

IIMI-NEPAL PROGRAM'S EXPERIENCE IN STRENGTHENING NATIONAL CAPACITY

INTRODUCTION

Nepal is experiencing unprecedented changes in its irrigation sector as a result of the national decision to meet the country's basic needs by the year 2000.

The population of Nepal, with an annual growth rate of 2.7% is expected to reach 24.4 million by the year 2000. Just under half the population is living below the poverty line. The agricultural sector, which accounts for about 60% of the country's gross domestic product, provides employment to about 90% of its people. Food grain production takes up 90% of the total cultivated area.

Agricultural growth, however, has not kept pace with population growth. To redress this imbalance, the Government of Nepal put into effect a Program for the Fulfillment of Basic Needs (1985-2000). This program calls for a doubling of grain production from 4.4 million metric tons in 1984/85 to 8.7 million metric tons by the year 2000.

A 1989 World Bank document, "Nepal Policies for Improving Growth and Alleviating Poverty", states: "Perhaps the main factor responsible for unsatisfactory agricultural growth has been the slow and ineffective development of irrigation" To meet its goal of doubled food production, Nepal must expand its irrigated area, based on 1987 projections, by an additional 816,000 ha. to reach the projected total of 1.25 million ha. The DOI, which is responsible for most of Nepal's irrigation development activities, will target 589,000 ha (72%) of this increase, and the ADB/N, which offers credit schemes for farmer managed irrigation schemes, will be responsible for the remaining 227,000 ha (28%).

Out of a total net cultivated area of about 2.64 million ha, about 35%, or 934,000 ha, are presently being irrigated. At present, about 482,000 ha (52%) of Nepal's irrigated area is managed by farmers alone. A further 184,000 ha. (20%) are managed by farmers with some assistance from the DOI for operation and maintenance. The DOI manages the rest, about 268,000 ha. On average, however, only 60% of the command areas in DOI and farmer managed systems receive reliable supplementary irrigation in the wet season, and 17% during the dry season.

The government of Nepal views improved irrigation management as crucial to its rapid development program. Above all, it has chosen to focus on the users of irrigation systems as key elements in helping the government achieve its highly ambitious goal of doubled food production. Given that Nepal enjoys the distinction of having some of the largest farmer managed systems in the world, responsible for over half the country's irrigated area, better management is now being viewed in terms of progressively reducing the role of the state and enhancing farmer participation.

CONTEXT

In 1988, the Government introduced a Working Policy on Irrigation Development for the Fulfillment of Basic Needs, to facilitate urgent and effective action in the irrigation sector. This document provides new direction to Nepal's irrigation policy by mandating the participation of farmers at all levels of development, from project identification, design and construction to operation and maintenance of completed systems.

The new policy will be implemented by means of two Action Plans - one for turning over some systems constructed and presently managed by the DOI to farmers for operation and maintenance, and the other to increase participation of farmers in the management of jointly managed systems. The Turnover Program and the Participatory Management Program, respectively, have been accepted as key new elements in the DOI's ongoing program. Under these Plans, the DOI will gradually turn over 54,000 ha of small and medium schemes to farmer management. In the larger schemes, a total of 214,000 ha will be jointly managed.

With the new Irrigation Development Policy, farmer managed systems are now viewed as a major way of increasing irrigated area. The fact that much of Nepal's potentially irrigable land is already irrigated by farmer systems means that, by recognizing such systems, the DOI and the ADB/N greatly reduce the extent of "new" irrigation that must be developed in order to meet their respective targets under the Basic Needs Program.

The new policy also reflects the Government's acknowledgement of the relative success of existing farmer managed irrigation systems which constitute a significant portion of Nepal's irrigated area. Modern irrigation development has tended to overlook the resource of experience and knowledge that farmers have acquired in operating their systems. Studies have shown that farmers in Nepal are capable of constructing and managing irrigation systems as large as 9000 ha without government help.

The Working Policy also spells out the sharing of construction costs by farmers in small and medium surface irrigation projects. While the government will take on the major share, farmers will contribute upto one fourth of such costs. In larger schemes, the government will cover the costs of headworks upto tertiary canals and farmers will bear the costs of field channels. In the case of shallow tube wells (STW), power pumps, sprinkler irrigation and deep tubewells, the government will pay part costs in the form of subsidies.

Under the new Working Policy, farmers will undertake the operation and maintenance of small and medium scale surface irrigation projects. STWs and deep tubewells. This reflects a gradual realization by the Government that, for systems to function effectively, there must be an interface between farmers and the systems. In large scale schemes, farmers will be charged irrigation service fees. Water Users Associations (WUAs) are also given special importance. The government will assist farmers in forming WUAs and train them to take on new responsibilities. Irrigation regulations enacted in 1988 allow WUAs to obtain limited finances through retention of certain irrigation fee refunds.

Nepal's difficult fiscal situation means that funds for operation and maintenance of DOI managed systems are also shrinking. With farmers sharing in these activities and in construction costs, the financial burden on the DOI is reduced. Overall, the new irrigation policy facilitates a cost effective solution to meeting Nepal's irrigation needs.

These major shifts in irrigation policy have been accompanied by changes in the administrative structure. Irrigation activities previously shared by a number of ministries and agencies have been concentrated in the Department of Irrigation (DOI) under the Ministry of Water Resources. The DOI has been restructured with an emphasis on increased farmer access through decentralized support services. Five new divisions, headed by Deputy Director Generals, have been created and seventy five new irrigation offices opened, one in each district. These District Irrigation Offices will provide appropriate assistance to farmers both for physical and management improvement.

The ADB/N too has substantially increased its field office network with at least one office in each of Nepal's 75 districts. The government has recognized the importance of ADB/N support to the irrigation sector by allocating to it almost a third of the national target for irrigation expansion by the year 2000. As the DOI reduces its inputs, farmers will become responsible for more irrigation development activities. In the past, farmer managed systems depended on their own resources and technologies which were necessarily limited. The ADB/N has become a vital source of assistance to small farmers for the construction and rehabilitation of small scale irrigation schemes and tubewell and pump irrigation in the Terai. The ADB/N, in responding innovatively to increased farmer demand for its services, recently introduced commercial banking units in urban areas for the purpose of mobilizing deposits from the urban areas for investment in rural areas.

The high priority given to accelerated irrigation development by the Government of Nepal is reflected in the formation of a high level National Irrigation Development Committee, chaired by the Minister of Water Resources. This Committee coordinates the work of all agencies connected with irrigation and includes representatives from the DOI, ADB/N and the Department of Agriculture (DOA)

The irrigation sector in Nepal is well supported by donors. The World Bank and the Asian Development Bank have provided substantial loans for new irrigation construction, rehabilitation of existing systems and institutional development and training. UNDP has also provided support for an Irrigation Sector Support Program and a Planning and Design Strengthening Project. USAID provided a grant to help improve irrigation performance through manpower training, essential structural improvement and strengthening water users associations and institutionalizing these features in the DOI. The Government of Nepal has realized that previous donor efforts in the irrigation sector, although substantial, have not always yielded the expected results due to lack of coordination between donor agencies. In February 1988, an irrigation sector strategy was formulated to ensure that donor supported programs complemented each other to further Nepal's irrigation goals.

IIMI IN NEPAL

1. Collaboration with Irrigation Agencies

IIMI has a five-year record of collaborative work with government agencies in Nepal. The main focus of IIMI's action-oriented research has been on farmer managed systems including a wide range of aspects related to participatory management and system turnover. In 1985, at the request of the Water and Energy Commission Secretariat (WECS), IIMI established a resident program in Nepal to provide guidance for assisting existing farmer managed irrigation systems. Two internationally recruited professionals and national technical and administrative staff formed the team. Financial support for the program was provided by the Ford Foundation and the International Fund for Agricultural Development (IFAD).

Over the past five years, IIMI has provided assistance to WECS in planning, designing and implementing an extensive action-research program in both the Hills and the Terai. This research examined all 119 existing systems in a 200 sq. km. project area and assisted 19 systems in making physical and management improvements. In the process, IIMI developed numerous innovations and demonstrated considerable impact from low-cost assistance to existing farmer managed systems. These included the use of inventory methods to identify and rank systems where the impact of assistance would be greatest, management improvement through farmer-to-farmer training and field-based design of physical structures to which farmers contributed their experience.

The project showed that a high degree of supervision was necessary to mobilize and direct farmer participation but the cost per ha was reduced as the farmers' contribution exceeded what they were paid for. Competent supervision resulted in stronger water user organizations and in the farmers' increased ability to mobilize their own resources to complete work not covered by the project. Most important, farmer involvement in the system improvement work led to better operation and maintenance management. All these innovations and lessons have important application in the DOI's program of rapid irrigation improvement using farmers' input.

On completion of the WECS action-research in 1989, the DOI requested IIMI to support and strengthen its initiative in improving irrigation management. IIMI and the DOI identified a number of problem areas where IIMI's assistance would be valuable and ways in which the most appropriate linkages could be formed.

A memorandum of understanding for a four year collaboration with the DOI was signed by IIMI and the Government of Nepal in December 1989. According to this document, IIMI will:

- carry out mutually agreed upon collaborative research and professional development activities;
- provide opportunities for training to Nepalese personnel;
- organize workshops and seminars;
- publish and disseminate research results
- provide access to its global irrigation management data base; and

- facilitate linkages of institutions in Nepal with other IIMI international research and professional development programs.

To carry out these activities, IIMI will make available professionals and consultants from various disciplines as required.

IIMI is affiliated with the DOI administratively at the central level through the Planning, Design and Research Division which has the responsibility for formulating and disseminating approaches for DOI program implementation.

As an independent research institute, IIMI is able to collaborate simultaneously with other agencies involved in irrigation. Last year, IIMI expanded its linkages in Nepal by documenting and evaluating various irrigation projects financed by the ADB/N using technical input from CARE Nepal. IIMI's study assessed the technical and economic performance of such irrigation systems, the ADB/N's established process and procedures for project identification, development and execution and their effects, and needed modifications in the Bank's irrigation program to make it more effective in achieving national goals.

2. IIMI's Role and Strategy in Nepal

IIMI has a unique role to play in strengthening national irrigating capacity to adapt to new policy initiatives because of the Institute's own strong research priorities and experience in turnover and participatory management around the world. IIMI brings to its Nepal program internationally recruited, experienced, multi-disciplinary staff who have worked in many other Asian countries, including Indonesia, Pakistan, Bangladesh, the Philippines and Sri Lanka, in turnover and farmer managed irrigation systems which are key research efforts for the Institute.

One of IIMI's main concerns is that, despite the proliferation of turnover policies, for instance, there is surprisingly little international information about different private-sector management models and processes for turnover and their impacts. IIMI's work in Nepal will draw from and contribute to its overall interest in documenting and disseminating this information. IIMI has also designed a farmer managed irrigation systems (FMIS) program, which coordinates a worldwide network of interested agencies and individuals, with the objective of helping both government agencies and non-governmental agencies in developing more appropriate and effective FMIS assistance strategies as a means of reducing costs and enhancing performance. IIMI-Nepal's FMIS activities form an important component of this overall program.

IIMI's comparative advantage in these key research efforts is specially strengthened in Nepal by its intimate knowledge of the country ranging from farmers to policy makers. The fact that Nepal is a relatively small country, and that most irrigation development activity is concentrated in the DOI, is particularly advantageous to IIMI in bringing about positive changes in the irrigation sector. IIMI's close association with the DOI, in terms of the Memorandum of Understanding, places it in a strong position to jointly explore problems and seek effective solutions with this agency. The DOI's past experience has largely been engineering and construction oriented. Given the recent policy changes in the irrigation sector, the DOI faces the challenge of developing appropriate procedures,

roles and responsibilities and training its staff to fulfil these new demands. IIMI will support the DOI in its efforts to overcome the following problems:

- 1) training manpower to effectively operate 75 district offices;
- 2) lack of information about the multitude of existing farmer-managed systems and new areas for project identification and selection among alternatives;
- 3) criteria and procedures for project identification and selection among alternatives;
- 4) developing processes and procedures for drawing farmers into irrigation development;
- 5) lack of experience in working with farmers to assist them in becoming independent for operation and maintenance;
- 6) designing small systems and using materials in ways that enable farmers to easily operate and maintain systems;
- 7) appropriate accounting and control procedures for implementation that allow field based decision making and farmer involvement; and
- 8) establishing effective farmer participation in jointly-managed irrigation systems.

IIMI's successful record of action-research in Nepal provides a solid foundation for assisting the DOI to build its capacity to take on enhanced responsibilities in turnover, participatory management and assistance to farmers. For instance, IIMI's studies with WECS have consistently shown that assisting farmer managed systems is a rapid, low cost method of increasing food production. It is on the basis of these findings that the Nepal Government prepared its new policy on irrigation development and introduced the participatory management and turnover action plans. It is also on the basis of IIMI's research results on farmer participation that the ADB has provided a US\$ 245,000 technical assistance grant to Nepal in 1991, which will build up the DOI's capacity in the areas of turnover and participatory management. IIMI has been selected to implement this technical assistance.

The recent collaboration with ADB/N has opened up new avenues of action-research for IIMI in Nepal. Future cooperation with the ADB/N will also provide IIMI with the opportunity to act as link between both the DOI and the ADB/N to promote the exchange of ideas and innovations in irrigation. For instance, the ADB/N's innovative credit programs and experience with assisting farmers could strengthen the DOI. In turn, the DOI's technical expertise and irrigation management approach could enhance the ADB/N's lending programs. IIMI will act as the vital link in facilitating communication between these two agencies with long-term benefits for irrigation in Nepal. Such an accomplishment would also fulfil a major emphasis of the government's Sixth Five Year Plan, that of integrating agriculture and irrigation development programs.

IIMI's approach in supporting the DOI and the ADB/N is to collaborate closely with both agencies at all levels with the objective of having national staff carry out activities to develop their skills in dealing with farmers and improving management practices. This hands on, applied research approach is vital to the sustainability of irrigation agency efforts in meeting long-term goals. IIMI's multi-faceted program of activities in Nepal will ensure the continued capacity of national irrigation staff to sustain these and other programs in the future.

The main focus of IIMI's multi-faceted program in Nepal is the promotion of farmer participation in management and system turnover. In designing a number of activities to support the DOI and the ADB/N over the next three years, IIMI has adopted a program rather than a project approach. These activities also integrate well with other donor efforts in Nepal's irrigation sector.

RESULTS OF STRENGTHENING NATIONAL CAPACITY

Contributions to Policy Making

The revisions and modifications to the new irrigation policy and irrigation regulations of the Department of Irrigation were referred to IIMI-Nepal staff for comments and suggestions. A paper prepared by the IIMI-Nepal staff on appropriate support to farmer-managed irrigation systems was also presented to the committee organized by the National Planning Commission. This committee was organized to initiate the irrigation master plan for Nepal in 1988. These contributions were sought in due recognition of the expertise of IIMI-Nepal staff, particularly on farmers' participation on irrigation management.

The national 8th plan also directs the irrigation development in the country to make use of more farmer participation and learn from indigenous organizations. There is now a greater awareness of the value in the effectiveness of indigenous water users organizations in its contribution to agricultural development.

Farmers were included in national workshops to formulate participatory management guidelines in agency-managed irrigation systems. In the task force that formulated the guidelines, though only one farmer was represented, there is a recognition that farmers will have to be consulted before these guidelines are implemented in DOI-managed systems.

It is an accepted fact in Nepal that where farmers organization in irrigation is concerned, IIMI-Nepal is the recognized authority in this topic of irrigation development.

Strengthening National Capacity in Research on Irrigation Management

The Research and Training Branch of the Department of Irrigation has been working closely with IIMI-Nepal in its research on irrigation management by participating in its activities such as workshops, seminars and writing articles in its newsletter. Moreover, IIMI publications have been a main feature of the RTB library.

IIMI Nepal has been instrumental in enhancing the capability of the staff of the Institute of Agriculture and Animal Science (IAAS) to conduct research on irrigation management. Recently, IAAS staff has organized an irrigation management study group (IMSG) that will deal with research and training activities related to irrigation management.

Recently, IIMI-Nepal has contributed to the development of the research skills of the Institute of Engineering (IoE) staff. This contribution was in terms of assisting in developing a course on irrigation management and irrigation

structural design for hill and mountainous environments. Lectures on the training for the staff of IoE on irrigation management were provided by the IIMI-Nepal staff. Results of the IIMI sponsored workshop on the design of irrigation structures for hill and mountainous environments will be used as one of the major course material.

ANALYSIS AND CONCLUSIONS

Analysis on Strengthening National Capacity

The credibility of the IIMI program in Nepal was built on the work of the staff on indigenous farmers irrigation organizations in terms of providing assistance, analyzing their sustainability and contribution to agricultural development. This was exemplified in the Indarawati River Basin Study of farmer-managed irrigation study in collaboration with WECs. This was made known through publications, seminars, workshops and conferences in Nepal and elsewhere. This was reinforced with the work on the process and performance evaluation study of ADBN supported irrigation schemes in Nepal. This study further validated the significance of a strong water users organization in making irrigation systems viable in terms of loan repayment and sustainable agricultural production.

Although collaborative work with the Department of Irrigation only started recently, there is an acceptance that IIMI can contribute to the efforts in pursuing participatory management. This explains the strategic consultation assistance that IIMI-Nepal was able to provide in the revisions and modifications of the new irrigation policy and irrigation regulations.

This credibility of the IIMI-Nepal program can be also attributed partly to the experience of the staff in dealing with the issues related to water users organizations in irrigation system. The IIMI-Nepal staff with 20 years of experience in Nepal and the Nepali irrigation specialist both contributed to the establishment of this credibility for the IIMI-Nepal program.

With this experience in working with farmers or water users groups, the evolving program of IIMI-Nepal will expand beyond working with DOI and ADBN but also with the private sector namely on non-governmental organizations (NGOs). Both DOI and ADBN have expressed their limitations in capabilities to organize farmers for irrigation management and development. However, both agencies have indicated their willingness to accommodate NGOs in organizing farmers. Thus, one of the components of the IIMI-Nepal program will be on the development of NGOs for irrigation management.

Strengthening Capacity for Research on Irrigation Management

The training and support that the IIMI-Nepal program provided to the staff of IAAS, WECS and persons from private sector contributed to the enhancement of the research capability of these persons to undertake research in irrigation management. Support was also provided to graduate students conducting their field research. Several persons benefitted from this association with IIMI that contributed to increased capability. Even former IIMI-Nepal national staff who have joined the private sector are now engaged in research related activities in irrigation management.

IIMI-Nepal was also instrumental in sending staff of IAAS, WECS and DOI to workshops and conferences abroad that can be viewed as part of professional development contributing to research in irrigation management. Nationally held workshops, seminars and conferences organized by IIMI-Nepal also contributed to this effort in strengthening research capacity.

Conclusions

It can be asserted that IIMI contributed to the policy making efforts and research on irrigation management in Nepal. This was made possible due to the work of experienced IIMI-Nepal staff who had credibility in promoting farmers participation in irrigation management. Though the initial activities were with an advisory government agency (WECS). DOI accepted IIMI as an important partner in pursuing participatory management in DOI-managed systems.

There are shortfalls in the IIMI-Nepal program. The presence of a consultative Committee would have strengthened the impacts of the results by providing enhanced visibility and higher level credibility within the planning and policy making sectors of government. The absence of stronger support from IIMI headquarters in terms of funds and representations (more frequent visits by IIMI management staff) led to the weaker financial support and international stature and visibility of IIMI-Nepal.

The thrust of IIMI-Nepal program in the coming years will be in institutional development aspects of irrigation management. Collaborative work with DOI and ADBN will be continued with a component on development of NGOs on irrigation management. Research capability building with IAAS and IoE will also be a part of this program. With more support from IIMI headquarters the impacts of IIMI on policy making efforts and research will be more visible.