M. N. HUDA

Government of the People's Republic of Bangladesh
Bangladesh Water Development Board
Flood Plan Coordination Organisation

FLOOD ACTION PLAN

NORTHEAST REGIONAL WATER MANAGEMENT PROJECT
(FAP 6)

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LOCAL INITIATIVES and PEOPLE'S PARTICIPATION IN THE MANAGEMENT OF WATER RESOURCES

July 1993

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Shawinigan Lavalin (1991) Inc.
Northwest Hydraulic Consultants

in association with

Engineering and Planning Consultants Ltd.
Bangladesh Engineering and Technological Services
Institute For Development Education and Action
Nature Conservation Movement

Canadian International Development Agency

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TABLE OF CONTENTS

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FORWARD

NERP Social Anthropology Team is composed of several researchers who have contributed to the collection and analysis of the field data on which this paper is based. They are Anisa Zaman, Shiuli Talukder, Shamsun Nahar Akhtar Khan, Chondona Roy Chowdhury, Hasanur Rahman, Jatindra Talukder, Rabindra Bhowmik, Horomohon Das, Abdul Hannan, Motiur Rahman and Nozibor Rahman. The *haor* studies also owe much to Jyotirmoy Talukder who has shared the co-ordination of the team's work. Overall co-ordination of the Team was the responsibility of Thérèse Blanchet.

1. INTRODUCTION

People's participation is recognized as a necessary condition for the success of water management projects (see FPCO Guidelines, March 1993). Such position stems from an evaluation of completed projects where cuts to embankments, and other actions from the public reduced project effectiveness.

While agreement on the desirability of some degree of public participation is widespread, the dictum clearly means different things to different people and, beyond a rhetorical advocacy for this appraoch, positions may be so far apart as to be contradictory. Who are "the people" whose participation must be ensured, and what is meant by "participation"?

1.1 Variance in the Meaning of People's Participation

At one end of the spectrum, the focus is on projects designed and managed by experts, and people's participation is seen as instrumental to the project success. The projects are "owned" by expert agencies and public consultation is seen as a useful means to tap local knowledge and help improve planning. Public participation also is called for to reduce the cost of maintaining project structures, or at the very least, not damage them. "People's participation" is advocated while decision power remains with technical experts and financeers. The social and political dimensions of water management interventions amongst the "beneficiaries" tend not to be seen as integral and complex components of projects, but as a possible nuisance to be contained, or minimized. Public action which does not support the project's objectives tend to be condemned. When viewed in this light, the project's performance is seen as more important than people's needs.

At the other end of the spectrum, people's participation is seen as in self-help groups. It implies a process whereby local communities mobilize and organize voluntary action around felt common needs. They themselves identify problems and find solutions. Specific groups of people with common interests decide what needs to be done, and how the resources of their environment are to be developed. The interests of a specific group may clash with the interests of other occupational or neighbouring groups. When this happens, negotiations may take place and a compromise reached. This is possible when opposing groups each have sufficient strength and cohesiveness.

In self help groups, the gap between policy makers and beneficiaries is minimal since the two functions are largely carried out by the same people. The exercise of the right to decide how local resources are to be developed could lead to the rejection, or substantial amendment, of a project proposed by professionals who are outsiders. Public participation which entails empowerment is easily perceived as threatening by experts whose very position of expertise may be jeopardized in the process.

In the northeast region, there are various instances of self help groups which have organized water management schemes. Some receive small subsidies from government, but many do not. In any case, there is always an important voluntary contribution in the form of a self imposed tax (chanda tula), or free labour from the people.

Self help groups are most likely to succeed in their pursuits if common needs are strongly felt, if the technology used is relatively simple, and if the number of people participating remains relatively small.

Is it possible to retain the positive aspects of people's participation in self-help groups for project designed and implemented by experts over large areas and with relatively sophisticated technology? 2.1

1.2 Importance of Democratic Traditions and Geographical Context

In this paper, rather than attempting to answer the question theoretically and regardless of a context, it is proposed to look at specific instances of people's participation and community based initiatives in the management of water resources as found in the northeast region. A broad range of types of people's participation with and without BWDB projects will be considered. The conditions and the constraints of people's participation will be reviewed. Finally, recommendations will be made as to how the exercise can be enhanced.

The context is important since the forms which people's participation take depends on the democratic traditions and on the institutions a particular society has evolved historically to take decisions, manage local community affairs and relate local needs to national institutions. In water resource management, people's participation also depends on geographical configurations which determine zones of common interest and conflict. This is why there can be no national, let alone universal, pattern of people's participation. Past attempts to promote the exercise have often failed because of the naive view, or sheer ignorance, of the complexity of local institutions and political cultures (see Adnan et al, 1992, p.22) as well as the diversity of needs in different physical environments. 2.2

Advocates of people's participation must build on what exists. By definition, people's participation cannot be superimposed from outside and it does not lend itself to a rigid standard formula. It is a process which develop its own momentum. The role a national agency can play is to value and encourage people's participation, facilitate it, and give it space to develop through appropriate institutional guarantees.

1.3 Five Case Studies on People's Participation in the Management of Water Resources

This paper will discuss five case studies on people's participation in three types of environments which include two **haors**, one with and one without BWDB flood protection, one relatively complex flood control, drainage and irrigation project in Moulvibazar, the Manu River Project, and two water retention projects for irrigation purposes on rivers running from the Meghalaya Hills, in Jhenaigati and Dobaura thana respectively. The case studies are based on three month field studies in each of these areas. 2.3

2. KALIAGOTA HAOR

2.1 The *Haor* as a "Specific Environment"

Haors are basins surrounded by rivers along which run high banks. Villages are usually located on the higher land along rivers while the sloping fields inside the *haor* are planted with *boro* rice during the winter. The harvesting of *boro* is often jeopardized by early floods which enter through canals and rivers or, where there is an embankment, breaches in the embankment. The low entry points to the *haor* must therefore be closed with earth closures before river levels start rising. This is done every year, usually in March. Later, once the *haor* is flooded, in May or June, the earth closures are cut by fishermen and boatmen. In November, the cuts are deepened by farmers who gradually drain the haor to transplant rice seedlings.

The *haor*, because of its very shape, is an environment which entices farmers to unite their efforts to control floods. Farmers are acutely aware that they either lose or save their crop together.

2.2 Traditional Flood Control Methods in Kaliagota *haor*

Kaliagota *Haor* to date has not been taken up as a BWDB project. This is partly because in comparison to haors located further north (immediately adjacent to the hills), flood peaks in Kaliaghota *haor* tend to be more attenuated and floods occur somewhat less suddenly. For more that one hundred years, the people of Kaliagota *Haor* thus have been able to manage flood control and drainage with a minimal degree of help from central governments. They have evolved a system efficient enough to ensure that channel closures are re-built every year with locally available materials which include earth, gunny bags filled with earth, woven bamboo mats, bamboo poles and rope. Similar local initiatives in flood control are found in most *haors* where there is no BWDB project.

Situated mostly in Dirai thana of Sunamgonj district, Kaliagota *Haor* is bounded by the Surma River to the south east and the Piyain River to the north west. It has an elongated shape which is roughly 14 km long from north east to south west and 12 km wide from east to west covering an area estimated at 17,000 hectares. Approximately 90,000 people live in 78 villages.

2.3 Channel Closures Built Through Local Initiatives

The *haor* floods and drains mainly through the Kolkolia Khal which is the lowest point on the western side. A channel closure some 65 metres long is rebuilt there every year through local initiatives. There are also a number of closures built on smaller rivers as listed in Table 1.

2.4 The Kolkolia closure

Through Kolkolia Khal, Kaliagota *Haor* can flood within twenty-four hours. For this reason, a closure across this khal is of general concern to the entire *haor*

Neighbouring villages, which are the worst hit when the *haor* floods have been the most active in organizing and mobilizing people for closing the channel. Villages with high agricultural land have been less involved. For major works and in emergencies, however, the male population from the entire *haor* is called upon to work on the Kolkolia closure. People who do not participate tend to be socially discredited. The solidarity of the *haor* inhabitants in protecting the single annual rice crop is expressed and further strenghtened in rituals which symbolically seal the *haor* from external dangers such as flood, hailstorm, or inhabitants of neighbouring *haors* who may cut the embankment to relieve pressure on adjacent *haors*. Outsiders are assumed to have different interests and are not to be trusted in ensuring the protection of a particular *haor*. ***Haor*** society has its own cosmology, a specific way of knowing the world, defining "inside" and "outside" space, zones of security and danger, all of which are intimately linked with the geographical environment.

Table 1: Closures Built through Local Initiative

Closure Name	Nearest Village	Length (m)	Base Width (m)	Top Width (m)
Kolkolia	Bolonpur	65	27	4.5
Gochiya-Khamai	Khaima	28	18	4
Johanpur	Johanpur	18	9	3.6
Ronnarchor	Ronnarchor	17	13.5	2.25
Ronnarchor	Ronnarchor	6	2.7	1
Chanarchor	Chanarchor	18	7	2.25
Alipur	Alipur	12	3	1
Daudpur	Daudpur	22	13	2.5
Mathurapur	Mathurapur	20	11	?
Kittagaon	Kittagaon	32	6.5	2

Source: NERP Social Anthropology Team

2.5

A permanent committee to organize the building of the Kolkolia Khal closure functioned from 1937 until 1970. It was composed of 30 members from the four villages nearest to Kolkolia Khal. After the independance of Bangladesh in 1971, the construction of the Kolkolia closure has been organized by ad hoc committees which have been less efficient than in the past, but still active enough to cope with crisis.

As early as 1942, the people of Kaliagota Haor, through the Local Board, requested that a sluice gate be built at Kolkolia Khal. It is said that funds were commited, but a feasibility study subsequently recommended that the proposed structure should not be built. This feasibility study could not be located so the information could not be confirmed.

Thereafter, successive governments allocated funds through different channels and in various amounts to subsidize the construction of the Kolkolia Khal closure through local initiative. Government funds never covered the entire cost of the work. The following information could be collected:

- From 1965 to 1970, the Thana Council allocated 4,000 to 5,000 taka a year to the Rafinagar Union Council where the dam is located.

- From 1971 to 1975, regular subsidies were given directly by the Minister of Agriculture who was from the area and took a personal interest in Kolkolia Khal closure.

- From 1975 to 1983, smaller funds were made available from the union council.

- After 1983, a policy of decentralization allocated greater power and greater resources at upazila (now thana) level. Funds were made available from the upazila parishad to the union parishad of Rafinagar. In 1990, 47,500 taka were given for Kolkolia Khal closure.

- In 1991, subsidies of 40,000 taka and 1 ton of rice were received from the Test Relief Fund at the union level for the same work.

- In 1992, the Member of Parliament for the area obtained directly from the Ministry of Relief 100 tons of rice for flood control works in Dirai and Shalla thanas. From this, 8 tons of rice were allocated for the Kolkolia Khal closure. It should be noted here that Dirai and Shalla thanas are *haor* areas which have not been provided with flood protection by the BWDB, and therefore there is no food-for-work allocation provided from this source.

2.5 Discussion on People's Participation in Kaliagota Haor

1. The people of Kaliagota *Haor* have a sense of ownership and pride in relation to the Kolkolia Khal closure. This work stands as a symbol of their solidarity and cohesiveness in dealing with floods. Yet, a public consultation meeting would undoubtedly bring requests for a permanent structure with more sophisticated technology. People want their *haor* to be taken up as a BWDB project. They want sluice gates, a word charged with prestige. The expectation is that not only structures but work, money, wheat would be made available if there was a project. People are aware that resources are released through projects.

2. The technology used in building channel closures under local initiative is labour intensive but is relatively simple. All materials are locally available. Bamboo poles, rope, woven bamboo mats, gunny bags and of course earth can all be easily procured and locally managed. In emergency situations, it is critical to have these at hand and here, an efficient committee plays an important role.

3. The form which people's participation takes is of course intimately linked to technology. Moving earth involves a large number of workers in a visible display of common purpose. A sophisticated structure operated by pushing a button is likely to entail a different kind of public participation as will be seen with the barrage and pumping station in the Manu River Project.

4. Building channel closures under local initiatives is relatively inexpensive. When subsidies are allocated, misappropriation of funds occurs (it did in 1992) but should the closure breach for this reason, the public is likely to react strongly. There is public scrutiny over spending the subsidy, especially when public contributions are called for. This ensures some accountability.

5. The social solidarity of the *haor* people and the sense of common purpose which unite farmers and fishermen, landed and landless, men and women are strong enough to ensure that the Kolokolia Khal closure be built and maintained every year until the completion of the boro harvest. Once the boro rice crop is harvested, however, the interests of fishermen clashes with those of farmers. On most year, the Kolkolia Khal closure is cut at night, out of public view, by fishermen to catch spawning fish. This cut is not recognized to be for the greater public good as several communal resources could still be tapped in the dry *haor* and benefit most people. These include straw, good pasture, fuel, grass to protect homesteads against monsoon waves, wider space to live and play, and a possible ratoon crop of rice which is usually harvested by the poor. When the *haor* floods these resources are lost and the environment is drastically altered.

6. Those involved in the building of Kolkolia Khal closure are aware that if the haor floods through that particular closure, the breach which will need repairing the following year is likely to be much larger. To minimize the next year's work, it would be preferable that the *haor* floods slowly through several smaller canals, but this, the committee is unable to enforce.

7. *Haor* society highly hierarchical structure is inevitably manifest in the organization of work under local initiatives. There is a strong class and gender divide in roles and task allocations. For example, a large landowner is unlikely to be seen carrrying earth. He will send his labourers and possibly donate some money or bamboo as his contribution. There are the "big people" who lead, and the "small people" who follow. However, the leaders must be seen to be working for the public good when voluntary contributions are requested, otherwise they will not be able to get things done.

8. Women remain very much in the background. They are not involved in decision making, and they do not participate in building closures. In government food-for-work projects, there are usually quota requiring that some of the work be done by women but it is not so in local schemes. Women are highly concerned about controlling the flood so that the household granaries which are under their care and responsability be filled. They have excellent memory about the dates and the way in which the hoar flooded on previous years. Women play an important supportive role, but they remain in their homesteads.

9. People's elected representatives have nearly always been involved in procuring subsidies for constructing the Kolkolia Khal closure from whatever source was available under different governments. In this, they have been responding to what is seen in the *haor* as a priority issue.

10. Funds available to local governments have been cut down in 1992. People from *hoars* which are not under a BWDB project are at a special disadvantage here. They do not get their share of national resources. Yet, the channel closures which are built under

local initiative are considerably cheaper than any similar work undertaken by the BWDB and, on most years, they effectively protect the *boro* crop.

It seems important that local initiatives be recognized and supported. Subsidies for such work should continue to be available. They should not be granted on an ad hoc or chance basis nor depend on political patronage.

11. Public funds should not replace but complement local contributions which by themselves ensure some degree of mobilization and participation in local water management schemes.

3. SHANIR HAOR

3.1 History of Flood Control Under Various Agencies

The people of Shanir *Haor* have had a long experience with flood control works. The construction of a submersible embankment, which included an 8-vent regulator was initiated under the *zamindar* of Gauripur in 1915. People constructed the embankment as paid workers. The *zamindar* financed the entire work, including the sluice gate, then raised land taxes from 1.50 to 1.70 taka per *ker*. In this early project, not much was left to local initiative in the management of the work. However, the people of Shanir *Haor* still feel positive about the intervention which probably answered felt needs.

Following the abolition of the *zamindari* system up to 1965, local people, mainly under the leadership of large landowners, themselves organized the protection of the *boro* crop against floods. Contributions were raised (*chanda tula*) from all farmers. This self taxing system more or less stopped in 1965 when union chairmen began receiving food from the central government to carry out the earth work.

In 1976, the BWDB undertook the re-construction of the embankment in Shanir *Haor* and later replaced the regulator gate with a 6-vent structure built a few metres away from the old one. The new regulator is smaller and is equipped with fall boards whereas the old structure was equipped with steel gates. The BWDB project, financed by IDA, was not followed by increased taxes for the local inhabitants.

Again, people were engaged in the earth work as paid workers while the construction of the regulator was contracted out to two successive contractors from other districts of the country who employed their own labourers. Contractors changed when a new national government came to power. People's views on the location of the new sluice gate were not taken into account. They requested a sluice gate at Ahammokhali near the village of Marala which is the lowest entry point into the *haor* (see map 2). According to BWDB informants, the decision to build only one sluice gate, and one of a cheaper design to be located at Bogiani Khal instead of Ahammokhali was taken by the donor agency, to reduce cost.

3.2 Cuts in the Embankment: A Traditional Drainage Method

Every year in December, a deep cut is made in the embankment at Ahammokhali to drain the lowest agricultural land inside the *haor* for rice cultivation. Several other public cuts are made (in 1992, 17 were recorded) but Ahammokhali is the most critical one. It must be closed at all costs when the river starts rising, or the entire *haor* becomes flooded. The channel at Ahammokhali is closed every year with traditional methods which include bamboo poles and rope, bamboo women mats as well as earth. The BWDB food-for-work pays for earth work but not for the other materials which are provided by the public.

3.3 Shanir *Haor* as a BWDB project

The people of Shanir *Haor* benefit from a fair degree of flood protection. Moreover, annual maintenance under food-for-work which includes filling public cuts and breaches (there were 21

in 1992) provides an income to poor men and women at a time of seasonal scarcity. But it is said there is more pilferage and negligeance than during the *zamindar* period, or when the public organized the protection of the *haor* themselves before 1965. It is said that some officials occupying positions in the BWDB, in the thana administration, as well as in local government benefit through sometimes substantial diversions of food-for-work allocations.

While the maintenance work is officially going on under the BWDB, the people of Shanir *Haor* do not "own" the project. Repairing embankments under food-for-work is not seen as a service to the community, but as a business by those who manage it, and a paid job by those who carry out the earth work. Once the official work is completed however, the people of Shanir *Haor* re-appropriate the embankment and different norms of communal responsibility apply.

3.4 The Re-appropriation of Shanir *Haor* by the People

As in Kaliagota *Haor*, farmers know that they either save of lose their crop together. They are unitedly concerned to have a strong embankment which can effectively delay the flood until the harvest is completed.

There is a permanent organization, the Shanir *Haor* Development Committee, which has members from each of the 47 villages around the *haor*. This locally initiated committee defines its own mandate. Its main purpose is to monitor the rise in river water level and the condition of the embankment until the completion of harvest. In March and April, two to three guards are appointed to check the strength of the embankment and monitor rising water levels in the river. If need be, the public is called to re-inforce a weak spot. After harvest, the guards collect rice (*chanda*) from farmers as payment for their work. Farmers give willingly for what they regard as a public service.

3.6

The committee also co-ordinates cuts in the embankment which are made in November and December to gradually drain the haor to permit transplanting rice seedlings. Cuts in the submersible embankment of the *haor* are systemic. They are part of the water management system people have evolved.

Every year, the committee holds two public meetings which are open to everybody. In the past, those who sanctioned sub-standard work on the embankment against bribes or personal gains have been publicly exposed. The committee leaders maintain some unofficial contact with the BWDB office in Sunamganj.

3.5 Comments on People's Participation in Shanir Haor

1. People, organized into a committte led by large landowners, take over the responsibility to protect their *haor* when food-for-work is officially closed. For this limited purpose, the organization has been quite effective. The committee represents, above all, the interests of farmers. However since everyone eats rice, the success of the harvest is a widely shared interest by all the inhabitants.

   Observations made for Kaliagota *Haor* regarding the hierarchical structure of society and the strict division of class and gender roles apply to Shanir *Haor* as well.

2. The BWDB is perceived by people in Shanir *Haor* as a bureaucratic organization which is not equipped to cope with crisis. The people of Shanir *Haor* see the BWDB staff as job holders who are not accountable to them and do not really care. No matter what happens to the haor they still get their salaries. In crisis situations, they usually stay away. While this is generally acknowledged, in many *haors* taken up as BWDB projects, people have become more passive and their expectations have risen. In these cases, BWDB is blamed for not attending to the needs which people used to look after themselves.

3. The leakages in food-for-work are systemic and reportedly represent about 40% of the wheat or rice allocation. The local inhabitants are aware of leakages and these act as a disincentive to people's voluntary participation. Men called to work freely afterwards feel cheated.

4. The people of Shanir *Haor* are very critical of the regulator which was built with IDA funding and one should not expect them to develop a sense of responsibility towards a project in which they had no say and from which they derive little benefits. The regulator does not function since the fall boards cannot be removed when there are large differences between *haor* and river levels. It does not drain the *haor* as effectively as the Ahammokhali cut because the level of the Abbua river (also known as Nandia khal) which runs to the south is higher than that of the Baulai river. At best, the regulator functions as a cross dam, but not a very effective one at that. In 1993, an earthen closure had to be built in front of the regulator as the stop logs leaked profusely.

3.6 Recommendations

1. It is strongly recommended that the people of Shanir and other *haor* be given the responsibility to maintain their own embankments. Food for work (or cash for work) should be managed at the *haor* level provided adequate measures are set in place to ensure accountability. It should be possible to improve on the present losses by letting the public know how much is allocated to their union for earth moving work and ensure easy access to courts to deal with malpractices.

2. If people value the regulator at its present location, fall boards which are reportedly missing every year should be replaced by the public. If people do not value the structure, it should be abandoned. The operator should not be a paid employee of the BWDB. An individual should be appointed by the local community and be paid through *chanda*, or collection in kind after harvest. Such payment for a public service is a well established tradition in *haor* society. If the operator has not served the public, then farmers will refuse *chanda*.

3. In water management schemes under local initiatives, local people contributing money or labour provide an effective mechanism to check corruption. This may be reinstated in Shanir *Haor*, as well other *haors*. In this case there should be a state subsidy to supplement local efforts and initiatives.

4. Providing subsidies to supplement local contributions is likely to be much cheaper than the present maintenance system. The money saved should be made available for other

local schemes which respond to locally felt needs, for example, planting *hizal* and *koroch* trees in front of villages which are seriously threatened by erosion, or extending the village mound in front of a school, thus providing extra space to dry grain and straw to live and play.

5. The BWDB could play a technical advisory role when necessary.

6. Public subsidies should be attached to certain conditions. For example, requiring that a share of the work be allocated to women. We have seen that this does not automatically happen with schemes under local management.

7. Union Parishad members could play an important role in the management of flood control, and indeed many have done so in the past. Union Parishad members are likely to be large landowners and that in itself is a strong motivation for their participation. But there should be no rigid rules giving a monopoly to Union Parishad members in this function. Monopoly often leads to corruption and the public should be given the option to choose their leaders.

4. THE MANU RIVER PROJECT

The Manu River Project is often cited as an example of a project whose anticipated benefits have not been realized because of people's negative reactions. Compared to Shanir *Haor*, the project with a full flood protection embankment is far more ambitious, the technology comprising an irrigation component is more complex, and the presence of several groups with conflicting interests makes it politically more difficult to manage. Yet the project cost (Tk 726 million) is higher than any other in the Northeast Region and this increases the need to show success.

4.1 Project History

The Manu River Project located in Moulvibazar District, mainly Rajnagar Thana, comprises an area of some 241 km^2 bordered by the Bhattara Hills to the east, the Kushyara River to the north, and the Manu River to the south and west.

Before the project, pre-monsoon flash flood and monsoon flood regularly destroyed the *aus* and the *aman* crops, especially on the lower land. On those years when flood did not occur, however, yields were excellent as the land was enriched with silt. On the high land, flooding was not a threat to agriculture.

In the pre-project situation, the lowest entry point into the *haor*, the Koradhair Khal was closed with earth each year. The closure was built under local initiative. In 1948, there was a local request to build a regulator with steel gates at this location. The Kushiyara was considered the source of flooding at this time but not the Manu River.

In 1960, the Manu River is said to have flooded for the first time through overbank spillage. Following this event, people under their own initiative built a small dyke along the Manu which was later reinforced by union parishads with food-for-work allocations.

The decision to build a full flood protection embankment and to provide an irrigation scheme did not originate from a local request. It came from external political interests. According to a former EPWAPDA official, in the late fifties, political unrest was mounting in East Pakistan and a development scheme was sought to show the government's good will. The Kawadighi *Haor* was chosen amongst several FCDI proposals because irrigation could be provided by gravity at this location which would be less costly than pumping as was the case in the Ganga-Kapotaksha project.
The scheme was formally proposed in 1960. The feasibility study was completed in 1962 but final approval was not granted until 1969. A Dhaka based firm carried out the detailed engineeri g design between 1970 and 1975. The project was constructed between 1976 and 1983 under the supervision of the same company with funds from the Government of Kuwait.

The Manu River Project consists of 59.9 km full flood protection embankment, a barrage on the Manu River which diverts water for irrigation purposes into 105.3 km canal system with numerous structures, and a pump station with two drainage regulators to drain the *haor* into the Kushiyara River. The targeted area for irrigation is 11,500 ha. The irrigation scheme alone represents about 60% of the project cost.

The project was completed more than twenty years after its conceptualization. Meanwhile there have been hydrological changes. These include increased rainfall leading to higher discharges of the Manu River and siltation in the system.

4.2 People's Reaction and Participation

In the sixties, when the project concept was first formulated, people's participation as such was not seen as an issue and was not called for. The assumption was that experts and donors knew best and, if properly "trained", farmers would "buy" the scheme which was being designed for their own good. However, public reactions to the Manu River Project were expressed early and took several forms.

4.3 Out-of-project Protests

In 1977, people located outside the project, in Korair *Haor*, organized and complained repeatedly against the Manu River Project. They feared that embanking the right bank of the Manu River would cause greater flooding on the left bank where Korair *Haor* is located. Their concerns have been confirmed but now they are unable to obtain help, or compensation. Every year, since the completion of the Manu River Project, people in Korair *Haor* build a dam at their own expense on the Katha Gang which flows into the Manu and reverses its course when Manu River levels are high, but it is not always successful. The Korair *Haor* people are badly affected by the barrage operation which artificially raises water levels in the Manu River.

4.4 Lowland Farmers' Request for a Lower Drainage Level

Project planners had originally decided that land below a certain level (6 or 7 R.L.) was not to be cultivated and the drainage structures, a 6-vent regulator and a pump station, were designed accordingly. Lowland farmers and fishermen were not consulted and they resented this decision. In the pre-project situation lower land had been cultivated with local Boro as a chance crop. It was often flooded, but on some years it could be harvested. The project planners did not give importance to this local *Boro* chance crop. The project emphasis was on hyv *boro* and a massive change in cropping pattern was expected in this direction.

The project managers argued that to drain the *haor* further would negatively affect the fisheries. But most of the fisheries had already been badly damaged by the embankment which interfered with the fish migratory pattern. (The negative impact of the embankment on fisheries was acknowledged in the MPO report, Manu River Project, June 1991).

In 1986, the large landowners from Kawadighi *Haor* called the Chittagong Division Commissioner to hear their problem and negotiate with BWDB on their behalf. Following a three-hour public meeting, the Division Commissioner recommended that the BWDB acquiesce to the public request and, as a result, a 3-vent sluice gate was built to drain the *haor* to a level which restored the pre-project drainage situation. This also allowed the fishery leaseholders to dry up beels to catch all fish in the dry season, a practice which is detrimental to fish reproduction but is widely practised in the Project.

4.5 The Fishermen

Fishermen did not oppose the construction of the Manu River Project at first. They had not realised the embankment would be so detrimental to fish production. The wealthiest amongst them are also agriculturalists and, with the Manu River Project, they gained in agricultural production what they lost in fishery. The richest Maimal fishermen cultivate lowland which they own as well as part of the land they rent as *jolmohol*. Some also occupy land which they do not own nor rent because they are former *mirazdar* and they remain powerful in the local community. The lowland they control has been highly benefitted by the Manu River Project (see map).

It is important to recognize that "farmers" and "fishermen" are not exclusive categories here especially at the top of the social hierarchy.

The poor traditional fishermen who are landless are the ones who lost most in the Manu River Project. The public consumer of fish also lost. Because of a resigned powerlessness, there was no local organized protest about the damaged fisheries.

Having lost much, the fishermen can be said to have some participation in the Manu River Project, though not through official channels. The *jolmohal* leaseholders convince the pumping station operators to open the sluice gates in the month of April to let fish in, and again to drain out water in the month of January or February so that they may catch fish by drying out the beels.

Fishermen are benefitted through project failure when the embankment is cut. The flood water replenishes the fish stocks. However, fishermen are not responsible for cutting the embankment.

4.6 Villagers' Resistance to Shifting of Homesteads

Most people living on the right bank of the Manu River first heard about the Manu River Project in 1977 when their land was requisitioned to build the embankment. Originally, the embankment was meant to cut across several villages. Villagers refused to shift their homesteads. Facing widespread protest from all, including locally powerful people, the project planners were obliged to retire the embankment. People won this first battle.

4.7 Land Acquisition

Land acquisition for canals and embankments is a sore point in most of the Manu River Project. The high land was acquired from people who, on the whole, were not benefited by the project. Presently, high land costs five to ten times more than the lowland which was benefited. About 10% of the people still have not been compensated. Many people believe that the project caused an unjustifiable waste of good agricultural land but they thought at the time they could not resist what was presented to them as a "government order".

4.8 Public Cuts in the Embankment

Public cuts in the embankment occurred in 1984, 1985, 1988, 1990, 1991, and 1993. They have seriously jeopardized the benefits of the project.

There are over 40 villages located in between the Manu River and the project embankment. As mentioned above, these villages are protected from the Manu River flood by a weak dyke which breaches regularly. Villages trapped between the dyke and the project embankment are suddenly flooded. Damages to houses, livestocks, gardens, ponds are considerable. Consequently, people cut the full flood protection embankment to get relief. Further downstream, the embankment is cut again to drain the flood water from the *haor* back to the Manu or the Kushiyara. Most villagers have so far refused to move their homesteads inside the project where they would get a greater degree of protection.

In the seventies, the Manu River did not flood as badly as it did once the project was completed. When people refused to shift their homesteads in 1977, they did not anticipate the consequences of being outside the project.

The project was completed in 1983. In 1984, the Manu River flooded badly. Moulvibazar town was severely affected and people died. In these circumstances, the villagers located between the dyke and the embankment cut the embankment. This relieved pressure on the town as well as on the villages. People inside the haor suffered heavy crop damage but they were caught by surprise. Also the flood deaths in Moulvibazar could be used as a powerful argument in favour of the cuts. There was no organized protest.

In June 1985, the embankment was cut again by the villagers. This time Moulvibazar town was not at risk. There was no organized protest but an increasing feeling of frustration and resentment from farmers regarding the Manu River Project.

In 1988, people inside the project started organizing protests against the cuts. There was a violent confrontation with those on the other side of the embankment. In 1991 again, the two sides confronted each other. On that year, people inside the *haor* organized a procession and attacked the BWDB office in Moulvibazar.

BWDB has been under pressure to strengthen the dyke so that it can effectively protect villages outside the project. In 1991, promises have been made to pacify an angry public who would not allow the BWDB to repair the full flood protection embankment. However, there are many doubts as to whether such a dyke could withstand the pressure of the Manu River flood in the future. The problem of public cuts remains unresolved. As this paper is being written (June 1993) the Manu River Project has just been flooded again following a rise in the Manu River which prompted public cuts in the embankment.

Meanwhile, the price of the land near Moulvibazar has increased significantly since the beginning of the project. There are now more brick houses built by "Londoni" migrant families. Some of these are two storey high. This development makes the problem of relocation even more difficult to resolve.

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4.9 Highland Farmers' Refusal to use the Irrigation Canals

In mid-December 1992, farmers from four *mauza* in Ekatona union sent a petition to the BWDB in Moulvibazar requesting that project canal water should not be released onto their land. They stated that there are no farmers in the area with an interest in cultivating hyv *boro* and that land will be communally used to graze cattle until mid-April. Highland farmers elsewhere did not send a petition to the BWDB, but many of them have similar negative views on the cultivation of hyv *boro*.

In the plan, it had been anticipated that with irrigation, farmers would extend the cultivation of *boro* as a third crop, and switch from local varieties to high yielding varieties. The "Definite Project Report" finalized in 1971 anticipated that cropping patterns would include 11,100 ha of hyv *aman*, and 8100 ha of hyv *boro* (MPO report , June 1991). Achievements have been far below this target (see map 3).

The cultivation of hyv *boro* increased steadily after irrigation was provided from 1984 onward. It peaked in 1988-1989 then started decreasing. Many highland farmers experimented with *boro* cultivation but most of them gave up for the following reasons.

- The high cost of cultivating Boro and the poor yields they obtained made it economically unattractive. The high land is hard in winter and must be ploughed several times. In some places this must be done manually since under a hard crust, the soil is soft and cannot support cattle or power tiller. The cost of labour is especially high in the Moulvibazar area. So there is a tendency to leave the high land fallow and employ labour to cultivate *boro* in lower land where returns are higher.

- Farmers believe the fertility of the land has decreased without the silt carried by the flood. (On those years when the embankment is cut and the project flooded, more highland farmers cultivated hyv *boro*). Farmers are extremely worried about using increased quantities of chemical fertilizers every year to maintain the same yield. Non-rice crops have not been promoted by the project.

- Farmers believe that the land needs rest and exposure to the sun during the winter months. When land is continuously flooded the regenerative process does not occur. This is probably caused by zinc deficiency but farmers have not been taught how to deal with micronutrient problems. A few high land farmers now cultivate hyv *boro* where it is not possible to close a canal's outlet anyway. These farmers have given up cultivating *aus*. The idea of cultivating hyv *boro* as a third crop according to project plan, has been widely abandoned.

- Rain-fed *aus* and *aman* give good yields in the Moulvibazar area where rains are abundant and start early. These crops are much cheaper to cultivate than *boro*. Even with lower yields, many farmers state that their profits compare favourably with *boro*.

- Most of the rice is grown for home consumption and there is a strong preference for local varieties. Traditionally, the Moulvibazar people as with most people in

Sylhet eat non-parboiled rice (The Social Anthropology Team shared this preference while in the field). Farmers who can produce a marketable surplus grow high yielding varieties of rice for the market and local varieties for their families. For this reason, the anticipated shift from local to high yielding varieties has only occurred to a limited extent.

4.10 Lowland Farmers' Use of Irrigation: Extension of Project Canals Through Local Initiatives

The irrigation scheme has benefited lowland farmers more than anticipated. There are areas to the east, south and west of Kawadighi *Haor* where hyv *boro* is cultivated extensively. However, the project irrigation scheme does not provide all the water that farmers need to cultivate an hyv *boro* crop.

Canal water is released in the middle or at the end of December. Farmers prepare *boro* seedbeds in November as they believe the end of December to be too late and too cold. In November, highland farmers have no access to water but in the lowland, the receding flood water can be retained, and water from *khals* can be lifted with traditional irrigtion methods. At that time, a few low lift pumps are also used.

In several places, the project irrigation canals stop short of the land farmers wish to cultivate and there are several small dams and canals which extend the project irrigation canal network. These are built and managed under local initiatives (see map 4).

Such public-made dams and canals can be seen as interesting examples of people's participation. These small canals and dams do not, as a general rule, appear on the project irrigation maps. They may be unrecognized because people's particiapation, while highly valued as a principle, is still expected to occur in committee rooms. Thus one reads in the MPO report, 1991: "There is no organized effort to take water from the irrigation distribution system to individucal plots. (Section 3-9)".

The map prepared by the NERP Social Anthrpology team shows that in 1992-1993, there were 43 dams, each with a set of canals to bring irrigation to individual plots. All were built under local initiatives. Most are located inside the *haor*, and cannot be observed by invetigators who work from motorable roads.

Farmers have been said to receive free irrigation facilities in the Manu River Project. Since the plan does not quite meet the totality of their water needs for cultivating *boro*, many of them invest in schemes which prolong and complement the project canals and so, there is some expense which is borne by the farmers, though far less than with shallow and deep tubewells.

4.11 People's Participation in the Management of the Pump Station and the Barrage

The management of the pump station, the barrage, and the two sluice gates is under the BWDB. Permanent staff are stationed at the pump station and at the barrage. When farmers or fishermen want water to be drained out, they must present a written request to the pump station manager. The latter is authorized to close the sluice gate, but needs the Executive Engineer's permission from Moulvibazar to turn on the pumps. The public is often told that there are technical

problems to be solved, or that permission has not been obtained from Moulvibazar, so action is delayed. The public is easily mystified with the complex technology and the bureaucratic procedures which evades them.

There are set procedures to operate the barrage and the pump station and the BWDB staff do not like to make exceptions. At least officially. Unofficially, the various publics (*jolmohal* leaseholders, lowland farmers, out-of-project farmers) can convince the operators to obtain the services they require. This may be seen as a form of public participation.

Amongst the public of the Manu River Project, there is a general feeling that the BWDB is not accountable to them. This opinion is shared by the agriculture officer and the agriculture extension workers. It is felt that the BWDB officials do not understand the complexity of agricultural practices. For example, in mid-February 1993, there was heavy rain which flooded young *boro* plants. Young *boro* plants can survive two or three days under water, so rapidly turning on several pumps could have saved quite a few hectares. Nothing was done for twenty four hours and then only one or two pumps were put in operation out of eight.

4.12 The Local Subproject Committee

On the 28 September 1992, in accordance with a GOB undertaking for projects listed for rehabilitation, a local Sub-Project Committee was established. This is the first time that a project committee was formed for the Manu River Irrigation Project since its' completion in 1983, if one excludes the short lived ad hoc public committees which emerged to deal with flood crisis.

The committee is officially composed of the standard 36 member list including:

- EE or SDE, BWDB
- Thana Nirbahi Officer
- 10 Union Parishad Chairmen
- Beneficiaries' representatives (including farmers from low, medium, and high land, fishermen, boatmen, landless, and others).
- Thana Engineer
- Thana Agriculture Officer
- Thana BADC Officer
- Thana Rural Development Officer
- Thana Fishery Officer
- Thana Livestock Officer

Only one meeting has been held by the subproject committee so far. Some union chairmen are unaware that their names appear on the list of members and do not know about the existence of the committee. They were not told about the meeting and nothing was circulated afterwards to inform them of the issues discussed. The thana officers, including the TNO, are generally unclear about the purpose of the committee while some in the category grouped under beneficiaries' representatives qualify the organization as a "tea-and-biscuit-committee".

Clearly such a committee does not ensure public participation. Its formal constitution is externally imposed and there appears to be no manifest attempt to, or interest in, using the platform for the discussion of genuine problems and issues. The question as to whether peasants

can meaningfully participate in a committee composed of officials with considerably more authority and status than they could be an issue but the problem does not arise since no one is interested in the committee.

4.13 Discussion on the Manu River Project

This paper has emphasized issues associated with people's participation and has not dealt with the more technical aspects of the project. In this perspective, two major problems have jeopardized the benefits of the Manu River Irrigation Project: the refusal of highland farmers to cultivate hyv *boro* using the project irrigation system, and the public cuts in the embankment which are prompted by high water levels in the Manu River.

The plan for agriculture development was made without public consultations whatsoever. Local farmers say that the Project has been conceptualized by "foreigners" who did not understand the peculiarities of their land, their agriculture, or their food preferences.

As mentioned above, for many years, on the management side the assumption has been that properly "trained" farmers will "buy into" an irrigation scheme which has been designed for their good. Such an attitude has not facilitated early recognition of the inadequacy of the plan leading to a redefinition of project objectives.

There has been an unwillingness to hear from farmers why the cropping pattern which was planned was unacceptable to them, and little respect for the rationality of their decisions. With the means and the knowledge available to them, the highland farmers decided that cultivating hyv *boro* was not economically, or otherwise, attractive — even with free irrigation.

Unable to convince a large number of farmers to "buy into" the irrigation project, there appears to have been an attempt to disguise the mediocre performance of the project. The Water Board official figures on *boro* acreage in the Manu River Project for 1992 are considerably higher than those recorded at the Agriculture Office in Rajnagar. An independant evaluation of the MRP done by BUET in 1991 states that their findings did not tally with those of the BWDB: "In the Manu river project the targets and achievements reported by project officials were actually more than four times of what happened in reality. (Pilot Program to Improve Management of FCDI Projects, BUET, May 1992, p. 3)".

The thinly spread agriculture extension services have been repeatedly held responsible for the poor performance of the project. But the problem is not merely one of small staff. The agriculture extension workers found the project ideas hard to sell. They were unable to demonstrate the benefits of cultivating hyv *boro* as a third crop in their own plots, although they tried. The extension workers were themselves in need of guidance to help farmers deal with the problems of decreasing fertility.

Misunderstanding and frustrations appear to have been mutual and the relationship between the two structures has been tense. The agriculture officers and extension workers have come to resent the role of "salesmen" which was expected of them. Whatever the shortcomings of the agriculture extension workers, they maintained closer contacts with the farmers and have been more aware of their problems than the BWDB staff. The BWDB has been mostly interested in hyv boro acreage and yields as a measure of project performance.

The MRP remained an engineer-led project. The general remoteness of the BWDB technical and engineering staff from farmers' problems, the bureaucratic procedures of the organization, and the pressure to show good performance account for the managing agency's different views on the project. It should be pointed out that in the feasability study, agriculturalists were given a much more prominent position in the project than they have held.

4.14 Lessons to be Learned from the Manu River Project

There are many lessons which can be usefully learned from the Manu River Irrigation Project and should benefit planners of future projects:

1. It should not be expected that farmers will automatically switch to hyv *boro* when provided with flood control and irrigation. Hyv *boro* provides higher yields but this is not the only criterion that guides farmers. Issues such as profit, crop calendar, availability of labour, credit, fertilizer, food preferences, and the position of agriculture in the overall economy of the area are also important. It could be anticipated that the market for traditional (and improved traditional) varieties of rice which are considered to be tastier than high yielding varieties persist and may even grow as people with higher incomes express a demand for them.

2. To most of the people of Manu River Irrigation Project, the 59.9 km embankment and the 105.3 km of canal are a waste of good agricultural land. Land is scarce in Bangladesh and the embankments and borrow pits are strikingly non-productive.

   Provisions should be made for a more productive use of these lands and waterbodies, for developing horticulture, duck raising, fish culture, etc. Such schemes require the active participation of the local people, and moreover offer scope to benefit landless men and women.

3. Villagers caught between the dyke and the embankment have been encouraged to shift their homesteads inside the project. However, they have not been offered financial compensation to do so. Moving entails a cost. For those who have land inside the project, earth must be moved to build a new mound, a pond dug, trees planted, etc. Those who have no land may not be able to purchase any, even with cash in hand. Land near Moulvibazar town is scarce and expensive.

   Moving entails other consequences as well which cannot be given a monetary value. Households are associated with roots and a sense of belonging. People are reluctant to abandon graveyards. Migrant households which have invested considerably in their homesteads, including the family graveyards, are especially reluctant to shift their homesteads. The villages along the Manu River are mostly old villages with a settled population. They are not like the *chor* where shifting of homestead is a regular seasonal event.

   The people have a right to be informed about the likelihood that the Manu River severely floods again in the future. Villagers living between the dyke and the project embankment have asked that the dyke along the river be strenghtened and made it a condition for rebuilding the full flood protection embankment, but they should know that a dyke is unlikely to protect them. An honest campaign of information is required, so that people

may plan accordingly. If villages cannot be protected effectively, villagers at least should be discouraged from investing further in their homesteads.

People's refusal to move their homesteads has had most damaging consequences for Manu River Project and the lesson should not be lost. In similar situations in the future, if a relatively large number of people cannot be convinced to move because they do not perceive any benefit in a project, the implementation of the project itself should be seriously questioned. Earthen embankments are vulnerable sructures and can easily be damaged by an angry public. The cost in terms of human suffering, damaged crops, damaged canals and embankments, heigtened social conflict is extremely high.

When villagers agree to move, financial compensation for shifting homesteads should be standard policy and such cost should be added to the project cost.

4. A complex project such as the Manu River cannot be managed by the public alone. Unlike the submersible embankments of the *haor* the expertise and coordination required in operating the barrage and the pumping station call for a specialized agency. But with a project of this nature, it is also necessary to secure and guarantee people's participation through formal institutions. It has been seen that a formal committee established through bureaucratic procedures and imposed from outside does not ensure and may not even facilitate the participation of the public.

It is impossible to give a blueprint of the procedures to follow to ensure a fair degree of public participation but some conditions can be spelled out. The various "publics" concerned have to mobilize and want to participate. A wide public including beneficiaries, politicians, journalists must be regularly informed about plans of action, budgets, etc. More transparency from the specialized agency is required. There could be a citizen's bureau, structurally independant from the BWDB, through which the public expresses requests or complaints, and to which the BWDB is committed to answer. Beyond institutions, people's participation requires a public which is aware of its needs and its rights, and project managers who are willing to respond and to serve.

It should follow the GPP guidelines and no new concept at this initial stage of GPP. If required the format may be improved. 5

Reviewing examples of people's participation (or lack of) in the Manu River Project, it has been seen that powerful people could influence to some extent the course of action. Such is the case for the lowland farmers and the rich Maimal fishermen who requested an additional sluice gate in 1985 to drain Kawadighi *Haor* to a lower level. Many other groups, like the people of Korair *Haor* located outside the project boundary, did protest but were not heard.

People fight for their views when they themselves are convinced they have rights, and when they have some ability to convince others of their rights. In the Manu River Project, groups which have lost considerably and have never been compensated, such as the poor fishermen, have remained silent. Women have remained silent. People's participation requires that the silent ones be given a voice. A great deal of work is required here, and far more than public consultation, to enhance the participation of the silent ones.

6. Local community initiatives in irrigation, whether independant of the project such as those at the foot of the Bhattara Hills, or dependant on it as in Kawadighi *Haor* must be

acknowledged. These are incidences of people's participation and should be recognized as such. The Draft Feasibility Report, Manu River Project sub-project, Dec 1992, suggest the extension of the canal network, so as to make these local initiatives unnessary. In Tengra union, people have refused the proposal, arguing that project canals take up too much good agricultural land and they are satisfied with the people's method. In Kawadighi Haor, on the other hand, farmers have requested an extension of the canals. So, building these would meet people's needs, but other questions also need to be raised.

At present, the people are taxing themselves to pay for the dams and canals which they build and maintain, a procedure which is much less costly than what the Water Board does. Moreover, bringing such work under the project would cancel the need for local initiative and, with existing project management practices, it is unlikely to promote people's participation?

A great deal of confusion remains about people's participation as though it had to be "organized" by the project managers, or specially appointed specialists, to be given recognition and legetimacy. Local initiatives in small scale irrigation exist in the Manu River Project. But they are not seen and acknowledged while people's participation is programmed to take place in committee rooms. There is an urgent need to change the outlook here and adjust the lens through which people and participation are perceived.

5. THE MOHAROSHI/MALIJHEE RIVER IRRIGATION SCHEMES

In the western part of the Northeast region, initiatives in the management of water resources mainly centre on the irrigation of the *boro* crop with deep and shallow tube wells. There are fewer projects and initiatives to mitigate the floods.

At the peak demand for irrigation, in the months of February and March, there are many areas especially to the north at the foot of the hills where surface water dries up and ground water is difficult if not impossible to pump. Given this situation, tapping the rivers and creeks which run from the Meghalaya Hills in India is a very interesting proposition.

From 1983 to 1986 , The BWDB built two water retention structures on the Malijhee and on the Chillakhali rivers in Jhenaighati and Nalitabari thanas respectively. These projects failed to provide irrigation because of inadequate design, and failure in the operation of the structures. The local people, either inspired by the BWDB project or out of their own wit, have also been tapping these rivers.

The Social Anthropology Team has recorded seven such irrigation schemes under local initiatives. The list given below is not exhaustive. They are:

1) the Maharoshi/Malijhee River (Jhenaighati thana),
2) the Chillakhali River " "
3) the Bhoraghat River (Haluaghat thana).
4) the Bagpara Jhorna and Gilagora Jhorna (Dhobaura thana).
5) three creeks near the vllage of Goborchina, Dokhin Maizpara union, (Dhobaura thana).
6) the Netai river (Dhobaura thana).
7) the Dekni creek (kalmakanda thana).

The two largest schemes on the Maharoshi/Malijhee and the Netai rivers will be discussed in this paper as examples of how people under local leaders organize and manage such work.

5.1 The People's Irrigation Scheme on the Moharoshi River

The crossdam built under local initiative is situated about 15 kilometres uptream of the BWDB water retention structure near the village of Sondyakora. The Moharoshi river enters into Bangladesh through Nolkura union in Jhenaighati thana, Sherpur district. It flows up to Malijeekanda village of Malijhee union, where it is renamed as Malijhee (see maps 5 and 6).

In 1992-93, the people of Nalkura union, under the leadership of the union parishad chairman Dulal Master, constructed a large earthen dam on the Moharoshi river which measured 100 metres long, 6.5 metres high, and 6.5 metres wide at the crest. 6 main canals and 14 sub-canals brought water by gravity to the rice fields. The people's project employed 12 men to manage the canals and paid each of them Tk 1,200 per month. In addition, there were 15 men appointed to guard the crossdam from possible sabotage by downstream farmers. The guards slept there at night and served freely.

92

To pay for this undertaking, impressive in its magnitude, the people of Nalkura union collected *chanda*, that is contributions from local farmers. For the pupose, committees were formed in all the participating villages. The project leader aimed at irrigating some 6,000 hectares of land. In 1992-93, the first year of the experiment, crops could be successfully irrigated and havested on only 1,000 ha. This is because the dam breached three times, and only after the fourth trial, did it successfully retained water.

The people started building the crossdam at the beginning of January. Some gave bamboo poles and bamboo mats, while the poor farmers gave their free labour. Earth had to be carried from a distance which increased the cost. The cost of the work (excluding donations in kind or in labour) was as follows:

1st trial:	70,000 taka
2nd trial:	40,000 taka
3rd trial:	7,000 taka
4th trial:	45,000 taka
Tota1:	162,000 taka

It is quite remarkable that after the repeated breaching of the cross dam, the people's organization did not collapse. The leaders were determined to make the project a success. Dulal Master is said to have spent five years arguing for the benefits of the project and convincing the people to join in the undertaking.

After the third trial failed, the original 60 member committee became discouraged. They were replaced by a 27 member committee composed of younger men who made it a personal challenge to succeed. It was difficult to convince farmers to give more money as they had not seen any success yet but some *chanda* was collected, and a few tons of rice from another project was allocated to the crossdam by the union chairman.

5.2 Advantages of the Moharoshi River Irrigation Scheme

People are keen to cultivate *boro* rice in the winter but there are technical problems for sinking deep and shallow tube wells in Nolkura union. There are layers of rock, which increase the cost. Moreover, in March and April, tube wells dry up. Finally, the cost of pumping ground water is considerably higher than tapping the river.

The cost of irrigating one hectare of land with tube well water is approximately Tk 3,705 whereas, even this year with the breaches, the cost of irrigation has been Tk 1235 per hectare of rice harvested (excluding the free labour and the free contributions).

When irrigation is no longer required, the canals are closed and the crossdam is cut. In 1993, this was done on the 15th of April. The river flow erodes the dam which is gradually washed away. The soft structure is unlikely to lead to the carving of a new river channel as happened with the Water Retention Structure under close gates condition.

5.3 Conflict with Downstream Farmers

The crossdam has negatively affected down stream farmers, especially those in Malijheebanda and Hatibanda unions. A group of them, led by entrepreneurs who make profits by building

smaller crossdams and selling water to farmers downstream, planned to sabotage the whole work. They filed a case in the thana court against Dulal master arguing that tapping river water was illegal. Dulal Master argued that the government had given permission to the BWDB to construct a water retention structure on the Malijhee, so there should be no objection about people building cross dams through their own initiative. Moreover the plaintiff themselves had built cross dams on the same river. The case was dismissed. Downstream farmers then called on the Thana Nirbahi Officer of Jhenaighati and the District Commissionner of Sherpur to intervene on their behalf. The fact that the people of Nolkura union are immigrants from Assam who settled there mostly in 1965, whereas the people downstream have been living there for much longer and call themselves *Sthanio*, exacerbates the conflict.

The government officials negotiated with the people's committee in Nolkura union. It was agreed that a canal would be dug 600 feet upstream of the dam to channel some water to the downstream farmers.

The downstream farmers at Hatibanda had expectations from the BWDB water retention project which would have benefited them directly. After the project failed in 1988, BRAC installed 3 deep tubewells in the area, so that a *boro* crop could be cultivated. Farmers using the water must pay a quarter of their harvest to the NGO which is resented considering the much lower cost of irrigation from the river.

5.4 The Future of the Moharoshi Crossdam

The local initiators of this project strongly believe that there is suffficient water to irrigate an area larger that the 6,000 hectares targetted this year. In 1994, they are planning building a larger dam, two kilometres upstream of the present one at Fakrabad, and dig a two mile canal to join in with another river, the Ranjoner Jhura which leads to a lowlying area (see map).

The Nalkura union chairman, Dulal master, is not requesting government funds for this undertaking. An association has been formed called the Swanirbor Biplop Krishok Committee (Farmers Self Revolution Association). The plan is to ask 1,000 members to put Tk 80 each into a community fund. This fund should provide the necessary capital to adequately build the dam. Then, *chanda* will be raised from all the water users and the original capital providers will be returned their Tk 80 plus 20% interest. The chairman believes that this project will provide water to farmers at a price as low as Tk 740 per ha, and that money will be left for communal projects such as the foundation of a school. Entrepreneurs in the past built dams and sold water to farmers for Tk 1235 per ha.

Such project owes much to the charismatic qualities of the Nolkura union chairman, a young man in his early thirties who came to the area as a school teacher. Dulal master is not a large landowner. He was elected chairman because of his popularity, not because of his wealth.

It is too early to say how this local initiative will develop. Farmers remain enthusiastic and it should not be difficult to raise *chanda* next year. But how sustainable is such an organization? The strength and the weaknesses of organizations which grow under the charismatic leadership of an individual are well known and will be discussed further in section 6.2.

The problems caused to the downstream farmers are difficult to avoid and upstream people will always have an advantage in tapping water. The fact that water was tapped uptream has allowed irrigation through gravity instead of mechanical pumps which is a considerable advantage, especially since the increase in diesel price two years ago. Gravity is not only a cheaper, but also a more democratic system of irrigation.

Conflicts with downstream farmers being inevitable, one can reflect on how they were dealt with. They were settled through court and negociation, which is the best way. There was a people's committee and government officials were willing to arbitrate, in other words, there were institutions which helped diffuse the tension. This is important.

From the point of view of the project initiators, benefitting several thousand people over a large area is seen as the best way to gain even stronger public support for their undertaking. The cross dam planned for 1994, if successful, should bring water to many of the downstream farmers.

Once plans have been made and farmers have been mobilized, it is most important that the work succeeds. Uncertainty, and breaches of the cross dam are damaging to farmers who incur losses once they prepare seedbeds and plough the land. Repeated failures would certainly dampen their enthusiasm and participation. Breaches of the upper cross dam also causes problems to downstream farmers who are caught unprepared by a large flow of water which breaches the small dams they erect.

Good planning and reliability are important criteria to sustain people's participation in such scheme. Also readily available resources may be critical when a breach occurs. Dulal Master, as a union chairman was able, to find a few tons of rice to pay workers who repaired the third breach on an emergency basis. Such emergency funding should be available at local government level to help people who help themselves.

Finally, the cross dam built under local initiative on the Moharoshi river compares highly favourably in terms of cost/benefits with hardware structures.

The Moharoshi river crossdam exemplifies once more how the *chanda* contribution is prerequesite to the undertaking of a scheme, and a guarantee of people's partipation. People identify their needs and mobilize beforehand, then the work starts.

Finally, it should be pointed out that people's mobilization is a lengthy process. In this case, a five year period was required to gain people's support and implement the project.

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6. PEOPLE'S CROSS DAMS ON THE NETAI RIVER

The crossdams built on the Netai river are the largest undertaking under people's initiative encountered in the Northeast Region. Crossdams and canals have been built there since 1981 under the leadership of four chairmen from the unions of Ghoshgao, Dokkhin Maizpara, Dhobaora Sadar and Bagber. 10,000 hectares of land have been irrigated with the construction of four crossdams at the following locations: Ghoshgao, Kalsindhu, Kamalpur and Pura Kandulia.

6.1 Cost of the Dams

In 1981, Tk 75,000 was collected from farmers of the four unions. The largest dam is at Ghoshgao, which is located upstream. In 1982, it had to be rebuilt after it breached, so the cost was higher. The first trial cost Tk 65,000 and the second trial cost an additional Tk 55,000.

From 1983 to 1986, there was no crossdam at Ghosgao because of internal conflict. The other three smaller dams, however, continue to be built every year.

In 1987, the chairman of Ghosgao union had become upazila chairman. On that year the upazila parishad provided Tk 57,000 while the public raised the remaining Tk 40,000. The building of the Ghosgao dam, at times, has been the occasion for a display of solidarity between students, teachers, and farmers. In 1987, 2,000 of them are said to have participated in voluntary earth moving work. In 1988, the Ghosgao dam was built for the last year. The charismatic upazila chairman who had personally invested in the scheme is said to have lost a considerable amount of money which could not be recovered from farmers.

6.2 Strengths and Limitations of Irrigation Schemes Under Local Initiatives

Started some 13 years ago, the Netai river irrigation works illustrate both the potential as well as the difficulties of schemes under local initiatives. In the last four years, no crossdam was built at Ghoshgao because of conflict within the committee which is linked to the following issues:

1) Difficulty of collecting *chanda* from all farmers. Once the crossdam is built, water must be released or else the embankment will break. So, farmers declare they do not want water but when it is released over their field, they use it for irrigation, then refuse to pay *chanda*.

2) Competition from deep and shallow tube wells. Because of the uncertainties of people's collaboration, some wealthy farmers have started investing in deep and shallow tube wells. Most of them, however, like to rely on the river water when ground water becomes more difficult to pump. Yet, they refuse to pay *chanda*. Poor farmers have most to lose from the failure to tap the rive water and many of them have now to migrate in search of work while large plots of land remain fallow.

3) Farmers have come to resent giving land for canals which carry water for other farmers' benefit.

In spite of the problems experienced, the benefits of this scheme over 13 years are there for everyone to see. The price of land in the area which has been once irrigated is double that of the non-irrigated area. Where irrigation has been sustained, farmers have prospered and out migration has diminished.

Will the people succeed in mending their differences? Will shallow tube well irrigation which entices farmers to seek individual profit without the need to organize and coordinate with several others take over? Building crossdams and canals are undertakings which require the collaboration of most farmers within a given territory. It requires a widely shared interest, and good leadership to succeed. From the point of view of cost, people's initiative in tapping a river for irrigation is unquestionably profitable and sustainable. The greatest difficulties in such schemes are political and social. They relate to the continuity of the leadership and the local institutions it sustains.

7. CONCLUSION

There is a need to think people's participation, not only as a universal ideal, but to consider the concept and its application in the context of rural Bangladesh. Our contribution to this debate has been to look at specific situations in the Northeast Region.

Several examples of people's initiatives in the management of water resources have been described in this paper. These have been found in areas where there is no BWDB project, as well as within the area of a BWDB project.

In BWDB projects, people's participation is exercised mostly in a manner unplanned for by the project implementors, either through a parallel organization, or by forging unofficial channels and procedures through the existing management structure. The areas and the full extent of people's participation, often, are not known to the project managers.

People's participation has been found not to be exercised through formal project committees, most of which have been established to satisfy bureaucratic criteria external to the local community. Many local initiatives involve in one way or the other local government representatives especially at the level of the union. Union parishad members' participation in flood control and irrigation schemes is an important theme in their election and re-eclection. Members of parliament in some areas have also played an important role.

The role local government representatives play has been influenced by the budget they controlled. When they had funds at their disposal, they were more active. However, misuse of funds at union or upaziala levels also alienated people and was a disencentive to people's participation. The role local governments play in the management of local water resources goes back to the Pakistani period. A good understanding of this history is essential to draw lessons and make plans for the future. People's participation in water management will necessarily involve people's representatives, especially at the union level.

In promoting people's participation, there are traditional practices and institutions in Bengali society which are important to recognize. The most important of these is probably the institution of *chanda*, or public contributions given in kind, in cash, or in labour to pay for a service benefitting the community. *Chanda* is usually proportionate to a family's landholding, or wealth. In some parts of the country, especially in cities, the institution appears to have degenerated into something more akin to extorsion that to voluntary contribution. However, wherever it was observed in the Northeast Region, *chanda* was perceived as positive, facilitating the implementation of works in the interest of the public good.

Thought should be given to the creation of new institution, for example, the appointment of an ombudsman or a people's court to deal with public requests and complaints, in the management of water resources. Such a body should not be under the BWDB. At present, all inquiries regarding projects are administered internally by the Water Board itself. Corporate interests can easily prevent a fair hearing and influence decisions. Such structural set up does not lead to transparency and is not conducive to people's participation.

Effective and meaningful public participation requires at least three conditions. First, there must be strong local organizations capable of articulating the common interests of particular

occupational, socio-economic or neighbouring groups of men and women. Second, there must be channels and procedures which allow local organizations to participate in the projects. Third, the composition of expert teams needs to be adjusted to reflect the importance given to people. Experts must be willing to keep on an open dialogue with the representatives of the various local groups. Specialized agencies must adopt their modes of operation and be flexible enough to facilitate the process. Needless to say, an understanding of local institutions and political culture is essential.

Blueprint guidelines do not guarantee successful public participation. The formation of Project Coordination Committees does not either. Local strategies and forms of people's participation, by definition, have a life of their own, they are bound to take different shapes, they cannot be superimposed from the top. They are experimental.

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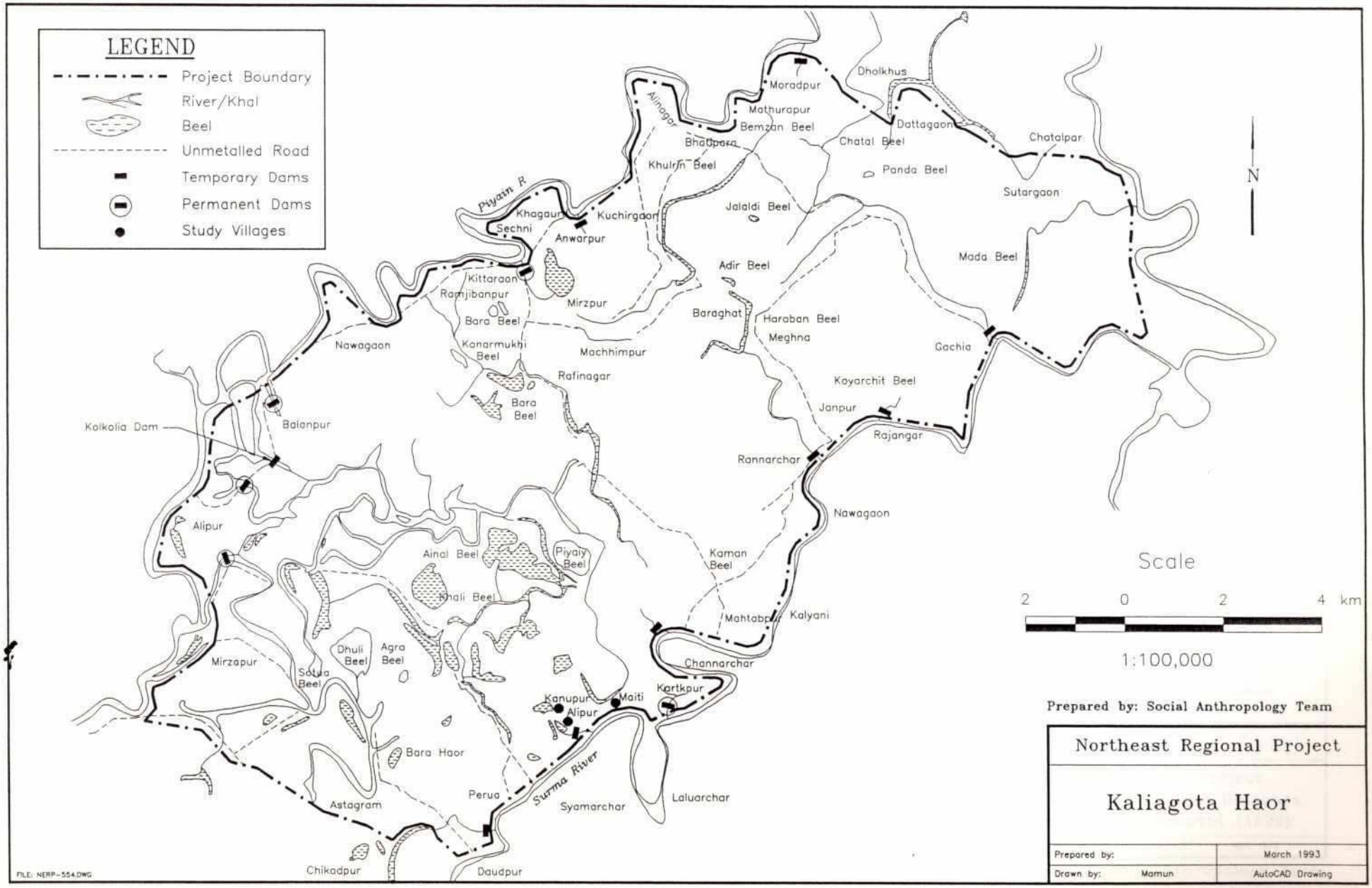

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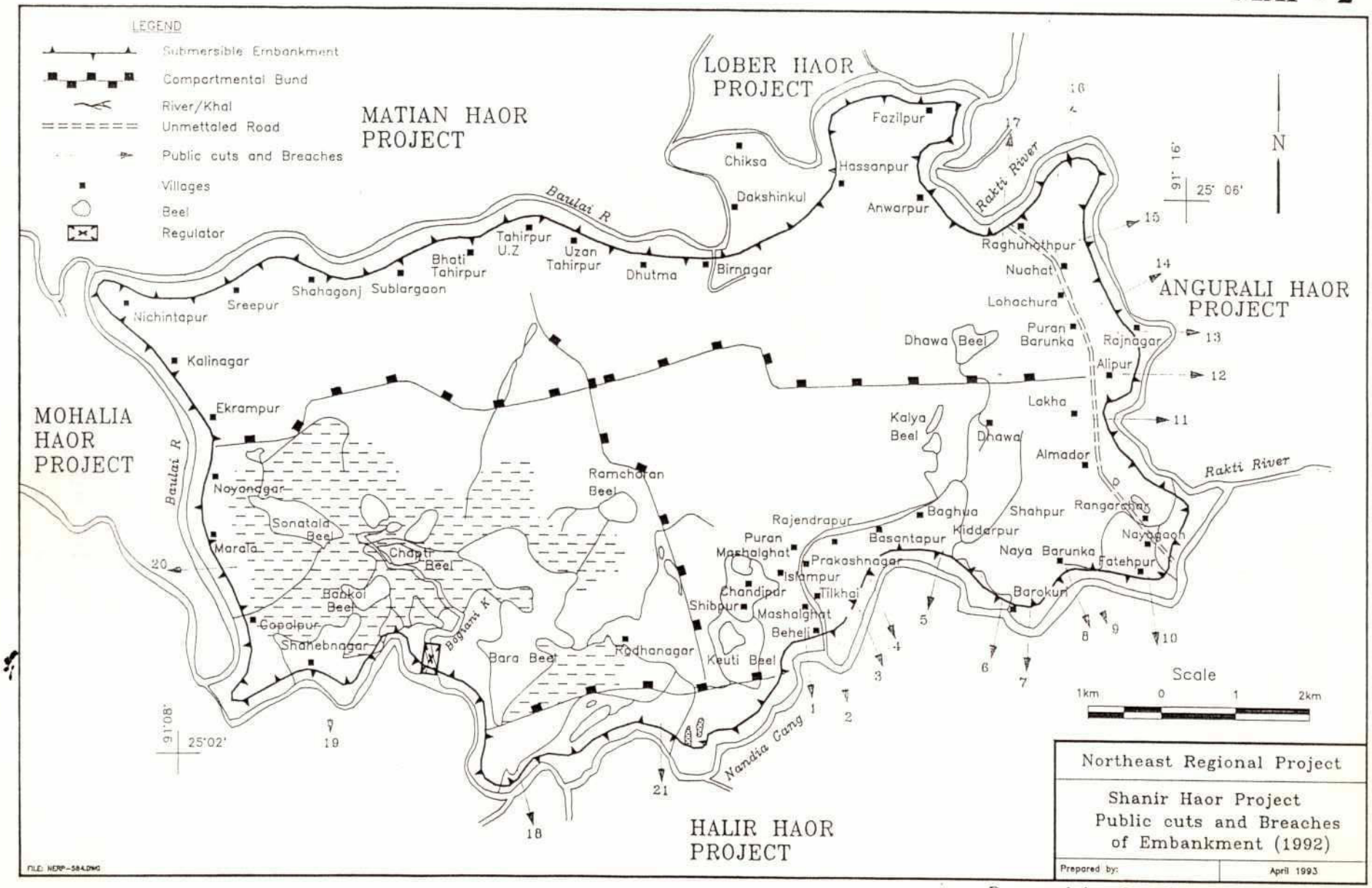
Northeast Regional Project	
Kaliagota Haor	
Prepared by:	March 1993
Drawn by: Mamun	AutoCAD Drawing

MAP - 2



Northeast Regional Project	
Shanir Haor Project Public cuts and Breaches of Embankment (1992)	
Prepared by:	April 1993

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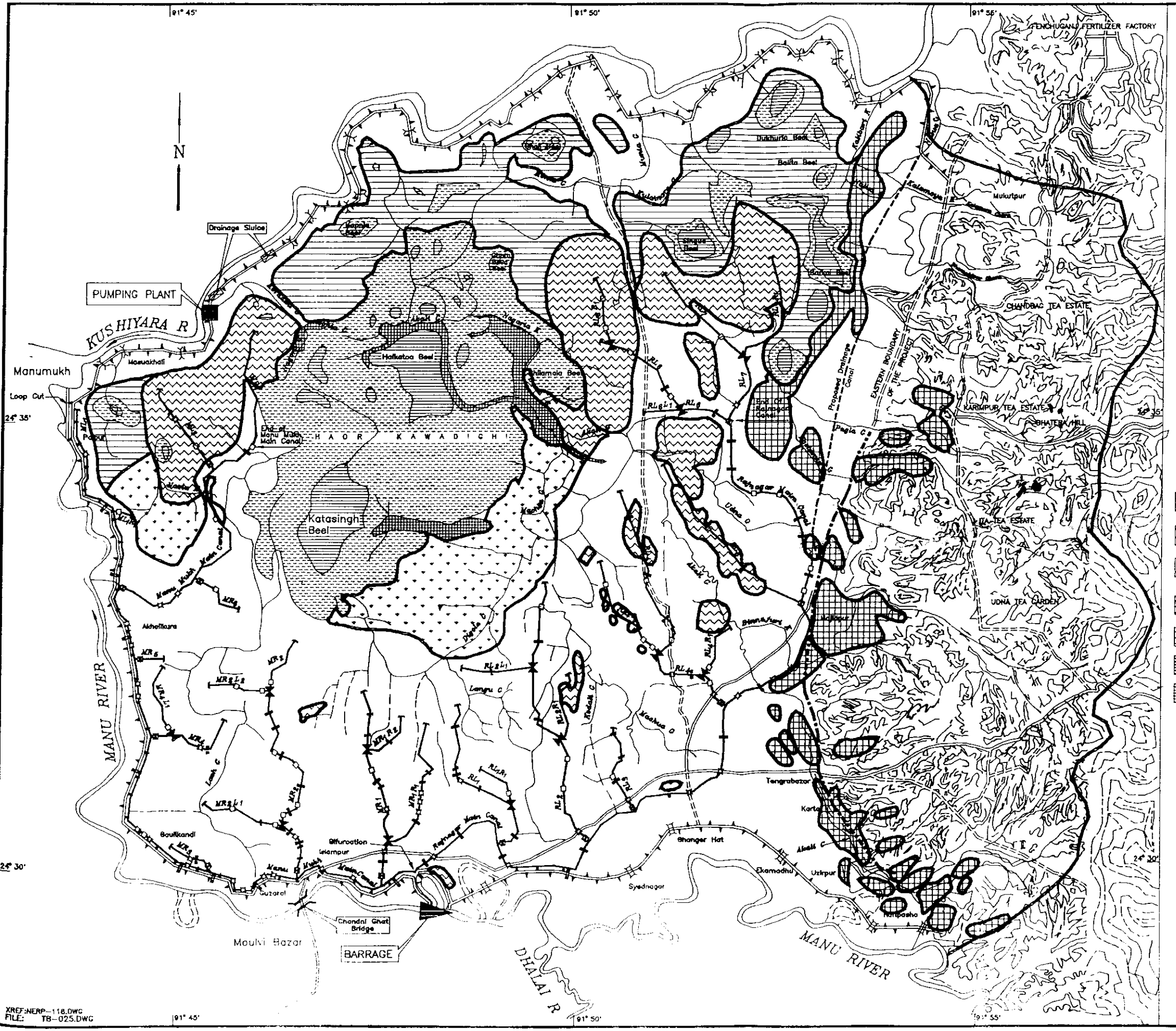
MAP - 3



LEGEND

- Irrigation Canal
- Flood Embankment
- Metalled Road
- Unmetalled Road
- Drainage Canal
- Project Boundary
- Proposed Drainage Canal
- River/Creeks
- Embankment Sluice
- Drainage Sluice
- Pumping Plant
- Barrage
- Syphon in Manu Flood Embankment
- Group Regulator
- LLP Inlet Structure

INDEX

LLP and Traditional Lift Methods: (75% HYV Boro)	2,368 h.
Project Irrigation Canals: (100% HYV Boro)	2,553 h.
Extension of Project Irrigation Network Through People's Initiative: (75% HYV Boro)	1250 h.
Creeks from the Bhattara Hills: (90% HYV Boro)	1,259 h.
Traditional Methods or no Irrigation (Local Boro)	2,797 h.
Kanda (fallow land):	310 h.
Beel:	630 h.

Scale

1 0 1 2 km

1:40,000

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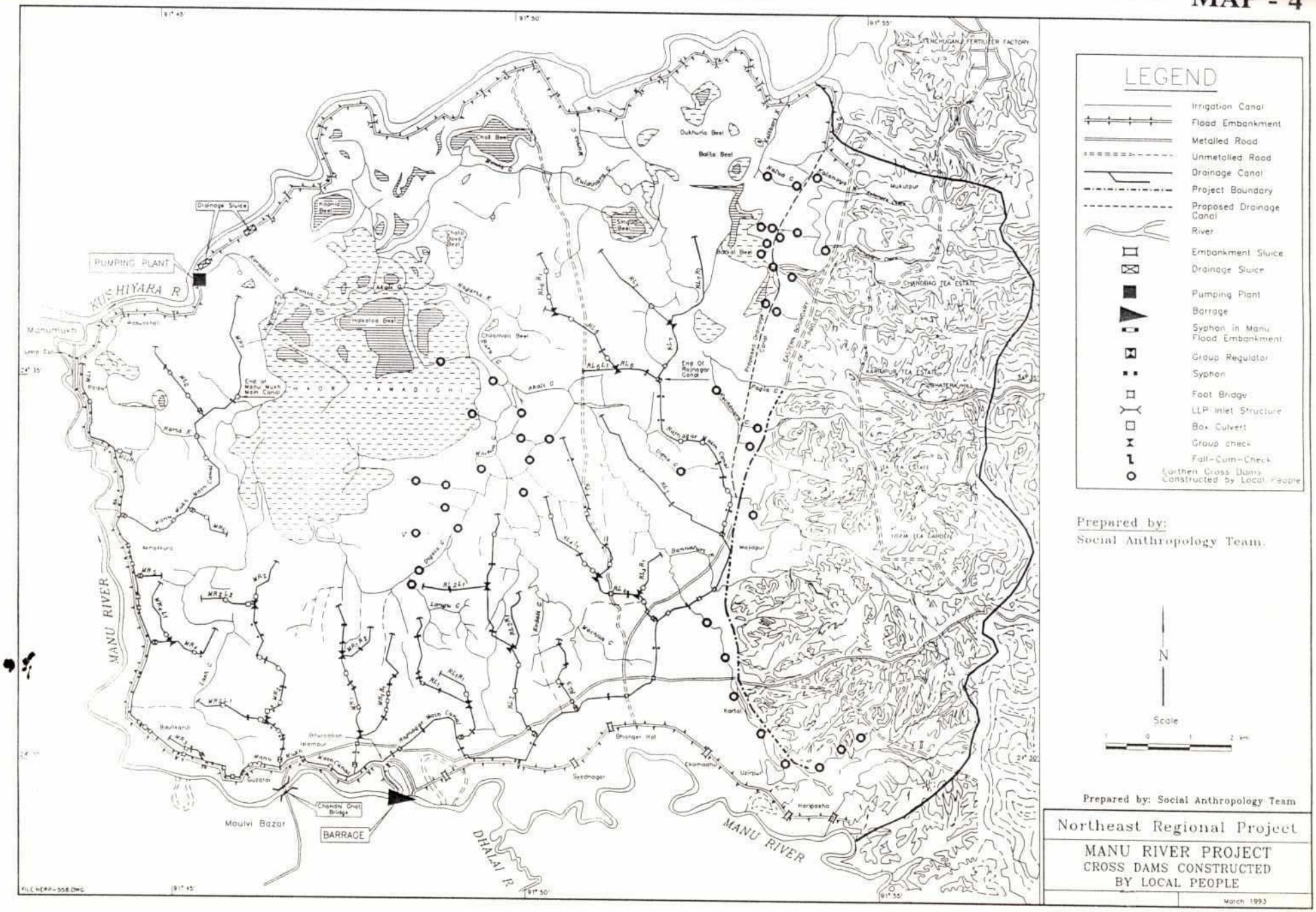
Manu River Project Boro Acreage and Type of Irrigation (1993)

Prepared by:	Mike/Hannan		June 1993
Drawn by:	Sk.Jalal		AutoCAD Drawing

MAP - 4


LEGEND
Irrigation Canal
Flood Embankment
Metalled Road
Unmetalled Road
Drainage Canal
Project Boundary
Proposed Drainage Canal
River
Embankment Sluice
Drainage Sluice
Pumping Plant
Barrage
Syphon in Manu Flood Embankment
Group Regulator
Syphon
Foot Bridge
LLP Inlet Structure
Box Culvert
Group check
Fall-Cum-Check
Earthen Cross Dams Constructed by Local People
PUMPING PLANT
Drainage Sluice
KUSHIYARA R.
MANU RIVER
HAOR AMADIGHI
BARRAGE
Moulvi Bazar
DHALAI R.
MANU RIVER
Chandu Ghat Bridge
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N
Scale
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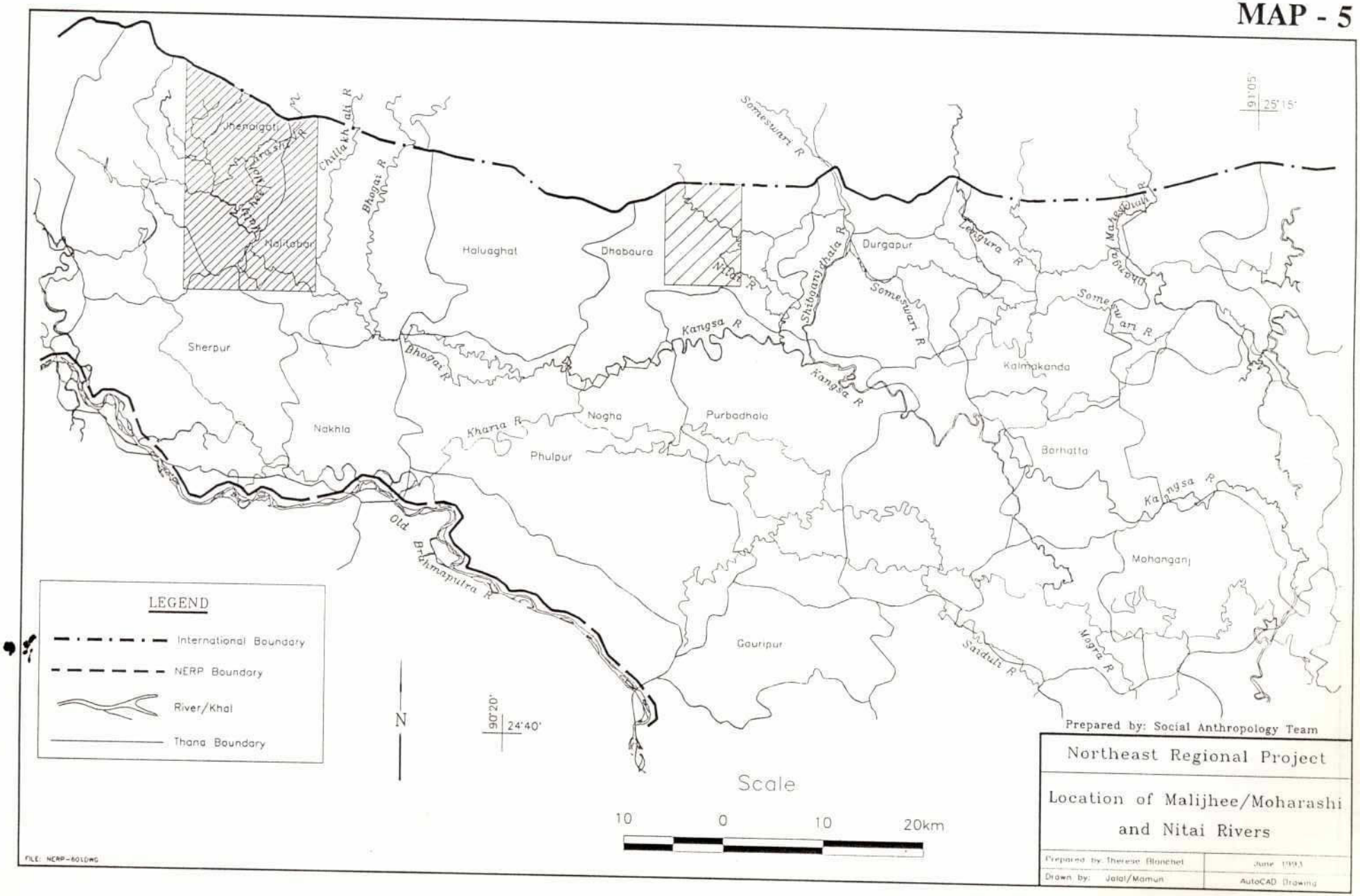
MANU RIVER PROJECT
CROSS DAMS CONSTRUCTED
BY LOCAL PEOPLE
March 1993

MAP - 5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Sherpur
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Purbadhala
Phulpur
Barhatta
Mohanganj
Gauripur
Chilla kh ati R
Bhogai R
Somesuari R
Nitai R
Shibaryadhala R
Leshura R
Majlee Chuli R
Kangsa R
Khaira R
Old Brahmaputra R
Saiduli R
Mogra R
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25°15'
90°20'
24°40'
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Scale
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LEGEND
International Boundary
NERP Boundary
River/Khal
Thana Boundary
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Northeast Regional Project
Location of Malijhee/Moharashi and Nitai Rivers
Prepared by: Therese Blanchet
June 1993
Drawn by: Jalal/Mamun
AutoCAD Drawing
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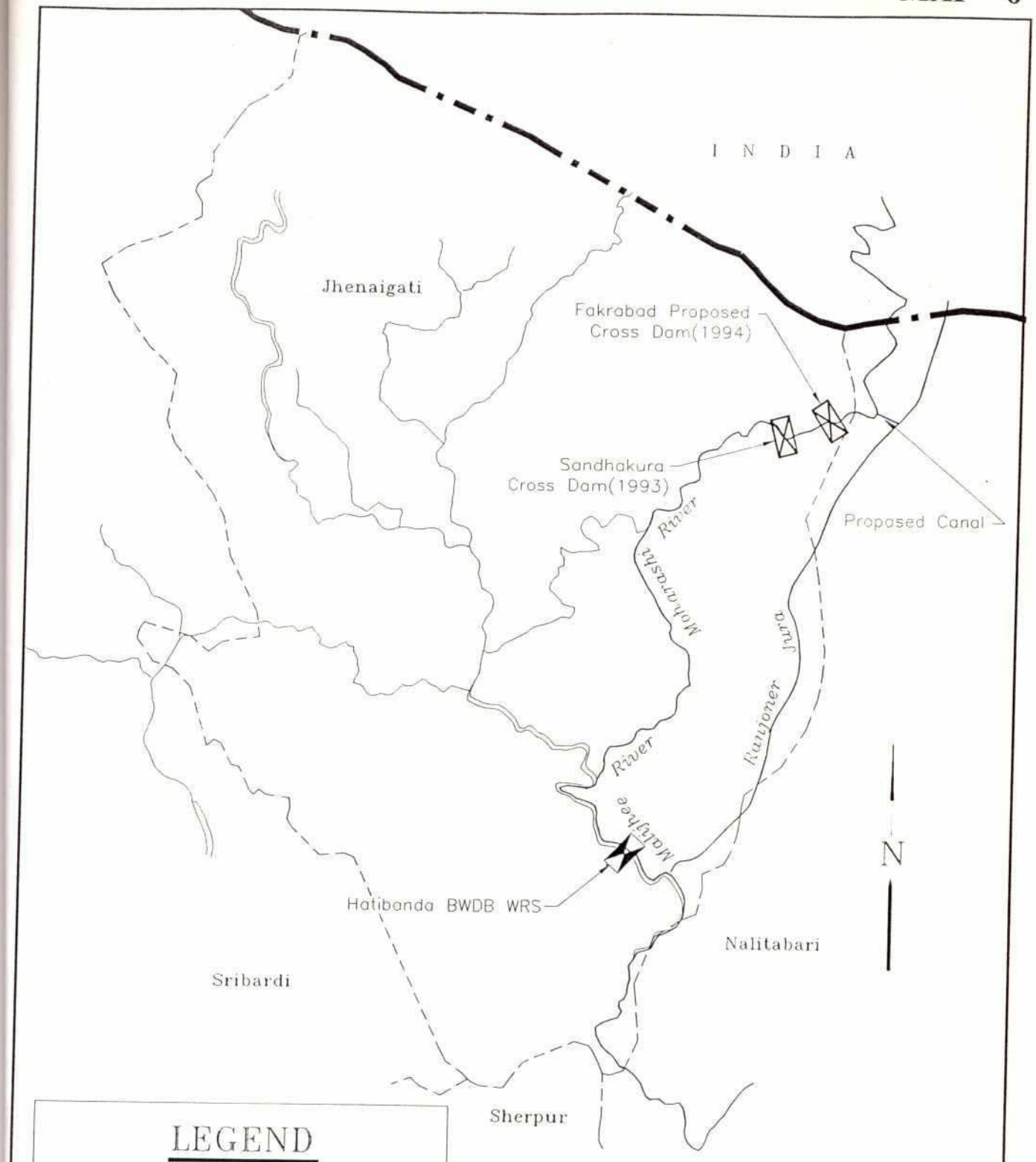
MAP - 6



LEGEND

- International Boundary
- Thana Boundary
- River/Khal

Scale

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People's Cross Dam & BWDB WRS on the Malijhee/Moharashi River

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