundwater for their water supply. Besides that, both quality and quantity of the groundwater are of vital importance for the development of (agricultural) vegetation and the diversity of species in a large number of ecosystems. As a result a sustainable use of groundwater is a key-factor for the existence and development of nature and men.

Orders to: see below.

The Environment in Europe: a Global Perspective. Globe, and National Institute of Public Health and Environmental Protection, Bilthoven, 1992, 119 p. ISBN 90-6960-031-5. Soft cover.

The present and future state of the European environment is described in this book to provide support for the development of environmental policies. Given the typical lag times in the propagation of environmental impacts, policy decisions must be based not only on the present situation but also on available information on future implications of these policies. These are described in the book for two contrasting policy scenarios - one in which current trends in development and environmental policies continue and one in which full implementation of best available technologies and policy options in both Western and Eastern Europe is assumed.

Orders to: RIVM, P.O.Box 1, 3720 BA Bilthoven, the Netherlands.

The Environment in Europe and North-America. Annotated Statistics 1992. United Nations Statistical Commission and Economic Commission for Europe, 1992, xvii + 366 p. ISBN 92-1-116537-7. Soft cover.

This publication is divided in two parts. Part One is devoted to standard statistics, time series and indicators on several aspects of the environment. Part Two is a statistical monograph of a complex environmental issue. This time it deals with environmental impacts of agriculture and seeks to be a comprehensive description of the linkages between the actual environmental effects and the physical, social and economic characteristics of agricultural production.

Price: US\$ 54

Orders to: United Nations Publications, Palais des Nations, C.109, 1211 Geneva 10, Switzerland.

Conference on Environmentally Sound Socio-Economic Development in the Humid Tropics. Final Report. M. Clüsener-Godt, I. Sachs and J.I. Uitto. UNAMAZ, MAB/UNESCO, UNU, TWAS, 1992. Soft cover.

The Conference was the first follow-up to the United Nations Conference on Environment and Development aiming to transform into action the recommendations of the Agenda 21 adopted in Rio de Janeiro. It has 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: see below.

Geostatistical Methods: Recent Developments and Applications in Surface and Subsurface Hydrology. A. Bárdossy, editor. UNESCO, Paris, 1992, 161 p. Soft cover.

This volume contains 14 contributions presented at an International Workshop held in Karlsruhe in July 1990. Detailed, physically based hydrological models require data in high spatial resolution. Fundamental to this task is the interpolation and extrapolation of data obtained from networks of measurement stations. In this volume different geostatistical methods are presented to solve this problem. Problems of the estimation of soil, surface-water and groundwater parameters are discussed in detail. Kriging, Bayesian-kriging, co-kriging, space-time kriging examples are presented. Additionally the use of fuzzy data, simulation techniques and empirical orthogonal functions are also discussed.

Orders to: Les Presses de l'Unesco, UNESCO, 7 place de Fontenoy, 75700 Paris, France.

Confronting Climate Change: Risks, Implications and Responses. I.M. Mintzer, editor. Cambridge University Press, Cambridge, 1992, xiv + 382 p. ISBN 0-521-42109-8 (Paperback), 0-521-42091-1 (Hardback).

This volume is a guide to the risks, dilemmas and opportunities of the emerging political era in which the impacts of a prospective global warming could affect all regional, public and even individual decisions. It is a survey of the best available answers to three vital questions: (1) what do we know so far about the foreseeable dangers of climate change? (2) how reliable is our knowledge? (3) what are the most rewarding ways to respond?

This book reviews some of the most important impacts of global climate change - including effects on sea-level, food production, internationally shared fresh water resources and weather related disasters - and analyses the potential effects of rapid climate change on geopolitical relationships.

It is written to cross discipline boundaries, so that policy makers, economists, scientists, risk assessors, environmentalists and development advocates may understand each other's concerns. It shows how the international debate on managing the risks of rapid climate change may be re-shaped for the benefit of people in every nation on the planet.

Price: £ 19.95, US\$ 34.95 (PB); £ 50, US\$ 80 (HB)

Orders to: see below.

Monitoring Ecological Change. I.F. Spellerberg. Cambridge University Press, Cambridge, 1991, xvi + 334 p. ISBN 0-521-42407-0 (Paperback), 0-521-36662-3 (Hardback).

Living communities are continuously changing, as a result both of natural processes and the activities of man. It is essential for us to have effective biological and ecological monitoring programmes in order to detect these changes and understand the factors that influence them. This volume provides a practical and thought-provoking introduction to the subject, which will be of broad interest to students and professionals in the areas of ecology, environmental science, conservation and resource management.

In the first part of the book, the roles of local, national and international organizations which implement monitoring programmes are discussed and assessed. In the second part of the book, a wide range of examples are used to explain and evaluate methods of data collection, analysis and interpretation. The final part focuses on the important applications of biological monitoring, such as pollution control, land use management, monitoring rare species, and post- environmental impact assessment.

Price: £ 15.95, US\$ 29.95 (PB); £ 45, US\$ 79.95 (HB)

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.

Geographic Information Systems (GIS) and Mapping - Practices and Standards. STP 1126.

A.I. Johnson, C.B. Pettersson and J.L. Fulton, editors. American Society for Testing and Materials, Philadelphia, 1992, v + 346 p. ISBN 0-8031-1471-0. Hard cover.

This publication contains selected papers presented at the International Symposium on Mapping and Geographic Information Systems, held in June 1990 in San Francisco, together with discussions taking place during the sessions relevant to specific papers, as well as a panel discussion. The papers are arranged in chapters concerning standardization and applications. The applications chapters provide examples of basic technology, of soil investigations and geologic explorations, and of ground water and environmental studies. The subject of standardization is addressed in many of the papers. The organizations and user groups already setting some type of standards for computer hardware and operating environments in which the software will function, as well as GIS data exchange formats, are addressed among the introductory papers. Standardization topics and needs to be considered for discipline applications are recognized from the viewpoints of practicing scientists and engineers.

Price: £ 61

Orders to: ASTM European Office, 27/29 Knowl Piece, Wilbury Way, Hitchin, Herts, SG4 0SX, England; or: ASTM, 1916 Race Street, Philadelphia, PA 19103, U.S.A.

Integrated Natural Resource Management. AFTEN Working Paper No. 4. The World Bank, Washington, 1992, v + 242 p. Soft cover.

There is now a new generation of integrated projects which focus on environment and natural resource management. Many things have changed since the earlier rural development efforts: Afri-

can governments now accept and seek private sector involvement; improved operational mechanisms for local participation in projects help determine what kind of integration is needed; and there is a much better understanding of the importance of supportive economic policies, without which even the best designed rural development projects may falter. Still, most of these new projects seem to proceed without full benefit of the experiences gained from the earlier projects. It was this concern which prompted the workshop held in December 1991 in Botswana. This volume is the report of this workshop.

Orders to: see below.

The Plundering of Agriculture in Developing Countries. M. Schiff and A. Valdés. The World Bank, Washington, 1992, v + 36 p. ISBN 0-8213-2184-6. Soft cover.

The findings and policy implications presented in this booklet are based on a comparative study of agricultural pricing policies in developing countries, which examined agricultural pricing interventions in 18 developing countries during 1960-85. The results of the study have been published in a five-volume series, *The Political Economy of Agricultural Pricing Policy*. Volume 1 is on Asia, Vol.2 on Latin America, Vol. 3 on Africa and the Mediterranean, Vol. 4 and 5 are syntheses. This booklet draws mainly on the findings of volume 4 *A Synthesis of the Economics in Developing Countries*.

Price: US\$ 6.95

Orders to: see below.

Agricultural Research in Southern Africa. A Framework for Action. World Bank Discussion Paper 184. A. Spurling, T.Y. Pee, G. Mkamanga and C. Nkwanyana. The World Bank, Washington, 1992, xv + 61 p. ISBN 0-8213-2282-6. Soft cover.

Dynamic, productive and responsive agricultural research systems are critical if the rich potential of the SADCC region in Sub-Saharan Africa is to be more fully realized. The Framework for Action in Agricultural Research, which has been developed by a small task force appointed by the SACCAR and SPAAR secretariats, identifies six principal elements of importance and makes recommendations on how these should be incorporated in the national agricultural research systems of SADCC. The Framework concludes with a vision in the medium-term of increasingly dynamic and responsive NARSs with a clearer pattern of specialization among the different sectors (cash/export crops, intensive livestock and factor research by the private sector; staple foodcrops, extensive livestock and environmental and social concerns by the public sector; and basic and applied (under contract) research by the universities). Accelerated development of a stream of technologies for different sectors of the farming community should be possible provided that there is a coordinated effort by all the stakeholders.

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

Population, Environment, and Development. E. van Imhoff, E. Themmen and F. Willekens, editors. Swets & Zeitlinger, Amsterdam/Lisse, Berwyn, 1992, 89 p. ISBN 90-265-1305-4. Soft cover.

This book contains the contributions made at a Symposium held in Groningen, the Netherlands, in April 1992, as well as a summary of the forum discussion. The symposium must be viewed against the background of the UNCED conference in June 1992 in Rio de Janeiro. One of the aims in organizing this symposium was to formulate recommendations for the Netherlands delegation to UNCED, in particular recommendations with respect to population issues. The symposium consisted of two parts: (1) presentation of papers on various aspects of the population-environment-development interrelationships, and (2) forum discussion.

Orders to: Swets & Zeitlinger, P.O.Box 830, 2160 SZ Lisse, the Netherlands.

Agricultural History. Vol.66 No.2. Special symposium issue: *Agricultural History and the Environment*. D.E. Bowers and D. Helms, editors. Agricultural History Society, 1992, 394 p. ISSN 0002-1482. Paperback.

The increasing interest in the history of agriculture and the environment in recent years is an indication of how the field of agricultural history has broadened to encompass many disciplines. Because human alteration of the environment has often occurred over long periods of time, historical perspective provides an especially effective means of understanding the environmental impacts of agriculture. The articles in this volume take a historical perspective in exploring topics, but the authors come from a variety of fields: history, geography, soil science, economics, environmental plan-

ning, and archaeology. The chosen topics cannot cover all potential areas of inquiry, but collectively the articles illustrate the breadth and complexity of the subject.

Except some papers on i.e. Egypt, Brazil or Thailand, most of the papers concern North America.

Price: US\$ 14 for institutions, US\$ 8 for individuals.

Orders to: Agricultural Society, Periodicals Department, University of California Press, Berkeley, CA 94720, U.S.A.

Geohazards: Natural and man-made. G.J.H. McCall, D.J.C. Laming and S.C. Scott, editors. Chapman & Hall, London, New York, 1992, ix + 227 p. ISBN 0-412-43930-1. Soft cover.

This book, written by geoscientists with experience of the practical problems of disasters in developing countries, guides the reader through the practical problems of the assessment of geohazards, their prediction and the mitigation of their effects. Not only are the obvious disasters such as earthquakes, lahars (volcanic mudflows) and gas outbursts discussed, but also 'quiet hazards' such as soil degradation, rising groundwater and the reduction of biodiversity.

The papers arose from a meeting on geohazards in London in 1989. The contributors come from a wide range of countries and have considerable experience in the field.

Price: £ 19.95

Orders to: Routledge, Chapman & Hall Ltd., Cheriton House, North Way, Andover, Hampshire SP10 5BE, England.

Soil/Sediment Adsorption Constant Program. P.H. Howard and W.M. Meylan. Lewis Publishers, Boca Raton, 1992, 78 p. + diskettes. ISBN 0-87371-782-1.

This program uses the SMILES notation structural input to calculate the soil or sediment adsorption coefficient (Koc) from a correlation of the molecular connectivity indices and correction factors for certain chemical classes. This method was developed by the U.S. Environmental Protection Agency's (EPA) Office of Toxic Substances and is now available for use on any IBM or IBM-compatible computer with 240 Kb RAM. This user-friendly program provides reliable data that will benefit any environmental chemist or regulator, chemical companies, and analytical labs.

Price: US\$ 495 (plus \$10 for shipment outside U.S. and Canada)

Orders to: see below.

Trace Elements in Soils and Plants. 2nd edition. A. Kabata-Pendias and H. Pendias. CRC Press, Boca Raton, 1992, 365 p. ISBN 0-8493-6643-7.

This second edition of the book incorporates up-to-date reviews on 70 trace elements in rocks, soils and plants, and highlights the significance of anthropogenic factors in changing the trace element status in soils and plants. This volume differs from the first edition in a number of important respects. The chemical equilibria and speciation phenomena relevant to the mobility of elements are strongly emphasized, with the idea that an understanding of these principles will lead to a proper understanding of how chemical processes operate in both unpolluted and polluted conditions in the soil-plant system.

The authors discuss problems related to representative sampling of soils and plant materials. Emphasized is a high variability in trace-element concentrations in soils at macro- and micro-scales as well as a great chemical diversity between plant species, population, genotypes, etc. Although the assessment and evaluation of analytical data obtained from different references for soils and plants are almost impossible, each acceptable measurement builds up a database and contributes to a better understanding of trace-element distribution and behaviour in studied ecosystems and in the total environment.

The book provides a broad background on the subject and is based on the concise discussion on practical phenomena and on data presented in 168 tables and 90 figures. This new edition should be of value to students, experts and investigators in geochemistry, soil science, agronomy, biology, ecology and environmental sciences.

H. Sylwestrzak, Geological Survey of Poland, Warsaw.

Orders to: CRC Press, 2000 Corporate Blvd., N.W., Boca Raton, FL 33431, USA.

The Conservation Atlas of Tropical Forests. Africa. J.A. Sayer, C.S. Harcourt, and N.M. Collins, editors. IUCN, Cambridge, Gland, 1992, 288 p. ISBN 0-333-57757-4. Hardbound. The Conservation Atlas of Tropical Forests. Asia. N.M. Collins, J.A. Sayer, and T.C. Whitmore, editors. IUCN,

Cambridge, Gland, 1991, 256 p. ISBN 0-333-53992-3. Hardbound.

The text interprets the maps from a conservationist's standpoint and describes the local impact of deforestation in each country of the region. In addition chapters on major issues assess the effect of deforestation throughout the region on species' diversity, the peoples of the tropical forests, natural forest management and shifting cultivation. They also describe control and limitation of human impact and current attempts to provide sustainable forest development by looking in turn at the tropical timber trade, the protected areas system, government policies and the Tropical Forestry Action Plan.

The well-produced atlases are divided in two parts: Part I describes the issues: history of forests and climate; biological diversity; conservation of large mammals; forest peoples; links between population, environment and agriculture; the timber trade; forest management; protected area systems; and the future for tropical forests.

Part II is a country-by-country survey of the tropical forest. The forest maps have been compiled from satellite and radar imagery and aerial photography.

Orders to: MacMillan Publ. Company, 866 Third Avenue, New York, NY 10022, U.S.A. or: Macmillan Education Ltd., Houndmills, Basingstoke, Hants. RG21 2XS, England.

Environmental Chemistry. 5th edition. S.E. Manahan. Lewis Publishers, Chelsea, 1991, ix + 583 p. ISBN 0-87371-425-3. Hardbound.

Environmental chemistry is now a mature, viable discipline. It is an area that combines the application of chemical principles to the biggest challenge facing humankind today -the maintenance and enhancement of environmental quality. This book begins with an introduction to environmental chemistry. Then 7 chapters deal with aquatic chemistry, first addressing the basic principles of this topic and finishing with a coverage of water pollution and water treatment. The following 6 chapters cover atmospheric chemistry, concluding with a discussion of major threats to the global atmosphere, particularly from greenhouse gases and ozone-depleting chemicals. The next 5 chapters deal with the geosphere and hazardous substances, which often end up as discarded materials in the geosphere. Further on, one chapter covers the fundamental aspects of the geosphere and another one emphasizes soil chemistry. The nature and sources of hazardous wastes are discussed in one chapter, their environmental chemistry in the next one. A special chapter covers the effects of pollutants and hazardous substances on living organisms as presented from the view of toxicological chemistry. Resources and energy are reviewed in the last chapter.

Price: £ 36.50

Orders to: see below.

Interacting Processes in Soil Science. Advances in Soil Science. R.J. Wagenet, P. Baveye and B.A. Stewart, editors. Lewis Publishers, Boca Raton, London, 1992, 296 p. ISBN 0-87371-889- 5. Hardbound.

This is the first book to focus on coupled processes in soil. Topics covered in this volume include the effects of inorganic salts upon water flow, modeling of sorption, transport and transformation of organic solutes, and the effects of microorganisms on silicate clay minerals. The book presents studies and approaches that can be extended and complemented by innovative work in the future.

Price: US\$ 69.95

Orders to: see below.

Soil Crusting: Chemical and Physical Processes. Advances in Soil Science. M.E. Sumner and B.A. Stewart, editors. Lewis Publishers, Boca Raton, London, 1992, 372 p. ISBN 0-87371-869- 0. Hardbound.

This book presents a detailed discussion on the chemical and physical processes involved in the formation of soil crusts, with special emphasis on clay dispersion in non-sodic soils. It explains the sequential relationship between clay dispersion, crust formation, runoff, and erosion to help formulate a clear picture on the component processes involved in soil loss. The extent of soil crusting is examined, and the relationships between soil crusting and erosion are explained, including the mechanisms and consequences of crust formation in the control of erosion. As a result, the book opens many avenues in the control of soil erosion. It also provides a review of the importance of soil crusting in North and South America, Africa, Australia, and the Middle East.

Price: US\$ 75

Orders to: Lewis Publishers/CRC Press, Inc., P.O.Box 519, Chelsea, MI 48118, USA; or: CRC Press, 22-24 Torrington Place, London, WC1E 7HJ, U.K.

Water Management of the Amazon Basin. B.P.F. Braga Jr., and C.A. Fernández-Jáuregui. Unesco, IWRA, ABRH and UNEP, 1991, 288 p. ISBN 92-9089-017-7. Paperback.

This book includes 21 papers presented at the International Seminar on Hydrology and Water Management of the Amazon Basin, held in Manaus, Brazil in August 1990.

Orders to: ORCYT, Casilla de Correo 859, 11000 Montevideo, Uruguay; or: Les Presses de l'Unesco, UNESCO, 7 place de Fontenoy, 75700 Paris, France.

Natural Resource Development and Utilization. Future research and technology management in soil-plant-animal-human systems. R. de Jong, T. Nolan and J. van Bruchem, editors. Wageningen Agricultural University, Agriculture and Food Development Authority, Ireland and the Commission of European Communities, 1992, viii + 168 p. Soft cover.

This volume is the Proceedings of the Commission of European Communities Coordination Workshop held in the Netherlands in June-July 1992. The workshop brought together scientists to (1) examine the present position and recommend necessary future research and other strategies for 'Natural Resource Development and Utilization' in semi-arid (sub)tropical areas and (2) to strengthen further institutional and scientific cooperation. This coordination workshop marks a changing approach based on a clearer recognition of the nature of the problems encountered. In addition to facilitating exchanges of different North-South geographic origin it focused on inter-disciplinary interaction between plant, rangeland management, forestry, socio-economic and animal production scientists.

The book contains a summary of conclusions and recommendations, the opening addresses, 4 keynote papers, 3 commentary notes on the keynote papers, 12 overview papers of projects, 7 invited papers, summaries of the plenary reporting and the literature exhibition.

Price: NLG 25

Orders to: Wageningen Agricultural University, Tropical Animal Production, P.O. Box 338, 6700 AH Wageningen, the Netherlands.

Applied Soil Physics. Soil Water and Temperature Applications. 2nd edition. R.J. Hanks. Springer-Verlag, Heidelberg, New York, 1992, x + 176 p. ISBN 3-540-97850-X (German edition) 0-387-97850-X (US edition). Hardbound.

The second edition of this textbook presents a practical approach to teaching basic concepts of soil water, soil temperature, water flow, and heat flow. The relationship of these concepts to the soil-plant-atmosphere continuum is emphasized. Soil water content and soil water potential are related to water flow, solar radiation, and evapotranspiration. Applications to plant growth, irrigation management, and salinity are emphasized. Numerous examples and problems are given to show students where basic concepts can be applied. This edition uses the SI system throughout and includes many new figures, examples, and problems. This book will be of interest to students and researchers in soil science, agroclimatology, agronomy, and crop physiology.

Price: DM 68

Orders to: Springer-Verlag, Postfach 105280, W-6900 Heidelberg 1, Germany; or: Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, U.S.A.

Soil Description Handbook. J.D.G. Milne, B. Clayden, P.L. Singleton, A.D. Wilson. DSIR Land Resources, Lower Hutt, New Zealand, 1991. 133 p. ISBN 0-477-02616-8. Clothbound.

This handbook was compiled to provide standardised methods and defined terminology for the description of soil profiles and their sites. It is designed to replace the system formerly used in New Zealand, by one using quantitative recording together with defined and coded terminology for use with computer data bases.

The system for recording site data provides for a comprehensive description of the point of profile description, the site and the surrounding landscape in terms of numerical and word descriptors. Vegetation is recorded by a novel system combining structural form and floristic composition. The site description also includes sections on erosion, deposition, land use and land management practices.

The system for recording soil profile data provides instructions for identifying horizons and their boundaries before dealing with the properties of each horizon under soil-water state, colour, consistency, particle-size distribution, macrofabric and soil biota. A new triangular diagram of texture classes is divided into 11 classes. The architecture of each horizon is covered in an innovative section on macrofabric which refers to the overall arrangement of the different kinds of solids (>2mm),

other than soil biota, and the macrovoids (>0.5mm).

Guidelines for recording parent material and substrate are followed by Appendices covering: abundance and size classes; area percentage charts; specifications of soil profile pits and horizon delineation; soil description for permeability assessment; procedure for macrofabric description; examples of horizon descriptions; minimum requirement for a fully characterised profile; sampling procedures; chemical and physical tests for the field or field laboratory.

Orders to: see below.

Lower Hutt, New Zealand

New Zealand Soil Classification. DSIR Land Resources Scientific Report No.19. A.E. Hewitt. DSIR, Lower Hutt, 1992, 133 p. ISBN 0-477-02649-4. Paperback.

This book introduces a new soil classification system developed as a basis for communication and research on New Zealand soils. The system follows many of the principles of Soil Taxonomy, though continuity is maintained as far as possible with the 1948 New Zealand Genetic Soil Classification. Soils are grouped into classes on the basis of measurable soil properties rather than presumed genesis, and differentiae are designed to allow field assignment to classes in most cases.

The classification is hierarchical with 3 categorical levels of order, group and subgroup. Work to define a 4th level is in progress. The introduction to the book includes brief sections on the objectives and principles of the system and correlation with other schemes of soil classification. It is followed by definitions of diagnostic horizons and other differentiae.

The key to the soil orders leads into the short chapters dealing with each of the 15 orders. Each chapter begins with the concept, correlation and occurrence of the order before listing accessory properties and providing keys to soil groups and subgroups.

A feature of the New Zealand Soil Classification is that most differentiae are defined by field characteristics using the descriptive system of a new Soil Description Handbook (Milne et al., 1991, see above). This allows soils to be classified without recourse to expensive and time consuming laboratory analyses.

Orders to: Landcare Research New Zealand - Manaaki Whenua, Private Bag 1930, Dunedin, New Zealand.

B. Clayden, Lower Hutt, New Zealand

Le Milieu Physique et les Sols de l'Île de la Réunion. Conséquences pour la mise en valeur agricole. M. Raunet. CIRAD-IRAT, Montpellier, 1991, 438 p. + 4 cartes.

La diversité et la beauté des paysages qui font la richesse de La Réunion sont menacées à terme par la pression anthropique, dont les nuisances sont souvent le fait d'une méconnaissance du milieu naturel et d'une mauvaise appréciation de ses équilibres. Concilier la conservation de l'environnement et une agriculture "reproductible", faisant bien vivre la population, est l'objectif prioritaire de la politique régionale.

La connaissance la fois globale et régionalisée de la dynamique du milieu naturel est la base indispensable d'une politique rationnelle d'aménagement du territoire, tendant à concilier écologie, agriculture, forêt, tourisme et urbanisme. L'intensification de l'agriculture, la protection des sols contre l'érosion et la conservation de la diversité biologique naturelle sont trois volets particulièrement sensibles d'un tel équilibre.

Dans cet ouvrage, l'auteur propose un "Etat des lieux", présenté d'une façon interdisciplinaire. Par son approche originale, il a réussi à mettre à la portée d'un large public les particularités pédologiques de l'île.

Prix: France 260 FF, étranger 290 FF

Commandes à: Voir ci-dessous.

Agronomie et Ressources Naturelles en Régions Tropicales. Actes des journées de la DRN. IRAT-CIRAD, Montpellier, 1990, xiii + 484 p. ISBN 2-901987-33-8.

Les exposés scientifiques présentés au cours des journées de la Sous-Direction des Ressources Naturelles (DRN) rassemblés dans cet ouvrage donnent une idée de la variété des travaux des chercheurs de cette sous-direction. L'objectif de ces journées ne se limite pas à une réunion des chercheurs. Un second objectif est, pour les chercheurs de la DRN, d'élaborer un projet scientifique permettant de répondre au mieux au formidable enjeu du monde tropical: comment augmenter la production alimentaire pour faire face aux besoins d'une population en pleine expansion tout en préservant un environnement déjà très menacé? Les exposés sont répartis en trois sections: (1) Evaluation

des situations agricoles, (2) Du diagnostic cultural à l'analyse agronomique, et (3) Aménagement et techniques de gestion de l'espace rural.

Commandes à: CIRAD-CA, Service des Publications, B.P. 5035, F-34032 Montpellier Cedex 1, France.

Land is Life. Land reform and sustainable agriculture. N. Dudley, J. Madeley and S. Stolton, editors. Intermediate Technology Publications, London, 1992, xv + 155 p. ISBN 1-85339-146-8. Paperback.

When farmers own their land they are more likely to produce more food and to farm the land in a sustainable way. Dramatic increases in food output have occurred when farmers have been given land under agrarian reform programmes.

In the early 1990s the world is facing a desperate situation over food supplies for millions of people, many of whom are hungry to the point of starvation. And with little 'new' land available to bring into production, world population is set to increase by 50 per cent over the next 30 years. It is therefore vital that existing land is worked in the best possible way, to sustain both present and future generations.

Drawing on the experiences of farmers in Africa, Asia and Latin America, this book explores some of the issues involved. It includes papers that were presented to a conference in Berlin in November 1991, entitled "Soil for Life: Promoting Sustainable Land Use" and which was probably the first to link up issues of sustainable agriculture and land reform.

Price: £ 9.95

Orders to: see below.

The State of World Rural Poverty. An inquiry into its causes and consequences. I. Jazairy, M. Alamgir and T. Panuccio. International Fund for Agricultural Development, 1992, xxiii + 514 p. ISBN 1-85339-148-4 (soft cover) 1- 85339-147-6 (hardbound).

Poverty is spreading. There are now as many people living in absolute poverty as there were living on the entire planet only a century ago. Yet poverty continues to be shrouded in mystery. Despite almost four decades and billions of dollars in development activities, we are barely in a position to track the changing dynamics of poverty or to define with conviction the processes that entrap the poor in their misery. This book offers a comprehensive look, including that regarding land resources, at the economic conditions and prospects of the world's rural poor. It incorporates research from all over the world, rural poverty indexes of 114 developing countries, as well as a policy guide to issues involving development and poverty in under-developed nations.

Price: £ 14.95 (pb) £ 35 (hb)

Orders to: IT Publications, 103-105 Southampton Row, London WC1B 4HH, England.

Fertilizer Use by Crop - Utilisation des Engrais par Culture - Utilización de Fertilizantes por Cultivo. Food and Agriculture Organization, Rome, International Fertilizer Industry Association, Paris, and International Fertilizer Development Center, Muscle Shoals, 1992, xiii + 67 p. Paperback (in English, French and Spanish).

This publication presents data for 80 countries on fertilizer use by crops expressed in plant nutrients for nitrogen (N), phosphate (P₂O₅) and potash (K₂O). Data on the application rates, total harvested area, percentage of area fertilized and total consumption by individual crops are also shown. The information is useful to agricultural researchers, fertilizer marketing managers, international agencies, policy makers, and, above all, to countries themselves. It is also useful for issues related to the environment such as input-output balances of plant nutrients in soils.

Orders to: FAO, Section Distribution et Ventes, Via delle Terme di Caracalla, 00100 Rome, Italy; or: IFA, 28, rue Marbeuf, 75008 Paris, France

Atlas of Denmark. The Danish Soil Classification. Series I, Vol. 3. H.B. Madsen, A.H. Nør, K.A. Holst. 1992, 56 p. ISBN 87-421-0541-2 (in English) 87-421-0533-1 (in Danish). Size 56 x 40 cm. Soft cover.

While volume 1 shows the landscapes of Denmark and volume 2 the population distribution, this volume shows the distribution of Danish soils, as classified according to different principles and soil properties. The 21 maps of this beautiful atlas are accompanied by a thorough description of the investigations on which they are based. Among the different soil maps, one shows the result of an old land evaluation. Another one is a pedological map (FAO/Unesco Legend). Other maps show pa-

rent material and texture of the surface and subsurface layers formed by the geological processes during the quaternary.

This volume contains several thematic soil maps, e.g. the distribution of wetland soils in Denmark, the occurrence of wetland soils containing pyrites in such concentration that soil reclamation may cause pollution. Also higher lying soils with a potential drainage need have been mapped.

As part of the soil studies, measurements of the depths of the effective rooting zone of different crops on different soils as well as determinations of the soils capacity for plant-available water were carried out. It has been possible to construct nation-wide maps showing the soils reserves of plant available water and the amounts of irrigation water, which may be needed by different crops.

In Denmark, arable land is presently given up and afforested. Typically, these marginal soils have a great irrigation need or a drainage need, which may not be redressed. Accordingly, it has also been possible to construct a map of the potential marginal soils in Denmark.

This new atlas presents highly relevant data about Danish soils. It will be of great value in future *physical planning in the country*.

Price: DKR 475, US\$ 85

Orders to: C.A. Reitzel, Norregade 20, DK-1165 Copenhagen K, Denmark.

K. Rasmussen, Copenhagen, Denmark.

Mycorrhizae in Sustainable Agriculture. ASA Special Publication Number 54. G.J. Bethlenfalvy and R.G. Linderman, editors. American Society of Agronomy, Madison, 1992, xix + 124 p. ISBN 0-89118-112-1. Paperback.

Mycorrhizae have been a subject of scientific interest since the late 1800s. Much of the early interest and practical application concerned mycorrhizae's role in forest production. Recently, knowledge of fungi in the rhizosphere of agricultural plants has developed at a rapid pace. The authors of this volume have shown the importance of mycorrhizae, not only to plants but to the soil itself or, in other words, to the soil-plant system and its sustainability. Civilization itself depends on the sustainability of agriculture, and these microscopic organisms living in close association with plant roots play an important role in determining the sustainability of production methods that we impose on the system.

This special publication includes the proceedings of a symposium of the Soil Science Society of America, American Society of Agronomy and Crop Science Society of America held in Denver in October 1991. It provides an up-to-date discussion of the state of knowledge, how it can be used in sustainable systems, and points out the need for a better understanding of mycorrhizae.

Price: US\$ 18 (+ 10% per book for postage on orders outside the USA). Advance payment required.

Orders to: see below.

Advances in Measurement of Soil Physical Properties: Bringing Theory into Practice. SSSA Special Publication No. 30. G.C. Topp, W.D. Reynolds and R.E. Green, editors. Soil Science Society of America, Madison, 1992, xv + 288 p. ISBN 0-89118-801-0. Paperback.

Soil physical properties have an impact on the whole civilization. Food production and environmental quality, especially surface and ground water quality, are influenced by our ability to measure and manage soil physical properties to maximize the efficiency of plant production and to minimize soil loss and contamination of air and water. Recent advances in technology and in basic science have provided new understanding of soil physical properties and an improved ability to characterize the complex nature of the soil. In this volume a group of scientists have compiled a treatment of the *current state of knowledge and provide insight into the application of theory to problems influenced by soil physical properties*. The understanding and prediction of movement and retention of water, air, chemicals, nutrients, energy, and soil solids themselves is dependent on our ability to measure soil physical properties. This book describes the recent advances toward improving this capability. It includes 15 papers presented at a Symposium of the Soil Science Society of America in San Antonio in October 1990.

Price: US\$ 42 (+ 10% per book for postage on orders outside the USA). Advance payment required.

Orders to: SSSA Headquarters Office, Book Order Dept., 677 South Segoe Road, Madison WI 53711, U.S.A.

Die Entwicklung der Bodenkunde im ehemaligen Deutschen Reich und in der Bundesrepublik Deutschland. E. Mückenhausen. Deutsche Bodenkundliche Gesellschaft, Oldenburg, 1992, iv + 65 p. Paperback.

Mit der vorliegenden Schrift ist der Versuch gemacht, ein historisches Bild zu entwerfen über die fortführenden und stagnierenden Phase des Entwicklungsweges der jungen Naturwissenschaft "Bodenkunde" oder "Pedologie". Es ist bewundernswert, wie dabei Stein auf Stein gefügt wurde bis der jetzige Forschungsstand erreicht war. Dessen sollte man sich besinnen, wenn man über vergangenes Bemühen urteilt. Der Autor, Ehrenmitglied der IBG, gibt zu, dass man diese Historie eingehender und damit umfangreicher hätte darstellen können, indessen ging es hier nur darum, die Hauptlinien der Entwicklung der Naturwissenschaft "Bodenkunde" aufzuzeigen.

In dieser Geschichte der Bodenkunde in Deutschland hat der Autor hinsichtlich des Fortschrittes drei Zeitspannen abgesteckt: die Zeit bis 1900, die Zeit von 1901 bis 1945 und die Zeit von 1946 bis 1990. So ist auch die angefügte Literatur in drei Teilen aufgeführt. Der erste lange Zeitabschnitt ist nochmals der besseren Übersicht wegen nach wichtigen Epochen mit grösseren oder geringeren wissenschaftlichen Fortschritten unterteilt.

Bestellungen an: Deutsche Bodenkundliche Gesellschaft, Wilhelmstr. 19, W-2900 Oldenburg, Deutschland.

Soil Map of Japan. 1:1,000,000. The Committee for Soil Classification and Nomenclature, The Group of Japanese Pedologists, 1990, 4 sheets + explanatory note (Japanese and English).

The Group of Japanese Pedologists has long advocated the needs for unifying the soil classification of arable land and that of forested land and for establishing a system of soil classification and nomenclature that could be readily correlated to the international adopted systems. But the time did not ripe so quickly for the wish to be realized. Only towards the end of the 1960s and early 1970s in the process of preparation of small scale maps for the National Land Survey Project a consensus was reached between the people working on arable land classification and forested land classification at the higher categories. Taking this opportunity, the Group of Japanese Pedologists formulated a committee for "Unification of classification and nomenclature of Japanese soils" in 1980. After a long careful examination, in the end of 1986, a first approximation was published, which dealt with the two higher categories, Great Group and Subgroup. As a mean to examine the adequacy of the system an acute need was felt to use the proposed system as legends of a small scale map and, thus, a reformed committee was asked to prepare a 1:1 million soil map of Japan using the 1st approximation as the legend. The publishing of this map coincided with the 30th anniversary of the Group, and with the 14th International Congress of Soil Science, held in Japan in 1990.

Orders to: Japanese Society of Soil Science, 202, 26-10- Hongo 6-chome, Bunkyo-ku, Tokyo 113, Japan.

Advances in Porous Media. Vol.1. M. Y. Corapcioglu, editor. Elsevier, Amsterdam, New York, 1991, xiv + 309 p. ISBN 0-444-88909-4. Hard cover.

This is a new annual review series providing a forum for publication of recent development in this interdisciplinary area. The series is aimed at all scientists and engineers concerned with fundamentals and applications of processes in porous media. This first volume contains five chapters. The first one reviews the governing equations and solution procedures of compositional simulators used in reservoir engineering and groundwater hydrology. Chapter 2 reviews the flow of water in both dry and wet snow. Chapter 3 reviews the transport of dielectric and magnetizable fluids through porous media. Chapter 4 discusses the methodology to analyze filtration process by multiphase fluid flow approach, and the last chapter discusses stochastic differential equations constructed from deterministic transport equation by re-interpreting their physical parameters as random functions and gives examples for both reactive and conservative solutes.

Price: US\$ 123, Dfl 215

Orders to: see below.

Modern Techniques in Soil Ecology. D.A. Crossley Jr., D.C. Coleman, P.F. Hendrix, W. Cheng, D.H. Wright, M.H. Beare and C.A. Edwards, editors. Elsevier, Amsterdam, New York, 1991, 512 p. ISBN 0-444-88119-0.

This book is based on papers presented at an International Workshop on Modern Techniques in Soil Ecology relevant to organic matter breakdown, nutrient cycling and soil biological processes, held in Athens (USA) in September 1989. It is reprinted from Agriculture, Ecosystems and Environment, Vol. 34(1991).

A scientific discipline is circumscribed, if not exactly defined, by the methods available to it. The study of ecology of soil biota, and its impact on ecosystems of importance to human activities,

requires a broader base of measurements often of a multidisciplinary nature. This volume reviews current methods and provides an overview of emerging techniques in major areas of soil ecology. Seven overview papers were followed by 40 contributed papers describing new developments in the measurement of soil properties, the organisms inhabiting the soil and their impacts on soil processes.

Price: US\$ 174.50, Dfl 305

Orders to: see below.

Trends in Ecological Physical Chemistry. L. Bonati, U. Cosentino, M. Lasagni, G. Moro, D. Pitea and A. Schiraldi, editors. Elsevier, Amsterdam, New York, 1993, 380 p. ISBN 0-444-89646-5.

Ecological physical chemistry is a new transdisciplinary field concerned, on one hand, with the study of the interactions between complex molecular systems and, on the other, with a systemic approach to the overall biosphere. This book encompasses the views of scientists involved in the study of some of the planet's major biological, ecological and environmental problems in order to offer an overview of recently developed methods for studying the complexity of these concerns at every level, from molecular to social organization. The volume deals with computational modeling on: the relationship between molecular structure, dynamics and signal transduction in biological systems; the influence of the surroundings on reactions; the relationships between molecular structure and biological activity, as well as experimental methodologies for studying the interaction of DNA with small and large molecules. It also discusses the problems arising from the need to develop new thermodynamic theories and models in order to continue the analysis of natural processes and their effects on living systems and the environment. The final section describes the key points involved in the process of realizing sustainable patterns of economic elaboration and development, specifically the roles of the limits determined by thermodynamic, natural resources, pollution absorption, population tolerance levels and, most importantly, those of our understanding about where these limits lie and how they influence the systems.

Price: US\$ 219, Dfl 350

Orders to: see below.

Ecological Principles of Nature Conservation. L. Hansson, editor. Elsevier, Amsterdam, New York, 1992, xviii + 436 p. ISBN 1-85166-718-0. Hard cover.

This book is the first in a series of volumes entitled Conservation Ecology: Principles, Practices and Management. The science of conservation ecology is now widely acknowledged as an essential component in the planning and development of activities which change or modify our natural environment. However, despite much research and publicity, there is still a considerable gap between theory and practice. This series has been designed to bridge that gap by incorporating the results of ecological research so that they are understandable and relevant to a wide range of professionals working in the many areas of conservation. These titles will discuss priorities and management of the major ecosystems and landforms throughout the world.

This introductory volume deals with the general principles of conservation ecology. The twelve chapters cover a wide range of environmental disciplines and present much new scientific data in the examination of ecological concepts relevant to wildlife and landscape management. The principles discussed are widely applicable in many parts of the world, especially temperate and boreal regions.

Price: £ 80

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.

Vertisols in the Central Clay Plain of the Sudan. W.A. Blokhuis. PhD Thesis, Wageningen Agricultural University, 1993, xv + 418 p + 1 map. ISBN 90-5485-058-2. Paperback.

The parent materials of the clay soils which cover almost the entire area of the Central Clay Plain of the Sudan belong to two broad groups: alluvial, deltaic and paludal sediments from rivers belonging to the Nile system (aggradational clay plains), and colluvium-alluvial deposits derived from local rock weathering, pediplanation and short-distance transport (degradation clay plains). The soils are classified as Vertisols in three international systems.

Relationships between soil parent material, landform, climate, vegetation and soils were defined in the field. Field studies were supported by an analysis of mineralogical, chemical and physical soil data. The various landscapes were delineated on a 1:2 000 000 pedogeomorphic map. Hypotheses

on the sedimentation history of the aggradational plains were tested against data on geology, palaeoclimatology and palaeobotany in the literature. Soils, vegetation and landforms show the degradational plains to be pediplains in advanced stage of planation.

Special attention is given to soil classification, soil genesis, the process of pedoturbation, and the origin and impact of relatively small differences in soil morphology. It was found that the climatic north-south gradient has a stronger influence on soil properties than differences in parent material between aggradational and degradational plains.

Price: NLG 55 (plus NLG 15 outside the Netherlands).

Orders to: Dr. W.A. Blokhuis, Boeslaan 14, 6703 ES Wageningen, the Netherlands.

Quantified Analysis of Selected Land Use Systems in the Larissa Region, Greece. N.G. Danalatos. PhD Thesis, Wageningen Agricultural University, 1992, xxiv + 370 p + 3 maps. ISBN 90-5485-063-9. Paperback.

A dynamic crop-growth simulation model was developed, based on the "Wageningen modelling approach", calibrated and applied for quantified land evaluation purposes in the Larissa plain (east Thessaly). The soil and climate conditions were studied in detail in three sample areas with a total extent of about 10,000 ha. The geology, geomorphology and hydrology, and the human environment were studied as well.

Crop data were collected in field experiments with maize, cotton and wheat in 1987 through 1989. The growth of widely used maize and cotton cultivars was studied, as well as a durum (spring) wheat cultivar. Land data were collected for calculation of the water-limited production potential, which is within the reach of the farmers in the Larissa area. A full land evaluation of the whole area was not done. Rather, it was demonstrated that the model developed allows to quantify the impact of selected limitations on the performance of land-use systems as a basis for land suitability classification.

Price: NLG 50

Orders to: Dept. of Soil Science and Geology, P.O.Box 37, 6700 AA Wageningen, the Netherlands.

An Agro-ecological Framework for Integrated Nutrient Management, with special reference to Kenya. E. Smaling. PhD Thesis, Wageningen Agricultural University, 1993, 250 p. Paperback.

This thesis provides a framework for integrated nutrient management in agricultural land use systems, with particular reference to its impact on productivity, fertilizer use efficiency, and sustainability in well-delimited tracts of land (agro-ecological units), characterized by a specific set of soil and climatic properties. Most of the research was conducted in Kenya, but methodology and results can be applied to any tropical region.

Quantitative assessments are made of the nitrogen, phosphorus and potassium balance in the root zone of the arable land in sub-Saharan Africa. It is shown that outputs exceed inputs all over the continent. The alarming figures call for agronomic and policy interventions in the soil nutrient balance. A scale-neutral decision-support model of this nature is described, in which scenarios for improved nutrient management are worked out.

Because mineral fertilizers are increasingly expensive, they must be used efficiently. A network of 70 fertilizer trials was established in rainfed areas in Kenya and the results of four years studies in three agro-ecological regions are presented.

Information is also provided on the Quantitative Evaluation of the Fertility of Tropical Soils (QUEFTS) computer model, used for correlation between measured and calculated yields.

Price: Dfl 25

Orders to: Dept. of Scientific Editing, Winand Staring Centre, P.O. Box 125, 6700 AC Wageningen, the Netherlands.

Our Changing Climate. Horizons of Science Series. R. Kandel. McGraw-Hill, New York, London, 1990, 126 p. ISBN 0-07-033710-1. Paperback.

We all keep hearing that "the weather isn't what it used to be". But is our climate really undergoing a change? Are we heading towards a climatic catastrophe? Is the Earth threatened by global warming and the destruction of the ozone layer? With the Montreal Convention (1988), the Hague Appeal (1989) and the Second World Climate Conference (1990) and Intergovernmental Panel on Climate Change (1990), scientific controversy has entered the international political and diplomatic arena.

What are the real mechanisms behind the "greenhouse effect"? What data do we have on which

to base the scenarios of our changing climate? What are our observation and forecasting instruments? Must we succumb to environmental extremism and sacrifice to a mythical "balance of Nature"? Can we steer the course of our planet in the future? And should we even try?

Price: £ 8.50

Orders to: McGraw-Hill Book Co. Ltd, Shoppenhangers Road, Maidenhead, Berkshire SL6 2QL, England; or: McGraw-Hill Inc., 1221 Avenue of the Americas, New York NY 10020, U.S.A.

Dictionary of Environmental Science and Technology. Revised edition. A. Porteous. John Wiley & Sons, Chichester, New York, 1992, xiv + 439p. ISBN 0-471-93544-1. Paperback.

As concern for the environment has grown, so has a whole new academic discipline, embracing such previously disparate areas as ecology, chemistry, economics, engineering, biochemistry, politics and sociology. This dictionary, which has now been revised and has additional new and expanded entries, provides both the student and the general reader with a working knowledge of the scientific and technical terminology associated with environmental studies and appraisals of current issues. In addition to the comprehensive text, the book is embellished with many useful diagrams and tables, a list of relevant addresses and a guide to further reading.

Price: £ 9.95, US\$ 22.50

Orders to: see below.

Dictionary of Earth Sciences - Dictionnaire des Sciences de la Terre. J.-P. Michel and R.W. Fairbridge. A Wiley- Masson co-publication. John Wiley & Sons, Chichester, New York, 1992, xv + 300p. ISBN 0-471-93535-2 (English edition) 2-225-82395-2 (French edition). Soft cover.

This dictionary combines the most widely used scientific, technical and general terms in the various Earth Sciences: geology, geophysics, geomorphology, hydrogeology, mineralogy, paleontology, pedology, petrography, petroleum and mining geology, planetology, sedimentology, stratigraphy, tectonics...

It represents an important bilingual terminological source, at the same time specialized and synthetic.

Ce dictionnaire réunit l'ensemble des termes scientifiques, techniques et généraux les plus utilisés dans les diverses Sciences de la Terre: géologie, géophysique, géomorphologie, hydrogéologie, minéralogie, paléontologie, pédologie, pétrographie, géologie du pétrole et des mines, planétologie, sédimentologie, stratigraphie, tectonique...

Il constitue une importante source terminologique bilingue, à la fois spécialisée et synthétique.

Price/Prix: £ 24.95

Orders to/Commandes à: 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; or: Masson, 120 boulevard Saint-Germain, F- 75280 Paris Cedex 06, France.

The First Global Revolution. A Strategy for Surviving the World. A report by the Council of the Club of Rome. A. King and B. Schneider. Simon & Schuster, London, Sydney, 1991, xxii + 234 p. ISBN 0-671-71107-5. Paperback.

Our world is threatened today by problems of such dimensions that many of us feel helpless to understand them, let alone to see ways through to a solution. The Gulf War brought home the horror of international military conflict, while every day our planet's natural resources are being destroyed and depleted, and people in many countries are facing poverty and starvation. These are threats of global dimensions, beyond the scope of individual governments.

The Club of Rome, concerned with the future of humanity, brings in this book crucial understanding to the process of global development, providing subtle insights into the reactions between today's world problems in its thought-provoking analysis. In an increasingly interdependent world, we cannot afford to ignore its warnings - nor fail to be challenged by its approach to a sustainable solution.

Price: £ 4.99

Orders to: Simon & Schuster Educational, Campus 400, Marylands Avenue, Hemel Hempstead, Herts HP2 7EZ, U.K.

Ecological Economics. The Science and Management of Sustainability. R. Costanza, editor. Columbia University Press, New York, Oxford, 1991, xv + 525 p. ISBN 0-231-07563-4 (paperback), 0-231-07562-6 (cloth).

Ecological economics is a new trans-disciplinary approach to understanding and managing the

ecology and economics of our world for sustainability on local, regional, and global scales. The previous isolation of these two fields has led to economic and environmental policies that are mutually destructive rather than reinforcing in the long term. This book brings these two disciplines together in thirty-two chapters covering the basic worldview of ecological economics: accounting, modeling, and analysis of ecological economic systems; necessary institutional changes and case studies.

Price: in the US, Canada, Australia and New Zealand: US\$ 18.50 (paper), \$ 60 (cloth). Elsewhere US\$ 21.50 (paper), \$ 69 (cloth).

Orders to: Columbia University Press, 136 South Broadway, Irvington, NY 10533-2599, U.S.A. or: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England.

Trace Gases and the Biosphere. B. Moore III and D. Schimel, editors. UCAR/Office for Interdisciplinary Earth Studies, Boulder, 1992, 236 p. Paperback.

Trace gases and their exchange between living and nonliving parts of the planet are fundamental to the operation of the Earth system. A fuller knowledge of the chemical, physical, and biological interactions that are involved is essential to understand the evolution of the system in the past; it is equally necessary to predict global changes of the future. Insights from the analysis of polar ice cores demonstrate that changes in the atmospheric concentrations of carbon dioxide and methane are unambiguously identified with major climatic changes of the past 160,000 years. It is thought as well that the sulfur cycle may influence the surface temperature of the Earth homeostatically through the production of condensation nuclei and the production of cloud cover over the oceans. Industrial agricultural, and enhanced biogenic emissions of trace gases brought about through human activities constitute the principal agent through which the actions of humans now perturb the natural chemical cycles of the planet.

Trace gas and the associated biogeochemical cycles are of particular interest in the evolution of Earth. The 1988 Global Change Institute chose to address the issue of trace gases because of their central role in the functioning of the Earth system. Its focus was primarily on decadal to millennial time scales, but in the context of a much longer geological perspective. Key scientific issues in trace gas biogeochemistry that were addressed included the ice-core record of chemistry and climate, oceans and the carbon dioxide cycle, the global methane budget, chemistry/cloudiness interactions, and nitrogen gases and human disturbance. The present publication is the final report of the 1988 Global Change Institute held in Colorado, August 1998.

Price: free of charge.

Orders to: UCAR/OIES, P.O.Box 3000, Boulder, CO 80307-3000, U.S.A.

Green Globe - Yearbook 1992. H.O. Bergesen, M. Norderhaug and G. Parmann, editors. The Fridtjof Nansen Institute, Norway. Oxford University Press, Oxford, New York, 1992, 303 p. ISBN 0-19-823322-1. Hardbound.

The main objective of the Yearbook is to demonstrate to a world-wide readership how far the international community has come in solving specific environment and development problems, what the main obstacles are to effective international solutions, and what needs to be done to overcome such barriers. It focuses on the achievements and shortcomings of international co-operation, enabling the reader to distinguish clearly between the rhetoric and reality of environmental politics at the world level.

This book consists of two parts: analysis and reference. This edition covers international co-operation in ozone depletion, climate change, endangered species, trade in hazardous waste, population control, the rights of indigenous peoples, Antarctica, sustainable energy development, democratization in Africa, AIDS, and the Amazon. The reference sections contains systematically listed key data concerning: (1) International agreements on the environment and development; (2) Intergovernmental organizations (IGOs) with activities in this area; and (3) Relevant non-governmental organizations (NGOs).

Price: £ 25

Orders to: Oxford University Press Distribution Service, Saxon Way West, Corby, Northants NN18 9ES, England

Functional Geomorphology. Landform Analysis and Models. Catena Supplement 23. K.-H. Schmidt and J. de Ploey, editors. Catena, Cremlingen, 1992, x + 212 p. ISBN 3-923381-32-8. Hardbound.

In this Festschrift for Frank Ahnert, specialists from all over the world are contributing on func-

tional geomorphology, analyzing the process-response network of geomorphological forms and processes, which is one of the major themes in Ahnert's work.

Price: DM 149, US\$ 99

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.

Bibliography of Soil Science in Indonesia 1890-1963. S. Chin A Tam. Institute for Soil Fertility Research, Haren, 1993, 550 p.

This bibliography is a structured compilation of literature in the Dutch language about soil science in pre-independent Indonesia. It has abstracts, covering a range of subjects, including: soil surveys, classification, manuring, fertility, pest and diseases, management, erosion and conservation, that were conducted in a period that tropical soil science, classification and management were developing. Theoretically part of the work may be outdated, but practically the old literature still contains valuable information. The bibliography is divided into 5 main chapters: Soil resources and surveys, Soil biology and plant-soil relations, Soil fertility management, Erosion and soil conservation, Bibliographies. It contains indexes on authors, subjects, plant taxonomical names, and geographical location.

Price: in Indonesia: Rp 20,000; in the Netherlands: Dfl 36; Elsewhere: Dfl 36 + mailing charges.

Orders to: ISRIC, P.O.Box 353, 6700 AJ Wageningen, the Netherlands; in Indonesia: CSAR, Jalan Ir. Juanda 98, 16123 Bogor, Indonesia.

Contouring: a guide to the analysis and display of spatial data. Computer Methods in the Geosciences 10. D.F. Watson. Pergamon Press, Oxford, New York, 1992, xvii + 321 p. + 1 diskette. ISBN 0-08-040286-0. Hard cover.

Contouring, a method used by many scientists, especially earth scientists, is a basic research tool, yet probably little understood by most users. This book on the subject explores in detail the practice and principles of contouring using a personal computer. Contouring allows a three dimensional view in two dimensions and thus is a fundamental technique to represent spatial data. All aspects of this type of representation are covered here including data preparation, selecting contour intervals, interpolation and gridding, computing volumes and output and display. A set of twelve computer programs in BASIC is included on a diskette.

Price: £ 59 (or US\$ 120 only in the USA).

Orders to: Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, U.K. or: Pergamon Press Inc., 660 White Plains Road, Tarrytown NY 10591-5153, U.S.A.

The Tertiary Bauxite Belt on Tectonic Uplift Areas in the Serra da Mantiqueira, South-East Brazil. Contributions to Sedimentology 17. I. Valetton, H. Beissner and A. Carvalho. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 1991, 101 p. ISBN 3-510-57017-0. Paperback.

Due to tectonic and related drainage conditions, two main types of bauxites can be distinguished: "subsidence bauxites" and "uplift bauxites". The second type is described in this volume. On the Archean basement of the neotectonic uplift area of the Serra da Mantiqueira, SE-Brazil, a ferrallitic belt developed on a hilly landscape parallel to the Atlantic coast. Two weathering sequences are distinguished: a ferrallitic alteration and a younger bauxite destabilisation.

Price: DM 68.

Orders to: Schweizerbart'sche Verlagsbuchhandlung, Johannesstrasse 3A, W-7000 Stuttgart, Germany.

Out of the Earth: Civilization and the Life of the Soil. D. Hillel. The Free Press. A Division of Macmillan, New York, 1991, x + 321 p. ISBN 0-02-915060-4. Hardcover.

This remarkable book describes in a colourful and exciting style the history of environmental abuse from the time of the earliest societies. The author is a professor at the University of Massachusetts and his textbooks on soil physics are well-known. Formerly Head of the Soil and Water Sciences Dept. at the Hebrew University of Jerusalem, he has experience of land and water management in many parts of the world, an extraordinary grasp of global history and an intense personal interest in environmental degradation and the processes involved.

The book is divided into 5 parts, each with several short chapters. Part 1 includes a prologue and a short review of the human role in the scheme of life on earth, and Part 2 provides background information on soils and hydrology aimed at the non-scientist. In part 3, the author covers the lessons of the past from the evolution of cultivators and pastoralists and their effect on the environment.

Part 4 reviews current environmental problems including salinisation, erosion, denudation of watersheds, degradation of arid lands, depletion and pollution of water resources, and the abuse of wetlands. Few of these problems are new and it appears that little has been learnt through human history. The book deals specifically with the insidious saline seeps of Australia and North America, mismanaged irrigation in India and Pakistan, the tragedy of the Aral Sea in Russia, erosion and the dustbowl effect in Bangladesh and China, desertification, shrinking wetlands, pollution and chemical abuse. A separate chapter is devoted to the plight of Africa. Part 5 discusses the interdependence of accelerating population growth, human activity and land exploitation. It also includes some pithy comments about the failings of economists and the international development institutions in contributing to environmental matters. *It ends on a note of conditional optimism. The author reasons that we have the essential knowledge and capability to manage the environment and feed humankind, given population control, sustainable agriculture and the control of expenditure on armaments.*

The book is austere in having no plates or figures. There are places in the text crying out for illustrations; sketch maps, particularly of the Holy Land and other parts of the Middle East, would have been welcomed. Nevertheless, the text is seldom if ever tedious. The lyrical, exciting writing presented in short chapters has a gripping quality seldom found in a book of this kind. Explanatory notes for each chapter form 16 pages at the end of the book and there is a 10-page bibliography and index.

In this book, the author has presented an outstanding synthesis of the impact of civilisations on the environment. It is done with the authority of a soil scientist of international repute who writes with special insight on the Middle East and other countries where he has lived and worked in the field. Above all it is a book of exceptional scientific, historical and literary scholarship that can be enjoyed by those with or without a scientific background.

Price: US \$ 22.50

Orders to: The Free Press, 866 Third Avenue, New York, NY 10022, U.S.A.
Ben Clayden, Lower Hutt, New Zealand

SWIM - a simulation model for Soil Water Infiltration and Movement. P.J. Ross, CSIRO Division of Soils, Townsville, 1990, 59 p. + 5 disks. ISBN 0-643-05076-0. Soft cover.

This is a software package for simulating water infiltration and movement in soils. As in the real world, it allows addition of water to the system as precipitation and removal by runoff, drainage, evaporation from the soil surface and transpiration by vegetation. SWIM consists of a menu-driven suite of three programs that allow the user to simulate soil water balances using numerical solutions of the basic soil water flow equations. This simulation program obeys the basic physical law of conservation of mass while making the following assumptions: (1) conditions can be treated as horizontally uniform, (2) flow is described by Richard's equation, and (3) soil hydraulic properties can be described simply.

While a working knowledge of soil physics and computer offer an advantage in using this software, the author has made every effort to provide a user friendly package with extensive help facilities. The three main modules comprising SWIM are: an input data preparation program, a simulation program, and an output data presentation program.

Orders to: SWIM Project, CSIRO, P.M.B., P.O. Aitkenvale, Qld 4814, Australia

Natural Sinks of CO₂. J. Wisniewski and A.E. Lugo, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1992, xi + 466 p. ISBN 0-7923-1805-6. Hard cover.

Most of the attention with respect to the increase in atmospheric greenhouse gas concentrations centers around three issues: human-generated sources of carbon, mostly from burning fossil fuels; tropical deforestation, which accelerates the production of atmospheric carbon while causing havoc with biodiversity and the economic development of tropical countries; and the temperature increase that may accompany increased atmospheric greenhouse gas concentrations. This book focuses extensively on the opposite process to carbon dioxide emissions, i.e. the sequestering of atmospheric carbon by aquatic and terrestrial ecosystems. Natural ecosystems are currently sequestering carbon and it is feasible to manage existing and addition terrestrial (forest, soil, saline land) and aquatic (coastal, wetland and ocean) ecosystems to substantially increase the level of carbon storage. The prospect of managing natural systems to absorb additional carbon should begin to change the mind-set under which scientists, policy makers and society deal with the issues of greenhouse gas increases.

This book contains papers presented at a workshop held in Puerto Rico in February 1992.

Price: NLG 200, US\$ 119, UK£ 70.

Orders to: see below.

Towards Rational Use of High Salinity Tolerant Plants. Vol. 1.: Deliberations about High Salinity Tolerant Plants and Ecosystems. Tasks for Vegetation Science 27. H. Lieth and A.A. Al Masoom, editors. Kluwer Academic Publishers, Dordrecht, Boston, 1993, xix + 521 p. ISBN 0-7923-1865-X. Hard cover.

The symposium on high salinity tolerant plants, held at the University of Al Ain in December 1990, dealt primarily with plants tolerating salinity levels exceeding that of ocean water and which at the same time are promising for utilization in agriculture or forestry. The papers of the proceedings of this symposium have been published in two volumes. This first volume deals with mangroves and inland high salinity tolerant plants and ecosystems and is divided into the following categories: (1) Vegetation analyses and descriptions of mangroves; (2) Ecosystem analyses; (3) Physiological analyses; (4) Utilization of mangroves and saltmarsh plants; and (5) Soil and water analyses. Volume 2 deals with the improvement of salinity tolerance for traditional crops under marginal soils and irrigation water and is published in the Tasks for Vegetation Science series No. 28.

Price: Vol. 1: NLG 425, US\$ 290, UK£ 151; Vol. 2: NLG 375, US\$ 255, UK£ 133.

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.

Soil Conservation and Sustainable Land Use. An economic approach. Development Oriented Research in Agriculture 4. J. de Graaff. Royal Tropical Institute. Amsterdam, 1993, 191 p. ISBN 90-6832-042-4. Soft cover.

Working towards sustainable land use requires difficult choices. Economic methods can help to make these choices more transparent, so that decision makers - from local to national level - can see the options and their implications more clearly. Methodologies now being developed have significant advantages. Ways to include social costs and benefits, as well as external effects, receive special attention in this book, as does the necessity to include all relevant actors (particularly small farmers) in the analysis. The incentives and disincentives created by projects must be examined, and effects external to the project area must often be taken into account.

This book is intended for the non-economist as well as the economist. In addition to detailed discussion of methods and approaches, it makes available a substantial body of reference material, accompanied by a wealth of practical examples.

Price: NLG 45

Orders to: Royal Tropical Institute, Publ. Dept, Mauritskade 63, 1092 AD Amsterdam, the Netherlands.

Impact of Acid Atmospheric Deposition on the Biogeochemistry of Moorland pools and Surrounding Terrestrial Environment. Agricultural Research Reports 931. H.F. van Dobben, J. Mulder, H. van Dam and H. Houweling. Pudoc Scientific Publishers, Wageningen, 1992, 232 p. + 1 microfiche. ISBN 90-220-1072-4. Paperback.

A monitoring programme was carried out to quantify the fluxes of solutes in terrestrial and aquatic oligotrophic ecosystems in The Netherlands. The programme focused on five sites, three dominated by podzolic soils and two dominated by driftsand soils. The monitoring programme included measurement at regular time intervals of concentrations of all major solutes present in bulk precipitation, throughfall, stemflow, unsaturated soil solution, groundwater and poolwater. In addition, water fluxes were measured (bulk precipitation, throughfall and stemflow) or estimated (unsaturated water transport, groundwater transport, and in- and outflux of moorland pools). Besides the monitoring of hydrological and chemical parameters, hydrobiological parameters were also monitored in the pools. The programme was conducted between 1982 and 1987, but particularly for the hydrobiological monitoring larger datasets were available.

Price: NLG 92.

Orders to: PUDOC Scientific Publishers, P.O.Box 4, 6700 AA Wageningen, the Netherlands.

Principles and Methods in Plant Nutrition. I. Kadar. Akaprint, Budapest, 1992, 398 p. ISBN 963-400-874-7. Hardbound. (In Hungarian).

While presenting the basic principles and methods related to plant nutrition, the author refers to the major questions which appear to have motivated researchers in the past. In addition to historical approach, he also strives to reveal a broader background of the phenomena. The soil-plant-animal foodchain concept and biosphere approach is developed. Research, teaching and extension work

should not be separated into atomized fields here.

The 10 chapters include: history of agriculture and fertility of soils; principles and methods of estimating nutrient balances; principles and methods in soil testing, plant analysis, field-pot- and solution culture experimentation; environmental issue in plant nutrition; plant nutrition in alternative agriculture; fertilizer recommendation for farmers. Brief sections of sample collection, the preparation of samples and interpretation of the material obtained are also added.

Orders to: Prof. Dr. I. Kadar, Research Institute for Soil Science and Agricultural Chemistry, Herman Otto u. 15, H-1022 Budapest, Hungary.

Aluminium. Role in Soil Formation and Influence on Vegetation. S.V. Zonn and A.P. Travlev. Dnepropetrovsk DGU, 1992, 224 p. ISBN 5-86400-050-7. Hardbound. (in Russian).

The book consists of three parts. In Part 1, entitled Primary Transformation of Al-containing Minerals, and accounting for more than half of the publication, the authors examine the structure and properties of the aluminium atom as well as the primary and secondary aluminosilicates. Separate chapters are devoted, besides crystalline aluminosilicate minerals, to non-silicate oxides and hydroxides of aluminium, as well as to amorphous aluminium compounds. Particular attention is paid to the allophanes.

Alumino-organic compounds and complexes are also described extensively, as well as some analytical methods for the determination of different aluminium compounds in soils. A separate section deals with the role of aluminium in soil acidity.

Part 2 deals with the Role of Aluminium in Soil Genesis. In this part an original and remarkable material is presented on the role and occurrence of aluminium compounds in the various soil types, with particular regard to tropical and subtropical conditions. A separate section is devoted to the significance of aluminium under both humid and arid conditions as well as to the aluminium oxide content and its distribution in soils in the "temperate hot climate".

Part 3, entitled Aluminium and Plants, reviews the interrelations between the growth and development of plants, on the one hand, and the aluminium contents of the soil, on the other hand. Separate sections are devoted to the influence of aluminium on maize in tropical and subtropical conditions as well as to the influence of aluminium oxide on tea plantations. This part also contains information on the effects of different doses of fertilizers on the behaviour and distribution of aluminium in different subtropical and tropical soils. The last section covers the influence of aluminium on biota and soil properties in general.

The book supplies the reader with up-to-date information and valuable data on the diverse and many-sided problems concerning the behaviour and consequences of the aluminium content of soils in respect of plants and crops. The book is written in Russian; the title page and the contents are also given in English.

Orders to: Prof. S.V. Zonn, Institute of Geography of the Russian Academy of Sciences, 29, Staromonetny Lane, 109017 Moscow, Russia.

I. Szabolcs, Budapest.

World Fertilizer Market Information Sources. J.H. Allgood and G.T. Harris. International Fertilizer Development Center, Muscle Shoals, 1991, 48 p. Paperback.

A clear understanding of international market conditions for fertilizers is essential for effective fertilizer sector planning and decisionmaking. Without this knowledge, countries that rely on fertilizer imports would have difficulty in procuring the needed quantities and in timing their purchase to achieve the lowest possible price. Similarly, countries with indigenous deposits of fertilizer raw materials must be able to assess the world market situation for several years in advance when considering an investment in domestic production facilities. To assist fertilizer sector planning, this document identifies: (1) the type of information considered necessary for fertilizer market assessment and for evaluation of investment in production facilities and (2) information sources useful in monitoring world fertilizer market developments and trends. Specific data needs are identified for phosphate rock, sulfur, natural gas, anhydrous ammonia, sulfuric acid, phosphoric acid, finished fertilizer products, ocean freight rates, and inflation rates. Information sources cited include publications (weekly, monthly, bimonthly, quarterly, and annual reports, telex and telefax reports, and special reports), fertilizer manufacturers, international fertilizer trading companies, and fertilizer-related associations and organizations.

Price: US\$ 4; or US\$ 7.50 outside the U.S.A.

Orders: IFDC, Purchasing Department, P.O. Box 2040, Muscle Shoals, Alabama 35662, U.S.A.

Hydrological Interactions between Atmosphere, Soil and Vegetation. IAHS Publication No. 204. G. Kienitz, P.C.D. Milly, M.Th. Van Genuchten, D. Rosbjerg and W.J. Shuttleworth, editors. International Association of Hydrological Sciences, Washington, Wallingford, 1991, ix + 494 p. ISBN 0-947571-13-2. Paperback.

This publication contains the proceedings of Symposium H4 held during the XXth IUGG General Assembly in Vienna, August 1991. Four topics covering the main fields of interest for hydrologists were selected: (1) moisture, radiation and temperature fluxes at the atmosphere, soil and vegetation interfaces; (2) modelling of water movement and chemicals in the soil; (3) physiological behaviour of plants in relation to water and chemicals; and (4) case studies and field investigations at plot and catchment scales. Forty-five of the papers selected are included in this volume.

Price: US\$ 60

Orders to: IAHS Press, Institute of Hydrology, Wallingford, Oxfordshire, OX10 8BB, U.K.

Towards Sustainable Crop Production Systems. Emerging Technologies. Monograph Series No.11. Royal Agriculture Society of England, 1992, 86 p. ISBN 0-902-629-002. Soft cover.

The effects of man's economic activities in the pursuit of national and individual aspirations on the environment now gives rise to voices of concern. Yet, at the same time, the inexorable pressures of poverty-driven population increases continue. In parallel almost, the lure of hope fuels increasing urbanization and the creation of more energy intensive food chains. The effect of these rapidly changing social, political and economic influences is to create a situation where land use patterns and farming systems are at one and the same time in a state both disrupted and adaptive.

In this situation, farmers, agronomists and scientists are faced with twin challenges. First, to provide the food for a rapidly growing population. Second, to do so in ways which are more environmentally benign. It is a harsh reality that where the need is greatest the resources are most limited. For the agronomist, change presents an opportunity and a window of influence which will last into the foreseeable future. Indeed, science is already providing some of the signposts to the emergence of cleaner technologies and the more refined management of existing ones and these are the themes which the 9th Royal Show International Symposium explores. This volume presents the main papers of this symposium, meant to exchange experience between countries.

Price: £ 15

Orders to: Symposium Administrator, RASE, National Agricultural Centre, Stoneleigh Park, Warwickshire CV8 2LZ, U.K.

Environmental Change and International Law. New Challenges and Dimensions. E. Brown Weiss, editor. United Nations University Press, Tokyo, 1992, xv + 493 p. ISBN 92-808-0818-4 (paper), 92-808-0815-X (cloth).

In this study of the emerging international legal issues associated with global environmental change, a diverse group of eminent legal scholars and practitioners from around the world addresses the new directions in international environmental law and, to a lesser extent, in international institutions. In examining the challenges posed by issues of global environmental change and sustainable development, the authors build their discussion around six themes: (1) the growing common interest in the environment; (2) the scientific uncertainty about the environment; (3) the need for an anticipatory and preventive approach; (4) the relevance of human rights; (5) the relationship between economic development and environmental protection; and (6) the recent developments in implementing international environmental instruments.

Price: Paperback: US\$ 40 (airmail \$ 47); cloth: US\$ 60 (airmail \$ 69)

Orders to: United Nations, Sales Unit, Palais des Nations, CH-1211 Geneva 10, Switzerland.

World Soil Erosion and Conservation. Cambridge Studies in Applied Ecology and Resource Management. D. Pimentel, editor. Cambridge University Press, 1993, xii + 349 p. ISBN 0-521-41967-0. Hardback.

Land degradation from soil erosion is considered by many to be the most significant environmental problem facing the world today, affecting some 30-50% of the earth's land surface. Current estimates indicate that 10-15 million hectares of land are lost each year through erosion and salinization from irrigation and that at the present rate of loss of topsoil reserves on most sloping lands would be depleted within 200 years. Because of humankind's almost total dependence on the land for food, soil erosion represents a real threat to the security of our food supply. In addition, indirect effects of soil erosion include the clearance of forests to replace lost agricultural land and the degr-

dation of water resources and aquatic ecosystems due to sedimentation. The need for the immediate conservation of the world's soil resources is therefore clear. As part of the response to this need, the Commission on Ecology of the International Union for the Conservation of Nature convened a special working group to consider the problem of world soil erosion and to propose practical solutions for soil conservation. This book presents the outcome of their work.

Chapter by chapter the situation in various countries is reviewed, giving an overall picture of the causes and extent of soil erosion throughout the world and an assessment of the conservation measures already in practice. The role played by farmers and government policies in the soil erosion problem is investigated and appropriate revision of agricultural and government policies proposed. The final chapters deal with more general aspects of soil erosion and conservation.

Price: £ 55

Orders to: see below.

Soils and the Environment. An Introduction. A. Wild. Cambridge University Press, 1993, xix + 287 p. ISBN 0-521-43859-4 (paperback), 0-521-43280-4 (hardback).

Although often taken for granted, soil is one of humankind's most important resources, providing for the growth of arable crops, grasslands and trees, which produce food, fibre for clothes, and timber for buildings and fuel. As part of the natural environment, soil supports the plant growth necessary for the cycling of gases, provides a habitat for a wide range of organisms, buffers the flow of water and solutes between the atmosphere and ground and surface waters, and acts as both a source and sink for gases in the atmosphere.

Written in an accessible style, this book provides a well-balanced overview of the role and behaviour of soils in both the man-made and the natural environment. It is structured in 2 parts: Part A is intended as an introduction to general soil properties and processes, whilst part B considers soil in relation to the environment, dealing with topics such as the role of soil in supporting plant growth, in maintaining a clean environment, and in the flux of atmospheric gases. Issues such as acidification, contamination with heavy metals, and erosion and conservation are also considered.

Price: £ 14.95 (paperback), £ 40 (hardback).

Orders to: Cambridge University Press, The Edinburgh Building, Cambridge CB2 2RU, U.K.

Modeling Chemical Transport in Soils. Natural and Applied Contaminants. H. Ghadiri and C.W. Rose, editors. Lewis Publishers, Boca Raton, 1992, xix + 217 p. ISBN 0-87371-747-3. Hardback.

This book provides a comprehensive discussion of mathematical models used to anticipate and predict the consequences and fate of natural and applied chemicals. It evaluates the strengths, weaknesses, and possibilities for application of numerous models used throughout the world. It examines the theoretical support and need for experimental calibration for each model. The book also reviews world literature to discuss such topics as the movement of sorbed chemicals by soil erosion, the movement of reactive and nonreactive chemicals in the subsurface and groundwater, and salt transport in the landscape.

This volume is meant for environmental scientists, agricultural engineers, regulatory personnel, farm managers, consultants, and the chemical industry.

Price: US\$ 78, UK£ 58

Orders to: see below.

Environmental Particles. Vol.1. Environmental Analytical and Physical Chemistry Series. J. Buffle and H.P. van Leeuwen. Lewis Publishers, Boca Raton, 1992, xxii + 554 p. ISBN 0-87371-589-6. Hardback.

This publication describes properties, roles, and methods for the characterization of environmental particles in air, water, sediment, and soil. It emphasizes modern methods for sampling, instrumental characterization methods, and physical/chemical principles for describing the properties and roles of particles in the environment (particularly their influence on the transport of toxic compounds). It will be an excellent reference source for environmental chemists and physicists, limnologists, oceanographers, air and soil scientists, analytical chemists, environmental engineers, scientists involved in environmental protection, and students.

Price: US\$ 79.95, UK£ 71

Orders to: Lewis Publishers Inc., 2000 Corporate Blvd, N.W. Boca Raton, FL 33431, U.S.A. or: CRC Press, London Office, 22-24 Torrington Place, London WC1E 7HJ, U.K.

Les Sols Rouges de l'Inde Péninsulaire Méridionale. Pédogenèse Fersiallitique sur socle cristallin en milieu tropical. G. Bourgeon. Institut Français de Pondichéry, Pondichéry, 1992, vi + 271 p. Cartonné.

Cet ouvrage présente une contribution à l'étude de certains processus de formation des "sols rouges" et, plus généralement, une contribution à la connaissance de ces sols et du type de pédogenèse qu'ils illustrent: La première partie de ce mémoire est consacrée à la présentation des principaux facteurs de la pédogenèse: présentation succincte à l'échelle de l'Inde péninsulaire prise dans son ensemble; présentation d'plus détaillée de la région retenue pour cette étude. Cette présentation à deux niveaux permet d'ébaucher quelques règles générales de répartition des "sols rouges" en fonction des facteurs de la pédogenèse, et de choisir des sites d'étude et de juger de leur représentativité. L'une des caractéristiques intéressantes de la péninsule indienne est d'offrir des transitions climatiques extrêmement rapides; la région retenue pour cette étude a donc été sélectionnée de façon à couvrir une large gamme de pluviosités.

C'est la démarche morphopédologique qui a ensuite été utilisée pour identifier et caractériser différents types de "sols rouges": la couverture pédologique a été compartimentée en unités morphopédologiques élémentaires; puis des profils représentatifs ont été analysés pour certains des compartiments identifiés.

Commandes à: Institut Français de Pondichéry, 10, St. Louis Street, P.B. 33, Pondichéry 605001, India.

Climate Change and Vulnerable Places: Global Food Security and Country Studies in Zimbabwe, Kenya, Senegal and Chile. T.E. Downing. Environmental Change Unit, Oxford, 1992, x + 54 p. ISBN 1-874370-00-1. Paperback.

This research report summarizes the results of a collaborative effort to understand the potential impacts of global climate change. The project carried out a global assessment of the sensitivity of crop yields and agricultural production, trade and consumption to scenarios of climate change. An additional component of the project explicitly addressed vulnerability to hunger: Who is vulnerable now? Where do they live? What are the risks of climate change, in addition to trends in resources, population and economy? These issues are addressed in this publication. At the global level, the author introduces an analytical framework and reviews what we currently know about world food security. Specific issues regarding food security, climate change and development are then addressed in four country studies, for Zimbabwe, Kenya, Senegal, and Chile.

Price: UK£ 6 (plus £ 1 for postage)

Orders to: Environmental Change Unit, University of Oxford, 1a Mansfield Road, Oxford OX1 3TB, U.K.

Land Husbandry. N. Hudson. BT Batsford, London, 1992, 192 p. ISBN 0-7134-5976-X. Hardback.

In a world in which human populations are over-spilling from crowded fertile land into environments increasingly marginal for agriculture, this book offers a wide-ranging and well-informed discussion of the issues. A great deal of information on viable solutions to problems of soil and water management is condensed into a brief and readable compass.

The author, well-known from his book *Soil Conservation*, has observed major changes in both the technology and the philosophy of sustainable land-use. The driving force of population growth is well described. The poor record of the viability of donor-aided projects for improving of land-use, especially in Africa, is discussed in terms with which experienced readers will agree. In marginal drylands, cattle numbers have grown even faster than those of their owners. In discussion of the various attempts to reduce the consequent damage by livestock to soil and water resources the author has emphasised the difficulties rather than the solutions.

The change of emphasis, in the control of soil-erosion, from mechanical structures to biological management is emphasised as needing a combined approach rather than as alternatives. Illustrations of farming in steeplands, as in Nepal and Pakistan, where arable farming is not possible without terracing, serve to emphasise that sustainable land-use depends on better, and more profitable farming, whatever the topography. For subsistence farmers soil conservation is presented as more effectively taught by extension staff rather than by the specialist conservation services which are effective in large-scale farming.

The last two chapters offer an instructive summary of technologies for steeplands and drylands in developing countries. The book is well illustrated by photographs and diagrams.

Price: £ 30

Orders to: BT Batsford Ltd., 4 Fitzhardinge Street, London W1H 0AH, U.K.

H.C. Pereira, Maidstone, U.K.

Lysimeter Studies of the Fate of Pesticides in the Soil. BCPC Monograph No. 53. F. Führ and R.J. Hance, editors. British Crop Protection Council, Farnham, 1992, viii + 192 p. ISBN 0-948404-64-7. Paperback.

Lysimeters have been applied to research on pesticides in the soil. The papers comprising this monograph are by experts concerned with the development of reliable experimental models for following the movement, leaching, persistence and breakdown of pesticides in soils. Radio-labelled pesticides have been used in these studies both to elucidate the fate of pesticides and to determine whether lysimeter experiments can provide reliable information on the leaching of pesticides into groundwater and the environment.

This monograph will be of interest to agricultural and environmental research workers studying the use of pesticides and their possible adverse environmental effects, especially on water supplies. It will also be of interest to those concerned with the regulatory control of pesticides and the potential value of lysimeter studies in formulating control measures.

Orders to: BCPC Publications Sales, Bear Farm, Binfield, Bracknell, Berkshire RG12 5QE, U.K.

Tropical Soils and Fertiliser Use. Intermediate Tropical Agriculture Series. P.M. Ahn. Longman, Harlow, 1993, xii + 264 p. ISBN 0-582-77507-8. Paperback.

The aim of this book is to combine two things: to provide a general introduction to tropical soil science, and to summarise for a range of tropical crops, what is known about fertiliser use and fertiliser responses on different soils. One major feature of the book is that it assumes no previous knowledge of the subject: step-by-step explanations are designed to introduce the student to a range of technical approaches, from methods of assessing soil fertility, to soils and fertilisers for coffee and rice production. It contains also a comprehensive glossary and further reading lists.

Price: £ 8.95

Orders to: Longman Scientific and Technical, Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England.

Biodynamique d'une couverture Pédologique dans la Région de Botucatu (Brésil - SP). A.A. de Wolinsk Miklos. Thèse de Doctorat de l'Université de Paris VI, 1992. Vol. 1: 247 p; Vol. 2: Figures et Photos.

Cet ouvrage étudie l'organisation spatio-temporelle d'une couverture ferrallitique développée sur grès (Groupe Bauru) et basalte (Formation Serra Geral) dans la région de Botucatu (SP), Brésil. L'objectif du travail a été de décrire et de comprendre les structures de cette couverture pédologique et leur dynamique.

Les principaux résultats du travail mené à Botucatu concernent: (1) La genèse et l'évolution des structures microagrégées (ovoïdes et polyédriques) et macragrégées polyédriques des Latosols (Ferralsols) et des Terras Roxas Estruturadas (Nitosols); (2) Le rôle fondamental de la macrofaune du sol (principalement fourmis Atta et termites) dans l'organisation et dans la biodynamique de ces sols; (3) L'évolution des structures et des mécanismes à travers la mise en évidence des fronts de transformation; et (4) La reconstitution de l'histoire de cette couverture pédologique.

Commandes à: Prof. A.A. de Wolinsk Miklos, Depto. de Ciencia do Solo, Universidade de Sao Paulo, Campus de Piracicaba, Cx. Postal 9, 13418-900 Piracicaba, SP, Brésil.

Dictionary of Environmental Protection - Wörterbuch Umweltschutz. English/German-German/English. D. Lukhaup. VCH Verlagsgesellschaft, Weinheim, New York, 1992, 532 p. ISBN 3-527-28244-0 (German edition) 0-56081-120-X (US edition). Hardcover.

Environmental protection is the most pressing issue of today's world. It is restricted by neither frontier nor language. Everybody concerned with the requirements necessary to protect both the environment and mankind against pollution or contamination needs the vocabulary presented in this book.

Umweltschutz ist die wichtigste Sache unseres Lebens. Sie kennt weder Landes- noch Sprachgrenzen. Jeder, der mit den Forderungen des Schutzes der Umwelt oder des menschlichen Daseins gegen Verschmutzungen aller Art zu tun bekommt, benötigt den Wortschatz dieses Gebietes.

Price/Preis: DM 148

Orders to/Bestellungen an: VCH Verlagsgesellschaft, P.O.Box 10 11 61, D-69451 Weinheim, Germany; or: VCH Verlagsgesellschaft, 220 East 23rd Street, New York, NY 10010-4606, U.S.A.

Fertilizer Use Efficiency under Rainfed Agriculture in West Asia and North Africa. J. Ryan and A. Matar, editors. International Center for Agricultural Research in the Dry Areas, Aleppo,

1992, xiii + 288 p. Paperback.

This volume is based on the presentations made by soil scientists from 11 countries in the West Asia/North Africa region, at the fourth regional workshop on fertilizer use efficiency workshop held in Morocco in May 1991. The papers are organized in the five following sections: (1) Relationships between mineralogy, chemistry, and soil fertility; (2) Factors affecting response to fertilization; (3) Soil test calibration under dryland conditions; (4) Economics of fertilizer strategies; and (5) Country reports.

Orders to: ICARDA, P.O.Box 5466, Aleppo, Syria.

Drainage Guidelines. World Bank Technical Paper 195. W.J. Ochs and B.G. Bishay. The World Bank, Washington, 1992, v + 186 p. ISBN 0-8213-2312-1. Paperback.

This paper provides research results for and experience with agricultural drainage and related subjects. It has been developed to guide Bank staff, consultants, and borrowing-country technicians as they work through the project cycle, seeking to assist planners and designers, as well as those responsible for implementation and follow-up, when projects involve drainage measures.

The guidelines were designed to help improve the quality of drainage measures for both irrigated and rainfed agriculture under a wide range of climatic conditions, with the core objective of providing the proper inputs to improve the sustainability of agricultural lands and to protect the environment. The relationship between water management and agricultural production is crucial; thus, sound drainage investments must be considered when planning and developing projects, and drainage measures must be balanced with proper irrigation and agronomic practices to optimize agricultural productivity and economic benefits.

Price: US\$ 11.95

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

Evaluation for Sustainable Land Management in the Developing World. IBSRAM Proceedings No.12, Vol. I-III. International Board for Soil Research and Management, 1991. ISBN 974-7087-05-7. Paperback.

These three volumes present the proceeding of the workshop held in Thailand in September 1991. Volume I summarizes the discussions and recommendations of six working groups which considered action and approach statements entailed in the formulation of a framework for the evaluation of sustainable land management. The FAO Framework for Land Evaluation provides a method to assess the suitability of alternative land use, and requires that suitability should refer to the use of land on a sustained basis. However, no procedures for assessing sustainability were included in this framework. The report published in Volume I is a first step towards formulating such procedures.

Volume II provides an edited text of the keynote papers, lead papers and support papers presented at the workshop. The final volume gives a comprehensive account of the papers presented in the poster sessions.

Price: US\$ 60 plus postal charges.

Orders to: IBSRAM, P.O.Box 9-109, Bangkhen, Bangkok 10900, Thailand.

Humic Substances in the Aquatic and Terrestrial Environment. Lecture Notes in Earth Sciences No.33. B. Allard, H. Borén and A. Grimvall, editors. Springer-Verlag, Heidelberg, New York, 1991, viii + 514 p. ISBN 3-540-53702-3 (German edition) 0-387-53702-3 (US edition). Paperback.

Humic substances comprise a class of biogenic, coloured, organic substances that are ubiquitous in soil, sediment and water. Originally, the occurrence and nature of humic substances were regarded as issues of primarily academic interest. This situation is now rapidly changing, and studies of humics have gained recognition as important contributions to environmental science. In particular it has been shown that humic substances, in several different ways can interact with biologically active substances, thereby modifying their

The articles published in this book demonstrate how humic substances now attract the attention of scientists from a large number of different disciplines. Several of the studied problems are of such a character that they can only be solved through multidisciplinary work. At the same time, numerous basic studies of humic substances and other natural organics are still being performed and are prerequisites for a better understanding of the role of these compounds in the environment.

This volume presents the proceedings of an International Symposium held in Sweden in August 1989. Next to an introductory paper by the authors, the papers are divided into 5 sections: (1) Isolation, fractionation and characterization; (2) Biological and chemical transformation and degradation;

(3) Complex formation and interactions with solids; (4) Biological activity; and (5) Halogenation of humic substances.

Orders to: Springer-Verlag, Postfach 105280, W-6900 Heidelberg 1, Germany; or: Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, U.S.A.

Enfoques de Ecología Humana Aplicados a los Sistemas Agrícolas Tradicionales del Trópico Americano. J.J. San José y J. Celecia, editores. Centro Internacional de Ecología Tropical, Caracas, 1991, 611 p.

Desde los comienzos del Programa Sobre el Hombre y la Biosfera (MAB) de la Unesco, la preocupación esencial ha sido de no solamente considerar el impacto ejercido por el hombre y las actividades humanas sobre el ambiente, sino también, el impacto que el ambiente transformado por el hombre ejerce sobre el hombre mismo. El propósito de este volumen es analizar las experiencias agrícolas tradicionales de los asentamientos humanos en el Trópico Americano, y sus interacciones con los procesos naturales. Además de evaluar las prácticas tradicionales y el manejo de recursos naturales en función del mejoramiento de la relación entre el hombre y el medio. La intención es formular pautas y recomendaciones para incluir la dimensión humana en los programas de investigación y desarrollo.

Este volumen está basado en presentación de resultados y revisiones de temas, complementados con el estudio de casos. La discusión de resultados y síntesis, trata sobre los sistemas agrícolas tradicionales, y el efecto de las gestiones de uso de la tierra en la calidad y condiciones de vida, la vulgarización del conocimiento tradicional y percepción de las comunidades locales, las estrategias para involucrar a las poblaciones locales en la gestión de recursos, y los patrones de asentamientos humanos y uso de los recursos. Los casos estudiados están focalizados en investigaciones y experiencias particulares sobre proyectos que tienen una aplicación prioritaria en el manejo de recursos.

Orden: Dr. J. San José, Director CIET/UNESCO, Aptdo. 21827, Caracas 1020A, Venezuela.

Functions of Nature. Evaluation of nature in environmental planning, management and decision making. R.S. de Groot. Wolters-Noordhoff, Groningen, 1992, xviii + 315 p. ISBN 90-01-35594-3. Soft cover.

Although there is a growing awareness about the many benefits of protected areas, concrete information about their full economic value is still scarce. This book provides a comprehensive method whereby all functions and values of natural and semi-natural ecosystems can be assessed and evaluated in a systematic manner. A checklist of 37 environmental functions is given with examples of the functions and socio-economic value of three major types of ecosystems: tropical moist forests, wetlands, and an oceanic island ecosystem: the Galapagos National Park.

In order to achieve the conservation and sustainable utilization of nature and natural resources, better information on the (economic) value of natural areas alone, however, is not enough. Unless ecological information is structurally integrated in the planning and decision-making process solving the environmental problems of today will prove difficult, if not impossible. In the last chapter, examples are therefore given of how the environmental function-concept can be used as a tool in environmental planning, management and decision-making, and stresses the need for 'ecologizing' economic theory and practice.

Price: US\$ 48

Orders to: Wolters-Noordhoff, P.O.Box 58, 9700 MB Groningen, the Netherlands.

State of the World. L.R. Brown et al. Worldwatch Institute, Washington, 1993, xix + 268 p. ISBN 0-393-30963-0. Soft cover.

This volume shows that our prosperity depends on building an environmentally sustainable global economy. The policy decisions we make during this decade will determine whether our children live in a world of development or decline. Eliminating the environmental threats to our future requires change of revolutionary proportions. It requires (1) replacing climate-disrupting fossil fuels with efficient, solar-based energy systems; (2) new transportation networks that increase reliance on rail and bicycles, and lessen automobile use; (3) equity for the indigenous peoples of the Earth - those who guard the last unspoiled ecosystems of the world; (4) equality of opportunity for both sexes in all cultures; (5) a commitment to boosting the efficiency of water use everywhere; (6) the greening of business at all levels; and (7) a rapid shift to smaller families.

Price: US\$ 10.95

Orders to: W.W. Norton & Company, 500 Fifth Avenue, New York NY 10110, USA; or: W.W. Norton & Company, 10 Coptic Street, London WC1A 1PU, U.K.

Integrating Sustainable Agriculture, Ecology, and Environmental Policy. R.K. Olson, editor. Food Products Press, 1992, xvi + 161 p. ISBN 1-56022-024-4 (soft cover) 1-56022-023-6 (hard cover).

This volume explores how ecological knowledge, applied as part of a multidisciplinary effort, can be used to design a sustainable and environmentally sound agriculture. A more ecologically based agriculture can increase production efficiency and decrease environmental impacts, but hard choices regarding population control, energy conservation, and land use must still be made. This interdisciplinary approach ensures that the results are beneficial to all components, for example, an ecologically based management scheme which bankrupts the farmer is not considered a viable option for sustainable agriculture. These thought-provoking chapters are an excellent beginning to the development of an environmentally sound sustainable agriculture.

Price: US\$ 25.95 (soft), US\$ 32.95 (hard).

Orders to: The Haworth Press, 10 Alice Street, Binghamton, NY 13904-1580, U.S.A.

L'Aridité: une Contrainte au Développement. Caractérisation, Réponses Biologiques, Stratégies des Sociétés. E. Le Floch, M. Grouzis, A. Cornet et J.-C. Bille. éditeurs. ORSTOM, Paris, 1992, 597 p. ISBN 2-7099-1068-3.

Cet ouvrage collectif, rédigé à l'initiative du réseau zone aride, regroupe des résultats de travaux de recherche relatifs aux zones arides et entrepris dans des situations géographiques variées par diverses disciplines scientifiques. Les objectifs de cette publication ont été de montrer la diversité des zones arides, de caractériser l'aridité, ses manifestations et ses conséquences pour le développement et enfin de mettre en relief les solutions adoptées par les populations et les Etats pour tenter de contourner cette contrainte. Les trois parties de cet ouvrage sont: aridité climatique, aridité édaphique à différentes échelles de temps et d'espace; interactions des facteurs du milieu et réponses biologiques à l'aridité; stratégies des sociétés et des Etats. Les zones géographiques étudiées se situent au Moyen-Orient, dans le nord, l'est et l'ouest de l'Afrique, en Amérique Latine et du Nord.

Prix: FF 200

Commandes à: Editions de l'ORSTOM, 70 route d'Aulnay, F-93143 Bondy Cedex, France.

Cultural Development and Environment. G. Tohmé. Unesco, 1992, 120 p. ISBN 92-3-102787-5. Paperback.

The links between culture and environment in development have long been overshadowed by material growth. Yet no one today can ignore the impact of economic development on the environment and the damage that had been caused. After describing the factors which affect cultural development and showing how the agents of democracy and cultural training can support craftwork, protect the cultural heritage, and develop the attitudes and awareness of an environmental ethic, the author draws attention to the links which bring together not only the environmental and cultural development, but also agricultural and pastoral farming methods, work and technology, public health, architecture and urbanization.

Price: FF 50

Orders to: Les Presses de l'Unesco, UNESCO, 7 place de Fontenoy, 75700 Paris, France.

Vanishing Tuscan Landscapes. W. Vos and A. Stortelder. Pudoc Scientific Publishers, 1992, 404 p. ISBN 90-220-0964-5. Hard cover.

Agriculture and forestry is changing continuously, and consequently so do nature and landscape. Especially, the widespread traditional farming and forestry systems in the central and southern mountain areas of Europe have changed radically during past decades. These changes include extensification of land use or abandoning of land where conditions are less favourable, and intensification in the better-suited areas. There is a growing political awareness of the European dimension of these developments that are especially relevant to the Mediterranean area. This book demonstrates these processes for the beautiful region of the Solano Basin, in the Tuscan Apennines.

The reconstruction of land use in 1935 and the application of a simple land-use transformation scenario for the year 2035 allowed construction of a regular landscape development series 1935-1985-2035 by spatial-clustering procedures. The fine-grained arrangement of the old agricultural landscapes is gradually being broken up and replaced by a coarse pattern with less characteristic elements. The very extensive integrated study focuses on landscape at different levels: relevés, ecotopes, land units and land systems. The basis is thorough description and analysis of physiography, humus forms, vegetation and land use. Methods comprise field sampling, mapping, physical and che-

mical analysis, soil micromorphology, pollen analysis, and various multivariate analysis techniques. The work contributes to the theory and methods of landscape ecology.

Price: NLG 120; US\$ 80

Orders to: Pudoc, P.O.Box 4, 6700 AA Wageningen, the Netherlands.

Soil Microbial Ecology. Applications in Agricultural and Environmental Management. F. Blaine Metting, Jr., editor. Marcel Dekker, New York, Basel, 1993, xiii + 646 p. ISBN 0-8247-8737-4. Hardbound.

This book provides detailed discussions of the major groups of soil microorganisms, including rhizobacteria, symbiotic nitrogen-fixing bacteria, pathogenic fungi, mycorrhizal fungi, and microalgae.

Describing current and future applications of soil microbial technologies in agriculture, forestry and environmental management, this publication explores similarities and differences between forest and agricultural ecosystems in tropical and temperate zones; delineates all aspects of the development and commercialization of soil microbial technologies; examines microbial processes such as crop residue management, biological control, and composting; compares strategies and opportunities for manipulating microbial populations in industrialized and developing countries; places the emerging field of bioremediation in the perspective of soil microbial ecology, etc.

Price: US\$ 165

Orders to: Marcel Dekker Inc., Cimarron Road, P.O.Box 5005, Monticello, NY 12701-5185, U.S.A., or: Marcel Dekker, AG/IBS, Hutgasse 4, Postfach 8 12, CH-4001 Basel, Switzerland.

The Political Economy of Agricultural Pricing Policy. In 5 volumes. A.O. Krueger, M. Schiff and A. Valdés, editors. World Bank Comparative Study, published by The Johns Hopkins University Press, Baltimore and London, 1991-1992.

This non-soil science series of comparative studies examines how policies have affected agriculture in 18 developing countries. All five volumes consider the impact of both direct policies toward agriculture and of general development policies on incentives confronting agricultural producers and on agriculture's contribution to development. It is shown that general policies can have effects even more powerful than direct policies on incentives. Three regional volumes estimate price discrimination against agriculture and how it changed over time. They also evaluate its effect on e.g. income distribution, foreign exchange earnings and agricultural output. With this last variable the link with soils is laid.

Orders to: The Johns Hopkins University Press, Baltimore, MD 21211, U.S.A.

Soil Management for Irrigated Cotton. D.C. McKenzie, D.J.M. Hall, I.G. Daniells, T.S. Abbott, A.M. Kay and J.D. Sykes. NSW Agriculture, Orange, 1992, 28 p.

This Agfact provides an overview of the important properties and problems of the cracking clay and loam soils used for growing irrigated cotton in New South Wales, including profile photographs. It discusses how to diagnose the soil's physical condition, and provides suggestions about land selection and soil management for profitable and sustainable cotton production.

Orders to: NSW Agriculture, Sales Section, Kite Street, Orange, NSW 2800, Australia.

Pesticide Use and Pesticide Policy in the Netherlands. Wageningse Economische Studies 36. A.J. Oskam, H. van Zeijts, G.J. Thijssen, G.A.A. Wossink and R. Vijftigschild. Pudoc Scientific Publishers, Wageningen, 1992, xi + 155 p. ISBN 90-6754-232-6. Paperback.

This study gives a broad overview of the use and application of pesticides in the Dutch agricultural sector. Compared with surrounding countries, pesticide application in Dutch arable farming and horticulture is very high, mostly because the production systems are intensive. The targets of Dutch pesticide policy and the instruments available to implement this policy are explained. Pesticide use and policy in Sweden and Denmark is analyzed, and information and research results for some other European countries are also presented.

The main purpose of the study is to derive the level a regulatory levy needs to be to reach the targeted reductions in pesticide use formulated in the Long-term Crop Protection Plan.

Price: NLG 33, US\$ 22.

Orders to: Pudoc Scientific Publishers, P.O.Box 4, 6700 AA Wageningen, the Netherlands.

Fertility of Soils. A Future for Farming in the West African Savannah. Springer Series in Physical Environment 10. C.J.M.G. Pieri. Springer-Verlag, Berlin, New York, 1992, xix + 348 p. ISBN 3-

540-53283-8 (German edition), 0-387- 53283-8 (US edition). Hard cover.

Can a continuous growth of agriculture be achieved in the sub-Sahara region without inducing irreversible damage to the eco-system? Until now, doubts have been expressed as to the actual capacity of the soils to sustain a desirable increase of production which can match the requirements of a fast-growing population. Thirty years of investigation and a renewed comprehensive interpretation of research data on soil fertility show that a sustainable growth of agriculture could be a practical possibility in a savannah region.

Price: DM 248

Orders to: Springer-Verlag, Postfach 105280, W-6900 Heidelberg 1, Germany; or: Springer-Verlag, 175 Fifth Avenue, New York, NY 10010, U.S.A.

Agriculture in Drylands. Principles and Practice. Developments in Agricultural and Managed-Forest Ecology 26. I. Arnon. Elsevier Science Publishers, Amsterdam, New York, 1992, xii + 980 p. ISBN 0-444-88912-4. Hardcover.

Throughout history, man has, by over-use, consistently reduced the productive capacity of dry lands. This degradation of one-third of the land area of the globe is, unfortunately, increasing. In recent years, world interest has turned to the problems of pollution of the environment and the impending food shortage as world population grows explosively. Thus the attention of international and other agricultural bodies has turned to the need for preserving and developing more effectively the agricultural potential of these areas.

This book provides a review of present knowledge of the agriculture of dry lands, with special emphasis on measures for conserving their natural resources. Management practices are described which aim at optimizing productivity of rainfed and irrigated agriculture without adverse effects on sustainability. Land use in the dry regions, and its evolution throughout history is described and analyzed, and the lessons to be learnt from destructive technologies are stressed. In particular, current proposals for an alternative agriculture are discussed and their justification is questioned. The progress made in the course of the last two decades on all aspects of agricultural technology and development is considerable, and the author has succeeded in bringing together a wealth of information in attempting to encompass the entire subject of agriculture in the world's dry lands. The pedology chapter encompasses about 30 pages, soil fertility 50 pages, plant nutrition and fertilizer use 70 pages.

Price: US\$ 394, NLG 630

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.

The World Environment 1972-1992. Two decades of challenge. M.K. Tolba, O.A. El-Kholy, editors. Chapman & Hall, London, New York, 1992, xi + 884 p. ISBN 0-412-46990-1 (Hardback) 0-412-47000-4 (Paperback).

In 1972 the nations of the world met in Stockholm to lay down an international agenda for conserving the Earth's environment. The Action Plan that resulted from that conference addressed both the traditional environmental areas, such as pollution and wildlife preservation, and the vital concerns of the developing countries - water quality, soil degradation, deforestation, and economic issues such as trade, debt and the transfer of technology.

Twenty years on from Stockholm, this book looks back over the past two decades to see how the world has changed, and to what extent the international community has responded to these changes. Successes include a breakthrough agreement to protect the world's ozone layer and progress in the fight against acid rain. Areas of continuing concern include the accelerating loss of biodiversity; a continuing assault on some of the world's most fragile ecosystems; and, most daunting of all, the issue of global warming and climate change.

Price: £ 65 (hardcover), £ 24.95 (paperback).

Orders to: Chapman & Hall, 2-6 Boundary Row, London, SE1 8HN, England; or: Chapman & Hall, 29 West 35th Street, New York, NY 10001-2291, U.S.A.

The Soil Geochemical Atlas of England and Wales. S.P. McGrath and P.J. Loveland. Blackie Academic & Professional, Glasgow, 1992, 112p. ISBN 0-7514-0088-2. Hardback.

This new colour atlas is based on the National Soil Inventory of England and Wales, which mea-

sured the soil properties and soil geochemistry of nearly 6000 sites, located on a regular grid. The raw analytical data has been processed to produce a set of 40 colour maps, which clearly displays the soil geochemistry of England and Wales. This atlas includes the following maps: base maps, general soil properties, major nutrients, major elements, and trace elements.

Orders to: Blackie and Son Ltd., Alison Mc Gillivray, Bishopbriggs, Glasgow G64 2NZ, Scotland, UK.

Economic Models of Agricultural Land Conservation and Environmental Improvement. E.O. Heady and G.F. Vocke (editors). Iowa State University Press, Ames, 1992, xii + 275 p. ISBN 0-8138-0523-6. Hardback.

This volume presents a series of models used in the USA to analyze varying problems relating to land and water use and their conservation, the environment, technology, producers' market policy, and institutional impacts. Section I deals with interregional assessment of soil conservancy programmes for agriculture. Section II examines the adequacy of land and water resources for US agriculture under environmental improvement programmes. Section III evaluates for US agriculture the sediment control programmes and section IV analyses long term agricultural resource use and productivity change in the USA. Finally, section V incorporates demand response in environmental models of US agriculture.

Orders to: Baker and Taylor International, attn: Mark Hojsack, 652 East Main Street, Bridgewater, NJ 08870-0920, U.S.A.

Vetiver Grass: a Thin Green Line against Erosion. National Research Council. National Academy Press, Washington, 1993, xiv + 169 p. ISBN 0-309-04269-0. Paperback.

This book is neither a monograph on vetiver nor a field guide for its use. It is a scientific audit of the safety and effectiveness of the plant as used for erosion control. Basically, the book reviews existing research and experiences with the grass. It deals with different disciplines as environment, agronomy, forestry, soil science, engineering, and others. The purpose of this report is to make a judgment on this point: to assess vetiver's promise and limitations and to identify any research that may be necessary before this grass can be deployed rationally, widely, and without undue environmental risk. In other words, the particular purpose of the authors is to evaluate the ecological advantages and potential risks in employing grass that may eventually benefit watersheds, forests, and farms throughout the world's warmer zones.

Orders to: Vetiver Report, FO 2060V, National Academy of Sciences, 2101 Constitution Avenue NW, Washington, DC 20418, U.S.A.

Agricultural Ecosystem Effects on Trace Gases and Global Climate Change. ASA Special Publication No.55. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, 1993, xvii + 206 p. ISBN 0-89118-113-X. Paperback.

Global climate change is a topic that continues to generate a lot of interest among scientists, politicians, and community leaders. Just in this generation, the earth's climate is expected to change more rapidly than it has over any comparable period in history. Some of the changes are the result of natural processes. However, many changes are only starting to be understood. Increasing concentrations of atmospheric radiatively active trace gases are being inadvertently affected by fossil fuel combustion. Industry, agriculture, forestry, and transportation are also affecting the chemical composition of the atmosphere.

The challenge of the authors is to help the earth cope with a seemingly inevitable but unpredictable climate change resulting from the release of radiatively active trace gases into the atmosphere. This publication reviews the current knowledge on the measurement of radiatively active trace gases in agricultural ecosystems and the effect of agriculture on the atmospheric concentrations of these gases.

Price: US\$ 30 (+ 10% per book for postage on orders outside the USA). Advance payment required.

Orders to: SSSA Headquarters Office, Book Order Dept., 677 South Segoe Road, Madison WI 53711, U.S.A.

Soils of Punjab. Research Bulletin NBSS Publ.31. J. Sehgal, M.S. Bajwa and P.K. Sharma. National Bureau of Soil Survey & Land Use Planning, Nagpur, 1992, xvi + 122 p. ISBN 81-85460-07-8.

In September 1986 it was decided that a comprehensive soil resources map of India at 1:1,000,000 scale and of the different states on 1:250,000 would be prepared. A number of maps

have already been released and most of the areas of the subcontinent are being surveyed.

The Soil Map of Punjab has 20 soil units, subdivided into 29 subunits, for which approximate equivalents in Soil Taxonomy are given, mostly at subgroup level. Added are a physiographic map and a map of 'problem soils', both at the same scale. The explanatory text gives introductions to geology, land forms, land use and vegetation, climate, soil fertility, irrigation, and descriptions of soils. One chapter discusses the 'problem soils', mainly salt-affected soils. The annex has representative soil series descriptions with analytical data.

Orders to: Director, National Bureau of Soil Survey and Land Use Planning (NBSS&LUP), Amravati Road, Nagpur- 440 010, India.

Phosphorus Decision Support System Workshop. TropSoils Bulletin No. 92-01. Department of Agronomy and Soil Science, Honolulu, 1992. vi + 172 p. Paperback.

The developmental purpose of the Phosphorus Decision Support System was to capture in electronic form decades of phosphorus research and experience and use these data in solving current phosphorus problems at specific sites. The PDSS focus is to provide accurate and efficient detection and remedy of phosphorus deficiencies in crop production and phosphorus excesses that may be detrimental to natural resources.

A workshop was held at College Station in March 1992, and was organized to bring together key research collaborators in order to move toward the final completion of PDDS. Its goal was to review the status of phosphorus diagnosis and recommendation technology, identify diagnosis and recommendation research needs, review software development, identify remaining knowledge modules and plan project completion. The papers presented at this workshop are compiled in these proceedings.

Orders to: The Soil Management Collaborative Research Support Program, Management Entity Office, Box 7113, North Carolina State University, Raleigh, NC 27695-7113, U.S.A.

Late Quaternary Environmental Change. Physical & Human Perspectives. M. Bell and M.J.C. Walker. Longman, Harlow, 1992, xiv + 273 p. ISBN 0-582-04514-2. Paperback.

This publication focuses on both natural and anthropogenically-induced changes that have occurred in the landscape of the temperate zone during the closing stages of the last glacial and over the course of the present interglacial. It begins by studying the evidence for environmental change, followed by a discussion of the patterns and causes of both long-term and short-term climatic change, and the effects of climatic change on the biotic and abiotic components of the landscape. The human dimension is explored through an examination of the impact of environmental change on people, the effects of people on the landscape and the increasing influence of human activity on climate. This section of the book adopts an ecological approach to archaeology in which the interactive relationships between people and the environment are discussed against a background of climatic change.

This broad-ranging text reflects both the spatial and temporal interactions between the people, environment and climate of the recent geological past. Examples are taken from a wide range of sources in the earth and archaeological sciences.

Price: £ 15.99

Orders to: Longman Scientific and Technical, Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England. In U.S.A.: John Wiley & Sons, 605 Third Avenue, New York, NY 10158, U.S.A.

DrainCAD and CanalCAD. Catholic University of Leuven, Leuven, 1992.

DrainCAD is a software package developed at the Center for Irrigation Engineering, Catholic University of Leuven, Belgium. It is used for the layout and design of subsurface drainage systems. The corresponding software for the design of drainage ditches of a surface drainage system or the water supply network of an irrigation system is referred to as CanalCAD.

DrainCAD is used for: calculating the drain (lateral) spacing; computing the layout of the drainage system in any irregular shaped field; calculating the size of lateral pipe; and designing collector pipes with graphic output of the longitudinal profiles of the pipes. It provides a material list of the total length of different sizes of pipes. The topographic map of the field which it uses can be imported from digitized maps or from TOPOCAD.

CanalCAD calculates the water surface profile in a user interactive manner, the cross dimension of the canal, the dimension of the dikes along the canal for the desired cut/fill ratio, the total volume of cut and fill and it draws longitudinal profiles and cross sections of the canal at any scale. The design is based on the assumption of uniform flow, and that the water surface profile can be simulated

as non-uniform flow. After the design, the actual flow condition is checked.

Both programs are written in Turbo Pascal 5.0 and AutoLisp combined with Lotus Macros. For any IBM PC/XT/AT or fully compatible computer.

Further details: Center for Irrigation Engineering, Katholieke Universiteit Leuven, Vital Decosterstraat 102, B-3000 Leuven, Belgium.

Name that Soil, Version 2.0 (international) for IBM PC-compatible Microcomputers. C R Software 1993, Aberystwyth.

Version 2.0 of "Name that Soil" is an educational program written by Dr. Colin Rudeforth who has a wealth of experience in soils and land evaluation. It can be operated on an IBM PC-AT 286 or higher with one floppy disk drive (3.5 or 5.25 inch) and EGA or VEGA graphics. Upon purchasing of a Licence Agreement from C R software, which will provide the user with a personal identification number (PIN-code) to access the software, a series of user-friendly and self-explanatory menus are displayed on the screen. Menu 1 includes an introduction to the system, describes the origin and make-up of soils, leads to the main menu for soil identification, and includes a User's Guide and list of sources of information. The Main Menu for soil identification permits to: specify climates to complement soil classifications; identify soil forming materials; classify soils by the FAO/Unesco/ISRIC system, at Major Group, Unit and phase levels; determine, as a secondary process, approximate taxonomic equivalents in USDA Soil Taxonomy. The named FAO soils can be visualized on the screen, providing a useful illustration of the basic concept of a soil unit. The program allows the user to appreciate pictorially the main differences of all 153 FAO soil units. The package further includes a glossary of soil science terms.

"Name that Soil" appears to be particularly suited for those who do not need to gain a full knowledge of the technical aspects of soil formation and classification, but wish to learn more about soils using the computer. It should be particularly useful for teaching soil-related subjects at A-levels and introductory courses in Universities. A possible shortcoming may be the multi-coloured screen displays, which tend to become tiring to the eyes after prolonged usage.

Prices: Personal Licence: £ 100 + £ 5 p&p; Site Licences: Departmental Licence at £ 390, College Licence at £ 580. Licences for Companies, Research Institutes and Schools are negotiable.

Orders to: C R Software, 19 Maeshendre, Waunfawr, Aberystwyth, Dyfed, SY23 3PR, United Kingdom.

N.H. Batjes, Wageningen, The Netherlands

A Farmer's Primer on Growing Rice. Revised edition. B.S. Vergara. International Rice Research Institute, Manila, 1992, 219 p. ISBN 971-22-0029-9. Paperback.

More than ever, rice farmers, technicians, teachers, and scientists need to understand the whys and hows of modern rice production. But recommendations given to farmers often do not answer questions such as how to increase the efficiency of nitrogen fertilizer, how to lessen the chance of lodging, or why modern varieties are usually superior.

The author conceived the idea for the original primer while teaching rice production courses. He became aware of the lack of simple but precisely written information that clearly explained good rice-growing practices. The original primer has been published in more than 20 countries in Asia, Africa and Latin America. This is a revised edition with updated and improved presentation of the information.

Price: HDC US\$ 18; LDC US\$ 3.25 (plus mail charges).

Orders to: IRRI, Information Center, P.O. Box 933, 1099 Manila, Philippines.

People protecting their Land. Dept. of Conservation and Land Management, Sydney, 1992. 2 volumes, 832 p. ISBN 0-7305-9977-9. Paperback.

This are the proceedings of the 7th ISCO Conference in Sydney, Australia, 1992. The series of international conferences organized by the International Soil Conservation Organisation (ISCO) are now well-established as a forum for bringing together soil conservationists from around the world and the exchange of current thinking, latest research, and the exchange of information from case studies. The main sections in these proceedings are: Becoming aware of the health of the land; Providing the right framework; Sustainable land management practices; and Helping people protect their land. Within each of these main section the papers are subdivided into those dealing with the local, national and international scale.

N.W. Hudson, Bedford, U.K.

Price: A\$ 60, plus A\$ 45 postage and handling

Orders to: Dept. of Conservation and Land Management, GPO Box 39, Sydney, NSW 2001, Australia.

Pestizide im Boden. Mikrobieller Abbau und Nebenwirkungen auf Mikroorganismen. K.H. Domsch. VCH, Weinheim, 1992, 574 S. ISBN 3-527-28431-1. Geb.

Im allgemeinen Teil mit 50 Seiten werden die Einflüsse von Humus- und Tongehalt, pH, Wasser-, Luft- und Wärmeverhältnissen sowie der Zufuhr anorganischer und organischer Stoffe auf den mikrobiellen Abbau von Pestiziden dargestellt. Eingehend werden auch Menge, Zusammensetzung und physiologischer Zustand der mikrobiellen Biomasse in ihrer Bedeutung für den Abbau erläutert, desgleichen die Wirkstoffmenge, -formulierung und -ausbringung. Im speziellen Teil mit 310 Seiten werden die chemische Zusammensetzung, der Wirkstofftyp, die Anwendungsform, Dampfdruck und Löslichkeit, der mikrobielle Abbau unter Feld- und Laborbedingungen, z.T. auch bei variierten Wärme-, Wasser- und Luftverhältnissen sowie Nebenwirkungen auf Mikroorganismen von insgesamt 350 Fungizid-, Herbizid-, Insektizid-, Akarizid-, Nematizid- und Begasungswirkstoffen dargestellt. Den Abschluss bildet die Abbaubarkeit häufig entstehender Metabolite. Grundlage der gelungenen Darstellung bildet die Auswertung von über 3600 Arbeiten. Das Werk kann allen an Wirkung und Nebenwirkung von Pestiziden Interessierten nachdrücklich zur Lektüre empfohlen werden.

H.-P. Blume, Kiel, Deutschland Preis: DM 225

Bestellungen an: VCH Verlagsgesellschaft, P.O.Box 10 11 61, D-69451 Weinheim, Deutschland.

The Soil Geochemical Atlas of England and Wales. S.P. McGrath and P.J. Loveland. Chapman & Hall, London, 1992, 112 p. ISBN 0-7514-0088-2. Hardback.

This colour atlas is based on the National Soil Inventory of England and Wales, which measured the soil properties and soil geochemistry of nearly 6000 sites, located on a regular grid. The raw analytical data has been processed to produce a set of colour maps, which, for the first time, clearly displays the soil geochemistry of England and Wales. Outside the base maps, the book presents maps on general soil properties, major nutrients, major elements, and trace elements.

Price: £ 195

Orders to: Chapman & Hall, 2-6 Boundary Row, London, SE1 8HN, England.

Agricultural Intensification and Environment in Tropical Areas. R. Delleré and J.-J. Symoens, editors. Technical Centre for Agricultural and Rural Co-operation, Wageningen, in cooperation with Royal Academy of Overseas Sciences, Brussels, 1991, 202 p. Paperback.

In many tropical countries the population growth rate is escalating and governments are finding themselves increasingly unable to meet the food requirement of their people. The need for these countries to increase their food production cannot be disputed. But, if these countries are to avoid the devastating bush clearing and resultant deforestation, this would call for the intensification of agriculture.

On the other hand, the technologies required for this intensification can, in turn, produce damaging effects to the environment, a vital resource on which the very lives of the people depend.

It was with these reflections in mind that a Seminar has been organized in Brussels in June 1990. This book presents the proceedings of this Seminar.

Orders to: CTA, P.O. Box 380, 6700 AJ Wageningen, the Netherlands; or: Royal Academy of Overseas Sciences, Rue Defacqz 1, boîte 3, B-1050 Brussels, Belgium.

Soil Organic Matter Dynamics and Sustainability of Tropical Agriculture. K. Mulongoy and R. Merckx, editors. John Wiley & Sons, Chichester, New York, 1993, xiii + 392 p. ISBN 0-471-93915-3. Hardback.

This volume contains the proceedings of an international symposium held in 1991 at the end of 5 years of collaborative research of the International Institute of Tropical Agriculture (IITA) and the Laboratory of Soil Fertility and Soil Biology of the Katholieke Universiteit Leuven (K.U. Leuven), Belgium. The research focused on the dynamics of soil organic matter and soil fertility under various improved cropping systems, with an emphasis on biological aspects. The objective of the symposium was to provide a forum for reporting the findings from the first phase of the project to a wide audience of scientists and agronomists from many parts of the world, but particularly to those from the national agricultural research systems of West and Central Africa. The symposium also provided an opportunity to review current knowledge on soil organic matter processes and to formu-

late recommendations for future research, including the research to be conducted during the second phase of the collaborative project.

The papers are distributed in 4 sections: (1) Characterization and quantification of soil organic matter; (2) Organic inputs and soil organic matter; (3) Nutrient cycling and processes regulating the transformation of soil organic matter; and (4) Soil organic matter and soil fertility.

Price: £ 49.95

Orders to: see below.

Conservation in Progress. F.B. Goldsmith and A. Warren, editors. John Wiley & Sons, Chichester, New York, 1993, xiii + 364 p. ISBN 0-471-93641-3 (cloth) 0-471-93716-9 (paperback).

The Ecology and Conservation Unit at University College London has been teaching a postgraduate course in conservation since 1960. Two books *Conservation in Practice* and *Conservation in Perspective*, have already been published. This third volume continues the series and covers completely new material on how the conservation movement has evolved and continues to evolve and the role that agencies, the media and private enterprise play in conservation management. It is exclusively produced by lecturers and graduates of the course and represents a comprehensive picture of nature conservation in Western Europe in the early 1990s with chapters written by international experts in their particular fields.

Price: £ 39.95/US\$ 65.95 (cloth); £ 19.95/US\$ 32.95 (paperback).

Orders to: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, England; or: John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, U.S.A.

Sustainable Agriculture. Issues, Perspectives and Prospects in Semi-Arid Tropics. R.P. Singh, editor. Indian Society of Agronomy, New Delhi, 1990, 2 volumes: 492 + 312 p. Paperback.

These volumes contain the proceedings of the First International Symposium on Natural Resources Management for a Sustainable Agriculture, held in New Delhi, 6-10 February 1990. All 40 papers which were presented are included in these volumes, covering a wide variety of subjects.

Price: US\$ 75

Orders to: Prints India, Prints House, 11 Darya Ganj., New Delhi 110002, India.

Les Sols de l'Archipel Volcanique des Nouvelles-Hébrides (Vanuatu). P. Quantin. Editions de l'ORSTOM, Paris, 1992, 498 p. ISBN 2-7099-1108-6. Cartonné.

L'archipel des Nouvelles-Hébrides est un arc volcanique de formation récente. Il existe une bonne relation entre sols et causes actuelles de formation. Cet ouvrage se divise en trois parties: La première "Environnement des sols", présente le climat, la géologie, la géomorphologie, la végétation et l'utilisation des sols par l'homme. La deuxième montre les acteurs; ce sont les sols: leurs caractères de différenciation, leur distribution dans le paysage en fonction de l'âge des matériaux et du climat. La troisième partie fait découvrir le dessein et la destinée; il s'agit de l'évolution chimique et minéralogique des sols dérivant de cendres volcaniques. Cette partie est présentée en dix tableaux.

Commandes à: Editions de l'ORSTOM, 70 route d'Aulnay, F-93143 Bondy Cedex, France.

New Journals/Nouveaux Périodiques/Neue Zeitschriften

Ecological Engineering. The Journal of Ecotechnology. Quarterly published by Elsevier Science Publishers, Amsterdam, New York, 1992. W.J. Mitsch, editor-in-chief. ISSN 0925-8574.

The journal is meant for ecologists who are involved in designing, monitoring, or constructing ecosystems. It is meant to serve as a bridge between ecologists and engineers, as ecotechnology is not wholly defined by either field.

Ecological engineering has been defined as the design of ecosystems for the mutual benefit of humans and nature. Specific topics covered in the journal include: ecotechnology; synthetic ecology; bioengineering; sustainable agroecology; habitat reconstruction; restoration ecology; ecosystem conservation; ecosystem rehabilitation; stream and river restoration; wetland restoration and construction; reclamation ecology; non-renewable resource conservation. Applications of ecological engineering include wetland creation and restoration, pollution control by ecosystems, restoration and rehabilitation of forests, grasslands, lakes, reservoirs and rivers, and development of sustainable agroecosystems.

Subscription price: Dfl 290 (about US\$ 160)

Orders to: in the USA and Canada: Elsevier Science Publishers, P.O.Box 882, Madison Square Sta-

tion, New York, NY 10159, U.S.A. Elsewhere: Elsevier Science Publishers, P.O.Box 181, 1000 AD Amsterdam, the Netherlands.

Vegetation History and Archaeobotany. Quarterly published by Springer Verlag, Heidelberg, New York, 1992. K.-E. Behre, editor-in-chief. ISSN 0939-6314.

This journal publishes research papers, review articles and short contributions of the entire field of vegetation history - mainly the development of flora and vegetation during the Holocene (but also from the Pleistocene), and including related subjects such as palaeoecology.

Of special interest will be the human impact upon the natural environment in prehistoric and medieval times; this is reflected in pollen diagrams as well as in plant remains from archaeological contexts.

Subscription price: DM 248 (plus postage)

Orders to: Springer-Verlag, Postfach 10 52 80, Tiergartenstr. 17, W-6900 Heidelberg 1, Germany.

Ciencias del Suelo, Riego y Mecanización. 3 Volumes a year. Published by Centro de Información y Documentación Agropecuario, La Habana, 1991.

Esta publicación substitue tres otras publicaciones del CIDA: Mecanización de la Agricultura; Riego y Drenaje; and Suelos y Agroquímica.

Contiene artículos inéditos con los resultados de las investigaciones científico-técnicas más relevantes realizadas en Cuba y en el extranjero por investigadores, especialistas y técnicos de reconocido prestigio sobre las especialidades de suelos y agroquímica, riego y drenaje, enrgía y mecanización de la agricultura.

Subscription price: US\$ 24 (América del Norte); US\$ 22 (América del Sur); US\$ 28 (resto del mundo)

Orders to: Empresa Ediciones Cubanas, Obispo No.57, Apartado Postal 605, La Habana, Cuba.

Journal of Agricultural Science and Technology. I. Malek Mohammadi, editor-in-chief. Published by the National Centre for Scientific Research, Teheran, 1992.

This new journal informs about the latest agricultural and scientific activities, not only in Iran but in other countries as well. It welcomes unpublished papers written in English.

Subscription price: In Iran: R 2000; in Japan and Americas: \$ 30; in other countries: \$ 20

Orders to: JAST, National Center for Scientific Research, 1188 Enghelab Avenue, Tehran 13158, Islamic Republic of Iran.

Pedosphere. A Quarterly Journal of Soil Science. Zhao Qiguo, editor-in-chief. Published by Science Press, Beijing, 1991. ISSN 1002-0160.

This is the only journal published in English (without Chinese edition) in China at present. It publishes timely original research findings, especially up-to-date achievements and advances in all branches and related disciplines of soil science as soil physics, chemistry, biology, soil fertility, soil classification, genesis and geography, mineralogy, pollution, erosion and melioration, with the emphasis on material cycling in pedosphere.

Subscription price: US\$ 110 a year, including postage. Discount for individuals.

Orders to: Editorial Office of Pedosphere, Institute of Soil Science, Academia Sinica, 71 East Beijing Road, Nanjing 210 008, P.R. of China.

The Holocene. Published three times a year (quarterly from 1993 onwards). J.A. Matthews, editor-in-chief. Published by Edward Arnold, Sevenoaks, 1991. ISSN 0959-6836.

This journal is dedicated to fundamental scientific research at the interface between the long Quaternary record and the natural and human-induced environmental processes operating at the Earth's surface today. It emphasizes environmental change over the last 10,000 years —the most recent geological epoch and the most relevant timespan for understanding the future environments of the human species. The journal reflects the wide range of important and exciting interdisciplinary research being carried out in this field, and its coverage is worldwide.

Subscription price: Individual: £ 49.50 (EC), US\$ 85 (USA/Canada), £ 55 (rest of world); Institutional: £ 115 (EC), US\$ 225 (USA/Canada), £ 125 (rest of world); Members of the QRA, AQRA, CQRA have lower rates.

Orders to: Subscription Dept., Edward Arnold Journals, 42 Bedford Square, London WC1B 3SL, England.

Mapping Awareness and GIS in Europe. Published 10 times a year. P.J. Shand, editor. Published by Miles Arnold Ltd, Witney, 1992. ISSN 0954-7126.

This journal covers all aspects of digital mapping, integrated spatial, geographical and land information systems. It contains articles on current topics, visits to user installations, company profiles, people in mapping, conference and book reviews, and recent news in the mapping industry. It also provides a valuable trade directory.

Subscription price: in UK: £ 65, in Europe £ 75, in the rest of the world £ 85 (airmail). Education rates at £ 50, £ 60 and £ 70 respectively.

Orders to: Miles Arnold, High Winds, Cassington, Witney, Oxfordshire OX8 1BR, England.

Environmental Policy and Law. Published in volumes of six issues. W.E. Burhenne, editor-in-chief. Published by IOS Press, Amsterdam. ISSN 0378-777X.

This journal is published for the exchange of information and experience on all policy, legal and administrative matters relevant to the natural environment in its widest sense - air, water and soil pollution as well as waste management; the conservation of flora and fauna; protected areas and land-use control; and development and conservation of the world's non-renewable resources. In short, all aspects included in the concept of sustainable development.

The journal is divided into sections and cover the activities of the United Nations and its specialized agencies, other international developments, regional activities within the framework of caricom, oau, asean, etc., and developments at the national level. An important feature is the publication of selected documents appearing with the minimum of delay, which are not easily accessible, such as the resolutions from non-public meetings of parliamentarians, guidelines or draft conventions not yet published or newly concluded agreements.

Subscription price: NLG 380; US\$ 190. (individual subsc. price upon request).

Orders to: In USA and Canada: IOS Press, Inc. Postal Drawer 10558, Burke, VA 22009-0558, USA. Elsewhere: IOS Press, Van Diemenstraat 94, 1013 CN Amsterdam, the Netherlands.

Journal of Soil Contamination. Quarterly. J. Dragun, editor-in-chief. Published by Lewis Publishers, Boca Raton, 1992. ISSN 1058-8337.

This is a new journal that will be a vehicle of communication of the Association for the Environmental Health of Soils (AEHS). It will provide a direct link between the association's membership and those disciplines concerned with the technical, regulatory, and legal challenges of contaminated soils. The journal will focus on scientific and technical information, data, and critical analysis in the following areas: Analytical chemistry, Site assessment, Environmental fate, Environmental modeling, Remediation techniques, Risk assessment issues, Risk management, Regulatory issues, Legal considerations. This journal will consider all types of soil contamination. Sludges and petroleum contamination and their chemical constituents are currently big topics, but it will also discuss petrochemical, chlorinated hydrocarbon, pesticide, and heavy metal (especially lead) contamination.

Subscription price: US\$ 180 per 4-volume issue.

Orders to: Lewis Publishers, 2000 Corporate Blvd. N.W., Boca Raton, FL 33431, U.S.A.

Coastal Management. Quarterly. M.J. Hershman, editor. Published by Taylor & Francis, New York. ISSN 0892-0753.

This is an interdisciplinary journal which explores the technical, legal, political, social and policy issues surrounding the use of our valuable and unique coastal resources and environments. The journal presents new information on management tools and techniques and on institutions active in coastal development and conservation worldwide. It also serves as a forum for the exchange of ideas among those involved in developing coastal management programs. It is a source of information to experts in the environmental sciences, engineering, law, and resource planning.

Subscription price: Institutional; US\$130 / £72, Personal: US\$65 / £37

Orders to: Taylor & Francis Ltd., Rankine Road, Basingstoke, Hants RG24 0PR, U.K.

Restoration Ecology. Quarterly. W.A. Niering, editor-in-chief. Blackwell Scientific Publications, Cambridge, 1993.

This is a new journal published for the Society for Ecological Restoration. It will publish research papers, reviews, opinions of readers, and technical reports on the process of ecological restoration, defined as the intentional alternation of a site to establish a defined indigenous, historic ecosystem.

The primary emphasis of the journal is ecological and biological, but papers on restoration of soils, water, air, and hydrologic functions are also welcome. The editors encourage submission of manuscripts that emphasize a holistic approach and that deal with the highest level of biological integration -the human ecosystem.

Subscription price: Institutions: US: \$105, Canada/Mexico \$110, Elsewhere \$125. Individuals: US: \$65, Canada/Mexico \$70, Elsewhere \$85.

Orders to: Blackwell Scientific Publications, Journal Fulfillment, 238 Main Street, Cambridge, MA 02142, U.S.A.

European Journal of Soil Science. Quarterly. D.A. Rose, editor-in-chief. Blackwell Scientific Publications, Oxford, 1993.

This new journal will replace the existing Journal of Soil Science (UK), Pédologie (Belgium) and Science du Sol (France). It is published by the British Society of Soil Science and Blackwell Scientific Publications on behalf of the national societies for soil science in 23 European countries.

The policy of this new journal will be to publish original research dealing with all aspects of soil science. Critical reviews of developing areas of research will also be invited. The primary language of publication will be English, but papers will also be considered in French, German and Spanish. Papers not in English will have an extended abstract in English.

Requests to: Blackwell Scientific Publications, Journal Subscriptions Dept., P.O.Box 87, Oxford OX2 0DT, U.K.

Compost. Science & Utilization. Quarterly. A BioCycle Publication, Emmaus, 1993.

The objectives of this new journal are: (1) to maximize beneficial use of compost to improve soils, crop production, water quality and reclaim marginal lands; (2) to improve the quality of product generated at composting facilities; (3) to report research results and operational experiences on key aspects of processing and applying organic residuals from the municipal, commercial and industrial waste stream; (4) to show how greater fractions of organics in the waste stream can be beneficially reused through composting, direct land application, and other methods; (5) to create a multidisciplinary communications forum that will link generators of organic residuals with a growing number of potential users; (6) to accelerate the exchange of knowledge about composting methods and biomass utilization throughout the world; (7) to expand on-farm composting of manure, crop residuals as well as off-farm organics; (8) to provide valuable knowledge to managers of organic by-products and residuals in such industries as food processing, pharmaceuticals, paper and pulp, utilities and others; and (9) to increase interaction among professionals in fields like agricultural engineering, horticultural science, crops and soils, solid waste management, soil and water conservation, pest control, economics, civil engineering, waste-water treatment, forestry, financing and public health.

Subscription price: USA: US\$ 99; Canada: US\$ 121; Elsewhere: US\$ 127.

Orders to: Compost. Science & Utilization, 419 State Avenue, Emmaus, PA 18049, U.S.A.

Journal of Sustainable Forestry. Quarterly published by Food Products Press, an imprint of the Haworth Press, New York, 1993. G.P. Berlyn, editor-in-chief. ISSN 1054-9811.

The broad scope of this new journal enables it to encompass topics about biotechnology, physiology, silviculture, wood science, economics, and forest management. The journal will focus not only on the sustainability of forests as providers of fuel and lumber but also on integrative aspects of agroforestry and sustainable agriculture insofar as forest crops are concerned. Important issues that will be addressed include water use efficiency, increased resistance to low and high temperature stress, strategies for forest adaptation to global climate change, the role of organic biostimulants in sustainable forestry and agriculture.

Subscription price: In the USA: Individuals \$28, Institutions \$36, Libraries \$ 48; outside the US and Canada: add 40% to subscription rate.

Orders to: The Haworth Press, Inc./FPP, 10 Alice Street, Binghamton, NY 13904-1580, U.S.A.

Journal of Quaternary Science. Quarterly, published for the Quaternary Research Association. Now published by John Wiley & Sons. Editor: P.L. Gibbard.

Subscription Price: US\$ 235

Orders to: John Wiley & Sons Ltd., Baffins Lane, Chichester, West Sussex PO19 1UD, England.

1. ARID SOIL RESEARCH AND REHABILITATION

Size: Four issues per year in one volume of ca. 400 pages.

Publisher: Taylor & Francis New York

Editor-in-chief: Prof.Dr. J. Skujins, Utah State University, USA.

Full subscription rate incl. postage (1993): US\$ 99.

Personal subscription rate for ISSS members (1993): US\$ 59 (± 54% discount)

2. BIOLOGY & FERTILITY OF SOILS

Size: Eight issues per year, in two volumes of about 750 pages.

Publisher: Springer Verlag, Berlin-Heidelberg-New-York-Tokyo.

Editor-in-Chief: Prof.Dr. J.C.G. Ottow, Giessen, Germany.

Full subscription rate for the two volumes, excluding surface mailing: DM 956.00.

Personal subscription price for ISSS members for the two volumes, excluding postage and handling DM 597.60.

3. CATENA, an interdisciplinary journal of Soil Science-Hydrology- Geomorphology, focusing on Geocology and Landscape Evolution.

1994: Volume 21-22 in 8 issues

Publisher: Elsevier Science Publishers, Amsterdam, the Netherlands

Joint editors: R.B. Bryan, Toronto, Canada, R. Herrmann, Bayreuth, Germany, P. Jungerius, Amsterdam, the Netherlands, J. Poesen, Leuven, Belgium, R. Webster, Zürich, Switzerland and D. Yaalon, Jerusalem, Israel

Full subscription rate, including surface mailing: Dfl 672.00/US\$ 363.00

Personal subscription rate for ISSS members: Dfl. 232.00/US\$ 125.00

4. GEODERMA, an International Journal of Soil Science.

1994: Volumes 58-62 in 20 issues

Publisher: Elsevier Science Publishers, Amsterdam, the Netherlands.

Editor-in-Chief: Prof.Dr. J. Bouma, Wageningen, The Netherlands, Prof.Dr. J.A. McKeague, Ottawa, Ont., Canada and Prof. D.L. Sparks, Newark, DE, USA

Full subscription rate, including surface mailing: Dfl 1855.00/US\$ 1003.00

Personal subscription price for ISSS members: Dfl 395.00/US\$ 213.50)

5. SOIL BIOLOGY & BIOCHEMISTRY

Size: 12 issues per year, in one volume of about 1800 pages.

Publisher: Pergamon Press Ltd., Oxford, England.

Editor-in-Chief: Prof.Dr. J.S. Waid, Bundoora, Australia.

Full subscription rate, including surface mailing: US\$ 930.00.

Personal subscription price of ISSS members: US\$ 114.00. (£ 60.00)

6. SOIL TECHNOLOGY, journal concerned with applied research and field applications on soil physics, soil mechanics, soil erosion and conservation, soil pollution, soil restoration, drainage, irrigation and land evaluation.

Size: Quarterly, 1 volume (4 issues) per year, about 400 pages.

Publisher: Elsevier Science Publishers, Amsterdam, The Netherlands

Editors-in-Chief: Dr. D. Gabriels, Prof. Dr. R. Horn, Prof.Dr. M. Kutilek, Dr. M.J.M. Römkens.

Full subscription rate 1994, incl. surface mailing: Dfl. 326.00/US\$ 176.00

Personal subscription rate for ISSS members 1994 (available from the publisher only): Dfl. 116.00/US\$ 63.00 (72% discount)

7. PEDOBIOLOGIA international journal, focusing on soil biology, especially on soil zoology and microbiology.

Size: 6 issues per year, in 1 volume with 450 pages.

Publisher: G. Fischer, Jena, Stuttgart, New York.

Editors-in-chief: Prof.Dr. M. Schaefer and Dr. J. Schauer mann, Göttingen, Prof.Dr. G. Weigmann, Berlin.

Subscription rate 1993: DM 330.00, plus postage

Reduced subscription-price for personal subscribers of ISSS: DM 94.00, plus postage.



ISSS-AISS-IBG

**Cooperating Journals
Journaux Cooperatives
Kooperierende Zeitschriften**

**APPLICATION FOR SUBSCRIPTION/DEMANDE D'ABONNEMENT/
ANTRAG AUF ABONNEMENT**

From: Family name:
First name(s) and title(s):.....
ISSS membership No.:
Full address:
.....
.....
.....
Telephone: Fax:

To: P. U. Lüscher
Treasurer ISSS
WSL, Zuercherstr.111
CH-8903 Birmensdorf/Switzerland

I should like to take a personal subscription for the following Cooperating Journal(s) (price rate 1992):

- 0 Acid Soil Research and Rehabilitation (59.00 US\$)
- 0 Biology and Fertility of Soils (DM 597.60)
- 0 Catena (Dfl. 232.00/US\$ 125.00)
- 0 Geoderma (Dfl 395.00/US\$ 213.50)
- 0 Soil Biology & Biochemistry (US\$ 114.00/£ 60.00)
- 0 Soil Technology (Dfl. 116.00/US\$ 63.00)
- 0 Pedobiologia (DM 94.00 + postage)

I took note that the payment(s) will be made directly to the publisher(s) of the Journal(s) and not to the ISSS. I will receive respective instructions from the publishers.

Date:

Signature:

For official use only:

- membership status:
- to Cooperating Journal(s):

Nr.	Name	Country	Pay	Payd through
36247	DUBALI A.	ALBANIA	N 93-L	004 ALBANIA
36243	LULI F.	ALBANIA	NW93-I	004 ALBANIA
36249	QAFOKU N.	ALBANIA	N 93-L	004 ALBANIA
36246	VESHI L.	ALBANIA	N 93-L	004 ALBANIA
36248	ZDRULI P.	ALBANIA	N 93-L	004 ALBANIA
36384	DAMERDJI M.A. Prof.	ALGERIA	N 93-I	006 ALGERIA
36331	LORENZ G.	ARGENTINA	N 93-L	312 U.S.A.
36456	ALLEN D.G.	AUSTRALIA	N 93-L	014 AUSTRALIA
36448	BAUMAN B.A.	AUSTRALIA	N 93-L	014 AUSTRALIA
36455	BEARE J.A.	AUSTRALIA	N 93-L	014 AUSTRALIA
36301	EASTHAM J.	AUSTRALIA	N 93-L	312 U.S.A.
36446	GILL S.	AUSTRALIA	N 93-L	014 AUSTRALIA
36454	HEINER I.J.	AUSTRALIA	N 93-L	014 AUSTRALIA
36449	JAMES S.M.	AUSTRALIA	N 93-L	014 AUSTRALIA
36450	LARSEN P.L.	AUSTRALIA	N 93-L	014 AUSTRALIA
36451	MISRA R.K. DR.	AUSTRALIA	N 93-L	014 AUSTRALIA
36452	MYRES R.J. DR.	AUSTRALIA	N 93-L	014 AUSTRALIA
36447	TOLMINE P.E.	AUSTRALIA	N 93-L	014 AUSTRALIA
36457	WHELAN B.R. DR.	AUSTRALIA	N 93-L	014 AUSTRALIA
36445	WHITE I. DR.	AUSTRALIA	N 93-L	014 AUSTRALIA
36453	WILLIAMS H.R.	AUSTRALIA	N 93-L	014 AUSTRALIA
36231	KUMARASINGHE K.S. DR.	AUSTRIA	N 93-I	015 AUSTRIA
36397	BOULET R.	BRAZIL	N 93-L	099 FRANCE
36293	COOPER M.	BRAZIL	N 93-L	312 U.S.A.
36261	MANOLV I.G.DR.	BULGARIA	NW93-L	114 UNITED KINGDOM
36392	SEDOGO M.	BURKINA FASO	N 93-L	099 FRANCE
36435	NTAGUZWA D.	BURUNDI	N 93-L	048 BURUNDI
36433	NTIBURUMUSI F. DR.	BURUNDI	N 93-L	048 BURUNDI
36434	RISHIRUMUHIRWA T.	BURUNDI	N 93-L	048 BURUNDI
36436	VAN LOOIJ J.	BURUNDI	N 93-L	048 BURUNDI
36310	GUERTIN S.P.	CANADA	N 93-L	312 U.S.A.
36330	LOBB D.A.	CANADA	N 93-L	312 U.S.A.
36350	SCHMIDT M.G.	CANADA	N 93-L	312 U.S.A.
36285	BERTSCH F.	COSTA RICA	N 93-L	312 U.S.A.
36287	BRICENO-SALAZAR J.A.	COSTA RICA	N 93-L	312 U.S.A.
36291	CERRATO M.E.	COSTA RICA	N 93-L	312 U.S.A.
36385	SINGH B.K.	COSTA RICA	NW93-I	074 COSTA RICA
36396	VALLA M.	CZECHOSLOVAKIA	N 93-L	099 FRANCE
36321	JACOBSEN O.H.	DENMARK	N 93-L	312 U.S.A.
36179	JORGENSEN K.L.	DENMARK	NW93-L	081 DENMARK
36178	VEJRE H.	DENMARK	NW93-L	081 DENMARK
36302	ELHAMDI K.H.	EGYPT	N 93-L	312 U.S.A.
36307	GHOWAIL S.I	EGYPT	N 93-L	312 U.S.A.
36348	SALEH M.S.	EGYPT	N 93-L	312 U.S.A.
36370	KOLI R. PROF.	ESTHONIA	N 93-L	103 ESTHONIA
36201	FISSEHA M.	ETHIOPIA	NW93-L	114 UNITED KINGDOM
36259	PIRAINEN S.	FINLAND	N 93-L	097 FINLAND
36260	SAARIKKO R.A.	FINLAND	N 93-L	097 FINLAND
36279	AMBROISE B.	FRANCE	N 93-I	312 U.S.A.
36286	BERTUZZI P.P.	FRANCE	N 93-I	312 U.S.A.
36393	BOURRIE G.	FRANCE	N 93-L	099 FRANCE
36394	GAVIRIA S.	FRANCE	N 93-L	099 FRANCE
36346	RENAULT P.B.	FRANCE	N 93-L	312 U.S.A.
36395	SCHWARTZ D.	FRANCE	N 93-L	099 FRANCE
36439	FREESE D. DR.	GERMANY	NW93-L	110 GERMANY
36263	JOSCHKO M.A. DR.	GERMANY	NW93-L	110 GERMANY
36230	MOHNKE M.	GERMANY	NW93-I	110 GERMANY
36262	MUELLER K. Dr.agr.	GERMANY	N 93-L	110 GERMANY
36341	PRIESACK E.	GERMANY	N 93-L	312 U.S.A.

36228	WACHENDORF C.	GERMANY	NW93-I	110 GERMANY
36256	WIRTH S.J. DR.	GERMANY	N93-I	110 GERMANY
36382	PAPADOPOULOS A. DR.	GREECE	N 93-L	115 GREECE
36204	PAROUSSIS E. DR.	GREECE	N 93-I	115 GREECE
36381	THEOCHAROPOULOS S.P. DR.	GREECE	N 93-L	115 GREECE
36203	TSAKELIDOU K. DR.	GREECE	N 93-I	115 GREECE
36375	ALAPPILLAI R.R.	INDIA	NW93-L	134 INDIA
36238	BISHNOI S.R. DR.	INDIA	NW93-L	134 INDIA
36372	FRANCIS H.J.PROF.	INDIA	NW93-L	134 INDIA
36378	GURUSWAMY S. PROF.	INDIA	NW93-L	134 INDIA
36379	KONDIAN S.	INDIA	NW93-L	134 INDIA
36380	PALANISAMY S.	INDIA	NW93-L	134 INDIA
36377	PERUMAL R.P. DR.	INDIA	NW93-L	134 INDIA
36376	PERUMAL R. PROF.	INDIA	NW93-L	134 INDIA
36374	PICHANDAMPALAYAM L.G.	INDIA	NW93-L	134 INDIA
36373	RAMASAMY K.	INDIA	NW93-L	134 INDIA
36371	SIVANMALAIYAPPAN C.	INDIA	NW93-L	134 INDIA
36306	GARRITY D.P.	INDONESIA	N 93-L	312 U.S.A.
36400	ALON Y.	ISRAEL	N 93-L	139 ISRAEL
36401	AMIT R.	ISRAEL	N 93-L	139 ISRAEL
36402	BAR-TAL A.	ISRAEL	N 93-L	139 ISRAEL
36403	BEN-HUR M.	ISRAEL	N 93-L	139 ISRAEL
36404	BERLINER P.	ISRAEL	N 93-L	139 ISRAEL
36405	BERNSTEIN G.	ISRAEL	N 93-L	139 ISRAEL
36406	BRANDE Y.	ISRAEL	N 93-L	139 ISRAEL
36407	FRENKEL H.	ISRAEL	N 93-L	139 ISRAEL
36408	FRIDMAN C.	ISRAEL	N 93-L	139 ISRAEL
36409	FRIDMAN S.	ISRAEL	N 93-L	139 ISRAEL
36410	GALIN T.	ISRAEL	N 93-L	139 ISRAEL
36411	GARBER A.	ISRAEL	N 93-L	139 ISRAEL
36412	HAGIN Y.	ISRAEL	N 93-L	139 ISRAEL
36413	HARUVY N.	ISRAEL	N 93-L	139 ISRAEL
36414	ISENBERG Y.	ISRAEL	N 93-L	139 ISRAEL
36415	ISSAKSON A.	ISRAEL	N 93-L	139 ISRAEL
36416	KAUTZKY M.	ISRAEL	N 93-L	139 ISRAEL
36417	KREMER O.	ISRAEL	N 93-L	139 ISRAEL
36418	KREMER S.	ISRAEL	N 93-L	139 ISRAEL
36419	LEVY G.	ISRAEL	N 93-L	139 ISRAEL
36420	LEVYNGRAT A.	ISRAEL	N 93-L	139 ISRAEL
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		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	SKOIEIN S.	NORWAY	N 93-L	213 NORWAY
36283	BALOC H.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 GUINEA
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 NETHERLANDS
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.	N 93-L	312 U.S.A.
36280	ANWAR C.	U.S.A.	N 93-L	312 U.S.A.
36282	BALI K.M.	U.S.A.	N 93-L	312 U.S.A.
36288	BRYANT R.B.	U.S.A.	N 93-L	312 U.S.A.
36289	BURT R.	U.S.A.	N 93-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.	N 93-L	312 U.S.A.
36295	CORTES M.	U.S.A.	N 93-L	312 U.S.A.
36296	DAVENPORT D.W.	U.S.A.	N 93-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.	N 93-L	312 U.S.A.
36299	DOYLE J.D.	U.S.A.	N 93-L	312 U.S.A.
36300	DYSART P.L.	U.S.A.	N 93-L	312 U.S.A.
36303	FISK A.C.	U.S.A.	N 93-L	312 U.S.A.
36304	FUKUMURA K.	U.S.A.	N 93-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.	N 93-L	312 U.S.A.
36312	HAVERLAND R.L.	U.S.A.	N 93-L	312 U.S.A.

36313	HECKMAN J.R.	U.S.A.	N 93-L	312 U.S.A.
36314	HELMS D.	U.S.A.	N 93-L	312 U.S.A.
36316	HODGSON L.M.	U.S.A.	N 93-L	312 U.S.A.
36317	HOOSBEEK M.R.	U.S.A.	N 93-L	312 U.S.A.
36319	HUCKETT S.P.	U.S.A.	N 93-L	312 U.S.A.
36320	IANNI J.P.	U.S.A.	N 93-L	312 U.S.A.
36322	JOHNSON B.K.	U.S.A.	N 93-L	312 U.S.A.
36323	JOHNSON D.W.	U.S.A.	N 93-L	312 U.S.A.
36324	JOHNSON T.R.	U.S.A.	N 93-L	312 U.S.A.
36325	KANAMPUI F.K.	U.S.A.	N 93-L	312 U.S.A.
36326	KLICH I.	U.S.A.	N 93-L	312 U.S.A.
36327	KNOEPP J.D.	U.S.A.	N 93-L	312 U.S.A.
36329	LEE G.B.	U.S.A.	N 93-L	312 U.S.A.
36334	MOENNE-LOCCOZ Y.	U.S.A.	N 93-L	312 U.S.A.
36335	MOLINA J.A.	U.S.A.	N 93-L	312 U.S.A.
36336	NGUYEN P.V.	U.S.A.	N 93-L	312 U.S.A.
36337	NUBEL N.A.	U.S.A.	N 93-L	312 U.S.A.
36338	OZTAS T.	U.S.A.	N 93-L	312 U.S.A.
36339	PATTERSON N.T.	U.S.A.	N 93-L	312 U.S.A.
36340	PETERSEN G.W.	U.S.A.	N 93-L	312 U.S.A.
36343	RECHCIGEL J.E.	U.S.A.	N 93-L	312 U.S.A.
36344	REICH P.F.	U.S.A.	N 93-L	312 U.S.A.
36345	REINSCH T.G.	U.S.A.	N 93-L	312 U.S.A.
36347	RUPPERT D.A.	U.S.A.	N 93-L	312 U.S.A.
36349	SALMAN A.A.	U.S.A.	N 93-L	312 U.S.A.
36351	SCHNORR R.J.	U.S.A.	N 93-L	312 U.S.A.
36352	SPARROW E.B.	U.S.A.	N 93-L	312 U.S.A.
36353	STEINHARDT G.C.	U.S.A.	N 93-L	312 U.S.A.
36354	SWEENEY M.D.	U.S.A.	N 93-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.	N 93-L	312 U.S.A.
36357	TORDSEN K.R.	U.S.A.	N 93-L	312 U.S.A.
36358	TUKAKI-O'CONNOR J.L.	U.S.A.	N 93-L	312 U.S.A.
36359	VAANDRAGER C.	U.S.A.	N 93-L	312 U.S.A.
36360	VAN REMORTEL R.D.	U.S.A.	N 93-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.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36441	EVE C.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36191	GRIFFITHS B.S. DR.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36388	HALLETT P.D.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36368	HARIA A.H.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36389	LOGAN E.M.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36391	PENN M.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36342	RAGAB R.A.	UNITED KINGDOM	N 93-L	312 U.S.A.
36390	SANGER L.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36188	TURNER V.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36189	WILLIAMS G.B.	UNITED KINGDOM	NW93-L	114 UNITED KINGDOM
36387	YANG J.	UNITED KINGDOM	NW93-I	114 UNITED KINGDOM
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



Membership Application Form

Fiche de Demande d'Affiliation

Aufnahmeantragsformular

ISSS-AISS-IBG

0 REGISTRATION FOR MEMBERSHIP/DEMANDE D'AFFILIATION/AUFNAHME-ANTRAG

0 CHANGE OR CORRECTION OF ADDRESS/CHANGEMENT OU CORRECTION D'ADRESSE/ANSCHRIFTENÄNDERUNG

0 STATEMENT ON SPECIAL INTEREST/DECLARATION D'INTERETS SPECIAUX/ANZEIGE VON SPEZIALINTERESSEN

0 APPLICATION FOR LIFE MEMBERSHIP/DEMANDE D'AFFILIATION POUR LA VIE/ANTRAG AUF MITGLIEDSCHAFT AUF LEBENSZEIT

- Please return this form, completed at both sides, to the Treasurer of ISSS: Peter U.Luescher, WSL, Zuercherstr.111, CH-8903 Birmensdorf/Switzerland

- Veuillez bien renvoyer ce formulaire, complété des deux côtés, au Trésorier de l'AISS: Peter U.Luescher, WSL, Zuercherstr.111, CH-8903 Birmensdorf/Suisse

- Bitte senden Sie dieses Formular, ausgefüllt auf beiden Seiten, an den Schatzmeister der IBG: Peter U.Luescher, WSL, Zuercherstr.111, CH-8903 Birmensdorf/Schweiz

Membership number (if applicable)
Numéro d'affiliation (si applicable)
Mitgliedsnummer (wenn anwendbar)

* Surname (Apellido/Sobrenome)

* Nom de famil.....

* Familienname

First name(s) (Nombre/Nome) or initials, and title(s)

Prénom(s) ou initiales, et titre(s).....

Vorname(n) oder Initialen und Titel

Address (Institution & Dept., Street and no. P.O.Box, Town & Zipcode, Country)

Adresse (Institution et Département, Rue et no., Boîte Postale, Ville et Code Postal, Pays)

Anschrift (Institut & Abteilung, Strasse & No., Postfach, Postleitzahl, Stadt, Land)

.....

.....

.....

Phone/Tel.: Fax:

Date.....

Signature

Datum

Unterschrift

* For composite names, please indicate first the part of the name to be used for listing it in alphabetical order

* Pour les noms composés, prière de marquer en premier lieu l'élément du nom à utiliser dans une liste alphabétique

* Bei zusammengesetzten Namen wird gebeten, zuerst den Teil des Namens anzugeben, der in einer alphabetischen Folge erscheinen soll

please turn over!/voir au verso!/bitte wenden!

Specially interested in the activities of/intérêt particulier pour les activités/besonders an folgenden Bereichen interessiert:

(C) Commissions/Commissions/Kommissionen

- 0 I Soil Physics/Physique du Sol/Bodenphysik
- 0 II Soil Chemistry/Chimie du Sol/Bodenchemie
- 0 III Soil Biology/Biologie du Sol/Bodenbiologie
- 0 IV Soil Fertility and Plant Nutrition/Fertilité du Sol et Nutrition des Plantes/Bodenfruchtbarkeit und Pflanzenernährung
- 0 V Soil Genesis, Classification and Cartography/Genèse du Sol, Classification et Cartographie/Bodengenetik, Klassifikation und Kartographie
- 0 VI Soil Technology/Technologie du Sol/Bodentechnologie
- 0 VII Soil Mineralogy/Minéralogie du Sol/Bodenmineralogie

Subcommissions/Sous-commissions/Subkommissionen

- 0 A Salt affected soils/Sols salins/Salzböden
- 0 B Soil Micromorphology/Micromorphologie du Sol/Bodenmikromorphologie
- 0 C Soil Conservation and Environment/Conservation du Sol et Environnement/Bodenerhaltung und Umwelt
- 0 D Soil Zoology/Zoologie du Sol/Bodenzoologie (with/avec/mit UBS)

Preferred language/Langue préférée/Gewünschte Sprache

- 0 English
- 0 Français
- 0 Deutsch
- 0 Espanol

Payment/Cotisation/Jahresbeitrag

Payment of the yearly due of US\$ 12 or equivalent will be made:
La cotisation annuelle de 12 dollars E.U. ou leur équivalent sera versée:
Der Jahresbeitrag von US\$ 12 oder Gegenwert wird bezahlt:

- 0 through the national society of/par l'intermédiaire de l'association nationale de/durch die nationale Gesellschaft von (country, pays, Land)

.....

- 0 by cheque (personnel cheque = 16 US\$)
par chèque (chèque personnel = 16 dollars E.U.)
mit Scheck (Privatscheck = 16 US \$)
- 0 by international money order/par mandat international/durch Banküberweisung
- 0 as Unesco coupons/sous forme de bons de l'Unesco/mit Unesco-Kupons
- 0 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)

Account/Compte/Konto: Union Bank of Switzerland (UBS), CH-8903 Birmensdorf, ISSS, 817338.61T

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, ACT 2601, 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, IRRI, 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

Bodenmineralen, 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/Pédométrie/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

Prof. Dr. Zhu-Zhaoliang, Inst. of Soil Science, Academia Sinica, P.O.Box 821, Nanjing, 21008, PR of China

PT Pedotechnique/Pédotechnique/Pedotechnik

Prof. Dr. R. Horn, Inst. für Pflanzenernährung und Bodenkunde,

Olshausenstrasse 40-60, D-2300 Kiel 1, 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. Agrikulturchemie, Von Sieboldstrasse 6, D-3400 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, GCCTE 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, D-2000 Hamburg 13, Germany

CST Committee on Standardization/Comité sur la Standardisation/Standardisierungskomitee

Prof. Dr. H-P. Blume, Inst. für Pflanzenern. u. Bodenkunde, Olshausenstr.

40-60, D-2300 Kiel 1, 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; PEDOBIOLOGIA; SOIL BIOLOGY & BIOCHEMISTRY;
SOIL TECHNOLOGY;

ISSS MEMBERSHIP

Membership of the International Society of Soil Science is open to all persons engaged in the study and the application of soil science. Membership application can be addressed to the National Societies or directly to the Treasurer. For individual memberships, the yearly subscription, due each January, is 12 US dollars, or equivalent in any other convertible currency. Individual payments can be made by cheque (personal cheques only with additional payment of 4 US\$) or by international money order. UNESCO coupons are also accepted. In order to reduce bank charges it is recommended that subscriptions be remitted, whenever possible, through the National Societies (for their addresses see Membership List 1991). Non-membership subscriptions to the Bulletin, by library services, institutes, etc., are US\$ 50.- yearly.

ADHÉSION A L'AISS

Toute personne engagée dans l'étude et l'application de la science du sol peut adhérer à l'Association Internationale de la Science du Sol. Les demandes d'inscription peuvent être faites par l'intermédiaire des associations nationales ou adressées directement au Trésorier. La cotisation individuelle, due au mois de janvier, est de 12 dollars E.U. par an ou son équivalent dans une autre monnaie convertible. Les versements individuels peuvent être faits par chèque (chèque personnel seulement avec paiement additionnel de 4 dollars E.U.) ou mandat international. Les coupons UNESCO peuvent également être utilisés. En vue de réduire les frais bancaires, il est demandé, dans la mesure du possible, de faire parvenir les cotisations par l'intermédiaire des associations nationales (voir leurs adresses dans la Liste de Membres 1991). Les abonnements au Bulletin sans adhésion, pour les institutions, services de bibliothèques, etc., sont de 50 dollars E.U. par an.

IBG-MITGLIEDSCHAFT

Die Internationale Bodenkundliche Gesellschaft heisst Personen, die auf dem Gebiet der Forschung und Anwendung der Bodenkunde arbeiten, als Mitglieder willkommen. Aufnahmeanträge können direkt an den Schatzmeister geschickt oder über die nationalen bodenkundlichen Gesellschaften an diesen geleitet werden. Der Einzelmitgliedsbeitrag, der jeweils im Januar zu entrichten ist, beträgt jährlich 12 US-Dollar oder den Gegenwert in einer konvertierbaren Währung. Einzelzahlungen können durch Scheck (Privatscheck nur bei zusätzlicher Zahlung von 4 US\$) oder internationale Banküberweisung erfolgen. UNESCO-Kupons werden ebenfalls akzeptiert. Um die Bankkosten niedrig zu halten, sollten Beiträge wenn möglich durch die nationalen Gesellschaften gezahlt werden (Anschriften siehe Mitgliederverzeichnis 1991). Abonnements der Mitteilungen ohne Mitgliedschaft, für Institute, Bibliotheken u.s.w., betragen US\$ 50.- jährlich.

SOCIOS DE LA SICS

Todas las personas involucradas en el estudio y la aplicación de la ciencia del suelo pueden ser miembro de la Sociedad Internacional de la Ciencia del Suelo. Las solicitudes de inscripción pueden ser enviadas a través de las sociedades nacionales o directamente al tesorero. Para miembros individuales la cuota anual, a ser pagada durante el mes de Enero, es de 12 dolares EUA o su equivalente en cualquier moneda cambiabile. Los pagos individuales pueden ser realizados por medio de un cheque (cheque personal solo contra pago adicional de 4 dolares EUA) o un orden de pago internacional. También los cupones de la UNESCO pueden ser utilizados. Con el objeto de reducir los cargos bancarios se recomienda efectuar los pagos en lo posible a través de las sociedades nacionales (para las direcciones ver Lista de Socios 1991). Suscripciones al Boletín, sin ser miembro, de parte de servicios de bibliotecas, institutos etc. son de 50 dolares EUA por año.

**Account/Compt/Konto/Cuenta: Union Bank of Switzerland (UBS),
CH-8903 Birmensdorf, ISSS, 817338.61 T**

**Treasurer/Trésorier/Schatzmeister/Tesorero: Peter U. Luescher, WSL, Zuercherstr. 111,
CH-8903 Birmensdorf/Switzerland**