IBSRAM AND MANAGEMENT OF THE VERTISOLS NETWORK

Marc Latham*

Abstract

The International Board for Soil Research and Management (IBSRAM), which was set up in 1983, is in the process of developing three regional programmes – one for Africa, one for Africa and Southwest Asia, and one for Monsoon Asia. These regional programmes are related to IBSRAM's three soil management targets: (i) management of Vertisols, (ii) management of acid tropical soils, and (iii) tropical land clearing for sustainable agriculture.

IBSRAM wants to promote sustainable improved soil management technologies in order to remove soil constraints to food and other agricultural production. The practical adaptative investigations which IBSRAM advocates require multidisciplinary efforts from soil scientists, agronomists, and socioeconomists if the results obtained are to be transferred to the farmers concerned. In order to achieve these objectives, IBSRAM has chosen a collaborative network approach.

It is intended that the proposed network organization should comprise three components: (i) cooperators – who can be simple, active, basic or support participants; (ii) IBSRAM – which will act through a coordinator backed by a Network Coordination Committee (NCC); and (iii) the donors. The mechanism of acceptance involves submitting the project to IBSRAM, a review by the NCC, approval by the IBSRAM Board, and regular discussion and review of the results. In order to be accepted as part of the network programme a project should conform to network objectives, and should adopt the defined approach and methodology. It should also be economically acceptable and have a broader scope than purely country objectives for basic research.

The aim of this seminar is to define the common approach and methodology, revise national project proposals, and establish a regional network on the Management of Vertisols under Semi-Arid Conditions in Africa and Southwest Asia.

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* International Board for Soil Research and Management (IBSRAM), PO Box 9-109, Bangkhen, Bangkok 10900, Thailand.

Introduction

IBSRAM was set up three years ago in September 1983, which was when the first Board was elected. At that time, it was decided, as a first priority, to promote four soil management concerns. After four inaugural workshops from December 1984 to September 1985, three soil management targets were considered to be of special interest by virtue of their great potential for developing agricultural resources:

- Management of Vertisols (IBSRAM 1985a);
- Management of acid tropical soils (IBSRAM 1985b);
- Tropical land clearing for sustainable agriculture (IBSRAM 1985c).

In order to establish networking arrangements to cover these topics, three regional network programmes have since been proposed. They are:

- Land Development and Management of Acid Tropical Soils in Africa, for which a regional seminar took place in Douala, Cameroon, in January 1986;
- Land Development and Soil Management in Monsoon Asia, for which a regional seminar took place in Khon Kaen, Thailand, in October 1986;
- Management of Vertisols under Semi-Arid Conditions in Africa and Southwest Asia, which is the object of this meeting.

This paper will discuss the IBSRAM soil management network approach, the main features of the proposed regional network on the Management of Vertisols under Semi-Arid Conditions, the proposed organization of this network, the mechanism of approval for project proposals, and finally the objectives of this particular seminar.

IBSRAM Soil Management Network Approach

The IBSRAM soil management network approach has been described earlier (IBSRAM, 1985d, 1985e, 1985b and 1986c), but it may need to restated for those who are not yet familiar with it. The overall goal of IBSRAM is to promote sustainable improved soil management technologies in order to remove soil constraints to food and other agricultural production. To implement this goal, the IBSRAM approach is to help cooperators, through soil management networks, to conduct the investigations necessary for the practical adaptation and validation of improved soil management and land-use practices.

Soil management, in the IBSRAM view, is a multidisciplinary undertaking which must combine inputs from soil science, agronomy and socioeconomics. Soil knowledge for soil management has to envisage the soil as a whole in its environmental context, and to classify it according to recognized reference systems in order to provide the means for a general transfer of agrotechnology. However, it must focus on the layers prospected by roots, on the lateral variations of their characteristics, and on the dynamics of their most mobile components – air, water, ions, fauna and flora. These components are related to the climate and seasons, since they are controlled by rainfall and temperature. In turn, the climate and seasons are also the direct causes of erosion, taken in conjunction with the slope and the land use. For proper application to management, a good soil knowledge

must be comprehensive so that a sound interpretation of experimental data can be made and the results can be promulgated extensively.

New technologies have been produced by agronomists. International agricultural centres and other research organizations have found new germ plasms, improved phytosanitary protection, and appropriate tillage and fertilizer practices, which have led to what has been called 'the green revolution'. Unfortunately, these techniques, which can be applied successfully on good agricultural soils, have been difficult to extend to the more marginal lands, which is where the current pressure for agricultural development is becoming more intense. Also, more complexity is involved in marginal lands – Ultisols, Oxisols, Vertisols, and steepland Inceptisols – than there is in good agricultural lands such as alluvial Inceptisols, Entisols or Mollisols. This means that there is a great deal of work to be done in adapting and testing these new improved technologies, taking into account the variability of the environments involved.

Socioeconomic inputs are necessary because they are the means by which these new technologies can be applied. A knowledge of the farmers and of their traditional practices is essential in the search for acceptable technologies. Agricultural habits derived from long experience represent a very rich source of information. The attempt to integrate familiar habits into the proposed technologies, and at the same time to improve them, will save time and will make them more acceptable. Finally, soil management technologies must adapt to the farmers' possibilities and to national priorities regarding the lands and crops to be developed.

Individual efforts are long and costly in agricultural research. The use of the existing knowledge, the sharing of new findings by national institutions working on the same subject, and the coordination of these efforts, are the most cost-effective ways of tackling these problems. This is why IBSRAM has chosen a collaborative research approach to achieve its objectives.

MOVUSAC Network in Africa and Southwest Asia

The network on the Management of Vertisols under Semi-Arid Conditions (MOVUSAC) in Africa and Southwest Asia will concentrate on the dark swelling clay soils which occur extensively in the semi-arid regions of Africa, the Middle East and the Indian subcontinent. Because of their topographical position, their depth, the nature of their clay and their mineral content, they possess a very high potential for agricultural productivity. However, high levels of crop yields are seldom reached due to various limitations – tillage difficulties, low infiltration rates and permeability, and nutrient deficiencies – that can be overcome by improved management techniques.

The inaugural IBSRAM workshop on the Management of Vertisols for Improved Agricultural Production, held at the ICRISAT headquarters in India in February 1985, showed that:

- improved techniques are available for achieving better soil management;
- such techniques and others need to be tested and adapted in a range of semi-arid

zones in order to determine those which can be introduced most easily and effectively into farming practices; and

- o further research is especially needed on tillage, water conservation, nutrient management, and cropping systems.

Following the report of the inaugural workshop and the guidelines proposed, research project proposals have been sent by different future cooperators in order to join the IBSRAM Vertisols network.

The proposed regional network will focus on one part of the initially envisaged network on the Management of Vertisols for Improved Agricultural Production – the subarid nonflooded Vertisols. The area concerned will be Africa and Southwest Asia. Other programmes for the management of Vertisols may be developed in other parts of the world on different types of Vertisols. It is hoped to link participants from different regional programmes through a Vertisols newsletter and other information media, and eventually through global activities such as specific meetings or training courses.

Organization of the Regional Network

The proposed organization of this regional network will be similar to that envisaged for the initial networks. It will comprise three components, namely:

1. Cooperators

Cooperators will initiate and operate the soil management programme activities connected with one of the following types of participation:

- o simple participation in the different programme activities, mainly with a view to sharing information;
- o active participation – both by having an accepted programme, and by participating in all the various programme activities;
- o basic participation – by having an approved programme, some basic research related to the objectives of the network, and also participation in all the programme activities;
- o support participation by international and other research agencies, by undertaking some part of the basic research related to the objectives of the network, either alone or in conjunction with other cooperators.

2. IBSRAM

Through a programme coordinator, backed by the Network Coordinating Committee, IBSRAM will catalyze, coordinate, and assist cooperators in conducting their activities. IBSRAM provides assistance in the preparation and presentation of the projects to donor agencies. The coordinator acts as a link between the cooperators and IBSRAM. He helps strengthen the national cooperators' programmes by regular visits and consulta-

tions and by backstopping the following network activities:

- o site characterization;
- o exchange of control soil samples and analytical methods;
- o design of experiments, analyses and interpretation of data arising from these experiments;
- o technical assistance;
- o regular meetings during which programmes are reviewed and eventually revised;
- o monitoring tours;
- o training courses;
- o creation of a data base;
- o a review of past and ongoing research and bibliographic information services;
- o production of a programme newsletter, publications, and documentation.

3. Donors

The role of the donors will be to fund the programme coordination and, in part, the activities of the individual national cooperators.

Mechanism of Approval of National Project Proposals

One of the main objectives of this meeting is to revise and approve national project proposals in order to establish the regional network programme. The mechanism of approval, which is already being applied, consists of the following steps:

1. A project proposal on soil management is presented to IBSRAM by a national institution. Coordination between national organizations is favoured.
2. The project is reviewed by the Network Coordination Committee (NCC). Until now, the initial interim NCC formed during the inaugural workshops has been used. During this meeting, one question to be discussed is the formation of an NCC for this regional network on the management of Vertisols. The NCC will consist of scientists with useful expertise in the management of Vertisols, the main donors, and the IBSRAM coordinator.
3. The IBSRAM Board must then endorse its acceptance of the project proposals.
4. After approval, an official letter of acceptance will be sent to the cooperators, who may use it as a letter of support for fund seeking. During the regular meetings of the network, cooperators will present their results, and these will be discussed and reviewed by the participants in order to maintain a high scientific and development standard in the programme.

The criteria for the approval of a national project proposal are as follows:

- The project must fulfill the network objectives as defined during the inaugural workshops and as clarified during the present seminar.
- The project must be technically acceptable, i.e. it should follow the approach and methodology to be defined during this seminar. An example is given by the results

of the Cameroon seminar that you have to hand (IBSRAM 1986a).

- The project is thought to be scientifically and economically acceptable.
- The country is already involved in research of the type proposed, or is willing to invest in training for its personnel to achieve worthwhile participation.
- If a basic research project is proposed, it should have a broader objective than the country objectives *per se*, and should have implications on a wider scale. This criterion will not apply to validation projects.

Objectives of this Seminar

This seminar, then, will have three major objectives:

1. To define a common approach and methodology. The review papers presented in the first part and the following discussions are designed to help the working groups to design this common methodology and approach – without which no exchange amongst cooperators can function. The results of these working groups will be discussed and provisionally approved on the last day of the seminar: they will be the basis of our future work. In order to harmonize the work of the three regional network programmes and of the future ones, the Board will review these results and those of the other regional programmes during its meeting in March 1987. However, the results obtained here can serve as a basis to start the projects.
2. To revise the national project proposals. An exchange of correspondence has already taken place with regard to the national project proposals received. Improvements have been made, but further discussions and revisions will be conducted during this week when it is hoped to finalize some of these projects. Others, which have not yet been discussed, will be reviewed. Finalized projects will be submitted to the Board immediately after the seminar in order to get its final approval. They will be published separately as the basis of the regional programme.
3. To establish the regional network on the Management of Vertisols under Semi-Arid Conditions in Africa and Southwest Asia. Some donors have expressed their strong interest in this network and we expect that a coordination plan will be funded by the beginning of 1987. Your requests will be discussed and finalized on the last day of this meeting.

This network must be yours. This means that in addition to your national project proposals, we must work out in more detail the rules governing the functioning of the network and the common activities which can be implemented. A regional NCC must be formed which will serve as an advisory body to the coordinator. Finally, three publications will be produced after this seminar:

1. A report of the seminar in the format of the report of the Cameroon seminar. This will be ready by March 1987 and will be widely distributed.
2. A document including the approved projects, to be circulated internally in the network as a base document and for donor support purposes.
3. Proceedings of the seminar, which will be largely a compilation of the papers present-

ed during the first two days. In order to keep a standard level in these proceedings, we will form an editorial committee which will look at the scientific aspects of the papers. I hope that we may have these proceedings published before the end of 1987.

Conclusion

We now have six days of heavy work ahead of us to cover our tightly packed schedule; but I feel that you will lend your very best efforts to the task since we are building your network. Monday and Tuesday will be devoted to lectures on specific points related to the implementation of the network. Wednesday will see the presentation of country reports and project proposals. On Thursday, we will split into working groups and look at the common methodology to be employed in the network. On Friday, we will have the chance to visit sites in the Mwea district, where Vertisols are being used for paddy rice and rainfed agriculture; and on Saturday we will finalize our discussions.

This seminar is an opportunity for you to meet each other, and it is also a unique chance to discuss your specific problems regarding your projects on the management of Vertisols for improved agricultural production. So your enthusiasm and your work will be the best start for the cooperative activities which the network can foster.

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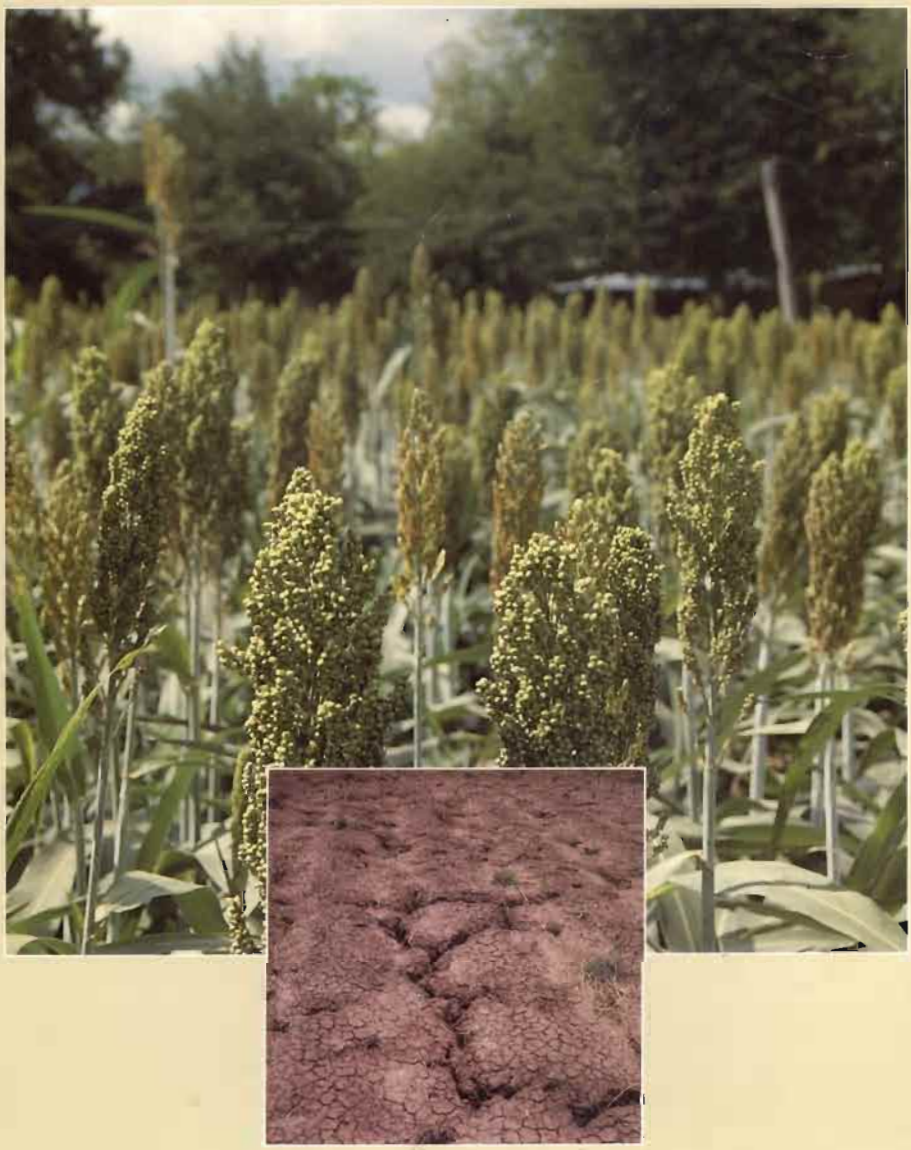
Management of Vertisols under Semi-Arid Conditions



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