

Institutions for Irrigation Development and Management

Agencies Involved in Irrigation Development

Until recently, five governmental agencies were involved in irrigation development and management in Nepal. They included :

- o the Department of Irrigation, Hydrology, and Meteorology (DIHM), now reorganised into the Department of Irrigation (DOI),
- o the Development Board Act of 1956, under which larger systems are managed,
- o the Ministry of the *Panchayat* and Local Development (MPLD),
- o the Farm Irrigation and Water Utilization Division of the Department of Agriculture (FIWUD), and,
- o the Agricultural Development Bank of Nepal (ADB/N).

Although reorganisation took place in the irrigation sector in late 1987, a short description of the scope and function of the work of each of these agencies will highlight its role in irrigation development in Nepal.

Department of Irrigation. This Department does not have a long history nor does it have extensive experience in irrigation management. The Agricultural Council, which took care of irrigation activities as well as agriculture, was formed in 1926 and was dissolved in 1951. The Irrigation Department was established with the technical help of India in 1952. An organised Irrigation Department completely manned by Nepalese technicians came into existence only in 1955. Later, this Department was also given the responsibility to take up drinking water activities, and was handed the responsibility of implementing minor irrigation projects in 1966 and underground water utilization in 1968. Only during the fourth Five Year Plan period (1970-75) did Nepal start undertaking large irrigation systems.

In 1972, the Department was reorganised and was renamed the Department of Irrigation and Meteorology (DIM) under the Ministry of Agriculture and Irrigation. In 1979, the Irrigation Department was transferred to the Ministry of Electricity and Irrigation. This Ministry was renamed as the Ministry of Water Resources in 1980. Since then, it has been established as the Department of Irrigation, Hydrology, and Meteorology under the Ministry of Water Resources. In late 1987, the present organisation was formed by shifting Hydrology and Meteorology into a separate department and the previous irrigation related activities of DIHM, FIWUD, and MPLD into a restructured Department of Irrigation (DOI). The DOI continues to function under the Ministry of Water Resources.

At present, the DOI is the principle organisation involved in the development of irrigation in Nepal. Along with the new organisational structure, a new irrigation policy has been drafted to guide all government and semi-government agencies.

Management of Irrigation by Development Boards. Large irrigation systems built with foreign loans or for special type of activities and with special management provisions were undertaken under the Development Board Act of 1956. Management under the Development Board Act gives autonomy in personnel recruitment as well as financial flexibility. The Board consists of representatives from the Agriculture, Water Resources, and Finance Ministries. The Secretary of the Ministry of Water Resources is Chairman, and the project manager acts as the member-secretary. Examples of board-managed irrigation projects are the Narayani Zone Irrigation Development Project and the Kankai Irrigation Project. Another example of a development board is the Ground Water Development Board. Most of the large ground water projects are carried out by this Board.

Irrigation Development by the Ministry of Panchayat and Local Development (MPLD). When the Department of Minor Irrigation was established in 1970, the responsibility for the implementation of minor irrigation projects was given to the Chairmen of the District *Panchayats*. In the course of time, it was found that there was inadequate technical support, so in 1971, the Minor Irrigation Department was merged with the Irrigation Department. The Irrigation Department then took the responsibility of irrigation systems with command areas over 50 ha and the Ministry of *Panchayat* and Local Development was given the responsibility of irrigating command areas of less than 50 ha. Rural development programmes are coordinated by the MPLD and each has an irrigation component which gives the MPLD a significant role in irrigation development.

Farm Irrigation and Water Utilisation Division (FIWUD). FIWUD was established under the Department of Agriculture in 1973. Initially, it was responsible for the development of command areas of pump irrigation schemes built by other agencies. Its role expanded into the development of small gravity irrigation systems in the hills. Farmers' participation was fundamental in the implementation of FIWUD projects. Farmers were to identify the need for irrigation facilities and formulate a request. Technicians from the unit would then visit the site and do the feasibility study in collaboration with the farmers.

Beneficiaries were required to form a construction committee and deposit 5 per cent of the total estimated cost in the Agricultural Development Bank. The FIWUD then deposited 70 per cent of the total cost of the project in the Bank and the farmers mobilized the remainder through labour contributions. The FIWUD technicians supervised the construction.

On completion of the project, certification was done by the technician and the construction committee was modified to take responsibility for the operation and maintenance of the completed system.

The Agricultural Development Bank of Nepal (ADB). In the past the Agricultural Development Bank granted loans for three types of irrigation development programmes : 1) FIWUD irrigation schemes, 2) private pump irrigation, and 3) gravity irrigation systems.

The Bank's investment in irrigation started in 1968. In 1981, ADB/N began an intensive loan programme for pump irrigation. Over 11,000 shallow tube-wells were installed under this loan programme making irrigation facilities available to over 45,000 ha. Loans for wells and pumps are to be paid within seven years. The loans are primarily given to individuals. The Government provides labour subsidy for up to Rs 3,000 during the time of installation. Maintenance and operation costs will be borne by the pump-owner.

Besides pump irrigation, ADB/N has financed gravity irrigation systems as well. Irrigation for small farmers has been provided through the Small Farmer Development Project in collaboration with CARE. For such gravity irrigation systems, CARE provides 50 per cent of the cost and farmers have to take 30 per cent as a loan from ADB/N and contribute 20 per cent as labour (S. Pradhan 1985).

Under the reorganisation of irrigation activities in late 1987, the Agricultural Development Bank received an expanded mandate. Through its loan programme ADB/N is responsible for developing 227,000 ha or nearly 25 per cent of the planned irrigation area by the year 2000.

Farmers' Organisations

Farmer-managed systems range in size from a few hectares to 15,000 ha. Even though farmers face many difficulties in maintaining these systems due to floods and landslides, many systems have been gradually improved each year and only a few have been observed to have fallen into complete disuse. One of the greatest threats to their viability is rapid deforestation. Reduced forest cover contributes to higher silt loads, more destructive floods, and more frequent landslides which force the farmers to work harder to keep their systems operational. Deforestation deprives the farmers of forest products - limbs, branches, and brush - upon which they have traditionally depended for maintaining diversions and repairing breaches in the canals. The impact of deforestation on the ability to maintain such systems needs investigation.

Farmers in each system have developed an organisational structure that fits the needs of their system in its particular environmental setting. The structure has evolved over many years and continues to change. Some organisations are very sophisticated and have a written constitution, well-defined roles, and paid functionaries. In other systems many of the irrigation tasks are carried out on an ad hoc basis.

Many factors contribute to the nature of the organisational structure, including the supply of water relative to the available land area, soil type, nature of land holding, topography of the

command area, area through which the canal must travel, distance from house to field, and social structure. However, the labour requirement for system maintenance has been found to be the most dominant influence. Systems with a high resource mobilization requirement for maintenance usually have the most developed organisation (Martin and Yoder 1988). Patterns of organisation are also associated with the type of physical irrigation system. Hill systems with typically long canals that deliver water to the first field are distinctively different from river valley systems where only a short canal is needed. *Terai* systems tend to be larger, often requiring several tiers of organisation.

Farmer-managed systems do not fall under the jurisdiction of any government agency. Interaction with a government agency takes place only when there is desire to mobilise resources from outside their community.

Reorganisation of Agencies Responsible for Irrigation Development

The Department of Irrigation has been reorganised with the provision of five Deputy Director Generals to look after specific division activities. These divisions are :

- o Small Irrigation and Water Utilisation Division,
- o Large and Medium Irrigation Division,
- o Ground Water Division,
- o Planning Management Division, and,
- o River Training and Environmental Division.

The irrigation development responsibilities of the FIWUD and the irrigation activity responsibilities of the *Panchayat* and Local Development Ministry are amalgamated in the Department of Irrigation. The Agricultural Development Bank has been given a greater role in irrigation development. Previously ADB/N activities for gravity irrigation development were largely confined to the Bank's Small Farmer Development Project (SFDP). With the reorganisation of the government's irrigation aspects, ADB/N is to undertake irrigation activities throughout the country.

The five Regional Directorates are to be strengthened and should provide technical assistance and supervision to newly established District Offices. District Irrigation Offices (DIO) are to be established in 70 districts. Wherever the Regional Directorate is located, it will function as the District Irrigation Office as well. The DIO has the responsibility of carrying out the principles of the Decentralisation Act. It is responsible for undertaking feasibility studies, construction, and implementation of district-level projects once they have received approval. These projects include all the small, and some medium, irrigation development and river training activities and organisation of beneficiary groups to manage the irrigation systems after completion. The District Irrigation Office also provides assistance for repairing, rehabilitating, and improving farmer-managed irrigation systems. In doing so, the local resources will be mobilized and participation of beneficiaries will be promoted (Gorkhapatra 11 May 1988).

The irrigation sector is going through a transformation process from a construction orientation to a management orientation. However, the transition will take sometime. Evaluation of the Department and its personnel is still based on the amount of project expenditure utilised. Since construction of infrastructure usually costs more and the mechanisms are better defined than

management inputs, there is a compelling reason for the Department to give priority to construction. The 140 per cent increase in the Department's budget for 1988/89 continues to encourage this approach. Nevertheless, if the irrigation sector is going to achieve its growth target and then sustain the operation and maintenance of the expanded irrigated areas, policies and resources must be directed towards encouraging participation of beneficiaries and giving a management orientation to the DOI.