

CHAPTER 9

Towards Participatory Management: The Case of an Irrigation System in the Plains of Nepal

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INTRODUCTION

THE GOVERNMENT OF Nepal views improved irrigation management as crucial to its rapid development program. Better management is now being viewed in terms of progressively reducing the role of the state and enhancing farmer participation. In 1991, it introduced a set of policies aimed at enhancing farmer participation in irrigation management (Approach to the Eighth Five Year Plan 1991).

Earlier, in 1988, the government adopted a new policy on irrigation development (Working Policy on Irrigation Development for the Fulfillment of Basic Needs 1988) to facilitate urgent and effective action in the irrigation sector to achieve the set goal. This working policy provided new direction to Nepal's irrigation development by mandating the participation of farmers at all levels of development, from project identification, design and construction to operation and maintenance (O&M) of completed systems.

This policy was to be implemented by means of two action plans — one for turning over some systems constructed and managed by the Department of Irrigation (DOI) to farmers for O&M, and the other to increase participation of farmers in the management of jointly managed systems. The objectives of the Action Plan for Participatory Management are “to share the system O&M responsibilities of large-scale irrigation systems between the water users' organizations (WUO) and the irrigation agency.”

The various objectives of the existing policies and action plans were recently consolidated into a new irrigation policy. With the change in political climate, various partners in development, including government agencies, have been guided towards a decentralization and democratization movement in their activities. Thus, the new policy has two of its objectives specifically designed to support local initiative and control with a great shift in responsibilities from state to locality. The new policy is intended to “maximize the involvement and participation of users (without affecting the intended impacts of the project in each phase of implementation) so as to decrease government responsibilities in irrigation implementation and instead promote local resource mobilization for construction, maintenance and repair by the users themselves” and to “promote and support self-reliant private sector development of irrigation development and expansion by Nepali farmers themselves.”

The new Water Resources Act has a very important feature of setting up a hierarchy of water use rights. Water users' associations (WUAs) can now have legal recognition derived from this

very Act whereas earlier WUAs were to be registered under the Association Act. The new Act also makes provisions for the complete ownership of systems that are turned over to the farmers. Yet, the Act is silent regarding the "co-ownership" of jointly managed systems.⁴⁶ It is hoped that the proposed irrigation rules and regulations to be derived from this new Act are not bound by rights and duties from the point of view of the state or agency irrigation management but extended to cater to the balanced "rights and duties" on the part of water users' groups. The previous regulations bestowed power to agency management and did not focus on the rights of WUAs (e.g., defensible water rights) to participate in planning and implementation of any construction (at least at the micro-level), the right to information about water availability, the right to timely and reliable supply of water, etc.⁴⁷

In many countries in South and Southeast Asia, participatory management has been advocated as a distinct policy for irrigation development. It has been noted that traditionally, in many countries, indigenous irrigation has been managed effectively by water users who design, build, operate and maintain these irrigation systems (usually small-scale systems). Uphoff (1986) notes that more recently, in connection with government development programs, the planned introduction of water users' associations is increasing with some notable success. The inclusion of farmers in the decision-making process of management of irrigation systems is now accepted as necessary to increase productivity and income among the poor in the Third World (Raby 1991). Raby (1991) points out that farmer participation is not simply an advocacy call for empowerment and mobilization of a hitherto powerless group but, more fundamentally, a development strategy in itself. Farmers are no longer considered as the passive recipients of development activities but as active participants and, in some cases, as equal partners.

Uphoff (1986) has elaborated and analyzed the nature, rationale, and approaches of farmer participation as the agency-farmer relationships. Others like Singh (1991) and Pearse and Stiefel (1980) have also critically looked at the nature of participation. Bottral (1981) points out that the management of irrigation projects should be considered as an evolutionary process, with a progression over time from a relatively high degree of central control towards increasing farmer participation and autonomy of decision making. Participatory management approaches have been introduced in countries like the Philippines, Sri Lanka and Nepal with relative successes (Korten and Siy 1989; Raby 1988; IIMI 1986; and IIMI 1992).

This paper presents the process developed in facilitating the formation of water users' groups in the Banganga Irrigation System and its consequent outcomes in terms of O&M benefits.

BACKGROUND⁴⁸

The International Irrigation Management Institute (IIMI) was requested by DOI to assist in the development and implementation of the action plan on participatory management. The Banganga Irrigation System (BIS) was identified as the field site for IIMI to work collaboratively with DOI

46 In an earlier draft of the bill, Article 1 of the Law on Land Reclamation of the *Muluki Ain* (Penal Code) was proposed to be repealed. Such a legal annulment posed the problem of the existing customary and traditional rights being in jeopardy.

47 Ambler (1992) presents a good set of water users' rights. He proposes rethinking on notions regarding farmer "participation" or "involvement" and, especially, the types of lip service usually provided while "undertaking" the "needful" institutional development of the WUOs.

48 IIMI carried out this project from May 1991 to July 1992. During IIMI's involvement with this project, the irrigation policy and the Water Resources Act were only in draft form and were being reviewed by the government.

staff in developing and testing ways for establishing an O&M plan through more water user participation. This collaborative project was supported by the Agricultural and Rural Development Office of the United States Agency for International Development (USAID) mission to Nepal.

The Banganga Irrigation System was one of the subprojects that was rehabilitated under the Command Area Development Project (CADP) during the period 1982-89. Under this project, the reservoir was enlarged, the main canal improved, tertiary facilities constructed, support services to farmers initiated, water users' groups formed at the tertiary block level (but were found ineffective), and the irrigation management plan developed. However, the management plan has not yet been implemented and the water users' groups formed were found to be nonfunctional (ADB 1990). At the start of the project, the BIS management was operating under a project mode directly under the Western Regional Irrigation Directorate (WRID) but was finally merged with or transferred to the District Irrigation Office (DIO).

The three major component activities of the IIMI participatory management program in Banganga Irrigation System were: i) DOI-Farmer Dialogue; ii) Water Users' Group Formation and Farmer Training; and iii) Management of the Main System.

System Background

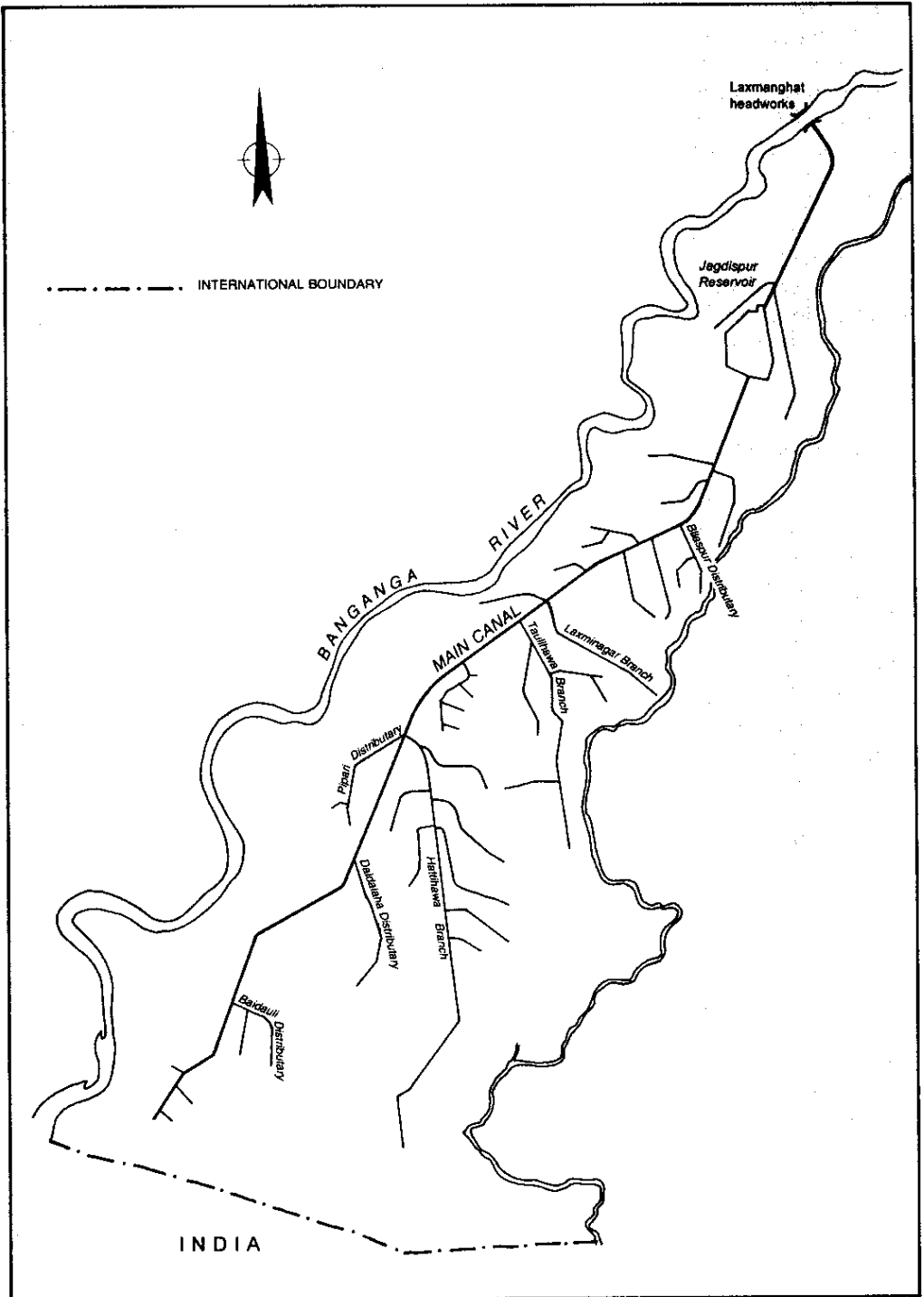
The Banganga Irrigation Project is a government-built irrigation system which is located in Kapilbastu District of the Terai in the Western Development Region (Figure 9.1). The history of Banganga Irrigation System (BIS) can be divided into three periods: i) pre-government construction of the canal, ii) irrigation system construction by the government, and iii) improvement under the Command Area Development Project.

Before government construction of the present Banganga Irrigation System, farmers used to build temporary brush and stone diversions at various places along the river to obtain irrigation water. The depressed land at Jagadishpur was converted into a reservoir, and a canal was built from it with *corvee* labor during the Rana Regime sometime in the 1940s. That canal was known as the Raj Kulo. According to the old villagers of the Banganga area, there were other scattered irrigation systems drawing water from the Jamwar Stream aside from the Raj Kulo. Therefore, the farmers around Banganga do have experience in irrigation.

During those days, the Raj Kulo was looked after by the office of Bada Hakim (the then chief administrative officer of a district). There was a *khadar* (government official) appointed at the Bada Hakim's office in Taulihawa for the purpose of water management of the Raj Kulo. He looked after the operation of this system and mobilized people for maintaining the diversion weir and other structures. The *zamindars* (big landlords) took care of other systems.

Initial construction of the post-Rana System was completed in 1978. This project was undertaken to provide irrigation to some 6,000 ha of cultivable land. In 1982, this project became the Command Area Development Project (CADP) with funding support from the Asian Development Bank. The reservoir was enlarged, the main canal improved, tertiary facilities constructed, support services to farmers initiated, water users' groups formed at the tertiary block level, and an irrigation management plan developed.

Figure 9.1. Banganga Irrigation System.



THE PROCESS FOR THE FORMATION OF WATER USERS' ORGANIZATIONS

The process that IIMI-Nepal staff followed to facilitate the formation of water users' groups in the pilot area of BIS comprised a series of steps which can be broadly categorized under: i) preliminary observations on system management, ii) observations on farmers' cooperation, iii) continuous dialogue and meetings with farmer groups and agency staff, iv) assisting in the formation of water users' groups, v) farmer-to-farmer training, and vi) continuing dialogues with agency staff and farmer groups to strengthen water users' groups.

Preliminary Observations on System Management

The initial activity focused on trying to understand how irrigation management activities were being undertaken. Specifically, the water delivery performance as practiced by the system management was assessed. Several fields were selected within certain outlets (to represent the head, middle, and tail areas) to assess the source of irrigation water and farm cultivation practices. Simultaneously, the performance of the already established water users' associations and federations (during the time of CADP) was assessed by the field team by observing group activities related to irrigation practices, the organizational setup of the groups, the rules and regulations formulated regarding water use, allocation, distribution, resource mobilization or contribution, and procedures for conflict resolution.

Observations on Farmers' Cooperation

IIMI staff met and convened the different water users from the "defunct" water users' groups or federations and discussed irrigation management issues and their current practices regarding the use of irrigation water. Often, meetings were held with only the so-called committee members, or with only the users, or with both. Some agency staff members also attended these meetings and invariably dialogues ensued between the agency and the farmers. Often, meetings ended with the two parties not agreeing with one another. However, at the urging of IIMI, both parties continued to meet with each other at the field site and also at the system management office.

The rationale and ideas pertaining to participatory irrigation management were discussed during these meetings. Both the farmers and the agency staff slowly began to appreciate the need for organized farmers and an agency staff supportive of these ideas. Within a sub-command area, tail enders did not receive adequate water and these people doubted that the head enders would cooperate so that they would get water from the outlet. The agency staff were skeptical that the farmers would organize themselves to do anything cooperatively since the agency had, in the previous year, wanted the farmers to mobilize their resources to clean the canals. Even within a single outlet or distributary, people were divided among themselves. Those who, by the location of their fields in the irrigation system, received water with comparative ease were uncooperative and the tail enders were skeptical about the utility of their efforts if the head enders were not going to be supportive of them.

Continuous Dialogue and Meetings

IIMI held several meetings with different groups of farmers and tried to convince them that if they got together and started to clean the canal they would be able to receive water more smoothly (especially the tail enders). For example, in the Bilaspur Distributary, the users from Harrahawa area, the tail enders, were enthusiastic about cleaning the canal but had wanted the head and middle enders also to cooperate as a single unit. One member of the agency staff, the second in command within the agency, along with IIMI field staff, convened a group meeting of the users from all the three villages that are within the command area of the distributary. The types of discussions and debates among the users themselves and between users and the agency staff were symptomatic of the estranged relations between them.

The users questioned why they should work on the canal when hardly any of their concerns regarding alignment and outlets were listened to by the agency staff. Several users were suspicious of the agency because, earlier, the maintenance work was done by contractors. The users felt that the work done by the farmers would then be registered as work done by contract workers and the agency could then pocket the money paid for the work done. The farmers were very suspicious of the motive and intention behind the request for them to do maintenance work. The agency representative informed the farmers that a lot of investment had been made by the government and now it was unable to carry out continuous maintenance work. The construction phase was over and according to the government's working policy, emphasis was being put on participatory management which also included maintenance work on the part of the water users. The farmers did not care what the government policies were, because they were distrustful of the agency and perceived all these requests for water user "participation" in cleaning the canal only as added responsibilities. Thus, this specific meeting within the Bilaspur Distributary broke up due to tension, "mutual" distrust, doubts about each others' intentions, and the inability to come to an agreement.

Then the IIMI field staff requested only the water users to meet them without any representations from the agency. When they met, the water users decided to cooperatively clean up their distributary canal to ensure smooth flow of water for everyone and the usual conflicts and anger that accompanied water delivery to that canal were reduced. However, when cleaning began, it was very much on an informal uncoordinated way. Many landowners next to the canal were mad at those maintaining the canal because soil and mud from their land was used to repair the canal and stop leakages. The farmers and the adjacent landowners wanted someone from the irrigation office (the agency) to supervise the canal work. A fieldman was sent by the office for supervision but heated discussions and allegations ensued when some users again raised their doubts about the sincerity and integrity of the agency staff. The agency staff members were accused of being corrupt and the fieldmen wanted the farmers to fail in their enterprise so that the agency would then revert to the old system of awarding contracts and would thus not have to deal with belligerent users. Because the users did not have an effective organization, the canal work was very informal, uncoordinated, and haphazard. The users felt the need for an effective organization. The question raised was whether to strengthen the water users' groups and the federation "created" during the CADP era or to restructure them or found newer groups based on different criteria.

Despite an ineffective organization, the users of this area were able to clean their canal much to the satisfaction of the members and surprise of the agency staff who did not believe farmers can ever organize themselves for irrigation activities, especially for maintenance work. The catalyst that "forced" the users to rethink their irrigation practices and create an awareness for the need of an effective organization and group action was brought about by their experience while cleaning their canal and dealing with the agency in the process. The formation of the water users' group (WUG) and the selection of its functionaries did not take place for at least one whole year.

Assisting Formation of Water Users' Groups

An added strategy employed by IIMI to facilitate the process of WUG formation was the farmer-to-farmer training program in which the participants were not only the farmers but also the agency staff who were skeptical about the efficacy and effectiveness of farmers' capabilities and organizational strength. In several places in Nepal, farmer-to-farmer exchanges have proven to be very useful in strengthening water users' organizations (Pradhan and Yoder 1989). IIMI felt that farmers could relate to one another since they shared more or less the same experiences. The example of farmers who were performing and managing irrigation activities well was a stimulus to others to get organized and control their own resources. It was felt that visits to well-managed irrigation systems and dialogue with irrigators from such systems had served as eyeopeners to the farmers. Farmers were more willing to listen to suggestions made by fellow irrigators who had already adopted these suggestions. Such farmer-to-farmer exchanges and training not only showed the possibilities for the formation of strong irrigation/water users' groups but also exposed the trainee farmers to the nature and role of the internal structures and dynamics of irrigation organizations.

Farmer-to-Farmer Training

Farmer-to-farmer training was conceived as one possible approach to bring about participatory management in the Banganga Irrigation System. The training was proposed to facilitate the transfer of experiences from farmers in well-managed irrigation systems (Chattis Mauja and Pithuwa systems) to those in poorly managed systems like Banganga through site visits, discussions, and exchange of ideas.

IIMI proposed the need for such training for the farmers of the Banganga Irrigation System because several differences between the BIS officials and farmers regarding water management problems and issues had been identified. There were occasional disagreements between officials and farmers regarding the water distribution schedule. Farmer organizations of CADP were found to be ineffective in water management activities. The farmers were of the view that they did not own the system because, government financing and project planning and the use of contractors had been predominant. There was poor communication and coordination between the farmers and the irrigation staff.

Twelve farmers were selected for training by the farmers themselves during meetings called by the IIMI field staff and the agency. The system manager and a fieldman were included in the exchange field visit so as to provide exposure to irrigation staff members regarding the capacity and potential of the farmers. Such joint field visits facilitated interaction between the agency staff and farmer representatives.

Continuous Dialogue to Strengthen Water Users' Groups

Several WUGs had already been formed by the users themselves before the farmer-to-farmer exchange program was implemented. The objective of the continuous dialogue and meetings with the different groups and factions of users undertaken by IIMI was to facilitate dialogue between the users themselves to form WUGs by themselves. However, after the exchange visits, the trainee farmers informed their fellow farmers what they had learned, seen, and discussed during their

visits. Several WUGs were newly formed and in the existing WUGs, new rules, regulations, and roles were established with the objective of strengthening their organization. Not only were the farmers motivated to form or restructure WUGs but the system manager himself, after having returned from the field visit, began facilitating the formation of new WUGs outside the research area.

Thus, in short, IIMI stressed the fact that the formation of water users' groups can only be done by the farmers themselves and that outsiders can only facilitate the process. It was, therefore, important to create an environment that brought about awareness amongst uncoordinated and unorganized farmers of the need for an organization. This was partially brought about by the IIMI field staff who discussed with farmers the issues they face regarding collective action. IIMI field research staff first observed the behavior of both the agency and the farmers and their interactions with one another. They also interacted with the farmers every week and in the process brought about interactions between and among groups of farmers themselves. During such meetings, the objectives of participatory management and the need for the involvement and participation of farmers in the management of irrigation activities within their subcommand areas were emphasized.

A participatory management program at the BIS assisted in the formation of thirteen WUGs. Each WUG committee consists of a chairperson, vice-chairperson, secretary, treasurer and patrolman selected by the farmers during a general assembly. The DOI staff often participated in these assemblies. The active participation of the DOI staff members, especially the project manager and the DIO chief was very crucial in facilitating confidence in the participatory management program. The farmers and the agency staff saw each other as willing partners to involve each other in the management of the system. Minutes of the general assembly recorded the WUG duties and responsibilities. WUGs were formed based on both hydrological and village boundaries depending on which ones the co-irrigators felt were most appropriate. The WUG members stipulated that a WUG committee member must be: 1) an irrigator within the outlet, 2) a village resident, 3) experienced in water management activities, 4) respected by the community, 5) able to mobilize resources for operation and maintenance (O&M), and 6) minimally involved with party politics.

WUGs defined their responsibilities as: 1) forwarding requests for water, seeds and other inputs to the BIS management, 2) mobilizing resources for system O&M, 3) supervising canal maintenance and cleaning, 4) keeping minutes of meeting, records of irrigation activities and financial accounts, 5) collecting fines, 6) allocating and distributing water according to the water distribution schedule, 7) holding regular meetings, 8) resolving water conflicts, 9) implementing rules and regulations, 10) establishing good communication between the farmers and DOI, and 11) assisting with the preparation of the water distribution schedule. Each WUG has formulated rules and regulations with the assistance of the DIO staff. The rules are still evolving as the farmers call meetings when necessary to discuss the rules. Fines have been instituted and collected for violation of rules.

SPECIFIC OUTCOMES OF FARMER PARTICIPATION ON BIS IRRIGATION ACTIVITIES⁴⁹

The specific outcomes of farmer participation on irrigation activities in Banganga can be outlined as follows:

⁴⁹ For details see IIMI 1992a.

Table 9.1. Labor contribution of water users' groups (WUGs) for canal maintenance in the Banganga Irrigation System, monsoon season, 1991.

Serial No.	Name of WUG	Location within system	Length (km)	Area (ha)	Total labor days	Total cost (NRs)
1	Bilaspur	Head	4.50	212.03	600	19,200.00
2	Semari	Head	2.50	77.23	130	4,160.00
3	Gobari	Head	3.50	89.23	207	6,624.00
4	Tilaurakot	Head	4.00	70.17	195	6,240.00
5	Laxminagar	Head	2.50	139.81	79.5	2,544.00
6	Sukharampur	Head	4.30	188.32	219	7,008.00
7	Sandawa	Head	0.40	119.47	13	416.00
8	Mohoriya	Middle	0.13	32.22	37	1,184.00
9	Lamtiya	Middle	1.08	55.00	54	1,728.00
10	Bhander	Middle	0.62	56.00	68	2,176.00
11	Ganeshpur	Middle	1.98	55.00	82	2,624.00
12	Mahuwa	Middle	2.00	198.41	44	1,408.00
13	Dalpur	Middle	1.50	198.24	140	4,480.00
14	Hardihawa	Middle	1.90	253.05	125	4,000.00
15	Gotihawa	Tail	5.00	148.96	611	19,552.00
16	Shivapura	Tail	5.00	115.05	401	12,832.00
	Total		40.91	2,008.19	3,005.50	96,176.00

Notes: Length = Length of distributary canal and field channels maintained by WUGs in kilometers.
 Total labor days = Number of person-days contributed by each WUG in maintaining the canals and channels.
 Total cost = Estimate based on district wage rate of NRs 32/day/person (US\$1.00 = NRs 42.00)

- 1) Farmer participation in O&M activities reduced O&M costs of DOI. This year alone, the farmers mobilized NRs. 96,176 for O&M activities in BIS (Table 9.1).
- 2) There was increased farmer participation in meetings with DIO regarding conflict management and the implementation of irrigation rules and regulations by WUGs. The implementation of WUG rules and regulations was reinforced by fines for their infraction by members (Table 9.2).
- 3) Being involved as partners in the irrigation activities of BIS and having invested their time, energy, money and labor, some farmers have begun to have a sense of ownership of the system.⁵⁰
- 4) There was increased farmer participation in water allocation and in the preparation of the water distribution schedule. This resulted in better distribution of water, particularly in the winter season (Figure 9.2 and Table 9.3).

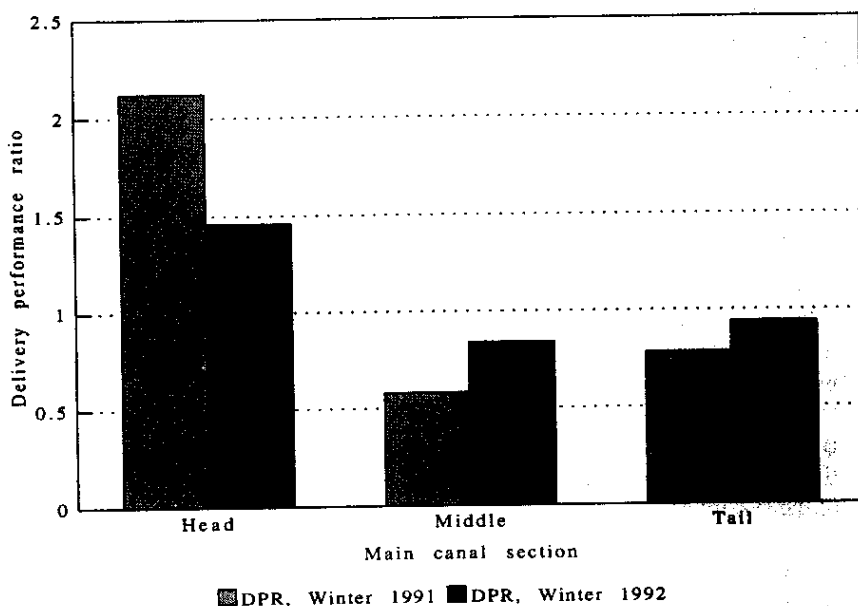
⁵⁰ Ownership of the system by farmers cannot be envisaged in the immediate future given the facts that the whole system will need to have water users' groups (preferably, confederated in one) and that the irrigation policy of the government has to address the ownership issue in the case of jointly managed irrigation systems.

Table 9.2. Collection of fines by water users' groups (WUGs), monsoon season, 1991.

Name of WUG	(1) Fines for absence at maintenance work (NRs)	(2) Fines imposed for grazing (NRs)	(3) Fines for absence at meetings (NRs)	Total (NRs)
Laxminagar		340		340
Gobari	390		25	415
Tilaura		315		315
Bilaspur	150	100		250
Gotihawa	120	115		235
Shivapura	275	75		350
Shukranpur	200	200		400
Total	1,135.00	1,145.00	25.00	2,305.00

- Notes: 1. Fines imposed for being absent during group work in canal maintenance.
 2. Fines imposed on owner of livestock which were found free-grazing.
 3. Fines imposed on committee members for not attending committee meetings.

Figure 9.2. Delivery performance ratios for winter seasons, 1991 and 1992.



DPR=Delivery Performance Ratio
(Actual/Plan)

Table 9.3. Summary of irrigation delivery days as planned and observed (actual) and delivery performance ratios (DPR) for the head, middle and tail sections of the Banganga Irrigation System, winter seasons, 1991 and 1992.

Main canal section	Winter 1991		DPR	Winter 1992		DPR
	Planned	Actual		Planned	Actual	
Head	24 (25)	50 (52)	2.08	13 (24)	19 (34)	1.46
Middle	48 (50)	27 (28)	0.56	25 (45)	21 (38)	0.84
Tail	24 (25)	19 (20)	0.79	17 (31)	16 (28)	0.94
Total	96 (100)	96 (100)		55 (100)	56 (100)	

Notes. 1. The values in brackets are the ratios of irrigation delivery days to the total, in percent
2. DPR = Delivery Performance Ratio: Actual/Planned.

Table 9.4. Introduction of crop diversification in the Banganga Irrigation System, winter season, 1992.

Village	Maize		Early rice		Onion		Sugarcane		Banana		Total	
	No. of households	Area in ha	No. of households	Area in ha	No. of households	Area in ha	No. of households	Area in ha	No. of households	Area in ha	No. of households	Area in ha
Bilaspur	18	1.47	6	1.58					1	0.03	25	3.08
Gobari	10	1.64	8	1.48					3	0.35	21	3.47
Semari	4	0.31									4	0.31
Tilaura	2	0.21									2	0.21
Sukhrampur	3	0.21									3	0.21
Laxminagar	4	0.31									4	0.31
Lamtiha							16	4.27	4	0.56	20	4.83
Shivpura					46	2.73					46	2.73
Total	41	4.15	14	3.06	46	2.73	16	4.27	8	0.94	125	15.15

- 5) There was a gradual introduction of early rice and crop diversification with the farmers having a sense of confidence in WUGs regarding the acquisition of water and its distribution as well as in safeguarding the crops from free-grazing cattle (Table 9.4).

Overall, the major achievements of this project are: the strengthening of the thirteen water users' groups in BIS and the transformation and sensitization of the BIS/DOI staff, in particular the BIS system manager. The farmer-to-farmer training method for effective organization was also demonstrated. DOI-farmer dialogue was enhanced through the frequent meetings that the BIS system manager has undertaken.

CONCLUSION

This paper began with the policy and legal contexts of participatory management and proceeded to deal briefly with IIMI's experience in facilitating farmer participation in irrigation management of a large Terai irrigation system in Nepal. Working within the constraints of both agency and farmer behavior, the involvement brought forth certain issues that may have general applicability towards the promotion of farmer empowerment such that they are actually partners of irrigation management with the agency.

The experience gained in this project leads us to several concerns and the rethinking to be done in terms of the process to be adopted during joint or participatory management and the extent to which rights are guaranteed to WUAs in such endeavors. In joint or participatory management, it would be important to address issues relating to farmer/agency partnership regarding power, authority, rights, responsibilities, sharing of activities, duties, mutual trust and accountability. It would be important for any government to strive for a true partnership taking into account the strengths, weaknesses, and the potential of partners with real ownership powers and the associated rights. This is in contrast to "partners" who are really beneficiaries and "ownership" which is only a sense of ownership.

It is true that a series of legitimate reasons can be voiced in favor of participatory management in Nepal. These reasons relate to reducing costs, enhancing performance, enhancing agricultural productivity, the agency shifting into newer roles and spreading itself too thin, etc. The question of the need for participatory management can be posed this way too: Is participatory management being promoted because of fiscal crises and the inability of the government to shoulder all the administrative, financial, and logistical burdens of irrigation management and expansion, or is it because of a genuine interest in partnership and support of local initiatives? This can also be viewed from the aspect of resource mobilization crises and the legitimacy crisis: Is the government willing to support rather than supplant local initiatives thereby not only augmenting its resource mobilization but also, in the very process, sharing power with the local users, now partners, by empowering them to control resources that affect their own lives and thus gaining legitimacy in the eyes of the public? Thus, as farmers become involved in the management of their "own" resources, they have more control over their own lives, both economically and socially. Shared, participatory irrigation management has the potential for improving both agricultural production and social well-being.

Specific results or outcomes were also described whereby the process performance contributed, although in an indirect manner, to the output performance. With the organization of thirteen water users' groups, a significant contribution was made in terms of labor for canal maintenance. Better relations and communications with the Banganga Irrigation System staff were fostered. Reductions in water-related conflicts and destruction of water control facilities were observed. More participation of farmers in main system management was also attained. All of these contributed to the more equitable distribution of irrigation water, particularly in the winter season.

Thus, despite the limited period for undertaking this action-research project, the foregoing results and emanating issues are considered significant contributions to a better understanding of the process in organizing farmers and their implicit effects on output performance..

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