AN EVALUATION OF IMPACT OF BENEFICIARIES PARTICIPATION AT PLANNING STAGE ON OPERATION AND MAINTENANCE OF WATER DEVELOPMENT PROJECTS

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CERTIFICATE

This is to certify that this project report on **An Evaluation of Impact of Beneficiaries Participation at Planning Stage on Operation and Management of Water Development Projects** has been done by me and neither this report nor any part thereof has been submitted elsewhere for the award of any degree or diploma.

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ABSTRACT

The importance of participation of beneficiaries at all stages of a water development project is being increasingly recognised. One of the main factors leading to under performance of water development projects is identified as lack of active participation of beneficiaries in project management. It is being argued that their involvement at planning phase would improve the project performance at operation and maintenance (O&M) stage. This study was undertaken to evaluate the impact of beneficiaries participation at planning stage on subsequent project operation and maintenance.

Towards this goal five completed water development projects were studied. In three projects beneficiaries were consulted at the planning stage in the form of a pre-project meeting. In the other two projects traditional top down planning approach has been followed. An indepth evaluation was carried out for the selected projects with the help of a structured questionnaire, field visits and study of relevant documents. All the project selected are from of the greater Mymensingh region and are small in size.

Major findings of this study are that present level of beneficiaries involvement at the planning stage through preproject meetings does not ensure proper operation and maintenance of a project. Further follow up in the operation and maintenance level is necessary to achieve desired level of project performance. However, involvement of beneficiaries at planning stage ensures better project. This involvement reduces many problems that would be few day the operation and maintenance phase. In one project where service of two Community Organisers were available, who ensured continuous dialogue during post construction stages effective involvement of beneficiaries was observed.

Local resource mobilisation for O&M was encouraging for the projects where beneficiaries were consulted at planning stage. It was observed that communication between beneficiaries and project officials was poor. Present instiutional framework of carrying out O&M activities was also inefficient.

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ABBREVIATIONS

BADC	Bangladesh Agricultural Development Corporation
BRAC	Bangladesh Rural Advancement Committee
BRDB	Bangladesh Rural Development Board
BWDB	Bangladesh Water Development Board
CARE	Cooperation for American Relief Everywhere
CCDB	Christian Commission for Development Bangladesh
CE	Chief Engineer
CEP	Coastal Embankment Project
CIDA	Canadian International Development Agency
CPP	Compartmentalisation Pilot Project
CO	Community Organizer
DAE	Department of Agriculture Extension
DDP	Delta Development Project
DoF	Department of Fisheries
DLWU	Directorate of Land and Water Use
DTW	Deep Tubewell
EIP	Early Implementation Project
EMG	Embankment Maintenance Group
FAP	Flood Action Plan
FCDI	Flood Control Drainage and Irrigation
FFW	Food for Work
FFYP	Fourth Five Year Plan
FPCO	Flood Plan Co-ordination Organization
GoB	Government of Bangladesh
HP	Hourse Power
HYV	High Yielding Variety
IDA	International Development Authority
IRWP	Intensive Rural Works Programme
LGED	Local Government Engineering Department
LLP	Low Lift Pump

LRM	Local Resource Mobilization
LPC	Local Project Committee
LRP	Land Reclamation Project
MPO	Master Plan Organisation
NA	Not Avalilable
NGO	Non Governmetal Organization
NHCL	Northwest Hydraulic Consultant Limited
O&M	Operation and Maintenance
PAR	Participatory Action Research
PPM	Pre-Project Meeting
PPP	People's participatory Planning
PPS	Prokalpa Porichalona Samity
PRA	Participatory Rural Appraisal
RCC	Reinforced Cement Concrete
RMP	Rural Maintenance Programme
RRA	Rapid Rural Appraisal
SAE	Sub Assistant Engineer
SDE	Sub-Divisional Engineer
SE	Superintending Engineer
SIDA	Suidish International Development Agency
SO	Section Officer
SRP	Systems Rehabilitation Project
SSFCDI	Second Small Scale Flood Control Drainage and Irrigation
STW	Shallow Tubewell
TNO	Thana Nirbahi Officer
ToR	Terms of Reference
TRDO	Thana Rural Development Officer
UZ	Upazila (Former Thana)
WRS	Water Retension Structure
WUG	Water Users Groups

Chapter : 1

1. INTRODUCTION

1.1 General

Water resources development including flood mitigation play vital role in the economic development of Bangladesh. Bangladesh Water Development Board (BWDB) has completed numerous flood control, drainage and irrigation projects. But most of the completed projects do not deliver the desired level of service. This is due to a number of causes, and lack of proper operation and maintenance is an overriding factor (CIDA, 1991).

A recognised deficiency in water resource management in Bangladesh has been in the area of performance related to both O&M on completed small scale FCD/FCDI projects (CIDA, 1991). This is evidenced by the large number of projects currently being rehabilitated or re-constructed. In accepting this deficiency efforts have begun to incorporate initiatives to improve O&M on small scale FCD/FCDI projects.

Any water development projects performance directly affect its beneficiaries. As such they can play important role in successful implementation of operation and maintenance of water development projects. In this study an attempt has been made to look into the beneficiaries involvement and role in operation and maintenance of water development projects.

The economy of Bangladesh largely depends on agricultural development. Bangladesh Government has had put maximum emphasis on development of water resources sector to boost up agricultural production to meet ever increasing food demand and to attain self sufficiency in food. So far Bangladesh Water Development Board implemented about 440 projects of different types. In addition many minor irrigation schemes which are now mainly in private sector have also been developed (World Bank, 1985).

Studies and evaluations on some of the completed water development projects having flood control drainage and irrigation components show that most of these projects could not derive expected result due to several reasons. The services expected from different project interventions have deteriorated and in some cases these are totally inoperative. Thus the aim of the projects have not been fulfilled (MPO, 1991; FPCO, 1992). The major causes for such failures may be summarized as follows:

- non participation of the beneficiaries in the project planning, design, construction and particularly, operation and maintenance of the project;
- inadequacy of fund for regular operation and maintenance of different projec features;
- inadequate planning which in some cases could not address properly the future change resulting more harm and environmental degradation;
- lack of proper co-ordination between different government and nongovernmental organization;

- lack of interest by BWDB and other agencies for maintenance and operation of the project for years together;
- ineffectiveness of concerned government agencies to supply necessary inputs and agricultural extension services to the project, and
- other socio-economic causes like credit facilities, proper institution building, co-operatives, market, transportation, crop price, natural calamities and population boom.

The Eleven Guiding Principles based on which a major planning activity is currently going on under the banner of Flood Action Plan (FAP) incorporates the requirement of involving beneficiaries in the planning, design and operation of flood control and drainage works (FPCO, 1992). The Fourth Five Year Plan (1990-95), recognizes the importance of people's participation in the process of project planning and development The perspective plan of the govt. (1990-95) state, "the ability of the people, particularly in the rural areas, to identify their problems and plan and implement these plans by themselves in areas which concern them most" (FPCO, 1993). The Planning Commission's Fourth Five Year Plan also cites as a major constraints for water resource development (CIDA, 1991). "Inadequate attention to the institutional framework required for the operation and maintenance of schemes on a self sustaining basis with effective local participation".

There have been some studies to evaluate beneficiaries involvement in all stages of project development including operation and maintenance of the completed projects (FPCO, 1993). Recently beneficiaries participation is widely accepted in BWDB and in the donor community as the core strategy to improve O&M (CIDA, 1991). In Land Reclamation Projects (LRP) and Delta Development Projects (DDP) of BWDB attempts were made to involve beneficiaries at the post construction stages (Sarker, 1994). This study is envisaged to look critically into the effect of beneficiaries involvement at planning level on the O&M of water development project.

1.2 Objectives

The objective of the project is to evaluate the impact of involving beneficiaries in all stages of project cycle particularly at planning stage on subsequent operation and maintenance phase. The specific objective of the present study are:

- to review the existing O&M practice for water development particularly FCDI projects in Bangladesh;
- to review and assess impact of beneficiaries participation at planning stage on operation and maintenance of small scale water development projects;
- assess need of beneficiaries involvement in operation and maintenance of water development projects, and
- to recommend for improvement of future O&M of the water development projects with effective beneficiaries involvement.

Chapter : 2

2. OPERATION AND MAINTENANCE NEED OF WATER DEVELOPMENT PROJECTS

2.1 Definition

Before discussing the O&M needs of water development projects, it is necessary to clarify some terminologies.

Beneficiaries : They are farmers, fishermen, boatman and other people affected by or living inside the project area.

Operation : It is manipulation of project infrastructure to control hydraulic conditions(e.g. opening/closing gates, removing/ installing stop logs, etc.)

Maintenance : It is action taken to prevent or repair deterioration of project infra structure (e.g. replacing gate hinge pins, clearing debris from structures and channels, desilting, etc.) in an economical manner. " Petty maintenance" refers to small tasks not requiring special tools, technical ability, materials, or financial/personnel resources (e.g. filling rat holes, clearing debris, routine desilting).

Preventive maintenance : It is the maintenance which is undertaken on the basis of routine and continuous inspections, to prevent deteriorations from developing further or the weakness becoming more dangerous.

Repair work : This is another category of Maintenance needed to ensure continuance of safe, economical and efficient operation.

Replacement : When a major component of a project reaches a stage beyond possible repairs or goes beyond economic repairs, a replacement becomes unavoidable.

Emergency maintenance : This corrective work is required to be undertaken when unexpected deterioration from continued neglect or natural causes, tends to render a facility inoperative.

Rehabilitation : Reconstruction of existing structure to repair serious deterioration, or major modifications to existing infrastructure to improve performance.

Benefit realization : Efforts to exploit project-induced hydraulic changes by project residents, extension agents,etc., so as to minimize production wealth, etc.(e.g.increase in crop and aquaculture production,etc)

Operation and maintenance : all activities relating to a projects operational phase (operation, maintenance, rehabilitation and benefit realization).

2.2 Operation and Maintenance Need of FCD/I Project

In Bangladesh FCD/I projects may be categorised as :

i) flood control tidal (partial/full),
ii) flood control non-tidal (partial/full),
iii) drainage tidal
iv) drainage non tidal
v) irrigation tidal
vi) irrigation non-tidal
vii) flood control and drainage tidal (partial/full),
viii) flood control and drainage non-tidal (partial/full),
ix) flood control, drainage and irrigation tidal, and
x) flood control, drainage and irrigation non-tidal

Operation and maintenance need of each of the above type of project will depend on the purpose of the project, cropping pattern and hydraulic situation, etc. Physical features that these projects may include are: embankment, drainage sluice, drainage cum flushing sluice/regulator, flushing sluice, irrigation inlet structure, water retaining structure, check structure, aqueduct, syphon, flow divisor, escape, drainage khals, irrigation canal, bridge/culvert, internal roads, office building and store. O&M need of some of the major components of project features are described in the following sub-sections.

2.2.1 Embankments

Embankments are the major component of flood control project as such require regular routine maintenance as well as emergency maintenance. In coastal area embankments are frequently subject to tidal action and more vulnerable to damage. There are three types of embankments in coastal regions of Bangladesh namely, sea dyke, marginal dyke and internal dyke. Embankments can be of fully flood control type and submersible type. Design criteria varies with each type of embankment. Generally embankments are constructed with a free board of 1 m to 1.5 m above the highest tide level and are good enough to protect land from normal high tide. But these are not meant to take care of cyclonic tidal bores. Construction of embankment do not undergo machine compaction, nor special care is taken to select right type of material for its construction as such more vulnerable to river erosion and cause colossal damage to life and property in case of failure.

Routine inspection: To ensure desired goal, embankment should be inspected regularly to identify the following faults:

- seepage through the embankment and from the berm
- internal cutting or removal of fill material
- settlement
- surface erosion
- threat of under cutting or sloughing
- condition of turf, revetment and rain cuts
- settlement of the crest
- excessive growth of grass, weeds, bushes and trees, boat landing or cattle grazing
- evidence of rat holes or ghogs
- leak of any nature or rain cuts.

Routine maintenance include :

- repair of rat holes and ghogs
- temporary sealing of minor leaks from river side
- ringing minor leaks with sand filled bags on the country side
- dressing and filling low pockets in the embankment crest
- cutting weeds and trees that grows on the berm of embankment
- repair of turfs and embankments and
- raising settled reaches of the embankment

Emergency operation: During period of storm and high tidal surge, special vigilance will be required to inspect and render closer observation vulnerable reaches of embankment. Such attendance will be carried during monsoon (June to September). Additional item to be checked are :

- highest tide level at the lowest embankment crest
- overtopping of embankment by wave action and erosion on country side and river side of the embankment
- evidence of leaks or boils on the country side and
- direction of wave or current hitting the embankment.

Emergency maintenance: This include all items as indicated under routine O&M and urgent measure to check any breach in the embankment.

2.2.2 Drainage Sluice and Regulator

Drainage sluices and regulators are either of brick masonry or reinforced cement concrete structures fitted with slide gates and automatic flap gates that prevents water entering during high river stage and allow drainage during low river stage. These structures are located at well defined

drainage outlets. Major functions of the drainage sluice are to allow proper drainage, prevent flooding and to control intrusion of saline water into the project area. Sluices are also used for retention of water in the khals for post monsoon irrigation through closure of slide gates or placing stop logs at appropriate slots.

Gate operation during pre-monsoon: During April to June gates are kept open in non tidal areas. In coastal areas generally flap gates are fitted to sluices which do not require any manual operation. For flushing regulator normally slide gates are provided for regulating water through the sluices.

Gate operation during monsoon: During monsoon (July to September), gates of sluices are kept closed to prevent flooding of the project so long as the outside water levels remain higher than basin water levels. In coastal regions flap gates operates automatically to prevent flooding during high tide and allow drainage during low tide.

Gate operation during post-monsoon: During this periods flood water recedes gradually and gates of sluices are kept open to allow drainage of the project area.

Activities related to operation include :

- record of daily maximum and minimum water level on either side of the structure
- detection of any cause of gate malfunctioning
- identification of defect in any component of structure including cracking or leaks
- noting condition of erosion, sloughing, or siltation of approach and outfall or diversion channel
- obstruction of outfall channel by boats
- guard stop logs
- installation of stop logs to retain water in the drainage khals for post monsoon irrigation
- removal of fall boards to allow excess run off from project area
- removal of logs or debris, water hyacinth that may block water way

Maintenance include :

- repair or replacement of gate hinge
- lubricating gate hinge
- removal of silt and debris that affect gate operation
- removal of water hyacinth
- replacement of gate seals as needed
- cleaning and repaint staff gauge as needed
- maintain embankment at reasonable condition within 200 m of the sluice
- cleaning and treating fall boards with coal tar as and when required
- repair minor damage to the structure
- proper maintenance of gauge on both sides.

2.2.3 Flushing Sluices and Irrigation Inlet Structures

These are small hydraulic structures either of pipe or reinforced concrete box type meant for irrigation. Normally flushing sluices are built on high ground across embankment to command maximum area for irrigation. Gates are fitted on the country side to facilitate one way flow. In case of flap gates stop log arrangement or additional gates are fitted on river side also. In such arrangement river side gates are kept open during irrigation.

Gate operation during pre-monsoon: During April to early May gates are kept closed as river stage and salinity level do not always permit use of water for irrigation. Following that depending on crop water requirement, tide level and salinity content of river water, gates are kept open.

Gate operation during monsoon: During monsoon (July to September), gates of flushing sluices are normally kept closed except drought periods.

Gate operation during post-monsoon: During these periods standing aman crops are in flowering stage which need maximum irrigation water as such gates of the sluices are kept open till harvesting of the crop.

Rabi season: During November to April river water in coastal areas remain highly saline which is detrimental for rabi crops. So gates of flushing sluices are kept closed during these days. In non saline areas gates are normally kept open.

Operation include :

- record of daily maximum and minimum water level on either side of the structure
- detection of any cause of gate malfunctioning
- defect in any component of structure including leaks
- condition of erosion, sloughing, or siltation of inlet and delivery channel
- guard stop logs
- installation of stop logs to prevent entrance of saline tidal water into the project.
- removal of stop logs to allow irrigation water into the project
- removal of logs or debris, water hyacinth that may block water way

Maintenance include :

- repair or replacement of gate hinge
- lubricating gate hinge
- removal of silt and debris that affect gate operation
- removal of water hyacinth
- replacement of gate seals as needed
- cleaning and repaint staff gauge as needed
- maintain embankment at reasonable condition within 200 m of the sluice
- cleaning and treating fall boards with coal tar
- repair minor damage to the structure
- proper maintenance of gauge on both sides.

2.2.4 Water Retention Structures

These are multi-vent R.C.C. structures normally spanning the entire width of a channel with gate arrangement used for retention of water for post monsoon irrigation. O&M need of WRS include among others : installation of stop log to retain water, removal of stop logs as and when required, cleaning, maintenance of stop logs, repair of cracks in the structure at up stream and down stream protection works.

2.2.5 Drainage Khals

Drainage khals mainly function as collecting run off from the land surface and convey the same to outside the project through sluices. Also Internal khals are used for retention of post monsoon irrigation water. These are to be observed for channel erosion, bank sloughing, siltation problem, growth of weeds and trees, obstruction by debris. Channels be maintained against all these short comings.

2.2.6 Low Lift Pumps

A LLP used in Bangladesh consists of a 16-18 H.P.diesel engine coupled to a centrifugal pump designed to discharge 0.06 cumec with a pumping head about 12 m. This can be electrically powered subject to availability of electricity in an area. Operation of a LLP include record of time on time off, fuel consumption, effecting water delivery to the plots by the approved rotation schedule, irrigated area, change of oil, details of repair etc. Maintenance include: cleaning different parts as and when required, changing oil, keeping the floating water hyacinth and other debris away from pump intakes.

2.3 Water Development Agencies and their Role in Operation and Maintenance

A number of public, semi autonomous and non-governmental organisations are involved in the water resources development of the country. Role of some of these agencies are narrated in the following sub-sections.

2.3.1 Bangladesh Water Development Board

BWDB is the largest autonomous agency of the Government in water resources development sector controlled by Ministry of Irrigation, Water Development and Flood Control. This organisation was established in the year 1959 with the prime objectives of attaining food self sufficiency in the country through development of multipurpose water resources projects. Major activities of BWDB are planning, design, implementation and operation and maintenance of flood control, drainage and irrigation projects. The organisation is managed by a board headed by a Chairman and five members. The members are responsible for Planning, Implementation, Operation and Maintenance (O&M), Finance and Administration. Responsibility for field organisation of BWDB headed by four Zonal Chief Engineers is distributed between the Member responsible for O&M and the Member responsible for Implementation. The organizational structure of O&M units of BWDB is shown in Figure 2.1.

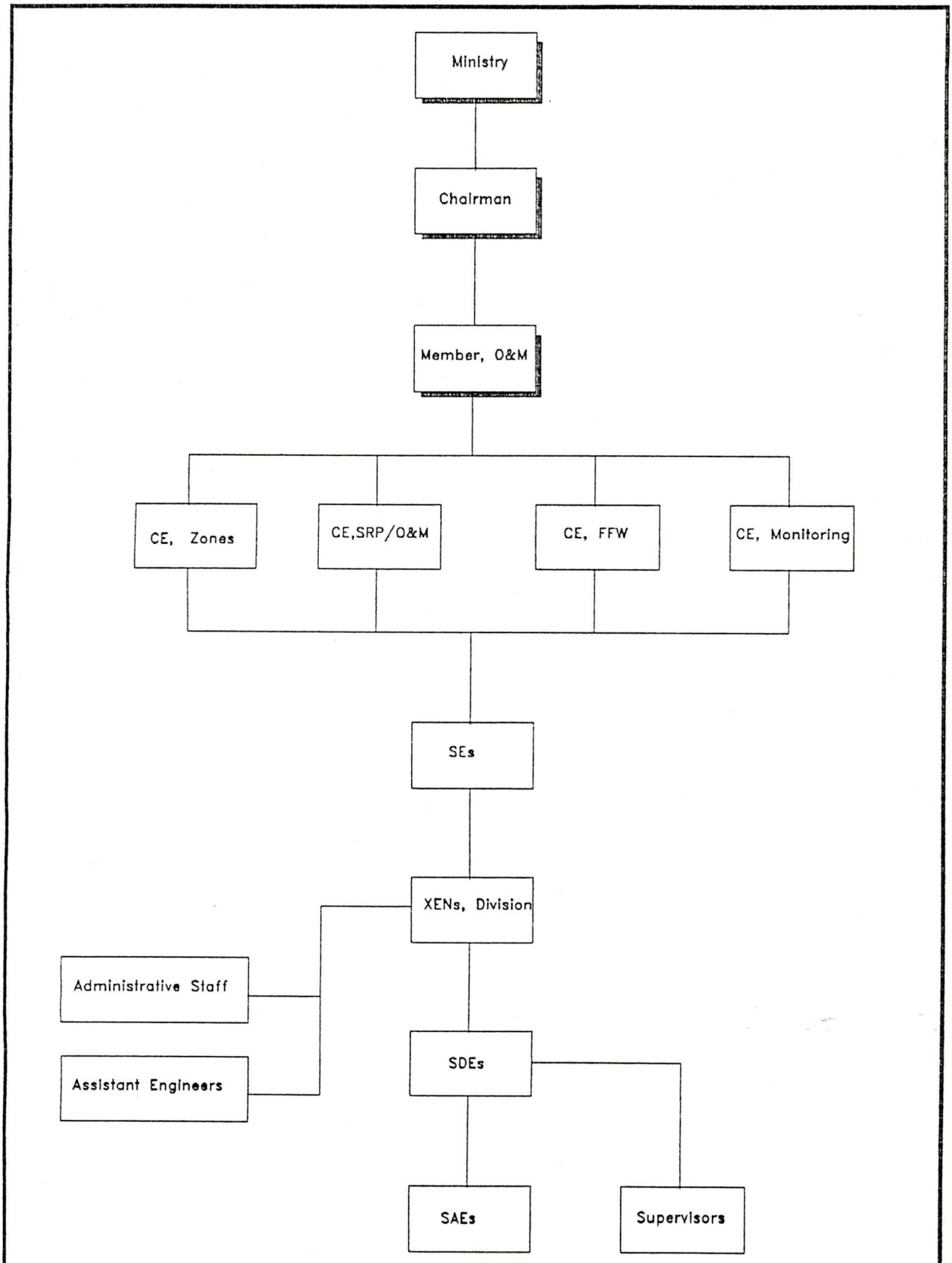


Figure : 2.1 : ORGANISATIONAL STRUCTURE OF O&M UNITS OF BWDB

2.3.2 Bangladesh Agricultural Development Corporation

BADC was established in 1961 to provide farmers all recurrent agricultural inputs as well as equipment for abstracting ground water and the repair of this equipment. The function of the BADC have been progressively privatized during the past five years. With assistance from International Development Agency, Government recently (February, 1988) reviewed the institution with the objective of redefining a role for the agency in agriculture and more specifically in ground water development since privatization is essentially complete.

2.3.3 Thana Parisad

The Thana is the lowest level of administrative structure. Thana Parishad was previously headed by an elected Chairman. Presently a Thana Nirbahi Officer (TNO) is the administrative head at Thana level. At the Thana level there are the Thana Nirbahi Officer, the Thana Engineer, Thana Agricultural Officer, Thana Finance and Administrative Officer and officials from all major ministries except BWDB and BADC. Although Thana Parisad was not entrusted with the execution of foreign aided water development project, their active participation in O&M of many development projects was stipulated in the Local Government Ordinance of 1982. Since 1982, GoB has entrusted thanas to takeover all development activities with the exception of foreign funded project which will be dealt by BWDB. Draft FFYP proposes FCD projects up to 4,000 ha are to be implemented by thanas with technical help from BWDB. These projects would be paid for and would remain in the hands of thana governments.

2.3.4. Local Government Engineering Bureau

LGEB was created in 1984 to provide technical assistance to the District and Thana levels for construction, operation and maintenance of local civil infrastructure. Responsibility for planning design and construction of small water development schemes was also assigned to LGEB. Small scale water resources schemes are being implemented as part of the Rural Employment Sector Programme formerly known as Intensive Rural Works Programme under the Local Government Engineering Bureau of the Ministry of LGRD and Cooperatives. During the planning of water schemes operation and maintenance committee are formed by beneficiaries and other interested groups (IRWP, 1986). The Committees have provided useful information and advice during the planning and design of schemes and have helped to resolved local conflicts during construction.

2.3.5 Department of Agriculture Extension

Controlled by Ministry of Agriculture through a Director General, DAE has organised extension services according to the principles of the Training and Visit System. The Agriculture Extension Officers posted at each of the thanas manage Block Supervisors stationed in each Union. The AEO,s are responsible to their respective Deputy Director for technical direction. Under current staff allocations, each Block Supervisor works with anywhere from 1000 to 1200 farm families. In practice capabilities of DAE Field Officials are severely constrained in providing extension services due to lack of resource and transportation.

2.3.6 Bangladesh Rural Development Board

BRDB is a semi-autonomous body under the Ministry of Local Government, Rural Development and Cooperatives. It has responsibility for extending to all parts of the country the two-tier pattern for farmer cooperatives originally developed in Comilla. This consists of the Thana Central Cooperatives Association as the upper tier or umbrella body and the Primary Societies or Krishi Samabaya Samity as the bottom tier. BRDB is also involved in forming and supporting cooperatives around credit and related activities for destitute females (Mahila Samabaya Samity) and landless males (Bittahin Samabaya Samity). Field staff levels are relatively low except where special programmes have been introduced. Staffing consists of one Thana Rural Development Officer supported by an Assistant Rural Development Officer. As with other staff assigned to the thana, the URDOs are administratively responsible to the Nirbahi Officer while their line ministries provide technical guidance.

2.3.7 Department of Fisheries

Management of open water fishery is in a transition phase between old and new fisheries management policies. Under the old policy all open water fisheries are controlled by the Ministry of Land which leases fishing right to the highest bidder. The primary role of DoF has been to support aquaculture through demonstration ponds, hatchery construction and operation, research and extension. Recently inter agency agreement have been developed to give DOF fisheries management responsibility in selected waters owned by BWDB.The Thana Fisheries Officer, deputed from DoF, is responsible for providing extension services within the Thana.

2.3.8 Non Government Organization

NGO's are being involved in O&M of many development projects. Major among them is CARE which is one of the largest NGOs in the country. CARE Bangladesh monitors the Rural

Maintenance Programme (RMP) of the government under the Ministry of Relief. The objective of RMP is to provide employment opportunities for destitute, landless female head of households and to provide routine maintenance for village earthen roads. RMP is being implemented in 4095 unions and employs about 61,000 women (EIP, 1990). The project has been running since 1983 and has shown how social and technical objectives can be successively combined, because a substantial number of women are being employed and the utility of some rural roads is improved. The procedures for organising and employing women on the Delta Development Project are similar to those being followed in RMP.

2.4 Experience of Efforts for Improvement of Operation and Maintenance in Water Development Projects

A recognised deficiency in water resource management in Bangladesh has been in the area of performance related to both O&M on completed small scale FCD/FCDI projects (CIDA, 1991). This section presents a brief description on some ongoing projects with components aimed at improving O&M by encouraging local participation.

2.4.1 Second Small Scale Flood Control Drainage and Irrigation Project

The Second Small Scale Flood Control Drainage and Irrigation (SSFCDI) project funded by CIDA/World Bank, provide technical assistance services, training services and equipment, has two main components namely, (i) construction of small scale flood control, drainage and irrigation sub-projects and (ii) rehabilitation of infrastructure damaged in the 1987 floods. The SSFCDI II project provides funding for O&M for a period of two years following completion of sub-project construction. As a part of work plan proposed in the Inception Report there was a major component directed at improving O&M. This component focused on participation of beneficiaries. It included the following:

- holding project meetings where project concepts were discussed and beneficiaries input was sought;
- forming Local Project Committees that would be responsible for O&M;
- holding Field Workshops to aid in the training of the beneficiaries;
- preparing Plans of Operation that forms an integral part of O&M Manual, and
- an O&M Follow-up Programme that was envisaged at inception as a programme that would support Local Project Committees' O&M activities with appropriate field level, hands on assistance for a number of pilot sub projects.

Success of Pilot Projects under IDA Credit (SSFCDI): Five pilot subprojects selected with one from each region are.

- Panchanala Koya Beel, North West Region
- Suktajuri Khal, North East Region
- Bamansundar, South East Region
- Shaka Barak, North East Region
- Polder 47/2, South Region

As of March, 92 Prokalpa Porichalona Samities (PPS) have been formed to first three subprojects. To make the O&M activities self sustainable, in these subprojects several schemes were undertaken and generating funds for their respective committees. Local NGOs i.e BRAC in Panchanala Koya Beel, are involved directly in fund generating activities. Some funds have already been generated and are deposited to the bank accounts that have been set up for the sole purpose of generating O&M funds. Women were also included in management. Necessary act and regulations were drafted to support O&M committee's activities. Monitoring programme is under way to monitor engineering, environmental, institutional, socio-economic and agricultural development of five pilot projects.

Community-based O&M Activities: According to Quarterly Progress Report of March, 1993, the main activities under the Community based O&M are:

- village mapping;
- preparation of lists of project beneficiaries;
- organisation of women's groups;
- village level meetings to encourage farmers to assume O&M activities;
- organisation of planning committees;
- technology transfer to improve crop yields through practice of modern agricultural practice and techniques; and
- organisation of a community O&M association.

Subprojects where these activities are occurring are listed in Table 2.1. Village mapping including size of plot, list of beneficiaries for five pilot subprojects have been completed. Four women's group formed in two sub projects (two in Suktajuri and two in Boka Beel) are functional with the initial support and cooperation of BRAC and BRDB. Village level meetings are also regularly held to motivate and encourage the community to assume O&M responsibilities.

Table 2.1: List of Subprojects with Community-based O&M Activities

Subproject	Division	Implementation Status	Activities	No. of CO's
Srinagar-Mawa-Bhagyakul	Dhaka O&M	Nearly completed	Organisation of O&M activities	3 women
Suktajuri	Mymensingh O&M	Completed	Organisation of O&M activities	2 men
Bamansundar	Chittagong O&M II	Completed	Organisation of O&M activities	1 man
Kahua	Chittagong O&M II	Under construction	Organisation of O&M activities	1 man
Panchanala Kaya Beels	Dinajpur O&M	Completed	Organisation of O&M activities	1 man
Boka Beel	Mymensingh O&M	Feasibility study in progress	Participatory Rural Appraisal	1 man
Bhathuli Beel	Tangail O&M	Feasibility study in progress	Participatory Rural Appraisal	1 man

2.4.2 Early Implementation Project

The EIP project funded by Netherlands and Sweden, has for a long time recognised the need for improvement of O&M and in particular the need for participation of local people in O&M (EIP,1978). A 1990 mission on O&M of EIP project recommended that an O&M component be included in EIP with the objective of developing sustainable O&M models that will improve the reliability and long term performance of EIP projects and ensure the equitable distribution of benefits (EIP, 1990). The mission recognized need for sustainable sources of funding for O&M and indicated that these sources would need to be developed as part of the work in the O&M component. The management system is to be developed is based on local committees that will be organised under BWDB and assisted by EIP field staff.

2.4.3 Delta Development Project

This long term project of BWDB with Netherlands Technical assistance involves rehabilitation of Coastal Embankment Project (CEP) polders in the Khulna area including improved water management inside the polders. Engineering works are under taken to provide protection from saline water flooding. The main focus of Delta Development Project is on improving the living conditions of the rural poor. Groups of landless men and women are organised by a local NGO to carry out routine maintenance of flood control embankments. Funding of maintenance is being provided by the project. The possibility of generating maintenance funding by leasing section of embankment is being studied by the project.

Of particular relevance to improve O&M is their ongoing works in two CEP polders (nos. 22 and 29), which includes participatory management and maintenance of these polders.

Farmers Irrigation Groups: In polder 29 shrimp cultivation has been banned (the polder is lowest in its centre so shrimp ghers around the perimeter would affect salinity levels in the interior) and the area is largely free of saline water. Initial goal was to rehabilitate the polder and provide a tertiary irrigation system. But farmers preferred wild flooding of lands from pipe inlets. Thus a large number of pipe inlets were constructed and inlet groups of farmers were established to manage schemes under each pipe inlets.

The groups are supported by a team of extension workers employed directly on the project. They are responsible for a wide range of water management or O&M advice and assistance. In particular they have the roles of helping to form and support groups, advising on water management including O&M carried out by the inlet groups, helping to coordinate so that all groups aim to control salinity (if one group decide to introduce salt water, would adversely affect others), and assist in a wide range of agriculture extension activities which provide both technical and practical advice.

At the earlier stage committee members were selected by extension workers, and richer farmers used to dominate the groups by paying taka 500 for maintenance of inlet. The present trend is to reimburse the rich farmers and collect fees from smaller farmers to cover maintenance at an additional rate of taka 3 per month of irrigation per acre. The funds collected will then go to the groups who are able to manage their own resources.

Embankment maintenance by landless groups: Since January, 1990, routine maintenance of embankment in polder 22 has been carried out by landless women recruited through and assisted by a local NGO. Women were selected from existing groups and preference were given to female headed households. The selected women formed a president and secretary who signed on their behalf contract with BWDB (DDP). To carry out regular embankment maintenance the funds come from the DDP (Annual Development Programme). A group of two women is allocated a reach of two km which regarded as too much and subsequently proposed for one km. Payment is Tk. 25 per five hour day under supervision of BWDB Work Assistant who was rendered technical assistance from SO.

This was so far an experiment on 12 mile embankment. This approach though costlier but provide security to embankment as well as a regular income for the poor women.

So far regular funding was borne by the project but ultimately it should come from O&M funds to which farmers should contribute to make the project sustainable.

2.4.4 Land Reclamation Project

The Land Reclamation Project (LRP) started in 1979 with the Netherlands government assistance. In line with the policy of government, this projects aims at to allocate newly accreted and reclaimed government khash land to landless farmer. With in LRP a 50 ha research plot is in operation at Char Bagger Dona, Noakhali.

The purpose of the research project is to achieve optimum cultivation and land use practice from the newly accreted saline lands. Research experiments cover crops, livestock, and fisheries including infrastructure building such as drainage, desalinisation. Other aspects are improved cultivation methods using fertilizer and pesticides and motivation of landless farmer's cooperatives to participate in water management, operation and maintenance of water control works.

The LRP has involved NGO's such as "Nijera Kori (do it oneself)" in organizing landless cooperative societies. There are 30 such cooperatives operating within the pilot polder. The cooperative include both male and female groups, and have savings and credit programmes under the overall supervision of Nijera Kori and LRP. Training is provided by Nijera Kori and credit is funded by a commercial bank under a guarantee by the LRP.

Each cooperative has on average 30 member families having 2.5 acres (one ha) of land allotted each to them for cultivation. In addition they have rights for fish culture in the khas ponds in each block. Initially the families work as landless labourers. Then they receive land allocation through the project and become tenant. Finally through continuous settlement, they become owners of the land. Out of 900 families only 105 have left the settlement so far; the rest are living there on a permanent basis.

BWDB has direct access to the groups and uses them for operation and maintenance works. To ensure quality control, through organisation, supervision and training with support from Dutch funds for the O&M division.

2.5 Recommended Operation and Maintenance Approach of Flood Action Plan

2.5.1 Introduction

The recommended approach of O&M for Flood Action Plan projects was developed under a study entitled "Appraisal of Operation and Maintenance of FCD/I Projects (FAP-13)". The FAP 13

study is one of the supporting studies to the Bangladesh Flood Action Plan. The study has three main aims:

- to identify the main constraints on effective O&M of FCD and FCDI projects in Bangladesh;
- to draw up guidelines for ways of overcoming these constraints, both for existing projects and for new ones under FAP; and
- to recommend ways of maximising participation of beneficiaries and of mobilising local resources for O&M.

2.5.2 Recommendations from the Flood Action Plan

It is evident from both the FAP 12 studies and FAP 13 investigation that while FCD/I projects often deliver worthwhile benefits they frequently have the potential to perform much more effectively. While poor O&M is not only constraint on effective performance, it is often a serious impediment to project success. It is still premature to make firm recommendations on approaches to be adopted for effective O&M. FAP 13 has concentrated on assembling existing initiatives, developing new ideas and drawing preliminary conclusions where there is evidence to support these.

Institutional Framework: It is clear that there is a need of improved inter-agency coordination at the national level, in flood plain planning and at the individual project level. There are opportunities for FAP pilot or priority projects to test new institutional arrangements, such as multi agency decision making, establishment of project level bodies representing several concerned Departments, devolution of aspects of management to local government or NGOs or complete handing over of smaller projects to local administrations or beneficiaries.

Public Participation: Numerous approaches to public participation are being tested out or elaborated by FAP, BWDB, other Government Departments and NGOs in Bangladesh. It is unlikely that a single approach will be found to be ideal in all circumstances. It is recommended that FAP pilot and priority projects include experiments with a range of participatory methods. Participation from the outset is essential using a variety of approaches to consultation over project planning and design. In many case FAP projects will need to promote the establishment farmer and non-farmer organisations. These may take a variety of forms, for example single interest groups (landless labours, disadvantaged women, or farmers) or multi-interest groups which aim to all those affected by a project.

Planning and Design for Improved O&M: FAP 13 has looked at a range of number of options for changing design of some project components in order to facilitate O&M. Particular attention has been given to varying approaches to embankment design ranging from conventional type to super

embankment, and to approaches which would reduce negative impacts on fisheries, reducing conflicts over system operation.

Various structure designs to permit the passage of fish spawn and fry through regulators have also been developed by FAP 13, and it is recommended that these be further elaborated by FAP 17 and give pilot trials at appropriate locations.

The Transition from Implementation to O&M: It has been observed that a number of change could be made during the process of transition from "implementation" (the process of project construction and commissioning) to the O&M stage. These include training of O&M staff, involvement of user groups in O&M, resolution of initial operational problems and establishment of specific operating rules for individual structures. The institutional separation of organisations responsible for the implementation and O&M phases could lead to a formal handover process, which would concentrate the attention of the implementing agency on the need to deliver a project which could be easily operated and cheaply maintained.

O&M Manuals: Project specific O&M manuals are supposed to be prepared for all BWDB projects, but in practise they are rarely used. Those that have been reviewed by FAP 13 were excessively comprehensive , they were not in Bangla and they were not available to, or usable by field staff. It is suggested that modular O&M Manuals should be prepared, which include both the detailed information needed for reference by O&M engineers and the basic operating guideline which would be provided to those responsible for operating specific structures or maintaining lengths of embankment. The basic operating guide lines would be simple, illustrated, written in Bangla and used as training aids.

Water Management: FAP 13 has explored a range of issues related to water management and flood management, as these relate to system O&M. There are clear opportunities to involve farmers more in water management in the context of FAP, and in particular when compartmentalisation is introduced. Farmers involvement is more efficient in case of smaller projects as experienced other countries.

There is a lack of contingency plans for managing floods when do they occur in normally protected areas. Such planning should take place and introduce procedures for routine monitoring of water levels and embankment conditions, provision for emergency repairs, flood warning systems and evacuation plans. The need for public cuts in real emergencies should be recognised as legitimate. If BWDB recognises this they may also be able to insist that those responsible also repair the cuts under BWDB supervision.

Maintenance: At present maintenance is at best periodic and reactive. A well organised maintenance programme would include the following components:

- routine embankment maintenance;

- emergency repair to embankment damage;
- monitoring and record keeping
- periodic maintenance
- routine maintenance of structure
- rehabilitation of damaged structure.

Most of these activities could be effectively achieved through improved management and relocating resources. Routine embankment maintenance is not existent at present. The relative costs and benefits compared with deferred maintenance need to be assessed, but there are opportunities for FAP projects to introduce new approaches to routine maintenance. The Experience of DDP, LGEB and CARE indicates that Embankment Maintenance Groups (EMGs) can be organised, can deliver good quality maintenance and divert some of the benefits of FCD/I projects to dis-advantaged groups. It is recommended that formation of EMGs is given high priority in the organisation of FAP project's O&M.

2.6 Recommended Operation and Maintenance Approach of System Rehabilitation Project

2.6.1 General

Systems Rehabilitation project (SRP) though originally designed as a rehabilitation of deteriorated FCDI scheme, it was subsequently felt that increasing users participation was identified as one of the key factors for a higher and more sustainable benefit from FCDI projects. While there is a wide spread consensus about the importance of people's participation, there is a paucity of clear strategies and an institutional frame work to make peoples participation a continuous process.
According to SRP people's participation consists, first of all, of the right to be consulted and to participate in decision-making processes during all stages of project planning, designing, implementation and use. Further people's participation refers to a continuous involvement of the users in sharing duties and responsibilities in day to day water management tasks. Thus, people's participation in water management projects is closely linked to the establishment of water users organisation.

2.6.2 People's Participation During Pre-project Activities

This is required to identify local issues and to ensure that these are taken into account in the project formulation and planning. Also important to negotiate with the people living and working within the prospective project area or in areas likely to be affected by it for better relationship between BWDB and beneficiaries. SRP proposes a dual approach to assure people's participation during the pre-

project stage. Pre-project consultation through local bodies as per by laws to the "People's Participation Act for FCDI Projects." The proposed strategy basically refers to an information campaign and to a consultation process of the local population activated by the BWDB through the local Government bodies i.e the Union Parisad and the TNO(s).

2.6.3 Project Council

Similar to SSFCDI project, SRP recommends Project Council formation for each FCDI project. Its function is to take policy decisions regarding the project, to serve as a link between the users, the BWDB and other relevant agencies. Being a coordinating and policy making institution, members of the project council will be the Union Parisad Chairmen of the project area, the TNO(s), other government officials such as a Rural Development officer, an Agricultural Officer, A women Affair Officer, representatives of the LGED, DAE and BRDB, representatives of locally active NGOs and between 7 and 11 representative of the project users.

2.6.4 Preproject Participatory Rural Appraisal

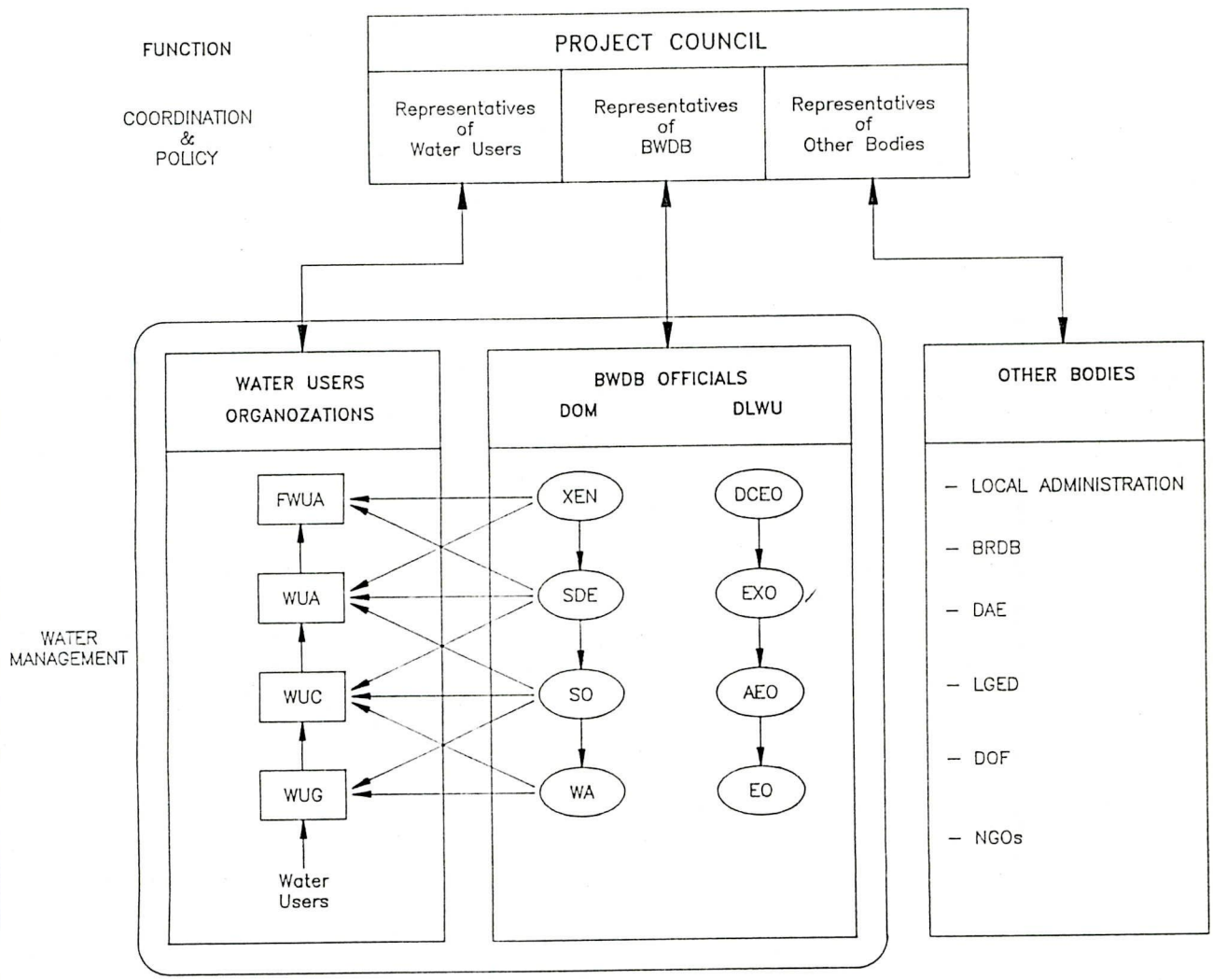
In a stratified and hierarchical society, the mentioned preproject activities led by local government and the BWDB are a valuable and necessary strategy to the extent that they prescribe an information and public consultation process and in particular an exchange of information and options between local authorities, the BWDB and local population. However, it would be overoptimistic to assume that in a limited number of public meetings all interest groups will have an equal opportunity to articulate their own positions towards the project. In particular weaker sections of the society, who are not used to express themselves in public and whose interest are generally not considered by more powerful people, may not able to receive sufficient attention during the above mentioned meetings. Based on this consideration, SRP recommends the above mentioned procedure to be complemented by Participatory Rural Appraisals (PRA), carried by a professional team.

The objective of PRAs is to cross-check and complement the outcome of the preproject consultation with local bodies and meetings. The PRA should focus on socio-economically and professionally homogeneous group and their perception and concerns about water management problems and possible solutions. SRP suggests the PRA to be executed by an independent institution in collaboration with the BWDB/LWUD, which is expected to become more and more specialized on social institutional aspects related to water management. The outcome of all preproject consultation activities should be carefully evaluated and the final Project design should incorporate the results of the process.

2.6.5 Users Participation in Water Management Projects

General: In the pre-project stage we refer the local population, but in the project stage SRP is concern about users of the project. Fig 2.2 illustrates interaction amongst water users, BWDB officials and other bodies. Participation in water management refers to the involvement of project users in various tasks, like operation of the system, taking part of the maintenance and necessary interaction among the users of a system for coordination of farm activities, etc.

INSTITUTIONAL FRAMEWORK FOR FCDI–PROJECTS



AEO	Asstt. Extension Officer	FWUA	Federation of Water Users Association
BRDB	Bangladesh Rural Development Board	LGED	Local Government Engineering Department
DAE	Department of Agricultural Extension	NGOs	Non–Governmental Organization
DCEO	Department of Chief Extension Officer	SDE	Sub–Divisional Engineer
DLWU	Directorate Land and Water Use	SO	Sectional Officer
DOF	Department of Fisheries	WA	Work Assistant
DOM	Directorate Operation and Maintenance	WUA	Water Users Association
EO	Extension Overseer	WUC	Water Users Committee
EXO	Extension Officer	WUG	Water Users Group

Source : SRP'S Technical Report No. 36

Figure 2.2

Water Users Organisations: These represent the core of SRP's institutional frame work and are expected to a major role in water management projects. The details about these groups are exposed in the "Regulations for Water Management Projects" and the "Regulations for Medium and Large Water Management Projects".

Institutional Support to Water Users Organisation: The establishment and institutionalization of effective user's participation in water management through water users organisations represent a challenging task for the concerned agencies. To replicate users participation at the national level and to make the process sustainable on the long run, it is important that BWDB takes this responsibility of forging effective users group which SRP is carrying out. SRP is in favour of imparting training to the extension workers and overseers.

Field Experience: According to SRP's Technical report No. 36, published in July, 1993, more than around 300 water users Groups have been formed in five FCDI project areas. According to SRP environmental, socioeconomic factors and previous experience with water management and related agencies have considerable impact on the endeavour to increase people's participation.

Users' interest and willingness to be more actively involved in water management issues through becoming members of WUG, depends to a large extent on their past and present experiences with water management projects. It needs much motivational work from field staff to gain confidence of farmers and to encourage them to form WUGs. Farmers can dictate where to construct an outlet and prior to any such decision it is worth to consult them for effective use of water.

The experience in polder 55/1 shows the advantages of a step by step procedure and the information about the positive experiences shared by organised farmers easily spreads through informal channels. Thus, while the process of organising farmers into WUGs may require considerable institutional support in its first step, it can be assumed that if some achievement can be shown and get known in the area, the process may be replicated with much less intensive assistance.

2.7 Recommendation of Other Flood Action Plan Projects

FPCO, under the Ministry of Irrigation, Water Development and Flood Control has recently carried out detailed evaluation/study in some 17 FCD/I projects all over Bangladesh as a component study of FAP through consultant (FPCO 1992). Major findings of this study on some salient aspects are summarized in the following sections.

2.7.1 Project Planning and Implementation

The projects have been planned by BWDB's own planning office and sometimes by the consultant engaged under some contract. The following observations are common in most of the project evaluated:

- little or no collaboration with other relevant government departments or the beneficiaries have been made;
- regional hydrological studies have not been done and insufficient hydrological data have been based for fixation of different parameters;
- embankment alignment has been planned without considering all pros and corns and multiple use of embankments have not always been looked into;
- design of embankment and structure were made with inadequate data of hydrological and subsoil condition leading to inadequacy and sometimes failure;
- most inadequacies of design were found in drainage. Almost all the project suffered from drainage congestion after completion and have been subjected to public cut as a temporary relief. Also boat communication facility has been dislodged;
- most of the project took longer implementation time as a result cost have increased and in some cases the condition of hydrology or agriculture have changed which were not addressed in reviewing planning;
- in many occasions project could not be implemented as designed. Many component of physical intervention were not completed or dropped.

2.7.2 Operation and Maintenance Practice

Most of the projects evaluated showed dismal picture in respect of O&M performance. Major key problem identified for such picture are:

- resource constraint
- absence of local public participation
- poor quality of maintenance activity and
- O&M manuals were not followed.

Because of shortage of domestic resources routine and preventive maintenance were not executed regularly. Over the years the project have been deteriorated to a stage of rehabilitation. The major portion of annual budget is spent for staff establishment and little or no fund is available for routine maintenance.

In many projects annual maintenance works are carried out under FFW programme especially the maintenance of embankment and khals. But the quality of works is not up to standard due to poor supervision and other reasons.

The regulating structures are operated by BWDB more or less as anticipated, where their physical condition permits it. The regulator operating committee though exists officially but does not function efficiently and operation is frequently carried out under the influence of powerful local individuals. In some areas operation practices are the subject of serious dispute.

2.7.3 Institutional Aspects

The main organisation involved in O&M of FCD/I project is BWDB. This has a hierarchy of staff involved in O&M, from Khalashies responsible for operation of structures, through Section Officers, SDEs, EEs, SEs, and CEs to the O&M Board Member.

At the local level Thana Parisads were given increased responsibility to take care of O&M of small scale FCD/I projects. BWDB staff are not deputed to work under Thana Parisad and local bodies including LGED, BRDB, DoF, play a minor role in respect of FCD project. There is lack of coordination amongst these institutions.

2.8 Recent Trend in Operation and Maintenance Studies

As a result of poor performance of many of the completed FCD/I projects, more importance are attached towards meaningful O&M of the project. Various approaches are recently being practised towards attaining sustainable O&M under different FCD/I project including FAP 13, SSFCD/I and SRP projects. Accordingly, the approach of project planning is changing. Major area where changes are taking place are: (FPCO 1992)

- participation of the beneficiaries in all phases of project including O&M;
- effect on project outsider;
- effect on regional water balance and drainage alleviation of the project;
- effect on fisheries and navigation of the local community;
- water rate collection for meeting O&M of the project;
- leasing part of embankment or borrow pit channels/ponds to land less people for operation and maintenance of infrastructure of the project, and
- environmental impact study is made mandatory for planning of projects.

Chapter : 3

3. PARTICIPATORY PLANNING AND OPERATION AND MAINTENANCE

3.1 Participation of beneficiaries in project Planning

Beneficiaries active involvement in project planning has wide acceptance in recent years. A typical example of beneficiaries participation in all phases of project development including O&M under SSFCDI Project is shown in Figure. 3.1.

A pre-project meeting (PPM) is a consultation meeting with the affected residents of a project held during the planning stage to obtain their opinion on the project proposal. Such consultation meetings were conducted for the planning of projects under SSFCDI project. One PPM was normally held for smaller projects wherever more than one PPM were conducted for larger projects. The representative of local bodies and the officials of BWDB, DAE, DoF and other institutions also participated in the PPM.

3.1.1 Peoples Participation in Rural Development Projects

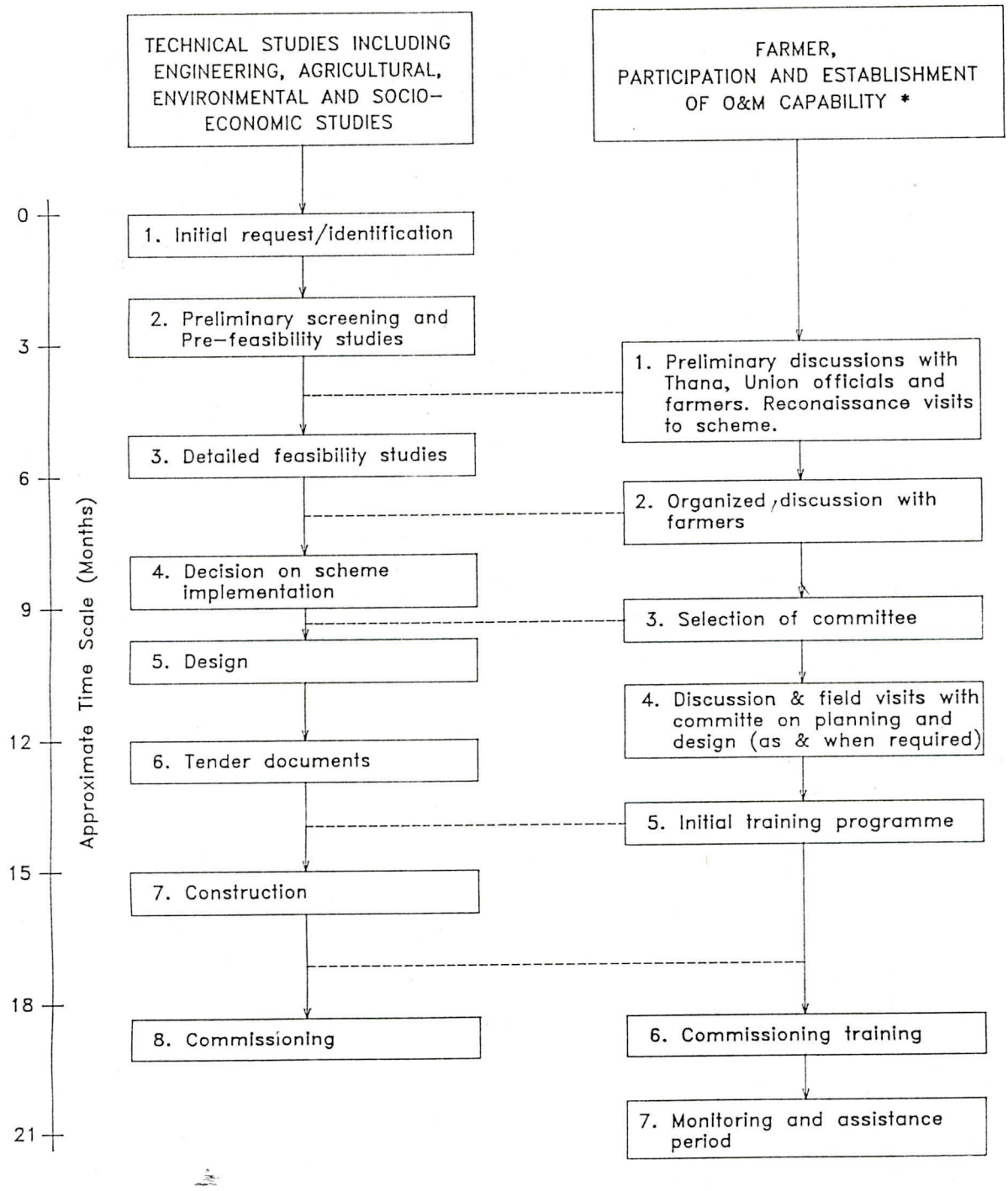
In 1991, Perter Oakley and David Marsden made a study on a few projects on the practice of participation in rural development to contribute to improving the standards of living of the worlds working population. The study enhanced the understanding of people's participation in development. It addresses the growing acceptance of people's participation as a development objective. Group activities in the form of discussions, meetings social and economic activities are the means by which people advance on the road of participation (Oakley, 1991).

The report argues that participation as emerged now-a-day, as a single uniting principle across the breadth of rural development; but ten years ago a review of project based literature would probably highlight technological effectiveness, good planning and management, and resource efficiency as the key ingredients of project success. Some arguments in favour and disfavour of participation are given below:

Despite an apparent widespread recognition of the importance of participation in development, not everybody is convinced either that it is necessarily always a good thing or that to date it has clear practical advantages for development projects. Many planners would argue that there are potential risks and costs implicit in greater people's participation. These could include :

- project start-up delayed by negotiations with people;
- increases in staff required to support participation;
- the possibility that, when consulted, people might oppose a project;
- unpredictable participatory methodologies, and
- over-involvement of less experienced people.

DEVELOPMENT OF FCDI SCHEMES



* When there is no sluice structure only a maintenance committee is required and the programme can be reduced to stages 1, 3, 6 & 7 only.

Source: Intensive Rural Works Programme – Bangladesh
O&M of SSFCD Schemes, March, 1986.

Figure 3.1

Indeed, a World Bank study even suggested that governments might prefer rural people to participate only in project implementation since their involvement in project identification and assessment might give rise to increased expectations.

There are number of substantive arguments for "participation" as an essential ingredient in development projects. Uphoff (1986), for example, suggests a number of reasons why governments might gain some net benefit from promoting participation, despite political costs:

- more accurate and representative information about the needs, priorities and capabilities of local people; more reliable feed back on the impact of government
- initiatives and programs;
- adaptation of programs to meet local conditions so that scarce resources can be employed more efficiently;
- lower cost of access to the public for agricultural extension programs, nutrition education, immunization, supervised credit, etc., through local organizations and institutions
- tapping local technical information that can otherwise be costly to obtain or to learn about the fact that rural people have more technical expertise than usually recognized;
- mobilization of local resources to augment or even substitute central government resources;
- improved utilization and maintenance of government facilities and services, and
- co-operation in new programs, which is more likely to occur when local organizations having the confidence of rural people share responsibility for the innovation.

3.1.2 Beneficiaries Participation in Irrigation Schemes

Regarding beneficiaries participation in irrigation schemes, the report states that the schemes are as much social as they are technical. According to Hall (1981), failure of many irrigation schemes can be broadly attributed to insufficient attention to social aspects of project design and procedures for water control problems which could have been avoided if local people had been consulted.

Uphoff (1986) suggests that when this commitment to participation in irrigation schemes is put into practice, it appears to have three main elements:

- participation in the procedures of water use within the system/ the acquisition of the water, its allocation between participants, its distribution on an agreed basis and the tackling of any drainage problems;
- participation in the structures that develop the scheme; this includes participation in the design, construction and maintenance of the actual irrigation system, and
- participation in the organization of effort, vital for the day-to-day functioning of the scheme, such as decision making and local resources mobilization.

Farmers participation in irrigation management is directly linked to the quantity of water available. In extremes of both drought and excess water, the participation is very important. Farmers participation is less necessary however, when just enough water is available and its distribution becomes a careful balance between conflicting demands.

Mepherson and Megarry (1987) define the participation as the inclusion of the intended beneficiaries in solving of their own problems (Smout, 1990). They describe the benefits of participation as: lower costs, appropriate and socially accepted design, user care and maintenance of the facilities, and the assumption by the users of part if not all of the responsibility for the O&M.

3.1.3 Beneficiaries Participation in FCDI Project

In case of FCD/I project, participation becomes very important at critical stage of operation. There is distinct difference between the nature of an irrigation project with that of a FCD project. From the point of view of users irrigation schemes have three decisive difference, compared with FCD schemes: irrigation remains optional for the individual farmer; it can, even within a large scheme, to a considerable extent be controlled by him and it brings a tangible option for increased or intensified agricultural production within reach. Apart from the practical problem of the distribution and timing of water the interests of farmers vis-a-vis each other are not necessarily conflicting. Flood control and drainage schemes on the other hand have much more a collective and involuntary character, can not be manipulated by the individual farmer and almost inevitably create or emphasize difference, if not conflicts, between farmers at different elevations in the controlled area. The conflict between fishermen and some of the farmers is another almost inevitable one. The (potential) benefit of flood control and drainage facilities is less conspicuous and does not lend itself as easily to deliberate application by the farmer.

Finally and it still is a sensitive subject whether the costly flood control structures do really provide protection and increased agricultural productivity. The floods of recent years have brought the breach of so many embankments that much credibility was lost and the loss of productive fisheries might to a substantial degree cancel the agricultural gains. These aspects have direct implications for FCD development: users involvement becomes much more complicated because it has to balance conflicting interests and governmental coordination is more complex because more agencies play more ambiguous roles. The FCDI projects are complex in nature and larger in size. It would be difficult to quantify the benefits. Again, benefits vary from basin to basin of a single project. Therefore, quantification of benefit and participation of beneficiaries require several years of operation.

3.1.4 Project Target Groups and Group Formation

Conventional development projects i.e FCD/I have a package of objectives and inputs which are directed at the rural population and those who meet the required characteristics or resource level become the project target group (beneficiaries). The farmers have distinct interest on FCD/I project and are treated as target groups of such project. Participatory development involved a deliberate act of group identification and formation before the project begins. There would appear to be two basically different approaches to working with groups in participatory development. We can summarize these differences as follows:

Groups as social action: In which groups serve to forge social and economic links between people and can help develop the cohesion and solidarity which are the basis for the groups' taking action. Groups help overcome the importance of individually and also to break the isolation that many rural people experience. In this type of group it is important that the approach should be a slow building up of trust and confidence, the developing of the groups' structure and the emergence of group members able to take responsibility for future direction.

Groups as receiving Mechanisms: In which groups serve essentially as vehicles or mechanisms for receiving inputs and technologies which the project wishes to diffuse. In these cases groups are often formed in order to increase the coverage of a particular service or to try to make more resources available to these services via group contributions. In this type of group the approach is often limited to incentives to rural people to form groups by the command of a local official. Group formation can be extremely speedy and it is not uncommon for a project to form 50-60 groups in one month.

3.2 Methodologies to Promote Participation

Methodologically participation is still largely in a period of experimentation. The following are the four main principles of the methodology of participation (Oakley, 1991):

- emphasize the process of participation as opposed to immediate quantitative outcomes. Projects which promote participation must be flexible and willing to experiment and must not allow the demands of immediate, quantifiable impact to undermine or overwhelm the process of participation.
- ensure a balance between awareness creation and economic activities since both aspects of project practice are important and indeed mutually supporting. Neither awareness with no tangible objective nor short-term tangible gain with no substantial base for longer-term participation are satisfactory recipes. Projects which over-emphasize economic activities on

the assumption that these will naturally provide the base to future participation run the risk of collapse of the process when project inputs are no longer available.

- build where possible upon a local base to ensure a secure and locally available foundation for future activities, as well as minimizing the inevitable external dependency. This local base includes not only local people generally, but traditional leaders and local institutions. e.g. seconds or clinics.
- maintain regular contact between the people and project staff since participation is a labour-intensive process and develops better where there is continuity. External support is fundamental to the process but it must be both reliable and regular. A process of participation can only take a hold if in the early stages, there is this regular contact; otherwise it becomes limited to periodic responses or contributions.

A number of key features which appear to give methodology such shape and purpose include:

- systematic approach
- pace and rhythm
- contact and step, and
- team

Galjarts (1987) review for example, of the practice of a range of participatory development projects suggested the following distinctive stages in the process:

- promotion - mobilization
- first action
- expansion
- stabilization

Another methodological approach could be as follows:

- group together a number of women around a production activity
- injection of capital resources, e.g. loans
- structuring of group to assume formal status. e.g. co-operative
- link up group with existing banks or other sources.
- participation of women in development

Instruments of a methodology of participation: Any methodology of development intervention requires appropriate instruments for its implementation. Such instruments are the mechanisms whereby the stages of the methodology can be successfully completed (Oakley, 1991).

Project Group Meetings and Discussions: A critical instrument in the process of participation is the regular meeting of and discussion between those involved in the process. These two instruments constitute a basic dynamic in the whole process and are indispensable to developing a continuing base for people's participation. However, it is important to emphasis that we are not talking about the more traditional kind of farmers; or village meetings which are a common feature of community development and agricultural extension work. These are not meetings and discussion merely to communicate existing policy or information about a particular programme, or indeed to tell people how to participate or to adopt some new technological practice. Such meetings and discussions are common place but essentially communicate things to people and see them as potential contributors to an already agreed programme: the project staff talk and the people listen, the project staff decide and the people comply, the project staff execute and the people contribute.

Workshops, Seminars or Camps: The above three terms cover a wide range of activities which share a number of common characteristics. The terms are somewhat synonymous and can be grouped together as a particular instrument of the methodology of participation. Workshops, of course, are not uncommon in development practice and are used as a forum for formal training and knowledge transfer; in this approach they are essentially teaching aids and the means by which a new skill or idea can be explained and it is hoped, accepted by participants. In such workshops the relationship between the "teacher" and the "pupil" is clearly demarcated and is characterized by a transference of knowledge from one to the other.

Public meetings and campaigns: These more mass-based instruments are less concerned with the detail or characteristics of particular groups or locations but seek to promote consciousness and involvement on a broader level. In the health field in particular, campaigns are a common way of provoking interest in a health issue on a wide scale and of seeking people's involvement in possible solutions. The public meeting is a mass version of the group discussion and aims essentially to unite a broader body of people in a common cause.

Appropriate instruments are fundamental to a methodology which has helped to highlight a number of issues:

- a methodology of participation needs support from appropriate instruments. It is not enough merely to set up a committee or form a group of local people: there is a need for greater detail and the elaboration of more sensitive and particular means of promoting this participation.
- appropriate instruments need to be innovative and imaginative. Participation is a unique and complex process and demands detailed and imaginative attention: it is folly to sit back and simply hope that it will occur.

- instruments of a methodology of participation are mutually supportive and not exclusive. Probably a mix of instruments will be appropriate in any given context.
- project staff will need at least to be made aware, if not prepared to implement, the above kinds of instruments. They demand a particular approach to relating to people at the project level and particular skills of communication. Equally, the allocation of staff resources to develop these instruments will need to be considered, such instruments will not emerge on their own but only as a result of the effort put into their development by project staff.
- time must be allowed within the framework of a project for appropriate instruments to be developed. None of the instruments examined above suggests a one-off approach, but rather a carefully thought-out methodology which is intended to develop a solid base for participation and not merely a temporary gesture.

Training in the Methodology of Participation: The following are the more common issues concerning the training of agents to support a process of participation:

- the basic approach of the training should be not to transmit information but to assist the trainees to learn to think for themselves and be aware to the complexities of intervention.
- time must be made available for this training to take place and it must be seen as a distinct and discrete part of the agent's overall preparation.
- the emphasis should be upon training through experience and the sharing of practice rather than formal classroom activities.
- the training should emphasize the qualities and characteristics of gents as more important than knowledge or particular skills.
- the training itself should be participatory in the sense that as they build up their understanding, agents should become actively involved in structuring the training and not merely be compliant trainees.
- the content of the training should concentrate upon techniques and knowledge appropriate at the local level and relevant to the context in which agents will work. There should also be at least a balance in the content between analytical and qualitative skills as opposed to the detail of specific knowledge.
- the training should be a continuous feature of the work of an agent with periodic sessions to review practice and adjust accordingly.9.1.5 Approaches for Beneficiaries Participation:

Various methods have been tested for active participation of beneficiaries to development projects. Some of the approaches were found quite encouraging to achieve desired goals. In Bangladesh most of the leading NGO's follow participatory implementation model for their existing

programmes which have been tested and proven in the field. Such programmes mainly involve the following approaches:

- awareness campaigns
- community mobilization
- participatory planning
- resource mobilization
- installation and
- monitoring.

3.3 Review of Participatory Planning in Bangladesh

During Zaminder time in 1930's, the Zamindar/Maharaja used to build FCD structures with the request of affected people. Regulators at Shanir Haor in Sunamganj and at Alalia-Dahadia projects in Kishorganj are some of the finest examples of beneficiaries participation during the early days of FCD development.

3.4 Impact of Preproject Meeting

Prior to BWDB's SSFCDI project there was little endeavour to consult beneficiaries in project planning. Although arguments are going on in favour and against involving beneficiaries, recent studies carried out in this regard reveals some findings in support of beneficiaries participation. PPMs were held in each of the selected projects. Despite their limitations, the PPMs were found very effective in collecting the data on the following aspects:

- traditional planning of BWDB hardly pays any attention to users involvement in all phases of project, user requirement, future O&M plan and system performance evaluation;
- data for smaller FCD project remains a major constraint as reliable information on water level, discharge, rainfall of such basins are difficult to obtained;
- PPMs have helped improvement of data reliability due to involvement of beneficiaries information received through the PPMs has enhanced data quality as they are from real life situation;
- PPMs acted as a forum for communicating expected project benefit and a mechanism for obtaining feed back which in some cases resulted major modification or even abandonment of a project.
- engineering data consist of dissemination of design information on hydrology and hydraulics of the project area by local residents. The data include basin current road network, drainage pattern, high flood level etc. The possible future changes due to project development.

- socio-economic aspects include the confirmation of some of the secondary data necessary for the project planning. The data consist of population, households type, farm size, land tenure and income, conflict of operational conflicts between high and low land owner, farmers vs fishermen, project insider with outsider etc.
- agriculture aspects include the collection of primary and secondary data after consulting the local residents at project planning stage. The data include land use,

  cropping pattern and intensity. Current input use, LLP/STWs utilization status in the project.
- environmental issues were paid particular attention to assess possible impact on the local residents. These include effect on siltation, fisheries, drainage congestion, salinity, navigation, displacement of farm families for embankment construction etc.
- institutional issues were considered. There are many local institutions to extend support services to project inhabitants. Beneficiaries' view on their role are also discussed in the planning meetings.
- O&M issues was discussed in the PPM including realization of fund for sustainable

3.5 Preproject Meeting and Operation and Maintenance

To date there is limited information available confirming that bottom up planning approach particularly PPM has any positive impact on project operation and management aspect. Recent study (Sarker, 1994) supports the idea that not only planning of small scale FCD/I project is better but also there is positive impact on subsequent O&M due to involvement of beneficiaries at planning stage. But this idea need further study.

3.6 Review of Preproject Meeting Process

In recent years emphasis is given to involve beneficiaries at project conception stage. Many NGO's are practising this approach. The approach of CCDB, one of the leading NGOs of the country is described below as one of the viable approaches to ensure beneficiaries involvement in project cycle (CCDB, 1994). The methodologies so far adopted by FAP 20 (CPP) are also described to give an insight to different approaches to involve people for project development cycle.

3.6.1 CCDB's Participatory Planning Approach (CCDB, 1994):

People's participation may be defined as the process by which the rural poor are able to organize themselves and through their own organizations are able to identify their own needs and share in the design, implementation and evaluation of the participatory action. Such action is self-generated, based on their access to productive resources and services other than their labour and the contained security of that access. It is also based on mutual assistance and support to stimulate and sustain the development action programmes.

The People's Participatory Planning (PPP) process is part of a comprehensive effort called Participatory Action Research (PAR). It is an all compassing effort to achieve holistic transformation of the society for self-reliance and well-being of people. It is fundamentally and integrally a part of the concept and process of sustainable development.

The concept of PPP emphasizes the creation of an atmosphere wherein people are in a festive mood. People themselves initiate the process of interaction recollecting the history, focusing on the present, and visualizing a future. The concept further emphasizes participatory processes in implementation and evaluation of people's plans.

The total process of PPP centres around twelve modules conceptually bridged with each other. The twelve modules involve the people into the process, help analyze the past and focus on the present and enable them to visualize the future and to draw a plan. The concept of the modules are discussed below.

Module 1 : Information about People's participatory planning.

Purpose:

- to inform people about participation as a value and the PPP process.

Objective:

- to know whether the people agree to it.
- introducing the main aspects of PPP and highlighting its various aspects.

Reason:

- the search for an alternative sustainable development approach.
- to find out whether the people believe in it.

Module 2: Inauguration of PPP.

Purpose:

- it is a great occasion organized by the members of the Samity in their village. It is a memorable day because of the presence of people from all walks of life.
- to inform and highlight the concept of PPP and its practice.
- to make the inauguration of the new concept of PPP practice memorable to people.
- to discuss what it is and why, its advantages and disadvantages.
- to create awareness of the people about PPP.

Module 3 : Recollecting the past and our journey towards development.

Purpose:

- to recollect and identify the past events of a village and its adjoining areas with a view to learning lessons, to identify the trends to extrapolate into future. discussion may begin on

events which have happened in the past, say 25 years ago, dividing the span of time on certain junctures to facilitate discussions.

- the positive and relative answers should be sorted out for critical analysis and drawing insights and conclusions.

Objective:

- to rediscover the traditional knowledge, skills and ability with which the people in the past solved their problems and to adapt the same to the present situation.
- to know who had the benefits and who suffered most.
- to write the history of the rural poor, so that the people can share their past experiences and analyze the present situation with the knowledge gained from their own experience.
- to know the numbers, times and effects of social change in the past.

Module 4 : Our village today

Purpose:

- to map the various physical resources of a village showing all the infrastructures, forests, rivers, flowing canals, fishing ponds, houses and other institutions, usable and unusable land etc.

Objective:

- to draw a model of the village and locate on it the financial and social resources and other institutions.
- to identify the present social, political, economic, cultural and ecological conditions of the village.
- to know the present situation of the village after thorough review in order to plan for holistic development of the village.

Module 5 : Analysis of the Social structure of the village

Purpose:

- to examine the ownership pattern of immovable and movable assets of the village namely, cultivable land, and non-cultivable land, buildings, hats & bazars, schools, hospitals, mosques, churches, temples, madrasha, clubs, rice mills, san mills, revenue office, union office etc.
- to examine critically the land-holding pattern of the village.
- to check which class or group of people own the major share of the livestock, poultry & ducks, fish ponds and the valuable social forest in the village.

- to examine which class in the village has no access to health care system and which class generally enjoy these facilities.
- to examine which class has access to educational facility in the village and also other facilities referred by other institutions operating in the village.
- to examine what are the categories of the families in the village from whom people generally become chairman, village head and member of Parliament.
- to find out which class holds what type of houses and the percentage; who are the rich, who are in the middle class and who are the poor. To find out the percentage of shares of all sorts of resources being enjoyed by all these cross-sections of the people in the society as stated.
- to find the number of males and females, and families and determine gender bias.
- to know who settles the disputes, how it is settled, who holds power, who is powerless, & why they are powerless.
- to know why the rich become richer and the poor become poorer.
- to know why the poor are being oppressed, why they have no access to any facility, why they are deprived of their due wages, why they are oppressed in their daily life and why they are facing problems with their development efforts.
- to learn whether the relief goods meant for the poor actually reach the poor, if not whether the affluent section of the society misappropriates the same.
- to learn about every man's life, what is their respective place in the society with regard to their social, economic, political, cultural and ecological status. To find out the conditions of the people, and their occupations so that the people can identify, problems and adopt future plans to solve their problems.

Module 6 : Analysis of Micro-Macro relationship

Purpose:

- to compare and examine the problems of one's village with those of the neighbouring village(s), case by case. In the light of the above problems, one should examine the relationship between villages, unions, districts, Bangladesh and other countries of the world and so on.

Objectives:

- does the deplorable conditions of one's village prevail in most of the villages of the country?
- to see whether there is any impact of external problems on the existing problems of one's village.

- to verify how far the rural people can address the problem. In the present context none should be alternated from the rest of the country, rather should express solidarity with the people of the country suffering from the same problems. To find out who controls the actual situation of the country and where lies the root of the problem.
- to understand their present condition and compare it with that of the people of the country.

Module 7 : Analysis of the causes of the problems

Purpose:

- to examine or verify the causes of the problems, causes of the causes (structural problems) and the root causes.

Objective:

- whenever we face any problem, we keep ourselves busy to solve the same without trying to understand the root cause of it. Therefore, the problems remain. If we see the real causes of a problem we can get it solved. We have to find out the root of the problem and root it out from the society.

Module 8 : Responding to or addressing the problems

Purpose:

- to check what the people, organizations and the government have contributed in solving the problems facing the country
- what are the responses to the problems
- whether the problems have been solved
- whether the root causes of the problems have been removed.
- to assess what was people's contributions, in solving the problems of the nation
- to see how far the previous responses by the government, organizations and the people were successful to address the problems and to find out the positive responses needed for future plan.

Module 9 : To determine physical and financial resources

Purpose:

- to determine the physical and financial resources and how much of it the people can utilize for their development

Objective

- to understand why the people believe that they have no resources

- to make the people aware of their physical and financial resources.
- to give importance for proper valuation of their resources
- to determine the estimated resources (physical and financial) in order to prepare their development plan.
- to plan according to the needs and expectations of the society
- to learn what kind of aid or assistance would be available from the government, organizations or other sources.

Module 10 : Our aspired society

Purpose:

- to visualize the aspired society in the perspective of holistic development i.e. balance, socio, economic, political, cultural and ecological development objective
- to know the need and expectation for the future plan
- to utilize people's knowledge and skills
- to make a model of an ideal village of the future.

Module 11 : People's Participatory Plan

Purpose:

- to assess what will be done to meet the future needs within people's limited resource on the basis of their active participation. Through participatory planning exercise the people draw self-supporting or sustainable and participatory development plans.

Objective:

- participatory Planning exercise is practised to make people's plan in the context of sustainable development
- to identify programmes and activities
- for continuous learning (reflection-action)
- to conduct feasibility and viability studies of each activity as part of participatory action research and finally verify whether the said activity is congruent with the people's need, aspiration and perspectives towards their harmonious development.

Module 12 : Monitoring and Evaluation

Purpose:

- monitoring and Evaluation is a continuous action-reflection-action process and should be of participatory nature.

- active component should be completed in a planned manner within the stipulated time. To ensure proper utilization of resources and time.
- feedback from the field is the essential tool for examining the exact nature of the performance and through this participatory action research, the corrective step is taken for an alternative sustainable strategy for implementation.

3.6.2 People's Participation & Institutionalization Programme in Compartmentalisation Pilot Project

To achieve sustainable development through water management the FAP 20 ToR puts much emphasis on people's participation and its institutionalization. Success and sustainability require people's participation throughout the duration of the CPP project. CPP has, therefore, designed a comprehensive programme to experiment with involving all concerned in the process of designing and testing compartmentalization. The compartment is subdivided into sub-compartments for effective water management with participation of the interest groups and the beneficiaries. The planning of a sub-compartment starts with a survey in which the different interest groups are asked to assess their water related needs. Randomly selected gatherings of farmers, fishermen, landless women and urban dwellers are interviewed. This is the first stage of people's participation, which has been accomplished by a Needs Assessment Survey using adjusted RRA methodology.

The needs expressed and suggestions for improvement are then reviewed by specialists in agriculture, fisheries and engineering. On the basis of these needs, engineering requirements plans are drawn up to develop the water management system in the sub-compartments.

In the seconds stage of people's participation the plans are carefully explained to the different interest groups, in the consultation process meeting and their reactions recorded. At a combined meeting, contact people from each interest group in a sub-compartment are brought together for a joint discussion. If any problem areas remain these are again discussed with the separate groups, followed by another joint meeting. If conflicts still remain, arbitration by respected local leaders is sought. The different steps in ensuring people's participation are described below in detail.

Needs Assessment: People's participation can be anything between genuine grassroots development and the "selling of a programme (designed by others) to the people concerned. FAP 20 does not follow either of these extreme approaches. Within the limits set by the specific objectives of FAP 20 ("testing the compartmentalization concept in the field under real operating conditions"), a "bottom up" approach is emphasized. To find out the perception of the existing water management related situation by the different interest groups, the problems as they perceive them and their ideas about potential solutions, a Needs Assessment Survey has already been carried out.

Aims of the consultation process: As part of the process of people's participation the ultimate aim of the consultation process is to enhance the sustainability of the Tangail compartment.

More specifically the consultation process aims are:

- to share with all concerned information on the water management system and positive and negative impacts;
- to share, with all concerned, information on the possible institutional interventions including local water management bodies,local resource mobilization and local set-up for O&M;
- to get feedback, from all concerned, about suggested technical and institutional interventions;
- to get feedback on additional and/or alternative suggestions and conflicts of interest;
- to stimulate the involvement of all affected and concerned in the compartmentalization process.

Assumptions underlying the consultations process: The consultation process has been designed on the assumption that the sustainability of compartmentalization requires:

- that the people affected (positively or negatively) by compartmentalization have a voice in its planning and design;
- that the different interest groups (farmers, fishermen, landless, women, urban dwellers etc.) be allowed to express their opinions without interference from the interest groups;
- that all elected representatives of the area (union, thana, parliament) be consulted and their support solicited; and
- that relevant GOB, NGO and other officials (including specialists) be consulted.

The consultation with elected representatives is seen as crucial to the institutionalization of people's participation. Such consultation is expected to enhance in the long run, the sustainability of development in general and compartmentalization in particular.

For the following reasons it is considered necessary to not only consult elected representatives but also the different interest groups directly through homogeneous group meetings:

- given the prevailing socio-political situation the interests of certain minority interest groups such as fishermen, landless and women are likely to be under-represented by elected representatives (who themselves hardly ever are from these groups);
- given the existing power structure, many interest groups are unlikely to be able to voice their opinion in the presence of powerful groups and/or individuals; and
- the consultation process is part of the training and motivation process leading to water management bodies that would include representatives from all interest groups including the minorities.

Conclusion: People's participation is necessary if one aims at sustainable development. Because it involves a major change compared with present practice, it will require both top level policy support as well as adjustments to the planning process, team composition, team management, budgets and time schedules.

Chapter : 4

4. METHODOLOGY

4.1 Introduction

For the purpose of this study three SSFCD/I projects were selected to assess impact of beneficiaries involvement through PPM on subsequent O&M of the projects. Two BWDB normal projects are also studied for comparison with the three SSFCDI projects. All the SSFCDI projects are selected with in the same geographical region under Bhaluka Thana of Mymensingh district. The two normal BWDB projects are from adjacent Tangail district.

SSFCDI is one of the first few Projects in Bangladesh where local residents were consulted through PPMs prior to finalization of project planning. As of December 31, 1992, 112 projects of SSFCDI were planned with beneficiaries participation in 112 PPMs (Sarker, 1994). These projects are located in different regions of Bangladesh. As of September 1993, 50 projects are completed (BWDB, 1993b). Of these three completed projects were selected for the study and accordingly the feasibility reports and O&M manuals under SSFCDI Projects were reviewed to assess the impact of beneficiaries participation in the project O&M. The secondary data collected from the documents were found reliable and were supplemented by field visits in the three SSFCDI projects.

For detail assessment of impact of beneficiaries involvement in the planning process on O&M, 3 completed projects are selected. The projects are Khiro River, Laithi River and Suktajuri Khal projects. The Suktajuri Khal project has two Community Organisers (CO) who reside at the project site to motivate beneficiaries for their active participation in project O&M. Findings of these projects are compared with the two normal BWDB projects. A questionnaire was used for in-depth study of these projects (ANNEX-D).

4.2 The Methodology

The study involved three different stages as follows:

4.2.1 Stage One - Desk Work

Stage one involved primarily all works related to planning, covering literature review, conceptualization of the study and its methodologies for implementation, and programming field visits. The works included:

- collection and review of feasibility reports/projects reports, O&M Manuals (BWDB 1991b) etc. as appropriate and relevant to the study;
- development and modifications of different instruments to review the data as follows:

i) ANNEX - A: Lists of LPC members for the three SSFCDI projects where PPMs were held,

ii) ANNEX - B: List of O&M committees for the projects under SSFCDI,

iii) ANNEX - C: Proceeding of PPM on one project,

iv) ANNEX - D: Questionnaire used for case study projects,

v) ANNEX - E: Photographs,

vi) ANNEX - F: Response of the respondents on the questionnaire, and

vii) Other Tables: Designing of an analytical plan and preparation of tables.

The data used in ANNEX-A and C are collected from secondary sources while the data collected through the questionnaire and ANNEX-B are from primary sources i.e. by interviewing the local community.

4.2.2 Stage Two - Field Visits

a. Pre-project Meetings (PPMs)

A few PPMs were attended by the author to review how the meetings were conducted. The proceeding of the meetings were collected and reviewed. A typical proceeding is enclosed in ANNEX-C.

b. Methodology for Case Studies

Field visits were undertaken for in-depth study of the three selected projects to review the impact of beneficiaries participation in the O&M. Interviews were conducted with the homogeneous community groups under RRA approach. Person interviewed were farmers, ex Union Council members, Union council chairman, local elite, teacher, students, businessmen etc. The data were collected by using a questionnaire as shown in ANNEX-D. The projects were visited at the completion stage to assess the changes made on O&M due to preproject meetings.

4.2.3 Stage three - Data Processing and Analysis

This stage included most intensive desk-work involving the processing, synthesizing, analysis and presentation of data in formats as in ANNEXES-A, B, D and F. The primary data generated by the field survey were processed and eventually analyzed.

4.3 Rapid Rural Appraisal (RRA) Approach

The RRA approach is suitable for project impact evaluation for smaller projects. Therefore, this approach is used for the evaluation of beneficiaries participation in three small scale projects.

The RRA aims to provide a cost effective method of appraising project impact quickly, without too great a sacrifice in terms of data quality and comprehensiveness. Previous experience has shown that RRAs are effective means of interdisciplinary investigation and the assembly of data. They can often reliably detect major changes in quantitative impacts (substantial changes in cropping patterns for example), but are much weaker when they aim to identify relatively small changes in yields, cropping intensities or incomes.

RRA is an approach to learn about a rural area which recognizes that rural people can be trusted to provide reliable reports on their own experiences (rather than data to fill in boxes of a researcher's frameworks). It recognizes that the rural people experiences and understandings are crucial to implementing agencies. The method is less rigid than research based on sample survey but does involve professional skills. The skill involved provides for ways of structuring the expertise of rural people. They permit the researchers to tap local knowledge and to structure indigenous understandings in their frameworks.

4.4 Limitations of the Study

While efforts were made to make this study an in-depth one, there has been limitations due to constraints of time, fund and manpower. The other constraint to carry out this study was the lack of literature availability. Due to time limitations a detailed field survey to collect primary data for each individual project was not possible and scanty information was available from primary source. The author inspite of several field visits also depended on the secondary data collected from consultants to SSFCDI, BWDB Headquarters and Field Divisions. One limitation is that the three SSFCDI projects are relatively new and one project though declared complete is not so in reality. Another limitation is that only one of these projects has been served by two COs where active beneficiaries participation was noticed. But it is not adequate to make firm conclusion based on one such project only.

Chapter : 5

5. DATA ANALYSIS AND DISCUSSION

5.1 Introduction

Beneficiaries participation in planning of water resources projects was attempted under second SSFCDI Project of BWDB. As of December 1992, 112 projects were planned in which discussion were held with local residents at preproject meetings (PPMs). PPMs were attended by various interest groups (farmers of low and high land, landless, small, medium and large farmers, fishermen, boatmen and women). PPMs also were represented by different government agencies (BWDB, DAE, DOF, BADC, BRDB, elected representative of Thana and Union Parishad) and NGOs. Data of 5 projects including two BWDB traditional projects without PPMs were analyzed in this chapter (Table-1).

Prior to deciding whether a project should go for detail study including implementation, a PPM was held at every project site for thread bare discussion with project residence and local elites. The preproject meetings (PPMs) have been held at or near the proposed project site and usually lasted for about 4 hours. A typical agenda included:

- objective of the meeting;
- explanation of the project concept by the planner;
- beneficiaries comments and criticism, and
- formation of a local project committee, subject to the project is acceptable to the beneficiaries.

The objective of the meeting was to obtain beneficiaries consensus on project planning. Prior to the PPM, a team of technicians from BWDB and the consultants contacted the Chairman of respective Union Parishad (UP). The technicians supported by the Union Parishad visited some of the representative villages to make the local residents aware about the meeting. The team also contacted the local agencies at Thana level. The date and venue of the meeting were fixed by BWDB with the consent of Thana Nirbahi Officer (TNO); the then Upazila Chairman and concerned UP Chairman.

On the meeting date, the Planning Engineer from the consultant explained the merits and demerits of the project by showing the Index Map. He then asked the local residents and agencies to comment. To ensure comments of related interest groups, BWDB and consultants used to select the speaker on the basis of affected villages. The comments of the Block Supervisor (BS), Thana Agriculture, Fishery and related officials were taken afterwards. The UP Chairman and UZ

Chairman / TNO were the speakers at last leg of the meeting. Some of the relevant points were responded to by BWDB/consultants at site.

The minutes were recorded in a proceeding of the meeting which was jointly signed by UZ Chairman/TNO and EE, BWDB. A typical proceeding of the meeting is attached in ANNEX-C.

5.2 Study of the Laithi River Project

5.2.1 General

The scheme, located in Bhaluka Thana, is bounded by the Dhaka-Mymensingh road on the east, a small road connecting the Dhaka-Mymensingh to Chandpur on the north and high land to the south and west (Figure 5.1). The project is located about 65 km north of Dhaka in Mymensingh District and covers a gross area of 2000 ha and a net area of 1210 ha (BWDB, 1987a)

The main objectives of the scheme are: (a) to reduce crop losses resulting from early monsoon flooding; (b) to facilitate a shift from broadcast aman to transplant aman by improving drainage; and (c) to increase the area under boro (dry season) cultivation through the provision of water for irrigation.

Artesian wells are a unique characteristic of the scheme area. There are about 100 of these wells, usually located along the terrace perimeters in the valleys and they remain active through the middle of the boro season.

5.2.2 Present Status of the Project Features

The Project structures include: (a) a 6 vent bridge cum regulator; (b) Laithi River (11.9 km); and (c) a water retention structure at Habirbari. Present status of the major structures of the project are described below.

Embankment: The road come embankment on the north boundary has been maintained this year under IDA funding (Table 5.7) and in good condition.

WRS at Habirbary : The water retention structure at Habirburi on the Lailthy river inside the sub-project has been serving well since its construction in 1981. This structure has no gates nor any fall board and do not need operation. Beneficiary farmers themselves erect bunds (Dykes) between piers to retain water during post-monsoon for irrgation during November to April. This practice is successfully running since construction of the WRS. The beneficiary farmers raise some lumpsum funds every year during post monsoon to close the openings between the piers to retain water for irrigation during rabi season. Some beneficiary farmers who do not contribute in cash render self help labour. The structure lacks fall boards, and need repeated endeavour every year to retain water for irrigation.

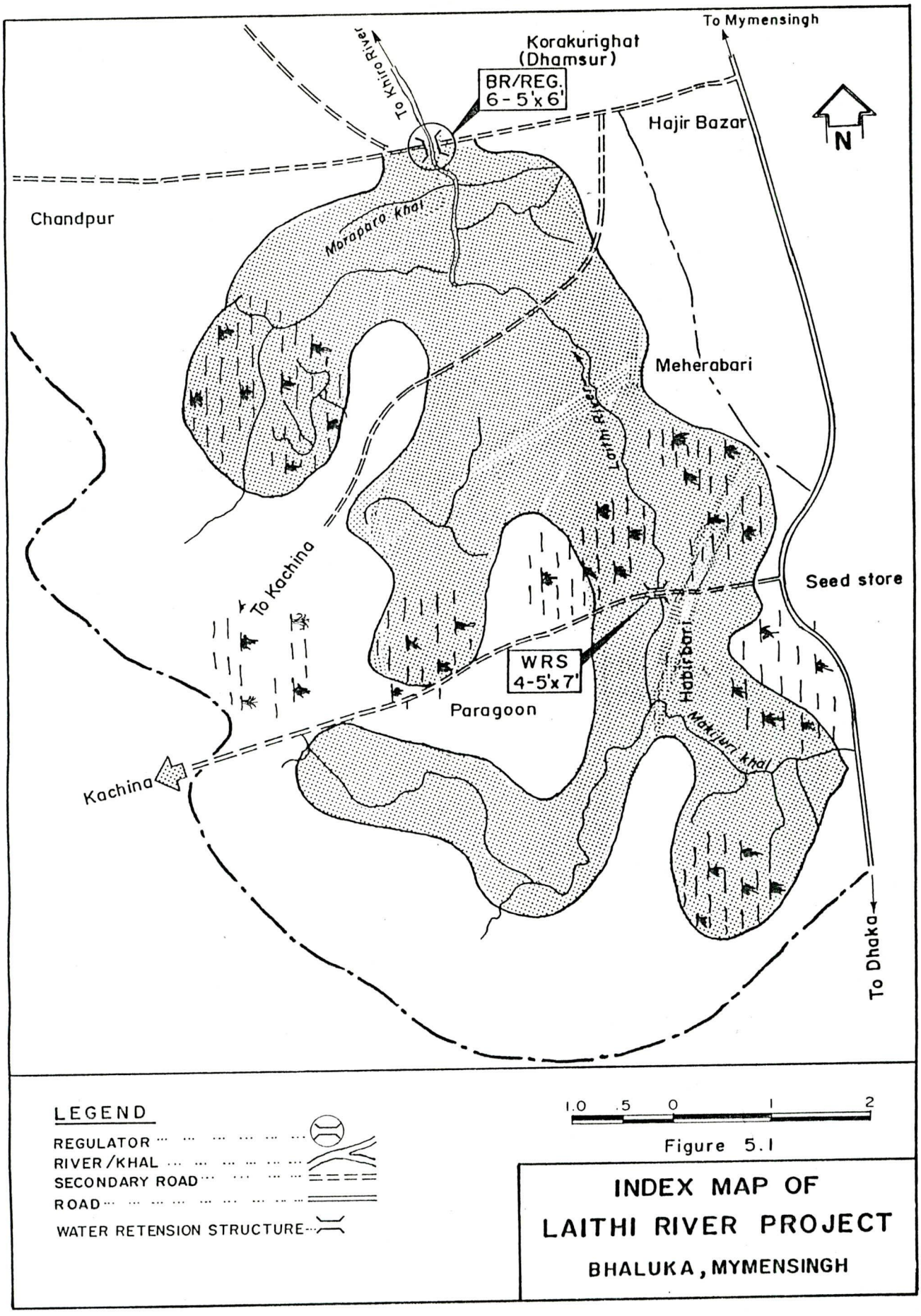


Figure 5.1

INDEX MAP OF LAITHI RIVER PROJECT

BHALUKA, MYMENSINGH

Laithy Regulator: The 6 vent structure constructed in the year 1991 is in good condition but the gates due to lack of rubber seal do not allow storage above certain level. Structure maintenance committee is in existance (ANNEX-B) but they are not yet convinced of the performance of the structure as it is not yet serving its purpose. Local inhabitants complained that the number of vents were under designed which impede flood and sill level is low to allow retention of water at desired level. The president of the structure maintenance committee informed that although water level record was taken at the structure site for two years, these data were not used in detail design of the strucure.

5.2.3 Institutional Considerations

The relationship regarding O&M management between the project beneficiaries and other local bodies is not satisfectory. The Directorate of Agricultural Extension (DAE) under the Ministry of Agriculture is responsible for the task of training and motivating farmers to adopt improved cultural practices. The Laithi river scheme, which is located in Habirbari and Mallikbari Unions of Bhaluka Upazila, is covered by 5 Blocks. The extension service are supposed to be provided by 5 Block Supervisors. But their role was not satisfactory.

BADC is responsible for the provision of inputs including primary distribution of fertilizer, seed and irrigation equipment such as low-lift-pumps. There is a seed store located at Habirbari and a larger equipment, fertilizer and seed supply depot at Bhaluka. The supply of insecticides and pesticides is provided by private wholesalers and retailers. The farmers avail these facilities to a limited scale. BRDB established in 1982, is responsible for promoting the growth of farmer cooperatives under the Thana Central Cooperative (TCCA) and Krishi Samabay Samities (KSS) committees. BRDB works toward equitable use of pump units provided to cooperatives and provides credit to these cooperatives to improve their productive capacity. They also organizer landless and near landless people into cooperatives, collect thrift deposits and provide credit for income generating activities.

The credit institutions functioning near the scheme area are.

- Bangladesh Krishi Bank located at Habirbari; and
- Rupali Bank Ltd. located at Bhaluka.

5.2.4 Maintenance

Maintenance requirements within the technical and financial capabilities of the Thana engineering staff are supposed to be undertaken by them with the assistance of local people. Major maintenance or repair work is funded by external source through BWDB. Structure maintenance committee (ANNEX B) is in existance but so far no projective was taken by the committee to meet part of the maitenance from local resource mobilisation. Fund allocated for maintenance of road cum embankment and structure is shown in Table 5.7.

5.2.5 Operation Management

According to stated GoB policy, responsibility for operation and maintenance of small schemes is ultimately to be entrusted to the Thana administration who would invoke public participation. Current budgets and technical capability of the Thana engineering staff are not consistent with this responsibility. An O&M committee was established for the Laithi River Scheme. The list of committee members is shown in Annex-B. The committee members are aware of their role for O&M. But no effective step is taken by the committee as the gates of the structure are not leak proof.

5.2.6 Local Resource Mobilization

Although there is a structure maintenance and operation committee for the 6 vent regulator, so far there is no LRM project initiated. However, the committee President is of the opinion that they are doubtful about the performance of the structure because the stucture could not be put into operation due to leakage through the gates.

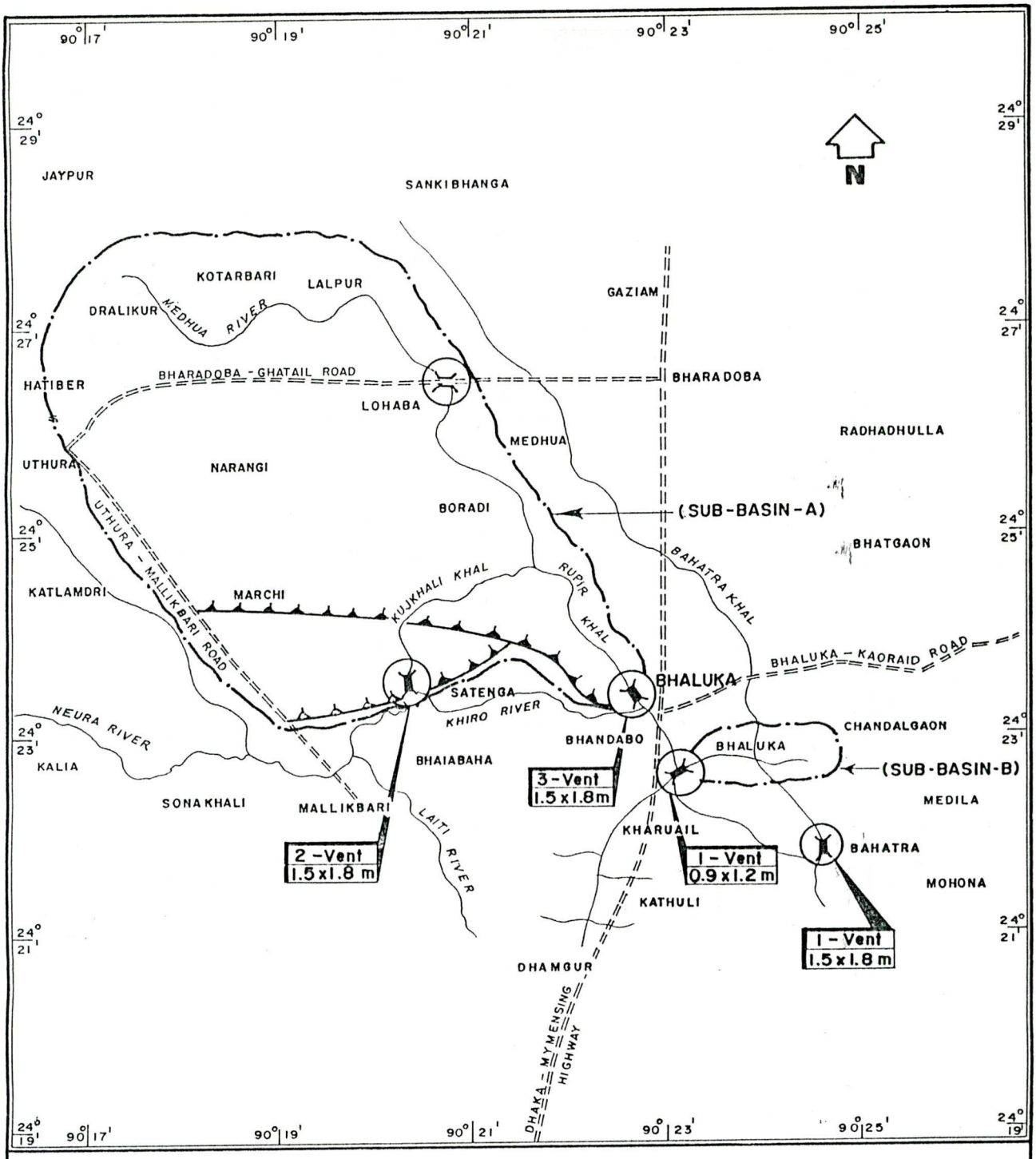
5.3 Study of the Khiro River Project

5.3.1 General

The project is located at Bhaluka Upazila under Mymensingh District about 75 km north of Dhaka or 55 km south of Mymensingh Figure (5.2). The combined area of the Basins A and B is approximately 6465 ha. Drainage from Basin A is southeast into the Khiro River while Basin B drains in a westerly direction into the Khiro River. The primary purpose of the Khiro River Project is flood control. As an additional benefit, water can be retained in the project basin to provide water for low-lift pump irrigation. Based on thana statistics, a total of 5,600 families in the sub-project area live on farms. The estimated farm size distribution in the sub-project area is shown below (BWDB,1989).

Farm Size	Percentage of Farm Households	Percentage of Cultivated Area
Small (< 1 ha)	58 %	23 %
Medium (1-3 ha)	35 %	52 %
Large (> 3 ha)	7 %	25 %
	100 %	100 %

The Khiro River was excavated in 1981-83 and again reexcavated in 1984-85 through FFW under the World Food Programme. During the latter period an embankment was also constructed along the left bank of the Khiro River from Bhaluka to Marchi under the same programme by the Thana Parishad.



LEGEND

- RIVER, KHAL
- ROAD
- EXISTING REGULATOR
- EXISTING BRIDGE
- EMBANKMENT INCOMPLETE
- EXISTING EMBANKMENT
- SUB-BASIN BOUNDARY

0 76.03 152.06 228.09 304.12 380.15

Figure 5.2

INDEX MAP OF KHIRO RIVER PROJECT

BHALUKA, MYMENSIGH

5.3.2 Status of the Project Features

Structures: The following structures have been constructed for the project:

i) one drainage regulator (3-vent 1.5 x 1.8 m) at Bhaluka on Rupiar khal

ii) one drainage regulator (2 vent 1.5 x 1.8 m) at satenga on Kujkhali khal;

iii) one drainage regulator (1-vent 0.9x1.2 m) at Kharuail on Bhaluka khal and.

iv) embankment

Embankment: Following construction of the sub-project, the project embankment has not been maintained. The embankment as reported by Union Parisad Chairman of Mollikbari is not yet fully completed which allows Khiro river water to enter into the subproject. This caused breach of the embankment on the western side of the existing 3 vent regulator over Rupir Khal. This breach has not been repaired and people opined that another regulator is required at this breach.

Regulator(s): The physical condition of the three regulator without any maintenance are good. But the 3 vent regulator over Rupir Khal at its down-stream apron is partially damaged. The 1-vent regulator is also in good condition.

5.3.3 Pre-Project Meeting

A pre-project meeting was held on November 17, 1988 at Bhandabo in Bhaluka Upazila. About 150 people attended the meeting where the project concept was discussed in details. At the end of the meeting a local project committee was established for the project. The list of the LPC members is shown in ANNEX-B. Detailed proceedings of the meeting is presented in ANNEX - C.

5.3.4 Institutinal considerations

It is a stated Government policy that the responsibility for O&M on small scale drainage irrigation and flood control scheme, ultimately be entrusted to local administrative bodies such as Thanas who would be expected to mobilize public participation in the O&M activities. Present financial and technical resources of the Thana is not sufficient to permit them to properly carry out this responsibility. BWDB participates in the O&M activities as a routine. So far no active institutional setup has been develoved for proper O&M of the project. There exists poor contact between Thana officials and project beneficiaries.

5.3.5 Maintenance

Maintenance requirements within the technical an financial capabilities of the Thana engineering staff are supposed to be undertaken by them with the assistance of local people. Presently major maintenance or repair work is funded by external source through BWDB. Structure maintenance

committee is in existance but so far no initiative was taken by the committee to meet part of the maitenance from local resource mobilisation. Fund allocated for maintenance of road cum embankment and structure is shown in Table 5.7.

5.3.6 Operation Management

O&M committese were established for the each of the three structures of the project. But these committees are not active because the project is not fully completed due to incomplete embankment.

5.3.7 Local resource mobilisation

Although there is structure maintenance and operation committee for the the 3 vent regulator, so far there is no LRM project initiated. The people who reside near the structure were of the opinion that the performance of the structure was not better than a bridge.

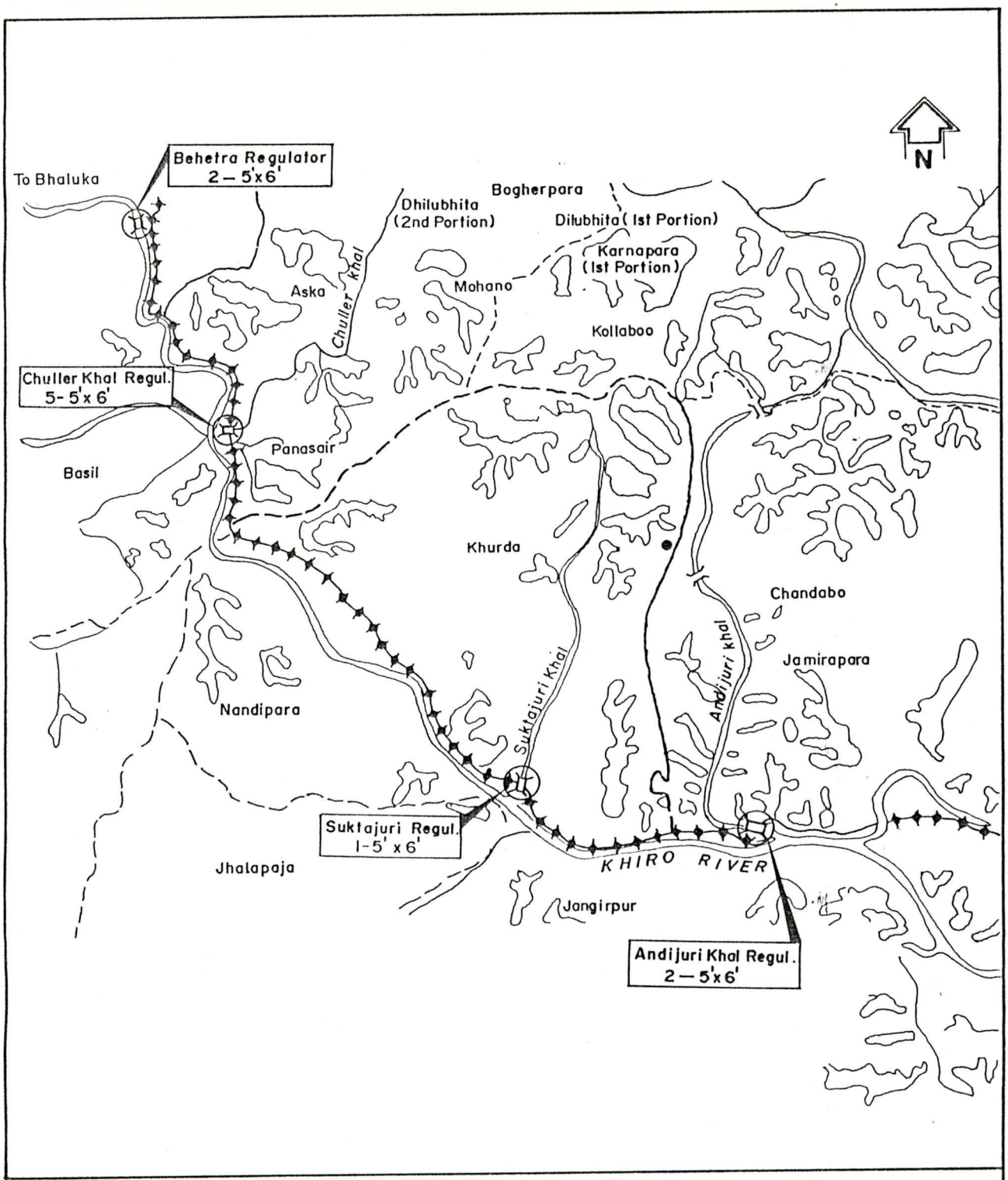
5.4 Study of Suktajuri Project

5.4.1 General

The scheme area is located in Bhaluka thana under Mymensingh district, about 10 km south-east from Bhaluka thana headquarters on the left bank of the Khiro river (Figure 5.3).The Suktajuri Regulator Scheme is a part of the Khiro River Flood Protection Project. The Khiro River Project comprise of 12 km flood embankment and two regulators, namely, Chuller Khal regulator (5 vent 1.52 m x 1.83 m) and Andijuri Khal regulator (2 vent 1.52 m x 1.83 m), constructed to protect about a 49 sq.km area from early monsoon flooding during the rising stage of the Khiro River. The Suktajuri Khal basin of about 6.5 sq.km is partly separated from the rest of the project basin by a country road on the north and by an elevated ridge, at about elevation 5.2 m PWD, along its eastern boundary. The Suktajuri Regulator scheme is designed for an early monsoon flood protection and retention of water for post monsoon irrigation.

Single cropping is dominant in the area. Present cropping intensity is only 100 %. Land distribution is as follows (BWDB,1987b):

Size of Farm	Percentage of Cultivable Land	Households
Small, less than 1 ha	23	60
Medium, 1-3 ha	50	35
Large, over 3 ha	27	5



LEGEND

EMBANKMENT

RIVER / KHAL

SECONDARY ROAD

REGULATOR

BRIDGE

0 0.5 1.0 1.5 2.0 km

Figure 5.3

INDEX MAP OF SUKTAJURI KHAL PROJECT

BHALUKA , MYMENSIGH

There are about 3000 people and 500 families living within the scheme area. Farming is the main source of income for about 80% of the households and the remaining 20 % are engaged in local crafts, fishing and administration or are unemployed.

5.4.2 Status of the Project Features

Embankment: The flood embankment cum village road is maintained by BWDB with FFW assistance. The embankment is in good condition.

Regulators: The existing regulators, 5 vent (1.52 m x 1.83 m) Chuller Khal regulator and 2 vent (1.52 m x 1.83 m) Andijuri Khal regulator completed under IDA Credit 955-BD in 1986-87, are in good condition. The 1 vent 1.52 m x 1.83 m Suktajuri Khal regulator constructed uder IDA Credit 1870-BD in the year 1990-91 is also in operable condition.

5.4.3 Institutional Development

Although ultimate responsibility for O&M lies with the Thana Council, at present BWDB participates in the major routine maintenance with local cooperation from the structure maintenance committee. Threre is need for more support from local administration.

Local Project Committee: In August 1987, the beneficiary participation was institutionalized by the formation of a 15 member local project committee. The then Upazila Chairman heads the committee and the BWDB Subdivisional Engineer is its secretary. Members include Union and Upazila officials, farmers from different geographic & social groups, and a fisherman (ANNEX-A).

5.4.4 Maintenance Practice

Maintenance requirements within the technical and financial capabilities of the Thana engineering staff are supposed to be undertaken by them with the assistance of local people. Major maintenance or repair work is funded by external source through BWDB. Structure maintenance committee is in existance and active but so far no initiative was taken by the committee to meet part of the maitenance from local resource mobilisation. Fund allocated for maintenance of road cum embankment and structure is shown in Table 5.7.

5.4.5 Operation Management

According to stated GoB policy, responsibility for operation and maintenance of small schemes is ultimately to be entrusted to the Thana administration who would invoke public participation. Current budgets and technical capability of the Thana engineering staff are not consistent with this responsibility.

An O&M committee was established for the Suktajuri Khal Project. The committee's responsibility is to ensure proper operation of the structure. There are three committees one for each structure. The list of thse committees are shown in ANNEX-B.

5.4.6 Local resource mobilisation

There are structue maintenance and operation committees for the three regulators The three commitees are active. Under the overall guidance of the two Community Organisers beneficiary farmers have organized themselves to form cooperative societies one for each structure. Two sutch samities are raising funds by donating Taka 25 at the first month of enrolment and five Taka each for each of subsequent months. Part of this fund will be used for petty maintenace of the structure. The respective cooperative samities are also in the planning of some fishery project with in the project. Major routine maintenance is carried out by BWDB from external funds. There is sluice maintenance commitee for minor maitenance and operation.

5.5 Study of Silimpur Karatia Regulator Project

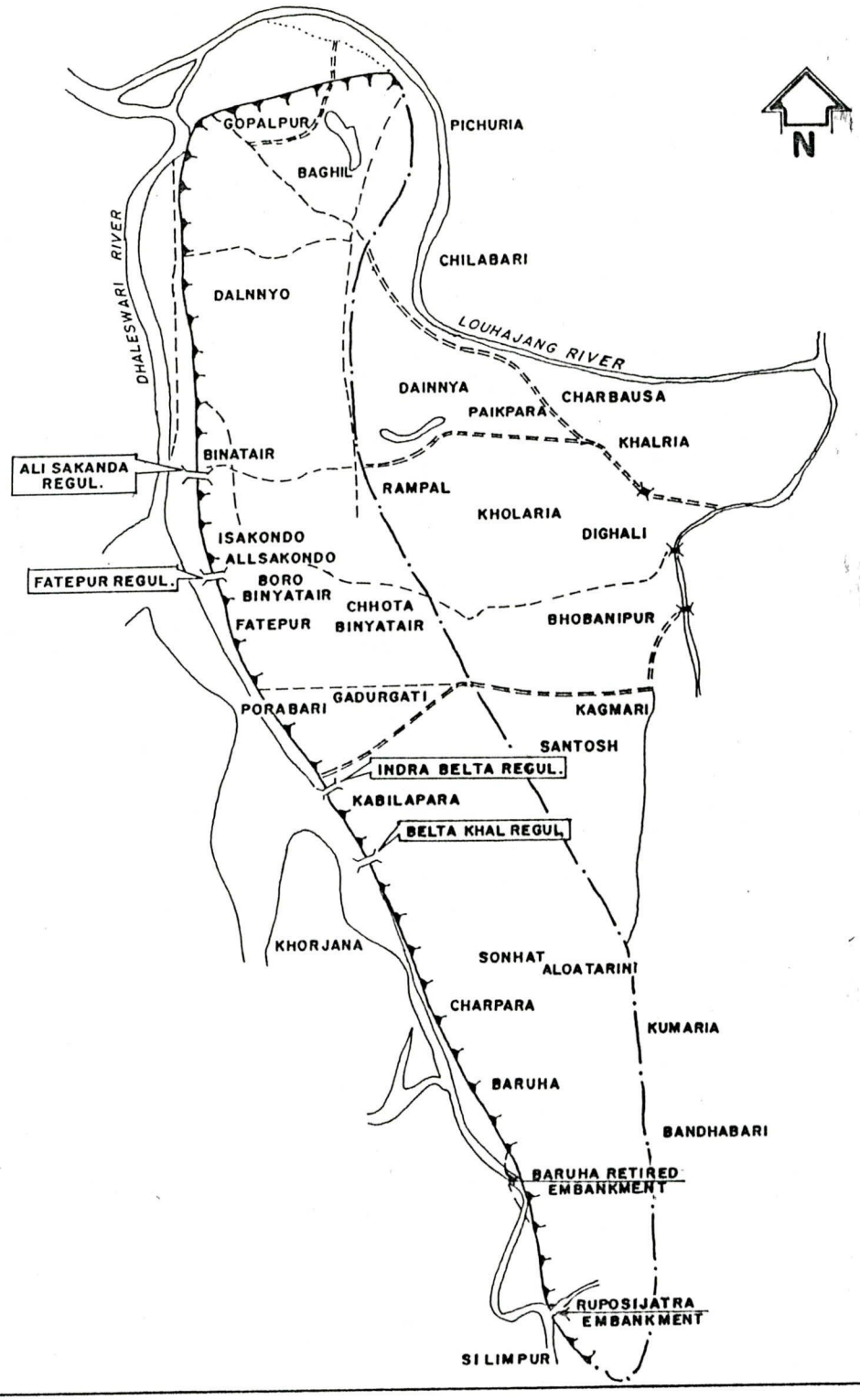
5.5.1 General

The project forms a horseshoe around Tangail town. It was originally constructed by Tangail Thana Council in 1964-65 and subsequntly taken over by BWDB. The gross area of the project is 2833 ha and 1012 ha is claimed to be served by the structures. The project area is consists of both high and low land. The area forms part of he "Tangail Pilot Compartment" under FAP 20 (FPCO, 1992). Under SSFCD project (IDA credit 955-BD) the construction of four regulators (one vent 0.9x1.2m) was taken up to close off four khals of the project area (Figure 5.4).

The aim of the project was to retain water for irrigation in the khals and to exclude flood water entering into the project. Flood water in the project area enters from the Lauhajang river which originates from the Dhaleswary. Pre-project cropping pattern was L.T. Aman and B. Aman. Irrigation was developed in the project area using DTWs and STWs. Main features of the project are four regulators with fall boards arrangements and the embankment around Tangail is a mixture of locally built embankment and road. However, the Lauhajang remains open to flood water.

5.5.2 Summary of Findings

The project has had a minimal impact. The four sluices except one have remaied open since 1983. There is little change in agricultural pattern to high lands. There has been a major growth in HYV boro cultivation with DTWs. On lower land HYV boro has replaced B. Aman. There has been less impact to open water fishery as the regulators remained open except that boat communication disrupted. Although village road has been improved by the sluices, they were just an expensive and inappropriate response when small bridges would have done the same job and permitted boat traffic to continue.



LEGEND

EMBANKMENT

PROJECT BOUNDARY

RIVER / KHAL

REGULATORS

EARTHEN ROAD

FOOT PATH

0 0.5 1.0 1.5 2.0 km

Figure 5.4

INDEX MAP OF SILIMPUR-KARATIA REGULATOR

TANGAIL

5.5.3 Operation of the Project

There has been virtually no oeration of the peoject. The fall boads were used initially but could not be reused due to distortion and soaking. The fall boards in one of the sluices was leaking profusely.

5.5.4 Institutional Considerations

There was no involvement of local people in the project since start. They viewed the structure as means of communication only. BWDB is supposed to handover small projects to local administration. It is reported that BWDB work assistant was entrusted to form sluice committee, but so far no effective measure was taken up by BWDB in handing over operation responsibilities. There has been no reports of conflicts over closing off the khals.

5.5.5 Maintenance

The sluices are in good condition without any maintenance work since construction in 1983. The embankment is not regularly maintained by BWDB, instead it is resectioned under FFW and FDR. In 1988-89 15.1 km was repaired with 763 metric tons of wheat and 4.5 km with TK 3.2 million (FDR) while in 1889-90 8.9 km were repaired with 407 metric tons of wheat. Damage to the northern section of the embankment dates back to 1988 and allowed flood water in 1991. Some routine maintenance is by women's work crews under CARE's rural maintenance programe.

5.5.6 Local Resource Mobilisation

Maintenance at present is dependent on external resources (FFW). Local resources are not mobilised for maintenance work.

5.6 Pathakhali Konai Beel Project

5.6.1 General

This is a small scal FCDI project situated in a bend of the Bangsi river on its left bank about four killometer to the north-east of Mirzapur town in Tangail district. The gross area of the project is about 2430 ha and 1800 ha is benefitted area. The project area has two beels called Konai beel and Para beel (Figure 5.5). It was taken up under EIP programme in 1977-78. Under SSFCD project (IDA credit 955-BD) the construction of four regulators (one vent 0.9x1.2m) was taken up to close off four khals of the project area.

The project area suffered severe crop damage due to flooding of the Bangsi and silt deposition on agricultural land. To prevent crop damage from flooding and sand deposit, the Pathakhal Konai Khal was closed at its western end in 1979 and a guide embankment (3.6 km) was constructed in the same year. The project was appraised in 1985 and taken up for execution in 1986 under FDR program. As of 1989, the following works have been completed (MPO,1985;SuWaR,1992):

- construction and strengthening of 5.5 km of embankment on the north and south of the closure under EIP programme.
- Ten inlets for LLP were constructd for conveying irrigation water of the Bangsi river;
- construction of 5 km embankment on the southern boundary under FFW;
- construction of a one vent regulator at khal crossing of the Para beel;
- a two vent sluice at the outfall of konai khal with joint assistant from IDA and CIDA;
- installation of 20 DTW and 40 STW by farmers for irrigation from ground water source.
- construction of 550 m khal linking Para beel with the Bangsi river through one vent regulator.

The aim of the project was to effct drainage, provide irrigation and to exclude flood water entering into the project.

Pre-project cropping pattern was HYV boro (35%), L.T. Aman and B. Aman, pulses and other rabi crops. Irrigation was developed in the project area using DTWs and STWs.

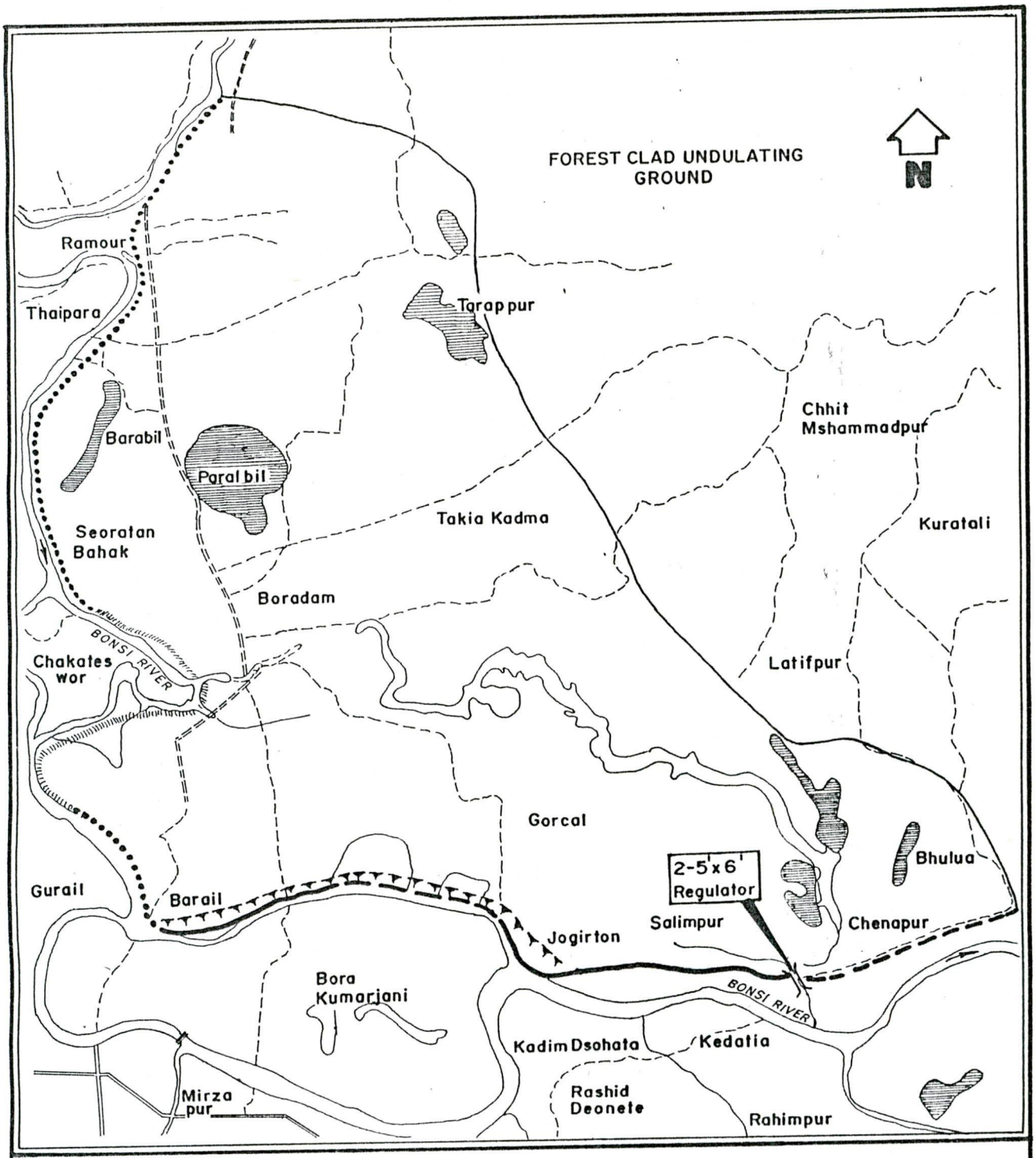
5.6.2 Summary of Findings

Agriculture: The project has positive impact on overall agricultural production. There is some change in agricultural pattern to high lands. Wheat cultivation is on incease trend to this category of land. There has been a major growth in HYV boro cultivation on medium high land and on lower lands. The land under HYV boro has increased to around 90% of the cultivable land and its production increased substancially.

The project area is mainly inhabited to marginal and small farmers. About 69% of the house holds owing less than 1.2 ha of land and 16% land less people. There is no farmer holding more than 8 ha. Share croppers cover about 30% of the households.

Though the embankment has made the harvest secured for the farmers, the following points need attention (SuWaR, 1992):

- due to closure of the old Bangsi bifurcated arm at the Mirzapur site, the new Bangsi has twice the previous slope which caused serious erosion, and deposition and damage of 40 houses close to FFW embankment.
- the two vent regulator at the outfall of konai khal is not sufficient to drain the runoff water. Drainage to the Bangsi remains impossible during 4-5 months of the monsoon season;
- fishery has been adversely affected and is on steady decrease;
- water has become stagnant in many places;



LEGEND

Completed Embankment

- DWDB 1st phase
- DWDB 2nd phase
- Local body (FFW)

Proposed Embankment

- Breached Embankment
- Mirzapur Closure
- Existing Regulator

km 1.0 0 1.0

SCALE

Source : MPO, 1985

Figure 5.5

INDEX MAP OF PATHAKHALI KONAI BEEL PROJECT

MIRZAPUR, TANGAIL

- there has been conflict between the people living inside and outside the embankment. Outsiders complain that the embankment has incrased flooding on the immediately outside the embankment;
- higher lands are facing drought due to excess drainage. Shortage of irrigation in the elevated areas
- no regular maintenance of embankments and other structurs. No employment genaration activities such as fish ponds, fish hatchery, poultry and duck farming and
- there is no institutional arrangement to mobilise local participation and resource to maintain and operate the project.
- boat communication disrupted although village road has been improved by the sluices.
- no arrangement so far made to recover O&M cost of the project;

5.6.3 Operation of the Project

Inadequate operation and maintenance are amongst the important factors that not only impede the realisation of the project objctives but also create other environrntal consequences as cited in the previous section. The design of the EIP embankment seemed to be adequate. The section that was constructed under FFW is poorly designed. The embankment was vulnerable due to rat holes, erosion and poor turfing. At the operational level, no attempts were made to involve water users group in the planning and decision making process. Although large number of pump groups in the project area, there is hardly any legal status and are not involved in the operation of the structure.

5.6.4 Institutional Considerations

There was no involvement of local people in the project since start. Many of the problems of adverse environmental impact could have been avoided or minimised in planing and design phases if knowledge and experience from the local community were sought. BWDB is supposed to handover small projects to local administration. So far no effective measure was taken up by BWDB to form sluice committee in handing over operation responsibilities. Other than BWDB, there is minimal involvement of other agencies (SuWaR,1992).

5.6.5 Extension Services

There was no extension program in the area for improved on farm development. However, a number of governmental and non-governmental agencies are active in providing agricultural extension services. GoB credit programs were repoted to be biased towards the larger farmers while NGOs worked mainly for the poor section of the population.

5.6.6 Maintenance

Inadequate maintenance of the sluices, embankment and drainage system was a major issue that might threaten the future sustainability of the project. The embankment was not regularly maintained by BWDB and it needed regular and emergency maintenance. Both the regulators and the drainage channel needed redesign to facilitate boat passage and fish movemnt. Maintenance was dependent on external resources (FFW). Local resources were not mobilised for maintenance work.

8 88169

Table 5.1: Key Features of Projects Selected for Evaluation

Sl. No.	Name of Project	Type of Project	District/ Thana	Gross Area (ha)	Cult Area (ha)	People/ Family	Total Cost (Tk.Mil)	Cost/ha (Tk.)	Const. Start/ Finish	Funding Agency
1.	Silimpur Khali Reg.	FCDI	Tangail	2,833	1,012 *	N.A.	6.36	2245	1982/1984	IDA
2.	Pathakhali Konai Beel	FCDI	Tangail/ Mirzapur	2,430	1,820	N.A.	14.16	5,827	1978/1985	SIDA/EIP
3.	Laithi River	FCDI	Mymensingh/ Bhaluka	2,000	1,210	7,280/ 1,380	10.36	5,184	(89/90)/ Jun'93	IDA
4.	Khiro River	FCDI	Mymensingh/ Bhaluka	6,465	4,488	32,000/ 5,600	19.50	3,017	(90/91)/ Jun'93	IDA
5.	Suktajuri	FCDI	Mymensingh/ Bhaluka	650	520	3,000/ 500	3.75	5,780	89/Mar.92	IDA

* Table S3, FAP 13, Main Report, Vol.1

Table 5.2: Structure Summary and O&M Status of Projects

Project Name	Structure(s) Y/N	Committee Y/N	Functioning	Drainage Problem	Conflict. Farmer/H/L Fishery/ Navigation	O&M Cost Source	Local Income Generation	Role of Local People
Laithy River	Y	Y	1	1	1	FFW/IDA	0	1
Khiro River	Y	Y	1	2	2	FFW/IDA	0	1
Suktajuri Khal	Y	Y	2	0	0	FFW/IDA	1	2
Silimpur Khali Reg.	Y	N	0	1	0	FFW/IDA	0	0
Pathakhali Konai Beel	Y	N	0	2	2	FFW	0	0

Table 5.3: O&M Performance of Embankment

Project Name	Structure(s)				Breaches	Public Cuts	Khalashi Active	Local Committee Active	Water Management	Public Participation in projects
	Road	Tree	Home	% Poor						
Laithy River	2	0	0	0	0	0	*	1	1	1
Khiro River	2	0	1	50	1	0	*	1	1	1
Suktajuri Khal	1	1	0	25	0	0	*	2	2	2
Silimpur Khali Reg.	2	0	0	50	1	0	*	**	0	0
Pathakhali Konai Beel	2	0	0	50	1	0	*	**	0	0

* There is no Khalashi and Khalashi shed.

** There is no local committee other than pump groups who manage themselves.

Table 5.4: Key Hydrological and Agricultural Impacts

Project Name	Present Flood Characteristics				Change in Cropping Pattern	Increased Crop		Net Output
	Delayed Early Flood	Reduced Normal Flood	Prevent Peak Flood	Drainage Congestion		Intensity	Yield	
Laithy River	0	0	1	1	0	1	1	1
Khiro River	0	0	0	2	0	0	0	0
Suktajuri Khal	1	1	1	0	1	2	2	2
SilimpurKhali Reg.	0	0	0	1	1	0	0	0
Pathakhali Konai Beel	1	1	1	2	1	1	1	1

Note: 0 = Poor/not much/(no); 1 = Fair/some/(partly); 2 = Good/much/(many);

Y = Yes; N = No

Table 5.5: Socio-economic Impact

Project Name	Employment Opportunity	Transport		Conflict of Interest	Disbenefitted Groups	Peak Flood Damage	Embankment as Flood Shelter
		Road	Boat Traffic				
Laithy River	1	2	-	1	Boatman, Fisherman	0	0
Khiro River	1	1	-	0	Fisherman, Boatman	1	0
Suktajuri Khal	1	2	-	0	Jackfruit owner, Boatman	0	0
Silimpur Khali Reg.	0	1	-	0	Boatman	2	0
Pathakhali Konai Beel	1	1	-	1	Fisherman, Boatman	1	0

Table 5.6: Condition of Main Existing Features

Name of Project	Structure(s)	Gate	Embankment	Drainage Khal	Irrigation Canal
Laithy River	1	1	2	1	1
Khiro River	1	1	1	1	1
Suktajuri Khal	2	2	2	2	1
Silimpur Khali Reg.	1	0	1	1	-
Pathakhali Konai Beel	0	0	1	0	1

Table 5.7: Post Construction (O&M) Activities & Fund Allocation for Case Study Projects

Sl. No.	Project	Activity	No./Quantities	Fund Allocated in Tk.	Year of Allocation	Source of Fund Allocated
1.	Laithy River	- Gate repair - Gate Painting - Block Repair - Approach embank re-sectioning	6 6 558 336 m (353 m^3)	30,000 20,000 45,000 55,000	93-94	IDA
2.	Khiro River	- Painting of gate of vent regulator	1	5,000	93-94	IDA
3.a	Suktajuri Khal	- Repair of regulator - Gate repair - Pond excavation - Closure construction - Embankment repair - Pipe sluice	7 10 1 1 3	38,900 14,000 3,800 14,900 4,300 56,400	92-93	IDA
		Sub-total (3.a)		1,32,300		
3.b		Andijuri regulator: - Block dumping, Channel excavation and back filling - Repair and maintenance of guide bund - Brick matressing	 1	1,17,00 75,000 50,000	93-94	IDA
		Sub-total (3.b)		2,42,000		

Source : BWDB, Dhaka

5.7 Discussion

In this chapters data on five projects were collected and analyzed. Based on the findings on the review of the projects following remarks can be made.

The projects under study are of two types namely, projects where no or little consultation was made at the planning stage and projects where beneficiaries and local elites were involved in the form of pre-project meeting. The second category of projects under this study can again be classified as projects with subsequent support by Community Organizers (COs) and that without COs. Different observations on these categories of projects are presented as a tabular form in Table 5.8. Detailed findings on the survey questionnaire are presented in ANNEX-F as tabular forms.

Table 5.8 reveals the following findings:

- **planning of the project with consultation of beneficiaries at pre project stage are better than those without consultation.** Out of five projects under study, the three projects where consultation with the beneficiaries were held showed positive result with respect to achievement of project goal.
- **consultation of beneficiaries at the planning stage only does not guarantee better O&M of the project. But it helps positively towards easy involvement of beneficiaries in subsequent O&M of the project.** Survey findings showed that the two projects where only pre-project meetings were held without any further followup to motivate beneficiaries, the O&M performance was not as encouraging as one with subsequent followup by community organizers.
- **further followup was necessary at subsequent stages of the project to ensure effective participation in O&M of the projects.** Amongst the three projects where pre-project meetings were held only one project was having assistance of two community organizers. This project showed more active involvement of beneficiaries than the other two projects.
- **better O&M response are observed from the project where continued endevour is made through COs to motivate people about their due role in O&M of the project.** In the Suktajuri Project O&M status of all the three structures were better where CO's were engaged.
- **O&M committees were more active in project where CO's involvement were present in addition to PPM.** In Suktajuri Project at each structure site farmers formed Samabay Samity and are taking part in O&M activities in addition to BWDB.
- **prospect of Local Resource Mobilization (LRM) for project O&M is better in project with CO.** Beneficiaries in Suktajuri project were planning for taking up fund raising project like pond fishery and each beneficiary farmer after registration, deposited five Taka per month to the samity for raising fund to meet part of O&M cost.
- **there was no LRM project and O&M Committee for projects without PPM and CO.** In case of the two normal BWDB projects, there were no committees and local resource mobilization activities for O&M.

Table 5.8: Summary of Findings on Study Projects

Sl. No.	Questionnaire Reference No (ANNEX-D)	Item	Projects		
			Without PPM/ Beneficiaries involvement	With PPM only	With PPM and COs involvement
1.	1.4	Was project goal achieved ?	0	1	2
2.	1.6	Was the project visited by planner ?	0	2	2
3.	1.7	Was pre-project meeting held ?	N	Y	Y
4.	1.13	Any change due to PPM ?	0	1	2
5.	2.1	Was the project beneficial ?	0	1	2
6.	2.4	Who are non-beneficiaries ?	Navigation Fisheiry	Navigation Fisheiry Business	Navigation Fisheiry Business
7.	3.1	Condition of the structure(s) ?	1	1	2
8.	3.2	Formation of O&M Committee ?	N	Y	Y
9.	3.4	Is O&M Committee active ?	0	1	2
10.	3.6	Any O&M problem ?	1	1	0
11.	3.7	Any local O&M fund generation ?	0	1	2
12.	3.9	Is structure operated by committee ?	N	Y	Y
13.	3.10	Is there conflict of interest ?	Y	Y	N
14.	3.11	Do beneficiaries involve in operation ?	0	1	2
15.	3.12	Is there any local resource mobilisation project ?	0	0	1
16.	3.14	Is there any contribution from beneficiaries ?	0	1	2
17.	4.1	Who does maintenance ?	BWDB	BWDB	BWDB and Committee
18.	4.4	What is the source of maintenance fund ?	External through BWDB	BWDB and Committee	BWDB and Beneficiary
19.	4.6	Is there any LRM fund for maintenance ?	0	0	1
20.	5.1	What relation between BWDB and beneficiaries committee exists?	*	1	2
21.	5.2	What relation between committee beneficiaries and Thana officials exists?	0	0	1

Y = Yes N = No 0 = Poor/no 1 = Fair/some 2 = Good * = No committee

Chapter : 6

6. CONCLUSION AND RECOMMENDATIONS FOR FURTHER STUDIES

6.1 Conclusion

The following conclusions may be drawn from the present study.

1. Involvement of beneficiaries at planning stage does not ensure that operation and maintenance would be better. But these consultations creats opportunities for improved and proper O&M.

2. Under the normal planning of water development projects, the planning of most projects ended at the implementation stages without giving any consideration on future operation and maintenance.

3. For effective O&M, involvement of a "facilitator" is essential. Towards this role of Community Organizers have been found to be effective. Beneficiaries participation has widely been accepted in Bangladesh as core strategy for improvement of O&M of FCDI projects. Recently in SSFCDI projects preproject meetings were held before projects were takenup for implementation. However, this type of involvement throgh PPMs could be termed as partial participation. Bottom up approach in the form of involving beneficaries through pre-project discussion meeting at planning may result better planning. The PPM meetings were useful platforms to establish linkage between local agencies and the beneficiaries.

4. The beneficiaires involvement in the planning has made favourable change in the planning process. But their participation in the form of PPM do not ensure fully that O&M of the project will be better. It was found that the success of O&M not only depends on the beneficiareis commitment in the PPMs but also on how rapidly the project achieved its benefits, availability of local resources for generating the O&M fund and building up the local leadership. Their role in the O&M also depends on how close BWDB field engineers are working with the beneficiaries.

5. Group formation for O&M should be organized on the basis of project facilities involving local residents only. Full responsibility by beneficiaries with limited Govt. support and well represented committee is needed for successful O&M of project. For effective O&M there is

a need of greater liaison between individual schemes and with BWDB who control operation of major regulators.

6. To obtain full benefit, water control structure should be operated in a planned methodical manner which needs close liaison with farmers to plan and organise operation and advising on crop planning to minimise conflict and maximise benefit.

7. For achieving the goal of sustainable operation and maintenance, local resource mobilisation programme (such as fishery on BWDB borrow pits, tree plantation on embankment slope etc.) may be taken up adopting similar procedure in line with SSFCDI project.

6.2 Recommendations for Further Studies

In the light of review and findings in the foregoing chapters, following recommendations for futher study are made.

1. More detailed study of the impact of beneficiaries involvement at planning level on O&M with and without subsequent assistance in the form of community organizers.

2. Study the institutional aspects of FCDI projects to establish linkage with users of FCDI projects for sustainable development.

3. Study to mobilize the various options of local resources during planning stage for the project sustainability.

4. Study impact of beneficiaries involvement at planning stage on O&M considering large scale projects with geographical variation.

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ANNEX - A

LISTS OF LOCAL PROJECT COMMITTEES

BWDB SECOND SMALL SCALE FLOOD CONTROL DRAINAGE AND IRRIGATION PROJECT

LAITHI RIVER SCHEME

LOCAL PROJECT COMMITTEE

Designation	Address or Name	Signature
President :	Upazila Chairman, Bhaluka	
Secretary :	Subdivisional Engineer, BWDB, Mymensingh	
Members : 1.	Upazila Nirbahi Officer, Bhaluka	
2.	Union Chairman, Mallikbari	
3.	Union Chairman, Habirbari	
4.	Upazila Engineer, Bhaluka	
5.	Upazila Agri. Officer, Bhaluka	
6.	Upazila BADC Officer, Bhaluka	
7.	Upazila BRDB Officer, Bhaluka	
8.	Upazila Fishery Officer, Bhaluka	
9.	Farmer from Upland	
10.	Farmer from structure area	
11.	Farmer from Beel area	
12.	Farmer from landless	
13.	Fisherman	

Signature
Executive Engineer, BWDB, Mymensingh

Signature
Upazila Chairman, Bhaluka

Note: The responsibility of the Local Project Committee is shown in Annex: A

dated: June 03, 1987

KAS:nn

BWDB SECOND SMALL SCALE FLOOD CONTROL DRAINAGE AND IRRIGATION PROJECT

LOCAL PROJECT COMMITTEE

KHIRO RIVER SUB-PROJECT

Designation	Name & Address	Signature
Chairman, Upazila Chairman, Bhaluka		
Secretary, Subdivisional Engineer, Mymensingh		
Members :		
1. Upazila Nirbahi Officer Bhaluka		
2. Union Chairman Mallikbari	Md Habibullah	
3. Union Chairman Bhaluka	Md. Mofizuddin	
4. Upazila Engineer Bhaluka	Md. Abdul Mannan	
5. Upazila Agri. Officer Bhaluka		
6. Upazila BADC Officer Bhaluka		
7. Upazila Rural Dev. Officer Bhaluka		
8. Upazila Fishery Officer Bhaluka	Ajit Kumar Saha	
9. Farmer from Upland	Abdul Hakim Bhuiyan Vill: Vandabor	
10. Farmer from Medium Land	Md. Rafiqul Islam Vill. Vandabor	
11. Farmer from Beel area (Low Land)	Md. Abdul Mannan Vill: Satenga Md. Mostofizur Rahim Vill: Alalia	
12. Farmer from landless	Md. Jobaid Ali SK. Vill: Vandabor	
13. Farmers from Structure area	1. Md. Saptar Ali Vill: Vandabor 2. ~~Md. Shamsuddin Khan~~ Kalimuddin Vill: Satenga	
14. Fisherman	Ayub Ali Vill: Vandabor	
15. ~~Boatman~~ Farmer	Md. A. Mannan Vill: Vandabor	
16. KSS	Abul Hashem Vill: Vandabor	

Signature

Executive Engineer, Mymensingh

Signature

Upazila Chairman, Bhaluka

Dated: 17 November, 1988

KAS:aa

BWDB SECOND SMALL SCALE FLOOD CONTROL DRAINAGE AND IRRIGATION PROJECT

SUKTAJURI KHAL SUB-PROJECT

LOCAL PROJECT COMMITTEE

Designation	Address or Name	Signature
President :	Upazila Chairman, Bhaluka	
Secretary :	Subdivisional Engineer, BWDB, Mymensingh	
Members : 1.	Upazila Nirbahi Officer Bhaluka	
2.	Union Chairman Rajai Up Md. Jamir Hossain.	
3.	Union Chairman X	
4.	"	
5.	"	
6.	Upazila Engineer Bhaluka	
7.	Upazila Agri. Officer Bhaluka	
8.	Upazila BADC Officer Bhaluka	
9.	Upazila BRDB Officer Bhaluka	On training at BARD, Comilla
10.	Upazila Fishery Officer Bhaluka	
11.	Farmer from Upland	Md A. Ahmed Vill- Pailabo
12.	Farmer from main structure area	Md Mafizuddin Vill Pailabo
13.	Farmer from Beel area	Md Yukub vill: Pailabo
14.	Farmer from landless	Md. Araj Ali
15.	Fisherman/Boatman	Md Amir Uddin

Signature
Executive Engineer, Dhaka O&M Division
Mymensingh.
15.7.87

Signature
Upazila Chairman
ভালুকা পরিষদ
ভালুকা, ময়মনসিংহ।

Note: The responsibility of the Local Project Committee shown in Annex: A

dated: June 03, 1987

EAS:ma

ANNEX - B

LISTS OF O&M COMMITTEES

LISTS OF O&M COMMITTEES FOR THE THREE SSFCDI PROJECTS

Except the two normal BWDB projects all the other projects under study have structure opration and maintenance committees each O&M committee is headed by a Chairman, one Secretary one Cashier and a number of members.

A. Suktajuri Regulator Structure Operation and Maintenance Committee

1.	Mr Akhtar Uddin Ahmed	Chairman
2.	Sahab Uddin	Secretary
3.	Md. Azizul Haq	Cashier
4.	Abdul Khaleque	Member
5.	Md. DUdu Mia	Member
6.	Mrs. Feroja Khatun	Member
7.	Mr. Abul Kalam	Member
8.	Md. Abdul Hai	Member
9.	Mr. Hamid Ali	Member
10.	Said Ali Sarker	Member

B. Andijuri Regulator O&M Samabay Samity

1.	Mr Ala Uddin Ahmed (Farmer)	Chairman
2.	Emdadul Haq Sarker (Farmer)	Vice Chairman
3.	Hasan Ali Sarker (Farmer)	Secretary
4.	Abul Bashar (Farmer)	Cashier
5.	Abdus Satter Khan (Farmer)	Organising Sectary
6.	Md. Nur Alam (Farmer)	Member
7.	Md Ali Sheikh (Farmer)	Member
8.	Mr. Abul Kashem (Farmer)	Member
9.	G.M. Sarwar Jahan (Farmer)	Member
10.	Abdul Khaleque (Fisherman)	Member
11.	Said Ali Sarker (Farmer)	Member
12.	Ramija Khatun (Farmer)	Member
13.	Md., Rosmat Ali (Farmer)	Member
14.	Doctor Ibrahim (Farmer)	Member

C. **Chuller Khal Regulator O&M Samabaya Samity**

1.	Mr. Abdul Khalek	Chairman
2.	Abdus Salam Khan	Secretary
3.	Abdul Mannan	Cashier
4.	Abdul Halim Khan	Member
5.	Hasan Ali	Member
6.	Farid Khan	Member
7.	Mujibar Khan	Member
8.	Shamsun Nahar	Member
9.	Mrs. Afajuddin	Member
10.	Haisa Khan	Member
11.	Sattar Master	Member
12.	Enaet Ali Shaikh	Member
13.	Salam Shaikh	Member
14.	Kayum Sarker	Member

D. **Lailthy River Regulator Structure Operation and Maintenance Committee**

1.	Md. Abdul Hassaim	President
2.	Md. Abul Kashem	Secretary
3.	Abul Bashar	Cashier
4.	Abdul Quader	Member
5.	Salim Uddin	Member
6.	Monir Uddin	Member
7.	Jasim Uddin	Member
8.	Mr. Abdul Hadi	Member
9.	Md. Tamij Uddin	Member
10.	Md. Golam Mostafa	Member

E. **Khiro River Structure Operation and Maintenance Committee**

The project has three new structures. There are structure maintenance committees for each of these structure. However, the committees are not active as the project is not yet fully operationed due breach of the embankment at Rupir Khal regulator site and incomple embankment at Kujkhali Khal regulator site.

ANNEX-C

PROCEEDINGS OF PRE-PROJECT DISCUSSION MEETING

SECOND SMALL SCALE FLOOD CONTROL, DRAINAGE AND IRRIGATION PROJECT

Proposed **Khiro River Sub-project**
UZ : Bhaluka Mymenshingh O&M Division

Proceedings of the Pre-Project Discussion Meeting with Farmers, UZ, BWDB and NHCL Officials

1. Date : November 17, 1988
2. Venue : Bhandabo, Bhaluka

3. Participants

Beneficiaries Local Representatives and UZ Officials	:	About 150 poepole (List of some farmers and officials attached in ANNEX-A). This includes a former Member of the Parliament, UP Chairman and some other UZ officials
BWDB	:	SE/PIU, BWDB, Dhaka EE/Mymensingh O&M Division and SDE/Mymensingh O&M sub-division
NHCL	:	M/S. K.A. Sarkar and Z. Karim

4. Agenda

i. To explain the aims and objectives of the Pre-project Meeting to the participants,

ii. To discuss sub-project concept with the beneficiaries and local authorities for obtaining a consensus,

iii. To establish a Local Project Committee (LPC) to encourage its active participation in operation and maintenance.

5. The Pre-Project Discussion Program

The Pre-Project Discussion Program was organized at Bhandabo within the sub-project area on 17.1.88 by the acting UZ Chairman & Ex. M.P. Bhaluka with the initiative of EE/Mymensingh O&M Division and Mr. K.A. Sarkar of NHCL.

The program started at 10:45 A.M. with distribution of sub-project briefs which were prepared by the Consultant. On behalf of the acting UZ Chairman, the UZ Magistrate-Bhaluka presided over the meeting. The SE/PIU was present as the Chief Guest.

The Union Parishad Chairman, Mallikbari, welcomed all the participants and advised them for the active participation in the discussion program by exchanging information on the sub-project.

Explaining the aims and objects of the program, Mr. K.A. Sarkar of NHCL traced the history of many such Sub-projects implemented in the past, where the beneficiaries were not really involved in the projects' planing, implementation and O&M. As a result, the optimum benefits from those sub-projects could not be attained.

Mr. Sarkar stated that a LPC to be formed for the sub-project in the meeting would be responsible for the O&M of all the following works falling within the basin:

- proposed 3 vent regulator-cum-bridge of the outfall of Rupir Khal,
- proposed 2 vent regulator-cum-bridge at the outfall of Kujkhali Khal,
- proposed 1 vent regulaor-cum-bridge at the offtake of Bhaluka Khal,
- proposed bridge cum WRS at Lohaba over Medhua River (to be constructed by UZ Parishad),
- all drainage chanels,
- emabnkment along the left bank of Khiro River.

The Staff Appraisal Report for Second SSFCDI Project proposed by World Bank and approved by GOB has already prescribed the ex-officio members and types of farmers to be involved in the LPC.

The main responsibilities of the LPC are:

- to provide necessary liaison between the beneficiaries and concerned officials in the matter of sub-project planning, construction and operation and maintenance.
- to derive maximum benefits from the sub-project by ensuring its proper operation and maintenance through participation by the beneficiaries.

Besides its advisory role during the planning and implementation, the LPC would be directly responsible for:

- operation of all features of the sub-project,
- routinge and preventive mainttenance of the structures and earthworks within the sub-project by organizing the beneficiaries.

Mr. Sarkar also mentioned of the important role that some of the concerned ex-officio LPC members could play in developing the agricultural potentials of the sub-project. The constitution of the LPC would indeed offer a chance to these officials (from WDB, DAE, BRDB, BADC, Fisheries etc.) to act towards a co-ordinated development.

Sub-Project Concept

Mr. Z. Karim - a NHCL Engineer explained the sub-project conecpts to the participants based on the preliminary studies conducted by the Consultant (Planning Group), as follows:

Sub-Project Data

Corss area : 6465 ha.	Net area 4488 ha
Benefitted people = 32,000	Benefitted Families : 5600
Total Cost = Tk. 11.6 million	Cost per ha = Tk. 178/-

ii) Problem

- the Khiro River flows along the souhern boundary of the sub-project area. Flood water from the Khiro enters into sub-project area through Rupir Khal, Kujkhali Khai and Bhaluka Khal. As a result, the Boro is damaged at harvesting stage wherease the Aman is damaged both at premature stage and flowering stage. On the other hand, the cultivation of winter crops suffer badly due to lack of irrigation water.

iii) Probable Solution & Benefits

- besed on 2 Nos. separate hydrological basins, the sub-project area is sub-divided into two units, namely: sub-basin A and sub-basin B.
- to prevent flooding, improvement of the drainage congestion situation, and retention of water during the dry season, the following works are proposed under sub-basin A:

- construction of a 3 vent (1.5m x 1.8m) regulator-cum-bridge at the outfall of Kujkhali Khal to Khiro River - during January 1988 - June 1990.
- construction of a two vent (1.5m x 1.9m) regulator-cum-bridge at the outfall of Kupir Khal to Khiro River - during January 1988 - June 1990 and
- resectioning of about 8 km of Rupir Khal under FFW, - during January 1989 - June 1990.

For Sub-basin B:

- the construction of 1 vent (0.9m x 1.2m) regulator-cum-bridge at the offtake of Bhaluka Khal (to flush necessary irrigation water from the Khiro river when it is available) - during January - June 1989.

It would appear that as a result of implementing the sub-project by June/1990, cropping intensity would increase by about 10 percent, annual cereal production would increase by 869 tons and net value of production per annum would increase by Tk. 40 lacs.

Farmer's Comments and Viewpoints

The UZ Magistrate, UZ Agricultural Officer, UP Chairman and the following farmers from amongst the beneficiaries participated in discussions:

- Mr. Abdul Mannan Vill: Bhandaboo
- Mr. Iman Ali Munshi Vill: Medhua

Their viewpoints are summarized in the following paragraphs:

i) General Consensus

The participants by and large agreed with the sub-project proposal as put forward by the Consultant in Para 6 of the proceedings.

ii) Main reasons for crop damages

The early flood of Khiro River damages the Boro crop at the harvesting stage, about twice in five years. The rainfall accumulation during the harvesting stage also damages the Boro crop by inundation. In most of the low-lying arcas no other crop can be produced.

iii) Proposal for Water Retention Structure (WRS)

Due to steep slope of the basin, the participants requested for the construction of a WRS at or near Medhua about 3 km U/S of proposed Rupir Khal regulator.

The UZ Engineer informed that the Bhaluka UZ Parishad was planning to construct a bridge at Lohaba on the Bhoradoba-Ghatail road. The bridge would cost about Tk. 4.5 m and would be excuted under the IDA funded project by the Ministry of Relief and Rehabilitation - he added. NHCL Engineer proposed the modification of the Lohabo bridge into a bridge-cum-regulator which could also be utilized as a WRS. BWDB could extend necessary design assistance for the implementaion of the bridge-cum-regulator at Lohabo. The Ex. MP, the SE/PIU, EE/Mymensingh and others supported NHCL suggestion on the construction of a regulator-cum-bridge at Lohabo.

iv) Re-excavation of Khals/Rivers

The participants requested the inclusion of

- Rupir Khal re-excavation from Medhua to outfall
- Khiro River re-excavation from Konasil to Mallikbari. In response, the EE/Mymensingh stated that the above mentioned works would be done as per PP and project requirement.

v) Land Acquisitiion

The UP Chairman and other participants assured BWDB that all the necessary land for the construction of emabankment and re-excavation of Khals would be available free of cost. The cost of land needed for the construction of the regulators would, however, be paid for by BWDB. The land owner of the proposed Rupir Khal regulator was also present in the meeting who assured that his land would be available for the early construction of the regulator even if the payment would be delayed beyond July, 1989. The UZ Magistrate ensured the respective owner of land for all regulator sites that payment would be made as the earliest from UZ office Bhaluka.

vi) New Proposal

Construction of a regulator at Simulia UZ: Bhaluka & Trishal Kodalia Bundh UZ: Bhaluka.

SE/PIU advise the EE/Mymensingh to do the needful on the new Proposal.

Ex. Member of the Parliament, Mr. Amanullah Chowdhury

The Ex. M.P., Bhaluka Constitency offered all possible co-operation during all stages of the sub-project implementation, operation and maintenance of the sub-project. He requested for the early implementation of the Scheme.

Executive Engineer, BWDB, Mymensingh

He explained the background of the sub-project initiation and requested for the implementation of the newly proposed Simulia Regulator.

The Superintending Engineer, Project Implementation Unit

BWDB, Dhaka briefly explained the sub-project criteria as follows:

- size of the sub-project should be less than 7,500 ha for FCD type and 1000 ha for irrigation type.
- upper limit of implementation cost of any sub-project is Tk. 12.5 million.
- earthworks for related embankment construction and canal re-excaation is to be done under FFW under BWDB.

He requested the local leaders to initiate more small sub-projects from their respective areas under th above stated selection criteria. He expressed his satisfaction for organizing such a forum where the problems of the sub-project and adjacent areas could be easily assessed. The SE/PIU stressed on the necessary nvolvement of the beneficiaries for the successful planning, implementation and operation and maintenance of the sub-projects.

vii. **The UZ magisrate Bhaluka** expressed his satisfaction at the efforts made to bring in the beneficiaries to discuss their problems with the agency responsible for the execution of the sub-project. He requested the beneficiaries to extend their full support and cooperation during the implementation and Operation and Maintenance phases of the sub-project.

viii. **Formation of the loca Project Committee (LPC)**

The LPC was then formed, as given in the attached sheet. The non-official members where selected on the basis of a general consensus, sticking as far as possible, to the guidelines given, in the World bank's Staff Apprailsal Report. The responsiblities of the LPC as shown in the Brief was also discussed in the meeting.

The meeting ended at 2 PM

Sd/=	Sd/=	Sd/=
Executive Enigneer	UZ Magistrate	Upazila Chairman (acting)
Mymensingh	Bhaluka UZ	Bhaluka UZ Parishad
O&M Div.	Parishad	

N.B.: After getting signatures of UZ Magistrate and Chairman, Bhaluka and himself, the EE/Mymensingh may kindly forward the copies of the proceedings to the following persons:

1. UZ: Chairman - Bhaluka
2. Chief Engineer - NEZ, BWDB, Dhaka
3. Superintending Engineer - Mymensingh O&M Circle
4. Team Leader - NHCL

KAS:sr
20/11/88

ANNEX - D

QUESTIONNAIRE

QUESTIONNAIRE

Project Name:

Name, Profession and Village of respondent:

1.0 ABOUT THE PROJECT PLANNING

1.1 When the project was initiated

1.2 Who initiated the project ?

1.3 How the project was initiated ?

1.4 Was project goal Achieved ?

1.5 What was post construction objective?

1.6 Was the project visited by planners?

1.7 Was there any pre-project meeting (PPM)?

1.8 Did you attend PPM ?

1.9 What agenda/topics discussed in the PPM?

1.10 Any discussion on O&M in PPM ?

1.11 Any discussion on water rate ?

1.12 Any committee formed during the PPM ?

1.13 What change in planning occurred due to PPM ?

2.0 BENEFITS AND DIS-BENEFITS FROM THE PROJECT

2.1 Was the project beneficial to the community ?

2.2 What are the dis-benefits from the project ?

2.3 Who gets benefit ?

2.4 Who are non-benefitted ?

3.0 OPERATION AND MANAGEMENT OF THE PROJECT

3.1 What is the present condition of the structural components of the Project. Ffind out condition of each one of them ?

3.2 Is there any Operation and Management (O&M) committee. If yes, when formed ?

3.3 Names of the committee member ?

3.4 Is the committee active in Operational and Management (O&M) ?

3.5 How Operation and Management fund is generated ?

3.6 Is there any Operation and Management problem and how it is solved ?

3.7 Any local initiative for raising Operation and Management fund ?

3.8 Any NGO active for Operation and Management ?

3.9 How structure operation goes and who takes responsibility for it?

3.10 Any conflict of interest between different groups and how it is solved?

3.11 Any involvement of beneficiaries for operation of structures ?

3.12 Income generation activities and details for the same:

3.13 Response of the villagers during major failure :

3.14 Are beneficiaries pay any Operation and Management cost of the project in the form of cash/kind or other form ?

3.15 Any local resource movilization (LRM) project for operational cost of the project?

3.16 Details of fund generated from LRM project.

4.0 MAINTENANCE

4.1 Who does routine maintenance and how often ?

4.2 Who does emergency maintenance ?

4.3 Who does Major maintenance ?

4.4 How maintenance fund is generated ?

4.5 Is there any maintenance problem and how it is solved ?

4.6 Any local initiative for raising maintenance fund ?

4.7 Any NGO active for maintenance ?

4.8 By whom and how maintenance of structure is carried out ?

4.9 Any involvement of beneficiaries for maintenance of structure ?

4.10 Income generation activities for maintenance of structures ?

4.11 Any structure/earthwork group operating in maintenance of the project ?

4.12 Are beneficiaries pay any maintenance cost in the form of cash/kind or other form ?

4.13 Any local resource mobilization project for maintenance works ?

5.0 INSTITUTIONAL FRAMEWORKS

5.1 Relations and co-operation between BWDB and project committee members.

5.2 Relation and co-operation between Thana officials and structure maintenance committee.

5.3 Relation and role between union council members and BWDB.

5.4 Relation and role between BWDB and Thana Officials.

5.5 Role of DAE for agricultural extension.

5.6 Role of DOF for promotion of fish production

5.7 Role of BADC for seeds distribution

5.8 Role of BRDB/bank for agricultural credits.

ANNEX-E

PHOTOGRAPHS

Photo 1: Suktajur Project: 5 vent regulator over Chuller Khal, view from river side,(Date : 16-8-94)

Photo 2: River side view of Chuller Khal regulator which is in good operating condition (Date : 16-8-94)

Photo 3: River side view of 1 vent Suktajuri Khal Regulator. The structure prevents boat traffic (Date : 16-8-94)

Photo 4: River side view of 1 vent Suktajuri Khal Regulator in good condition (Date : 16-8-94)

ANNEX F

TABULAR PRESENTATION OF RESPONSES ON QUESTIONNAIRE

Tabular Presentation of Responses of Respondants on Questionnaire.

Table-1
Reference: Questionnaire in ANNEX-D

Q. No. 1.4: Was the Project Goal Achieved ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	3 *	38	7 *	88	5	56	* Partially
No	5	62	1	12	2	22	
No idea	0	0	0	0	2	22	

Q. No. 1.6: Was the project visited by planner ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	5	63	6	76	5	56	
No	0	0	0	0	0	0	
Not sure	3	37	2	24	4	44	

Q. No. 1.9: Was there any pre-project meeting held ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	5	63	7	88	6	67	
No	0	0	0	0	0	0	
Not sure	3	37	1	12	3	33	

Q. No. 1.8 Did you attend PPM ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	5	63	1	12	3	60	
No	3	37	7	88	2	40	
Total	8	100	8	100	5	100	

Q. No. 1.13: What changes occured due to PPM ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	6	76	4	50	4	50	
No	0	0	0	0	1	12	
Not sure	2	24	4	50	3	38	

Q. No. 2.1: What were the benefits from the project ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes (+)	8 *	100	5 *	64	6	86	* Partial
No (-)	0	0	1	12	1	14	
Not sure	0	0	2	24	0	0	

Q. No. 2.2: What are the dis-benefit from the project ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Yes	No	Yes	No	Yes	No	
Navigation	7 (88%)	1 (12%)	6 (76%)	2 (24%)	6 (88%)	1 (14%)	
Fishery	6 (76%)	2 (24%)	7 (88%)	1 (12%)	5 (84%)	1 (16%)	
Jackfruit business	0	0	0	0	4 (56%)	3 (44%)	

Q. No. 3.1: What is the present condition of the structure ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Operable	* 8	(100%)	8 **	(100%)	7	100%	* Gates need proper seals
Not operable	0	0	0	0	0	0	** Project still incomplete
Not sure	0	0	0	0	0	0	

Q. No. 3.2: Is there any O&M Committee formed ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	8	100	*		7	100%	* The project is not yet fully operational
No	0				0		
Not sure	0				0		

Q. No. 3.4: Is the O&M Committee active ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	5	64	1	12	6	86	
No	1	12	7	88	0	0	
Not sure	2	24	0		1	14	

Q. No. 3.6: Is there any O&M problem ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	0	0	0	0	2	28	
No	8	100	8	100	5	72	
Not sure	0	0	0	0	0	0	

Q. No. 3.7: Is there any LRM fund ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	0		0		4	58	
No	8	100	8	100	1	14	
Not sure	0		0		2	28	

Q. No. 3.9: Structure operation by whom and how ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
BWDB	0	0	0	0	1	14	
Committee	8	100	5	63	5	72	
Not sure	0	0	3	37	1	14	

Q. No. 3.10: Is there any conflict of interest ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	5	63	0	0	2	28	* Project not yet fully operatinal
No	3	37	8 *	100	5	72	
Not sure	0	0	0	0	0	0	

Q. No. 3.11: Is beneficiary involve in operation ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	8	100	5	64	3	44	
No	0	0	2	24	2	28	
Not sure	0	0	1	12	2	28	

Q. No. 3.12: Is there any LRM Project ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	0	0	0	0	2	0	
No	8	100	8	100	3	0	
Not sure	0	0	0	0	2	0	

Q. No. 3.14: Are neneficiaries pay part of operation in cash kind ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	2	25	2	20	5 *	72	* Mainly voluntary labour of committee
No	4	50	5	50	1	14	
Not sure	2	25	3	30	1	14	

Q. No. 4.1: Who does tenance main of the Project ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
BWDB	0	0	0	0	0	0	
Committee	0	0	0	0	0	0	
Both above	8	100	8	100	7	100	

Q. No. 4.4: How maintenance fund is generated ?

Response	Laithy River		Khiro River		Suktajuri Khal		Remarks
	Number	%	Number	%	Number	%	
BWDB	8	100	0	0	0	0	From external source and throug self labour
Committee	0	0	0	0	0	0	
Both above	0	100	8	100	7	100	

Q. No. 4.6: Any LRM fund for maintenance ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	0	0	0	0	2	24	
No	8	100	8	100	4	52	
Not sure	0	0	0	0	2	24	

Q. No. 4.7: Any NGO active for maintenance ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Yes	0	0	0	0	0	0	
No	8	100	8	100	7	100	
Not sure	0	0	0	0	0	0	

Q. No. 5.1: What relation exists between BWDB and Project Maintenance Committe ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Very good	0	0	0	0	2	50	
Good	8	100	8	100	1	25	
Not good	0	0	0	0	1	25	

Q. No. 5.2: What Relation between Committee and Thana Officials ?

Response	Laithy River		Khiro River		Suktojuri Khal		Remarks
	Number	%	Number	%	Number	%	
Very good	0	0	0	0	1	25	
Good	5	63	4	50	2	50	
Not good	3	37	4	50	1	25