ISRIC World Soil Information

REPORT OF ACTIVITIES

2002 - 2003

The International Soil Reference and Information Centre is an independent foundation receiving funds from the Dutch Ministry of Education, Culture and Science.

ISRIC – World Soil Information is registered with the Benelux-Merkenbureau.

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Inquiries
c/o Director, ISRIC – World Soil Information
PO Box 353
6700 AJ Wageningen
The Netherlands
Telefax: +31-(0)317-471700
E-mail: soil.isric@wur.nl

Front cover: Raw acid sulphate clay (*Orthithionic Fluvisol*) under rice/shrimp cropping, Mekong Delta, Vietnam
Back cover: Digital data!

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Introduction

The Institute was founded in 1966, through the initiative of UNESCO and what is now the International Union of Soil Sciences, to fulfil two very specific needs: to collect representative samples and documentation of the soils of the world, and make these available to the scientific community; and to act as an international reference for soil standards. These tasks are no less relevant today. In a changing world, we have assumed a broader mandate - *to increase knowledge of the land, its soils in particular, and to support the sustainable use of land resources;* but our remit remains, in short, to help people understand soils.

The Board of Trustees approved a Business Plan in September 2003 - the outcome of a wide-ranging review of activities under the Chairman of the Board, Dr Stein Bie, and the collegial input of the staff. The focus of the plan is to strengthen our capacity as the only international soils institute with a global reach – by building upon established links with FAO, UNESCO and UNEP, and through our association with Wageningen UR.

The Plan defines three specific aims:

- To inform and educate – through the World Soil Museum, public information, discussion and publication;
- As ICSU World Data Centre for Soils, to serve the scientific community as custodian of world soil information – collecting, scrutinising, and analysing data and making them freely available; and as a reference base for soil standards;
- To undertake applied research on land and water resources.

Other activities include institutional support to the International Union of Soil Sciences, through Alfred Hartemink, as Deputy Secretary General; and the EC Centre of Excellence – Protection of Land and Water Quality and Sustainable Development in Rural Areas at ISSP, Pulawy, Poland through David Dent as Chairman of the Supervisory Board.

Dr Roel Oldeman retired at the end of 2002, after 10 years as Director, to be succeeded in May 2003 by Dr David Dent: the end of an era. Ir Sjef Kauffman was Acting Director in the interim.

With sadness, I also have to record the death in 19 December 2003 of Dr Wim Sombroek, Director from the establishment of the Institute in Wageningen in 1979 till 1991 and our first Honorary Fellow.

David Dent
April 7, 2004

1 INFORMATION AND EDUCATION

The World Soil Museum – our original *raison d'être* holds a unique collection of some 900 soil monoliths, and thousands of thin sections, samples and photographs - linked to the ISIS digital database. The permanent exhibition displays a thematic arrangement of some 80 monoliths; others are on loan to museums and universities throughout the world and we are currently transferring 20 monoliths from the Glinka Collection, collected in the Soviet Union in the 1920s, to the VV Dokuchaev Central Museum of Soil in St Petersburg.

Reference collections must be continually maintained and updated. After a lapse of several years, collections activity resumed with collection of monoliths and samples from the peat dike at Wilnis in the Netherlands that failed in August 2003; an active program is planned for 2004; development work is in hand to exploit new materials and techniques for preserving monoliths, especially for peat and volcanic ash soils that suffer severe shrinkage during drying.

Over the last two years, more and more people have visited the Museum, both as individuals and groups. We have hosted student groups from universities and colleges in Germany, the United Kingdom and the Netherlands, as well as from various courses within Wageningen UR; links with the Edu-Art foundation and VWO Campus of Wageningen University bring groups of high school students; links with Royal Netherlands Geographic Society also target high school students; and several groups of PROBUS came to discuss art in soil science, soils, and the capacity to feed the world.

Provisional registration in the Dutch Museums Register, in September 2003, marks the beginning of a Museum Development Plan including staff training, monitoring of ambient atmospheric conditions in the exhibition and collections, renewal of displays, and development of educational materials – to make the World Soil Museum a focus of soils information and education. Work also began in late 2003 on the design of a Virtual Soil Museum to make our collections and documentation accessible through the Internet.

Educational program: Following the cooperation agreement, signed in November 2001, educational cooperation between ISRIC-World Soil Information and Wageningen University is taking shape but still lacks sound financial arrangements. Alfred Hartemink supervises postgraduate students as a member of the PE&RC Research School; he also gives regular courses in soil science and plant nutrition at IAH Larenstein in Deventer and UNESCO-IHE in Delft. Otto Spaargaren contributes

to the ILRI *International Course on Land Drainage* and, in 2003, contributed to the *International Course on Soil Physics*, bi-annually organised by the International Centre for Theoretical Physics in Trieste, and a one-week summer school *Soil Survey for Candidate Countries* at JRC, Ispra, Italy.

Conferences: A workshop on *Soil degradation in Africa: conflicting perspectives* was held in March 2002, in collaboration with the Environmental Sciences Group of Wageningen UR, the Interdisciplinary Research and Education Fund and DLO International Cooperation Program. 69 scientists from 11 countries participated, addressing the questions: Is there widespread and serious land degradation in the region or is it a problem for some people in some places at some times? Is the participatory "farmer first" approach the way to sustainability, or will it remain impotent as long as prices are unfavourable and supportive policies lacking? The proceedings are published as a special issue of *Land Use Policy* 21,3, 2004.

An international workshop on *Green Water* was held from 14-19 July 2003 to formulate research priorities and proposals. 17 scientists from 5 African countries, Germany, Spain, the United Kingdom and The Netherlands took part. The outcomes were a research framework, incorporated within the joint FAO-ISRIC work plan for 2004, and funding is being sought for a proposed a knowledge base and learning network to optimise the use and management of water and nutrients in rain-fed farming systems of Eastern and Southern Africa.

Participants of the International Workshop on Green Water

An international symposium on *Sustainable Soil Fertility Management* was organised, jointly with CTA, in Arnhem 21-24 October 2003. It was attended by 90 policy makers, scientists and representatives of farmer groups from ACP and EU countries - a unique opportunity to exchange views which opens new possibilities for cooperation with CTA.

Publications: The first of a new series was co-published by ISRIC – World Soil Information and CABI in September 2003: *Soil fertility decline in the tropics with case studies on plantations*, by Alfred Hartemink.

Funded projects in 2004

1. Renewal of thematic exhibition (Hartemink)
2. Virtual Soil Museum (Haas)
3. Collections (Spaargaren)
4. Live monoliths (van Oostrum)
5. Publications (Hartemink)
6. Master classes (Hartemink, Spaargaren and Dent)
7. Services to International Union of Soil Sciences (Hartemink)

2 WORLD DATA CENTRE FOR SOILS

World Data Centres operate under the International Council for Science to support the scientific community, in particular ICSU programs in global change, climate and the environment. Data from ICSU programs and related data sets are maintained and made freely available. A major program is now under way to digitise our holdings and make them available through the Internet.

The principal holdings are:

ISIS dataset: Since its establishment, a main task of ISRIC-World Soil Information has been to create and maintain a world soil reference collection, and accompanying analytical information to illustrate the units of the FAO-UNESCO *Soil Map of the World*. The ISIS computerised data management system holding these data has been operational since 1986; data for some 120 reference soils were added in 2003. Some 800 reference soil profiles are now available in an MS-Access database; these will be transferred to SQL in 2004.

Maintenance of the data and completion of analytical data remains an important task but emphasis will shift to use of the data (e.g. in the ICRAF project), verification for applications, and data generation (e.g. hydraulic data) by pedotransfer functions.

WISE dataset of 8000 profiles, compiled for global climatic change studies

SOTER Soil and Terrain datasets for South and Central America, Central and Eastern Europe, and Southern and Eastern Africa – comprising spatial mapping units and geo-located point data at scales from 1:2million to 1:5million

Monolith collection of about 900 profiles: physical representatives of the mapping units of the FAO-UNESCO *Soil Map of the World*. This is a unique educational and cultural resource. Two new profiles were collected near Wilnis, the Netherlands, illustrating a section of the peat-dike that failed in August 2003, part of a new collection exhibition on *Soils and Men*, in the World Soil Museum, showing man's influence upon and use of soils.

Reference soil samples from the ISIS profiles, fully analysed by standard methods. Work began in September 2003 to check and, where necessary, correct the documentation and data for the 5000 samples, in preparation for an on-line catalogue.

Micromorphology collection:

- Systematic collection of large thin sections from the ISIS profiles;
- Schmidt-Lorentz collection of more than 15 000 small thin sections of soils, mainly from Europe, Africa, Asia and Australia.

Facilities for examination of thin sections have been refurbished to make the collection publicly accessible.

Kubiena collection: horizon correlation samples from 11 profiles from Russia in display boxes

Mohr collection: hundreds of display boxes with soil materials, mainly from the former Dutch East Indies and Africa

Colour transparencies: 20 000 items, including systematic photographic records of sites and profiles of the ISIS data set

Documentation

ISRIC maintains a systematic collection of **soil maps and reports**, especially the so-called grey literature, specialist texts and journals that hold important contributions to soil survey literature, especially from tropical countries. During 2003, valuable additions were received as gifts, most notably from Prof. Dr Klaas Jan Beek (maps and literature related to the FAO-UNESCO map sheets of South and Central America) and the University of Amsterdam. In collaboration with Wageningen University Library, the library and map catalogue was converted to an on-line facility (completed March 2004).

Negotiations are in hand with UNESCO and Wageningen University Library to establish a scholarship program for information specialists from developing countries to gain experience in managing scientific documentation. It is anticipated that this will be operational in 2004.

Internet

ISRIC – World Soil Information maintains a site on the World Wide Web: http://www.isric.org. In 2003, Ir Ingrid Haas was appointed as webmaster to increase our internet presence and make our information more widely and more easily available. Development work has been undertaken for a *Virtual Soil Museum* (see World Soil Museum), and a program of translating data holdings to SQL is under way to facilitate internet delivery.

Ongoing projects in 2004

1. Transformation of database management for on-line delivery (Tempel)
2. Digitised map collection catalogue (Spaargaren)
3. Regional soil meta-data (Spaargaren)
4. Photographic collection (Bomer): Thematic selection, collation and digitisation of our *Thousand Best Slides* and accompanying data
5. *Spectral Atlas of World Soils* (Spaargaren). Joint project with ICRAF, Nairobi using ISRIC reference collection and analytical data to calibrate spectro-graphic determination of soil composition
6. Soil sample catalogue and quality control (Manuchehri and van Oostrum)

3 APPLIED RESEARCH

Development and use of soil and terrain databases - SOTER

SOTER (SOils and TERrain) is an initiative of IUSS, FAO, ISRIC and UNEP to develop a global, geographically referenced, computer-based information system that stores soil and terrain information, compiled according to standard procedures. SOTER databases for Latin America and the Caribbean (SOTERLAC) and Central and Eastern Europe were completed in 1998 and 2000, respectively. During 2002-3, the SOTER database for Southern Africa (SOTERSAF) was completed, with financial support from FAO and UNEP.

Software development has been undertaken to enable classification of representative soil profiles according to the reference soil groups and qualifiers given in the *World Reference Base for Soil Resources* (FAO, ISRIC and IUSS 1998) as well as the *Revised Legend of the Soil Map of the World* (FAO, ISRIC and UNESCO 1988) and *Soil Taxonomy* (USDA 1999). The classification of the soil at the soil-component level can be given on the first level of the reference soil group, to allow naming the soils of the mapping unit when no specific profile information is available. The *SOTER Water Erosion Assessment Program* (SWEAP) has been overhauled and new software written and tested; also, *SOTALES* - an extraction program from the SOTER database to be used as input for the *Automatic Land Evaluation System*, and *WATSAT* – to analyse and describe water sufficiency for rain-fed annual crops.

SOTER Southern Africa (SOTERSAF)

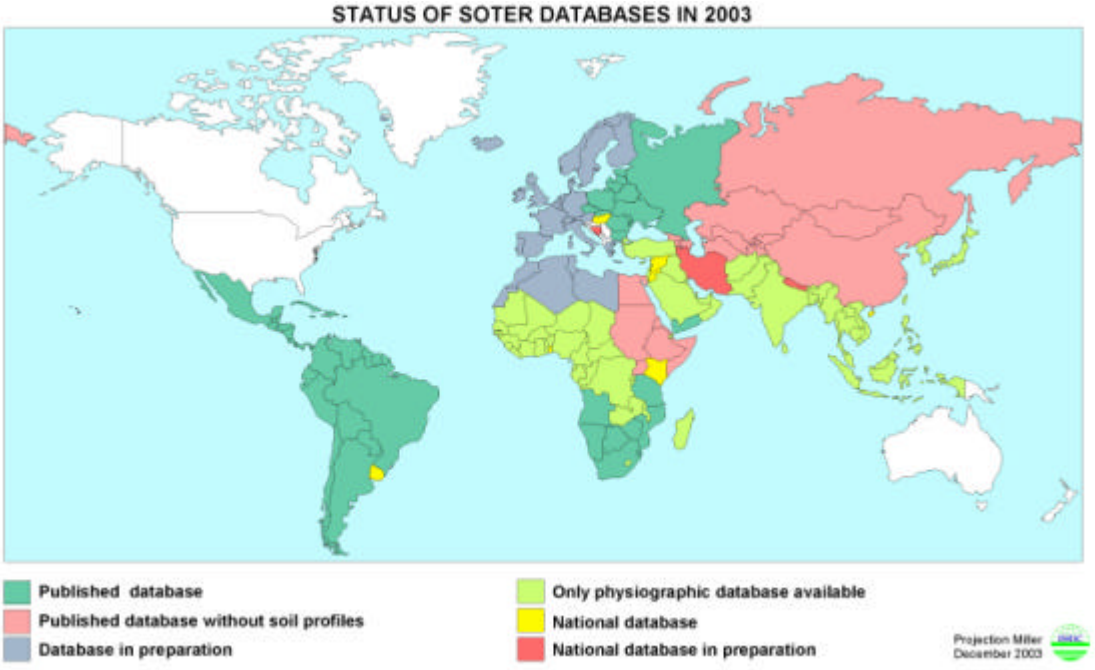
Compilation of the SOTERSAF database at scale 1:2million began in 2001, with the SOTER database for Botswana; it continued in 2002 with Mozambique, Namibia, South Africa, Swaziland, Tanzania and Zimbabwe; Angola was completed in 2003. The project was finalized after border harmonization and correlation of the national databases and published in the FAO Land and Water Digital Media Series (No 25).

The SOTER databases for Botswana, Mozambique and Swaziland were compiled at ISRIC on basis of existing maps, reports, GIS files and databases; the digital files and pedon databases were made available by FAO, while additional country documentation from ISRIC's library and map collection was included.

The SOTER database for Angola has been compiled under a separate agreement with FAO; additional country information was obtained from the Centro de Estudos de Pedologia (CEP) in Lisbon. The national research institutes of South Africa,

Namibia and Zimbabwe (respectively the Institute for Soil, Climate and Water of the Agricultural Research Council in Pretoria; the Agro-Ecological Zones project of the Ministry of Agriculture, Water and Rural Development in Windhoek; and the Pedology and Soil Survey Section of the Chemistry and Soil Research Institute in Harare) compiled their own SOTER databases with technical support from ISRIC. The SOTER database for Tanzania (scale 1:2 million) was already compiled in 1998 under an author contract with FAO and was amended and corrected to comply with the format of SOTERSAF database.

The national SOTER maps and databases have been harmonized - to avoid conflicting attributes in connecting units on both sides of a national border when no natural divide exists. Sometimes, SOTER map units had to be modified for correlation and, also, adaptations were made in the SOTER database when dominant attributes did not correspond with those on the other side of the national border.



National-scale activities

Most activities described at continental scale actually started with a SOTER program at national scale, involving the national soil survey institutes with backstopping by ISRIC.

Zimbabwe

The Pedology and Soil Survey Section of the Chemistry and Soil Research Institute in Harare compiled the Zimbabwe SOTER database under the UNEP project *Impact of desertification on food security in Southern Africa: a case study for Zimbabwe* that will be completed in 2004. The national SOTER database was compiled at a scale of 1:1 million. The data on landforms, soils etc., held in the database, and other data on land use and land cover, have been used to assess the production level of maize under present conditions of low-input and low-technology.

A further assessment is made of the impact on future maize production of soil erosion over a 25 years' period. Preliminary results indicate that low inherent soil fertility, rather than lack of soil water at critical periods, is the major biophysical constraint on maize production in the areas at present cultivated.

Angola

The Angolan database was compiled under an agreement with FAO and, later, appended to the first seven countries under SOTERSAF. The SOTER units were defined on the basis of geomorphological information, the soil map and a digital elevation model (DEM) with a grid of 1 km^2. The DEM also appeared to be a useful tool for estimation of slope, relief intensity, and drainage density supporting the description of these attributes for the SOTER units where little suitable information was available from existing sources. The Centro de Estudos de Pedologia (CEP) do Instituto de Investigação Científica Tropical, in Lisbon, provided additional information (including some 200 representative profiles in digital format) and expert knowledge of local conditions.

Land resources conservation and degradation

World Overview of Conservation Approaches and Technologies (WOCAT)

WOCAT is a global network of soil and water conservation specialists that share their expertise and experience of sustainable land management and make it available for planners and decision makers. ISRIC's contribution is in coordination and methodology development, and production of the WOCAT newsletter and mailing list. In 2003, Godert van Lynden co-organised the annual workshop and training program in Nepal.

Pan-European Soil Erosion Assessment (PESERA)

The PESERA Project is funded by the European Union as 'support for common agricultural policy'. Stephan Mantel, Godert van Lynden and Jan Huting of ISRIC were responsible for applying the PESERA model in climatic and land use scenario analyses for window areas in southern Spain and northern France and Belgium. ISRIC organised the 2003 project workshop in Wageningen.

Soil and Water Protection (SOWAP)

SOWAP is a joint project for environmental protection in Belgium, Hungary and the UK, funded by the EU and Syngenta. Godert van Lynden contributed to the project document (signed in June 2003), participated in project meetings in UK and Hungary, drafted the dissemination strategy and assisted in website development.

Assessment of Land Degradation and Land Resources

Godert van Lynden produced a report on quantitative soil degradation assessment for the Land and Plant Nutrition Management Service (AGLL) of the Land and Water Development Division (AGL) of FAO. The report was published early in 2004.

Green Water

65 per cent of the world's fresh water is *green* water, held in the soil. Soils and soil management also determine the partitioning of rainfall as runoff, groundwater recharge and stream base-flow; this determines the quantity, quality and timing of water resources that can be tapped for domestic, and industrial use, irrigation and environmental flows (*blue* water). Every soil management decision is a water management decision; at present the impact of management is, more often than not, negative; and the productivity of rain-fed farming is far below its potential.

The *Green* Water Initiative focuses soils expertise on water resources and their management. Following a review of definitions, data and research methods commissioned by FAO, detailed proposals have been made for a linked biophysical, technical and social knowledge base – drawing on existing data and know-how to match appropriate technologies to the site and situation on the ground, and a pilot project is underway in Southern Africa to demonstrate applications of *green* water information to policy development.

Assessment of Soil Organic Carbon Stocks and Change at National Scale (SOC-GEF)

This GEF project, implemented by UNEP, aims to develop and demonstrate generic tools that quantify the impact of land management and climate scenarios on change in soil carbon stocks at national and sub-national level. National scientists in Brazil, India, Jordan and Kenya are working with data management and modellers' groups in the United Kingdom, Austria, France, the Netherlands (ISRIC), and the USA. The project is co-ordinated by the University of Reading (UK). Funding for ISRIC's input comes from the Dutch Ministry of VROM.

Since January 2003, Niels Batjes has been consolidating the Soil and Terrain (SOTER) databases for the four case study countries and providing expert input to estimate soil carbon stocks and change using mapping and expert-based approaches.

Soil database consolidation / web development

Six WISE-derived data sets have been developed for distribution via the ISRIC web site. All profile-related data sets are in ACCESS®, while the GIS-based data sets use ArcView®.

Taxo-transfer procedures have been developed for filling gaps in primary soil databases (both for WISE and SOTER). The newly released WISE-derived data sets include:

- ISRIC-WISE Global Soil Profile Data Set
- Revised soil parameter estimates for the soil types of the world
- Global data sets of derived soil properties on a 0.5 by 0.5 degree grid
- Global distribution of soils with a high inferred P-deficiency on a 0.5 by 0.5 Degree Grid
- *RIVM study:* Development of spatially referenced soil data sets, with a resolution of 0.5 x 0.5 degree, for use in a global N-leaching model and other applications of the IMAGE-model
- *IOC study:* Development of a 0.5 x 0.5 degree soil data set for use in the Intergovernmental Oceanographic Commission (IOC) - UNESCO funded project on global modelling of nutrient transport by rivers to coastal ecosystems (at the request of the Institute of Marine and Coastal Sciences (IMCS), State University of New Jersey (Rutgers)

Consultancies and training

Optimisation of water management in Estonia

Funded by EU-Senter and implemented by DHV-International in association with Alterra and ENTEC, this project aimed to support Estonia complying with the EU Water Framework Directive in water management in rural areas. Stephan Mantel of ISRIC assisted the Estonian counterpart ENTEC in developing a land use plan for the Pärnu River Basin, contributing to the River Basin Management Plan by defining areas where specified types of land use may be applied so that water quality is not at risk.

EU-forestry projects in Indonesia

Stephan Mantel provided technical assistance to Berau Forest Management Project (East-Kalimantan) funded by the EU and Forest Fire Inventory Project (Balikpapan Bay).

For the Forest Fire Inventory Project, a SOTER database was compiled for the forest concession in the Sungai Wain-Batu Ampar area, east of Balikpapan Bay. The SOTER map (1:250 000) covers 136 428 ha. The survey and database development identifies properties and variation of land relevant for spatial planning and forest fire risk assessment.

Berau Forest Management Project aims to achieve sustainable forest management and conservation. BFMP has worked with local forest concessionaire PT. INHUTANI I to develop, test and promote a replicable example of sustainable forest management at an operational level in the Labanan forest concession (100 000 ha). ISRIC performed a soils and terrain survey as part of a baseline inventory.
Geo-referenced SOTER-databases were compiled at the forest concession level (1:100 000) and an inventory was made at the district level (1:250 000) to support land-use policy decisions. SOTER was combined with climate, vegetation and hydrology, and linked with models to produce basic, forest planning information.

A **consultancy for Ph.D. students** was carried out for ITC, including samples analysis and result interpretations.

Training

SOTER training was given by Koos Dijkshoorn over two weeks in June 2002 to staff of the Natural Resources Management and Land Regulatory Division of the Ministry of Agriculture, Addis Ababa, at the request of the Agricultural and Natural Resources BV of DHV consultants, Amersfoort, under the Sustainable Resource

Utilization Plan for North Wollo, executed in cooperation with the Land Use Planning Division of Natural Resources Management and Land Regulatory Division.

In the framework of the VROM and GEF-financed project Assessment of Soil Organic Carbon Stocks and Change at National Scale, a one-week SOTER course was given by Koos Dijkshoorn at the National Bureau of Soil Survey and Land Use Planning (NBSS&LUP), Nagpur, India, in November 2003.

Vincent van Engelen and Stephan Mantel provided technical services to the UNDP-funded mission to create a system for automated land evaluation sustainable land management planning in Hainan Island, China in March 2002, and training for Chinese guest-researchers from Beijing Agricultural University in SOTER and land evaluation at ISRIC in June 2002.

Ongoing projects in 2004

1. PESERA: completion with primary journal papers (Mantel/van Lynden)
2. Zimbabwe Land Resource Information System: completion with summary poster (Huting), policy brief (van Engelen), and primary journal paper (Mantel)
3. WOCAT and SOWAP (van Lynden)
4. SOC-GEF (Batjes)
5. Global SOTER: development of methodology for data-sparse regions and extension of the SOTER framework to include regolith and land use phases van Engelen, Dijkshoorn, Huting, Dent)
6. *Green* water pilot project (Kauffman, Mantel, Dijkshoorn, van Lynden)

Soil analytical work

In support of the reference collection of soil samples, research on chemical changes of long-stored soil samples was conducted Iraj Manuchehri. A publication is in preparation.

4 PUBLICATIONS

ISRIC staff publications are listed in six broad categories: (1) books, (2) articles in peer-reviewed journals, (3) contributions to edited books and proceedings, (4) ISRIC reports and publications, (5) contributions to newsletter, bulletins, and workshop abstracts, and (6) consultancy and missions reports.

Books

Dalal-Clayton DB, Dent DL and Dubois O 2003. *Rural planning in developing countries*. IIED/Earthscan, London, 226 p

Hartemink AE 2002 (editor). *Publishing in soil science.* International Union of Soil Sciences, Vienna, 268 p

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Hartemink AE 2003. Integrated nutrient management research with sweet potato in Papua New Guinea. *Outlook on Agriculture* 32, 173-182

Hartemink AE 2003. Sweet potato yield and nutrient dynamics after short-term fallows in the humid lowlands of Papua New Guinea. *Netherlands Agricultural Science* 50, 297-319

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Hartemink AE 2002. Nutrient stocks and nutrient cycling of fallows in the humid lowlands of Papua New Guinea. *17th World Congress of Soil Science,* Vol. II:691, IUSS, Bangkok

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Mantel S 2002. *Land use planning for development of a river basin management plan: optimisation of water management and land use in rural areas, Estonia*. Second mission report July 2002, SENTER, DHV-ENTEC, Tallin, 34 p

Mantel S, Lynden GJ van and Huting J 2003. *Pan-European erosion assessment (PESERA) work package 6: scenario analysis*. Final report, April-September 2003. ISRIC - World Soil Information, Wageningen, 48 p

5 TRAVEL AND MEETINGS

In connection with program activities, ISRIC staff have participated in training workshops in Wageningen and abroad, and have presented papers and posters at international conferences and symposia.

Participant(s)	Venue	Place	Period	Organized by
Batjes	Inaugural Meeting, GEF co-financed project on Assessment of Soil Organic Carbon Stocks and Change at National Scale (SOC-GEF)	University of Reading (UK)	14-17 Jul 2002	SOC-GEF project (University of Reading, UK)
Batjes	First Workshop, SOC-GEF project on Assessment of Soil Organic carbon Stocks and Change at National Scale	University of Reading (UK)	2-5 Dec 2002	SOC-GEF project
Batjes	Symposium on Environmental Systems Analysis: Environmental Research at the Edge of Science and Society	Ede (NL)	8 Jan 2003	WIMEK, SENSE and Wageningen UR
Batjes	Workshop 2, SOC-GEF project: Spatial data review and plot-scale data review	Aguas de Sao Pedro, Sao Paulo State, Brazil	7-13 Apr 2003	Centro de Energia Nuclear na Agricultura (CENA) / University of Sao Paulo (USP) and SOC-GEF Project
Batjes	PROLAND, First Supervisory Board Meeting	Pulawy, Poland	12-15 Jun 2003	Inst. of Soil Science and Plant Cultivation (IUNG)
Batjes	Second Meeting of the Project Steering Committee (SOC-GEF)	Uzes, France	25-27 Jun 2003	IRD and SOC-GEF project
Batjes	Workshop 3, SOC-GEF project: Model Evaluation at the Plot Scale	Nairobi, Kenya	6-9 Oct 2003	KARI and SOC-GEF project
Dent, Hartemink, van Lynden	Suistainable Soil Fertility	Arnhem, Netherlands	21-24 Oct 2003	CTA, ISRIC

Participant(s)	Venue	Place	Period	Organized by
Dijkshoorn	DHV-ANR Consulting Ethiopia	Casanches, Addis Ababa, Ethiopia	05-26 Jun 2002	Nat.Res.Man
Kauffman	International Conference Water Conservation Technologies for Sustainable Dryland Agriculture in sub-Saharan Africa (WCT)	Bloemfontein, South Africa	8-11 Apr 2003	ISCW
Mantel	PESERA meeting	Leeds, UK	16-18 May 2002	University of Leeds
Mantel	Land use planning consultancy second mission	Tallin – Pärnu, Estonia	17-28 Jun 2002	DHV-ENTEC
Mantel	EU PESERA meeting	Ispra, Italy	27-29 Nov 2002	JRC, Ispra
Mantel	International conference Framing Land Use Dynamics	Utrecht, NL	16-18 Apr 2003	Utrecht University
Oldeman, Kauffman	LADA international meeting	Rome, Italy	23-25 Jan 2002	FAO
Spaargaren	COST action 622 working group meeting	Manderscheid, Germany	24-27 Apr 2002	European Union
Spaargaren	First European Open Archive Forum	Pisa, Italy	13-14 May 2002	Ist. Elab. della Informazione
Spaargaren	Assessing Capabilities of Soil and Water Resources in Drylands	Tucson, USA	20-25 Oct 2002	IALC
Spaargaren	First Conference of the Committee on the Review of the Implementation of the Convention (CRIC 1)	Rome, Italy	11-16 Nov 2002	UNCCD
Spaargaren	2nd European Open Archives Forum workshop	Lisbon, Portugal	06-07 Dec 2002	National Libr. Portugal
Spaargaren	World Reference Base for Soil Resources meeting and fieldwork	Stellenbosch, South Africa; northwest SA and Namibia	22 Jan-4 Feb 2003	Soil Sci Soc of South Africa
Spaargaren	First European Summer School on Soil Survey for Candidate Countries	JRC Ispra, Italy	21-25 Jul 2003	JRC
Spaargaren	6th Conference of Parties	Habana, Cuba	25 Aug - 5 Sep 2003	UNCCD
Spaargaren	UNESCO-ICCORES workshop: From watershed slopes to coastal areas - sedimentation processes at different scales	Venice	3-6 Dec 2003	UNESCO-ICCORES
van Engelen	Northern Circumpolar Soil Database, Cryosol and NASOTER workshop	Lincoln, USA	06-8 Mar 2002	NRCS
van Engelen	SOTER Western Europe	Paris, France	20 Mar 2002	INRA

Participant(s)	Venue	Place	Period	Organized by
van Engelen	SULAMA training	Beijing, China	08-12 Apr2002	CAU
van Engelen	Ecoregional perspectives to mountain agricultural systems	Kathmandu, Nepal	21-25 Oct 2002	ICIMOD
van Engelen	Project formulation mission cooperation ANGRAU-ISRIC	Hyderabad AP, India	5-10 May 2003	ISRIC
van Engelen, Batjes, Mantel	17th World Congress of Soil Science	Bangkok, Thailand	14-21 Aug 2002	IUSS
van Lynden	Joint EU Life bid (WOCAT, Syngenta a.o.)	Silsoe, UK	20-21 Mar 2002	Syngenta/Silsoe (NSRI)
van Lynden	WOCAT preparatory workshop	Ratlam, India	07-12 Apr 2002	WOCAT
van Lynden	ISCO conference, WOCAT meeting Fujian	Beijing, Wuyishan, China	26 May-06 Jun 2002	ISCO, WOCAT
van Lynden	WOCAT working meeting	Bern, Switzerland	19-20 Aug 2002	WOCAT
van Lynden	LADA pre-meeting, WOCAT Annual Workshop & Steering Meeting, LADA workshop	Rome, Italy	16 Oct-08 Nov 2002	LADA, WOCAT
van Lynden	NRSP Symposium & workshop, WOCAT introduction workshop	Kathmandu, Pokhara, Landruk, Nepal	20 Feb-5 Mar 2003	NRSP / ICIMOD - PARDYP
van Lynden	OECD workshop on Erosion and Biodiversity Indicators	Rome, Italy	24-24 Mar 2003	OECD
van Lynden	SOWAP Project launch	Bracknell, UK	22-23 May 2003	Syngenta
van Lynden	Symposium on Watershed Management in Asia	Kathmandu, Nepal	11-13 Sep 2003	FAO/ICIMOD

6 PERSONNEL

(as of January 2004)

Board of Trustees

- Dr SW Bie (Chairman)
- Prof. Dr J Bouma (formerly Environmental Sciences Group, on behalf of Wageningen University)
- Prof. Dr H Hurni (National Centre of Competence in Research North-South, Berne, Switzerland, on behalf of the International Union of Soil Sciences)
- Ir GJA Nieuwenhuis (Centre for Geo-Information, on behalf of Alterra BV)
- Ir W van Vuure (on behalf of the Ministry of Agriculture, Nature Management and Fisheries)

Changes in Board
Prof. Dr MJ Kropff (Director General Plant Sciences Group, Wageningen UR, on behalf of the Executive Board of Wageningen UR) resigned from ISRIC Board as of 3 October 2003

Staff

Director: Dr DL (David) Dent

Secretariat
- YGL (Yolanda) Karpes - communication
- J (Jan) Brussen - finance

Scientific staff (alphabetical)
- M (Mateen) Ahmad MSc – soil monolith preparation
- Ir NH (Niels) Batjes – database applications
- WCWA (Wouter) Bomer – graphic design and in-house publishing
- Ir JA (Koos) Dijkshoorn – soil and terrain databases
- Drs VWP (Vincent) van Engelen - Research Team Leader
- Ir IJ (Ingrid) Haas – webmaster & programmer
- Dr AE (Alfred) Hartemink – Head, World Soil Museum
- JRM (Jan) Huting – GIS database management and map production
- Ir JH (Sjef) Kauffman – Deputy Director, databases applications, soil & water management
- Drs GWJ (Godert) van Lynden – land, water and environmental management
- Ir S (Stephan) Mantel MSc - land evaluation and decision support
- N (Iraj) Manuchehri MSc – documentation and sample custodian
- AJM (Ad) van Oostrum MSc – collections management and quality control

- Dr OC (Otto) Spaargaren – Head, World Data Centre for Soils
- Ir P (Piet) Tempel - systems analyst and programming

Changes in staff

- Ms JJV Jonker, library assistant, retired in February 2002
- Mr KJ Berendsen joined the IT-team of the Department of Environmental Sciences of Wageningen University as of September 2002
- Dr LP van Reeuwijk retired as Head of Laboratory, December 2002
- Dr LR Oldeman retired as Director, December 2002; Dr DL Dent took on this position May 2003
- Ms IJ Haas, Webmaster as of 1 March 2003

Dr WG Sombroek, former Director ISRIC and guest researcher on Terra Preta dos Índios (Brazil), deceased 19 December 2003

(photo:April 2003)

Guest researchers

- Dr Bai Zhanguo – literature study on soil degradation with special focus on test case in PR China
- Drs JHV (Hans) van Baren - Philosophy of Science (IUSS program), library & documentation
- Dr LP (Piet) van Reeuwijk – lab methods & quality control

Staff Development

Most of the scientific staff attended an introductory course in Microsoft Visual Basic, held at ISRIC (January 2003).

Ingrid Haas participated in several meetings and workshops: a) the use of an application developed by FAO (Geonetwork) to make metadata of maps available on the web (May 2003); Microsoft Content Management System for authors organised by Department of Marketing and Communication, Alterra (November 2003).

Jan Huting attended a post-HBO Geo-Information course at Hogeschool Larenstein (March-December 2002) and participated in an ArcGis 8.3 course at Alterra – Research Institute of the Green World.

Piet Tempel followed a self-teaching course on PHP - a widely used general-purpose scripting language that is especially suited for Web development and which can be embedded into HTML.

LIST OF ACRONYMS

Abbreviation	Description
ACP	African, Caribbean and Pacific countries
ALES	Automated Land Evaluation System
BFMP	Berau Forest Management Project, Indonesia
CATAS	Chinese Academy of Tropical Agricultural Sciences, Hainan, PR China
CDE	Centre for Development and Environment, University of Berne, Switzerland
CEP	Centro de Estudos de Pedologia, Instituto de Investigação Científica Tropical, Lisbon, Portugal
CTA	Centre Technique de Coopération Agricole et Rurale, Wageningen, The Netherlands
DEM	digital elevation model
doi	digital object identifier
EU	European Union
FAO	Food and Agriculture Organization of the United Nations, Rome, Italy
GEF	Global Environmental Facility
GIS	geographic information system
IARC	International Agricultural Research Centres
ICRAF	International Counseling for Research in Agroforestry, Nairobi, Kenya
ICSU	International Council for Science, Paris, France
IHE	International Institute for Infrastructural, Hydraulic and Environmental Engineering, Delft, The Netherlands
ILRI	International Land Reclamation Institute, Wageningen, The Netherlands
IMCS	Institute of Marine and Coastal Sciences, New Jersey, USA
IOC	Intergovernmental Oceanographic Commission, UNESCO, Paris, France
ISCO	International Soil Conservation Organisation
ISCW-ARC	Institute of Soil, Climate and Water of the Agricultural Research Council, Pretoria, South Africa
ISIS	ISRIC Soil Information System
ISRIC	International Soil Reference and Information Centre, Wageningen, The Netherlands
ISSP	Institute of Soil Science and Plant Cultivation, Pulawy, Poland
ITC	International Institute for Geo-information Science and Earth Observation, Enschede, The Netherlands
IUSS	International Union of Soil Sciences
JRC	Joint Research Centre, Ispra, Italy
LADA	Land Degradation Assessment for Dryland Areas
NBSS&LUP	National Bureau of Soil Survey and Land Use Planning, Nagpur, India
NRSP	Natural Resources Systems Programme

Abbreviation	Description
PESERA	Pan-European Soil Erosion Assessment
PROBUS	Stichting Probus Nederland Informatie Centrum, Delft, The Netherlands
RIVM	National Institute of Public Health and Envrionmental Protection, Bilthoven, The Netherlands
SENSE	Netherlands Research School for the Socio-Economic and Natural Sciences of the Environment, Wageningen, The Netherlands
SOC-GEF	Soil Organic Carbon, Global Environmental Facility project
SOTALES	SOTER Automated Land Evaluation System
SOTER	Soil and Terrain Database
SOTERLAC	SOTER database for Latin America and the Caribbean
SOTERSAF	SOTER database for Southern Africa
SOVEUR	Soil and Terrain Vulnerability Mapping in Central and Eastern Europe
SOWAP	Soil and Surface Water Protection Using Conservation Tillage in Northern and Central Europe
UNCCD	UN Convertion to Combat Desertification, Bonn, Germany
UNDP	United Nations Development Programme, New York, USA
UNEP	United Nations Environment Programme, Nairobi, Kenya
UNESCO	United Nations Educational, Scientific and Cultural Organization, Paris, France
VROM	Netherlands Ministry of Spatial Planning, Housing and the Environment, The Hague, The Netherlands
WATSAT	Water Sufficiency Assessment Tool
WIMEK	Wageningen Institute for Environment and Climate Research, The Netherlands
WOCAT	World Overview of Conservation Activities and Technologies. CED, Berne, Switzerland
WRB	World Reference Base for Soil Resources