



ISSN 0857-3182 NUMBER56 JUNE 2000

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**FROM THE DIRECTOR GENERAL'S DESK**

The recent Global Forum on Agricultural Research (GFAR) that I attended in Dresden addressed a wide range of issues pertinent to IBSRAM's mandate and programmes. It provided a number of yardsticks against which to assess IBSRAM's progress. Firstly, I want to refer to the position of IBSRAM in the global firmament of agricultural research institutions (ARIs), particularly in relation to our size. To me the cost effectiveness of a specialized institution like IBSRAM addressing sustainable land management at a global scale came sharply into focus when viewed against the backdrop of the CGIAR system and the large range of institutions represented at GFAR. IBSRAM's annual budget represents only one percent of the budget of the CGIAR system. On the other hand, the CGIAR system represents less than four percent of global expenditure on agricultural research. In CGIAR parlance, when the GFAR convenes every five years, it brings the CGIAR together with the other 96%. GFAR underlined the necessity for a more concerted and coordinated effort by many research organizations to tackle the complex and decentralized problems faced by farmers, particularly in the area of natural resource management (NRM). In this regard, the benefits of IBSRAM's NARES-centric approach organized from a centre-without-walls became

abundantly clear.



*In practice, achieving sustainable land management can demand back-breaking work.*

There were more than 400 participants at GFAR representing farmer organizations, donors, the private sector, NARES, NGOs, ARIs, and IARCs from a wide range of countries. Although some divergence of opinion was evident (and inevitable), my own impression of the GFAR dialogue was that there is a convergence of views on some of the major challenges facing the international agricultural research community. These are encapsulated in the Dresden Declaration and the Global Vision which emphasize poverty alleviation, natural resource protection, and the need to strengthen research partnerships. There was also consensus on the need for agricultural research to be client-oriented.

Natural resources management (NRM) was one of the main themes of GFAR and attracted much discussion and debate. Paradoxically the IARCs and NARES, which used to be at loggerheads with the NGOs, are widely adopting the farmer participatory approach and other methods pioneered by the NGOs. Although the terminology differs amongst stakeholders, the research paradigm generally accepted by GFAR participants, and adopted by IBSRAM, is based on the following key elements:

- o A participatory, interdisciplinary approach
- o Focus on the needs of land managers and policy-makers
- o Inclusion of disadvantaged groups (poor, women)
- o Indigenous and scientific knowledge A systems perspective
- o Ecological principles
- o Landscape scale
- o Modern information technology for GIS, DSS, etc.

While this paradigm is increasingly accepted by NARES, its application in practice requires adaptation to match the resource management domain and local conditions. Also, it is apparent that the pace of adoption of the new paradigm varies widely amongst countries and regions. IBSRAM works actively with NARES partners to enhance their capacity to undertake NRM research using the new paradigm. Fitting the new approach into the institutional frameworks through which NARES have to operate remains a problem in some countries. For example, responsibilities for land management research and extension may be spread across a number of diverse

government departments, and universities.

This brings me to the issue of scale in the context of methodology for extension and technology dissemination, which was much discussed at GFAR in terms of knowledge-intensive agriculture. In this field, the *holy grail* is to devise innovative ways to channel to millions of farmers information and benefits derived from research results developed through participatory research with small groups of farmers and from accumulated information bases, both indigenous and scientific. This is a significant challenge that is currently attracting the attention of many IARCS. IBSRAM's approach is the subject of several articles in this newsletter. While it is clear that new information technology provides valuable tools that can be used in the work, more coordinated effort at the global level is needed. The GFAR Secretariat is moving to play such a coordinating role, which may lie at the heart of the competitive advantage of the organization.

Eric Craswell

Director General

## NEWS AND VIEWS

### International cooperation for improving extension through information technology

An international workshop for Improving Extension through Information Technology (IT) was co-organized and sponsored by the Department of Agricultural Extension (DOAE), Ministry of Agriculture and Cooperatives, Thailand and IBSRAM from 29 to 31 May 2000 in Bangkok. There were 42 participants from 17 organizations and four countries (Canada, Indonesia, the Philippines, and Thailand).

Three country papers from Indonesia, the Philippines, and Thailand, and two corporate papers by IBSRAM and SEARCA were presented on the first day to share information on strategies for transferring information to farmers with emphasis on the use of IT. On the second day, the participants travelled to Suphanburi Province to visit agricultural extension services at the provincial, district, and sub-district levels that use the Internet via a website for providing information to farmers. Group discussions and presentations on the third day determined suitable ways for national and international cooperation to improve extension delivery systems and technology transfer for sustainable agricultural development.

Based on the country and corporate reports, insights gained from the excursion, and ideas generated during the group discussions, the need to form an IT network or consortium among participating agencies to accelerate information exchange and enhance extension delivery systems through IT was confirmed. The participants concurred that the IT network or consortium should provide a channel for farmers/farmers' groups to share indigenous knowledge; eventually they will become more participative, interactive, self-reliant, empowered and evolve as information sources rather than information recipients. Interpersonal communication between extension workers and farmers is still essential to facilitate learning processes and to develop mutual communication, especially regarding feedback from farmers.

Frits Penning de Vries, Director of Research

Suraphol Chandrapatya, Head, Global Information Programme



*Sub-district Agriculture Technology Transfer Center, Pak Nam, Suphanburi: A farmer indicates the importance of Internet technology and the value of the centre for improving agricultural production.*

### Training workshop on the economics of soil erosion

Recognizing that soil erosion and the depletion of soil resources can have profound economic implications, particularly for low-income economies, attention on soil erosion as a physical process has in recent years shifted to its social and economic impacts. Detailed and credible economic assessments of soil erosion are still limited and studies are confined largely to analysis at the level of individual fields or farms. This is surprising because invariably discussions on the subject include reference to the alarming off-site costs for downstream economies. One reason for the lack of good studies is inadequate research capacities on the subject matter.

Recently, I BSRAM addressed this deficiency during an ASIALAND sloping lands/MSEC training workshop held from 24 to 29 April in Bangkok, attended by 25 participants from various NARES in eight Asian countries. Dr. Gadsaraporn Wannitikul (Department of Economics, Kasetsart University) and I provided training on a number of issues. Only the first one and a half days were set aside for the broad issue of economic analysis. Hence the training on economics was limited to introducing the basic concepts of economic valuation of environmental impacts with a focus on soil erosion and providing an overview of different valuation approaches.

A training evaluation indicated that far more time is needed to build the research capacity required for detailed studies. While the capacity building impact of the training was thus limited, it was quite successful as an awareness-raising activity. Two issues raised are particularly worth mentioning. The first relates to the valuation of labour. This has always been a fundamental issue for conservationists because most soil and water conservation farming practices and technologies require additional labour inputs. But how, many ask, do we value these inputs in situations characterized by family labour without any wage payments? The second issue surrounds the broad area of first quantifying and then valuing - in this order only - environmental impacts and assessing cause and effect. If this is not done according to scientific standards, not only may we get the economic valuation wrong, but we may also do a great deal of harm to the farmers residing in Asia's watersheds, incorrectly attributing any environmental problem in the lowlands to their upland farming practices.

Many economic analyses operate on the assumption that managing soil erosion is possible without any additional costs, although labour

inputs may increase considerably with the introduction of a new technology. Often there is no or only minimal value ascribed to labour, and its greater use has even been counted as a benefit - apparently reducing unemployment or seasonal underemployment. Identifying appropriate opportunity costs of labour is not always easy. It depends on numerous issues and in particular on whether a farmer has the opportunity to generate farm, non-farm or off-farm income that competes with additional labour inputs for a new technology. But how do we assess labour costs during periods of unemployment or during the slack season, when many farmers are not very active economically? While it was suggested that under such circumstances - and particularly in poor developing countries - the opportunity cost of labour should be zero, it is doubtful whether zero return to labour is ever acceptable for a farmer or any other person. Two points should be kept in mind. Firstly, subsistence farmers may be maximizing their leisure time and giving up leisure is to them a cost. Secondly, choosing zero as the opportunity cost of labour means that under certain conditions negative externalities also become zero. This is the case when subsistence farmers have to spend additional time to dredge sediments from irrigation facilities. If they perform such activities during times of unemployment and using only manual labour, costs would be zero. But this would be erroneous. So should we not accept that the opportunity costs of labour are never zero, which probably explains why many farmers have no interest in labour-intensive practices that promise only uncertain future benefits? Instead of trying to tell farmers that they should see value in investing their labour in uncertain prospects, we should rather invest our research resources into ways to make sustainable land management financially more attractive.

Before we even think about valuing the negative externalities of soil erosion, we should ask ourselves, more often than not, which economic activities we need to consider. If we ascribe all the sediments deposited in a reservoir and all the dead fish or reduced fish catches to unsustainable farming activities in the uplands we do not do justice to science and we do not meet even minimal standards of scientific credibility. Understanding the physical systems and potential resource and health impacts sets the stage for economic valuation. It is this understanding and the investigation of causes and effects that require more attention by researchers, not economic valuation per se. How can we be so sure that fish populations are declining because of increased sedimentation rates, when it is perhaps over-fishing that determines population size and fish catches to a greater extent? How can we attribute the increases in streamflows and sedimentation rates only to agriculture, when poor logging practices and road construction often have equally harmful effects on such parameters? If we cannot ascribe upland economic activities to downstream economic effects with some certainty, we are not in a position to produce policy-relevant cost (or benefit) estimates. Not only does this mean the need for more multidisciplinary but also that more of our research activities have to follow waterflows; hence, considerably more effort has to be devoted to studying the physical consequences of erosion in the lowlands.

These two issues that emerged should provide sufficient food for thought and stimulate researchers to direct their efforts toward uncharted territory. They will determine MSEC research activities and form an inherent part of IBSRAM's future training courses on the economics of soil erosion.

Thomas Enters; Socioeconomist

Gadsaraporn Wannitikul; Kasetsart University

## **New project for IBSRAM in Africa**

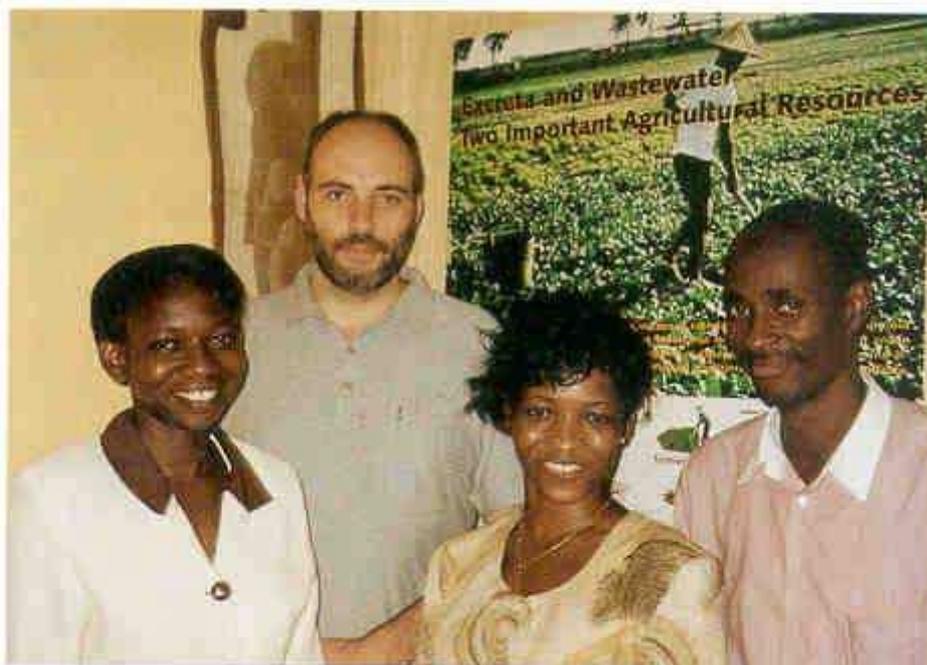
Following the IBSRAM-FAO conference/workshop on '(peri)-urban agriculture and nutrient cycling', the International Development Research Center (IDRC), Canada, has agreed to support a three-year project "to increase awareness among municipal and national authorities for an improved rural-urban nutrient cycle by identifying economically and socially acceptable recycling options for organic waste stream products for farmers in urban and rural areas, especially the rural-urban interface". The IDRC support covers about 50% of

the project costs, and additional funds are being sought from BMZ and other donors. In the current funding period, the project will focus on methodological aspects using cities in different agro ecozones in Ghana (Accra, Kumasi, Tamale) as case studies. Other African countries will be involved through visiting scientists in this phase. Expected outputs of the project will be:

- A database (i) on rural-urban biomass (food) and nutrient flows to selected cities and (ii) on the amounts and quality of organic waste stream products produced.
- A knowledge base on environmentally safe, socially acceptable, and viable options for nutrient recycling from waste stream products.
- Increased capacity of NARS on the analysis and understanding of rural-urban nutrient flows.
  - Increased knowledge and decision support for municipal authorities on options for waste recycling and co-composting; and for farmers on alternative nutrient sources.

Research planning, data analysis, and interpretation are coordinated by ISSRAM in collaboration with different national institutions and assisted by advanced research institutions and FAO-Africa. In all three cities (Accra, Kumasi, and Tamale), the local universities will play a significant role in the execution of the project, via, *interalia*, student projects. Currently, research partners are being identified in Ghana and abroad, and their expectations and responsibilities with regard to outputs and activities. The Africa Office has recruited two young scientists, Dr. Funke Cofie from Nigeria and Mr. Philip Amoah from Ghana (see People, this issue) to assist with the research agenda.

Pay Drechsel ; Regional Office for Africa



*The IBSRAM team in Ghana.*

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<sup>1</sup> International workshop on urban and peri-urban agriculture: 'Closing the Nutrient Cycle for Urban Food Security and Environmental Protection', Accra, Ghana, 2-6 August 1999. The proceedings are in press.

## PEOPLE

Professor Thomas Rosswall joined the IBSRAM Board of Trustees earlier this year and sits on the Programme Committee. Professor Rosswall is a soil microbiologist and microbial ecologist. His research has focused on the role of microbial processes in carbon and nitrogen cycling at plot, regional, and global levels. His research has dealt with agricultural systems in both temperate and tropical regions as well as the role of microbial processes in the regulation of global biogeochemical cycles.

After undergraduate studies at the universities of Stockholm and Uppsala he became Assistant Professor in microbiology and Associate Professor in soil ecology at the Swedish University of Agricultural Sciences (SLU). In 1984 he moved to the University of Linköping in Sweden as Professor of Water and Environmental Research. He later became the first Executive Director of the International Geosphere-Biosphere Programme: A Study of Global Change (IGBP) and the first director of its International

START Secretariat in Washington, DC. In 1994, Professor Rosswall was appointed Rector (President) of the SLU. On 1 September this year, he will take over as Director of the International Foundation for Science (IFS) located in Stockholm, Sweden.

Professor Rosswall is a fellow of several academies including Academia Europaea and the Royal Swedish Academy of Sciences.



*Thomas Rosswall*



*Funke O. Cofie*



*Philip Amoah*

Dr. Funke O. Cofie has been appointed as a postdoctoral fellow at IBSRAM's Africa office. Dr. Cofie conducted her PhD research in the Resource and Crop Management Division of IITA and the Federal University of Technology, Akure, Nigeria. She specializes in soil nutrient management with a particular interest in the contribution of soil organic matter to nutrient retention. Dr. Cofie is experienced in training and administration through her work as a university lecturer (land management, soil fertility, soil conservation, soil survey and classification) for six years prior to her appointment at IBSRAM. She has supervised undergraduate and postgraduate students and she has been published in several national and international journals. During her higher degree studies, she achieved the Nigerian Government Postgraduate Scholarship Award (1988) as well as the Zard Scholarship Award in Agriculture from the University of Ibadan, Nigeria (1990). She will work mostly in the framework of the new project on urban and peri-urban agriculture, but will assist also our host institution, the Faculty of Agriculture of the Kwame Nkrumah University of Science and Technology, by teaching soil science. Dr. Cofie is a Nigerian married to a Ghanaian, with one child.

Mr. Philip Amoah has been recruited as a research assistant to the Africa Office for the IDRC-funded project on urban and peri-urban agriculture. Mr. Amoah, a 35-year old Ghanaian, recently obtained his M. Sc. degree in biology (specialization: microbiology) from the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana. Philip was involved in IBSRAM's research work on the use of poultry manure and studied quality indicators for its use in crop production. He also worked with IBSRAM on the environmental impact of urban and peri-urban agriculture, with special emphasis on microbiological contamination, and supervised several students in this field. Additionally, he took part in the IITA- IBSRAM survey on farmers' soil fertility management in the EPHTA benchmark area in southwest Ghana. Over the last nine years Mr. Amoah has taught biology, partly as a full-time teacher and head of the science department, but mostly to finance his education. From this work, he has acquired skills and experience in administration, communication, and coordination. Mr. Amoah is married, with two children

## NEWS FROM THE NETWORKS

### **ASIALAND** management of acid soils

Following the review meeting in February, approval has been received for a further two years of funding, until June 2002, for ACIAR Project 9414, which includes the acid soils network sites in Vietnam and Philippines. On-farm trials managed by researchers will be reduced to one each in Vietnam and Philippines, supplemented by a series of on- farm trials managed by farmers in Bukidnon and Isabela,

Philippines, and Hoa Binh, Vietnam. For the other network sites, experiments will continue at both sites in Indonesia (Jambi and South Kalimantan) and one of the two sites in Southern Shan State, Myanmar. In all four countries, a limited number of the treatments will be altered to better investigate the residual value of the different soil fertility amendments.

Three major aims for the extension period are: (i) to increase the farmer-managed trials and extension efforts of the project; (ii) to develop a new project aimed at greater implementation of network results; and (iii) to prepare a wide range of network publications. A major publication will be the proceedings of a meeting planned for mid-2001 to finalize the results from all the sites and link together the results from different sites and countries. Separate publications that summarize the main findings will be prepared for farmers, extension officers, and policy-makers.

## SebarFos

Activities to capitalize the marginal acid soils of Indonesia, largely through improving the P status of the soils, were discussed in a workshop entitled "SebarFos - improving the acid uplands of Indonesia" held in Pelaihari, South Kalimantan from 5 to 8 June 2000. The SebarFos initiative was developed by the Center for Soils and Agroclimate Research (GSAR) and the Potash and Phosphate Institute (PPI-PPIC), in collaboration with two

upland farming projects supported by GTZ (ProRLK and KUF) and IBSRAM's acid soils network. For the last three years the SebarFos project has involved farmers in five provinces - Jambi, West Sumatra, Lampung, South Kalimantan and West Kalimantan - and has been implemented by various government agencies in each province, sometimes in collaboration with bilateral projects. Workshop participants were farmers, extensionists, and researchers from each of the five provinces, as well as from other agencies in Indonesia and representatives from Laos, Myanmar, Thailand, and Vietnam.

The first day involved a field day on the acid soil farming systems in Tanah Laut District of South Kalimantan, and included a visit to, and several field workshops at one of the SebarFos field sites, plus a visit to the acid soils network site implemented in this district by the University of Gadjah Mada. The field workshops covered the experiences of farmers and extension workers in conducting the on-farm trials and the assessment of gender aspects of the SebarFos approach.



*Women farmers in South Kalimantan discuss the impact of the SebarFos strategy.*

On the second day, the results from each of the five sites were presented, followed by a summary of the findings from all provinces. Parallel working group sessions concerned SebarFos aspects on: (i) technology and production; (ii) socioeconomics; (iii) future potential national programmes; and (iv) problems with acid soils in neighbouring countries.

In summary, it was concluded that the SebarFos initiative, based on the simultaneous introduction of (i) appropriate soil conservation measures, (ii) germplasm that can respond to improved soil fertility, and (iii) the one-off application of 1 ton of reactive rock phosphate per hectare, is effective in both agronomic and economic terms, although the degree of the response and the residual value of a large application or rock phosphate varies between provinces, soil types, and crops. In addition, while further supporting work needs to be analyzed or undertaken, it was suggested that larger-scale, village-size implementation of the fertility improvement strategy be undertaken in at least two villages in each of the three provinces that have great potential for success, namely Jambi, Lampung, and South Kalimantan. It is hoped that this programme can be implemented in the 2000 wet season, under the management of CSAR, with the support of the Director General of Food Crops and provincial governments, and with technical support from PPI/PPIC, GTZ, and IBSRAM. In moving to the village scale it is hoped that more information can be gathered on the socioeconomic and market aspects of the strategy to improve and then maintain the fertility of the marginal uplands, thus resulting in a sustainable increase in productivity and well-being.

### **Nutrient balance studies in Northeast Thailand (NBS-NET)**

Yothin Konboon of the Ubon Ratchathani Rice Research Centre and Danny Wijnhoud attended the International Conference on Paddy Soil Fertility in Manila, from 24 to 27 April, where the latter presented a paper they had co-authored with Rod Lefroy. The paper presented the results of an NBS-NET pilot survey of 10 farms in Muang District of Ubon Ratchathani Province. It revealed the huge variability in nutrient balances that exists between farms and, more strikingly, between fields, even for similar land use on the same farm. It is clear that both short-distance biophysical variations plus constraints in financial and labour resources influence farmers' decisions and result in variations in management over short distances. The result of these management decisions is the co-existence of apparently sustainable and

unsustainable farming systems among and within farms. There is a risk that this short- distance variability will be hidden if the scaling up of data is not done correctly. Policy-makers and other users will make far better use of data at broader scales if the data are supplemented by indications of the variability at lower scales.

These studies show that farmers appear to invest more in land with higher natural potential, rather than investing in more marginal land to compensate for the lower soil fertility. Off-farm income and non-rice farm income appear to lead to higher inputs and thus more sustainable rice farming practices (see IBSRAM Newsletter No. 52). As such, access to capital appears to be a critical factor in determining biophysical sustainability. The paper further discussed the impact of the accuracy of measurements and estimates, and the use of default values on the accuracy of nutrient budgets. It was concluded that accuracy can be increased if existing data for particular land use systems are collected and collated, and, where required, augmented with analysis of additional samples.

Findings to date are based on a rather small sample. - The validity of these conclusions is being assessed with results of a survey of approximately 100 farms from Ubon Ratchathani Province.



*Fruit production provides an important source of income and thus capital for investment for this farmer in Nam Yuen District, Ubon Ratchathani Province.*

More comprehensive topography-related soil, water, and nutrient management research, with particular emphasis on topography-related nutrient flows has high priority on the research agenda. A first step to a better understanding of the complex spatio-temporal biophysical variability as relevant to crop growth under rainfed conditions in Northeast Thailand, will start in the 2000 cropping season. These studies, in collaboration with Dr. Bas Bauman of IRRI, will involve on-farm monitoring of soil hydrology along toposequences.

IBSRAM's new database developer, Mr. Rungnadhee Phonkarm, is working with NBS-NET to transform the current database from spreadsheet format to a more functional and user-friendly relational database system. This database will be the next step in the development of a decision support tool for farmers and extension workers, in which nutrient balance principles will play a central role in

developing improved land management strategies.

### ***Southeast Asian Laboratory Network-SEALNET***

Planning continues for the workshop on "Improving Soil Fertility Management in Southeast Asia", to be co-organized by ISSRAMISEALNET and CSAR, and scheduled for 19 to 21 September, 2000 in Bogor, Indonesia. A diverse group of people involved in soil fertility management, including user groups, extension services, researchers, policy-makers, and the fertilizer industry, will discuss five main themes:

- The need for improved soil fertility management for food supply and natural resource management.
- Past, present, and future use of fertilizers in the Southeast Asian region.
- Quality control and legislation of fertilizers and other soil fertility amendments.
- Changes in the balance of nutrients used for different countries and agricultural sectors.
- From research to implementation - research, extension, marketing, and policy issues.

People interested in participating in this workshop can contact the organizers at IBSRAM ([lefroy@ibsr.org](mailto:lefroy@ibsr.org)) or CSAR ([santoso@bogor.wasantara.net.id](mailto:santoso@bogor.wasantara.net.id)).

Rod Lefroy; Network Coordinator

Danny Wijnhoud ; Associate Expert, NBS-NET

### ***ASIALAND management of sloping lands***

Thirty young men and women, aged 14 to 20 years old, from Maria Paz, Tanauan, Batangas attended the Youth Seminar/Forum on Conservation Farming at PCARRD, Laguna, Philippines on 29 May 2000. The seminar/forum aimed to kindle the interest of the younger generation in farming and to inculcate the value of caring for the environment through sound land management practices.

In Tanauan, Batangas, where industrialization is expanding rapidly, agriculture has gradually taken a back seat. Younger people prefer to work in factories and in industrial parks, where they find steady income in air- conditioned comfort, rather than in the field, where income is meager and physical discomfort constant. In the next 20 to 30 years, if industrial growth continues, there will be no more farmers to work in the field and agriculture will collapse. This is the tragic scenario for farmers of the present generation who will bear the brunt of this consequence.

The seminar/forum consisted of lectures on conservation-farming technologies and practices and a field visit to the demonstration site of the *ASIALAND* sloping lands network in Los Baiios, Laguna. A quiz was also conducted among the participants to measure how much they understood about soil conservation farming.



*Ms. Dory Armada, National Coordinator of the IBSRAM-PCARRD project on sloping lands in the Philippines, giving the welcome remarks during the Youth Seminar/Forum on Conservation Farming in PCARRD, Philippines.*

As a network activity in the Conservation-Farming Village (CFV) of Maria Paz, Tanauan, Batangas, the youth seminar/forum intended to encourage conservation efforts among the younger generation. Most of the participants acquired basic knowledge on conservation farming to help their community to achieve a more sustainable form of agriculture. Moreover, their officers committed themselves to the CFV and to include its activities in their annual workplans.

### ***NSC meeting***

The network steering committee (NSC) meeting was held in Chengdu, China, from 1 to 5 May 2000. The main objective of the meeting was to deal with the current implementation, future directions, and sustainability of the network. All the NSC members were present. In addition, Dr. Zhu Zhonglin, President of the Sichuan Academy of Agricultural Science, and Dr. Tu Sihua, a representative of PPI-PPIC in China, took part in the opening ceremony. The agenda included approval of the minutes of the annual meeting in Hanoi, matters arising from the minutes, a report from the network coordinator, the sustainability of the network after 2001, and the production of training manuals.

### ***Network review and annual meeting***

From 14 to 30 August the network will be reviewed by an external review team, which is being commissioned by the Swiss Development Cooperation, the network's donor. Currently, the team is being assembled and draft terms of reference are being finalized.

The network will organize its 12th annual meeting in Kuala Lumpur, Malaysia, from 10 to 17 August 2000. The main objective of the

meeting is for the network collaborators to report on the progress of the projects in their countries and to discuss the future direction and activities of the network. Similar to previous annual meetings, the programme will include presentations from scientists of the host country, apart from the collaborators, country reports, an NSC meeting, and a field visit. In addition to these activities, one full day will be scheduled for the network review team to interact and interview the collaborators.

Adisak Sajjapongse ; Network Coordinator

### ***PACIFICLAND management of sloping lands***

The Land Use Section of the Ministry of Agriculture, Forests and Fisheries (MAFF) is working closely with traditional landowners and tenant farmers to establish contour hedges of pineapple (mid-slope areas) and Vetiver grass (lower slope areas) on sloping degraded lands. Their approach is to demonstrate hedgerow-based conservation cropping technologies at the village level on marginal sloping lands that are being used increasingly for food production. The initiative monitors biophysical, social, and economic impacts, of this technology mainly through on- farm demonstrations; NGOs and other government agencies involved in SLM activities in Fiji and other Pacific Island countries also benefit through PACIFICLAND staff and information exchanges. Community groups in Waibau, Namulomulo. Serua, Tilivalevu, and Nadi/Lautoka on Viti Levu, and Labasa on Vanua Levu are involved with monitoring more than 150 on-farm SLM demonstration plots.

Participatory approaches are used to identify sites and establish hedgerows. Men and women farmers participate in design and implementation activities and their ownership of these on-farm activities is high. External support is provided by MAFF to overcome barriers identified by farmers (e.g. by provision of unavailable planting materials and knapsack sprayers) and impacts are optimized by balancing economic and conservation benefits. Farming systems being studied include ginger-taro-cassava in higher rainfall areas, and off-season vegetables in seasonally dry areas. In one case, off-season tomatoes provided a US\$1,500 cash return to a single farmer. Equally appreciated and unexpected benefits have been increased food security, family and community collective action, and village wealth, with greater economic development and diversity of production observed.



*Inoke Ratukalou inspecting SLM activities at the Namulomulo site in Fiji.*

These activities have also benefited from recent SLM sustainability and economic indicator training events supported by ACIAR, AusAID, and IBSRAM (see IBSRAM Newsletter nos. 52 and 54); researchers and extensionists in Pacific Island countries have a greater appreciation of the multifunctional character of their land. They better understand biophysical issues of how contour planting of pineapple and Vetiver grass on sloping lands can provide short-term cash benefits while minimizing soil and nutrient losses through erosion and maximizing the use of available soil-water and nutrients. They also better appreciate the social and economic importance of improving village and household cash flows. This leads to a greater understanding of why interest in SLM is increasing as evidenced by an expansion of the area under hedgerows within the initial demonstration areas and into neighbouring communities.

Inoke Ratukalou ; Interim Network Coordinator

Tony Dowling ; former Network Coordinator

## NEWS FROM MSEC

The MSEC steering committee met from 13 to 15 June in Bangkok. NARES from India, Indonesia, Laos, Nepal, Philippines, Thailand, and Vietnam and representatives from IRD, ICRISAT, and IBSRAM participated. Progress in implementation of the project in seven countries was presented and reviewed. In addition, related research conducted by IRD, ICRISAT, and the University of Bayreuth was discussed and evaluated in terms of their contributions to the overall goal of MSEC. The review took into consideration the expected outputs of the project and to what extent these outputs are being addressed.

The evaluation highlighted the focus of the project on both research and research methodology, on both the substantive work and the development of guidelines and tools. It also showed the variation in the level of progress and the activity focus among countries. While the project design aims to integrate biophysical and socioeconomic attributes for catchment management, the results showed relatively stronger outputs on the biophysical aspects. Efforts are now being geared towards greater consideration of the socioeconomic and institutional components of the research. They are essential in the valuation of the on- and off-site impacts of soil erosion and in the formulation of relevant policies for effective catchment management.

The identification of the model catchments and their characterization and instrumentation has already been completed. Other activities in the field are expected to accelerate in the next six months as data collection is intensified. Capacity building in the project has resulted in the training of national partners on project management, the participatory approach, catchment research, GIS, economic valuation of environmental impacts, and statistical techniques. At this stage, the project has already laid the groundwork for the implementation of the new MSET research paradigm.

The business meeting of the committee discussed the major points raised on the first day and deliberated on issues and concerns to ensure that the consortium follows the right direction. The volume and variety of data that are collected for site characterization were once again reviewed. The discussion resulted in the identification of the minimum data set that must be considered in characterizing the MSEC catchments from secondary data review. Likewise, primary biophysical and socioeconomic data that must be collected and the methods for collection were also identified. These now become the basis for making the comparative analysis of the various catchments of MSEC and will be made available in a handy publication that will discuss the profile description of each catchment.

The committee also agreed to modify the format of the next annual assembly scheduled in Indonesia from 6 to 10 November this year. In addition to the presentation of the technical outputs of the different countries, papers that will provide cross-country analysis and generic outputs will also be presented. The committee identified at least 14 topics under the general categories of land use and hydrology, socioeconomics, and methodology. A group of MSEC partners has been identified to work on each topic.

At the end of the meeting, an analysis of the performance of the committee was made. According to its terms of reference, the committee has performed satisfactorily.

### *Soil erosion modelling*



*Jean-Louis Janeau and the Thai team downloading data from the automatic water level recorder in Phrae, Thailand.*

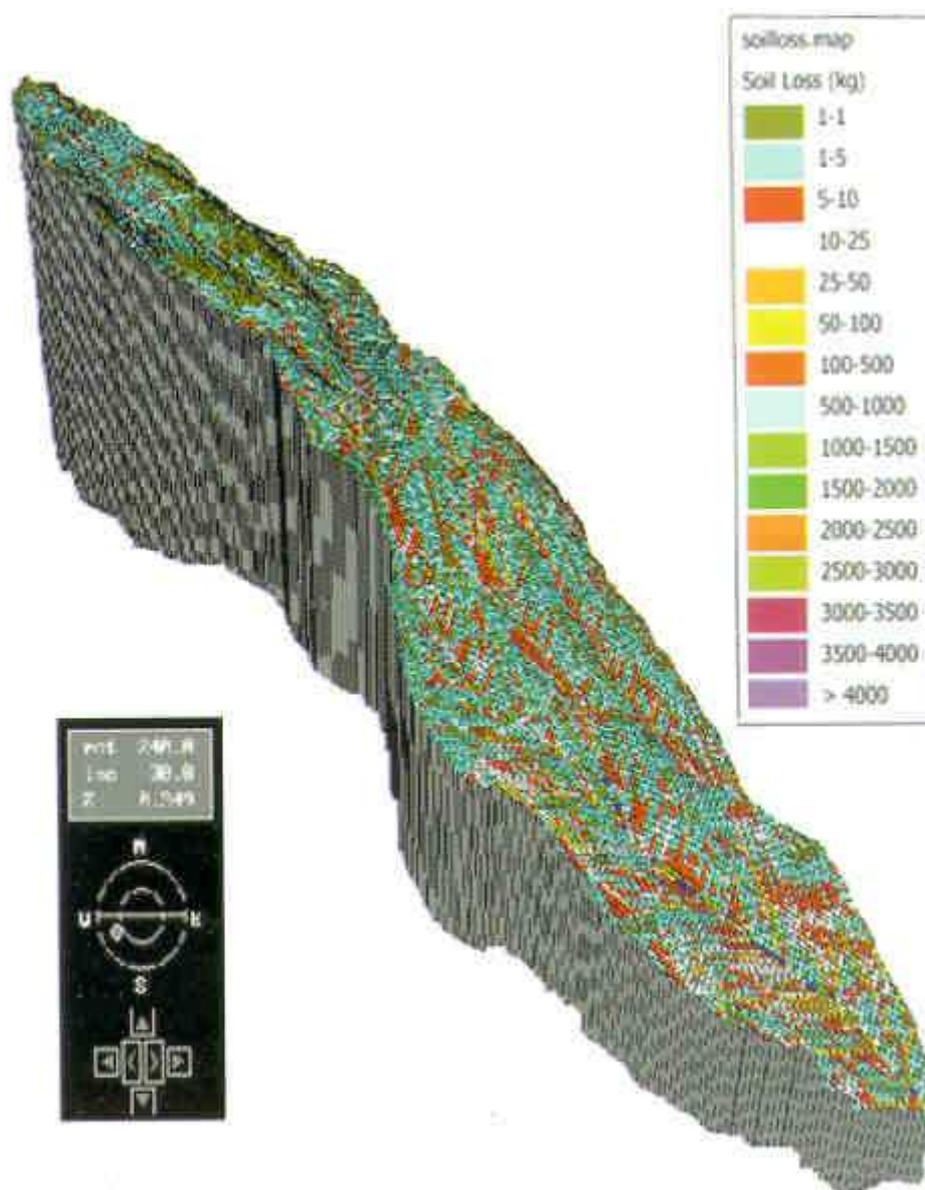
After the meeting, a seminar on "Soil erosion modelling on a catchment scale" was presented by Dr. Eduardo P. Paningbatan, Jr. from the University of the Philippines at Los Baños. Modelling is a valuable tool in simulating natural conditions and in planning land management strategies for a watershed. If properly validated, it could be used to great advantage in testing research hypotheses, seeking alternative innovations, and predicting the results of management options before they are carried out or implemented in the field. The identification and application of appropriate models for catchment management research are expected outputs of MSEC as effective tools for scaling up and/or scaling out from the experimental catchments to other similar areas.

Dr. Paningbatan developed a GIS-assisted methodology for modelling erosion to predict the rate of soil erosion at the watershed level and to identify the location of erosion-prone areas. The experimental approach entails quantitative and descriptive measurements of the various biophysical parameters that influence soil erosion and runoff at a catchment scale. The initial results showed that the location of erosion "hotspots" was predicted to occur within and along the tributary channels and in areas with low vegetative cover and steeper slope gradient.

Amado Maglinao; MSEC Coordinator

Jean-Pierre; Bricquet MSEC Hydrologist

Jean-Louis Janeau ; MSEC Soil Scientist &Also



*Modelling and computer simulation generated map showing the location of erosion "hot spots" in a watershed near the MSEC site in the Philippines.*

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