

Formation of Water Users' Organization in Nepal: A Case Of Mahakali Irrigation Project

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1. Introduction

1.1 System Description

The Mahakali Irrigation Project (MIP) is located in Kanchanpur district, far-Western Region of Nepal. Its Stage I command area is bordered in the west by the Mahakali River and in the east by the Choudhar River. Construction of civil works were completed in 1987/88 with credit assistance from IDA. Construction included a main canal with a capacity of 1000 cusecs and the distributory system that contains secondary (branch) canals and tertiary canals. The system irrigates a net command area of 4800 ha. Stage I is divided into two water delivery areas.

Area I: An individual tertiary commands approximately 40 ha and the number of field outlets varies from 3 to 6.

Area II: An individual tertiary commands 30 ha and each tertiary has 7 field outlets.

The system is supplied with water from the Sarada Barrage constructed on Mahakali River in 1928 as per the water sharing agreement made between His Majesty's Government of Nepal and the Government of British India in 1920.

The population of MIP area is largely of migrants, most are from the far-western hills. Many of these migrants have been in the area less than three generations. This mixed population also includes, Nepalese migrants from Burma, and Tharus, early settlers of the area. There are two types of Tharus each with different cultures. Dangora Tharus from the Dang area and the Bana Tharus from other parts. Major ethnic groups in the area are Chettri/Thakuri (46%) and Brahmin (29%). Tarus make up 11% of the population constituting the historically indigenous ethnic group.

The project is trying to establish a water user management system with Tharus and migrant hill farmers. Many are unfamiliar with irrigation. They lack cooperative labor patterns, and social institutions.

Flux of recent migrants in the area has brought almost 200 ha. of untitled land under the irrigation command. The average farm size per household is 1.45 ha and 38% of the total area is being held by the 14% of the farmers.

1.2 Purpose of the Paper

The procedures used by MIP in forming Water User Organizations (WUO), institutionalizing farmer participation, involving farmers from the beginning of the canal alignment has contributed to management. The inter-related levels of Water User

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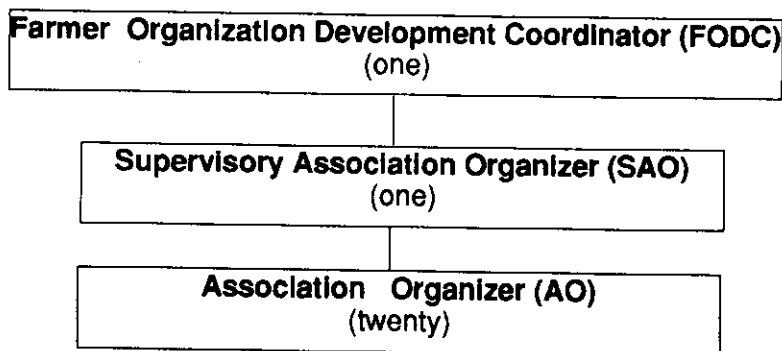
Organizations and the involvement of farmers through WUO has facilitated water delivery and management. The procedures developed in MIP hopefully, can be replicated in other large scale irrigation systems currently administered by a public irrigation agency.

2. Process for Forming Water User Organizations and its Activities

MIP failed in its first attempt to establish a WUO during 1987/88. An Agriculture Impact Study carried out in 1989 revealed that more than 90% of farmers were not aware that Water User Groups had been formed in their area. This first effort was carried out by the Agriculture Pilot Farm with support from field level extension staff. From this first attempt it was learned that farmers required purposeful organizing works. Out of the existing problems, and from establishment of inter-relationships between WUO with the agency, support was developed for joint system management.

2.1 Procedures

Once an understanding was reached at the credit negotiations with IDA for farmer organization work under Mahakali Stage II, the project established a Farmer Organization Division to start its second effort in farmer organization with the following manpower in the Stage I area:



At the beginning of 1989, MIP hired one FODC, one SAO, and thirteen AOs on contract service. The AOs received pre-job training giving them skills and knowledge specific to the area where they worked. A "coordinating committee" was established consisting of project manager, FODC, Agriculture Farm Chief, O&M Division Chief, and Design Division Chief. One prime activity of this committee was to give the farmer organization a role in all possible project activities and review the progress on weekly basis.

A strategy was developed to spread AOs on individual tertiaries throughout the area, maintaining their presence in the farmer community and maximizing the project's knowledge of farmers in the area. At the beginning AOs were assigned to work on a single tertiary, spreading their work to neighboring tertiaries as work progressed and their experience increased. Completed tertiaries would serve as demonstrations for neighboring farmers, contributing to farmer training as organizing efforts accelerated.

The AOs would help settle disputes or handle other problems on the canals after the organization process was complete. The AOs would continue to work in the adjoining tertiaries, continuing to maintain relations with farmers in the area.

In March 1989, AOs were assigned to ten tertiaries (300 ha). They established themselves in the field, then went on building a rapport with the users while documenting information related to the relationship between the irrigation system and the user.

2.2 Identification of Issues

Farmers were not fully aware of their own *chak* boundaries and were trying to draw water from the wrong field outlet. Some farmers were unable to connect to tertiaries because they could not get permission from the upstream farmers. Other farmers were unwilling to dig or maintain field channels, preferring to get their water by cutting or inserting pipes into the closest channels. Farmers did not blame their neighbors for misappropriation of water and breaching canal system. Their attitude, when the program started, was that because they paid a water charge it was the duty of the project to construct, maintain, protect, and deliver water to each field. Improper and untimely tertiary cleaning by the MIP contributed to water scarcity at the tail of the tertiary. AOs were taught how to respond to farmers under these constraints, and how to solve or minimize such constraints through joint system management by water users organization and the agency.

2.3 Organizing Process

Organization began at the individual outlets with the formation of individual water user groups (WUGs). Farmers were encouraged to participate. On an average, more than 90% of the households were represented at each WUG formation meeting. Leaders from all outlets were present at the tertiary committee formation.

Once the tertiary committees were formed, they organized a joint walk-through for agency and tertiary committee members. An engineer, overseer, field staff of O&M Division, and Extension staff from the Agriculture Farm participated in the walk-through.

The walk-through helped educate the farmer representatives on system protection, operations & maintenance and oriented the officials towards the type of problems at the field and farmer level. Responsibility for maintenance items and work were identified.

Tertiary committee activities were initiated to gain group support for the widening, cleaning, and construction of field channels, tertiaries, and drains. By the beginning of Monsoon 1989, 811 man/days of labor were mobilized. More than 95% of the existing field channels (12568 meters) were cleaned, widened, and maintained. A total of 4670 meters of new field channels had been built. Overseers were invited by the WUGs to provide advice on field channel size and alignment in about half of the construction. The ten tertiaries were cleaned and a 40 meter drain installed at one tertiary area. Refusals by the farmers to allow land to be used for field channel construction were reversed by WUG. In 95% of the cases the WUGs were aided by AOs and their supervisors in this respect. *Chak* boundaries adjustments were also made. Farmer Organization Development personnel were called to help farmers solve their disputes. Tertiary committees were urged to take an active role to solve the problems themselves.

The impact drew the interest of farmers living on neighboring canal areas. The farmers demonstrated their ability to maintain the tertiary canals. Tertiary committees started developing and enforcing rules related to system protection, maintenance, and water delivery. The agency acted by cleaning up to the secondary level canal, stopping before the tertiaries. This resulted in a flow of demand for AOs by the farmers of the other tertiaries. Demand for more than 100 tertiaries at a time could not be met. A program was launched to assist the cleaning of the tertiary canals, which was their immediate need.

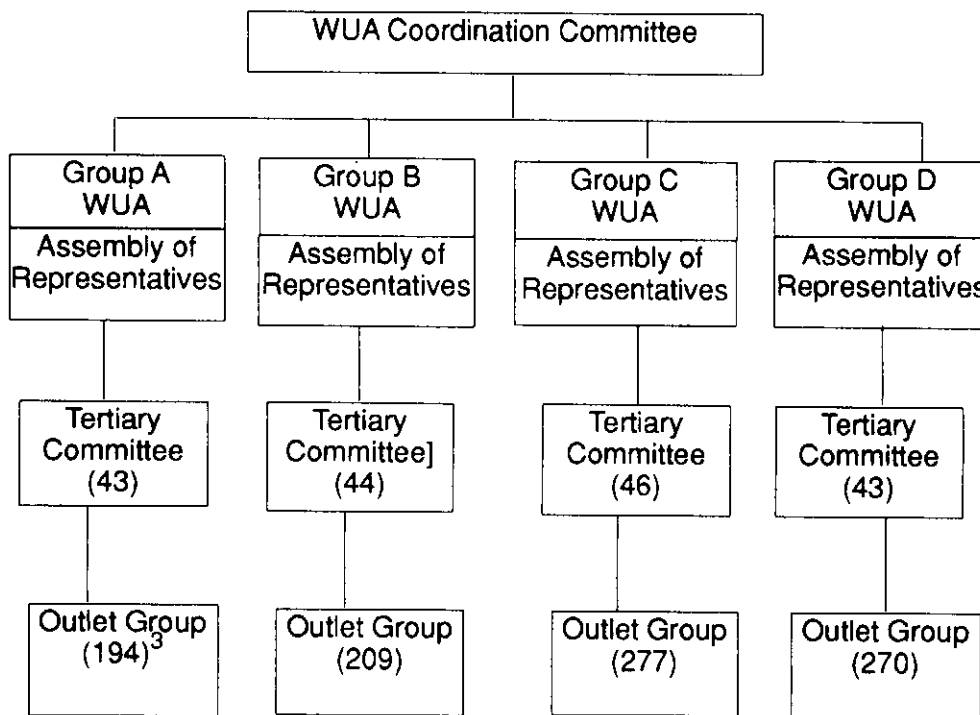
The program started spreading in July 1989. AOs were assigned to additional tertiaries. By December 1991 all the tertiary committees within the system had been formed. Then the Rotation Group level Water User Association was formed. All the tertiary committee chairmen within the Rotation Group formed an "Assembly of Representatives". Among themselves they selected one chairman, one secretary, and two executive members. From the Agency side, the Chief of O&M Division and the Chief of the Agriculture Farm were ex-officio members. From each WUA there were 6 members in each of the four Rotation Groups.

Chairmen of the four WUAs formed a project level WUA coordination committee by selecting one chairman and one secretary among themselves. The project manager was the ex-officio member.

2.4 Training

In addition to pre-job Training and Refresher Training, the AOs were provided with regular field level as well as class room training. AOs were learning by doing in a regularly supervised condition, which was helpful in their confidence building.

Organogram of WUO in MIP



Farmer representatives were trained continuously. The tertiary committee members received training on the concept of joint irrigation management, rotational water supply, and on-farm water management. Field level meetings with 40 to 70 farmers were held to orient the farmers about joint irrigation management.

2.5 WUO Activities

a) Maintenance

The tertiary Committee's main maintenance activity was desilting of tertiary canals. Breaks and rat-holes were common maintenance activities in the area. An Outlet Group maintained the field channel within a chak (outlet area). Farmers constructed and maintained canals that they get water from. This was done at the initiation of the Outlet Group. The individual field channel is the responsibility of individual farmers. The project maintains the system above the tertiary off-take. Maintenance work that came within the responsibility of the project was identified by the tertiary committee. The WUA prepared a list of their work needs and maintenance work suggested by WUGs on priority basis. This list was sent to the respective WUA. The WUACC prepared one list out of four lists supplied by the four WUAs. This list was handed over to the O&M Division of the project. The Division carried out the maintenance work on priority basis considering the available budget. Maintenance work that was selected by the project had to be discussed in the WUACC meeting and was included in the main list.

b) Operation

The project operated the system up to the off-take point of the tertiary and its responsibility ended after the delivery of the fixed amount of water at the tertiary point. The tertiary committee determined the water allocation time to the field-outlets for the chak area. Then the Outlet Groups distributed water among individual farmers within the chak based on their time allocation. The turn of water delivery and canal closure within the Rotational Groups was decided by the WUACC. Monitoring the rotation among Rotational Groups was done by the respective WUA.

c) Resource Mobilization

The tertiary committee mobilized labor for tertiary maintenance. Then it was the responsibility of the tertiary committee executive members to inform the general users within their respective outlet areas. One labor per day from every household irrespective of land holding was the norm. For a tertiary canal located in high silt area, the tertiary committee had been mobilizing 5.5 man/days of labor per hectare per year to keep the tertiary in operation. Contribution of labor for maintaining the field channel was done by the farmers who shared that channel. Labor for drain protection work was done by farmers affected by the excess water. In case of drain protection the project enters into agreement with the tertiary committee demarcating responsibility among the farmers.

d) Water Allocation and Distribution

Water rotation (days/week) for the four rotation blocks commanding almost an equal area was fixed by the WUACC. Once the Branch/Distributory/Minor canal within a rotation block was opened, all the tertiaries within that subsector automatically got a fixed amount of water. Water entering into the tertiary was diverted by one or two field outlets as allocated by the tertiary committee. The Outlet Group allocated water on a hourly basis to individual farmers in proportion to their land area. Farmers also diverted water from the outlet to their field at their respective turn.

e) **Conflict Resolution**

Conflicts among the farmers in water turn and the right-of-way were solved by the Outlet Groups. Usually the Outlet leader mediated the disputes. If the Outlet leader could not resolve the dispute, then it was referred to the tertiary committee. The few disputants that came to the office directly were discouraged by not entertaining their cases. Only disputes that could not be settled by the tertiary committee were sent to project office through their respective area tertiary committee. More than 90% of such cases referred to project office needed technical assistance.

f) **Meeting of WUO**

The Tertiary Committee usually met at the chairman or secretary's house a minimum four times per year or more if the chairman requested. The project technician's presence was required in the meeting.

A minimum of four meetings per year were held for the WUACC, usually they were held in the center of the command area, housed in an operator quarter provided by the project.

The WUA met a minimum six times a year and more if required. The four WUA offices were also housed at the operator quarter.

Outlet Groups met a minimum two times a year or more if required. The Outlet Groups met at the house of the Outlet Group Leader.

Roles, responsibilities, rights and sanctions

Roles and responsibilities of all four tiers of the organization were spelled out in the WUO constitution. The outlet leader, who was an ex-officio executive member of the Tertiary Committee, had to get water allocated from the Tertiary Committee meeting and conduct the Outlet Group meeting to allocate water among the individual farmers. He was a prime authority to settle water and field channel related disputes. He informed the outlet farmers about the decisions of the tertiary committee. When farmers did not receive information, the leader was held responsible. The Tertiary Committee Chairman had to deal with the project office, call meetings, organize the farmers for maintenance activities, and manage and operate the committee fund. The Tertiary Committee was free to develop its own norms. Fines and other rules varied from one tertiary committee to another.

Tertiary Committees developed and enforced rules related to the protection of the system, resource mobilization and water supply. Growing of pulses on canal banks attracted mice to dig hole in the canal. This practice was prohibited by the tertiary committees and pulse plants were destroyed. Cutting of canal banks was recognized as a punishable act by the tertiary committees. Norms were established for labor contribution requirements (one labor per household). Fines were imposed for non-participation in group labor, and for water-stealing, all unauthorized pipes were removed through group action. It was the duty of every user to allow a field channel through their field to the downstream farmers.

3. Impact of WUO Participation on Irrigation Activities

When the farmer development organization program began, the concept of irrigation management changed. The concept of supply oriented O&M from the part of

the officials was gradually changed into demand-driven O&M through discussions in the weekly project coordination meeting. Problems in the field were reported and a solution was found which was agreeable to every task Divisions. Feedback through the AOs were brought to the Farmer Organization Division and discussed in a weekly coordination meeting. This communication network was helpful in re-orienting officials who were directly involved in service delivery.

The negative attitude of the farmers towards the project officials began to change. They started to develop ownership feelings toward the system. Some of the following changes were noticed:

- a) Tail end farmers started to receive water mainly due to the practice of rotation and the improved discipline among the farmers. Farmer discipline stopped unauthorized way of taking water. Tertiary committees removed as many as seventeen unauthorized pipe outlets from the tertiary canal.
- b) Farmers who complained about the amount of water in the tertiary canal, gradually found it sufficient. The program solved more than 95% of the right-of-way issues. Construction of many new field channels helped improve efficiency in water use. The density of field channel reached up to 200 meters/ha. As farmers gained more control through the system water use efficiency increased.
- c) Tertiary canal maintenance by the farmers had resulted a reduction in the requirement of O&M budget. The project has saved about Rs 4.5m on O&M (Rs. 31,000 per tertiary) every year.
- d) Establishment of WUOs in the system resulted in increased responsiveness of the officials involved in O&M, improving the reliability in water supply.
- e) Farmers became very optimistic about the program.

Introduction of Farmer Organization in MIP provided an opportunity for the project to identify weaknesses in the system that were to be addressed from the very beginning of the canal system design. As a result, the MIP stage II successfully implemented the participatory tertiary canal alignment works. Following were the steps followed in this task:

- a) AOs met with the users in areas selected and explained the process of participatory design to the farmer.
- b) AOs organized meetings with the farmers and facilitated their participation in the determination of farm boundaries within the command area. The design team marked the boundaries on 1:5000 scale aerial photographs.
- c) From the farm boundary plot the design team produced tertiary canal alignments conforming to farm boundaries as far as possible.
- d) Farmers were organized to attend a walk-through with the design team, showing them the canal alignments. Outlet positions were described with the farmers name and land area who shared water from each outlet. Discussions with the farmers determined what changes the farmers might prefer to accommodate their social requirements. A final alignment was agreed to by all present.
- e) The AOs prepared a document of agreement to be signed by farmers in each tertiary group, agreeing to the mutually determined final design.

During the walk-through AOs produced a list of land owners for each outlet. This became the list of the members for each Outlet Group. Then a tertiary group membership was compiled from the combined lists outlet group memberships.

4. Conclusions

4.1 Problems and Issues Encountered

Some of the main problems & issues encountered during the program implementation were as follows:

- a) Integration of AOs in project management as well as in the rural system was very difficult. Regularized job of the AOs in the government system resulted in a difficult situation in matching the performance with the program requirement.
- b) The in-between role of the Farmer Organization Division was difficult whenever a party defaulted the agreement.
- c) There was difficulty in convincing farmers that the Program was really serious about delivering and that the new program was different from the previous one.
- d) Some of the project commitments could not be fulfilled in time. Such as remodelling the system and the reimbursement of 25% amount out of water charge collected. Program credibility and activity suffered.
- e) Lack of proper communication among the different sections of the project caused unreliability in operation and maintenance which created confusion among the water users. This factor time to time shook the confidence of WUO.
- f) The envisaged role of the upper tier of the organization could not be achieved until the lower tiers organization were fully established. The Project Farmer Organization Division had to fill the gap until a complete farmer organizational structure could evolve.
- g) The implementation of the program in a limited area at the beginning did not please other farmers. It was hard to the project to make policy exclusively for the limited area.
- h) The condition of the contract with the construction contractor and the value system the contractor carried provided very little chance to improve farmer - project relations. Rather the performance of these contractors deteriorated the relations.
- i) The O&M activity of the Project was always second priority. Efficient staff with good aptitude in work were assigned in stage II construction.

4.2 Lessons Learned and Recommendations

The lessons learned from the project problems lend themselves to the following recommendations:

- a) A Farmer Organization Program required flexibility in terms of staff service conditions and skills. The contract system was recommended to meet the job requirement. The program required constant reevaluation, retasking and retraining throughout the program cycle.
- b) The program had to be planned in a way that incorporated the farmer and project needs. The program must be treated as an integral part of irrigation management development.

- c) From the beginning the program needed identifiable tasks. Without well planned tasks credibility of the project faltered, making implementation of other new programs difficult.
- d) Consideration of the existing capacity needed to be assessed properly before designing any activity related to the farmers.
- e) Efficiency and strength of WUO heavily depended upon the project activities. The project needed to be sensitive to performance, which is related to farmer organization and O&M activities.
- f) The organizational and participatory activities needed to be considered from the very beginning of the project planning. System construction and development should be done in phases, considering the level of manpower to cover the area with the organizational activities.
- g) The construction contract conditions should match the need. Sufficient points needed to be incorporated to help farmer management. The project needed to be open to inform the farmers on its limitation and strength.
- h) Operation and maintenance of the tertiary level system was within the farmers financial abilities. Support from the public irrigation agency should never go down to this level.
- i) O&M activity should get high priority. Skilled staff with good aptitude should be assigned in O&M activity.

References

- Agricultural Projects Services Centre (APROSC) 1989. Agricultural Impact Study: Mahakali Irrigation Project, Stage I, Nepal.
- Gautam, U.; Subedi, R.; and Gautam, K.M. November 1990. Facet of Irrigation Management in Nepal. Irrigation Sector Support Project Nepal.
- Irrigation Sector Support Project, December 1991. Nepal: Review of Operation & Maintenance and participatory management of Large Scale Irrigation Projects.
- Manzardo, A.; and Subedi, R. January 1990. Farmer Organization in the Mahakali Irrigation Project: Development of Associations and Field System Management, Mahakali Irrigation Project, Nepal.
- Subedi, R. June 1989. Four months of Farmer Organization Development Process in Mahakali Irrigation Project. Mahakali Irrigation Project, Nepal.
- Subedi, R. August 1990. Farmer's Response on-farm-water management program. Mahakali Irrigation Project, Nepal.
- World Bank June 1980. Staff Appraisal Report: Mahakali Irrigation Project. South Asia Projects Department.