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Thoughts from the Secretary General

December 26, 2004 and the tragedy of the Tsunami Disaster will be imprinted on our memories for a long time. I know many were surprised and shocked at the power and devastation that the natural processes produced. Most of us, even those who did not lose relatives or close friends, were made aware of the enormous power in the systems and found the destruction and devastation difficult to comprehend. It perhaps serves to reinforce the belief that our use of the Earth's surface is transient and that whilst using the Earth's resources we must recognise the over-riding importance of the natural systems and the natural processes operating within this system. What the disaster of 26 December shows is that whilst we can manipulate the natural processes operating in the Earth's system, we cannot control them. Let us hope that these lessons are applied not just to the catastrophic events, but to our day-to-day occupation of the Earth. We must recognise the natural processes and the interactions of the natural components when we seek to manage the system for our benefit.

As individuals I am sure that we responded in our personal ways, for example through charitable donation, in this respect the global response to the tragedy was extraordinary, and heart warming when there is so much unnecessary killing filling our daily newspapers and TV news bulletins. Our thoughts and sympathies have gone out to those whose lives have been impacted by these tragic events. In the immediate aftermath of the Disaster it was difficult for IUSS to formulate a meaningful response, but with time we have developed two broad initiatives. The first is to organise a workshop or series of workshops in one or more of the affected regions to consider the consequences for soil and land management of the large scale inundation of saline water and associated sediments, both in the immediate aftermath of such a disaster and in terms of the restoration and regenerative activities that will be necessary to bring the soil and land systems back to productive use. This initiative is being lead by the Chair of Division Three, Wolfgang Burghardt in collaboration with colleagues from the affected regions and it is hoped to hold these workshops later in 2005. A second and as yet embryonic response is to seek to organise a support system to assist in the recovery and reestablishment of the soil and agricultural centres devastated by the tsunami in the region. To this end we are seeking evaluations from colleagues in the countries affected and identification of what is needed; books, scientific journals, equipment, etc. I would welcome thoughts from members on this,

The magnitude of the events of December 26 tended to divert all thoughts from elsewhere, but slowly we have been able to refocus. I have recently dispatched to national Societies, Honorary Members and other bodies and individuals, copies of the 2nd Announcement of the 18th World Congress of Soil Science to be held in Philadelphia in July 2006. The broad programme is now finalised and session convenors identified. Registration is now open and the deadline for abstract submission is September 15, 2005. We look forward to welcoming you to Philadelphia next year. There are over 60 oral symposia and numerous poster presentations planned and the Conference Centre offers an excellent environment for these formal activities as well as the often very important informal contacts and discussions.

The Union is moving forward on a number of global initiatives. Together with colleagues in Thailand, The President, Don Sparks and I are moving forward slowly to secure funding and official approval for the establishment of December 5th as World Soil Day. We are also seeking to establish a World Soil Prize. In collaboration with our fellow ICSU GeoScience Unions (IUGS, IUGG, IGU) we are actively working towards the establishment of the 'Year of Planet Earth' which will have a range of events targeted at many different audiences from the global political perspective down to children in local schools. The theme will be recognising and emphasising the complex relationships which occur at the Earth's surface. David Dent (Director of ISRIC), Alfred Hartemink and John Kimble (USA) have recently produced the text on soils for the brochures which will soon be launched. This initiative has incurred costs, but the Bureau and Executive Committee have considered this an important initiative which it was important we were fully involved with (see article in this Bulletin).

After many deliberations and amendments the Statutes and Bye-Laws were finally approved at the Inter-Congress Council Meeting in Philadelphia in 2004. One of the key

elements of these new Statutes and Bye-laws is the Election of Officers. Previously elections took place at the World Congress, and the process has long been recognised as less than satisfactory, both in terms of the actual election procedures and in terms of the small proportion of the overall membership participating in the elections. Whilst it is not possible, because of the delay in final approval of the Statutes and Bye-Laws, to pursue the electoral timetable set down, we shall introduce the new election framework for the next set of Division and Commission Officers. As a first step we have requested the Divisional Electoral Committees to produce a list of candidates for all positions in their Division. The aim has been to have at least two candidates for all positions. For the First Vice-Chairs in the Commission our regulations specify that these nominations should be from the host country of the next Congress (Australia, 2010). The IUSS Electoral Committee will review the nominations in the early summer of 2005 and will seek to ensure that there is satisfactory regional coverage of candidates; it will then produce a Ballot paper for each Division. These Ballot papers will be forwarded to each National Member (normally National Soil Science Societies). It will be the responsibility of the National Members to organise a ballot amongst their membership and return the results of that ballot to me, the Secretary General late in the year for compilation of the final results. In future this election process will take place so that results may be presented to the Inter-Congress Council Meeting. This will enable Divisions and Commissions to have 'shadow' officers for two years to ensure continuity and a smooth transfer from one set of officers to another.

In October the triennial meeting of ICSU (The World Council of Science) takes place in China. I shall be representing IUSS. ICSU brings together representatives of the Scientific Unions and National Science Academies to discuss global matters concerning science. Items to be discussed include access to scientific data, global support for science, particularly in the economically less fortunate areas, and ways to encourage the young to develop interests in science and actively pursue science in their educational training. ICSU is increasingly taking a key role in providing a co-ordinated scientific voice on global scientific issues such as sustainable development, hazard management and scientific freed.

In January I travelled to Delhi, India to participate in the 'International Conference on Soil, Water and Environmental Quality – Issues and strategies' organised by the Indian Society of Soil Science and co-sponsored by IUSS, ICAR and IARI. This was an excellent conference with a wide range of national and international speakers which generated considerable debate both within the conference and in the local and national press. I thank the Conference organisers for inviting me and for making by stay in India so enjoyable, in particular I would like to thank Dr. Abrol for giving up his Sunday to organise a field visit for me and few colleagues to view some of the soil and farm management problems and possible solutions.

In conclusion I look forward to receiving the many communications from individuals and National Societies. I endeavour to reply to most messages received, but if I have not replied to you I sincerely apologise. I would also than the many National Societies who invite me to their meetings, I regret that I am able to accept only a small number of these invitations, but hope that in time I shall be able to visit many more colleagues around the world.

Reading, March 2005

Stephen Nortcliff
Secretary General IUSS
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Message from the IUSS president

Colleagues,

I bring greetings from the leadership of IUSS. We have been very busy the past few months, interacting with a number of geoscience scientific unions and representing IUSS at national society meetings. December 5-9, 2004 I had the pleasure of representing IUSS at the 3rd Australian/New Zealand Soils Conference, most appropriately entitled, "SuperSoil" 2004, at the University of Sydney. The conference was attended by 370 scientists. The scientific program consisted of 16 first-rate symposia that included 300 oral and poster presentations. The Governor of New South Wales helped open the conference in The Great Hall. There were also excellent mid-conference tours and an outstanding Sydney Harbor dinner cruise.

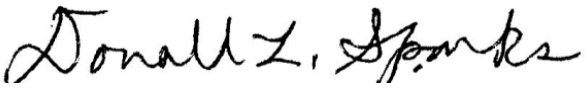
From left to right: John Adams, President of the New Zealand Society of Soil Science, Cameron Grant, President of the Australian Society of Soil Science, Marie Bashir, Governor of New South Wales, Graeme Tupper, Chair of the Organizing Committee, and Don Sparks, IUSS President. In the middle: the NSW state soil, a Red Chromosol.

During the next few months, I will represent IUSS and make presentations at several conferences including the 7th International Symposium on Geochemistry of the Earth's Surface in Aix-en-Provence, August 23-27; the Japanese Society of Soil Science and Plant Nutrition in Shimane, September 6-8; the Korean Society of Soil Science and Fertilizers in Seoul, September 29-30; and the Soil Science Society of America in Salt Lake City, November 6-10.

I call to your attention an update on the 18th WCSS in this issue of the Bulletin. Final plans are being made for what promises to be a scientifically stimulating and socially enjoyable Congress, July 9-15, 2006 in Philadelphia, Pennsylvania, USA. Philadelphia is one of America's great cities. Many excellent symposia are planned, as well as an array of pre-, mid-, and post-Congress tours and companion and family cultural/historical tours. Important dates to remember are September 15, 2005, the deadline for abstract submission, and June 15, 2006, the deadline for pre-registration. Details on registration,

abstract submission, symposia, tours, etc.,are contained in the 2nd Announcement of the 18th WCSS, that can be accessed at www.18wcss.org. I hope to see many of you next year in Philadelphia.

With all best wishes,



Donald L. Sparks
IUSS President
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18th World Congress of Soil Science

Invitation

This is an official invitation for you to attend the 18th World Congress of Soil Science from July 9-15, 2006 in Philadelphia, Pennsylvania, USA. The World Congress will be holding pre- post- and mid-Congress tours, oral and poster symposia and workshops. The scientific program consists of 81 symposia developed by the four divisions of the International Union of Soil Science. We invite you to submit an oral or poster paper abstract which will be incorporated into the program by the convenors of each symposium. The details of the program development process and other information on the Congress are described in the 2nd Announcement. All information on the Congress is also available on the internet at www.18wcss.org.

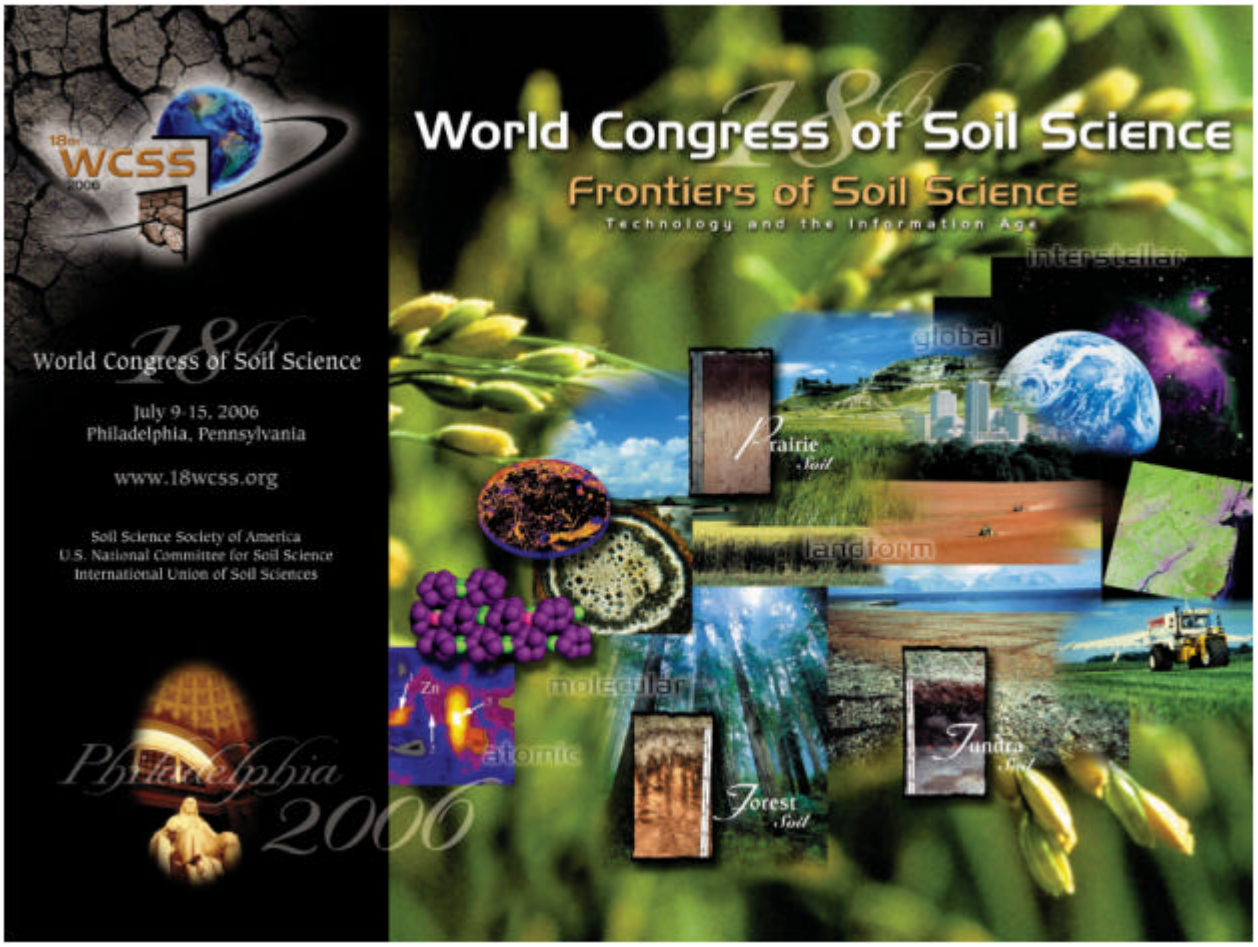
The last World Congress held in the United States was in 1960. Philadelphia serves as a wonderful venue for the 2006 Congress. It is a unique opportunity for you and your family to spend a summer vacation, visit local cultural sites, and consider the options of many special events that will be highlighted during the Congress. We trust you are making plans to attend this Congress we urge you and your companion to register now.

Workshops

Workshops are being strongly encouraged by the Organizing Committee to enrich other elements of the WCSS program activities. For example, the Joint FAO/International Atomic Energy Agency Division of Nuclear Techniques in Food and Agriculture has been invited to conduct a pre-congress workshop. Several workshops on the applications of geospatial technologies are being considered by various sponsors.

Registration

The Organizing Committee has elected not to increase the registration fee February 1, 2006 to $600. It will remain at $550 until May 1, 2006 and then be $650 after that date.



Fellowships

The 18th World Congress Organizing Committee is providing an opportunity for individuals from Group II and III countries to attend the Congress. Limited funds have been budgeted to support registration waivers ($550) and to provide housing (maximum $650) at the University of Pennsylvania for selected participants from Group II and Group III countries. Travel funds are **not** available. Due to limited funds, Fellowships will be prioritized and awarded based on applicant need and documented evidence of participant responsibilities critical to the success of the 18th World Congress. Applications must be received by November 1, 2005. Notification of those receiving Fellowships will be made not later than January 30, 2006. Following notification of a Fellowship award, participants will be asked to confirm their plans to attend the Congress prior to final commitment of the Fellowship so as to insure that all awarded funds are used. Application information on the WCSS Fellowship program is available on the web at www.18wcss.org.

On behalf of the Organizing Committee, we extend an invitation to you to attend and participate in the 18th World Congress of Soil Science.

Larry Wilding and Lee Sommers
Co-Chairs, Organizing Committee

Five Questions to a Soil Scientist

A lot of soil science takes place in the lab, field or behind the computer screen, but ideas are also perceived in coffee rooms, during sleepless nights or in your car or train on the way home. Those are also the moments that some reflection may some occur how your career may have developed and where it all went perfect, and perhaps less perfect. Little has been written on such perceptive moments. This is a series in which we ask colleagues

in different parts of the world a set of questions how they think about their career and soil science, the questions are:

1. When did you decide to study soil science?
2. Who has been your most influential teacher?
3. What do you find most exciting about soil science?
4. How would you stimulate teenagers and young graduates to study soil science?
5. How do you see the future of soil science?

Provided we can find for each Bulletin three soil scientists that are willing to answer these question, this series can continue for years to come.

Alfred Hartemink
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Five Questions to Mary-Beth Kirkham

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Position: Professor, since 1984

1. When did you decide to study soil science?

I was exposed to soil science from my earliest memories through my father, Don Kirkham, a professor of agriculture and physics at Iowa State University. Under his guidance, I did my first soil science experiment in high school (seeing the effect of earthworms on corn growth). In college, I originally planned to be an English major. After I had an excellent ecology course taught by Dr. C. Robert Shoop, I switched my major to Biological Sciences. My first job after I got my Ph.D. was with the U.S. Environmental Protection Agency, where I studied the uptake of heavy metals on sludge-treated soil. I have done soil science research since then.

2. Who has been your most influential teacher?

Dr. Shoop influenced my career choice. Dr. Wilford Gardner, my thesis advisor for my M.S. and Ph.D., was my most influential teacher in graduate school.

3. What do you find most exciting about soil science?

What I find most exciting about soil science is seeing how basic laws of physics and chemistry can be applied to it. Through quantitative relationships, we can predict what will happen.

4. How would you stimulate teenagers and young graduates to study soil science?

I would have children do soil science experiments from an early age. The exposure to soil science should begin before the teenage years. Even nursery-school children should be taught about soil. Both mother and father need to encourage the child's interest. The support of the mother is especially important for female soil scientists.

5. How do you see the future of soil science?

The future of soil science is good, because new problems will always need to be solved. However, as a professor, I am concerned about graduate students who are rejecting careers in soil science, because they do not want to spend their professional lives writing grant proposals. They see that their major professors have to do this.

Students want to do research, not raise funds. In the USA, we are losing good minds to other professions because of poor funding. The number of graduate students in my department has fallen 40% in the past four years. Other countries, like China, are actively supporting soil science research. I also am concerned about discrimination I see against minorities and females. Soil science must be inclusive. However, despite poor funding and discrimination, there will always be a few people who have a burning desire to do research and teaching, and soil science will remain vibrant because of these dedicated people.

Five Questions to Andre Bationo

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Position: Soil Scientist and AfNet Coordinator
Age: 54 years

1. *When did you decide to study soil science?*
   1978 when I started my MSc in soil science at Laval University, Quebec, Canada
2. *Who has been your most influential teacher?*
   Prof. M. P. Cescas, Soil Chemist, Laval University, Quebec, Canada.
3. *What do you find most exciting about soil science?*
   The most exciting about soil science is the possibility to produce more food when we manipulate efficiently this natural resource. I am particularity pleased with the resilience of degraded soil where we are able to grow crops with a judicious manipulation of the physical, chemical and biological properties. It is quite interesting to note that in most cases for the small-scale farmers, soil is the only resource available to them to assure the well being of their families.
4. *How would you stimulate teenagers and young graduates to study soil science?*
   I am using four ways to stimulate teenagers and young graduates to study soil science: Firstly, organizing short-term training courses in different aspects of soil science; secondly, to get the young researchers for 'on the job training' within my own research activities; thirdly, to disseminate information not only for the specialized soil scientists but put in simple language for beginners; fourthly, help the young scientists to develop proposals to get funds for their own research.
5. *How do you see the future of soil science?*
   Problems at the farmers level are very complex and what I see the future of soil science is an holistic approach. There is need to integrate socio-economic and policy components besides technical issues. For example soil fertility can no longer regarded as a simple issue the use of organic and inorganic sources of nutrients,. Integrated soil fertility management embraces responses to the full range of driving factors and consequences, namely biological, physical, chemical, social, economic and policy aspects. The holistic approach encompasses nutrient deficiencies, inappropriate germplasm and cropping system design, pest and diseases interaction with soil fertility, linkage between land degradation, poverty and global policies, incentives as well as institutional failures considerations. Such long term and holistic soil fertility management strategies require an evolutionary and knowledge intensive process, particularly research and development focus rather than purely technical focus.

Five Questions to David Lowe

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Associate Professor in Earth Sciences
Age: 51 years

1. When did you decide to study soil science?

My undergraduate degree major was in Earth sciences, soils being but one subject. I decided to embark on an MSc in pedology in the mid 1970s primarily because of the influence of several mentors. Subsequently, I completed a PhD in tephrochronology and so now see myself as a 'fringe man', to use the words of pioneer tephrochronologist and pedologist in New Zealand (NZ), Alan Pullar. By this term, Alan meant that a profile can 'tell more than one story', and my own research has subsequently been centred on tephras and layered sequences, i.e. stratigraphy, and environmental change (including archaeometry) together with pedology and palaeopedology. I am not a classically trained experimental soil scientist (that aspect being taken by colleagues in my Soils Group). Instead, I have taught papers essentially on soils in the landscape and land evaluation, as well as Quaternary science and tephrochronology. The emphasis in my soils papers has changed as my involvement with research into plantation forest soil mapping (soil-landscape modeling) has gradually lead to a new focus on spatial analysis and pedometrics as they were taken up and developed by some of my masterate and PhD students.

2. Who has been your most influential teacher?

Undoubtedly on top is foundation professor of Earth sciences at Waikato University, John McCraw, an experienced pedologist who had the vision to develop a department with an array of multi-disciplinary subjects rather than, say, Geology or Soil Science. Harry Gibbs, one-time chief pedologist for DSIR Soil Bureau who rounded out his career at Waikato, was a hard but fair taskmaster who taught me pedology and to 'write simply', to' say what you mean', and to 'provide evidence to support each statement or identify it as speculation'. Michael Selby influenced me with his deep Oxford-derived knowledge of the scientific method and the critical importance of publishing research findings, much of which I absorbed on a manhauling expedition with him in Antarctica in 1978-79. Chris McLay who taught with me at Waikato in the 1990s is a fine colleague who could not be bettered, and Phil Tonkin has been an honest and influential mentor throughout my career. Many others have provided inspiration in various ways including Jock Churchman, Allan Hewitt, and Hiroshi Takesako. I enjoy and value greatly the friendship and contributions of my contemporaries in NZ and elsewhere.

3. What do you find most exciting about soil science?

Soils are a fundamental and irreplaceable resource with a wide range of essential functions and great beauty that together form a wonderful 'underground' landscape. I enjoy being privy to 'seeing' that landscape, knowing something about its origins and processes, and especially working with others who are also greatly interested in the soils around us. (This last social aspect was described by contemporary Peter Singleton in 2003 as the paramount 'beauty of soils'.) I am in total agreement, 'My friend, the soil', espoused by Hans Jenny. I am excited when long-standing problems, big and

small, are finally cracked. Soils are complex, yet very clever people across many disciplines have learnt to understand and explain them and I admire them all greatly. I enjoy seeing landscapes in other parts of the world and their associated soils, and especially meeting those who care about them. I am also fulfilled by the succession in soil science and derive much pleasure, far more than I would have thought when I started out, in seeing our University's graduates develop into influential and knowledgeable soil scientists or geoscientists.

4. *How would you stimulate teenagers and young graduates to study soil science?*

   This is the most difficult question (actually two questions). Who cares about soils, anyway? In NZ, soils are valued less for their intrinsic properties but increasingly solely for where they occur, i.e. as real estate. I don't agree that we should teach soil science, or any geosciences, in high schools. If it's done badly, the position is worsened. Schools are less about education than places of custodial care and indoctrination, and teaching in high schools in NZ tends to be too prescriptive, stifling enthusiasm for a subject. At university it's hard for soil science, outwardly dull to the myopic, to compete with surfing or tsunamis. However, by slightly re-packaging soil science alongside or within environmental science there is a way ahead. Randy Dahlgren (USA) now teaches soil science effectively by answering the question he poses: "Crisis in the environment?" We may have to become more clearly aligned with 'environmental science' than at present, and fast, before the engineers take over, even if our identity is a little compromised. As the unique life-sustaining attributes and multiple services provided by soils are recognised by those with influence, we need a champion in the form of, say, a Lord Robert Winston, to produce documentaries about soils, their role in civilization, their many beautiful and intricate properties and attributes, and about the pivotal role of soil science research in our society. Respect, in a word. I try to encourage young graduates to take up soil science by showing unabashed enthusiasm for the discipline, by providing opportunities for graduate research, and by 'inducting' them to the soil science community at conferences. In a word, mentoring.

5. *How do you see the future of soil science?*

   Despite problems over several decades in soil science in NZ, the result largely of ignorant and uncaring governments, and a concomitant decline elsewhere, I am positive about the future of soil science. Firstly, soils remain a fundamental and intrinsic component of the environment on which civilization stands or falls, as history has shown. Failings in the environment are now beginning to show themselves in NZ in various ways. Previously, the impacts of humans here were either seen as 'progress' or were hidden by virtue of our tiny population. Now the chickens are coming home to roost: several 'pristine' lakes are in serious or early decline from eutrophication as a result of (unwitting) farm management including heavy fertilizer application. Even the complacent NZ public has been shocked to learn that groundwater entering these lakes and waterways is 40-60 years old, meaning that the problem is with us for decades even if drastic changes take place immediately in managing land adjacent to these waters. A second shock has been the recognition of contaminated soils (by heavy metals, DDT, etc) in many properties in urban environments that were formerly orchards or farms. What to do? Handwringing and rhetoric but more importantly soil science alone offers solutions. Currently, more than five senior-level soil science research-based jobs are being advertised in NZ (that's a lot for us). I think that the tide has turned for soil science, paradoxically because of increasing soil and environmental degradation. We need probably politically-driven but intelligent and well-articulated responses to these environmental crises. New tools and ways of looking at soils in the landscape using spatial analysis and pedometrics provide another positive direction for pedology, as shown by Alex McBratney and others.

My favourites in Soil Science – books!

They'll never disappear, may go out of fashion for a while but they cannot be replaced by flatscreens or other media, and most people I know love them: books. Tell me what's on your bookshelf and I tell you what sort of person you are. Well, that may apply for literature but also for your professional books. I'd asked several people to write about their favourite books – here is what they've written.

Alfred Hartemink
Deputy Secretary General IUSS
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The favourite books of Darwin Anderson (Canada)

Competence in a language other than English was a requirement was of my PhD program in the Department of Soils at Oregon State University in 1967. The usual way to competence was to select a book and practise translation until ready for the examination. I chose *Precis de Pedologie* by Philippe Duchaufour, published by Masson in 1965, a wonderful book, clearly written and with colour photographs. Duchaufour's treatment of pedology was familiar enough to connect to my field experience in Manitoba and Oregon, with new ideas that helped to organize that knowledge. The exam was informal, at the home of a professor who was certainly a lady, and followed by tea. I have read Duchaufour's later books, even the English translations, and appreciate his writing and comprehensive knowledge.

Saskatchewan Soil Survey Report Number 12 (1944), written by pioneer pedologists John Mitchell and Harold Moss covers most of the immense area of agricultural land in this Canadian Province. Their knowledge of the land and farming adds much to the text. The report begins with a highly readable section on the factors that have determined the kinds of soil, including a great section on geology by FH Edmunds. The mapping units, soil associations, are described in a straightforward way that makes reading informative and enjoyable. The report is completed by a section on productivity in which each association is given a comparative, numerical rating. The ratings and the association names became part of the vernacular concerning land sales among farmers. All in all, 'the Number 12 report' is a great pedology, still relevant even with more detailed maps accessible electronically.

Developing a new course in pedology with a focus on boreal ecosystems was my responsibility in 1980. The search for a suitable reference text led to a recent book, "Soil and Vegetation Systems", by Stephen T. Trudgill, Oxford University Press. It's not strictly pedology, but the examples discussed and descriptive graphics provide the right balance of ecosystem processes and soil science. Several of the graphics illustrating processes became parts of overhead transparencies that connected them to local ecosystems. It was gratifying, and a bit humbling, to see 'original' concepts that were taking shape in my mind so well illustrated and discussed. It's a great book, concise and clear, and a good read for any pedologist wanting a more system-based treatment of soils and ecosystems.

The favourite books of Martin H. Gerzabek (Austria)

My below selection is based on the frequency I use these books, including two more general books and a highly specialised title. My most frequently used book is a German title, the "Lehrbuch der Bodenkunde" (Textbook of soil science; first published by Scheffer and Schachtschabel in 1937, at present the 15th edition 2002, Spektrum Akademischer Verlag Heidelberg, 593 pages). This book provides both, an excellent overview of all disciplines of soil science and in-depth scientific explanations supported by a good selection of general and specific references, which help in entering a new field in soil

science. The book itself is written by app. 20 German authors. This group authors is constantly enlarged to ensure top quality of the different chapters. In the field of soil chemistry I like very much the book of Garrison Sposito "The chemistry of soils" (1989, Oxford university press, 304 pages; in German: 1998, Ferdinand Enke Verlag, Stuttgart). 16 years old, this book provides still an excellent overview of all important topics in soil chemistry. The author describes soil minerals and organic matter in soils and the soil solution, and provides in-depth coverage of important chemical processes, including solubility reactions, oxidation-reduction phenomena, adsorption, and ion exchange. For teaching purposes the app. 200 exercises are of high value. A very specialized book I frequently use is "Molecular Modelling Theory: Applications in the Geosciences" edited by R.T. Cygan and J.D. Kubicki (Reviews in Mineralogy & Geochemistry Volume 42, Geochemical Society and Mineralogical Society of America, 531 pages). The application of molecular modelling in soil research is a young but exciting discipline.This book was the basis for a short course in molecular modeling theory and contains 14 chapters covering a broad spectrum of molecular modelling applications – from simulating mineral structures to the calcualtion of complexes, interactions on mineral surfaces and vibrational properties of minerals. Thus, it provides a good overview of the options to apply these new methods in soil science.

The favourite books of Alex McBratney (Australia)

How do you choose a favourite book? Perhaps the one from which you learned the basics, or the most soiled and dog-eared, or the useful, or the prettiest, or the one that was simply a revelation….. In the realm of soil science, the one that taught me the most is probably Russell's Soil Conditions and Plant Growth. I particularly choose the 10th edition because it has said as much as there has been said about soil by a single author in a single tome. The most soiled, and some would argue, the most used book in soil science, is the Munsell Soil Color Book. I still take delight in flicking through the pages – but it's not a heavy read, and technology has numbered its days – a field spectrophotometer for all isn't far away. For most of us, the useful ones are the soil science cook books, the ones that you tell you the recipes, and in this category the SSSA's Methods of Soil Analysis series has been, and continues to be, pre-eminent. Then there are the pretty ones. I have no doubt about this, it's Kubiëna's (1953) classic on the Soils of Europe (which surely should be recognized, revived, resurrected, and even revised by some august body of the pan-eurocracy, e.g., the European Soil Bureau.). To me the paintings of soil profiles are intriguing, inspiring, almost incandescent. Then there are the great monographs – more challenging volumes written close to the cutting blade of research – the ones likely to provide the disappointment of incomprehension or the vision of the oracle. For me I think about Nye and Tinker (1977) but Jenny (1941) and Childs (1969) run a close second. I have tried not to be partisan, but if I were to be sectarian, I would certainly choose Webster (1977). A lot began there. So I guess out of some innate desire for order, and a modicum of partiality, and an instruction to mention only three, I should rank them. Voiçi-lá!

1. Russell (1974)
2. Kubiëna (1953)
3. Nye & Tinker (1977) Webster (1977)

I have silcrete evidence that these books have a wider appeal – they've all disappeared from my shelves.

It's pretty clear from this roll that the mid 'seventies were a fairly formative time in my thinking about soil science, and there have been so much published since then. A few gems in a matrix of potboilers? Perhaps. The new textbooks are so much better than the old ones, and tomes like McKenzie et al's (2004) Australian Soils and Landscapes approach Kubiëna in beauty and surpass it in content, and then there are the great new encyclopædias. But I so long for the great new monograph that will give me inspiration. So, for the sake of soil science, I do hope my list will be quite different in twenty years time, but. I'm sure Elvis and 'le grand Jacques' will still be top of my pops.

The favourite books of Stephen Nortcliff (UK)

When asked if I would write about my three favourite books I found the task a daunting one, I was not sure that I could choose just three books. By way of a compromise I have gone back to my early formative years as a soil scientist and picked three books which helped persuade me to pursue graduate training in Soil Science (at the time there was no undergraduate degree in Soil Science).

My first choice is an autobiography first published in 1956: 'The Land Called Me' by Sir E. John Russell which I first picked up and read in my local public library many years ago. This book charts the life of Sir John who became one the leaders in early 20th century soil science as applied to agriculture, although his background was not agricultural. The book makes fascinating reading about the style of life in 19th Century England and charts Sir John's education initially as a chemist and then his shift to agricultural chemist and soil scientist. He was appointed Director of Rothamsted in 1912, and the book charts his search for information about how soils and the agriculture they supported functioned, with studies across the globe. The book provides fascinating historical social context but also because an insight in to the early developments of our subject.

My second choice is another book I found on the shelves of the Sheffield Public Library, which even when I first read it was rather old. This book is 'SOILS – Their Origin, Constitution and Classification' by G.W. Robinson published in 1932. In many ways the book is important to me because it was the first time I was introduced to the complex medium we know as soil and also to the diversity of soils that are found even within a small country such as the United Kingdom. Robinson's book is written with a clarity which as a novice in the field I found easy to understand and follow, it convinced me that soils were a fascinating material to study and it encouraged me to look further.

My third choice of book is Hans Jenny's Factors of Soil Formation published in 1941. As an undergraduate student I chose as my dissertation topic a field study of the soils and soil patterns in Derbyshire. My dissertation adviser, Len Curtis, by way of guidance suggested I might read Jenny's book. This I did, and although a relatively short text, I found within it a way of looking at soils that was to influence much of my future career during which I have visit many parts of the world, seeking to understand the patterns and variability of soils in the landscape

The International Year of Planet Earth: what is in it for soil scientists?

Momentum is growing behind an ambitious international multidisciplinary Earth science initiative. The *International Year of Planet Earth* project was conceived by the International Union of Geological Sciences (IUGS), and UNESCO's Earth Sciences Division soon came in as an enthusiastic co-initiator. The *Year* now enjoys the backing of all relevant IUGS sister unions in ICSU, including the IUSS, as well as formal backing in the form of a Declaration issued by the global geoscience community during the International Geological Congress (2004). It has now won the full political backing of 16 nations, together representing half of the world population. Tanzania has entered the International Year on the Agenda of the 171st meeting of UNESCO's Executive Board, to be held in mid-April this year, so completing the next step towards UN-proclamation.

The aim of the *Year*, encapsulated in its subtitle *Earth sciences for Society,* is to greatly enhance awareness of the relationship between humankind and Planet Earth, and to demonstrate that geoscientists are key players in creating a balanced, sustainable future for both. The aim is to have 2007 proclaimed as the official UN-year, but the whole project will begin one year before and run until at least one year after the UN-year. The *International Year* includes a Science and an Outreach Programme, both of equal financial size. The Science themes, selected for their societal impact, their potential for outreach, as well as their multidisciplinary nature and high scientific potential, include Groundwater, Hazards, Health, Climate, Resources, Deep Earth, Ocean, Megacities, and Soils. Attractive theme brochures inviting colleagues to submit project proposals are printed or are close to that stage. The Soils brochure (subtitled 'the living skin of the Earth') produced by prominent IUSS representatives, will be printed shortly. For downloads, please check www.esfs.org. A similar 'bottom-up' mode will be applied in the Outreach Programme, which will operate as a funding body, receiving bids for financial support – for anything from web-based educational resources to commissioning works of art – that will help register and reinforce the central message of the *Year* in the mind of the general public and decision-makers.

We are confident that soil scientists will readily identify with the general objectives of the *International Year*, as these are equally valid for all the geo-professions. The *International UN Year of Planet Earth* offers soil science a suite of opportunities. For example, it might well provide a prominent platform for the launching of a 'World Soils Day' and it might be used to generate substantial outreach towards the 2006 IUSS World Congress in Philadelphia, together with numerous related activities. Soil scientists may also recognize the relevance of their science in several of the *Year's* science themes, for example in Health (dust problems), Climate (palaeosol records), Resources (soil: a renewable resource?) Megacities (urban soils), and Hazards (risk of soil loss).

The Management Team of the International Year of Planet Earth is gratified to have, through the IUSS, the global soil science community playing an integral role in this major initiative. We invite you all to participate actively in this endeavour, and to come forward with suggestions that will make the *International Year of Planet Earth* an unforgettable joint experience and a geoscientific event of unprecedented success.

Eduardo F.J. de Mulder
chair Management Team of the International Year

Bringing Soil to Life: Smithsonian Soils Exhibit

The Soil Science Society of America (SSSA) is working with the Smithsonian Institution to plan a soils exhibit as part of their Global Links Gallery at the National Museum of National History, located in Washington, DC. The museum attracts 6 to 9 million visitors each year; almost 20 percent of visitors come from countries outside the U.S.

Plans for the interactive exhibit include educational displays, exhibit panels, artifacts, videos, activity tables, experiments, and interactive games to help visitors understand how soil is intricately linked to the health of humanity, the environment, and the planet. Related publications and web activities will reach millions of additional people. If funding permits, a traveling exhibit will be sent to libraries over a three-year period to reach additional communities.

Soil scientists from many regions and professions have worked with SSSA to organize a committee to help develop exhibit information, help distribute educational information, and involve the profession to develop the soils exhibit, slated to be opened in 2006. Three major elements of the Soils Exhibit include:

1. National Museum of Natural History Exhibit, which includes two sections. A state soil monolith from each state will be displayed as a permanent exhibit (see sidebar for more information). A multi-year interactive exhibit of up to 6,000 feet, dependent on fund raising, will explain soils to the 6–9 million annual museum visitors. Tentative topics for the exhibit include:

- Soils and biotechnology—soil-based medical- and health-related discoveries- Soils as a source of some of our most important antibiotics, but also a source of plant and animal disease; The use of kaolin, a type of clay, to protect tree fruit from insects, fungi, and sun scald; Enzymes isolated from soil organisms are used in manufacturing
- Products from soils—food and shelter-Kitchen showing items from soil; How soils affect wine tastes
- Soils and culture—history, art, and anthropology-Different languages' word for "soil"; Ancient cultures soil management interactive display; U.S. Dust Bowl experiences; Soil "eaters" cultures; 2004 Nobel prize winner organized planting of ~30 million trees to combat deforestation in Africa
- Soils are alive—Crawl-through: a worm's eye view; Did life originate in soils?; Videos of soil creatures; Threatened or unique soils and the organisms they support; Soil biodiversity and the link to earth's ecosystems; What happens when things decay?
- Human effects on soils—use and misuse of soils—The wide variety of uses of soil; What is soil worth?; Soil hazards—landslides, quick sand, subsidence, erosion; Climate change and soils; Soil rehabilitation
- What's happening down there? What's in my soil?—More than half of life on earth is underground; Lunar and Martian soils compared to Earth's soils; Modeled menu of what makes up soil (e.g., leaf litter, earthworms, animal waste, minerals, etc.); Soil scratch and sniff; Soil as water purifier with septic systems

- Soils careers—Feature professionals with diverse backgrounds explaining how they chose their career and what they do (focus on women and minorities)

2. During and following the multi-year exhibit, some interactive display components will be made available to other museums and libraries. One proposal calls for partnering with the American Library Association to reach library users in the U.S., targeting underserved and urban areas.

3. Educational Outreach Materials that are planned may include soil educational kits to be sent to librarians, K–12 teachers, and other groups. These web educational activities, career information, and resource lists will be available on the Smithsonian Institution and SSSA Web sites indefinitely.

SSSA has asked the Agronomic Science Foundation (ASF) to help raise the $4 million needed for the exhibit, and to date about $700,000 has been raised. Soil Scientists are asked to think about contacts they have with corporations and funders who might support the exhibit and forward their ideas and contacts to the Agronomic Science Foundation. See the web site below for contact information. Soil Scientists are also asked to consider a personal gift to show their support for the project.

To learn more about the project, volunteer or contribute, visit www.soils.org/smithsonian

Interested individuals can receive quarterly e-mail updates on the project. To subscribe to this listserv, send an e-mail with SUBSCRIBE in the body of the message to: smithsonian-request@soils.org or visit our Web site at www.soils.org/smithsonian.

These soil monoliths highlight local soils and illustrate to museum visitors the variety and make-up of soils across the world. The monoliths will give visitors an “underground peek” at a real soil profile.

USDA’s Natural Resources Conservation Service (NRCS) created the monolith collection in honor of the 100th anniversary of the U.S. national soil survey. They were developed for a showing on the mall in Washington DC, in 1999 and are donated to the Smithsonian for this exhibit. NRCS has also provided a generous $300,000 grant to fund design of the overall interactive exhibit.

These monoliths and the entire soils exhibit will be near the Hope Diamond, the most visited museum exhibit in the world. This location is also near the IMAX theater exit and should give good visibility to soil science. The museum charges no admission fee to view their exhibits.

EGU Philippe Duchaufour Medallist 2005
Udo Schwertmann

Prof. Udo Schwertmann received the EGU Philippe Duchaufour medal for his outstanding research in the field of fundamental and applied soil science, with special emphasis on his contributions to soil mineralogy and genesis.Udo Schwertmann, born in Stade (Germany) in 1927, conducted important, internationally recognised research work in virtually all fields of soil science from atomic to mineral and to landscape scales. This holds especially for his work on oxidic iron compounds, but he was certainly fascinated by soils as a major component of natural landscapes, i.e. terrestrial and aquatic ecosystems as a whole. In this frame especially his work on soil erosion has to be mentioned. During his long and productive career more than 250 original research and review papers even as several books were published, mostly together with colleagues from all over the world. His papers and books emphasise the important role of soils in the functioning of natural and managed ecosystems. Case studies of his research work include iron and aluminium oxides, layer silicates, sulphides, carbonates, soil erosion, biotic factors, soil management, and interactions between organic and inorganic soil components. From 1964 till 1970 Udo Schwertmann was Head of the Department of Soil Science at the Technische Universität West-Berlin, and from 1970 till 1995 at the Technische Universität München. Although he retired from active service in

1995, he is still involved in many research projects. Udo Schwertmann's impact on soil research, teaching, and service is based on his cordial and decent personality still provoking enthusiasm for soil science in many students and colleagues. His work has been honoured by a Doctor honoris causa title of the Universität Kiel, and several scientific awards and honorary memberships of learned societies in and outside Germany.

Dr. Machito Mihara

Dr. Machito Mihara, a Life Member of IUSS, has promoted to full Professor at the Faculty of Regional Environment Science, Tokyo University of Agriculture, Japan. His research fields are Soil and Water Conservation Engineering and International Environment Cooperation. Prof. Mihara obtained his Bachelor degree from Tokyo University of Agriculture in 1988, Master degree from Ibaraki University in 1990, and Doctoral degree from Tokyo University of Agriculture and Technology in 1993. He has 12 years career as a researcher and a lecturer at Tokyo University of Agriculture since 1993. Also, Prof. Mihara obtained the Scientific Encouragement Award from Japanese Society of Irrigation, Drainage and Reclamation Engineering in 2001, and the Scientific Award from World Association of Soil and Water Conservation, Japan in 2003, as results of his distinguished research activities. Presently, Prof. Mihara is also in the positions of Director-General at Institute of Environment Rehabilitation and Conservation, and Regional Vice-President at World Association of Soil and Water Conservation. His research and extension activities have been focused on Mekong River regions.

In memoriam Eduard Mückenhausen 1907 - 2005

On 6th February 2005 shortly before his 98th birthday. deceased the Senior Geologist and long-term Director of the Institute of Soil Science at the University of Bonn (Germany), the Professor Emeritus for Soil Science

Prof. Dr. phil. Dr. rer. techn. Dr. h.c. Eduard Mückenhausen

The German and international Soil Science community lost one of their outstanding scientists. Born in the Rhineland, Eduard Mückenhausen started his scientific career with studying geology under supervision of Prof. Hans Cloos in Bonn, where he attained his Dr. phil. degree in 1933. Thereafter, he studied agricultural sciences at the University of Danzig (Gdansk), where he received his degree of Dr. rer. techn. under the direction of Prof. Hermann Stremme. In the years of 1934 to 1938 he worked as geologist and soil scientist at the Prussian Geological Survey, Berlin. At this time, he also provided service to the industry as consultant. In 1939 he was removed from the office and became soldier until the end of the 2nd World War.

After his detainment as prisoner of war, he was entrusted with the soil survey as director of the department of soil science at the newly founded Geological Survey of the state NorthRhine-Westphalia in 1946. In this position he was able to revive his ties to Bonn and established a fruitful symbiosis of soil survey and academic teaching at the Faculty of Agriculture at the University of Bonn. Since 1947 he acted as lecturer, and he finished his habilitation thesis *The German Soil Types According to Modern Soil Classification* in 1948. In 1955 he became chairholder of Soil Science in the newly founded Institute of Soil Science at the University of Bonn. Prof. Mückenhausen was member both of the Faculties of Agriculture and of Natural Sciences. In 1964/5, he was dean of the Faculty of Agriculture. He refused later nominations for professorships at the Universities of Kiel and Stuttgart-Hohenheim.

Eduard Mückenhausen was actively involved in re-formation of the German Soil Science Society (DBG) in 1949. His areas of proficiency were soil genesis and soil classification; consequently he was secretary of the working group Soil Classification of the DBG from 1952 to 1989. After being vice president of the DBG (1962 – 1970) he was elected president of this society from 1970 to 1973. He also chaired the working group Paleo-Soils from 1974 to 1980. In the International Union of Soil Sciences (IUSS), Eduard Mückenhausen served as vice president of the commission V (1954 – 1956) and commission VII (1964 – 1966). In the years 1952 to 1972, Eduard Mückenhausen was a collaborator for the development of the FAO Soil Map of the World, as German delegate in the working group Soil Classification and Soil Survey of the United Nations FAO.

Professor Mückenhausen supervised 35 doctorate theses and published more than 100 scientific papers and contributions, among these three books and contributions to several other manuals. His books *Major soils of the Federal Republic of Germany* (in German, 1957, 1959), *Genesis, properties, and classification of soils of the Federal Republic of Germany* (in German, 1962, 1977), and *Soil science and its Geological, geomorphological, mineralogical, and petrological principles* (in German, 1975, 1993) have become renowned reference compendia.

The high reputation as a scientist was acknowledged in several honours, such as example the honour memberships of the German Soil Science Society (DBG, 1977), of the Soviet Soil Science Society (as first German Soil Scientist in 1977), and of the International Union of Soil Sciences (IUSS, 1982). Also the memberships in the Academies of Science of Sweden, Luxemburg, Finland, Belgium, and North Rhine-Westphalia warrant to be mentioned. Furthermore, he was awarded the doctor of honour (Dr. h.c.) of the University of Mainz in 1977.

Eduard Mückenhausen retired in 1975, but was actively involved in scientific and institute activities for years to come. We regret to have lost an outstanding scientist and teacher. His memory will be kept in high esteem.

Executive Board of the German Society of Soil Science
President: Prof. F. Makeschin

News From South Africa

The Soil Science Society of South Africa (SSSSA) held its 25th Congress at Potchefstroom, North West Province in January 2005, where the following Council was elected for the next two years: President: Mr Garry Paterson (ARC-ISCW, Pretoria) Vice-President: Dr Eduard Hoffman (University of Stellenbosch) Past President: Dr Koos Eloff (ARC-ISCW, Pretoria) Secretary/Treasurer : Mr Theo Dohse (ARC-ISCW, Pretoria) Members: Prof Robin Barnard (ARC-ISCW, Pretoria), Ms Hester Jansen van Rensburg (ARC-ISCW, Pretoria), Dr Mishak Molope (ARC, Pretoria), Mr Mbangiseni Nepfumbada (Department of Water Affairs, Pretoria), Dr Cornie van Huyssteen (University of the Free State), Dr Leon van Rensburg (University of the Free State) (see photo, taken at Jan. congress)
The SSSSA, which is now well into its sixth decade, holds annual congresses with its sister societies (Crop Production, Weed Science and Horticulture) and supports the SA Journal of Plant and Soil (www.plantandsoil.co.za). It also contributes to ensuring that only properly qualified soil scientists carry out soil investigations (as determined by legislation) and helps to ensure that the scientific curricula remain relevant to producing the quality of soil scientist that South Africa needs, both now and in the future. The web-site of the SSSSA is www.soils.org.za

(Standing, L to R): Leon van Rensburg, Garry Paterson (President), Eduard Hoffman (Vice-President), Cornie van Huyssteen, Robin Barnard.

(Sitting, L to R): Koos Eloff (Past President), Hester Jansen van Rensburg, Elize Herselman (Secreteriat),Theo Dohse (Secretary/Treasurer)

News from Pakistan

The Soil Science Society of Pakistan (SSSP) is an organization of scientists, engineers, technologist and students involved in the profession of Soil Science. The Society was established in 1958. Active members of the Society are over 500. The Society works to advance the discipline and practice of Soil Science by acquiring and disseminating information about soils in relation to crop production, environmental quality, ecosystem sustainability, bio-remediation, waste management and recycling and wise land use. Aims and objectives of the Society are to : (i) Promote Soil Science research and its application; (ii) Create facilities and provide a forum for close cooperation among the scientists working in Soil Science and allied disciplines; and (iii) Publication of Pakistan Journal of Soil Science and a Newsletter.
Affairs of the Society are managed by an Executive Council, elected after every two years. The 2005-2006 Executive Council comprises of President, Dr. Abdul Rashid, National Agricultural Research Center, Islamabad; Vice President (Sindh), Prof. Dr. Kazi S. Memon; Vice President (NWFP), Dr. Sabir Hussain Shah; Vice President (Baluchistan), Syed

Waseem-ul-Hassan; Vice President (Punjab), Mr. M.A.K. Tareen; Secretary, Prof. Dr. Zahir Shah; Joint Secretary, Dr. M. Mahmood-ul-Hassan; Treasurer, Dr. M. Tariq Siddique; and eight Regional Councilors. The new Executive was installed on March 10, 2005 at the National Agricultural Research Centre, Islamabad. Chairman, Pakistan Science Foundation, Dr. Farid A. Malik was the Chief Guest. At the occasion,. SSSP also organized a special seminar on "Salt-affected Soils: Exploiting Their Potential" by Dr. M. Salim, Deputy Director General, Institute of Natural Resources and Environmental Sciences of National Agricultural Research Centre. The event was attended by senior soil scientists and science managers from throughout the country. The Society publishes a quarterly `Pakistan Journal of Soil Science`, a quarterly Soil Science News, and `National Directory of Soil Scientists` at the eve of every biennial Congress of Soil Science. So far, the Society has regularly organized 10 biennial Congresses of Soil Science.

Further information on the Society can be obtained from its Secretarial Office, C/O Land Resources Research Program, National Agricultural Research Center, Park Road, Islamabad – 45500, Pakistan; Email: soilsoc@yahoo.com; Website: www.sssp.20m.com

IUSS Division 1
Report 2004-2005

This report includes activities hat were planned in 2003 and carried out in 2004 and early 2005. As Yaalon has indicated (*Nature 407: 301*), we should keep always in our mind that soils are transformer, regulator, buffer and filter of water, nutrients , and other dissolved and dispersed compounds, therefore, they important to mankind.

Important decisions were made during the inter-congress meeting in Philadelphia in April 25-28/2004. Proposal from the Executive Committee that Micromorphology sub committee be merged in to Commission 1.1 of the Division and the Commission be renamed 'Morphology and Micromorphology and this was approved unanimously. Although somewhat it has lost the initial enthusiasm of the 60ties, 70ties and 80ties, however it continue to be fundamental to provide important information to both basic and applied aspect of specifically Division I and soil science in general. In addition to this the IUSS Council has also approved two new Commissions *Paleoepedology* and *Pedometrics* and

Divison one has now six Commissions. Both new Commissions are now actively involved in organizing international meetings and have increased the visibility of Division I and the soil science.

25 Symposia for World Congress 2006

After long discussions, exchange of ideas, and working with World Congress organizers Division I committed to organize 25 symposia out of which 17 of them are going to be oral and the remaining 8 will be poster symposia. A large number of poster symposia will be offered first time in the history of IUSS.

Activities

1. 8th International Meeting on Soils with Mediterranean Type Climate, Marrakech, Morocco 9-11 February 2004. The meeting was jointly organized by Divion III of the IUSS. Total 77 papers were presented during this meeting, most of which were devoted to the soils problem of the Mediterranean regions. Previous meetings were held in France (1946), Spain (1966), Turkey (1993), Greece (1993), Bulgaria (1997), Spain again (1999), and Italy (2001). Desertification of the Mediterranean region was one of the striking themes emerged during this meeting.
2. International Conference on Innovative Techniques in Soil Survey, developing the Foundation for a new Generation of Soil Resource Inventories and Utilization. The meeting was organized Cha-am, Thailand, March 22-26, 2004 under the auspices of The International Union of Soil Science, Soil and Water Conservation Society of Thailand, Soil and Fertilizer Society of Thailand, Co-sponsored by Land Development Department (LDD) Thailand, and USDA Natural Resources Conservation Service. Objectives of the meeting were:
   1. Evaluate new technologies available for soil survey, the manipulation of data and delivery of information to customers;
   2. Report on case studies of applications of geographic information science, artificial intelligence, information representation theory, and other related sciences in the soil survey process;
   3. Develop mechanisms to respond to changing customer demands in both kinds of soil information and methods of delivery;
   4. Approaches to shaping technical soil services for the year 2020.
3. Function of Soils for Human Societies and the environment, Saturday August 21/ 2004. The symposium was organized by the Chairman of Division IV (Dr. E. Frossard) and Division I has supported by papers. The symposium was part of the 32nd World Geological Congress in Florence, Italy, 20-28 August 2004.
4. Soil Classification 2004 International Conference and Field Workshop. Organized by the International Union of Soil Science, Dokuchaev Society of Soil Scientists Russian Academy of Sciences Russian Academy of Agricultural Sciences in August 3-9 Petrozavodsk, Russia. This conference was the continuation of the scientific discussion initiated in 2001 during the Soil Classification conference in Hungary. The conference consisted of two parts: the a field workshop of the WRB Working group together with the Commissions 1.4. Soil Classification and 1.3. Soil Genesis of the IUSS. The Field Workshop was include 4 one-day field excursions with a return to the hotel in Petrozavodsk. The excursions also included a detailed study of soil profiles and discussion. The participants of the conference were able to see Kizhi island which has a world-famous wooden architecture. Some participants had a Pre-Conference Tour to started in Vorkuta (Komi Republic) and finished in Salehard (Eastern Siberia). The town of Petrozavodsk is located on the West-North of Russia. It is a capital of an Republic of Karelia in the Russian Federation.
5. 12th International Meeting on Soil Micromorphology Adana, Turkey, 20-26 September 2004. This was part of the activities of Commission 1.1 Soil Morphology and Micromorphology. Total 50 micromorphologists from about 20 countries have participated in this meeting to present and discuss about the current state of knowledge of micromorphology. The number of participants and country represented in Adana, showed that Micromorphological studies are moving ahead and used both in fundamental and applied research. Three countries namely Brazil, China, and Poland

were interested to organize the next international meeting in 2008 also affirms that micromorphology will continue to serve the development of Soil Science in the future. The topics that were discussed included:

1. Soil quality and soil management for sustainable soil management,
2. Soil genesis and weathering of soil minerals,
3. Paleopedology indicators,
4. Micromorphology of soils in arid regions,
5. The use of micromorphology in soil classification, living organisms, and organo-mineral complexes,
6. The role of soil micromorphology in related sciences, such as archaeology, archaeometry, pollution by heavy metals, ceramics, environmental toxicology, engineering geology, microstructure of Portland cement.

It was once again recognized that microscopy and submicroscopy have great value for soil science. The field trip around Adana and South-east Turkey provided excellent opportunities for the examination of soils with various types of caliche and paleosols. Participants have enjoyed the excursions very much and the discussions in the field. Half day visit to Karatepe, the Open Air Archaeological Museum and National Park, provided an opportunity to learn more about the pre and post Hittite history in Turkey.

6. EUROSOIL 2004 in Freiburg/Germany, September, 04 – 12. All Divisions and Commissions of the IUSS have participated in the EUROSOIL 2004 Congress. Soil scientists and participants from all over Europe and many countries in the world recognized the role played by soils in terrestrial ecosystems. During the five day sessions poster presentation were also giving an overview of the whole spectrum of soil research created an opportunity for a forum for small group discussions. Excursions into the various European countries added much flavor to the congress.
7. The new Commision Pedometrics had a number of meetings. They were:
   a) International Environmetrics Society & Symposium on Spatial Accuracy Assessment in Portland, Maine June 28-July 1, 2004.
   b) Global Workshop on Digital Soil Mapping. Organized by the International Working Group on Pedometrics of the International Union of Soil Science http://sol.ensam.inra.fr/DSM2004 in Montpellier, France, September 15-17, 2004. Contact person was: Phillippe Lagacherie (lagacherie@ensam.inra.fr)
   c) Geostats Congress http://www.geostats2004.com/ in Banff, Alberta, Canada Sept. 26, 2004.
   d) Pedofract Fractal Mathematics Applied to Soils and Related Heterogeneous Systems.
   http://www.itc.nl/personal/hengl/PM/WEB/PEDOFRACT_2004.htm in El Barco de Avila, Spain July 2- 6, 2004
8. The fourth International Iran and Russia Conference Agriculture and Natural Resources, September 8-10, 2004, Shahrekord, Iran. In total 138 oral and 150 poster papers were presented. The main topic on soils was the ecology and ecosystem function. The participants were mainly from Iran and Russia. International participation gave the opportunity for wide interactions. Excursions and field trips were very well organized and participants enjoyed observing unimaginable arid and semi arid land forms in central Zagros mountain of Iran.
9. International Symposium on Sustainable Use and Management of Soils in Arid and Semiarid Regions. Cartagena, Murcia, SPAIN, 22nd-26th September, 2002. This was organized in conjunction with Division III of the IUSS. This symposium was part of the inter-congressional activities of the Division I “Soil in Space and Time. The symposium was organized jointly by the Department of Agricultural Production of the Polytechnic University of Cartagena, together with the Department of Agricultural Chemistry, Geology, and Pedology of the University of Murcia. More than 250 delegates from about 20 countries have participated in the symposium. The Local Organizing Committee has managed to publish two excellent volumes of the proceedings. The first volume was devoted to invited lectures and the second one was extended summary of all the oral and poster papers. These volumes can be obtained: Prof. Dr. Ángel Faz Cano,

Secretary SUMASS2002, Department of Agricultural Production, The Polytechnic University of Cartagena; Paseo Alfonso XIII, 48. 30.203 Cartagena. Murcia. Email: sumass2002@upct.es Phone: 34-968 32 54 40; Fax: 34-968 32 54 35 Web Page: http://www.upct.es/sumass2002; http://www.um.es/sumass2002.

10. GLOBAL SOIL CHANGE: Time-Scales and Rates of Pedogenic Processes,

Mexico City, March 10-18, 2005. This meeting was organized by two Commissions 1.3, Soil Genesis and Commission 1.5, Paleopedology together with La Sociedad Mexicana de la Ciencia del Suelo, Instituto de Geología, Universidad Nacional Autónoma de Mexico (UNAM), Colegio de Postgraduados, Montecillo, Mexico, and Institut de Recherche pour le Dévelopement (IRD), in France. It was well attended by Mexican and international participants. The objective of the meeting was to increase our understanding of the pedosphere. It was recognized that the pedosphere and biosphere accelerating changes rapidly require more in depth understanding from the Earth and Life sciences stand point of view. This is the reason why this International IUSS Conference was held in Mexico. The Conference focused attention on time scales and rates of both natural and humanly induced pedogenic processes in relation to the global soil change. Scientific sessions included were:

1. Main concepts of soil systems behavior in time.
2. Chronosequences of soils and paleosols: time-scales for natural pedogenic processes.
3. Rates and characteristic times for modern and ancient human induced pedogenic processes.
4. Time scales of soil – geoforms – biota interactions
5. Experimental modeling of pedogenic processes.
6. Soil dating methods: advances and limitations.

In a final session, a round-table discussion will examine the question: "What are the important gaps in our knowledge on soil and time problem?". The Conference had a three-day program of oral and poster sessions and two (pre and post) conference tours well attended by about 50-60 international scientists. Organizers have done a superb job. Contact person was: Dr. Elizabeth Solleiro-Rebolledo, Instituto de Geología, UNAM. Circuito de la Investigación Científica, Ciudad Universitaria, C.P. 04510, Mexico City.E-mail: solleiro@geologia.unam.mx, Fax +52-56-22-43-17. Tel. +5255-56-22-42-86 ext. 42 and the
website: http://geologia.igeolcu.unam.mx/Paleosuelos/edafologia/index.htm

11. Pedometrics 2005: Frontiers in Pedometrics Conference to be held September 12-14, 2005 in beautiful Naples, Florida, at the Naples Beach Hotel & Golf Club. Topics to be presented:

- Soil sensor and remote sensor applications
- Interfacing GIS and geostatistics
- Pedometrics interfacing with other disciplines
- Environmetrics applications
- Advances in soil mapping
- Advances in soil sampling and monitoring
- Pedodynamic modeling
- New concepts for soil-landscape modeling.

Two-page abstracts are due no later than May 1, 2005 and must be submitted electronically http://conference.ifas.ufl.edu/pedometrics.

Reports of Meetings

The 4th National Congress of the Russian Soil Scientists

The IV Congress of the Dokuchaev Soil Science Society was held at the Institute of Soil Science and Agrochemistry, Siberian Branch of Russian Academy of Sciences in Novosibirsk, August 9-13, 2004. The Congress motto was "Soils – the national wealth of Russia". The Congress was attended by about 360 Russian soil scientists and 18 guests from other countries (Azerbaijan, Austria, Belorussia, China, France, Germany, Kazakhstan, Moldova, Poland, UK, Uzbekistan). The Congress consisted of a plenary sessions, 11 symposia, 20 sessions of Commissions, Subcommissions and Working Groups. 289 oral and 33 poster presentations were discussed during the Congress. 1129 abstracts were published in 2 volumes of the IV Congress transactions. The Congress was opened by Prof. G.V.Dobrovolsky, President of the Dokuchaev Soil Science Society. At the plenary sessions several papers were presented to analyse the main achievements and problems of national and world soil science (S.A.Shoba, S.Nortcliff, A.S.Yakovlev, A.L.Ivanov, W.Blum, V.A.Rozhkov, V.N.Kudeyarov, V.I.Oznobihin, A.N.Gennadiev). The main portion of oral papers and posters were presented at the Symposia and sessions of Commissions, Subcommissions and Working Groups. 20 Russian and 2 foreign honorary members of the society were elected, including G.Andreev (Ukraine) and H.Maksudov (Uzbekistan). The resolution of the IV Congress stressed the urge to develop both basic and applied facets of soil science and particularly to concentrate on the problems of the ecological and geobiospheric functions of the soil mantle, sustainable development of soils and ecosystems, soil degradation, remediation and conservation. The enhance of role of soil science in the basic and special education was also stressed. The IV Congress of Dokuchaev Soil Science Society applied to the President of Russian Federation Vladimir Putin and to the Speaker of State Duma Boris Gryzlov to develop and put into being the national law on "Soil Conservation". After the Congress 4 scientific field excursions were held to different places of West Siberia. On the General Assembly of the Congress Prof. Sergey A. Shoba was elected as the President of the Dokuchaev Soil Science Society, Prof. Gleb V.Dobrovolsky became the Honorary President of the DSSS. And also 6 vice-presidents were elected: Prof. B.Aparin, Prof. I.Gadjiev, Prof. A.Ivanov, Prof. V.Kudeyarov, Prof. V.Rozhkov, Prof. V.Targulian.

Victor O.Targulian, Galina S.Pogodina, Sergey V.Goryachkin

SuperSoil 2004 – A Super Conference in Sydney

This excellent conference, which was held from 5-9 December 2004, was organised by the Australian and New Zealand Soil Science Societies. A few statistics won't go amiss. A total of 325 participants attended for the whole three days of the conference and another 33 attended a single day of their choosing. Of these 277 were from Australia and 65 from New Zealand, 6 came from the United States, 3 from the United Kingdom, 4 from The Netherlands and four from Germany.

The Conference on the whole ran like clockwork and this was due in part to all the talks end the poster sessions, as well as the morning and afternoon tea/coffee sessions and the lunches being in the same convenient building. The field trip to the Hunter Valley, that your correspondent took, was instructive in that even in 2004 so many soil scientists still descend like rabbits into a hole to look at a soil profile, without ever gazing at the surrounding landscape and first making sure of the geomorphology of the site and identifying the condition of the native vegetation. I think there is a task here for soil science departments to cure this form of myopia among their students.

The keynote papers by Professor Donald L. Sparks, Professor Johan Bouma, Dr Brent Clothier, Professor Bob Gilkes and Stuart B. Hill and Rebecca Lines were excellent, and had a notable reflective content on where soil science has been, and where perhaps it is going (if it is going anywhere). Professor Sparks tantalised us with all the new gee whiz technology that is becoming available to soil science. The three following speakers looked at what had happened to soil science in the modern global economy and what were the underlying driving forces. Professor Bouma tried to forecast the future and how soil science should position itself to survive. Stuart Hill introduced a strong psychological, ethical and political note in discussing the challenges to achieve sustainable land management, and Rebecca Lines-Kelly, who is not a soil scientist but a journalist, gave the last keynote address about the human perspective on soils from ancient history till today in such a wonderfully erudite and moving manner that many of us, including your correspondent, had tears in their eyes when the lights went on again. She would be better able to speak to government ministers on behalf of the soil, she would round up the troops behind her and march them to the battlefield than any of us soils people!

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International Conference on Element Balances as a Tool for Sustainable Land Management

The meeting was held in Tirana, Albania, from the 13th to the 19th of March 2005. It was organized jointly by the University of Agriculture of Tirana, the Albanian Institute of Soil Science, the Swiss Federal Institute of Technology in Zurich (ETH), the Swiss Federal Research Station for Agroecology and Agriculture (FAL) and the Division 4 of the International Union of Soil Sciences (IUSS). It was funded jointly by the Albanian Ministry of Agriculture, the Albanian Ministry of Environment, the Swiss Federal Institute of Technology in Zurich, the Swiss Federal Office for the Environment, Landscape and Forest, the Swiss Development Cooperation Agency, and the Division 4 of the International Union

of Soil Sciences. The meeting gathered 90 participants from 18 countries: Albania (44), Austria (2), Belgium (1), Czech Republic (4), France (5), Germany (2), Hungary (4), Iran (1), Italy (2), Latvia (1), Lithuania (1), Netherlands (2), Romania (2), Russia (3), Serbia and Montenegro (4), Slovakia (1), Switzerland (8) and USA (3). During the meeting 30 oral presentations were given by world wide recognized experts and 32 posters were presented. Each oral and poster presentation was followed by intense discussion and exchange of ideas. The organization of 4 working groups allowed all the participants to contribute to the discussion. Overheads of the oral presentations, the working groups' conclusions and the final conclusions including recommendations to policy makers and researchers will be soon available on the website of the division 4 of the IUSS www.iuss.org/division4/publications.htm and on the web site of the group of plant nutrition of the ETH Zurich www.pe.ipw.agrl.ethz.ch.

Czech Society of Soil Science

In 2004, the Czech Society of Soil Science celebrated its 10th anniversary from its establishment in 1994. Now, the Society has 88 active members, 5 honorary members and 12 members retired. The most important event in 2004, in the connection with the anniversary, was the two days conference organized in cooperation with the Czech University of Agriculture, Geological Institute of Academy of Sciences and Research Institute for Soil and Water Conservation. The conference was devoted to the topic of soil variability. More than 100 participants took part from Czech Republic and Slovakia. The field trip to the protected area Bohemian Carst was well organized and successful, in spite of the rainy weather.

From the field trip: discussion over the soil pit described as Albic Luvisol

The 4th International Conference on Land Degradation and Desertification

Cartagena-Murcia, Spain, September 13-17, 2004

This is the 4th International Conference of the Working Group on Land Degradation and Desertification of the International Union of Soil Science. The Group was formed at the first meeting on the theme in 1996 at Adana, Turkey, organized by Dr. Selim Kapur and with the initiative of Dr. Ahmet Mermut. Considerable information on land degradation in the Mediterranean region was generated at this meeting. The Working Group of the IUSS was in response to a growing awareness of this global problem and has one main objective. This is to provide a forum for soil scientists to conduct research and discuss the challenges and needed technologies from a soil's perspective. The Working Group recognizes the multifarious dimensions and the very strong role of socioeconomic conditions in land degradation and desertification. It is also acutely aware of the historical aspects and the impact of land use and management. All these and other aspects are being addressed by other groups and the whole effort is coordinated by the United Nations Convention to Combat Desertification.

A 2nd Conference was held in Thailand and hosted by the Land Development Department of Thailand. This meeting was held in Khon Kean in 1999 and was organized by Mr. Taweesak Vearasilp. The Conference attracted a number of participants from Asia. The 3rd Conference (ICLD3) was held at Rio de Janeiro in 2001 and organized by Dr.Antonio Ramalho and his colleagues from CNPS-Embrapa (Embrapa Soils), developed an excellent program that attracted 274 participants from 45 countries, particularly from South America, among them 18 keynote lecturers. The Working Group conducted a Symposium on the subject at the 17th World Congress in Bangkok in 2002.

The 4th Conference in Cartagena was organized by Dr. Angel Faz Cano and his colleagues at the Universities of Cartagena and Murcia. Many sponsors contributed financially and through other means to ensure the success of the meeting. The meeting was attended by over 250 participants from 51 countries and they participated in an ambitious program with the following themes:

- Geographic perspective
- Historical and archaeological perspectives
- Linkages with global issues
- Quantifying land resources stresses
- Managing land quality
- Human impact
- Policy and legal framework
- Rehabilitation

Mine-waste accumulated since Roman time: a source of heavy metal contamination of soils and aquifers in the Cartagena area.

Land degradation will remain an important global issue for the 21st century because of its adverse impact on agronomic productivity, the environment, and its effect on food security and the quality of life. Productivity impacts of land degradation are due to a decline in land quality on-site where degradation occurs (e.g. erosion) and off-site where sediments are deposited. However, the on-site impacts of land degradation on productivity are easily masked due to use of additional inputs and adoption of improved technology and have led some to question the negative effects of desertification. The relative magnitude of the economic losses due to productivity decline versus the environmental deterioration also has created a debate. Some participants argued that on-site impact of soil erosion and other degradative processes are not severe enough to warrant implementing any action plan at a national or an international level. Land managers (farmers), they argue, should take care of the restorative inputs needed to enhance productivity. Agronomists and soil scientists, on the other hand, argue that land is a non-renewable resource at a human time-scale and some adverse effects of degradative processes on land quality are irreversible e.g. reduction in effective rooting depth. The masking effect of improved technology provides a false sense of security.

The productivity of some lands has declined by 50% due to soil erosion and desertification. Yield reduction in Africa due to past soil erosion may range from 2 to 40%, with a mean loss of 8.2% for the continent. In south Asia, annual loss in productivity is estimated at 36 million tons of cereal equivalent valued at $5,400 million by water erosion, and $1,800 million due to wind erosion. It is estimated that total annual cost of erosion from agriculture in the USA is about $44 billion per year, about $100 per acre of cropland and pasture. On a global scale the annual loss of 75 billion tons of soil costs the world about $400 billion per year, or more than $70 per person per year. There are only about 3% of the global land surface that can be considered as prime or Class I land and this is not to be found in the tropics. Another 8% of land is in Classes II and III. This 11% of land must

feed the 6.5 billion people today and the 8.5 billion expected in the year 2020. Desertification is experienced on 33% of the global land surface and affects more than 1 billion people, half of whom live in Africa. There is ample justification for enhanced efforts to address land degradation.

The workshop, through its papers, posters and discussions, concluded that:

1. The International Union of Soil Science must take the leadership to develop guidelines for the assessment and monitoring of land degradation to enable countries to implement national programs;
2. Current knowledge and databases are inadequate to quantify land resource stresses and more research is needed in this area;
3. Implementation of conservation programs and development of strategies requires definitive scientific and technical base with a cadre of well-trained staff and facilities to implement the programs; institutions that traditionally focused on soil survey should expand their curricula to include aspects of land degradation and desertification;
4. Soil remediation techniques are expensive and time-consuming and effectiveness is very uncertain; alternative techniques must be developed to address chemical contamination of soils;
5. The Convention to Combat Desertification (CCD) of the United Nations has not contributed to the alleviation of the problems due to their inability to rally and capitalize on the technical knowledge and experience available; it is recommended that CCD invest more to build up its technical capabilities.

The Chairperson of the IUSS Working Group on Land Degradation and Desertification is Dr. Hari Eswaran. At the 4th Conference, he relinquished the position to the Chairperson of the 5th Conference, Dr. Marcello Pagliai. The 5th Conference will be held in Italy in the year 2007 or 2008. The membership of the Core Committee of the Working Group is:

Dr. Hari Eswaran (left) and Marcello Pagliai (right). Past and current Chairperson of the Working Group on Land Degradation and Desertification

IUSS Working Group on Land Degradation and Desertification		
MEMBER	**ADDRESS**	**PHONE, FAX, EMAIL**
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Member	Mr. Taweesak, Vearasilp Soil Survey Division Dept. of Land Development Chattuchak, Bangkok 10900 THAILAND	 Tel: 66-2-579 8524 vearasilp@access.inet.co.

Report by: Hari Eswaran
Washington DC

Third International Nitrogen Conference, Nanjing, P.R. China, October 12-16, 2004

More than 400 scientists, engineers, resource managers, and policy analysts from agriculture, animal nutrition, atmospheric chemistry and physics, biogeochemistry, environmental science, forestry, geology, soil science, and several other disciplines participated in the Third International Nitrogen Conference held at the Hilton Hotel in Nanjing, the People's Republic of China, October 12-16, 2004. The theme of the conference was "*Impacts of Population Growth and Economic Development on the Nitrogen Cycle: Consequences and Mitigation at Local, Regional, and Global Scales".* About 40 countries were represented. A 270-page *Programme and Abstracts* book was made available to the attendees at the time of registration. The delegates were welcomed by the Honorary Chair Zhu Chen (Vice President of the Chinese Academy of Sciences), the Honorary Vice Chair Fucheng Ma (Vice Director of the National Natural Science Foundation Committee of China), Baowen Zhang (Vice Minister of the Ministry of Agriculture of China), and Taolin Zhang (Vice Governor of Jiangsu Province, China).

The goals of the conference were (1) Exchange and integrate scientific knowledge on sources, fates, and consequences of nitrogen at different scales, particularly in Asia (2) Stimulate discussions between scientists and policy makers, and explore a balanced strategy to increase food and energy production while protecting environmental quality and natural resources for future generations (3) Suggest an action plan to increase food and energy production while decreasing detrimental effects of reactive nitrogen on the environment.

The cutting-edge nitrogen science and policy issues were explored through plenary presentations (keynote addresses and other invited presentations featuring scientists of national and international prominence), concurrent sessions, round-table discussions, and poster sessions. The conference provided an opportunity to facilitate a dialogue amongst different research fields and the policy makers in an interdisciplinary setting. The following topics were discussed: (1) Centennial retrospect on the effects of increasing nitrogen at different scales and forecasting the future 30 years (2) Impacts of anthropogenic-altered nitrogen cycling on ecosystems at different scales and human health and forecasting the future 30 years (3) Mitigation options for the impact of nitrogen on the environment. The *Nanjing Declaration on Nitrogen Management* was presented at the conclusion of the conference on October 16. Signatories included Zhaoliang Zhu and Katsu Minami, Conference Co-Chairs and James Galloway, International Nitrogen Initiative Chair. The *Declaration* was presented to the United Nations Environment Programme.

The pre-conference tour on October 9-11 visited the Yangtze River delta region to investigate the agriculture and rural economy, urbanization and environment. The mid-symposium tour on October 14 included visits to the following places in Nanjing: Xiaoling Tomb, Dr. Sun Yat-Sen's Mausoleum, and the Institute of Soil Science. There were two post-conference tours: (1) Beijing and (2) Yunnan tour including Kunming, Lijiang, and Dali. I took the Beijing tour (October 16-18). It included a trip to the Great Wall of China, Ming Tombs, Temple of Heaven, Tiananmen Square, and Forbidden City. Weixin Ding, Zhao Zishi, and Hawk (our local tour guide) made it a very enjoyable and educational experience.

Picture taken at the Tiananmen Square during the post-conference tour of Beijing (The Forbidden City is in the background).

The conference was sponsored by the Chinese Academy of Sciences. The co-sponsors were the China Association for Science and Technology, Ministry of Agriculture of China, National Natural Science Foundation of China, State Environmental Protection Administration of China, State Oceanic Administration of China, The Netherlands Ministry of Housing, Spatial Planning and the Environment, The People's Government of Jiangsu Province, China, National Institute for Agro-Environmental Sciences, Japan, the International Nitrogen Initiative, and Chisso Corporation, Japan.

The host organizations included the Soil Science Society of China, Institute of Soil Science (Chinese Academy of Sciences) and the State Key Laboratory of Soil and Sustainable Agriculture, China. The co-organizing institutions included the Agronomy Society of China, Chinese Society of Plant Nutrition and Fertilizer Science, Ecology Society of China, Environment Science Society of China, Energy Research Center of the Netherlands, North Carolina State University (USA), and University of Virginia (USA).

The Organizing Committee included Zucong Cai (China), Liqi Chen (China), Jan Willem Erisman (the Netherlands), Feng Feng (China), Bojie Fu (China), Shuqin Fu (China), James Galloway (USA), Huadong Guo (China), Anand Gupta (India), Yash Kalra (Canada), Mun-Hwan Koh (Korea), Jian Liu (China), Zhiquan Liu (China), Katsu Minami (Japan), Kilaparti Ramakrishna (USA), Kaj Sanders (The Netherlands), Stan Smeulders (the Netherlands), Changqing Song (China), Guangxi Xing (China), and Zhaoliang Zhu (China).

Prof. Guangxi Xing (Institute of Soil Science, Chinese Academy of Sciences), Secretary-General and Prof. Zhaoliang Zhu (President, Soil Science Society of China) and Dr. Katsu Minami (Director General, National Institute for Agro-Environmental Sciences, Japan), Conference Co-Chairs are to be complimented on a successful conference. I am grateful to the Chinese Academy of Sciences for providing funds that enabled me to participate in this conference. I thank the Programme Committee for giving me the opportunity to chair Session 11-2. *Impacts of human activities on nitrogen cycling in forestry ecosystems.*

The First International Nitrogen Conference held in Noordwijkerhout, the Netherlands on March 23-27, 1998 was initiated by the scientists and policy makers of the Netherlands. The Second International Nitrogen Conference, held at Potomac, Maryland, USA on October 14-18, 2001, concentrated primarily on North America and Europe with a secondary focus on Asia. The Fourth International Nitrogen Conference will be held in Brazil in 2007.

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New International Journal

In July 2003, the scientific journal "Annals of Agrarian Science", which is published quarterly, was founded. ISSN – 1512-1887. The journal publishes original, theoretical and experimental scientific contributions in the fields of soil science, agro-ecology, agro-engineering, agronomy, veterinary sciences and animal husbandry, the technology of processing agricultural products and agricultural economics and forestry, preferentially related to the southern Caucasus. Also contributions from other regions of the world are welcome. Founders are the Armenian Agricultural Academy and the Georgian State Agrarian University.
Editor-in-Chief and Co-Editor are Prof. T. Urushadze (Georgia) and Prof. D. Petrosian (Armenia), respectively. The journal is backed by co-publishers from Armenia, Austria, Georgia, Germany, Italy, Russia and the USA. The Editorial Board is composed of scientists from Armenia, Georgia, Germany, India, Israel, Kasachstan, Poland, Russia, Slovakia, Spain, Turkey and the USA. More information can be obtained by http://argscience.gol.ge

Cooperating Journals

The IUSS has 10 cooperating journals. These journals are available for individual IUSS members at reduced subscription rates. Some general information on these journals is given below. Should you be interested to subscribe to one of these journals please contact the IUSS Treasurer: Dr. J H Gauld, The Macaulay Institute, Craigiebuckler, Aberdeen AB15 8QH , UK
Tel (44)01224 498200 ext 2002, Fax (44) 01224 208065, j.gauld@macaulay.ac.uk

1. ARID LAND RESEARCH AND MANAGEMENT

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. Personal subscription rate for IUSS members (1998): US$ 105.00.

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: 488.80 EUR . Personal subscription price for IUSS members for the two volumes, excluding postage and handling 305.55 EUR.

3. CATENA

an interdisciplinary journal of Soil Science-Hydrology- Geomorphology, focusing on Geoecology and Landscape Evolution. - Publisher: Elsevier Science, Amsterdam, the Netherlands - Joint Editors: J.A. Catt, Harpenden, J. Poesen, Leuven, Belgium, M. Singer, Davis, CA, USA, O. Slaymaker, Vancouver, Canada, M.F. Thomas, Stirling, UK, S.W.

Trimble, Los Angeles, USA. Webpage: http://www.elsevier.com/locate/catena Personal subscription rate for 2005 (volumes 59-63 - 15 issues) for IUSS members 195 EURO (including postage/handling).

4. GEODERMA

an International Journal of Soil Science. - Publisher: Elsevier Science Publishers, Amsterdam, the Netherlands. Editors-in-Chief: J.C. Bell, MN, USA, H. Insam, Innsbruck, Austria, A.B. McBratney, Sydney, Australia, and Prof. D.L. Sparks, Newark, USA - Webpage: http://www.elsevier.com/locate/geoderma Personal subscription rate for 2005 (volumes 123-128 24 issues) for IUSS members: 227 EURO (including postage/handling).

5. JOURNAL OF PLANT NUTRITION & SOIL SCIENCE/ZEITSCHRIFT FÜR PFLANZENERNÄHRUNG UND BODENKUNDE

international journal covering all aspects of plant nutrition and soil science with a special focus on soil-plant interactions Size: 6 issues per year. Publisher: Wiley-VCH, Weinheim, Germany. Webpage: http://www.wiley-vch.de/publish/en/journals/alphabeticIndex/2045/ Editors-in-chief: Prof. Dr. K.H. Feger, Dresden/Tharandt, Germany; Prof. Dr. F. Wiesler, Speyer, Germany. Personal subscription rate for IUSS members: 58.80 EUR, including postage.

6. PEDOBIOLOGIA

international journal, focusing on soil biology, especially on soil zoology and microbiology. - Publisher: Urban & Fischer, Jena. - Editors-in-chief: Prof. S. Scheu, Darmstadt, Prof. J. Lussenhop, Chicago, Dr. J. Schauermann, Göttingen. Personal subscription rate for IUSS members (2005): 50.11 EUR, plus postage

7. SOIL AND TILLAGE RESEARCH

incorporating 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: 5 volumes (10 issues) per year. - Publisher: Elsevier Science, Amsterdam, The Netherlands - Editors-in-Chief: Dr. M.R. Carter (Canada); Prof. Dr. M. Kutilek (Czech Republic); Dr. A.J. Franzluebbers (USA). - Webpage: http://www.elsevier.com/locate/still. Personal subscription rate for 2005 (volumes 80-84 - 10 issues) for IUSS members 109 EURO (including postage/handling)

8. SOIL BIOLOGY & BIOCHEMISTRY

Size: 12 issues per year, in one volume. - Publisher: Elsevier Science, Amsterdam, the Netherlands - Editor-in-Chief: Prof.Dr. J.S. Waid, Buderim, Australia. Webpage: <http://www.elsevier.com/locate/soilbio>. Personal subscription rate for 2005 (volume 37 - 12 issues) for IUSS members: 173 EURO (including postage/handling).

9. JOURNAL OF SOILS AND SEDIMENTS - Protection, Risk Assessment and Remediation

an international journal devoted to contaminated but also to intact and disturbed soils and sediments. Editors-in-Chief: Deckere, Eric de, Belgium; Knacker, Thomas, Germany; Koerdel, Werner, Germany; Peijnenburg, Willie, The Netherlands; Co-editors: Blum, Winfried, Austria, Guerin, Turlough, Australia, Matschullat, Joerg, Germany. Appearance: 4 issues per year (6 issues in 2004) Publisher: Ecomed publishers, Landsberg, Germany; website: www.scientificjournals.com Subscription rate for IUSS members: USD 71.74 (printed version, plus postage); USD 78.92 (printed and online version, plus postage); USD 57.39 (online version); USD 93.26 (IP-Access including the printed version, plus postage).

10. AUSTRALIAN JOURNAL OF SOIL RESEARCH

an international journal of soil research relating to primary production, land and water management, environmental pollution, and site remediation. Publisher: CSIRO Publishing,

Melbourne, Australia. Chair of Editorial Advisory Committee: B Clothier (New Zealand). Editors: J Fegent and S Banerjee. Webpage: http://www.publish.csiro.au/journals/ajsr/ Personal subscription rate for IUSS members for 2005 (Volume 43, 8 issues): US$105.00 (print and online--includes postage and handling), US$80.00 (online only).

Upcoming Meetings

Dr H.L.S. Tandon of the Fertiliser Development and Consultation Organisation (India) published a collection of poems in the 1990s. Most of them deal with soil science and plant nutrition but one poem from 1982 is on scientific meetings:

Nancy at Six

What do you do in a scientific meet
Asked my daughter when she was six
I said we sit together and talk
Then eat, then talk, then back we walk

When we do that stuff in school
You won't believe such a rule
We get punished and turned out
We just talk but the teachers shout

For a more complete list of Upcoming Meetings see:
http://www.iuss.org/pages/meetings.htm

Management, use and preservation of soil resources

Sofia, Brazil, 15-19 May.
For further information: Institute Of Soil Science "N. Poushkarov" 7, Shosse Bankya Str., 1080 Sofia.
http://www.iss-poushkarov.org/Main_EL.html

International symposium on land degradation and desertification

Uberlandia, Brazil. 16-22 May 2005.
For further information: Silvio Carlos Rodrigues, Convenor, COMLAND - International Symposium on Land Degradation and Desertification nstituto de Geografia, Universidade Federal de Uberlândia v. João Naves de Ávila, 2160 - Campus Santa Mônica berlândia - MG – Brasil EP 38400-000 Email: comland2005@ig.com.br

7th International conference on acid deposition

Prague, Czech Republic. 12-17 June.
Czech Hydrometeorological Institute Jaroslav Santroch Na Sabatce 17 CZ-143 06 Prague 4, Czech Republic Phone: +420 241 765 803, Fax: 420 241 760 603 E-mail: santroch@chmi.cz
http://www.acidrain2005.cz/

The role of long-term field experiments in agric. and ecological sciences

Prague, Czech Republic. 22-24 June.
Research Institute of Crop Production Secretariat Drnovská 507 161 06 Praha 6 – Ruzyne. E-mail: cropscience@vurv.cz
internet http://long-term.wz.cz/intro.html

Cryosols: genesis, ecology and management

Arkhangelsk , Russia , 1-8 August.
Conference Secretariat Institute of Geography, Russian Academy of Sciences, Staromonetny, 29, Moscow, Russia. tel. +7-095-230-80-46; fax +7-095-959-00-33 e-mail: pedology@igras.geonet.ru http://igras.geonet.ru/cwg/

IUFRO World Congress 2005

Brisbane, Australia, 8-13 August.
Information: Russell J. Haines, Queensland Forestry Research Institute (QFRI), Australia, Tel.: +61-7-389-69-714; Fax: +61-7-389-69-628; E-mail: hainesr@gfri1.se2.dpi.gld.gov.au

Third international conference on sustainable agriculture

St Catharines, Canada, 22-27 August
ICSA Conference Headquarters c/o Office of Research Services, Brock University 500 Glenridge Avenue St. Catharines, Ontario L2S 3A1, Canada E-mail conference@icsagr-fei.org http://www.icsagr-fei.org/conference/

7th International conference on geomorphology

Zaragoza city, Spain. 7-11 September
Viajes El Corte Inglés (Sixth International Conference on Geomorphology)
Pº Fernando El Católico, 39, 50006 Zaragoza, SPAIN, Fax: 34+976+562133
http://wzar.unizar.es/actos/SEG/

19th International Congress on Irrigation and Drainage (ICID)

Beijing, China. 10-18 September
Information: Chinese National Committee on Irrigation and Drainage, No. 20 West Chegongzhuang Road, Beijing 100044, China; Tel.:+86-10-6841-5522/6841-6506; E-mail: cncid@iwhr.com

22nd International meeting on organic geochemistry

Seville, Spain. 12-16 September
Conference Secretariat: Viajes El Corte Inglés S.A., División de Congresos Teniente Borges 5 41002 Sevilla, Spain. Telephone: +34 954506600; +34 54506605 Direct line) Fax: +34 954223512 e-mail: secretary@imog05.org. Contact persons: Ismael CASTRO - Laura de la ROSA

Human impacts on soil quality attributes

Isfahan, Iran. 12-16 September
Contact: Dr. Mohammad A. Hajabbasi. College of Agriculture, Isfahan University of Technology. Isfahan 84156 Iran. Tel: +98-311 391 3477. Fax: +98-311 391 3471. or e-mail to: cesoil@cc.iut.ac.ir or hajabbas@cc.iut.ac.ir

Pedometrics 2005

Florida, USA. 12-14 September 2005. Contact: Dr. Sabine Grunwald, Faculty Organizer, Vice-Chair, Commission 1.5 Pedometrics, Div. 1 of IUSS University of Florida/IFAS Soil and Water Science Department 2169 McCarty Hall, P.O. Box 110290 Gainesville, FL USA PHONE: 352-392-1951 ext. 204 FAX: 352-392-3902 EMAIL: SGrunwald@ifas.ufl.edu

XV International Plant Nutrition Colloquim

Beijing, China, 14-19 September.
Venue**:** Beijing Conference Center, No. 88 West road laiguangying, Chaoyang District, Beijing 100012 Operator: 86-10-84901458, 86-10-84901459
http://www.ipnc15.com/index.html

Stability of tropical rainforest margin

Goettingen, German. 19-23 September

Contact: **Daniel Stietenroth. Co**dinator STORMA, eTSAF – University of Göttingen, Büsgenweg 1, 37077 Göttingen. Email: symp2005@gwdg.de

IUSS Conference on Salinization - Socio-economic shifts in a world facing global changes: soil salinity/sodicity/alkalinity in new perspectives

Budapest, Hungary. 19-21 September (22th field trip). Send email to tibor@rissac.hu call Tibor Tóth at ++36 (Hungary) (Budapest)-2243 616 fax to ++36 (Hungary)-3564682

Third world congress on conservation agriculture

Nairobi, Kenya. 3-7 October.

Contact: Martin Bwalya, IIIWCCA Secretariat No. 9, Balmoral Road, Borrowdale, Harare, ZIMBABWE. Tel: +263-4-882107; Fax: +263-4-885596 Email: actnetwork@africaonline.co.zw

Website: www.act.org.zw or www.fao.org/act-network

Advances of molecular modeling - perspectives for soil research

Vienna, Austria, 21-22 October.

For more information. Prof Martin Gerzabek. Forschungsservice Vizerektor für Forschung Peter Jordanstr. 82 1190, Vienna, Austria. martin.gerzabek@boku.ac.at tel. 1 47654 3102

N management in agro-ecosystems

Maastricht, The Netherlands. 24-26 October.

Contact: Ms Anja Ronken, Conference and Events Office, Maastricht University, Phone:++ 31 (0)43 38 82 941. Fax:++ 31 (0)43 38 84 909

E-mail: mailto:anja.ronken@fd.unimaas.nl

Soils of urban, industrial, traffic, mining and military areas

Cairo, Egypt. 17-25 November

Information: Scientific contact: suitma@mailer.eun.eg Administrative contact: Professor Salah A. Tahoun Tel: 202 260 1742, 202 401 0930, Mobile: 2010 526 4844 Fax: 2055 288 7567 Email: stahoun@mailer.eun.eg Mailing address: P. O. Box 2893 Heliopolis El-Horria Cairo 11361, Egypt

Management of tropical sandy soils for sustainable agriculture

Khon Kaen, Thailand. 28 november – 2 December

Contact: International Symposium "Management Tropical Sandy Soils" Land Development Department Office of Science for Land Development Paholyothin Road, Chatuchak Bangkok 10900, Thailand.

Internet: http://www.tropicalsandysoils.org/

7th African crop science society conference

Entebbe, Uganda, 5-9 December

Contact: Prof Mateete Bekunda, Makere University, PO Box 7062, Kampala, Uganda. Tel: +256 41 540 464, e-mail acss@starcom.co.ug

2006

Conference on hydrology and management of forested wetlands

New Bern (NC), USA. 8-12 April

For conference and exhibit information contact: Sharon McKnight, Meetings and Conferences, ASAE 2950 Niles Road, St. Joseph, Michigan 49085. Phone: (269) 428-6333, Fax: (269) 429-3852. E-mail: mcknight@asae.org.

ivth International symposium on deteriorated volcanic soils

Morelia, Mexico, 1-7 July
Information: Dr. Miguel Bravo, Centro Nacional para Produccion Sostenible (CENAPROS), Morelia, Mexico, bravo_miguel@infolsel.net.mx, Tel.:++52-443 325-3173 or --3178, FAX: ++52-435-352-3172

18th World Congress of Soil Science

Philadelphia, USA , July 9-15
Information: Lee E. Sommers, Colorado State University; Fort Collins, Colorado, E-mail: Lee.Sommers@ColoState.Edu www.18wcss.org

100 years of soil science in Romania

Cluj, Romania. 20-26 August
Contact: Prof. Dr. Gus Petru E-mail: petru.gus@email.ro Tel: 0040-264-596384/206; 204 Fax: 0040-264-443467

New Publications[1]

Vital Soil. Function, Value and Properties. Developments in Soil Science, volume 29. P. Doelman and H. Eijsackers, editors. Elsevier, Amsterdam, Boston, 2004, xvii + 340 p. ISBN 0-444-51772-3. Series: ISSN 0166-2481. Hardbound.
In 1979 the Dutch Ministry of Housing, Spatial Planning and Environmental Health started to cooperate with the Dutch Research Institute for Nature Management to carry out research on the impact of soil contamination. Results of this research have been used to strengthen the scientific rational for the Soil Protection Act. The editors of the present book have been intensively involved in that programme. Now, 25 years later, they present a book on soil life, in which scientific knowledge is presented in relation to its consequences for policy and practice. A book meant for researchers, students, soil managers and legislators. The editors aim for a book with a view, being aware that a certain degree of subjectivity will always be involved. Experts in many different aspects in soil science were invited to give their view and vision on the following: what is the state of current knowledge, how can it be applied, what should be monitored, where should the development in research and in improved monitoring come? The book has four major clusters. The introduction to the book provides a broad view of the problem of combining knowledge on the functioning of soil ecosystems with political and practical judgment and assessment. The first cluster focuses on the formation of soil, the formation of organic materials and the recycling of organic matter. The second one is a specific soil biota cluster with the soil microfauna, the soil invertebrates, chapter on stability due to food webs, and a chapter dealing with the soil as a subway to food chains. The third cluster provides knowledge in the nature and behaviour of contaminants and soil and on the development of monitoring programmes. In the last cluster the various views are evaluated and combined in a synthesis for soil management. The editors have been able to assemble an interesting array of contributions about the soil in a broad sense, including the interrelationships of the different aspects of the soil.

[1] The New Publication section is prepared by Hans van Baren (hans.vanbaren@wur.nl); due to other committments, the book review editor was unable to review of alle books sent to him. They will be review in the next Bulletin.

Should you have a publication that you would like to have included in the next IUSS Bulletin, ask your publisher to send a review copy to: ISRIC-IUSS, PO Box 353, 6700 AJ Wageningen, The Netherlands.

Price: EUR 119.00, USD 129.95, GBP 80.00.
Orders to: Americas: Customer Services Department, 11830 Westline Industrial Drive, St. Louis, MO 63146, USA. Email: usbkinfo@elsevier.com. Europe, Middle East and Africa: Customer Services Department, Linacre House, Jordan Hill, Oxford, OX2 8DP, UK. Email: eurobkinfo@elsevier.com. Internet: www.elsevier-international.com/newcustomerservice.

Development of Pedotransfer Functions in Soil Hydrology. Developments in Soil Science, volume 30. Ya. Pachepsky and W.J. Rawls, editors. Elsevier, Amsterdam, Boston, 2004, xxix + 512 p. ISBN 0-444-51705-7. Series: ISSN 0166-2481. Hardbound.
The reason to introduce the term pedotransfer function by Bouma and Van Laanen in 1987 and later, in a more accessible form, by Bouma in 1989, was to emphasize the possible link between soil survey (pedology) and soil hydrology. Characteristics such as texture, bulk density and organic matter content obtain a broader meaning when they are related to natural soil bodies in the field, as defined by soil survey. Now, nearly 20 years later, soil information is increasingly used for designing innovative agricultural production systems and for spatial planning, for which earlier soil survey interpretations and land evaluations are not satisfactory anymore as they provide quantitative, descriptive information. Here, modern simulation models are increasingly applied, with a high data demand, in which pedotransfer functions can be used. The present book encompasses the international experience in the field of pedotransfer functions (PTF) in which the spectrum of the ideas behind PTF development is presented. Multiple PTFs are given that have been successfully used in applications. The general objective has been to assemble the first-of-a-kind treatise that would be useful for both developers and end users of PTFs. Part I of the book comprises the methods that have been used to-date to develop PTFs. Part II presents a panoramic view on the research to estimate soil water retention and soil hydraulic conductivity. Particle size distribution and its parameters are used in almost any pedotransfer function. Part III deals with PTF that estimate parameters of processes closely related to soil water transport and retention. Soil erosion modeling has developed a substantial body of pedotransfer research. Part IV takes a peek in the Pandora box of issues related to the application of PTFs in a spatial context. PTFs are built from small point samples, and yet are to be used for large spatial units. Part V explores user-oriented techniques and software. A PTF user has to be able to make an informed choice of a PTF and to have a convenient tool to apply the PTF technology. Part VI presents examples of PTFs developed for different regions of the world and for different soils, such as tropical soils.
Price: EUR 169.00, USD 184.95, GBP 115.00.
Orders to: Americas: Customer Services Department, 11830 Westline Industrial Drive, St. Louis, MO 63146, USA. Email: usbkinfo@elsevier.com. Europe, Middle East and Africa: Customer Service Department, Linacre House, Jordan Hill, Oxford, OX2 8DP, UK. Email: eurobkinfo@elsevier.com. Internet: www.elsevier-international.com/newcustomerservice.

Agriculture and the Nitrogen Cycle. Assessing the impacts of fertilizer use on food production and the environment. SCOPE Series 65. A.R. Mosier, J. K. Syers and J.R. Freney, editors. Island Press, Washington, Covelo, 2004, xxi + 269 p. ISBN 1-55963-710-2 (softcover), 1-55963-708-0 (hardcover).
The Scientific Committee on Problems of the Environment (SCOPE), in collaboration with the International Geosphere Biosphere Programme (IGBP), publishes this book as the third in a series of Rapid Assessments of the important biogeochemical life cycles that are essential to life on this planet. The aim of this activity is to evaluate recent advances in understanding the role of nitrogen in biochemical cycling, to assess the state of knowledge on the role of fertilizer in the nitrogen cycle and to determine the range of possible research problems related to nitrogen-based fertilizers. This volume's main concept is that nitrogen is essential; to the survival of all life forms. Yet the natural abundance of usable nitrogen is so low that massive human alteration has been required to sustain the feeding of the world's population. These changes in the normal cycling of nitrogen have exacerbated numerous environmental issues, including climatic change, coastal eutrophication, and acid deposition, all of which have impacts on people and ecosystems on a regional or global basis. Global-scale alteration of the nitrogen cycle has been of

concern for more than four decades, and steady advances have been made in our understanding of natural and anthropogenic components of the nitrogen cycle. This book assesses our knowledge of the forms and amounts of fertilizer nitrogen applied by crop and region, the amount of this nitrogen used by the crop, and the fate of the unused nitrogen in the environment. Further, it examines the policies that control the demand and use of fertilizer nitrogen. In this synthesis on the role of nitrogen fertilizer in the nitrogen cycle, the authors emphasize the need to maintain food and fiber production while minimizing environmental impacts where fertilizer is abundant, and the need to enhance fertilizer use in systems where nitrogen is limited.
Price: USD 40.00 (softcover), USD 80 (hardcover).
Orders to: University of Chicago, Distribution Center, 11030 South Langley Avenue, Chicago, IL 60628, USA. Email: custserv@press.uchicago.edu. Internet: www.islandpress.org.

The Living Soil. Fundamentals of Soil Science and Soil Biology. J.M. Gobat, M. Aragno and W. Matthey, Translated from French (Le sol vivant. Bases de pédologie et biologie des sols) by V.A.K. Sarma. Science Publishers, Enfield and Plymouth, 2004, xxii + 602 p. ISBN: 1-57808-210-2 (softcover); 1-57808-212-9 (hardcover).
Soil science is more and more incorporating the action of living organisms in its field of activity. The irreplaceable roles of the root, bacteria, fungi and animals in the formation, evolution and functioning of soils are being better understood. With the inclusion of the necessary basics of general soil science, the work emphasizes the diversity of biological aspects of the soil at different organizational levels of ecosystems: organic molecules, microorganisms, rhizosphere, microbial and animal populations and communities, soil-vegetation relations. The book is organized in two parts: the first, for linear reading, provides the essential knowledge of general soil science; the second, for modular reading, covers varied subjects of soil biology, linked to fundamental as well as applied soil science. Including more than 1300 definitions of terms and concepts, and illustrated by numerous actual examples, it constitutes a manual and at the same time a reference work of use to a wide public of students, teachers, researchers and practitioners.
Price: USD 49.50 (softcover).
Orders to: Science Publishers, P.O. Box 699, 234 May Street, Enfield, NH 03748, USA. Email: sales@scipub.net. In Europe: NBN International, Estover Road, Plymouth PL6 7PY, UK. Fax: +44-1752-202331. Email: cservs@nbnplymbridge.com.
Internet: www.scipub.net.

Increasing Productivity of Intensive Rice Systems Through Site-Specific Nutrient Management. A. Dobermann, C. Witt and D. Dawe, editors. Science Publishers, Enfield and International Rice Research Institute, Los Bãnos, 2004, x + 410 p. ISBN 1-57808-266-8. Softcover.
Rice yields have slowed down in recent years, particularly in regions with early adoption of Green Revolution technologies. Although scientists are developing new germplast to raise current yield ceilings, future yield increases are likely to occur in smaller increments than in the past. These yield increases will require more knowledge-intensive forms of soil and crop management that increase the efficiency of production inputs and, at the same time, do not harm the local and global environment. The integrated and efficient use of nutrients is one of the key issues for sustainable resource management in the world's most intensive rice systems. This book summarizes research conducted from 1994 to 2001 to develop a new concept and the tools needed for site-specific nutrient management in irrigated rice systems and the tools needed for applying it in farmers' fields. In this one of the largest and most important agronomic research projects in the world, more than 100 researchers and support staff in six countries collaborated in this network of strategic on-farm and on-station research. After reviewing the economics of rice production and productivity trends in Asia, most of the book presents the principles of a new Site-Specific Nutrient Management concept and results of a first phase of field testing at numerous sites in Asia. The book demonstrates how long-term intellectual and financial support of different

stakeholders for strategic, interdisciplinary on-farm research results in finding generic solutions for resource management with a high impact potential. Site-specific nutrient management has potential for improving yield and nutrient efficiency in irrigated rice to close existing yield gaps. The major challenge will be to retain the success of the approach while reducing the complexity of the technology as it is disseminated to farmers.
Price: USD 59.50.
Orders to: Science Publishers, P.O. Box 699, 234 May Street, Enfield, NH 03748, USA. Email: slaes@scipub.net. In Europe: NBN International, Estover Road, Plymouth PL6 7PY, UK. Fax: +44-1752-202331. Email: cservs@nbnplymbridge.com. Internet: www.scipub.net.

Earth System Analysis for Sustainability. Dahlem Workshop Reports. H.J. Schellnhuber, P.J. Crutzen, W.C. Clark, M. Claussen and H. Held. The MIT Press, Cambridge and London, in cooperation with Dahlem University Press, Berlin, 2004, xiv + 454 p. ISBN 0-262-19513-5. Hardbound.
It is stated that: "we are currently witnessing the emergence of a new paradigm that is driven by unprecedented planetary-scale challenges, operationalized by transdisciplinary centennium-scale agendas, and delivered by multiple-scale co-production based on a new contract between science and society." All aspects of this statement were addressed at the 91st Dahlem Workshop, held in May 2003, by scholars from all corners of the international scientific community. This volume presents the information that supported the meeting, condensed into sixteen state-of-the-art papers, as well as the pertinent results distilled into the group reports. As is the usual approach in the Dahlem Workshops, the intellectual challenges were tackled in Dahlem by four working groups. A remarkable clash of scientific cultures was staged in Group 1, where researchers mainly concerned with geosphere-biosphere interactions on planet Earth met with astrobiologists primarily interested in the existence and habitability of other planets inside and outside the solar system. The group addressed a number of exiting issues, such as the evolutionary topology of the biosphere, the interactive development of environmental dynamics and information processing through the great planetary transitions, the terraforming potential provided by Mars, the probability for the emergence of intelligence, and the failure to track down messages from extraterrestrial civilizations. Group 2 moved the analytical focus to what geologists might call the "recent planetary past", i.e., the Quaternary. The main idea was to scrutinize the Earth system machinery in a state as similar as possible to the contemporary one – yet without human interference with the relevant bio-geophysicochemical inventories and processes. Almost everything on Earth has changed with the advent of Homo sapiens and the establishment of the modern anthroposphere. Group 3 made an effort to describe how the human factor has already modified the Quaternary mode of operation of our planet, to identify potential anthropogenic phase transitions lurking around the corner, to specify the scientific advancements necessary for timely anticipation of dangerous Anthropocene dynamics, and to assess the prospects of large-scale technological fixes of the accelerating sustainability crisis all around us. Group 4 transgressed the borderline between purely analytical reasoning and solution-driven strategic thinking. In other words, the group tried to identify pathways toward global sustainability, to evaluate the conceivable management schemes for steering our planet clear of the Anthropocene crisis, and to imagine all the scientific, technological, socioeconomic, and institutional innovations necessary for implementing the right strategy.
Price: GBP 24.95.
Orders to: The MIT Press, Fitzroy House, 11 Chenies Street, London WC1E 7EY, England. Or: The MIT Press, Massachusetts Institute of Technology, Cambridge, MA 02142, USA. Internet: mitpress.mit.edu.

Mycorrhizas: Anatomy and Cell Biology. R.L. Peterson, H.B. Massicotte and L.H. Melville. NRC Research Press, Ottawa and CABI Publishing, 2004, vii + 173 p. ISBN 0-660-19087-7 (NRC Research Press) and 0-85199-901-8 (CABI Publishing). Softcover.
The occurrence of symbiotic relationships between roots and fungi (mycorrhizas) has been recognized since the early 1800's and it is now clear that these associations are the most prevalent symbiotic systems on earth. Mycorrhizal associations can be found in all

ecosystems and in important forest and crop species. Based on the structural features of the symbiosis between the plant and the fungus involved, seven categories have been described. The majority of the current research on mycorrhizas involves molecular, physiological and ecological studies. Few structural studies are being pursued in spite of the need for basic information for some categories of mycorrhizas and the detailed information that now can be obtained as a result of new analytical methods. The intention of this book is to provide a summary of all the mycorrhizas categories from a morphological and anatomical perspective. The book is very well illustrated with many illustrative colour photographs. A brief appendix describing the various techniques used in preparing the images in the book is included. Also included is a glossary of the most common terms related to structural aspects of mycorrhizas.
Price: GBP 40.00 (excluding VAT); USD 70.00. (10% discount quoting reference BRL).
Orders to: CABI Publishing, Nosworthy Way, Wallingford, Oxfordshire, OX10 8DE, UK. Fax: +44-1491-829292. Email: orders@cabi.org. Internet: www.cabi-publishing.org/bookshop. In USA and Latin America: Oxford University Press, 2001 Evans Road, Cary, NC 27513, USA. Email: orders@oup-usa.org.

Global Carbon Cycle. Integrating Humans, Climate, and the Natural World. SCOPE Series 62. C.B. Field and M.R. Raupach, editors. Island Press, Washington, Covelo, 2004, 568 p. ISBN 1-55963-527-4 (softcover), 1-55963-526-6 (hardcover).
While a number of gases are implicated in global warming, carbon dioxide is the most important contributor, and in one sense the entire phenomena can be seen as a human-induced perturbation of the carbon cycle. This book offers a scientific assessment of the state of the current knowledge of the carbon cycle. It gives an introductory overview of the carbon cycle, with interdisciplinary contributions covering biological, physical and social science aspects. The 29 chapters cover topics such as an assessment of carbon-climate-human interactions; a portfolio of carbon management options; spatial and temporal distribution of sources and sinks of carbon dioxide; socio-economic driving forces of emissions scenarios. The contributors emphasize that all parts of the carbon cycle are interrelated, and only by developing a framework that considers the full set of feedbacks will we be able to achieve a thorough understanding and develop effective management strategies.
Price: USD 45.00 (softcover), USD 90.00 (hardcover).
Orders to: University of Chicago, Distribution Center, 11030 South Langley Avenue, Chicago, IL 60628, USA. Email: custserv@press.uchicago.edu. Internet: www.islandpress.org.

Organic Phosphorus in the Environment. B.L. Turner, E. Frossard and D.S. Baldwin, editors. CABI Publishing, Wallingford, 2004, 432 p. ISBN 0-85199-822-4. Hardcover.
Organic phosphorus is involved in almost every biological process. Organic forms of phosphorus often dominate in soils and aquatic systems and many organisms possess complex mechanisms enabling them to access phosphorus from organic compounds. However organic phosphorus remains the most poorly understood aspect of the global phosphorus cycle. The book brings together the latest research and opinion on the biogeochemistry of organic phosphorus from a wide range of disciplines and focuses specifically on the characterization and transformations of organic phosphorus in terrestrial and aquatic systems. IIt examines analytical procedures for the chemical characterization of organic phosphorus in environmental samples, processes regulating organic phosphorus in the environment, and integration of the process at the ecosystem level. Ecological, chemical, microbiological and analytical aspects are explored. For all those interested in organic phosphorus, these state-of-the-art reviews form an important reference.
Price: GBP 75.00, USD 140.00. 10% discount when ordered online.
Orders to: CABI Publishing, Nosworthy Way, Wallingford, Oxfordshire, OX10 8DE, UK. Fax: +44-1491-829292. Email: orders@cabi.org. Internet: www.cabi-publishing.org/bookshop. In USA and Latin America: Oxford University Press, 2001 Evans Road, Cary, NC 27513, USA. Email: orders@oup-usa.org.

Sustaining biodiversity and ecosystem services in soils and sediments. SCOPE 64. Wall, Diana H, (ed.), Island Press, 295 pp. (paperback), 2004. US$ 30.00, ISBN 1-55963-760-9,

This is a volume initiated by SCOPE and its Committee on Soil and Sediment Biodiversity and Ecosystem Functioning (established in 1996). It was chaired and edited by Diana H. Wall, the Director of Natural Ressources Ecology at Colorado State University, Fort Collins, supported by some 30 contributors. Nature's ecosystem services and societal dependence on them became a popular new topic some two decades ago, generally including economic aspects of changing terrestrial, freshwater and marine environments and their management. Questions asked and discussed frequently included economic issues related to the effects of climatic change and human activity on the diversity, vulnerability and sustainability of various natural ecosystems at different scales.

The volume deals in ten chapters with the changing ecosystem functions in soils, freshwater and marine sediments, with attention on the below surface soil biota habitats, but recognizing only grassland, forests and arable soils as separate units. In the introductory chapter it presents a table listing (on p. 9) some fifteen "ecosystem services provided by soil and sediment biota". Such overview tables and generalized figures characterize also all the other chapters and may be useful for a summary and to improve understanding of the topic but don't support clearcut conclusions or recommendations.

For a soil scientist this book is disappointing in that it (like other biodiversity treatises) neglects to mention or discuss the corollary and possibly equally important pedodiversity, except for the mor - moder - mull relations in humus types (p. 238) with some not quite uptodate references. Why soils and sediments are treated as more or less unifom "dirt and mud" without discussing or hardly mentioning their inherent variability is not quite clear to me and a serious misstep. Is the nature of the complete soil profile or fresh sediment layers not significant ? Obviously soil properties and soil biota are causally strongly interrelated and need to be considered together. Hence I cannot agree with the statement that "this book fills a crucial gap in scientific knowledge by amplifying information on the critical roles of soil and sediment biota in the operation of the Earth's system" (p. 250). But fully concur that a priority for future research efforts must be incorporating the effects of multiple stressors in any ecosystem.

Price: USD 30.00 (softcover), USD 60.00 (hardcover).

Orders to: University of Chicago, Distribution Center, 11030 South Langley Avenue, Chicago, IL 60628, USA. Email: custserv@press.uchicago.edu. Internet: www.islandpress.org.

Dan H. Yaalon
Israel

Encyclopedia of Soils in the Environment (4 volumes), by D. Hillel (editor-in-chief) with J.L. Hatfield, D.S. Powlson, C. Rosenzweig, K.M. Scow, M.J. Singer and D.L. Sparks (editors). Elsevier, Academic Press, Amsterdam. Hardbound, 2119 pp. ISBN 0123485304.[2]

It has been talked about for a while but, now, it has been published: a new encyclopædia of soils. This encyclopaedia has 4 volumes, 2119 pages, weighs 6.8 kg and occupies 15 cm of shelf space. It contains 267 entries (articles) on soil science and related subjects. Fundamental and applied aspects of soil science are treated.

The *Preface* by the editor-in-chief Daniel Hillel is very readable and contains well-expressed ideas and notions about soils and soil science. Hillel encourages parents to let their children play in mud and notes that many people live in the artificial environment of a city and they are insulated from direct exposure to nature. Detachment has bred ignorance, and out of ignorance has come the delusion that our civilisation has risen above nature and has set itself free of its constraints, according to Hillel. Is this an explanation for the decline in soil science departments and number of soil science students? Perhaps, but in any case it is well said and quotable.

[2] This is an abridged and edited version of a review that will appear in a fortcoming issue of Geoderma

Then follows a guide how this encyclopædia should be used. The first way is through the contents list at the beginning of each volume. Synonyms are dealt with as in other encyclopædia. The second entrance possibility is through cross-referencing and at the end of each entry there is a section: *See also*. For example in the entry *Micronutrients* there is reference to the entries: *Fertilizers and fertilization*; *Iron nutrition*; *Nutrient availability.* This draws the reader to articles where the topic is discussed in greater detail, to parallel discussions in other articles, or to material that broadens the discussion. The third way is through the index of 82 pages in volume 4 and I guess that this is the easiest way to find information.

The 267 entries are written by 374 authors and about one to three eminent, well-established authors are listed per entry. Most entries have a similar lay-out: introduction, main sections with some tables, graphs, and diagrams; sometimes a summary and list of technical nomenclature at the end, followed by further reading containing 5 to 20 references. The entry *Neutron scattering,* for example, starts with an *Introduction* followed by *Theory and Instrumentation*, *Field Methodology, Calibration, Applications, Safety and Care, Future Use* and *Further Reading*. At the end of the article there is a cross-reference to four other entries: *Time domain reflectrometry; Water content and potential, measurement; Water cycle;* and *Water potential.* In this entry there is one picture, a few equations, one table and four figures. It contains just the sort of information needed for an encyclopædia entry. With few exceptions, the quality of the figures is good; some are duplicated in colour in the middle of each volume.

Some entries have more articles. *Nitrogen in soils*, for example, has articles on *Cycle, Nitrates, Nitrification, Plant uptake,* and *Symbiotic fixation*. The entry on *Nitrates* is a good read, particularly the section on nitrate and health where the authors emphasise the poor evidence (if at all) for carcinogenic effects of nitrate in drinking water or vegetables. That should be compulsory reading for policy makers especially those on manure legislation, but also for some other authors in this encyclopædia (e.g. the entry on *Nutrient Managament*).

Soil classification is fairly well-covered and focuses mostly on *Soil Taxonomy* although there are entries on *FAO* (oddly not *World Reference Base*) and the Russian system; other national systems are not included. Of the 12 *Soil Taxonomy* orders only *Inceptisols* has a separate entry. In the entry *World Soil Map* Soil Taxonomy is used throughout and for each order and suborder estimates of areas occupied in the world are given.

Some entries are better than others and I much enjoyed reading the entries on *Cation exchange; Clay minerals; Food-web interactions; Fractal analysis; Greenhouse gas emissions; Infiltration; Isotopes in soil and plant investigations; Metal oxides; Organic residues decomposition; Precipitation-dissolution processes; Radiation balance; Remediation of polluted soils; Salinity management; Tensiometry; Zero-charge points* – to name a few. Also the entry on *Darcy's law* and *Enzymes in soil* are nice examples. It is a bit hard to tell what makes a good entry for an encyclopædia but it is probably the combination of plain language, a didactic approach to an argument and scholarly depth. Just like teaching.

It is easy to criticise but there are a few things that deserve mention. Some entries have very little soil in them like: *Agroforestry* (despite the volume of soil research conducted); *Plant growth promoting bacteria*; *Archae*; *Energy balance; Nematodes*; *N Symbiotic fixation; Nuclear waste disposal; Penman-Monteith equation; Precipitation; Watershed analysis; Septic systems; Stress-strain and soil strength.* They may be too much on the margins of soil science interest (meteorology, plant physiology).

There is a North American flavour to this encyclopædia and some entries on more applied aspects have a sole USA focus: *Application of soils data*; *Crop rotations*; *Drainage, surface and subsurface*; *Dryland farming*; *Morphology*; *Water induced erosion; Phosphorus in soils*; *Sustainable soil and land management*. They contain little relevant information for those working or interested in other parts of the world. In these entries, research work form other parts of the world is neglected. The entry *Nutrient Management* is about farming in the developed world and excess applications of manure and inorganic fertilisers, nothing on nutrient management in Sub-Sahara Africa where the need for proper nutrient management is so pressing. *Cultivation and tillage* and *Subsoiling* is all about tools for

tractors – well suited for farmers in the developed world but not so useful for the majority of the farmers in this world. For reasons mentioned in the *Preface* as well as *Foreword* it would have been more correct if some entries would have had a global outlook.
There is some overlap between entries which is unavoidable, for example what is presented in *Essential elements* and *Macronutrients* and *Micronutrients*. Some entries bear odd titles like *Forest soils*, *Grassland soils*, *Paddy soils* and *Mediterranean soils*. That may mean something to the laymen but for a soil scientist these are almost meaningless and should not be used as they single out only one of the factors of soil formation. For the same reason we don't use steep land soils, basalt soils or very old soils. Also the entry *Spatial patterns* is not exactly what you would expect as it is about biological properties and processes and their patterns. Three entries deal with spectroscopy and provide detailed and technical information, no entry on NMR or synchrotrons is included.
A fascinating part of the encyclopædia is the inclusion of 17 biographies of: E.C. Childs, E.W. Hilgard, S.B. Hooghoudt, H. Jenny, C. Kellogg, D. Kirkham, J.B. Lawes & J.H. Gilbert, J. von Liebig, J.G. Lipman, W.C. Lowdermilk, C.F. Marbut, H.L. Penman, L.A. Richards, S.A. Waksman, J.A. Widtsoe & W. Gardner. An interesting list and most entries are informative and put the developments of concepts, theory and practice in soil science in a historical context. More than half of the biographies are from soil physicists or pedologists and the list is not a true reflection of the tycoons that made soil science. There are no biographies of giants like V.V. Dokuchaev, E.C.J. Mohr, E. Buckingham, W.L. Kubiena, J. Prescott, P. Vageler or J.R. Philip, to name a few.
The web version of the *Encyclopedia of Soils in the Environment* is accessible through ScienceDirect. PDFs of all articles are available. That is attractive and speeding up searches. As with other recent reference works this encyclopædia is a North-American effort and has a developed-world outlook. The vast majority of editors and authors are from the USA and that is somewhat reflected in the text, figures and examples. The price of this encyclopædia is such that it is unaffordable for individuals but let us hope the web based version will be available to all of us either through university and institutional libraries, as contributor, or through free access networks like AGORA for those working in the developing world. It is in the developing world where soil science continues to have a tremendous impact and that should not be forgotten as emphasised in the *Preface*. For the soil science community this encyclopædia is a blessing. It contains a series of up-to-date and illustrated articles that are mostly well-written, and very useful to refresh knowledge or gain some new. It will be a standard reference book for years to come.
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Alfred Hartemink
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SPECIAL JOURNAL ISSUES

Land Use Policy. Volume 22, number 1, January 2005 pp 1-74. Special issue: **Soil Degradation in Sub-Saharan Africa**. A. Hartemink and H. van Keulen, guest editors. Elsevier. ISSN 0264-8377.
Soil degradation in Sub-Saharan Africa has been much debated in the past decades. Although there are many different views, at the extremes are those who are of the opinion that the problem is very serious and the main cause for the poverty and food crises and those who are convinced that it is less of a problem, that African farmers are well aware of the situation and have found ways to deal with soil degradation. Studying the scientific literature, one has the impression that the opinions are as diverse as African farming systems. In 2002, World Soil Information (ISRIC), organized a meeting to discuss progress in studies on the issues at stake. During the meeting, there was ample time for discussion and it became clear that soil degradation in Sub-Saharan Africa is a well-suited subject for a hot debate. The papers in the special issue are the keynote papers, reflecting the heterogeneity of information and views. Although the debate will continue, the papers show the wealth of views and opinions that exist. The overall impression is that the issue throws some new light on highly important phenomena: soil use and management in the poorest continent of the world.
Orders to: Elsevier, Customer Service Department, P.O. Box 211, 1000 AE Amsterdam, The Netherlands. Email: nlinfo@elsevier.com.; Elsevier, Customer Services Department, 6277 Sea Harbor Drive, Orlando, FL 32887-4800, USA. Email: usjcs@elsevier.com.

Australian Journal of Soil Research. Volume 42, number 5 and 6, 2004, pp 499-707. Special issue: **Sustainable Management of Acid Sulphate Soils.** CSIRO Publishing. The distinguishing feature of acid sulphate soil is either the presence of inorganic sulphide sufficient to cause severe acidification, or severe acidity as a result of inorganic sulphide oxidation. The estimated worldwide extent of acid sulfate soils is 24 million hectares. This soil type occurs in all continents. The mismanagement of these soils can cause extensive and severe pollution of surrounding environments. In many respects the capacity of acid sulfate soil to contaminate and degrade the environment far exceeds that of any other soil type. The management of acid sulphate soil is an important issue, and the IUSS Acid Sulfate Soil Working Group under the chairmanship of Dr Freeman Cook was primarily responsible for convening the 5th International Acid Sulfate Soil Conference in August 2002. The conference covered 4 main themes: (i) the characteristics of acid sulphate soil, (ii) management of acid sulphate soil, (iii) planning, legislation and regulation, and (iv) communication and education. Over 20 peer-reviewed papers were selected for publication in this issue of the Australian Journal of Soil Research, examining acid sulphate soil in Australia, Europe, Asia and North America. This special issue provides a most comprehensive collection of innovative acid sulphate oil research that is currently available.
(from the preface by Ass. Prof. Leigh Sullivan, chair of the Acid Sulfate Soil Working Group of the IUSS)
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