

Asian Regional Workshop on the Inventory of Farmer-Managed Irrigation Systems and Management Information Systems, Manila, Philippines, 13–15 October 1992

The Asian Regional Workshop on the Inventory of Farmer-Managed Irrigation Systems and Management Information Systems was held in Manila, Philippines during 13-15 October 1992. The workshop was sponsored by the FMIS Network and organized jointly by the International Irrigation Management Institute (IIMI) and the German Foundation for International Development (DSE).

Thirty-five professionals from 12 countries participated in this workshop. The Organizing Committee reviewed all the abstracts received and made recommendations for 16 papers to be included in the workshop. The Committee consisted of C.M. Wijayaratna (IIMI), Franz Heim (DSE), Benjamin Bagadion (Consultant), Douglas Vermillion (IIMI) and was chaired by Shaul Manor (IIMI).

The workshop program included presentations of the syntheses of four workshop papers followed by group discussions on a list of issues. In the next issue of the Newsletter we shall include the outcome of the workshop discussions and recommendations. Meanwhile, we would like to

share with you the impressions carried and comments made on two field trips by some of the participants.

Balanac River Irrigation System: Impression from an Indonesian Irrigation O&M Official

As part of the Workshop on the Inventory of Farmer-Managed Irrigation Systems and Management Information Systems, an opportunity was given to the participants to visit the Balanac River Irrigation System (BRIS), an irrigation system managed by the government agency, i.e., National Irrigation Administration (NIA).

The BRIS is located in Pila, in Laguna Province, and is named after the river from which water is diverted. The irrigation area is located on the shores of Laguna Lake so that part of the area is always submerged during the wet season. The system was built in 1966 and is designed to irrigate some 1,200 ha of rice fields. As the structures and canals were damaged by floods and typhoons the system was rehabilitated by NIA during 1974-1989.

The only crop grown in the area is rice, planted both in the dry season (November - April) and the wet season (May - October). Monoculture farming may be the best choice for the farmers, as this promises a net income almost twice the production cost, but special consideration should be given to the farming practices for the following reasons:

- i) The selling price of rice may drop if the government, i.e., the National Food Authority, fails to purchase all the rice produced.
- ii) High susceptibility to pests and diseases; after a certain period of time some pests or pest carriers may have a high-level resistance to insecticides, e.g., a farmer reports that the rice fields are now being invaded by golden snails that eat all young seedlings.
- iii) After being successively cultivated with only one kind of crop and, of course, one cultivation practice, the soil may become fatigued due to the deficiency of certain soil nutrients.

Experience with similar cases in Indonesia, points to the fact that the introduction of a crop diversification program will be of great importance. The application of such a program cannot be analyzed merely on the basis of short-term economy. Farming and irrigation practices over a long period of time should also be taken into account.

In the last cultivation year, the cropping intensity was found to be only 117 percent; this expresses a low land cultivation utility, while actually it can be raised to more than 150 percent. There are, at least, three factors suspected to be the causes of the low cropping intensity:

- * rice monocultivation;
- * less dense and upright cropping schedule (there are two periods each with two consecutive months when the land is uncultivated); and
- * submergence of part of the irrigated area.

To improve the cropping intensity, an overall review of the agricultural as well as irrigation practices should be undertaken, including efforts to find crops that can be grown in a submerged condition such as yuttee, and/or aquaculture and others. NIA will have an important role in this case.

NIA had successfully implemented its Institutional Development Program (IDP) in BRIS as reflected from an interview with the BRIS Irrigation Association (BRIS IA). Among others, the recruited Farmer Irrigation Organizer (FIO) seemed to be the key to the success of the establishment of BRIS IA. Through persistent efforts, the FIO created the association and led it

into a position by which farmers were made aware of the importance of being organized to overcome their own problems. On the other hand, selection and recruitment of a good FIO may be crucial to the program as it is difficult to find a FIO who possesses positive characteristics such as: being easily motivated, dedicated to the duties, idealistic, full of eagerness, etc. Other approaches should be made available if NIA fails to recruit good FIOs. It seems that by implementing the program, IAs may promote their self-reliance in operating and maintaining the irrigation system, running the organization and, moreover, in managing their funds. This will be a great success as it is commonly found that upon the accomplishment of an assistance program, farmers or a farmers' organizations become dependent on the assisting agency.

The involvement of farmers in the development or rehabilitation of their irrigation systems by paying a certain amount of money as amortization to the construction cost is a good concept and, to some extent, maybe adopted in Indonesia (especially in tertiary-level development programs). Other advantages of amortization should be considered, e.g., promoting the sense of belonging and responsibility for the system.

The participatory approach applied in encouraging the participation of IA in the operation and maintenance (O&M) of the system by offering IA admission to one among three types of contracts is something new that needs further analysis for its success (especially in the sense of payment efficiency). At least two lessons can be drawn from the discussion with members of BRIS IA concerning their participation in the O&M of their irrigation system:

- i. Entering a contract may encourage BRIS IA to manage its organization more professionally and economically. There is a great possibility that in the future an IA may be gradually converted to a cooperative venture with a wider scope of activities;
- ii. The participatory approach encourages farmers, through IA, to manage their irrigation system themselves (as expressed by some members of BRIS IA). This is certainly a good step toward a turnover program.

[Mr. Bayudono—DGWRD, Directorate of Irrigation, Jakarta, Indonesia]

More on inventory and field trips: Impressions of a Vietnamese participant

I would like to share with you my personal impressions of the workshop and the field trip.

Inventory of FMIS and Management Information Systems (MIS) is, indeed, very important in the sustainable irrigated agriculture development in the developing countries. This field has also been applied to Thailand, Lao PDR and Vietnam which are riparian countries in the Mekong Basin. The Inventory of FMIS and MIS is not only useful for effective operation and maintenance of hydraulic/irrigation structures but also contributes to the strategy of the agriculture development in the country. However, the terminology of inventory in our field should be clearly defined. The inventory will be done before planning water resources/agriculture (WR/A) development or will be carried out after we have a plan of WR/A development. During discussions, I knew that a general plan would be lined out and this plan, in turn, would show us which system needs to be taken for the inventory. But in fact, we still often make an inventory to serve immediate objectives such as operation and maintenance of the systems in such a manner that we can get the highest benefits of the systems without paying attention to the whole plan of the country or basin or watershed water resources development. In addition, in the activities of the Mekong Committee, sometimes we first carry out an inventory in order to give us a general picture of water resources development to serve development strategies. Therefore, a definition of inventory seems to be necessary for use in the Asian Region.

The inventory which is used for studying strategies should be combined with a socioeconomic analysis. This analysis could bring about the conclusion that we should upgrade the system, expand it or leave the system at the current level. The socioeconomic analysis could be performed with individual systems or with several systems in the watershed/basin on the basis of inventory.

I still do not know the status of sustainable irrigated agriculture development in the Philippines. Therefore, I dare not comment on it. But with my understanding, we need to apply our concept of an inventory for two kinds of systems of irrigation: i) gravity irrigation systems and ii) electricity-pump irrigation systems because each of them will have special characteristics. In Thailand and Lao PDR, we have made an inventory for the above two systems with command areas about 250-300 ha and 500 ha, respectively.

Farmer user group/organization. I would like to mention the type of WUG (water user group) in Thailand and Lao PDR for your reference.

WUGs function in the areas of water management and mobilization of agriculture inputs from seed, fertilizer, pesticide and credit. Of course, at present we have one project with the assistance of about US\$6,800,000 from the Government of the

Netherlands one of whose purposes is to strengthen WUG as well as government staff at national and provincial levels. However, we have found out that one type of farmers' organization may be simple and convenient for farmers' activities.

Observations during the field visit to Eastern Bugaan Poblacion Irrigators' Association. The IA was established long ago which is a good factor for our inventory activities. In addition, the command area of the system is only 85 ha which is easy for water management. The skills of farmers and leaders of farmers' organizations seem to be good, especially their knowledge of English which can help them learn modern technology easily. However, some activities need to be added as follows:

- i) To introduce the water management concept to farmers including
 - * **Layout and organization:** system configuration; project personnel organization and water user organization;
 - * **Preseason plan:** Water availability; and crop and irrigation plan;
 - * **Water allocation and monitoring:** water allocation and procedure, allocation, monitoring and adjustment; and
 - * **Establishment of a guideline:** for operation and maintenance of the system. This guideline should be simple and easily understood by the farmer.
 - ii) Irrigation system infrastructure improvement including
 - * **Rehabilitation (if necessary):** Main system and on-farm system; and
 - * **Modernization (if necessary and budget available):** establishment of operational room in which there are instructions for the operation of headworks and main canal, cropping plan and water allocation plan.
- Comparison of organizations in the Philippines with those of Thailand, Lao PDR and Vietnam.*
- * In Thailand, we have 5 departments involved in the inventory, water management and agriculture activities: Department of Energy Affairs (related to Pump Station's activities for irrigation), Cooperatives Promotion Department, Royal Irrigation Department, Department of Agriculture Extension and Bank for Agriculture Development and Cooperatives.
 - * In Lao PDR, there are 2 departments involved in the above activities including the Department of Agriculture and the Department of Agriculture Extension.

* In Vietnam, there are 2 departments including the Department of Irrigation and the Institute of Agriculture Planning and Projection.

I could imagine how, in the Philippines, the National Irrigation Administration (NIA) plays a role which is played by two or three departments in Thailand. Therefore, the coordination of project activities may be easier than in Thailand.

In Thailand, farmers easily get a loan from the bank for procurement of agricultural input. Therefore, they can buy tools/equipments for production; many families have hand-operated ploughing machines or tractors in the project area in Northeast Thailand.

When agricultural production is highly developed, the role of women and environment effects should be assessed. This is a weak point in the Philippines, Thailand, Lao PDR and Vietnam. Therefore, in the Sustainable Irrigated Agriculture Development Project which is being carried out in the Mekong Committee, we have to pay attention to the above two issues. In the Mekong Committee, these issues are considered essential for approval from the donor countries.

In conclusion, I must confess that this is the first time I had a chance to participate in the workshop and understand IIMI activities in the Philippines. My comments may be incomplete and incorrect. I would highly appreciate if in future I could have an opportunity to understand more of IIMI achievements in Asian regional agriculture development activities. Those who wish to get

more information on the Mekong Secretariat activities are welcome to write to me.

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Request from the FMIS Network

The experience gained during the Asian Regional Workshop on the Inventory and Management Information Systems (MIS) was really very useful in terms of getting a thorough understanding of the requirements of FMIS and agencies which can help improve the management of these systems and thereby the improvement in crop yield. Although we have charted out a very elaborate set of indicators as well as the data elements which will be required to accomplish the inventory of these indicators at FMIS and River Basin levels, I very strongly feel that there is a need for follow-up action. One kind of follow-up action will be to give shape to the structure of the MIS conceptualized during the workshop in the form of a computer-based application package. To start with, such a package may be provided to some of the progressive FMIS.

I have decided to undertake this work myself and shall be willing to provide the computer system free of cost on the floppies once developed. The development of the system might take around six months. Those interested may send a request to the Coordinator, FMIS Network.

[A. K. Gosain, Civil Engineering Department, New Delhi]