Working Paper and Preprint series

No. 83/1

THE INTERNATIONAL SOIL MUSEUM (ISM): PAST, PRESENT AND FUTURE

W.G. SOMBROEK

Presented at the IBSRAM-ACIAR Soils Workshop,
Townsville, Australia, 12-16 September 1983.

ISRIC

INTERNATIONAL SOIL REFERENCE AND INFORMATION CENTRE

International Soil Reference and Information Centre
P.O. Box 353
6700 AJ Wageningen
The Netherlands

Phone: (31)-(0)8370-19063
Cables: ISOMUS

The issues in the Working Paper and Preprint series
are available free of charge, at personal request only.

IBSRAM-ACIAR Soils Workshop, Townsville, Australia, 12 - 16 September 1983.

The International Soil Museum (ISM); past, present and future

by W.G. Sombroek, Director

The Past

The International Soil Museum (ISM) was founded in 1966 with the aim to assemble a collection of the world's main soils. Representative examples were to be studied, analysed, compared and evaluated.

The first ideas for such a centre were formulated in 1952. After supporting recommendations at the 7th and 8th International Congresses of Soil Science in 1960 and 1964, Unesco made the soil museum "a project within its activities in the field of earth sciences".

At Unesco's General Conference in 1964 the Netherlands was selected to establish the Centre. It would function in close cooperation with Unesco, FAO and the International Society of Soil Science (ISSS), and its activities would complement the Soil-Map-of-the-World Project of these organisations.

During the first years after its founding, the Centre functioned in Utrecht, in small make-shift premises. With Dr. F. van Baren, professor in tropical soils at Utrecht University, as its honorary director, the Centre concentrated on the collection of representative soils from a number of European countries. Through the kind cooperation of the respective national soil survey organisations, however, also sizeable collections were obtained from Australia, India, Thailand, and several African countries. Progress was rather slow, due to limited finances, lack of a suitable permanent building, and absence of a full-time director.

By 1976, however, construction of a permanent building in Wageningen had been completed. A Dutch Board of Administration had been formed, with as constituent members the Agricultural University of Wageningen (LH), the Dutch Directorate for Agricultural Research (DLO), and the International Institute for Aerial Survey and Earth Sciences (ITC). The latter institute had - and still has - the financial-administrative responsibility for the working funds and the permanent staff of ISM, which lacked a formal Foundation status of its own. To ensure adequate scientific output, an International Advisory Panel had been established with soil science representatives of all continents appointed on ad-hoc basis by Unesco, in consultation with FAO and ISSS. This Panel has now met four times (1967, 1972, 1979, 1983). In 1977 also a Dutch National Advisory Council was created, composed of

representatives of all Dutch institutions of soil-related research and education; it meets every year.

In 1978, several years after Prof. van Baren had deceased, a full-time director was appointed, a soil survey, classification and land-evaluation specialist with experience in technical assistance projects in Latin America and Africa. The Wageningen premises were officially opened in 1979 by Dr. R. Batisse of Unesco. By then, about 350 soils, mainly from Europe, Africa and Asia, had been collected, analysed and conserved in the form of soil monoliths. A selection of these soils was put on permanent display in the exhibition hall ("pedonarium") of the Centre. In the years since, attention has shifted more and more to soils of developing countries, and more emphasis was put on the practical use of the data and materials gathered.

The present

The permanent staff of ISM now consists of 13 persons, of which 4 are of university level. The average actual staffing is however about 20, because of the presence of temporary staff and visiting scientists, for periods varying from 3 months to several years.

The annual budget of the Centre is composed of about Dfl. 1 million (US $ 350,000) for salaries, and Dfl. 300,000 for working funds. More than half of the latter has to be spent on fixed costs, leaving only about US $ 50,000 per year for programme execution. In addition, about US $ 40,000 per year is obtained on project basis. As yet, nearly all of these funds are supplied by the Dutch Directorate for International Technical Cooperation (DGIS), channeled through the Ministry of Education and Science and ITC. Efforts to effectively internationalise the funding - and thereby the staffing - are only recently likely to yield significant results.

The ISM building is located very centrally in Wageningen, sideways from the International Agricultural Centre (IAC) with its ample meeting and boarding facilities. The space available in the building comprises about 1000 m^2, and consists of an exhibition hall, a lecture and meeting room, a workshop, a store, a well-equiped soils laboratory, a library, a microscopy room, a dark room and 12 office rooms. Already now there is an acute shortage of space of 250 m^2 (for storage, office rooms for visiting scientists, drawing room, library expansion, etc.) and this is expected to grow to about 500 m^2 in a few years time.

The present programme and activities are as follows:

(i) to collect, analyse and display representative sample material of all major soils of the world.

This is the core task of ISM, from which all other activities derive. About 550 soil monoliths have now been prepared, with their documentation in varying degree of completeness. This year, field collection work is centred in the People's Republic of China, Indonesia, Sri Lanka, Pakistan, Kenya, Moçambique, Uruguay and the USA, always in close cooperation with the national soil survey/research institution concerned.

(ii) to be host to soil scientists who want to study the collection for comparison and correlation with their own soils.

One-day visitors, experienced soil scientists and students alike, number about 1600 per year. Guest researchers average 3 or 4 at a time.

(iii) to issue publications on the collected material and soil science topics of interest, for distribution to national soil survey organisations, university departments etc.

ISM has a series Technical Papers (6 published as yet), a series Soil Monolith Papers (3 issued, 4 in preparation), and an embryonal series ISM Monographs (1 issued, 1 in preparation). It also publishes an Annual Report, always with a few short articles on items of current interest. All publications are as yet in the English language, but French and Spanish can be accommodated.

(iv) to assist in establishing national soil reference collections in developing countries; for research, land use planning, teaching, extension etc.

This is carried out mainly through the organisation of a short annual training course, which is effectively supported by Unesco through the granting of fellowships for developing country soil scientists. For the time being, about six participants can be accommodated each year.

(v) to build up a systematic documentation of soil maps, technical reports, soil-related thematic maps and land suitability data, especially from developing countries.

Acquisition work concentrates on generalised and smaller-scale soil maps (<1:250.000).This material, now containing about 6000 items, serves as-supporting documentation for the soil reference collection, but is also available for any updating of the FAO-Unesco Soil Map of the World, and any international effort

to arrive at a computerised soil map of 1:1 million scale. It can also be used for direct application to country-level agricultural development planning.

(vi) to study and correlate soil classification systems that have an international reach, and to assist in the elaboration of an International Reference Base for soil classification (IRB), a cooperative project of ISSS, UNEP, FAO and Unesco starting this year.

Copies of all classification systems, and of their diagnostic criteria, are collected and abstracted or translated when thought useful. It is also tried to have examples of outstanding units of these systems in the reference collection of soil monoliths.

(vii) To compare methods and procedures of soil laboratory analysis, for soil classification purposes in first instance, accompanied by an exchange of standard sample material of selected tropical soils.

The current pilot programme on this aspect (Labex), encompasses twenty major laboratories in both developing and industrialised countries. First results indicate a strong need for more accuracy and precision, through further standardisation of the detailed procedures, if not actual change of methods.

(viii) to study and collect soils under their natural vegetation, and to assess the changes taking place under agricultural occupation.

This programme item is carried out through a backstopping function of the Centre at the work of three young soil scientists of Unesco's Division of Ecological Sciences, who are dealing with soil studies in MAB biosphere reserves and - sites of Latin America, Africa and Asia.

It should also be mentioned that ISM's library, though relatively small, has a nearly complete range of recent books of all branches of soil science and its applications. This because since many years one of its staff members is the book review editor of the sixmonthly ISSS Bulletin - with complimentary copies of about 100 books per year in different languages as a fringe benefit.

The future

It is to be expected that the collection of soil monoliths will be complete when counting about 1000-1500 examples representative of both the variation in characteristics and properties of the world's soils, and their geographic distribution. This figure may be reached in 5 to 10 years hence, depending on the

degree of extra funding. Even though the detailed documentation on the collection may take more time, already now the application aspect should be given ample attention.

This is one of the reasons why it was recently agreed by ISM's International Advisory Panel - and supported by all international and national agencies concerned - to change the name of the centre. The word "museum" is too restrictive and not sufficiently connotative for the dynamic character of its activities. Per January 1st, 1984, the name will be "International Soil Reference and Information Centre (ISRIC), a centre for collection and study of soil reference materials". A move is also underway to establish a formal Foundation with that name, the Board of which is likely to include some representatives of international organisations.

In the coming years attention is likely to be geared towards the following:
(i) increase in the support for the establishment or improvement of national soil reference collections in developing countries.

It is hoped that funding for this purpose can be obtained from Unesco and UNEP, on project basis.

(ii) strengthening of the publication programme, covering not only results of research by own staff and visiting scientists, but also technical papers that are thought to be useful for the advancement of soil science and its applications in developing countries.

A contract with a Publishing House may be required for this.

(iii) expansion of the Labex programme of inter-laboratory comparison of the usefulness of soil analyses methods and procedures.

This may be funded, in part, from extra Dutch Technical Assistance funds.

(vi) active acquisition of small-scale soil map material, and computerising of the map catalogue.

A request for supporting funds has been submitted to the EEC. It is expected that close cooperation will develop with an EEC Technical Documentation Centre for agricultural development of the Lomé-convention countries, to have its head-quarters established in Wageningen still this year.

(v) developing a computerised soil data base, not only for all actually collected

soil profiles, but also for well-documented profiles recorded in soil survey reports, excursion guides of technical meetings, etc. ("pedon data file").

Complementary to this would be a computerised file on recent small-scale soil maps, recording all elements of mapping units (composition of the soil association or - complex, topography, climatic characteristics, vegetation and land use, geographic pattern etc.) in an easily accessible way ("small-scale mapping units file").

Several national or regional systems of computerised storage of soil resources information are already in function or under consideration (USA, Brazil, Australia, Canada, CIAT, UNEP-GEMS etc.). The role ISRIC may play is one of catalysing, comparison and participation, making sure that its own activities in this field are as much compatible as possible with systems elsewhere. This will however require substantial additional funding, for staffing, space and specialised equipment, at the Centre or elsewhere.

(vi) developing of a methodology for a semiquantative assessment of the soil-related land qualities, per individual soil profile, per soil classification unit and per small-scale soil mapping unit - as attributes in the rating of the land productivity and the limitations for the growing of individual crops.

In particular the latter two items will call for close cooperation with FAO, the CGIAR institutes,and the IBSRAM entity likely to be established at this meeting. In general, I may state that the data and the facilities of ISM/ISRIC are at the disposition of IBSRAM, to be used for better tackling of soil-related constraints to agricultural development in the tropics and subtropics, while safeguarding the quality of the soil component in fragile ecosystems.

Address

International Soil Reference and Information Centre (ISRIC)
Duivendaal 9, P.O. Box 353, 6700 AJ, Wageningen, the Netherlands.
Tel.: (0)8370-19063; cables: ISOMUS, Wageningen; telex: through
INTAS 45888 NL; bank account: AMRO Bank Wageningen, no. 41.31.03.196.