

## Articles & Issues

In this section three research papers are presented, and one brief "issue." This section will be a regular feature of the Newsletter depending upon the contributions received.

Each of the following three papers deals with a different type of FMIS. Doug Vermillion discusses systems which are currently managed by an agency, but will gradually be turned over to farmers under a new program.

M. Venkata Reddy describes river pump systems in Karnataka, India. This type of FMIS is found all over the world, but is often neglected amid the common stereotype of run-of-the-river diversion systems.

Bryan Bruns discusses irrigation which may be "invisible" to those looking for physical structures. The number and extent of FMIS in many countries varies considerably, depending upon whether or not these systems are included in the definition.

### ANOTHER TYPE OF FMIS: GOVERNMENT SYSTEMS TURNED OVER TO FARMERS

Beginning in mid-1987 the Indonesian Government Department of Public Works (DPU) is initiating a pilot project in West Java and West Sumatra to turn over full O&M control, and perhaps ownership of system assets as well, to the water users. The Ford Foundation is providing financial and advisory support to assist the development of concepts and methodologies for the program. Funds for implementation are expected from planned and existing loans from the World Bank and the Asian Development Bank, which have strongly endorsed the new turnover policies. IIMI will be involved in the pilot

project by conducting action research and helping develop the turnover process for national application. This is considered to be the first phase of a nation-wide program to turn over most, if not all, government irrigation systems below first, 150 hectares, and then systems between 150 and 500 hectares in size.

Although systems below 500 ha comprise only about 18.7% of the total design area of all government systems in Indonesia, they constitute 70% of all government systems (4,717 of 6,701). Hence, this program will have far-reaching implications for how the government and farmers will interact in the future in managing water within systems and along river courses and in designing, constructing, maintaining and rehabilitating systems. Through the turnover program the DPU hopes to decrease the excessive O&M burden on the government and allow for more intensive use of government resources in the larger, more "technical" systems.

The turnover preparation process will involve irrigation system inventories of river courses, socio-technical profiles of eligible systems, assisting water users to organize, where appropriate, and working together with farmers to design and construct needed physical improvements. The aim is to prepare farmers to take over full O&M control and ensure the long-term sustainability of the systems. How elements of this process are applied locally and what the farmer management roles will be after turnover will depend primarily on the following:

- 1) System physio-technical characteristics (such as the nature of the water source(s) and supply, sediment load and type of weir or intake),

- 2) Demonstrated farmer management capabilities and their willingness to take over full responsibility for O&M,
- 3) How the system was incorporated into the DPU, and
- 4) Historically, the nature of water users' dependency on DPU.

Regarding these four types of characteristics, there is great diversity among all irrigation systems which may be eligible for turnover. Some systems have high sediment loads in their water supplies and/or frequent flooding, others do not. Most small systems have free intakes, often consisting only of piles of brush and stones. Some have cement weirs and adjustable gates. Some systems have active water users' associations, others do not. Management tasks may be handled formally or informally, collectively or individually, or not at all.

There are at least five ways in which FMIS's have become incorporated into the DPU. These are listed ranging from low to high levels of intensity and directness of government investment:

- 1) Simple reclassification on paper from a FMIS to a DPU system (perhaps for policy or budgetary reasons),
- 2) Reclassification to a DPU system due to construction of a water supplementation structure at the inter-system or river course level,
- 3) Reclassification due to DPU assistance in system repair,
- 4) Technical or managerial "upgrading" of a farmer system, typical of the Sederhana Irrigation Program (e.g., from temporary to

"permanent" materials, adjustability of gates, measurability of discharge, or assigning of DPU staff to the system), and

- 5) Construction of a new system by the government.

The term "turning back" systems to farmers may be appropriate for the first three types and partially so for the fourth type, because they were originally FMIS's. Systems also vary considerably in the ongoing levels, frequency and nature of government management of them, or conversely put--in the degree of farmer dependence on the government. Such management roles may consist of one-time or periodic repair or regular maintenance of intakes or canals, DPU staff setting gates and greasing regulator bars, or DPU staff coordinating the planting dates, water rotations or maintenance work parties.

It may be hypothesized that systems with higher management requirements, low farmer organizational capability and higher levels of initial and ongoing government investment will require a more intensive turnover preparation process and closer future coordination with DPU. The turnover process will not only cause changes at the system level but will also create new relationships between systems at the rivercourse level, perhaps requiring an association of FMIS's with farmer involvement in inter-system management tasks, such as the policing of rotations, mobilizing repair parties or settling of disputes. Indonesia presently is in a state of marked transition in the organization of water management, especially with regard to the role of farmers in managing irrigation systems. []

Dr. Doug Vermillion  
 IIMI Research Staff  
 Cirebon, West Java  
 Indonesia.