

Action Research in Nepal

An ongoing research project in Nepal is developing and testing methods to intensify and/or expand the command area of FMIS in hill regions. The project will utilize and build upon the farmers' experience and work within the present structure of water rights and group organization.

Studies of FMIS in several regions of Nepal have shown that their performance is often excellent, but could be further enhanced by (1) expanding the command area, (2) more intensive cropping patterns, or (3) more reliable delivery of water. In some cases the constraints are physical and further development by the farmers has been limited by the technologies and resources available to them. In other cases the operation and maintenance costs are extremely high, making further expansion or intensification impossible without improvement of the physical system. Many systems that are relatively new have not developed the management capability demonstrated in some of the older systems and have not achieved the full food production potential of their water and land resource.

Providing outside assistance to these FMIS depends on methods for systematically and quickly identifying the specific problems faced by individual systems, establishing criteria for selection and developing low-cost assistance strategies for each system.

The project area is within the Indrawati River Basin in Sindhupalchok District, NE of Kathmandu. In Phase I of the project, a method was developed for on-the-ground reconnaissance to produce an inventory of existing systems. The reconnaissance inventory activity was used to select specific clusters of systems where outside assistance would be most beneficial. An additional rapid appraisal of the

selected systems in each cluster was carried out to identify the specific problems of each and to identify the type of assistance the beneficiaries felt would be useful.

A second phase of activities has just begun, and will develop and test different intervention strategies in an action research mode in FMIS. The assistance is designed to strengthen the beneficiaries' own capacity to manage operation and maintenance and assist them in making necessary physical improvements in their system. The goal of this phase of the project is to find practical low-cost procedure for improving the performance of FMIS by using the systems identified in Phase I as a field laboratory. The Phase II activities seek to:

- (1) Preserve the "farmer-managed" character of each system, i.e. ensure that the operation and maintenance activities remain the responsibility of the farmers;
- (2) Identify ways to ensure and effectively utilize farmer participation in all steps of the intervention process including: problem identification, setting priorities for improvements, establishing or changing operating rules and methods for managing conflicts, and undertaking all physical improvements;
- (3) Develop and test ways to strengthen existing farmer irrigation organizations to make them more effective in managing their water;
- (4) Find methods for mobilizing valuable local resources of knowledge, experience, and labor in improving the management and physical capacity of FMIS;

- (5) Test appropriate, low-cost, design techniques and technologies for physical structures;

Scope of Work

The Phase II activities are being carried out by a consultant contracted by the Water and Energy Commission Secretariat (WECS). The consultant's scope of work is given here to provide a summary of the project's approach:

"The consultant shall provide technical expertise including at least one engineer, one social scientist, and two or more overseers, and other necessary support staff, to carry out the stages of work described below. The consultant's staff shall work as a team with the sociologist and engineer supporting each other's activities. All activities must be carried out by agreement and assistance of the beneficiaries. A major part of the consultant's effort will be holding dialogues with the beneficiaries to allow them a full voice in all decisions that are made."

"It will be the consultant's responsibility to identify and conduct activities, in consultation with the beneficiaries, that result in increased capacity for the beneficiaries to carry on the operation and maintenance of the system. These activities will include discussions where the beneficiaries will formulate the rules, roles for functionaries, and methods of conflict management that they will follow in upgrading and operating their system. Some of the activities will result in physical improvements requiring design and construction supervision assistance by the consultant."

"A specific amount of money, determined by the Phase I investigation, will be available for improvements of each system. This will be used for paying all labor and

purchasing and transporting materials necessary for physical improvements in each system. All purchases and other expenditures will be made by WECS. In most cases the amount of money available will not be enough to carry out all the physical improvements that are identified in each particular system. The beneficiaries will need to decide on the priorities for improvements or mobilize additional resources of their own for any additional activities. Contractors will not be used for construction."

"All unskilled labor for construction and transport of materials must be provided by the beneficiaries of each respective system. Within the guidelines set by the District Panchayat, the beneficiaries will help the consultant set the wage rates and the rate for transporting materials. If skilled labor is required that is not available among the beneficiaries, they shall either seek training in the skills necessary or hire skilled labor from outside the community to be paid from the amount of money available for improvement of that system."

Dynamics of the Project

First dialogue with the beneficiaries. "The first activity in each system will be to communicate to the beneficiaries that their system has been selected for assistance under certain terms and conditions. The terms and conditions include that the beneficiaries will form a users' organization if they do not already have one. All beneficiaries of the existing system will automatically be members of the organization. The organization will decide on the number of members required to form a quorum and the basis for making binding decisions. All activities will be carried out on the basis of the decisions made by the users' organization."

"In addition the users' organization will form a management committee to take care of the day-to-day activities. All the beneficiaries will be involved in deciding on the number of functionaries, describing their responsibilities and accountability, and electing individuals to fill the positions. These persons will not be paid from the project improvement fund." The users' organization will:

- Prepare a list of all beneficiaries of the existing system for each irrigation season, and the land area each irrigates based on the cadastral survey;
- Prepare a list of potential beneficiaries if the system is to be extended, and the land areas to be irrigated, based on the land title from the cadastral survey;
- Prepare a plan for allocating rights to water to the new beneficiaries and a plan for distributing the available water;
- Prepare a plan for supervising the improvements to be made and for future operation and maintenance of the system including the roles, rules, sanctions, basis for resource mobilization, etc., that will be applied and how they will be enforced;
- Indicate the amount each individual beneficiary will contribute in cash or free labor for improving the system in addition to the amount contributed by the project (they are free to decide not to make any contribution but are to be encouraged to make some input of their own to be handled entirely by the beneficiaries and not by the project);
- Within the panchayat guidelines, set the rate for skilled and unskilled labor;

- Agree to provide all unskilled labor and to the extent possible also skilled labor from among the beneficiaries,
- Prepare and follow a resource mobilization plan (proportional to land area irrigated, share of water each beneficiary is entitled to or whatever other basis is agreed upon) for providing all the labor for construction and materials transport, and for future operation and maintenance of the system;
- Assist the consultant in planning and carrying out the site investigation and design work;

"The project will provide materials locally available including the cost of transportation, pay for collection and transportation of all construction materials, and pay for all (unskilled and skilled) construction labor provided by the beneficiaries."

"The consultant will assist the beneficiaries in carrying out the requirements in meeting the terms and conditions by calling a meeting of all of the beneficiaries. Sufficient time must be allowed to communicate the information to all involved. In addition to providing information about potential assistance, this meeting shall be used to confirm and expand the information already reported in the Reconnaissance/Inventory and Rapid Appraisal report of Phase I of the project."

"Through the dialogue, it will be determined whether the beneficiaries are ready to take advantage of the opportunities of the project. If they are not interested or need more time to prepare their user organization, the second dialogue shall be postponed until they communicate that they are ready."

Second dialogue with the beneficiaries. "Investigation for design and estimating the cost of structural improvements will be carried out at the site by the consultant with full participation of the beneficiaries. A field design book shall be opened for each system. In the field design book all measurements are to be recorded, sketches made with all pertinent dimensions for each structure (where appropriate, alternative designs shall be considered), and advice and suggestions of the beneficiaries noted. Materials quantities and cost estimates for procuring them shall be prepared in the field for each structure. Emphasis shall be placed on maximizing the use of local materials and the existing canal alignment. The consultant shall provide the beneficiaries with information about costs and relative labor requirements for alternative designs. On the basis of this information, the beneficiaries, in consultation with the consultant shall decide on the priorities for making physical improvements in the system within the guidelines of the budget."

"Good engineering judgement shall be used in the site investigation. The maximum discharge of the existing canal must be estimated by measuring the slope and cross section of a stable section of the canal that the beneficiaries identify as a location controlling the flow. Manning's equation shall be used to calculate the estimate."

"Existing and proposed cross sections shall be shown at 50 m intervals and at each change in bed slope and bed material. Detailed measurements of the canal profile, cross-section, and hill slope shall be made at the site of each structure. Photographs shall be made at each intake and cross drainage that is to be improved, and of all other important features. A reference sign for identification of the photo and a suitable scale shall be visible in the photo."

"In consultation with the beneficiaries, the consultant shall prepare a detailed workplan for implementing the construction work. This must include the dates when the beneficiaries will be free to engage in the work, rates for collecting and transporting materials, person-day requirements for each activity, and the number of workers that can be expected to work each day, etc."

"The inception report for the cluster shall be prepared as soon as the first and second dialogues are completed in each system. It shall include a comprehensive report on what took place in each dialogue at each system. It shall also include a list of beneficiaries names, minutes of the meetings, important points of discussion with the beneficiaries, information about rules and roles, the field design book, maps, photos, etc., and the workplan prepared at each site, including the breakdown of costs for each structure to be constructed."

"If beneficiaries of a system indicate that they are not prepared to meet the terms and conditions communicated in the first dialogue, the consultant shall inform WECS immediately in writing. WECS will investigate and inform the consultant about the course of action."

Editor's note: This article has been excerpted from the "Tender Document for Implementation of Phase II of the WECS Sindhupalchok Project" prepared by IIMI-Nepal and WECS. For further details, contact:

Robert Yoder (IIMI-Nepal)
P.O. Box 3975
Kathmandu, NEPAL.