THE IBSRAM LAND DEVELOPMENT AND SOIL MANAGEMENT NETWORK PROGRAM IN MONSOON ASIA

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ABSTRACT

The IBSRAM soil management approach is reviewed, emphasizing the multidisciplinary strategy which has been adopted, with interactions involving soil scientists, agronomists and socioeconomists. The three global networks which are part of the regional network on land development and soil management in monsoon Asia are presented consecutively: (i) tropical land clearing for sustainable agriculture, (ii) management of acid tropical soils, and (iii) management of Vertisols. An account is also given of the organization of the proposed regional network, the mechanism of approval of the national project proposals, and the objectives of the seminar.

INTRODUCTION

IBSRAM was set up three years ago in September 1983, which was when the first Board was elected. At the time it was decided, as a first priority, to promote four soil management networks. After four inaugural workshops from December 1984 to September 1985, three soil management networks were considered to be of special interest in 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 implement these networks on a realistic base, three regional network programs 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;
- Land Development and Soil Management in Monsoon Asia, which is the object of this meeting; and
- Management of Vertisols under Semi-Arid Conditions in Africa and Southwest Asia.

The objective of this meeting is to establish a regional internetwork program for Land Development and Soil Management in Monsoon Asia.

IBSRAM SOIL MANAGEMENT NETWORK APPROACH

The IBSRAM soil management network approach has been described earlier (IBSRAM 1985d, 1985e, and 1986b, 1986c),but it may need to be 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, should be based on a multidisciplinary approach, which must combine inputs from soil science, agronomy and socioeconomics.

Soil knowledge for soil management has to envisage the soil as a whole and classify it comprehensively in order to have international viability. However, it

must focus on the layers prospected by roots, in the lateral variations of their characteristics, and on the dynamics of their most mobile components: air, water, ions, fauna and flora. The latter components are related to the climate and the seasons, since they are controlled by rainfall and temperature. They are also the direct cause 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 agriculture centers and other research organizations have found new germplasms, 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 on 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 and 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. IBSRAM has chosen a collaborative research approach to achieve its objectives.

NETWORK PROGRAM ON LAND DEVELOPMENT AND SOIL MANAGEMENT IN MONSOON ASIA

The network regional program on Land Development and Soil Management in Monsoon Asia will regroup the cooperators of our three networks:

- Tropical land clearing for sustainable agriculture will be one of the major points of this regional program. Technologies for post-clearing management and for the rehabilitation of degraded land are badly needed in the region. Post-clearing management technologies are urgently in demand in countries where big resettlement schemes are under way - mainly Indonesia, Malaysia and the Philippines. They have to be directed towards the establishment of sustainable cropping systems, and especially food crops. Monitoring of the fertility parameters of erosion, of soil moisture, and of crop parameters are the main operations which have to be tackled. Rehabilitation of degraded land, whether it is under *Imperata cylindrica* or under any other type of grasses or bracken, is also a very high priority in the region. In particular, Indonesia, China, and Thailand are gravely in need of more intensive rehabilitation programs, but they are not the only countries which would benefit from such efforts. The use of pioneer plants or of initial high inputs should be adopted and put into effect over wide areas in order to restore the soil fertility of degraded lands and to give them a reasonable agricultural or agroforestry status.

- Management of acid tropical soils is often linked with the land clearing network, since forest is often cleared on acid tropical soils. This network will focus more particularly on the management of acidity and aluminium toxicity and deal with the problems linked with phosphorus fertilization and with the dynamic of the nutrient in general. An important aspect of the work will be to compare technologies at different levels of inputs. The general idea is to test different packages of technologies, alley cropping, ley farming systems, multiple cropping, etc., and to monitor the dynamics of the acidity, of the nutrient, of the soil loss, and other relevant factors. A good deal of experience has already been gained; but this experience now needs to be evaluated in a comparative way and to be extended for the benefit of as many regions as possible.

- The same questions arise in connection with the management of Vertisols, though the Vertisols of Southeast Asia are largely restricted to those which are flooded and which normally support one crop of rice. Farmers would like to have a second crop, preferably an upland crop, as there is not enough water for two crops of rice. Some irrigation may be possible, as shown by a project being carried out in Thailand. The main problems in using Vertisols for a second crop concern physical and mechanical issues - though there is also the question of the soil moisture management and problems regarding nutrients and micronutrients.

The proposed Asian network program will, then, bind together programs linked to the three IBSRAM global networks. It is hoped that this program, rather than destroying the integrity of the original networks - which should link participants from different regional programs through global activities such as specific meetings or training courses - will help to foster links between networks on a regional basis.

ORGANIZATION OF THE REGIONAL PROGRAM

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

- Cooperators, who will initiate and operate the soil management program activities. Four types of participation are possible:
  * simple participation in the different program activities, mainly with a view to sharing information;

  * active participation - both by having an accepted program, and by participating in all the various program activities;
  * basic participation - by having an approved program, some basic research related to the objectives of the network, and also participation in all the program activities;
  * support participation by international and other agencies, by undertaking some part of the basic research related to the objective of the network, either alone or in conjunction with other cooperators.

- IBSRAM, which through a Program Coordinator, backed by the Network Coordinating Committee, will catalyze, coordinate, and assist cooperators in conducting their activities. IBSRAM provides assistance in the preparation and in the presentation of the projects to donor agencies. The coordinator acts as a link between the cooperators and IBSRAM. He helps strengthen the national cooperators' programs by regular visits and consultations and by backstopping the following network activities:
  * site characterization;
  * exchange of control soil samples and analytical methods;
  * design of experiments, analyses and interpretation of data arising from these experiments;
  * technical assistance;
  * regular meetings during which programs will be reviewed and eventually revised;
  * monitoring;
  * training courses;
  * creation of a data base;
  * review of past and ongoing research and bibliographic information services;
  * program newsletter, publications, and documentation.

- Donors, who will fund the program 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 program.

The mechanism of approval, which is already being applied, consists of the following steps:

- A project proposal on soil management is presented to IBSRAM by a national institution. Coordination between national organizations is favoured. More than ten projects have been presented for this Asian program.

- The project is reviewed by the Network Coordinating 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 Asian program. The NCC will consist of the active, basic and support cooperators, the main donors, and the IBSRAM coordinator. The IBSRAM Board must then endorse this acceptance of the project proposals.

- 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 high scientific and development standards in the program.

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 follows 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 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.

OBJECTIVES OF THIS SEMINAR

This seminar then, will have three major objectives:

- To define a common approach and methodology. The review papers presented in the first part and the following discussion 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 programs and of the future ones, the Board will review these results and those of the other regional programs during its meeting in March 1987. However, the results obtained here can serve as a basis to start the projects.

- 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 two full days, when it is hoped to finalize some of these projects. Others, which have not yet been discussed, will be reviewed during these two days. Finalized projects will be submitted to the Board immediately after the seminar in order to get their final approval before the end of the year. They will be published separately as the basis of the regional program.

- To establish the regional network program on Land Development and Soil Management in Monsoon Asia. Discussions will take place during this seminar. Some donors have expressed their interest in this network and we hope 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. So in addition to your national project proposal, 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 Network Coordinating Committee (NCC) must be formed which will serve as an advisor to the coordinator.

A record of these various activities will be retained in the form of three publications, which will be produced after this seminar.

- A report of the seminar in the format of the report of the Cameroon seminar. This will be ready before the end of the year and will be widely distributed.

- A document including the approved projects, to be circulated internally in the network as a base document and for donor support purposes.

- Proceedings of the seminar, which will include the presented papers of the first two days and the results of the working groups. In order to keep a standard level of these proceedings, we will form an editorial committee which will look at the scientific aspects of the papers, and Dr. Colin Elliott will help you in the language editing of your paper during this meeting and afterwards.

CONCLUSION

In conclusion, we have seven full days of seminar. The program is heavily loaded but I am sure of your cooperation as we are building your network. We will have two days of lectures - Monday and Tuesday; three days of full discussion on Wednesday, Thursday and Friday. On Saturday and Sunday you will have the chance to visit some of the beautiful countryside in this part of Thailand during the field trip, with some soil management concerns in mind; and next Monday we will finalize our discussions. Your enthusiasm in the seminar will be the best start for this Asian network program.

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STATUS OF IBSRAM'S ACID TROPICAL SOILS NETWORK

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ABSTRACT

The IBSRAM soil management network on the management of acid tropical soils is the result of an inaugural workshop which took place in Yurimaguas, Peru, and in Manaus and Brasilia, Brazil, from April 24 to May 3, 1985. This paper gives an account of the goals and objectives, the research validation activities and the support activities envisaged for the network, and also describes the results of the Cameroon seminar where eight countries indicated their intention to join a regional African network on this subject.

INTRODUCTION

Representatives from thirteen developing countries (Brazil, Cameroon, China, Congo, Ivory Coast, Madagascar, Malaysia, Mexico, Panama, Peru, Thailand, Venezuela, and Zambia) have decided to form the Acid Tropcial Soils Management Network with a defined target area, six principal research-validation activities, and several supporting services. The network, which will be coordinated by IBSRAM, will focus on increased use and improved management of the acid tropical soils, classified mainly as Oxisols and Ultisols or as ferrallitic soils, in the humid tropical and acid