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**RESOURCE MOBILIZATION FOR
PARTICIPATORY IRRIGATION MANAGEMENT**

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Resource Mobilization for Participatory Irrigation Management

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Background

The total command area in Nepal's government-developed irrigation schemes has grown from 198,500 ha in 1980 to 885,600 ha in 1997. There has been a corresponding increase in investment also, from NRs. 840 million in 1986/87, to NRs. 2.7 billion in 1996/97 (Irrigation Diary 1998, p. 37). This includes the command area of some farmer-managed irrigation systems that have received system improvement assistance from the government. The command area for which the government is still bearing the Operation & Maintenance (O&M) costs is about 200,000 ha (Pradhan et. al. 1998). A study of the budget allocation by His Majesty's Government of Nepal (HMG) in O&M projects over the last 4 years (1995/96-1998/99) reveals that the average budget allocation for surface, lift and ground water schemes has been NRs. 374, NRs. 1,308, and NRs. 2,039 per ha, respectively with the overall average at NRs. 353/ha.

The increased command area under government-built irrigation systems has resulted in substantial increase in the needed resources to meet the recurrent O&M expenditures for the developed infrastructure. The O&M costs have grown up to about 100 million NRs. in 1996/97 from about 6 million NRs. in 1986/87 (Pradhan, et. al, 1998).

In principle, a major source for financing the O&M costs of these developed irrigation schemes has been through collection of water charges or irrigation service fees (ISF) from the recipients of the irrigation scheme. Although, for increasing the collections, the government has made various unilateral efforts of revising the water charge or ISF rates⁴, the trend of collection over the last four years hardly accounts for less than 2% of the O&M costs (See Table 1, Chart 1, and Annex 1).

Table 1: ISF Collection and O&M Expenses

Year	ISF collection in Million NRs.	O&M expense in Million NRs.
1986/87	1.2	6.9
1987/88	3.6	7.9
1988/89	3.5	8.7
1989/90	1.9	10.4
1990/91	1	4.6
1991/92	3.1	8.9
1992/93	1.3	9.5
1993/94	1.4	8.4
1994/95	1.5	98.3
1995/96	1.7	102.3
1996/97	1.7	124.4

Source: Economic Survey of Nepal, 1998

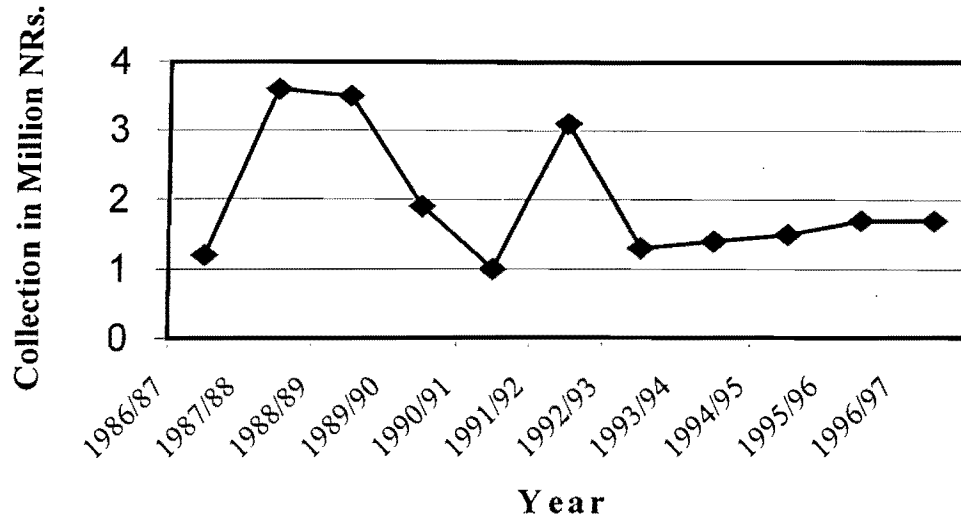
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⁴ Up to March 1977, the rate of water charge fixed by HMG according to the 'Financial Act 2030' was NRs 9.75/crop/ha. In March 1977, the government through a notice increased it further to NRs. 60/crop/ha. For the projects executed by a Board, the authority to change the rate was delegated to the Board itself. No change has been made in the rate of water charge in projects directly under HMG since 1977, however, in projects executed by a Board, rates have been revised at different periods. Some Board-managed irrigation systems have increased the rate up to NRs. 400/ha per year.

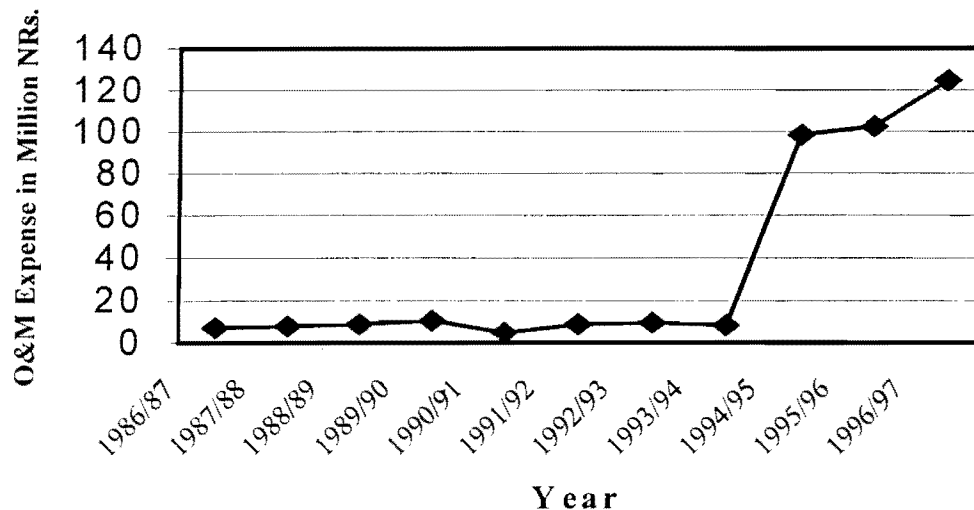
Chart 1: ISF Collection Trend



Care should be taken in interpreting Table 1 and Chart 1. There was no ISF in Nepal in the 1980s and early 1990s. There were only water charges, water taxes, water cess, etc. The term "ISF" has only recently come into use. Figures in Table 1 and Chart 1, therefore, may not represent ISF collections per se. Additionally, it should be noted that the 2.0 percent figure mentioned above is not an ISF collection efficiency (actual collections over target collections), but the percent of O&M costs covered.

The O&M expense trend is presented below:

Chart 2: O&M Expense Trend



As seen above, the remaining part of O&M cost has been borne from the government's consolidated fund as subsidy. It has proved to be increasingly burdensome to the government. The absence of such a subsidy, however, can lead the developed irrigation facilities to deteriorate at a time when complementary inputs are expected to be combined to create unprecedented productivity. Hence, sufficient resource mobilization⁵ for irrigation management has become a critical issue for Nepal.

⁵ The term resource mobilization has been used to indicate the process of generating and utilizing the different kinds of resources (cash, kind or labor) necessary for operation, maintenance and management of irrigation systems, locally or from line agencies including DOI.

Participatory Irrigation Management in Nepal

For addressing the shortcomings in financing O&M, PIM has been perceived as a potential solution as PIM activities have mainly focussed on how necessary resources are mobilized to finance the regular O&M costs of the irrigation system at the local level. This paper deals with the prevalent and emerging methods of resource mobilization under the PIM initiatives and the extent to which such initiatives have been successful. Lastly, it also puts forth some relevant recommendations that need due attention for fully meeting the objectives of PIM in Nepal's context.

The participatory approach of irrigation management was introduced in DOI⁶ on an experimental basis during the mid 1980s with the commencement of USAID-supported Irrigation Management Project (IMP). Since then, several milestones have passed. The present Irrigation Policy has further refined these efforts and clearly stated that while implementing irrigation development and management works, efforts should also be made to maximize the participation of user farmers at all stages of development and management, thereby promoting local resource mobilization and self-reliance. Accordingly, most of the irrigation development and management endeavors are based on the participatory approach. For the sake of discussion in this paper, PIM⁷ has been interpreted as the mode of irrigation management in which both farmers and the government agency participate in the management tasks.

Government-built irrigation systems in Nepal, by their management mode, can be categorized in three categories: (a) government-managed - mainly managed by the government agency with very little participation of the beneficiary farmers, (b) jointly-managed - in which farmers and the government agency are managing the irrigation system jointly, and (c) management transferred - where management responsibilities have been transferred over to organized beneficiary farmers and the government is expected to provide only post transfer support. In all three situations, both farmers and the agency are involved in the management of the irrigation system. However, the extent and mode of their participation varies. In government-managed case, farmers have a very small space for organized and systematic participation, whereas in the case of management-transferred systems, farmers are the main actors. In the intermediate stage of joint management, both share management responsibilities. Thus, the concept of PIM is present in all, nevertheless, in varying degrees.

The policy also states that the government-operated irrigation systems up to 500 ha in the hills and 2,000 ha in the *Terai* (plain area), and even bigger systems than those if feasible, shall be gradually turned over to Water Users Associations (WUAs). In general, irrigation systems larger than 500 ha in the hills and 2,000 ha in the *Terai* are to be jointly managed by the local irrigation office and the WUA. Also for such management transfer efforts, the approach of PIM has been pivotal. Following the same approach, by the end of 1998, the DOI has formally transferred the management of four⁸ irrigation systems over to organized beneficiaries. Also, more than sixty deep tube wells⁹ have been turned over to farmers. In addition, many irrigation schemes are currently implementing PIM practices aiming at partial transfer of irrigation management responsibilities and eventually, full transfer if feasible.

Changing Resource Mobilization Methods

Before the promulgation of the Irrigation Policy 2049 (1992), the resource generation to finance the incurring O&M costs in different irrigation systems was considered to be solely the responsibility of government agency. Over the time, with the change in the irrigation management policy in Nepal, there has been a shift in the approach and the thrust has been on promoting resource mobilization at the local level. Accordingly, official terminology like water charge, water cess, etc. have been replaced by the term "irrigation service fee".

Using terms such as water tax, water charge, or water cess interchangeably with ISF, however, can have serious consequences. ISF is not a water tax, water cess, or water charge. ISF is a fee. ISF is different, in both theory and practice, from these other terms. Many official reports use these terms interchangeably, which is both incorrect and potentially harmful to the ISF program. Funds collected from ISF should remain financially, administratively, and technically separate from any tax or cess.

⁶ DOI is the main government agency responsible for irrigation development activities in Nepal

⁷ The more common term for PIM in Nepal is 'Joint Management'.

⁸ Aandhi Khola, West Gandak, Panchkanya, and Marchwar lift irrigation systems that cover 282, 9000, 406, and 2815 hectares, respectively.

⁹ Each turned over tube well roughly irrigates about 100 ha.

Regarding the method of resource mobilization, before 1992, the government used to collect the levied water charges from the irrigators through its local administration and land revenue offices based on the assessment of the irrigation agency undertaking the irrigation management tasks in the respective irrigation systems. Farmers virtually had no participation or involvement in water cess assessment and collection efforts and the collections were treated as the government revenue.

As per changes in Irrigation Policy, PIM was applicable to all the irrigation systems in Nepal. However, the process was implemented intensively in a limited number of schemes described in the following section. With emergence of PIM in these schemes, considerable changes have been introduced and emerged in practices of resource mobilization. One of the major changes, is the shift in the ISF collection responsibility. Now the WUAs in the concerned irrigation system have been made responsible for ISF collections with the assistance of the agency office.

Irrigation Systems under PIM

Very few irrigation systems in Nepal have based their management endeavors based on tenets of PIM. Some of them have been discussed here to look into their performances, more specifically, related to resource mobilization. They are:

- Bhairahawa Lumbini Ground Water Project Stage I Deep Tube Wells
- Kankai Irrigation System
- Marchwar Lift Irrigation Project
- Panchkanya Irrigation System
- Sunsari Morang Irrigation System - II
- West Gandak Irrigation System

Among the above systems, Kankai and Sunsari Morang - II are being jointly managed and are in the process gradual management transfer while the other four: West Gandak, Panchkanya, Marchwar and BLGWP Phase-I deep tube wells are under management transfer.

BLGWP Stage I Tube Wells

The Bhairahwa Lumbini Ground Water Project (BLGWP) is situated in the middle of Rupandehi District in mid-western region of Nepal's *Terai*. Altogether, sixty-four deep tube wells covering about 7,200 ha in total were developed under stage I, and most them have been turned over, based on PIM approach, to organized beneficiaries for their O&M.

Marchwar Lift Irrigation Project

The Marchwar Lift Irrigation Project (MLIP) is located immediately to the southwest of Bhairahwa in the Lumbini zone of the western development region of Nepal. The gross command area of the MLIP is 7,208 ha. However, because of several constraints it irrigates only about 2,815 ha at present.

After undertaking irrigation infrastructure development, irrigated agriculture development, and institutionalization of the Water User Groups activities, the project has been handed over to farmers for its regular O&M. O&M responsibilities of the headwork are to be gradually transferred to farmers over a period of three years.

Kankai Irrigation System

The Kankai Irrigation System (KIS) is located in Jhapa district that falls in the eastern development region of Nepal. Presently, the KIS is under the joint management program of DOI. The joint management program in the system aims to gradually turn over the tertiary and branch canals to respective WUA subcommittees for their O&M responsibilities. The WUA, recently has decided to take over the management and O&M responsibilities of all the branch canals in next four years. Some tertiary and branch canals already have been taken over by respective functionaries of the WUA that command about 530 ha (Baisyat, S. M. and R. D. Maskey; 1997). Beneficiary farmers of these turned over canal sections are undertaking the regular O&M activities by mobilizing their own resources.

Under the joint management program, initiated since 1993, major inputs in the irrigation system have been formation of WUA and training of WUA functionaries and beneficiary farmers on share system, resource mobilization, record keeping, and O&M of the system.

Panchkanya and West Gandak Irrigation Systems

The Irrigation Management Transfer Project (IMTP) was launched in Nepal in March 1995. The project area consists of 11 subprojects in five development regions and covers a total command area of 67,800 ha. Panchkanya and West Gandak irrigation systems are also among them and are located in Chitwan and Nawalparasi districts, respectively.

IMTP has focussed on; (a) refining and institutionalizing, within DOI, processes and strategies for transferring to WUAs the O&M responsibility for and, if appropriate, legal ownership of, such irrigation facilities and (b) making such transfers of irrigation facilities to the WUAs in the project area in accordance with their capacity to mobilize local resources.

The major inputs through the project has been in forms of establishment of sustainable and effective WUAs through formal and informal training courses, and rehabilitation and improvement of irrigation and drainage facilities. Panchkanya, being small or medium sized subproject (406 ha), was turned over to farmers completely whereas the West Gandak, being larger (9,000 ha), has taken over the entire infrastructure but not the headwork.

Sunsari Morang Irrigation System -II

The Sunsari Morang Irrigation Project (SMIP) - II is located in the eastern region of Nepal and diverts water from country's biggest river, the Koshi. The SMIP - II, covering 16,550 ha, has been giving a substantial thrust on the participatory command area development works in tertiary level blocks that have been thought to be left to the organized farmers for their management

The major inputs in that regard have been in the form of farmers' organization development, training, and command area development activities with intensive participation of beneficiary farmers.

Status of PIM in These Systems

In all of these systems, WUAs have been formed and the executive members have been elected through a democratic process. The WUA in all the cases are legally recognized. Various training programs have been organized for the farmers related to O&M of the irrigation systems, efficient use of water, agricultural inputs and financial management. These systems have also received structural improvement under the joint efforts of the agency and the WUAs.

WUAs in these irrigation systems have intensively been involved in the irrigation management tasks. In fully transferred cases, the WUAs are the main decision-makers and implementers of the management decisions. In the jointly managed cases, the irrigation agency and the WUAs are jointly undertaking these tasks.

Primarily, farmers in these systems are engaged in various resource mobilization efforts and the resource mobilization for O&M has been the prominent task of all the existing WUAs. A brief overview of resource mobilization practices in these irrigation systems is presented below.

Methods of Resource Mobilization

In general, three kinds of resource mobilization practices are prevalent:

1. Labor mobilization for canal maintenance works.
2. Cash generation through collection of ISF and other sources.
3. Mobilization of necessary tools and equipment needed for O&M activities.

These resources are mobilized from among the beneficiaries of the system, i.e. internal to the system. The other source of the resources is outside the system, or external resource mobilization. External resource mobilization might be a contribution from the government or other agencies including non-governmental organizations in the

form of a monetary grant for a specific purpose, a regular government contribution for O&M, or a material contribution by the government such as supplying gabion crate boxes or cement for strengthening the physical system.

The resources that each beneficiary must contribute are usually related to the person's irrigated area and/or water allocation. The amount of cash or labor per unit of water, which is generally measured in terms of irrigated land, is determined by the general assembly of the irrigators at their annual meetings. Once the contribution rate is agreed upon and approved, the WUA enforces it strictly.

Labor Mobilization

Labor contribution for repair and maintenance is the most common form of resource mobilization in all the systems. However, the methods by which the labor contribution requirements are calculated differ from system to system. Some of them are explained below:

In proportion to landholding within the command area: Labor contributions calculated in proportion to the landholding within the command area seek to achieve equity between big and small landholders. Those with big holdings are required to contribute to group work more than small landholders.

Labor contribution on the basis of outlet size. Labor contributions based on the size of the outlet serving the command area are seen either in the big systems where many laborers have to be mobilized for desilting the main canal and repairing the intake and diversion dam. In small systems, fewer laborers are available. Therefore, to ensure that sufficient labor is available to perform the repair work, the provision of labor contribution on the basis of outlet size is enforced.

Labor contribution on the basis of households in the command area. In some systems, farmers contribute labor for maintenance works based on all households cultivating land in the command area.

Cash Generation

Cash contributions in lieu of labor or as ISF is common in all the systems. Different bases for fixing ISF rates are summarized below:

Table 2: Assessment of Irrigation Service Fee

Irrigation System	ISF Calculation Basis
BLGWP stage-I tube wells	Pumping hours and area irrigated for the tube wells that also function as artesian wells in wet seasons
Kankai	Irrigated area under rice
Marchwar	Irrigated area for the maximum coverage in a year
Panchkanya	Total irrigated area in a year
West Gandak	Irrigated area per crop for maximum of two crops
SMIP-II	Based on irrigated area under two main crops

Penalties have also been a source of cash income in some systems. Any person, who fails to provide the required labor contribution is fined. In some systems, the absentee is fined the equivalent of a day's wage. In systems where there is a shortage of labor or where alternative employment outside the system is easily available, the penalty for absence is set at double the wage rate of the area. These penalties are imposed to discourage people from being absent and to make maintenance a community effort. At the same, time it helps in generating some cash.

In addition, membership fees, selling twigs of trees along the canals, renting out lands that belong to the irrigation system, charges to pump users, renting out equipment with the WUA, have also been emerging as the alternative sources of income to meet the O&M costs.

Some WUAs, such as Marchwar, have gone much beyond and they are generating some additional income through activities such as making fertilizers and seeds available to its farmers at a reasonable contribution to the WUA.

Equipment/Material

Resource mobilization in terms of material has also been observed. It includes contributions such as bullock carts to transport boulders and forest products or construction materials such as gabion wire, maintenance tools as shovel, etc. However, such contributions are often made voluntarily on the basis of social relations and are not obligatory.

A comparative summary of cash and labor mobilization in selected cases is given below:

Table 3: Forms of Resource Mobilization and Modes

Irrigation System	Cash	Labor	Flexibility to pay in different forms
BLWGP Phase-I	Yes	No	Yes
Kankai	Yes	Yes	Cash is the must, but the labor portion can be paid in form of cash
Marchwar	Yes	No	No
Panchkanya	Yes	Yes	No
West Gandak	Yes	Yes	No
SMIP II	Yes	Yes	No

Transparency in Resource Mobilization

Transparency in resource mobilization efforts and related expenditures have been crucial for developing mutual trust among beneficiaries and consequently raising the collection efficiency. Accordingly, all the irrigation systems keep the collections in bank accounts and submit the expense details in the general assembly meetings.

Resource Mobilization Status

Though all these forms of resource mobilizations are not easy to put in terms of cash values, the estimated values of such efforts in selected PIM systems over the last five years are tabulated below: