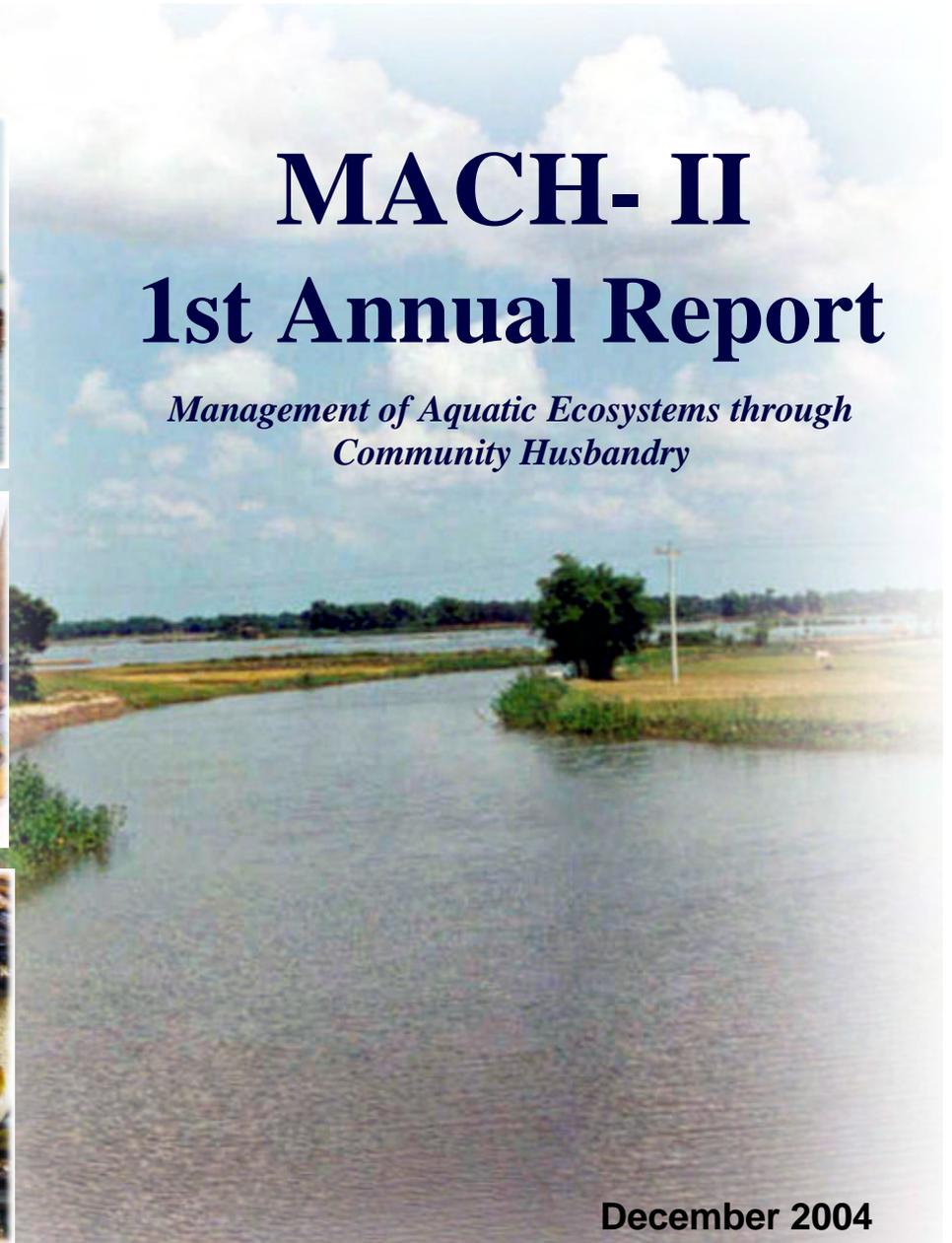


MACH- II

1st Annual Report

*Management of Aquatic Ecosystems through
Community Husbandry*



December 2004



*A project of the Government of Bangladesh
Supported by USAID*

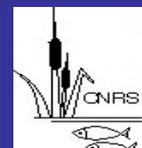
Project Partners:

Winrock International

Bangladesh Centre for Advanced Studies (BCAS)

Center for Natural Resource Studies (CNRS)

CARITAS Bangladesh



MACH-II

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November 2003 – October 2004

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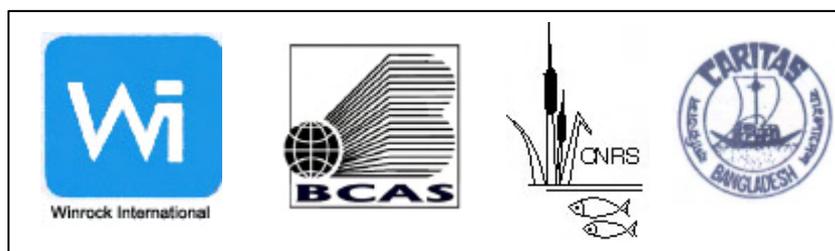


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Acronyms

AIGA	Alternative Income-Generating Activity
BCAS	Bangladesh Center for Advanced Studies
CA	Cooperative Agreement
CIDA	Canadian International Development Agency
CNRS	Center for Natural Resource Studies
DANIDA	Danish Agency for Development Assistance
DFID	Department for International Development
DoE	Department of Environment
DoF	Department of Fisheries
ERD	External Relations Division
FAD	Fish-Aggregating Device
FTF	Farmer-To-Farmer Program
FRUG	Federation of Resource Users Group
GIS	Geographic Information System
GoB	Government of Bangladesh
HH	Hail-Haor
IMED	Implementation Monitoring And Evaluation Division
ISMP	Investment Support To MACH Project
KM	Kangsha-Malijhee
LCG	Local Consultative Group
LGC	Local Government Committee
MACH	Management of Aquatic Ecosystems through Community Husbandry
MoEF	Ministry of Environment and Forestry
MoFL	Ministry of Fisheries And Livestock
MoL	Ministry of Land
NGO	Nongovernmental Organization
NRM	Natural Resource Management
RMO	Resource Management Organization
RPT	Results Package Team
RRA	Rapid Rural Appraisal
RUG	Resource User Group
SO6	Strategic Objective-6
SUFO	Senior Upazila Fisheries Officers
TB	Turag-Bangshi
UDCC	Upazila Development Coordination Committee
UFMC	Upazila Fisheries Management Committee
UFO	Upazila Fisheries Officers
UNO	Upazila Nirbahi Officers
UP	Union Parishad
USAID	U.S. Agency For International Development
UWRMC	Upazila Wetland Resource Management Committee

Executive Summary

With the growing population and increasing pressure on limited resources, Bangladesh is under constant pressure to be able to produce enough food to feed itself. Fish and rice have been the staples of this deltaic country for years. The country is very dependent on its open water capture fisheries for the supply of food to the poor. This fishery over the last 20 years has been in decline and fish consumption per capita has declined due to the decrease in supply and an increase in population. There has been an estimated 38 % per capita decline in fish consumption among the poorest between 1995 and 2000.

The USAID-funded MACH project, with field activities beginning in 1999, successfully demonstrated environmentally sound community management of wetlands resources for sustainable supply of food for the poor of Bangladesh. The poor are those most dependent on wetlands resources and reap most of the benefits from MACH. As a result of MACH's accomplishments a population of more than 500,000 is benefiting from ecosystem and biodiversity preservation, as well as increased fish production and improved nutrition and incomes. Fish production has increased on average by 39% (from 144 kg/ha to 200 kg/ha) on MACH sites from 2000 – 2003 where it previously was in decline. During FY 03-04 the increase was 50 % over the baseline figures (from 144 kg/ha to 217 kg/ha.) when MACH started. Fish consumption has also increased and both production and consumption are trending upwards improving the nutritional intake. At the same time, alternative supplemental income generating activities combined with comprehensive training, credit and other services have enabled the poorest families to increase their income by as much as 47 % (more than Tk 8,000 according to 2002-2003 survey) in some areas while reducing pressure on wetlands resources. Most importantly, these community-managed developments will likely be sustainable because of the co-management linkages between the community and local government.

MACH II is working to consolidate Local Government at the Union, Upazila and District levels which are cooperating actively with MACH. Local Government Committees (LGC's) made up of local Upazila and Union government officials, RMO members and others are working cooperatively at all MACH sites. MACH II is working at the Department of Fisheries level with other Department projects and Department personnel to help finalize the Inland Capture Fisheries Strategy. This strategy uses many of the well established approaches and experiences of MACH and recommends their application in all open water fisheries and wetlands of Bangladesh.

More than 54,000 people have attended MACH environmental awareness raising programs during the first year of MACH II. Through MACH/LGC's and RMO's the project has established 72 (6 in 2003-04) wetland fish sanctuaries (most of which are permanent), and planted more than 537,000 (of these more than 204,000 during 2003-04 up to October 2004) trees in an effort to rehabilitate wetland, riparian and upland habitats. In cooperation with Union Parishad's, MACH User/Beneficiary Groups have planted over 90 km of roadside with mixed tree plantations and nearly 1,500 homestead trees. Through local currency habitat restoration funds, in 2003-04 MACH has worked to rehabilitate a total of 16 beels and canals through executing 29 schemes, directly impacting over 367 hectares of wet season wetlands. This has resulted in perennial standing water during the dry season where there was none or very little before.

MACH has successfully reintroduced 13 species of fish since inception (over 470,000 individual fish released in 2003-04, almost 970,000 since inception) and 55 species of plants into their natural habitat areas within the project sites. Through MACH support, communities and fishing families have effectively limited their fishing activities during critical spawning and juvenile growth periods and set aside sanctuaries all of which have contributed to the increases in fish yields. RMO's have successfully instituted self-imposed restrictions on the use of destructive fishing gears and adhered to temporary fishing bans.

MACH has formed 246 resource user groups (RUG's) (21 in 2003-04) for poor fishers (consisting of 5,164 families, 596 additional in 2003-04), who have accessed almost Tk. 57 million in loans for alternative income generating activities (almost Tk 8.5 million in 2003-04). In addition, these groups have accumulated personal savings in excess of Tk. 5.9 million. MACH resource management groups

have restricted fishing where fish populations were threatened, set up watershed management demonstrations, and made headway in bringing together industry and local stakeholders to reduce industrial pollution. These efforts resulted in the successful removal of kerosene from industrial effluents polluting the wetlands. MACH was instrumental in bringing a DFID-financed program, "Managing Water Pollution on Small Scale Industries," to the Turag-Bangshi site to further reduce industrial pollution of the wetland. All major MACH programs are underway at the newly integrated Kongshaw-Malijhee site where work began in 2001.

MACH has been successful in acquiring for local groups including poor fishers, twelve new leases with a total area of 186 acres. These new leases are for a ten year period and provided by the Ministry of Land for large areas that can now be restored to an enhanced state of productivity and generate long term fish production benefits for thousands in the MACH supported wetlands.

Component 1 and 2 of MACH II

Component 1 is to *build on success in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas* and component 2 is to *intensify and consolidate wetland rehabilitation activities for full assessment of impact*. The following intermediate results (IR) are expected from these two components: (i) IR 6.1 – Effective community-based resource management mechanisms improved; (ii) IR 6.2 – Fully developed and effective community-based resource management mechanisms implemented; (iii) IR 6.2.1 – Innovations and best practices adopted; (iv) IR 6.2.2 – Alternative incomes realized for target groups. The following is a summary of the major activities and the progress during this semi-annual reporting period.

Resource Management Organization (RMO) Strengthening. Resource Management Group strengthening and ensuring sustainability of the groups is largely the responsibility of MACH-CNRS. MACH has been involved with all community resource users (fishers, farmers, the middle class and elites, women, local government, and others) and considered all the products (fish, plants, water and wetlands products) and factors affecting a wetland. The project has helped establish a total of 42 community-based management organizations, including 16 wetland resource management organizations (RMO's), nine upland stream resource management committees (RMC's), and 17 Doha's or river RMC's. These groups are utilizing best resource management practices on more than 19,000 ha of rainy season wetlands and more than 50 km. of streams.

The key focus of MACH II is to ensure the sustainability of the systems and organizations developed by MACH. Those organizations, and the activities initiated to support them, will continue to receive assistance. The focus of all MACH II partners will be to continue to build institutional capacity at the local level, undertake physical interventions to restore wetland function, and work with the national government and nongovernmental institutions to bring about policy changes. At the local level, capacity building, training, and strengthening of charters and linkages between the RMO's and local government at the Union and Upazila levels will continue to take place.

RMO linkages with the Union Parishad have been strengthened through letters from the UNO in MACH's Kangshaw-Malijhee site officially sanctioning the attendance of RMO Chairmen's or their representative in UP meetings. MACH has also taken steps working with the RMO's to improve the existing constitutions so that the likelihood of sustainability of the organization might be even greater. Sanctuaries and the addition of sanctuary structures remains a big part of MACH II's program. A total of 72 sanctuaries have been established, many with fish aggregating and fishing prevention devices that are permanent.

RUG Strengthening and Community Development. RUG activities that include strengthening, community development and ensuring the sustainability of those organizations is largely the responsibility of MACH-Caritas. The MACH approach ensures that all community resource users have a voice in management decisions and equitable access to wetland resources. MACH has been especially concerned with the rights and access of poor and disadvantaged resource users, especially fishers, living around the wetlands. Seasonal fishing bans and creation of fish sanctuaries have been necessary and implemented to ensure sustainable wetland productivity. MACH recognized, however, that this can be disadvantageous to the poorest groups dependent on the resource, so from its

inception, MACH has stressed supplementary or alternative income in its work with fishers and other disadvantaged groups.

MACH through its partner CARITAS has organized groups of economically or socially disadvantaged men and women that use and live around wetland areas where the project works. MACH has formed 246 such organizations or resource user groups (RUG's) for poor fishers (consisting of 5,164 families) and worked with them by not only providing credit and helping them save, but also building awareness, improving literacy, strengthening group development, addressing nutrition and health, and supporting and training on a large variety of alternative income-generating activities.

RUG members have accessed almost Tk 38 million in loans, generating alternative supplemental income and accumulating personal savings in excess of Tk 5.9 million. Sustainable wetland management requires restricted fishing periods be enforced from as little as two weeks to as much as 2-3 months depending on the nature of the fishery. The supplemental income programs have buffered the potential negative impacts of these restrictions on the poorest.

Investment Support to MACH. From its inception, MACH has recognized the need for specific physical interventions to restore function to wetlands and surrounding riparian habitats. These activities have included reopening canals and other fish migration pathways, re-excavating lost beels, re-vegetating or re-establishing riparian and wetland forests, reintroduction of lost fish species, establishing permanent sanctuaries, pollution abatement, and other tasks.

As a result of GOB & USAID support, MACH applied for 416(b) funds controlled by the GoB to support those activities in 2000. In April 2003 the local currency funds were released by the GOB for the MACH *Investment Support to MACH* Program (ISM). These funds have been central to MACH II programs. In addition to MACH II program activities (touches almost all activities) these funds are critical to the exit strategies planned for MACH II.

All physical interventions undertaken by MACH must meet three basic criteria, that is, (a) have a biological impact, (b) be socially acceptable, and (c) be technically feasible. The interventions must offer quantifiably positive impacts for the wetlands concerned and the communities that live around them. The potential impacts must be of sufficient size to justify the intervention cost. Interventions must be acceptable to the community as a whole and benefit the entire community. MACH engineers and biologists determine the technical feasibility of re-excavation and other earthwork, structures, and other similar concerns. MACH in addition requires that if excavation is to take place, a portion of the area excavated must become a sanctuary.

Physical Interventions are undertaken only on specific requests from RMO's, community groups, and other CBO's. Interventions require the support of the union parishad and the MACH Local Government Committee (LGC) concerned. At all sites, the Local Government Engineering Department LGED engineer is a member of the LGC. Given that excavation is difficult in these wetlands, MACH involves the concerned LGED engineer directly to assist the project in technical areas as well as work with MACH engineers to establish excavation rates for each scheme.

MACH has received the first of three installments of a local currency 416b fund that was made available through the first project implementation letter (PIL) signed by the Government of Bangladesh (GOB) and U.S. Agency for International Development (USAID). With these funds, MACH helps communities through their RMO's to re-excavate and restore beels and canals with habitat critical to fish and other aquatic life, resulting in year-round standing water that had once disappeared seasonally and securing dry season wetland function.

In the Fiscal Year 2003-2004, MACH had an ambitious program for earth work. Various RMO's requested support to implement 17 beel schemes and 12 canal (khal) schemes for implementation. Overall progress financial and physical was approximately 95%. Of the 29 schemes, only four schemes were not implemented due to land disputes and resulting legal complications. All the others were largely completed.

With the launching of MACH-II in November 2003, initiatives were taken to review the accomplishments of MACH I as regards to habitats and ecosystem improvement, and freshly assess the future activity needs. Site wise work plans for the entire MACH-II project period including specific work plan for the first year (Nov. 2003-Oct.2004) have been drawn up and work execution is progressing according to the planned targets (see Appendix 5).

Another activity under the investment support to MACH fund is the reintroduction of lost fish species back into each of the three major floodplain areas. During MACH II it is planned that more than 1.2 million fish will be reintroduced into the MACH project areas based on the existing status and the past status of the species and the management plans of the RMO's. A total of 472,000 fish were reintroduced into MACH wetlands.

Pollution Abatement Initiatives. Industrial Pollution is a growing problem throughout the country. Efforts by MACH II (using ISM funds) to address this issue are being undertaken through BCAS with support by the Stockholm Environment Institute (SEI). SEI has been supported by DFID grants and now a KAR grant from the EU.

The overall goal of the MACH pollution initiative is to improve the quality of wetland ecosystems and thereby the livelihoods of the people who use them, by reducing pollution at source and treating residual pollution both within factories and in the wider environment. The project has several components to achieve this. These are: pollution identification and an assessment of the health impacts of the pollution; leading to options to optimize industrial processes to improve efficiency and reduce pollution; technical support to industries for pollution treatment options; training of factory staff to build capacity in cleaner production options and effluent treatment; and awareness raising of national and international buyers on environmental compliance criteria.

Optimum production is being pursued with the textile dyeing industries in the Kaliakoir. The project team have been working with four industries to develop and trial optimal dyeing recipes, to improve fixation, "lab to bulk" reproducibility and "right first time", and thereby reduce the quantity of dye and other chemicals entering the waste stream. Laboratory and full-scale trials to modify the dyeing profile have been undertaken in all four factories. The results show that in all cases it is possible to improve fixation and in some this improvement was as much as 20%. Through discussions with factory managers the team found that there is often a problem with achieving "right first time" dyeing and the bulk trials showed that improving the dyeing profile could help to address this.

Component 3

Continue to enhance policy environment for natural resource co-management. The intermediate result within this component is IR 6.3 Selected policies implemented that support IR 6.1 and IR 6.2.

Policy Measures. MACH continues to work for policy change with regard to leasing of water bodies and particularly to see that the institution of conservation measures come into the leasing policy. MACH continues to work for a reduction of lease rates for those who implement conservation practices such as sanctuaries within their management of the water body. MACH is also working through the steering committee, the MoFL and MoL to see that land use practices are improved on the hills around Hail Haor. MACH has continued to secure permanent sanctuaries in all sites with management control under the MACH form RMO's in a co-management setup with local government.

MACH has been instrumental in encouraging policy-level coordination among the GOB, the wider NGO community and donors in the sector. The best way to effect policy change is to ensure wide consultation and cooperation from all those concerned. With the International Union for the Conservation of Nature (IUCN), Bangladesh Center for Advanced Studies (BCAS), and the World Bank, MACH encouraged and was instrumental in achieving a cooperative approach to policy change through the Bangladesh Wetlands Network. This network is a loose confederation of 29 concerned government agencies, NGOs, projects, and donors working or otherwise active in Bangladesh wetlands and floodplain and wetland management projects, who share experiences and pursue mutually beneficial policy changes. In addition MACH has supported and continues to support efforts to form a national "CBO Network". The CBO Network will allow RMO's formed under MACH and

other projects of a similar nature to have a national forum to share experiences and jointly influence policy affecting wetlands.

Component 4

Further develop constituency for co-management of natural resources “Roll Out” approach to GoB and donors. The intermediate result within this component is IR 6.4 Public awareness of key issues raised.

Communication programs. To address all levels and meet the projects objectives, several communications initiatives were undertaken at different tiers during the 1st year of the MACH II. The targeted beneficiaries for the 1st year were 30,000 but during the reporting period November 2003 to October 2004 the total attendance at MACH communications activities were more than 54,000 individuals.

One of the first activities of MACH II was to design and implement a field survey on the results and impacts of MACH communications activities. One of the target indicators under IR 6.4 was to determine the percentage increase in awareness of wetland resource issues in the field sites. This survey has completed the baseline in June of 2004.

A total of 16 journalists attended a wetland resource issues workshop which included presentations on MACH, a press briefing handout and a visit to the MACH Turag-Bangshi site. The workshop yielded a positive response from the journalists and several news items and articles were published in national papers with very wide readership.

Communication materials are being designed and some for events have been completed. A new brochure both in Bangla and English was completed along with panels for use at events and fairs. MACH is also working with Channel-I in the development of a 6 part program each emphasizing issues and approaches in the management of wetland resources. Also during the period live dramas were held as an environmental awareness tool along with important day observances at each of the sites. MACH II has also held workshops for the development of the MACH messages to be used and circulated.

MACH has also successfully held two workshops with the DoF, one at the MACH Sreemongal site and the other in the DOF building, where the MACH approach was discussed along with the over all strategy for the management of the open inland waters. The first of the yearly workshops with the USAID mission was also held in January of 2004. MACH also has held major workshops at each of the MACH sites with the local government staff as well as all of the staff of the partners.

Gender initiatives. MACH – II has given special emphasis regarding the “mainstreaming” of gender into wetland resource management. In the next three years MACH will concentrate on women’s participation and representations within the project and with our interventions. MACH is also keen to ensure equitable participation as well as opportunities for women in different positions and areas within the MACH RUG’s and RMO’s.

MACH is working to ensure equitable participation and opportunities for women at all levels including in the RUG’s, RMO’s and in the newly formed federations and executive committees. During the reporting period MACH has taken numerous initiatives at different levels for ensuring women’s participation in all project activities. As a part of women’s empowerment, MACH has put together a total of 1705 women as RUG members and 166 in the RMO’s. These women are receiving skills development training on income generating activities, awareness raising sessions on different socio-economic and life oriented issues, leadership training and adult literacy training. The women also have access to credit facilities through the ongoing MACH credit and savings program operated by MACH-Caritas. To support these efforts specific gender awareness/sensitization training has been provided to all MACH staff, and selected RMO and RUG’s members.

Component 5

Component 5 is the “Institutionalization of a sustainable co-management of natural resource system”. The intermediate result within this component is IR 6.5 Improved institutional capacity.

Institutional Considerations. MACH has been a leader in the sector in use and development of strong local partnerships at local government levels. Other programs involved in community-based management have looked up to and agreed with the MACH approach with regard to local government participation and linkages.

MACH has been pursuing institutionalization of the Upazila-based co-management of wetland resources. One area of influence in the year has been on the Department of Fisheries, in close cooperation with the “Fourth Fisheries Project” of DOF, MACH hosted a retreat and study visit to Hail Haor in March 2004 by the working group and senior DOF staff involved in preparing an Inland Capture Fisheries Strategy. Through this and other workshops, this draft strategy is now based on applying the model of an Upazila committee to oversee wetland and fishery management through community participation. It is hoped that this linkage will continue during the remainder of the project so that the institutionalization of MACH’s approach in its four Upazilas is seen as a pilot for a larger program that would enable co-management of aquatic resources.

Upazila local government institution and the endowment fund. A draft structure of the Upazila Fisheries Management Committee (UFMC, the LGC’s future name) and ToR have been formulated and discussed and reviewed in workshops with the DoF, in the RPT/PMU, and in the steering committee of the project. The structure and the ToR has already been discussed at the field level with the members of the existing LGC at site workshops held at each of the sites. In the proposed structure the UNO will chair the Committee and S/UFO will act as member-secretary just as they have been for more than 3 years in the MACH LGC.

To ensure the functionality of the UFMC after the exit of MACH, an endowment provision is being considered. The fund will be used for the organizational expenses including their meetings and a larger part for the physical development and management of resources by the RMO’s. A separate fund is anticipated for a Community-based Organization (CBO) network. A detailed operational manual will be developed after the approval of the revised PP of ISMP in which a provision of the endowment fund has been incorporated. This proposed set up was provisionally approved by the projects steering committee in June of 2004.

Acquisition of new beels. During the first phase of the project, 24 beels covering 1,236 acres of khas land have been transferred by the MoL to the MoFL through an MOU for technical management to MACH organizations. The initial transfer is for 10 years with provision for further extension. All these water bodies have been leased to RMO’s formed under MACH project for improved management and conservation of resources. Hail-Haor comprises a number of beels. During the reporting period 12 beels covering an area of almost 186 acre have been allocated for RMO’s in Hail Haor by the MoL and 9 of these were handed over to RMO’s. Remaining beels are in process of handing over.

RUG Sustainability. To ensure the sustainability of the Resource User Groups in accessing credit and continuing their alternative income generating activities, MACH-Caritas has designed a plan which will turn the management and ownership of the revolving credit fund to the Federation of RUG’s in 2005. Enhanced management and leadership training is continuing during MACH II. In order to establish more management capability and responsibility the ground work for forming a federation at the Union level has been started. Two representatives from each RUG have been selected to form committees at the union level. Directives to the MACH-Caritas staff for preparing the group members in forming union level federation have been given. Further, just after completion of forming federations, the Executive Committee members will be provided Federation management & leadership training. Another part of the plan is to hand over the credit operational function to 3 out of the 13 federations and based on the experience with the three, the remaining federations will be provided with credit fund.

During the first year of the project phase, all 13 FRUG's have been formed. These are organized broadly in line with the villages covered by Union Parishad’s (local government elected councils), but where there were few RUG’s in a particular union they have been included with the RUG’s in an adjacent union to form an FRUG. The RUG’s have selected their representatives for the FRUG general body (two per RUG), and the general bodies have already selected their executive committees

and elected their executive officers. The project team prepared a standard constitution for the FRUG's through an extensive process of discussion with RUG's/FRUG's and among staff of the project partners and the FRUG's with Caritas help are going through the registration process with the social welfare department.

A major activity in project year 1 has been to prepare a credit operational guideline/manual for the FRUG's, particularly on how they will operate the revolving loan funds which the project will transfer to the FRUG's and how they will manage the savings that their members have accumulated so far and will continue to accumulate. This is now ready for final agreement with and implementation by field staff.

RMO Sustainability. Throughout the plans and activities of the present MACH phase there is a crosscutting emphasis on building sustainable institutions and organizations so that the physical resource management and changes in local attitudes achieved by MACH can continue in the long term in the three sites after the project ends. This experience and the institutional arrangements established in this phase are also expected to set precedents and demonstrate good practices that may be replicated. The central element on which this strategy depends is the Resource Management Organization (RMO).

The MACH strategy for RMO sustainability is based on these organizations being registered and legally recognized local welfare bodies that are also recognized in an Upazila committee where government and community organizations will jointly take key decisions and co-manage resources. To achieve this efforts in the past year and for the remaining two years will focus within the RMO's on empowering the RMO's and especially the resource users and poorer people represented in the RMO's, ensuring sound management practices, developing understanding of resource management issues and practices, and ensuring financial sustainability. Outside the RMO the focus is on ensuring working arrangements between local government and the RMO's that are formally recognized by the Government of Bangladesh and are also functioning in practice and therefore can be expected to continue after the project.

Recognizing the need to take a systematic approach to developing RMO capacity and addressing weaknesses and gaps, a review of RMO status was carried out in June 2004. This will be repeated at six month intervals. The key findings and action plans for project staff to address gaps in each individual RMO were prepared and agreed. In support of this a system of 3-monthly progress reporting that focuses on quantitative achievements of each RMO has also been introduced and will continue throughout the remainder of the project.

I. Introduction

A. Authorization

The Management of Aquatic Ecosystems through Community Husbandry (MACH II) project of the U.S. Agency for International Development (USAID/Economic Growth, Food, and Environment [EGFE]) is being implemented as a cooperative agreement (CA) (# 388-A-00-04-00001-00) under the USAID Food Security Team of the Dhaka USAID Mission. The original cooperative agreement carries an effective date of October 29, 2003. This agreement has yet to be modified.

This First Annual Report has been prepared in partial fulfillment of contractual requirements for the MACH II Program. This first Annual Report covers the period from October 29, 2003 through October 28, 2004. It includes work plans and performance-monitoring elements as required under the agreement.

Significant during this 1st year was the departure of William J. Collis from the project as the Senior Natural Resource Adviser. In Bill's place Dr. Paul Thompson a long time Bangladesh hand and a person highly experienced in community based organization and institutional development has come. The approval for Dr. Thompson was received from USAID on August 16, 2004.

B. MACH I and MACH II Overview

MACH I. An agreement for the MACH project was signed between the Governments of Bangladesh and the United States in May 1998. In July 1998 a USAID selection committee with representation from Bangladesh's Ministry of Fisheries and Livestock (MOFL) selected Winrock International, based in Morrilton, Arkansas, as the grantee. The Winrock team includes three national partner organizations: CARITAS Bangladesh, Center for Natural Resources Studies (CNRS), and the Bangladesh Center for Advanced Studies (BCAS).

MACH I's inception period began October 1998. Its fieldwork began at two of the sites in June 1999 and at the third site (Sherpur) in July 2000. The project demonstrated community-based co-management approaches to floodplain and wetland resource management in Bangladesh that considers the entire wetland ecosystem. The program worked with the GOB through the MOFL and Department of Fisheries. This cooperative and collaborative arrangement took place at both the local and national levels.

The goal of MACH has been to promote ecologically sound management of floodplain resources (fisheries and other wetland products) for the sustainable supply of food to the poor of Bangladesh. The project's major purpose has been to demonstrate to communities, local governments, and policymakers the viability of a community approach to Natural Resource Management (NRM) and habitat conservation in Bangladesh that involves entire floodplains and surrounding watersheds. "Communities" have included all people in a given area who depend either economically or nutritionally on the floodplain and/or its products. The program has emphasized and worked with poorer groups, including women and particularly fishers. To make the program truly sustainable, it has also included representatives from union-level local government as well as the local elite.

The MACH project objective has been to establish community-based management for the major water bodies and riparian zones within its three sites. Community-based organizations were formed for the purpose of managing their local resources in an environmentally sound manner. MACH differed from other community-based projects in that its goal was to increase the sustainable productivity of all floodplain resources, including fish, plants, and wildlife and over an entire floodplain ecosystem (*beels*, seasonal floodplains, rivers, and *charas/jharas*), not just a single water body.¹ Additionally, MACH recognized that many wetland problems were actually upper watershed issues. At all three MACH sites, the project worked with communities to solve or mitigate those problems, where feasible. As reduction of fishing pressure was likely to be a critical part of reviving floodplain

¹ *Charas* and *jharas* are streams originating in hills that enter wetlands after passing through croplands and settlements. *Chara* is the local term used in Sreemangal, whereas *jhara* is used in Sherpur.

fisheries, MACH included supplemental income-generating activities focused on the very poor, who still totally depend on fishing. More than 30% of those who directly benefit are poor women.

MACH has supported local communities in forming their own organizations for overall management of physical and biological components of selected ecosystems. The project has emphasized conservation and rehabilitation of degraded or lost aquatic habitats. Major habitat restoration activities have included re-establishment of dry season refuges for fish and other organisms dependent on aquatic habitat (i.e., permanent *beels* and deep riverine *kums* or scour holes).² The project has also included work with local industries to reduce pollution; reestablish watershed function through re-vegetation and re-forestation, where feasible; and reduce soil erosion by introducing suitable agricultural systems. MACH has done this by leveraging funds through other donor for support to pollution abatement activities in MACH II.

MACH II. The overall goal of MACH II is the same as that for MACH I, as well as the overall purpose. The new objectives of MACH II are: (i) to fully develop the community-based RMO's related institutions and beneficiary groups and ensure their sustainability; (ii) to consolidate and intensify wetlands rehabilitation activities so that their impact can be fully assessed; (iii) to further develop the constituency for co-management of natural resources through an expanded outreach/public education effort; and (iv) to "Roll out" the MACH co-management approach to the wider GOB and donor communities.

MACH II is continuing to work in the MACH I sites. MACH has focused on the development of three major wetland/floodplain areas in Bangladesh, which were selected earlier by the project's National Steering Committee. The sites are Hail-Haor, Turag-Bangshi, and Kangsha-Malijhi river basins (abbreviated, respectively, as HH, TB, and KM throughout the tables in this report). Located in three different districts, these sites include six *Upazila's*, 26 unions, and 113 villages. The site description is given below:

Hail-Haor. Hail Haor, in the Sylhet basin, is located in the anticline between the Balishara and Barshijura Hills to the east and the Satgaon Hills to the west. Water originates from the surrounding 350 small hilly streams (at present only 59 streams are active) and the Lungla/Bilashi River. The project site is located in five unions of Sreemongal Upazila and in two unions of Sadar Upazila of Moulvi Bazaar District. The watershed area of Hail-Haor is about 600 sq km (237 sq mi). The basin water originates from the surrounding mostly hilly watersheds, of which approximately 85% lie in Bangladesh and 15% in India. The wet season area of Hail-Haor is approximately 13,000 ha, whereas the dry season area varies from 3000 ha to 4,000 ha in average hydrological year. The population is approximately 172,000 people.

Hail-Haor was formerly connected with the Kushiya and Manu River. A series of flood control dikes along these rivers and a sluice gate on the Kamerkhali Khal restrict riverine flows and fish access to and from the Haor. Another dike, now in disrepair, was built around the northeastern and eastern sides of the Haor, supposedly to reduce the impacts of flashfloods and to turn the Haor into a large reservoir. The Shaka Borak River and Kamarkhali Khal pass through Boro Haor (north of Hail-Haor) and, if it were not blocked, would connect Gopla with the Kushiya River.

Most of the water in the Haor originates from the 44 major hill streams or Charas then flow into the Haor. A large number of smaller seasonal streams also feed into the Haors. Among the Charas, Bilashi is the largest stream in the Hail-Haor stream system, accounting for about 30% of the total flow. Other major Charas include the Udna, Jag, Shaon, Joinka, Kodali, and Alia. The overall length of the smaller streams range from a minimum of about 2 km to a maximum of 10 km, whereas the Udna-Lungla-Bilashi system has a length of around 15-20 km.

Turag-Bangshi site. This site is located in seven unions of Kaliakor Upazila under Gazipur District and in one union of Mirzapur Upazila of the Tangail District. Typical of most low-lying floodplains of

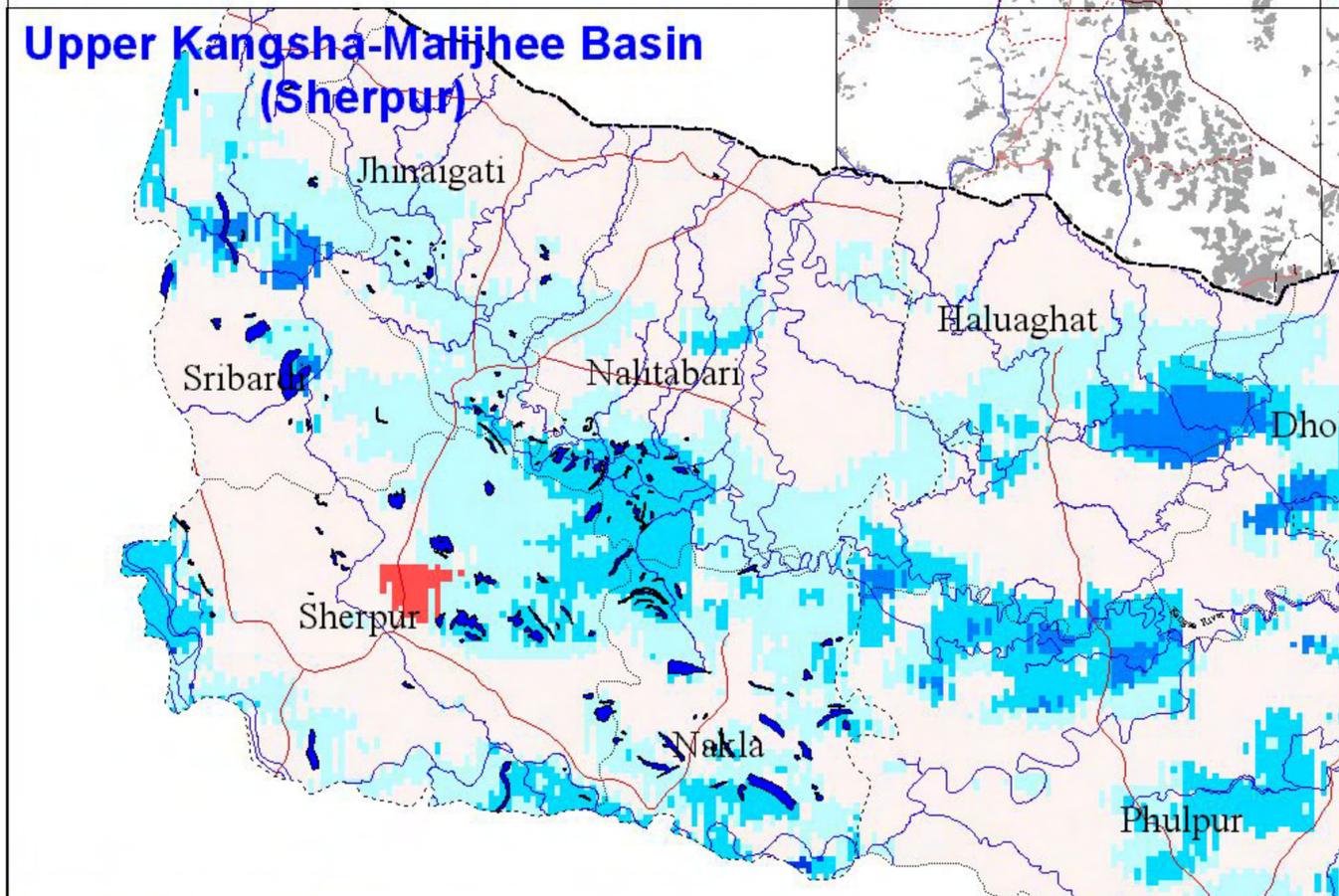
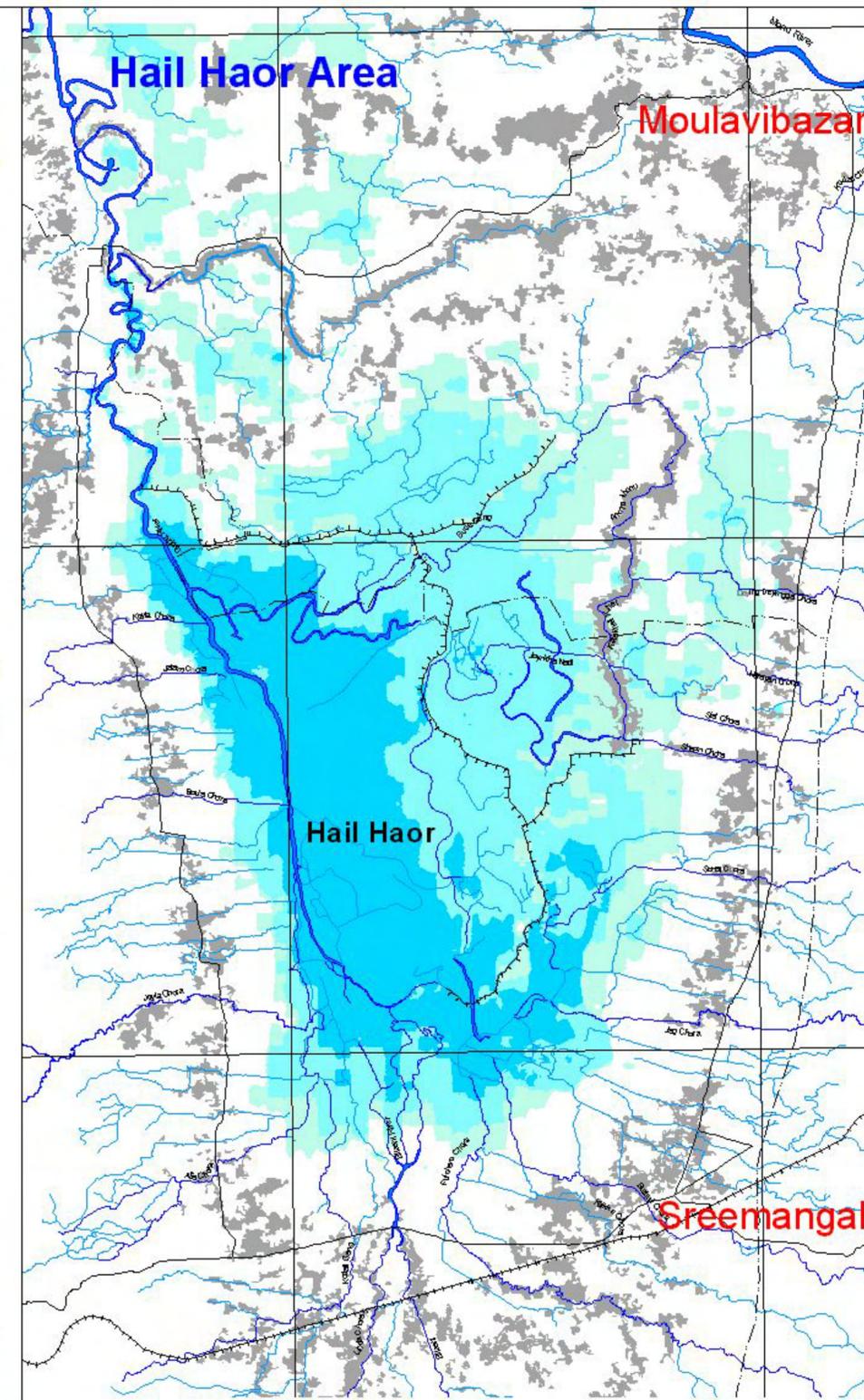
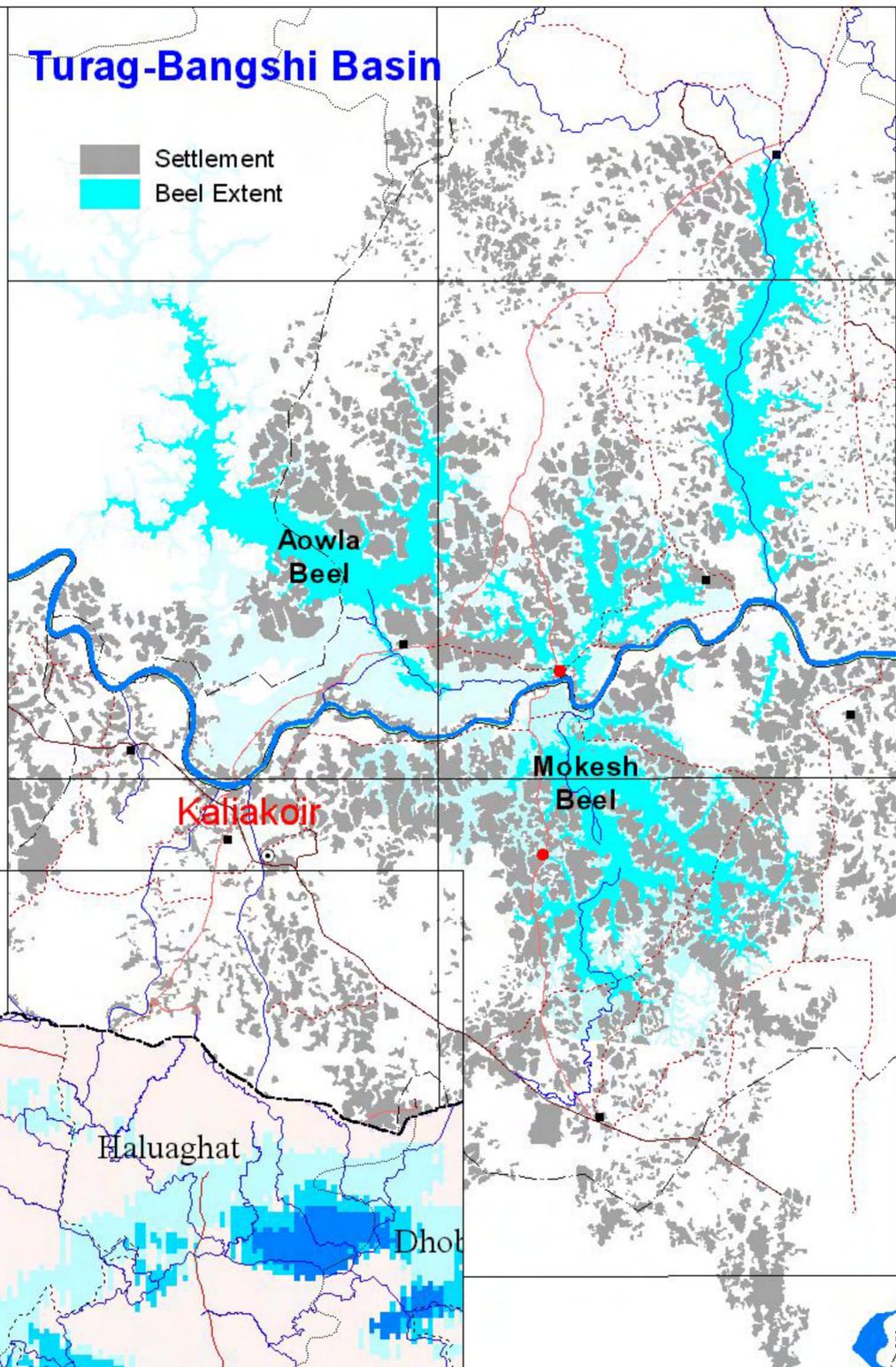
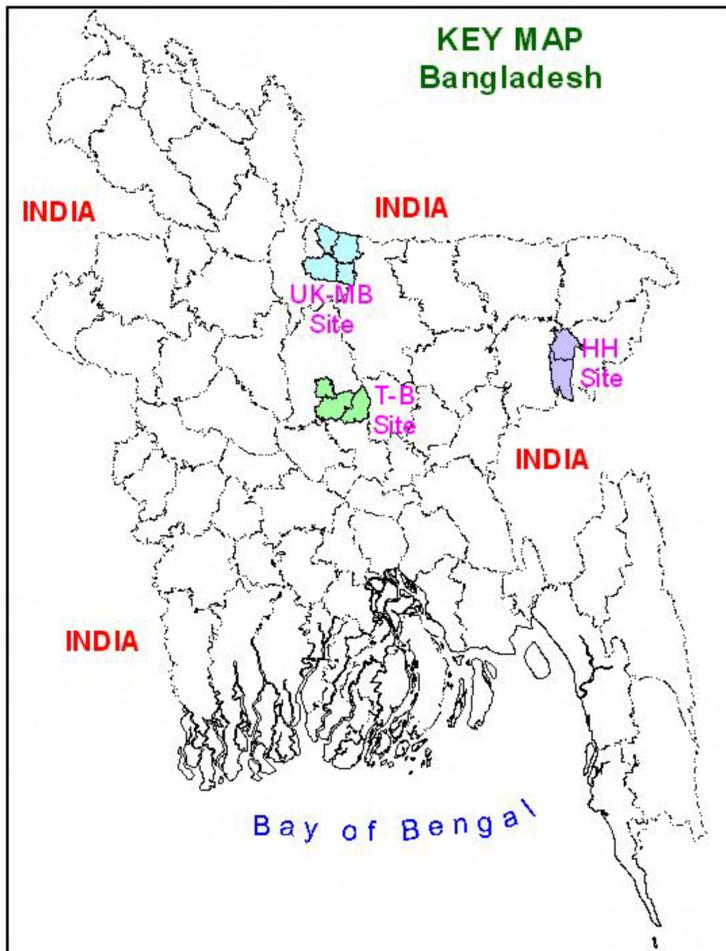
² *Doha* or *kum* is the local term for river scour holes in Kaliakor, whereas *kur* is used in Sherpur area and *duar* in Sreemangal.

Bangladesh, the Turag-Bangshi River runs through the site with numerous beels on either side of the river. At the beginning of the rainy season, as floodwaters enter the upstream portions of the Bangshi, water spills over the riverbanks through canals (khals) that connect the river to those adjacent beels. Fish, for the most part, move from the rivers to the beel/floodplain areas for spawning or nursing and then into the deeper perennial portions of the beels or back into the river, as water recedes after the rains. Due to the dry season reduction in water levels caused by Farraka Dam in India, ground and surface water extraction for bora rice irrigation, and reduced flows due to deforestation in local and upper watershed areas, dry season water levels in the local rivers and beels are much reduced. In drought years, flows cease in the formerly perennial Turag River. The fish remain only in the deepest portions of the beels and associated river. Annual fish production depends largely on the size of the breeding populations that remain in the kums and Doha's through the dry season.

Within the Turag site, a total of 26 beels exist with a water surface area of approximately 10,000 ha at full flood, which diminishes to less than 700 ha at the end of the dry season. The Turag River runs for approximately 30 km through the site and another 28 km of canals exist within the area. The hydrology of the Turag-Bangshi Flood Plain, like that in all similar areas of Bangladesh, is determined principally by the monsoon occurring May-October followed by a dry period in November-April.

Kangsha-Malijhi site. This site is located in the north-central part of Bangladesh in Sherpur Sadar and Jhenaigathi Upazila of the Sherpur District. The area is geographically a part of Garo-Tura Hills watershed and includes the catchments of the upper Kangsha and Malijhi river system. This area was once covered with natural Sal forest; now only remnants of natural forest remain. The wetland/floodplain has an area of approximately 8,000 ha during the wet season, which diminishes to about 900 ha in the dry season. The floodplain area contains 47 *beels* or low pockets, of which 18 are perennial. The population of the area is approximately 165,000.

The Sherpur project site is a flashflood prone area. The farmers of the site repeatedly suffer heavy damage of their crops by flooding from the Shomeswari, Malijhi, and Chellakhali Rivers. Each year, flash flooding occurs in these rivers more than once and water spills over river banks, flooding a large portion of the project area. These flashfloods discourage intensive pond aquaculture in the area. Continued flood damage to the monsoon crop forces farmers to shift to dry season boro. The resulting increase in extraction of surface and ground water for irrigation pose potential damage to wetlands and the environment in general during the dry season.



Management of Aquatic Ecosystem through Community Husbandry (MACH)

Project Sites

C. Program Management

National Steering Committee. A National Steering Committee provides guidance and advice to MACH on management of programs and is chaired by the Secretary of the MOFL. The Ministry of Land (MOL) representative is the vice-chairperson, and the Department of Fisheries (DOF), Department of Environment (DOE), External Relations Division (ERD), Ministry of Environment and Forestry (MOEF), Implementation Monitoring and Evaluation Division (IMED), Planning Commission, USAID, and Winrock International have all been represented by members. The committee meets at least once a year or as often as required.

Results Package Team/Project Management Unit. A Results Package Team/Project Management Unit (RPT/PMU) consisting of a USAID-Bangladesh chairperson and members from GOB (DOF and MOFL), Winrock International, and its partner organizations BCAS, CNRS, and CARITAS. This team meets monthly throughout the year guides the MACH operations and management. The team has the authority and responsibility to guide and monitor implementation of decisions. The self-directing and self-monitoring RPT/PMU works to formulate implementation strategies and monitor and review progress of both MACH II and the Investment Support Fund programs.

Local government committee. The local government committees (LGC's) have been MACH's most important committees at the site or local level. The LGC reviews and approves program activities and offers recommendations and assistance when required. The sites' union and Upazila officials established these Upazila-level committees in early participatory project meetings. Upazila Nirbahi officers (UNO), the senior-most administrators, chair the LGC at all the respective MACH sites. The Upazila Fisheries Officer (UFO) serves as the member secretary of the committee with support from MACH's site coordinators. Other members of the committee are the union parishad (UP) chairpersons, nearly all of Upazila officials, resource management organization (RMO) representatives, other stakeholders, and MACH representatives. The LGC is the apex committee at the Upazila level for integrating the community-based organizations (i.e., RMO) with all other nation-building departments. The committee continues to have a positive impact as the local-level planning body and is responsible for many of MACH's successes in resource management of critical wetlands. During MACH II it is planned that this committee will be merged with the existing Upazila Jholmohol committee and their ToRs combined as well as the committees as they share nearly the same members. It is likely that the committee (which will be a standing committee legally set up) will be named the Upazila Fishery Management Committee. It is also likely and MACH is working with the Department of Fisheries and other projects with fishery CBO's to establish the local government approach for all Upazilas with major fisheries.

Partners. The same four partners are continuing in MACH II and a description of each is given below :

WINROCK International. WINROCK International is a world leader in sustainable agriculture and NRM. The organization has considerable experience in management and execution of USAID-funded projects worldwide. Winrock is a nonprofit, nongovernmental organization (NGO). The organization has been working in some 40 countries, including the United States, on more than 100 projects and programs. In Bangladesh, Winrock was responsible for overall program management and provision of specific technical inputs in geographic information systems (GIS), fisheries biology, and watershed management. Winrock's headquarters in the United States provided overall program and financial support.

CARITAS. CARITAS in Bangladesh, a large national NGO that has worked in Bangladesh since 1972, was established by the Catholic Bishops Conference of Bangladesh as a nonprofit organization. Through its activities, CARITAS works for integrated human development and welfare that contributes to national development. For MACH they have been responsible for community development and alternative income-generating activities (AIGA). For the latter and for socioeconomic development of poor wetland resource users, CARITAS has undertaken and successfully implemented such activities as an awareness campaign, formation and mobilization of resource user groups (RUG), training and skills development for groups, credit support for AIGA, agricultural demonstrations, education, health care, and nutritional activities.

Center for Natural Resource Studies. CNRS is a nongovernmental development organization formed in 1993 that focuses on ecological management of floodplain ecosystems through community-based management approaches with a mission to restore, conserve, enhance, and wisely use natural resources supporting and influencing government strategies and initiatives. The center has demonstrated a variety of field interventions toward developing sustainable wetland and fisheries management approaches with due consideration to environmental and socioeconomic issues. For MACH, CNRS was responsible for management of wetland resources through forming community-based RMO's, helping them to determine biological, physical, and social areas for development. CNRS was also responsible for generating environmental awareness and monitoring impacts of project activities.

Bangladesh Center for Advanced Studies. BCAS, a nonprofit research NGO, is one of Bangladesh's leading environmental research and policy institutes. Formed in 1984, BCAS has many years of experience contributing to establishing community-based open-water fisheries management. The center was among the major contributors to the current National Environmental Management Plan, which forms the basis for environmental regulation in Bangladesh. It also provided local coordination for MACH, short-term specialists in policy reform as needed, and support services for GIS, hydrology, fishery biology, and other special areas.

D. Strategic Objective Framework

The Strategic Objective Framework established by MACH's USAID Environment Team was modified in November 2001. The framework can be seen in figure 1 below, including a summary table of the intermediate results, and indicators for MACH II. The methodology and approach for collecting and reporting the data are shown in Appendix -7. On Table-1 the entire list of indicators for MACH II has been shown followed by activity maps for each site showing the spatial location of some of the key outputs. These have been modified slightly during this reporting period so as to improve and enhance their emphasis.

Figure 1: SO6 Results Framework

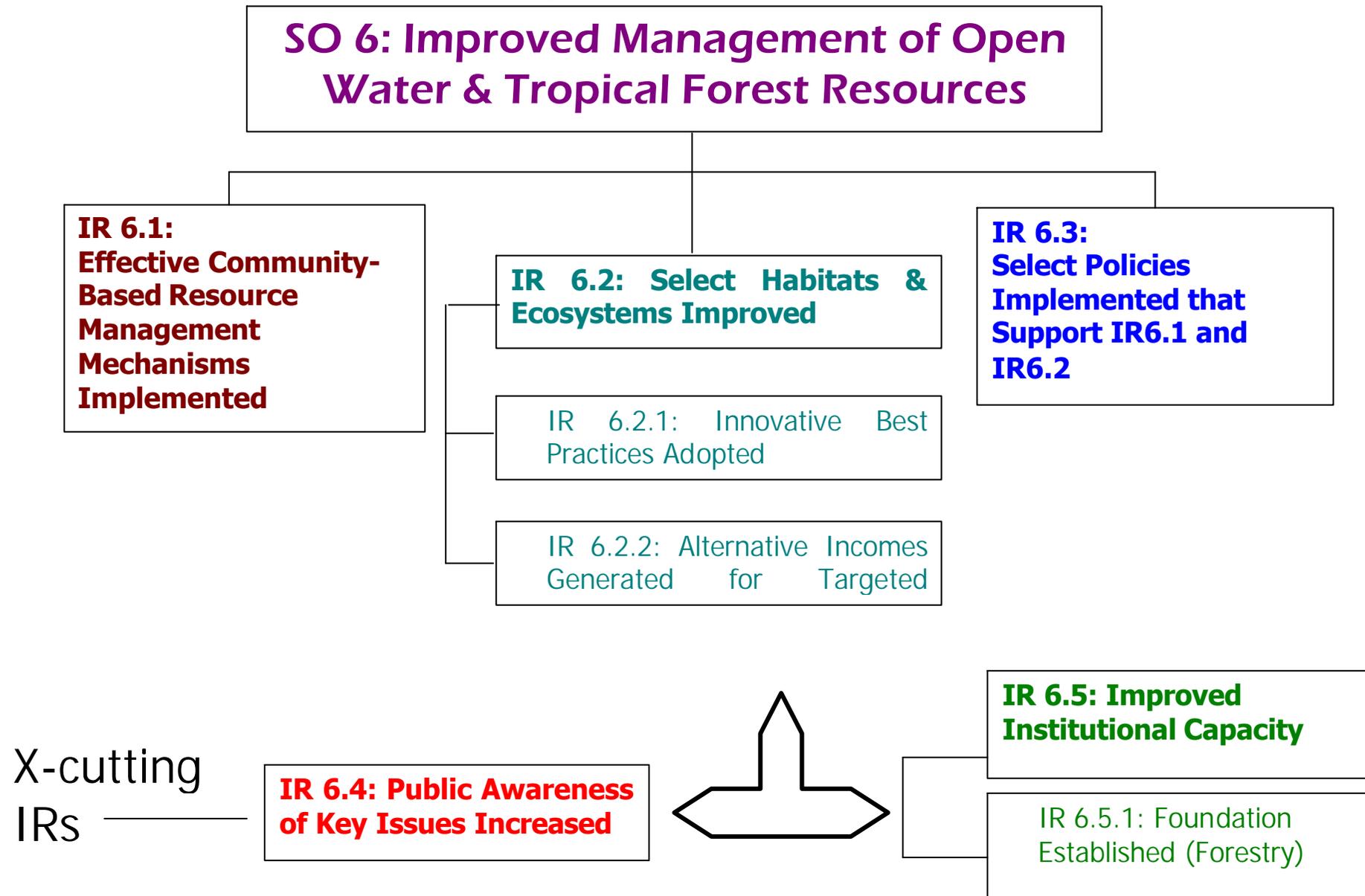
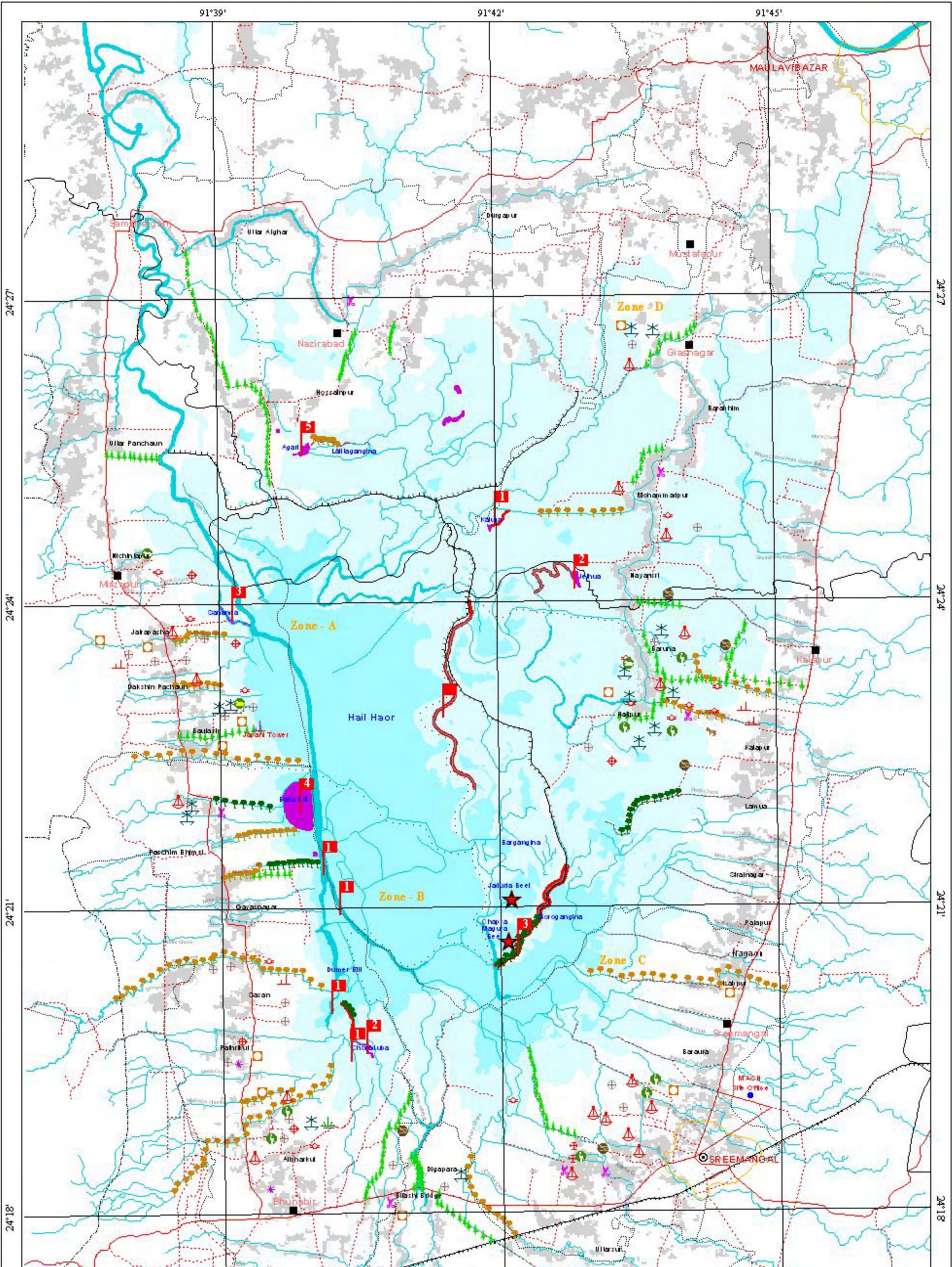


Table 1: SO 6 Intermediate results and indicators for MACH-II
SO 6: Improved Management of Open Water and Tropical Forest Resources

- **Indicator 6a:** Extent to which best practices from USAID-funded projects are used elsewhere
- **Indicator 6b:** Increased production of natural resources in targeted areas
- **Indicator 6c:** Increased biodiversity in targeted areas.

Intermediate Results	Indicators
IR 6.1: Effective Community Based Resource Management Mechanisms Implemented	Indicator 6.1a: Area of floodplain where sustainable management is implemented.
IR 6.2: Select Habitats and Ecosystems Improved	Indicator 6.2a: Aquatic habitats converted from seasonal to perennial in targeted areas Indicator 6.2c: Riparian habitat improved in targeted areas
IR 6.2.1: Innovations and Best Practices Adopted	Indicator 6.2.1a: Number of sanctuaries established Indicator 6.2.1b: Number if wetland/riparian trees successfully established
IR 6.2.2: Alternative Incomes Realized for Target Groups	Indicator 6.2.2a: Average annual increase of RUG member supplemental income Indicator 6.2.2b: Number of RUG fishers having reduced effort Indicator 6.2.2c: Total number of new AIG loans
IR 6.3: Select Policies Implemented that Support IRs 1 & 2	Indicator 6.3a: Leases of water bodies to community resource management groups granted in target areas. Indicator 6.3b: Number of communities adopting the following key regulations in target areas: <ul style="list-style-type: none"> • Restrictions on the use of inappropriate fishing methods and gear • Restrictions on the fishing season and harvesting of fish fry • Restrictions on the areas of fishing
IR 6.4: Public Awareness of Key Issues Increased	Indicator 6.4a: Number of individuals reached by the public awareness activities Indicator 6.4b: Percentage increase in awareness of wetland resource issues from baseline(% households aware of issues)
IR 6.5: Improved Institutional Capacity	Indicator 6.5a: Number of local government meetings where resource management issues discussed Indicator 6.5b: Official circulars for UDCC agenda item and permission for RMO members to attend UP meetings as needed Indicator 6.5c: UWRMC formed with charters/GOB circulars in place linking local government to resource management organizations Indicator 6.5d: Trust Fund established for Institution



MACH
WETLAND RESOURCE DEVELOPMENT & MANAGEMENT ACTIVITIES
HAIL HAOR SITE
Sreemangal & Maulavibazar Upazila

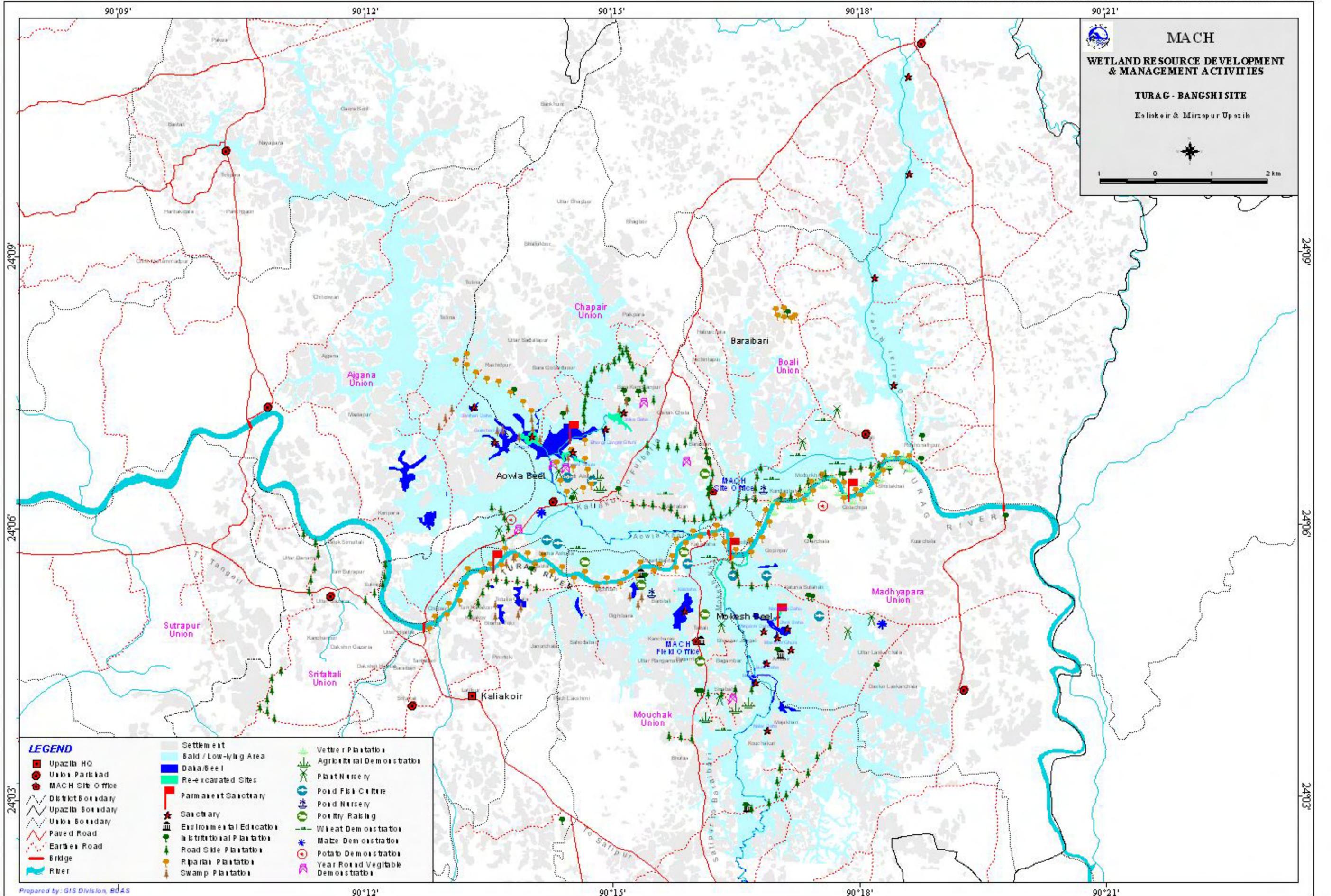
1 0 1 2 km

LEGEND

- Union Parishad
- Upazila HQ
- International Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- Panchayat Boundary
- Highways
- Other Roads
- Railway
- Embankment
- Working Zone Boundary
- River
- Settlement
- Dry Season Waterbody
- Water Extent, July 2001

MANAGEMENT ACTIVITIES

- ★ Permanent Sanctuary
- Location and Number of Sanctuary
- Re-excavated Kial
- Re-excavated Beel
- Riparian Plantation
- Swamp Plantation
- Road Side Plantation
- ⊕ Adopted Gull Urea
- ⊕ Adopted Wheat
- ⊕ Buffalo Raising
- ⊕ Cow Raising
- ⊕ Duck Raising
- ⊕ Gull Urea Demonstration
- Hybrid Paddy
- Plant Nursery
- Pond Nursery
- Potato Demonstration
- Poultry Raising
- Tailoring
- Vegetable Demonstration
- Wheat Demonstration
- Mache Demonstration

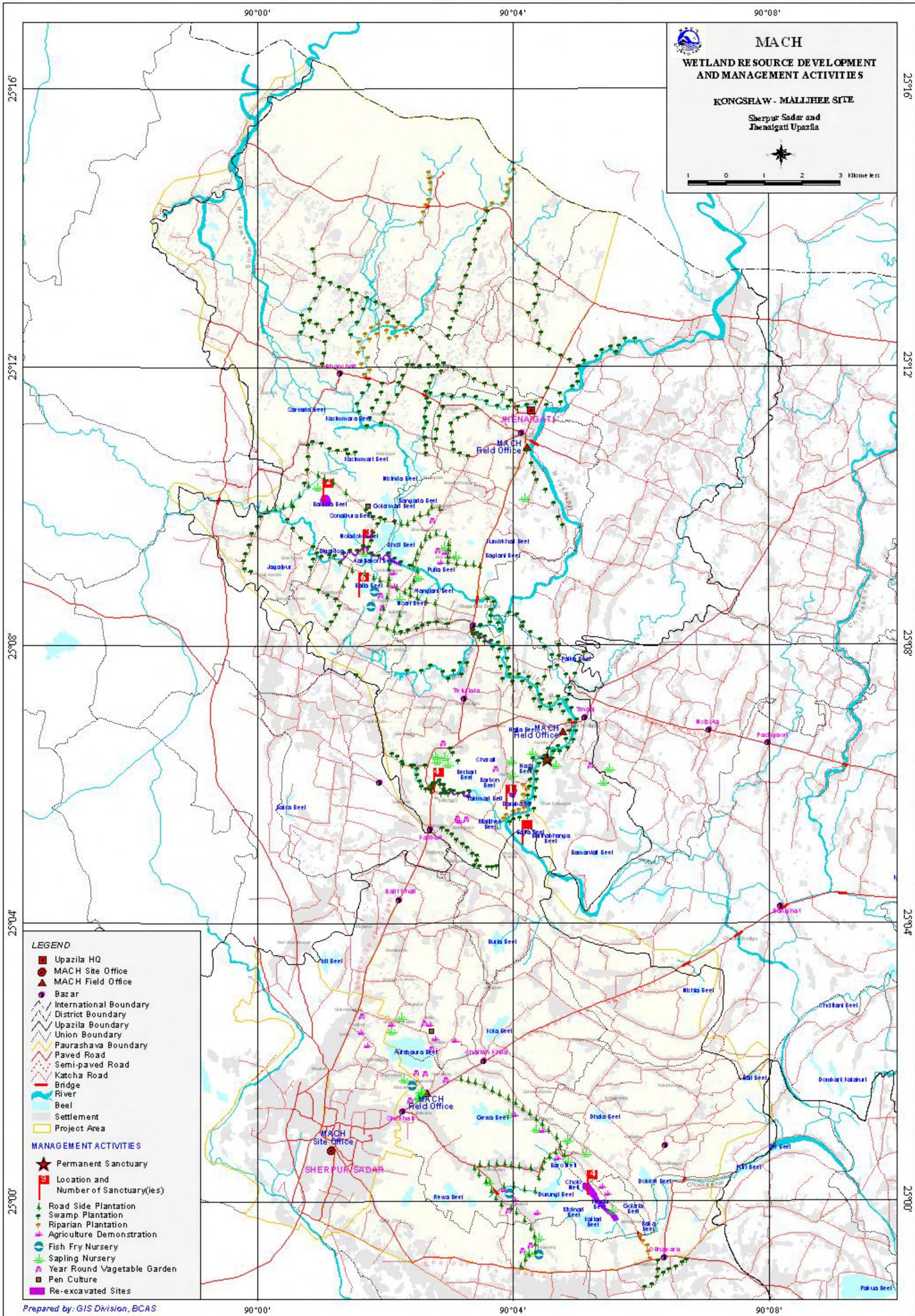


MACH
WETLAND RESOURCE DEVELOPMENT & MANAGEMENT ACTIVITIES
TURAG - BANGSHI SITE
 Kaliakoir & Mirzapur Upazila

Scale: 0 to 2 km

LEGEND

Upazila HO	Settlement	Veterinary Plantation
Union Parliament	Bald / Low-lying Area	Agricultural Demonstration
MACH Site Office	Daka/Beel	Plant Nursery
District Boundary	Re-excavated Sites	Pond Fish Culture
Upazila Boundary	Permanent Sanctuary	Pond Nursery
Union Boundary	Sanctuary	Poultry Raising
Paved Road	Environmental Education	Wheat Demonstration
Earthen Road	Institutional Plantation	Mango Demonstration
Bridge	Road Side Plantation	Potato Demonstration
River	Riparian Plantation	Year Round Vegetable Demonstration
	Swamp Plantation	



MACH
WETLAND RESOURCE DEVELOPMENT AND MANAGEMENT ACTIVITIES
KONGSHAW - MALIJHEE SITE
 Sherpur Sadar and Jhenagati Upazila

0 1 2 3 Kilometers

- LEGEND**
- Upazila HQ
 - MACH Site Office
 - ▲ MACH Field Office
 - Bazar
 - International Boundary
 - District Boundary
 - Upazila Boundary
 - Union Boundary
 - Paurashava Boundary
 - Paved Road
 - Semi-paved Road
 - Katcha Road
 - Bridge
 - River
 - Beel
 - Settlement
 - Project Area
- MANAGEMENT ACTIVITIES**
- ★ Permanent Sanctuary
 - ★ Location and Number of Sanctuary(ies)
 - ▲ Road Side Plantation
 - ▲ Swamp Plantation
 - ▲ Riparian Plantation
 - ▲ Agriculture Demonstration
 - ▲ Fish Fry Nursery
 - ▲ Sapling Nursery
 - ▲ Year Round Vegetable Garden
 - ▲ Pen Culture
 - ▲ Re-excavated Sites

II. Project performance, achievements and plans

A. Component 1 and 2

Component 1 is to build on success in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas and component 2 is to intensify and consolidate wetland rehabilitation activities for full assessment of impact. The following intermediate results (IR) are expected from these two components: (i) IR 6.1 – Effective community-based resource management mechanisms improved; (ii) IR 6.2 – Fully developed and effective community-based resource management mechanisms implemented; (iii) IR 6.2.1 – Innovations and best practices adopted; (iv) IR 6.2.2 – Alternative incomes realized for target groups.

1. Resource Management Organization (RMO) Strengthening

Registration of RMO's. MACH's approach is adaptive management with flexibility. MACH-CNRS is responsible for the formation and the strengthening of the institutions. Out of 16 wetland RMO's, 15 have been registered with the Social Welfare Department, under the Government of Peoples Republic of Bangladesh. The remaining RMO - Goalia has submitted documents this year to the registration authority for approval.

Revision of RMO Constitutions . According to their need and experience the RMO's have made the required amendments in their existing constitutions and these were approved at their GB meetings. Out of 15 registered RMO's, 3 have during the year submitted revisions to the registration authority for approval. Revisions for the remaining 12 are under process involving review by the project team and consultations with the RMO's and the associated communities. It is hoped that these will be completed in January 2005. The revisions are based on experience to date and mainly relate to newly added rules.

RMO AGM and Election. According to the constitutions of the RMO, every two years there will be a fresh election to form their executive committee or EC. The RMOs where elections were due, conducted them as scheduled, with 4 being held in the reporting year. (See Table 2)

Institutional linkage with local government bodies. The RMOs are trying to establish and strengthen institutional links with elected local government councils. The Union Parishad Chairmen have invited RMO representatives to attend UP meetings and so far half of the RMO's are sending their representatives to attend the relevant UP meetings to discuss and explain their activities.

Table 2: Summary of RMO organizational status as of September 2004

RMO	Site	Date registered	Revised constitution submitted to the registration authority	Last AGM held (date)	Last election of EC (date)	RMO sending representatives to attend UP meetings
Agari	HH	04/09/2001	Under process	15.3.04	18.8.03	Yes
Balla	HH	15/05/2001	do	29.6.04	4.4.03	-
Barangina	HH	09/09/2002	do	28.2.04	10.03.04	-
Dumuria	HH	24/03/2002	do	22.3.04	29.12.03	Yes
Jethua	HH	01/01/2001	do	17.6.04	19.12.03	-
Kazura	HH	06/09/2001	do	28.3.04	27.4.03	-
Ramedia	HH	01/04/2004	do	-	24.10.03	Yes
Sananda	HH	19/12/2000	do	1.3.04	4.12.03	-
Aloa beel	TB	06/04/2002	do	10.7.02	12.7.03	yes
Goalia River	TB	Submitted documents	Na	Not yet due	14.9.03	-
Mokash Kalidaha	TB	03/05/2002	Under process	17.7.02	23.5.03	Yes
Turag River	TB	06/04/2002	Under process	20.9.02	4.8.03	Yes
Bailsha	KM	20/03/2002	Submitted	20.9.04	14.7.03	-
Dhali Bailla	KM	20/03/2002	Submitted	13.9.03	12.7.03	Yes
Kewta	KM	12/08/2001	Under process	11.8.03	10.5.03	-
Takai Mari Darabahsia	KM	03/11/2002	Submitted	14.9.03	13.7.03	Yes

Coverage of communities by RMOs. A total 106 villages are represented by the 16 RMO's and the total number of General Body members is 1,335. The number of members per RMO ranges from 40 to 182. This variation is according to the size of the water bodies, local geographic condition and size and number of user communities. The members of the GB represent their respective villages. On an average per village there are 13 representative members in the RMO. (See Table 3)

New fishers and women added in the RMOs. The project has followed a continual process of reviewing the representation of primary wetland resource users and of helping the RMOs to raise the voice and access of poor fishers and women in the decision making process of wetland management. To address gaps in representation, in Jethua and Aloa Beel RMO's 22 and 12 new poor fishers respectively were included. In five RMO's a total of 21 women have been added during the year. This is in response to a decision that in all RMO's at least 25% of GB membership and 20% of EC membership should be women, the remaining shortfalls of women representatives will be addressed in the coming year. (See Table 3)

Representation of RUGs in RMOs. In almost all the RMOs the GB members comprise at least 60% representatives from the project-formed Resource User Groups or RUG's. This is the main way that poor wetland users are becoming empowered to raise their voice in the decision making process. But the proportion of office bearers in the EC who are members of RUGs is still low. Although in the next year the project will continue to help more RUG representatives develop their capacity and become office bearers of the RMOs. Another key activity will be formalizing various sub-committees that have been identified in guidelines that are being prepared with each RMO. These sub-committees (such as audit, tree reforestation, and various beels), as well as short-term project implementation committees for specific works, will be made up of both EC and GB members who are not office bearers so that responsibilities are spread over the entire RMO. (See Table 3)

Fisher involvement in RMOs. The following Table 3 shows that out of 1,335 total members, there are 545 professional fishers in 16 RMOs. The number of professional fishers is low in Kazura and Ramedia, and in Agari no fishers are members. This is because in those areas, especially in Agari, there are no traditional fishers. But many of the RMO members here fish for their family consumption. Therefore no targets for professional fisher participation have been set, because when part-time and subsistence fishers are considered most of the RUG and some non-RUG members of the RMO's do catch fish and use wetland resources. (See Table 3)

Table 3: Summary of RMO membership as of September 2004

RMO	Site	No. of villages	GB members	EC members	No. of fishers added in GB in the year	No. of women member added in the year	No. of women in GB	No. of women in EC	No. of RUG in GB	No. of fisher in GB	No. of EC office bearers from RUG	No. of EC office bearers fish for income
Agari	HH	3	50	17	-	-	10	3	29	-	1	-
Balla	HH	3	51	13	-	7	5	3	27	28	3	5
Barangina	HH	2	51	17	-	5	4	2	36	32	5	3
Dumuria	HH	3	51	17	-	-	3	1	30	21	4	3
Jethua	HH	6	62	17	22	2	4	2	33	27	1	-
Kazura	HH	4	40	11	-	-	11	1	22	8	2	-
Ramedia	HH	4	56	17	-	4	14	4	28	8	-	-
Sananda	HH	4	72	15	-	-	2	-	39	12	3	2
Aloa beel	TB	5	182	23	12	3	26	3	109	55	3	2
Goalia River	TB	17	68	19	-	-	6	4	0	33	-	1
Mokash Kalidaha	TB	15	123	19	-	-	29	1	76	12	2	2
Turag River	TB	20	105	21	-	-	23	4	63	24	2	-
Bailsha	KM	3	85	17	-	-	8	1	54	69	2	1
Dhali Bailla	KM	5	95	19	-	-	5	1	57	61	1	-
Kewta	KM	7	147	15	-	-	10	1	89	92	2	-
Takai Mari Darabahsia	KM	5	97	21	-	-	6	1	59	63	2	1
Total		106	1335	278	34	21	166	32	751	545	33	20

Land purchased/donated for RMO offices. An office-cum-community center is needed for each RMO to run their day-to-day activities, to do resource management planning and to conduct their EC and GB meetings. The Table 4 shows that, during this reporting period out of 16 RMO's, six have managed to obtain land for construction of their office building. The rest of the RMOs are in the process of arranging land. The design of standard low-cost RMO office buildings has been finalized and the construction work is due to start from January 2005.

Water body status within RMO jurisdictions . A total area of 16,605 ha is under improved wetland management by the RMOs. In addition 3081 ha are being managed by RUG and other committees under MACH. Within this area, management activities are more intensive in the jalmohal's that have been handed over for management by the RMO's, this number now stands at 36. Notably during the year 12 new beels were allocated for RMO management – these involve five RMOs all in the Hail Haor site (see Table 4). Out of 12 newly allocated beels 9 have been handed over to RMOs. Remaining 3 are under process. Goalia River RMO, which is the most recently formed RMO, is under process of getting possession of the state-owned area of this river.

Number and area of sanctuaries. The total number of sanctuaries now is 72 and their total area is 32.67 ha (see Table 4). On an average the percentage of handed over jalmohal area that has been set aside by the users as permanent sanctuaries is about 5%. An important development in the year has been the setting aside of more than 122 acres of jalmohal in Hail Haor by Ministry of Land as a national level sanctuary to be managed through the project and its RMO's. This area has been taken out of the leasing system, for a nominal payment of more than Tk 501 ignoring its previous lease value of Tk 8,000 per year. Initial plans have already been made for habitat restoration work in the area, and for guarding of the area – all of which will be a no-take zone for protection of fish and wildlife. Further consultations with the RMO, and with the other RMO's of the haor which will also collectively benefit from the sanctuary, are due to be completed within 2004 to agree on ways of covering the costs of managing the sanctuary in the long term under the direction of the Upazila Fisheries Management Committee when it is formally constituted. Physical works are expected to be carried out in the next two dry seasons and would include excavation, swamp forest creation, and a small visitor center being constructed and developed.

Table 4: Summary of RMO land and water body status as of October 2004

RMO	Site	Land purchased / donated for RMO office (decimals)	Area (ha) RMO influences wetland management over	* No. & Area (ha) of jalmohal's managed by RMO	No. & Area (ha) of sanctuaries	Sanctuary area as % of jalmohal
Agari	HH	3	711.81	*2 (30.13)	5 (1.07)	3.5
Balla	HH	-	508.42	2 (42.89)	4 (2.05)	2.6
Barangangina	HH	-	2,020.13	*5 (59.56)	5 (9.52)	16.0
Dumuria	HH	4	770.68	*5 (59.16)	6 (2.68)	0.1
Jethua	HH	-	1,345.53	2 (252.79)	2 (0.42)	0.1
Kazura	HH	-	993.67	*4(9.94)	1 (0.13)	1.3
Ramedia	HH	-	40.00	*5 (16.14)	0.00	0.0
Sananda	HH	12	1,095.12	1 (3.60)	3 (0.17)	4.7
Aloa beel	TB	-	2,450.00	1 (4.08)	**7 (5.24)	128.5
Goalia River	TB	-	780.00	Under process	4 (1.21)	
Mokash Kalidaha	TB	3	1,675.00	2 (18.70)	9 (2.12)	11.3
Turag River	TB	3	155.00	1 (400m+kum in 3 places)	3 (2.35)	
Bailsha	KM	-	630.00	1 (2.85)	2 (0.81)	28.4
Dhali Bailla	KM	6	570.00	2 (21.85)	9 (1.99)	9.1
Kewta	KM	-	1,220.00	2 (53.95)	4 (0.37)	0.7
Takai Mari Darabahsia	KM	-	1,640.00	1 (200m+kur)	8 (2.54)	
Total		31	16605.36	36 (575.63)	72 (32.67)	5.0

*Out of 12 beel 9 beel of 66.52 ha have already come under the project/RMO possession and remaining 3 beel of 8.61 ha are under process.

**Sanctuaries also established in Khas water body (not jalmohal) with in the extended area of Aloa Beel complex. This is why the area of sanctuaries is greater than the handed over jalmohal area.

Financial status of RMOs. The Table 5 shows that, except for the new RMO of Goalia, all the RMOs have reported their records of income and expenditure. Goalia RMO still does not have any income from their water body. Bank balance and cash in hand as on 31 October 2004 are shown. The variation in expenditures reflects the main expenditure item of water body leases which are high for some Hail Haor RMO's. Except for the RMOs of Turag-Banshi and Kewta RMO, all the rest of the RMOs completed their audit for the last financial year. Kewta is an exception due to a legal case brought by a local elite to try to take possession of the main beel. The RMO's of Turag-Banshi site are due to complete their first audits in early 2005. Although financial plans were earlier made for each RMO, it is planned to review these and help each RMO develop a realistic financial plan, based on their expenditures so far and planned activities, during the 2nd year of the project. In this regard a uniform financial management guideline for the RMO's during the MACH project period has been prepared, which will be revised later for use after the project ends.

Table 5: Summary of RMO financial status during 2003-2004

RMO	Site	Expenditure (Tk) last financial year (Jul '03-Jun '04)	Bank balance (as on 31 Oct. 2004)	Cash in hand (as on 31 Oct. 2004)	Audit of last FY completed
Agari,	HH site	12,204	18,881	738	Yes
Balla		105,764	121,972	6,595	-
Barangangina		5,051	5,755	1,550	Yes
Dumuria		5,616	195	851	Yes
Jethua		25,624	1,700	2,900	Yes
Kazura		1,500	200	120	-
Ramedia		4,000	1,000	2,080	Yes
Sananda		70,609	46,848	966	Yes
Aloa	TB site	3,306	6,313	1,119	-
Goalia		0	0	250	-
Mokash		3,000	48,460	495	-
Turag River		3,505	5,560	760	-
Bailsha	KM site	4,650	6,675	765	Yes
Dholi Bailla		4,469	15,210	1,145	Yes
Kewta		1,563	575	-	Submitted
Takimari Darabashia		1,280	29,737	200	Yes
Totals		252,141	309,081	20,534	

2. Resource User Group (RUG) Strengthening and Community Development

New RUG formation, inclusion & Mobilization. The main focus of RUG formation and inclusion is to cover more resource users of the existing areas and in the extension Goalia river area of Kaliakor. To support them through implementation of Alternative Income Generation activities for reducing fishing especially in the breeding season and in sanctuary areas. MACH-I organized RUG's are continuing their activities in an organized way and new members are improving their skills to mobilize groups and for implementing AIGAs.

During MACH-II, Caritas has formed 21 (08 female) new groups in the project sites. Out of which 11 groups have been formed at Goalia river area under the Kaliakor site, 7 at Sherpur and 3 at the Sreemongal site. However, of the total of 596 new users, 170 users are included in the existing groups and the rest in new groups

Table 6 shows the site-wise status of organized resource user groups.

Table 6: Status of Site wise Organized Resource User Groups (Nov'03-Oct'04)

Particulars		MACH-I Achievement	MACH-II : target & achievement during year-I				Total
			Target	HH	KM	TB	
Men	Groups	155	13	01	03	09	13
	Members	3,127	340	14	170	178	362
Women	Groups	70	7	02	04	02	08
	Members	1,471	165	80	104	50	234
Total	Groups	225	20	03	07	11	21
	Members	4,598	505	94	274	228	596

Alternative Income Generation Activities (AIGA). MACH-Caritas has been implementing alternative income generating activities to help poor and disadvantaged wetland resource users in the project sites during MACH-II. A total of 2,609 loans (including enterprise) have been disbursed to 2,609 RUG members for 31 different types of AIG activities during November 03 to October 04. Out of 2,609 members, a total of 365 new members came under loan services during the reporting period. Table 7 Shows the status of AIGAs and Details of site & trade based information are given in Appendix 2.

Table 7: Status of AIGA Implemented by the RUG Members

MACH-I		MACH-II : target & achievement during year-I					
Kind of AIGA	Achievement	Kind of AIGA	Target	HH	KM	TB	Total
Total 35 types	7,008	Total 31 types	2,500	1,161	1,042	406	2,609

MACH-II has taken the following initiatives to increase the supplemental income, provide better service and benefit the RUG members even more.

- Large scale Enterprise Development
- Increase normal loan amount
- Skill training

Large Scale Enterprise Development. Although small loans have been achieving the result desired with regard to supplemental income generation, they do not generate income sufficient often to meet the total needs of the family.. Recognizing the need, MACH-Caritas had started to develop small and medium enterprise in the later part of MACH-I and has given more emphasis on it in this phase. MACH has taken the following initiatives to expand enterprise loan schemes:

1. Training-workshops have been conducted on Enterprise development with the participation of all stakeholders (Potential RUG members, Staff, partners, JOBS project)
2. A feasibility study with the help of the JOBS project has been successfully completed in three project sites. The objective of the study was to find out potential sectors for Enterprises & income generating activities (AIGAs) development. The study has been conducted at Sherpur and Sreemongal during October 04 and the report will be completed by November of 04.
3. At least 10% of the RUG members will develop enterprises with the larger loans and of those doing enterprises, 25% will be female headed.
4. Proposed highest ceiling for the loans will be up to Tk.50,000.
5. MACH-Caritas will do more micro-enterprise training.

During Year -1 from November 03 to October 04 a total of 111 Enterprise loans have been disbursed to 106 potential and skilled RUG members on poultry, rice mill, power tiller, tailoring shop, furniture mart, plant nursery, milk cow rearing, cow rearing, fish business, carpentry, agriculture, rice business, grocery shop etc and is successfully implementing the activities.

Credit. MACH provides credit support to the fishers and other wetland users to encourage other means of earning a livelihood in an effort to conserve and sustain wetland resources, and reduce over-fishing. Wetland resource users, who switch from fishing to other ways of earning their livelihood, receive MACH assistance in securing loans to start alternative income generating activities. With alternative income, the fishers are able to refrain from fishing in some areas, which are temporarily closed off, or those that have been turned into permanent fish sanctuaries.

A total of 2,609 individual RUG members have received Tk. 18.52 million as credit services for implementing their AIGA/enterprise through 2,609 loan schemes during the reporting period in the three sites. Out of 2,609 loans, 111 were disbursed to develop small and medium scale enterprises with 106 skilled RUG members. The credit realization rate decreased somewhat due to the devastating flood in the project sites, of Sreemongal and Sherpur in particular. Table 8 shows site-wise status of Revolving Loan Fund of IGA and Enterprise loan.

Table 8: The Site wise Status of Loans, Credit Disbursement, and Recovery Status

Particulars	MACH-I Achievement	MACH-II : target & achievement during year-I				
		Target	HH	KM	TB	Total
IGA Loan						
No. of RUG members getting loans service	4,058	350	167	123	75	365
No. of loans disbursed	7,008	2500	1118	1009	371	2498
Disbursed amount (millions of taka)	38.22118*	13.10	8.55	6.66	3.31	18.52
Realized amount (millions of taka)	30.958	11.00	8.25	5.73	4.21	18.19
Realization rate (%)	95.29	100	97	90	96	94.33
Enterprise loan						
No. of RUG members getting loans service	16	123	38	33	35	106
No of enterprise loan disbursed	16	123	43	33	35	111

*36.005 is reported in MACH-I completion report upto August'03 and rest in September & October.

Savings. MACH-Caritas has organized men and women groups that have shown great interest to accumulate their savings on a weekly basis. During MACH-I they accumulated Tk. 3.962 million as savings. The RUG members have been continuing the effort in MACH-II and in the reporting period they have saved Tk. 1.93 million. Of the total savings, men groups have accumulated Tk. 1.25 million and women groups Tk. 0.68 million. MACH-Caritas keeps the savings money in commercial banks in fixed deposit receipt accounts to obtain higher interest rates. The earned interest has been distributed to RUG members at the end of the year on a pro-rata basis. Table 9 shows the status of site-wise accumulated group's savings.

Table 9: Status of Site wise-Accumulated Savings by RUG Members (millions of taka)

Site	MACH-I Achievement	MACH-II : target & achievement during year-I			
		Target	Men	Women	Total
HH	1.839	0.40	0.40	0.24	0.64
KM	1.51	0.45	0.61	0.26	0.87
TB	0.614	0.24	0.24	0.18	0.42
Total	3.962	1.09	1.25	0.68	1.93

Training & Workshops:

Staff Training. To form, strengthen and mobilize Resource User Group Federations (FRUG's) successfully, MACH-Caritas has conducted a three-day training session on Institution Development and Facilitation skill training at Mymensingh Regional office. At this training session all the program staff (30) attended. Mr. Danial Bhuyain, Institution Development Specialist of MACH facilitated the training.

RUG training. To improve skills for implementing different AIGA/Enterprises and mobilizing the groups successfully, MACH-Caritas has organized different training as shown bellow. During MACH-II, A total of 90 training sessions were conducted where 1,585 RUG members and community people attended. The details of the training are provided in Appendix 3.

Group development training. This is the part of the standard group training program to develop better understanding, cohesion among group members to run the group activities successfully. A total of 544 new RUG members were trained in 29 sessions during the reporting period. The group development training included group management, leadership and accounts keeping trainings. (See Table 10)

Resource awareness training. Every RUG member attended training courses on awareness and learned about wetland resources, its management, conservation and sustainability, so that they could participate in the process actively. During reporting period, 315 members received such training in 16 batches. (See Table 10)

Skill development training. Selected group members have received skill development training from MACH, Caritas and government personnel to implement their chosen AIGA and also for the successful implementation of demonstration activities. A total of 508 RUG members have received

the trainings on a variety of subjects through 33 training sessions. The skill development training covered poultry/duck rearing, tailoring, cow rearing & fattening, bamboo & cane production, goat rearing, enterprise development, fish culture/nursery, vegetable cultivation, plant nursery, and adult education. (See Table 10)

FRUG Management & Leadership training. To form RUG federations (FRUG) the successfully trained staff conducted the FRUG management & leadership training at each of the project sites. During MACH-II, a total 218 RUG leaders have been trained through 12 sessions on the same subjects.

Table 10: Type and Site - wise Status of Imparted Trainings to RUG Members and Community

Type of training and batch participants		MACH-I	MACH-II : target & achievement during year-I				
		Achievements	Target	HH	TB	KM	Total
Group Development	Batch	337	51	09	11	09	29
	Parti.	6,580	1020	191	200	153	544
Resource awareness	Batch	220	25	08	05	03	16
	Parti.	4,087	500	157	103	55	315
Skill Development	Batch	170	52	13	11	09	33
	Parti.	2,689	800	212	156	140	508
FRUG Devt	Batch	-	14	05	04	03	12
	Parti.	-	280	85	92	41	218
Total	Batch	814	142	35	31	24	90
	Parti.	15,057	2600	645	551	389	1,585

MACH-II planning workshop. Considering the importance of making the RUGS sustainable in the limited time frame of MACH II, MACH-Caritas took necessary initiatives to have an effective and compact plan from the beginning. To develop the plan we have considered recommendations of the MTR, the Credit committee study report, and the Gender study recommendations. So that the plans were also need based MACH-Caritas organized planning workshops at each site and finally at the Dhaka level with the participation of all MACH stakeholders. Moreover, we considered the following points during planning workshop.

- Inclusion of real wetland resource users.
- Formation of Resource Users Federation and capacity building.
- Skills for RUG members.
- Women participation and empowerment
- Enterprise development
- Sustainability of RUG's and formation of FRUG

Adult literacy courses. MACH has identified literacy as a major factor in empowering economically disadvantaged wetland resource users. Adult education is also emphasized in the MACH-1 mid-term report and gender report. Assessing the field need and recommendations, MACH has set targets of adult literacy in its second phase. In MACH-II the plan is to cover more than 50% female RUG members under this program. As per plan a total of 480 illiterate RUG members attended training through 24 courses during the reporting period. Of the 480 participants, 260 are female members. (See Table 11)

Child Education: Considering the very low literacy rate and poor facilities for children education, MACH-Caritas has started two children schools at Sherpur site mainly to move and attract them into education. Sherpur has an extremely poor literacy rate. We have established those schools, where government and other schools are not available. Around 100 poor children are receiving education at these schools.

Table 11: Site wise Status of Adult Literacy Courses

Particulars	MACH-I	MACH-II : target & achievement during year-I				
	Achievement	Target	HH	KM	TB	Total
Course conducted	81	25	09	10	05	24
Total student in batch	1,620	500	180	200	100	480
Graduate	610		125	29	46	200

Cross Visit. To share the success stories of RUG and RMO in different locations, Caritas arranged cross-visit programs within the site. A total 52 RUG and RMO members have participated in 3 cross-visit programs at Hail Hoar and Turag-Bongsi site. As this activity is funded under the ISM fund the target could not be achieved because of delayed receipt of the fund from the GoB from June August of this year. It is planned that they will be completed during the coming winter season. (See Table 12)

Table 12: The Status of Cross Visits

Particulars	MACH-I	MACH-II : target & achievement during year-I				
	Achievement	Target	HH	KM	TB	Total
Nos.	08	10	02	0	01	3
Participants	211	165	32	0	20	52

Demonstration activities. The purpose of MACH demonstrations is to encourage profitable aqua-agricultural activities that are not harmful to the environment. Rather the activities demonstrated actively promote improved wetland resource management. During MACH-I, the project demonstrated wheat, Maize, and improved vegetable cultivation that all use less water than boro rice. In MACH-II, the most effective demonstrations are being continued and some new demonstrations activities in a limited way. During the reporting period we have started demonstrations in 6 areas, where 163 farmers have participated. Table 13 shows site-wise status of demonstration activities.

Table 13: Site wise Demonstration Activities

Items, Farmers & Area (decimal)		MACH-I Achievement	MACH-II : target & achievement during year-I				
			Target	HH	KM	TB	Total
Pond Culture	Farmers	74	18	06	07	04	17
	Area	1052	180	75	105	59	239
Pond Nursery	Farmers	22	5	02	03	0	05
	Area	439	80	30	40	0	70
Madrazi owal katchu	Farmers	5	12	0	01	05	06
	Area	11	50	0	03	10	13
Year-round Vegetable	Farmers	270	42	15	10	03	28
	Area	1,257	160	45	40	109	194
Jujubee Budding	Farmers	-	130	0	51	50	101
Fruit garden	Farmers	-	15	04	01	01	06
	Sapling	-	300	36	20	49	105
Total	Farmers	371	222	27	73	63	163

Continued Support for Homestead Gardening. MACH-Caritas has continued to provide seeds for homestead gardening and has provided extension services for this. Because of limited funding in Phase II no pit latrines or wells will be provided except in the case of new areas. :

Table 14: Healthcare & Nutrition Services

Particulars	Achieve-MACH-I	MACH-II : target & achievement during year-I				
		Target	HH	KM	TB	Total
Support for home-stead gardening. (Farmers)	5,598	1500	225	400	300	925

3. Investment Support to MACH

Investment Support to MACH (Earthwork/Structures). The MACH ISM supports a number of activities within MACH. The most important activities are the excavation/re-excavation schemes and the construction of Fish Aggregating Devices (FADs) i.e. hexapods and pipes. All MACH ISM

interventions are planned and executed through a design and execution approval process involving the Resource Management Organization (RMO) and the local government authorities.

Accomplishments during reporting period. Results of the various excavation schemes in FY 2003-04 are shown in the tables 15. Overall physical progress was 95%. Of the 29 schemes, four schemes were dropped due to land disputes that would have delayed the work significantly. It should be remembered that before construction commences MACH requires approval of the RMO and local government (UNO, UFO, concerned UP Chairmen, etc.). With the joint efforts of local UFO, MACH field staffs ensure the technical suitability, social acceptance and biological importance of the schemes. All public lands to be included in MACH schemes are officially delineated by the concerned District and Upazila land offices and officially handed over to the concerned RMO after consultation with the Fisheries and Land Ministries.

Summary statement of the total work progress in physical is attached below. The site-wise scheme list and the progress are also shown in Appendix 4.

Table 15: Accomplishment of Khal and Beel Schemes in FY 2003-04

Site	scheme No.	Length of scheme Khals in meter & Beels in ha	Targets Volume of earthwork in Cubic meter	Achievements Volume of earth removed in Cubic meter	Percentage of Physical Progress
1	2	4	5	7	9
Summary of Khal Schemes					
Hail-Haor	4	4,406	48,507	39,077	81%
Sherpur	4	3,333	85,115	84,785	100%
Kaliakor	4	8,000	269,503	264,000	98%
sub-total	12	15,739	403,125	387,862	96%
Summary of Beel Schemes					
Hail-Haor	6	2.37	29,528	26,001	88%
Sherpur	6	4.30	29,315	29,101	99%
Kaliakor	5	9.77	52,578	46,864	89%
Sub-total	17	16.44	111,421	101,966	92%
Total	29	-	514,546	489,828	95%

Table 16: Accomplishments in fish aggregating and conservation protection devices (hexapods, Pipes)

Items	No. of structure			Total No.
	Hail Haor	Kaliakor	Sherpur	
Hexapod	971	660	1,048	2,679
Pipe	971	660	1,048	2,679
Demarcation Pillar	132	270	35	437
Sanctuary Identification Pillar	88	44	70	202
Signboard	-	12	15	27

Table 17: Structures

Items	Hail Haor	Kaliakor	Sherpur
Culverts	2	0	4
Bird Stands	6	0	0

Planned Activities. In the Fiscal Year 2004-2005, MACH planned for some earthwork interventions. Different RMO have requested assistance in successful implementation of 20 beel re-excavation schemes and 8 canal (khal) schemes. On the basis of proposals from RMO's, schemes are selected preliminarily. These proposed schemes are finalized on the basis of an assessment on their technical feasibility, biological impact and social acceptance. The selected proposed scheme summary is as follows (See Table 18):

Table 18: Plan for Earthwork Schemes for FY 2004-2005

Sl. No.	Site	Total # schemes	No. of schemes executed by contractor	No. of schemes executed by RMO	Proposed area in hectare
Beel Schemes -All 3 Sites					
1	HH	12	5	7	23.04
2	TB	6	1	5	5.85
3	KM	2	1	1	1.21
Sub-total		20	7	13	30.1
Sl. No.	Site	Total Scheme	No. of schemes executed by contractor	No. of schemes executed by RMO	Proposed length in meter
Khal Schemes-All 3 Sites					
1	HH	1	0	1	1,520
2	TB	1	1	0	1,200
3	KM	6	0	6	3,400
Sub-total		8	1	7	6,120
Total		28	8	20	-

Site-wise schemes details are shown in Appendix 4.

Under the Investment Support fund, ISM after receiving approval from the RPT has planned to construct Resource Management Centers for the Resource Management Organizations. Also under the Investment Support Fund small drainage structures such as foot-bridges, box culverts and pipes are planned to improve the road communication as well as fish migration facilities. The details are as follows: (See Tale 19)

Table 19: Structural works

Name of the scheme & type of structure	Qty/No.	Remarks
KM site		
1) Foot bridge at Tenachura Khal	1	construction will start in dry season
2) Double-vent box culvert at Tenachura	1	Do
3) Double-vent box culvert at Tenachura	1	Do
4) Box culvert at Dansail	1	Do
5) Box culvert at Daniapara	1	Do
6) Building construction for RMO/FRUG	3	Do
HH site		
1) Box culvert at Sananda connecting khal	1	Do
2) Pipe Culvert on Lalitagangina Khal under Agari RMO	1	Do
3) Building construction for RMO/FRUG	3	Do
TB site		
1) Pipe Culvert at Naler doha	1	Do
2) Building construction for RMO/FRUG	2	Do

To protect the permanent sanctuaries set up by the communities, MACH has introduced fish aggregating devices, which are not only structure for fish to hide under but effective in the protection of the sanctuaries. The fish aggregating and sanctuary protection devices (hexapods/pipes) have been sought by communities and MACH has continued to fund through ISM. The details of planned interventions for this fiscal year are as follows: (See Table 20)

Table 20: Sanctuary establishment works

Name of the scheme	Nos. of sanctuary	Area of the sanctuary in Ha	No. of Hexa pod	No. of Pipes	Remarks
KM					
Dholi beel	2	1.12	650	650	Hexapod and Pipe covered the total area
Bogadubi khal	1	0.5	-	-	Not required as it is a flowing river
Sub-total	3	1.62	650	650	
HH					
Chapra-Magura	1	2.23	1,498	1,498	Hexapod and pipe covered of the total area
Jaduria beel	1	2.94	1,975	1,975	Do
Digholee beel	1	0.56	375	375	do
Medi beel	1	1.66	1,116	1,116	do
Sub-total	4	7.38	4,964	4,964	
TB					
Dolibarir guna & Bamoner guna	1	0.51	450	450	Hexapod and pipes covered the total area
Nowkhola	1	0.84	675	675	Do
Naler doha	1	0.07	90	90	do
Guerhari	1	0.50	400	400	
Krishnerhari	1	0.60	500	500	do
Sub-total	5	2.51	2,115	2,115	
Total	12	11.51	7,729	7,729	

Habitat Restoration through Tree Planting. The first year (November 2003-October 2004) program of MACH II under the habitat restoration activity envisaged planting of 277,700 saplings in the riparian, watershed and wetland situations, and institution precincts/homesteads; the primary objectives of this program being to improve select habitats and ecosystem through restoration, rehabilitation and creation of new habitat. This year, however, the entire country witnessed a devastating flood; the flood time and reforestation time were coincident. The project's re-forestation program was affected significantly by the floods. While saplings planted before the floods were affected by drowning and wave action, the major planting had to be done quite late in the season after recession of flood water. This of course affected the number of trees that could be planted. As detailed in Table 21, a total of 204,876 saplings have been planted during the year in different ecological situations.

Table 21: Reforestation by Type and sapling supply by sources

Site	Re-forestation by type	Extent of area		Sapling planted	Sapling supply by sources				
		Km	Ha		RUG	CNRS	NUSRA	Progoti	Total
HH	Riparian	3.30	-	3415	420	347	648	2000	3415
	Swamp/wetland	3.19	12.05	34598	34598	-	-	-	34598
	Roadside	5.00	-	5778	-	1448	1330	3000	5778
	Sub-total	11.49	12.05	43791	35018	1795	1978	5000	43791
T-B	Riparian	1.75	9.93	24700	5835	-	-	18865	24700
	Swamp/wetland	1.20	5.94	16229	13279	2950	-	-	16229
	Roadside	2.00	-	2925	-	-	-	2925	2925
	Institution/Homestead	-	0.11	275	-	-	-	275	275
	Sub-total	4.95	15.98	44129	19114	2950	0	22065	44129
K-M	Riparian	5.00	-	4819	-	1684	-	3135	4819
	Swamp/wetland	12.50	-	22129	2100	19779	250	-	22129
	Roadside	83.30	-	75418	6580	3250	0	65588	75418
	Patch Forest	-	5.65	13390	-	2080	600	10710	13390
	Institution/Homestead	-	400 Homesteads	1200	800	-	-	400	1200
Sub-total	100.80	5.65	116956	9480	26793	850	79833	116956	
Grand Total	117.24	33.68	204876	63612	31538	2828	106898	204876	

Specific programs have also been continued during the year under the project to improve existing land use of the delicate watersheds of Hail Haor. One specific program has been the motivating of pineapple growers to change their traditional ‘vertical up and down the slope’ harmful cultivation practices to contour cultivation (across the slope) method introduced and fostered by MACH project. MACH has also promoted a denser planting style generating more vegetation or leaf cover and higher yields, while cutting down on direct rainfall contact to open exposed soil.

Nursery Availability. Based on constraints faced in the past and experience gained through MACH I implementation, MACH II took advance preparations from the beginning of phase II implementation to make sure that saplings of the desired species mix, diversity, and quality specifications were readily available at the scheduled planting time. Supply sources both within and outside the MACH project were contacted and contracted depending on their quality and reliability. Within MACH, Caritas organized RUG (Resource User Groups) and MACH partner NGO, CNRS have undertaken seedling production. An outside NGO (NUSRA) was also contracted for production of some specific wetland species viz., *Hijol (Barringtonia aquatungula)*, *Koroch (Pongamia glabra)* and *Kainjal (Bischofia javanica)* that are not ordinarily produced by the commercial nurseries. The balance seedling requirements were procured from commercial nurseries through an open competitive bidding system.

Because of not being able to fully achieve the reforestation target of the year due to the prolonged flood, all the MACH organized nursery stock that had become planting fit in the respective nurseries could not be fully utilized in the year. Steps are being taken to utilize the balance stock in next year’s reforestation program.

Programs for the additional requirements (nursery stock) for the second-year re-forestation programs of MACH II are being finalized with MACH partner NGOs and others.

Tree Maintenance and Caretaking. Care and maintenance of the planted tree saplings have been arranged. As in MACH I, employment of regular caretakers on a monthly wage basis beginning from the day of planting has been initiated. The caretakers are most often women selected from the poor households of the local community through consensus of RMO members and project staff.

Generally two years of quality caretaking is needed to fully establish a re-forested area on raised land that is ordinarily designated as ‘wasteland’ and traditionally subjected to all forms of abuses including unregulated, intense stray cattle for example.. During MACH I, such maintenance and caretaking were wholly done at the project cost. At the beginning of MACH II, it has been decided by the project management that in the future, only one year maintenance will be undertaken at the project cost; from the second year onward, the RMO's reforestation beneficiary committees would take charge of their trees and carry on the subsequent care, maintenance and protection as their own property. This is done so that a sense of ownership develops within the community organizations, and that hopefully a more sustainable system is installed. MACH project staffs will still overseeing project activities in the field.

Beneficiary Agreement. The projects re-forested areas are being developed on the principle of benefit sharing of the products/ proceeds of these areas with designated stakeholders. The stakeholders are the RMO or re-forestation committees, adjoining land owners, and the local UP for example. To guarantee benefit distribution to all parties and to give a legal entity to this participatory production deal, a benefit sharing agreement is executed for each of the schemes on non-judicial stamps signed by all parties concerned. These agreements are subsequently handed over to the parties concerned for their record.

Pineapple Demo Initiatives. Pineapple cultivators have been traditionally practicing ‘down the hill’ line planting of pineapple in the Hail Haor watershed for some time. The cultivation of pineapple on such slopes is in the first place questionable. Such down the hill vertical planting practices are faulty and provoke accelerated rates of soil erosion causing rapid siltation of water courses and haor or lake basins. MACH I during its program formulation phase identified this as a prime factor responsible for rapid sedimentation of Hail Haor. MACH has instituted remedial measure by changing the traditional cultivation practices to a contour cultivation method with denser planting per unit of area. This change has been accomplished by creating awareness among the cultivating farmers and motivating them away from this traditional cultivation practice. Also by establishing on-farm demonstration plots that

exhibit contour cultivation practices and increased planting density has led to very positive results with the pioneering farmers fully convinced and motivated.

In the first year of MACH II, about 15.2 ha of new demo plantations have been established by 7 new and old farmers. Meanwhile, policy advocacy with the GOB is under way to introduce contour cultivation of pineapple in hilly terrain as a State Policy in total substitution of the traditional unscientific and land degrading 'vertical line planting method' running across the contour.

The first pioneer demo cultivator of MACH I emerged as the most aggressive contour pineapple cultivating farmer in that, during the year, he increased his with the contour planted garden areas by 9.7 ha.

Re-Introduction of Lost Fish species. It is well known that many fish species are lost or are in a threatened condition in many of the wetlands of the country. MACH has taken the initiative to regenerate some of those species through re-introduction and maintenance of quality habitat and sanctuaries in MACH working wetlands. During the last phase of MACH as many as 28 fish species in three sites (TB, KM & HH) had been found to have re-established themselves to some extent. To ensure that stocks can be maintained the program of re-introduction along with maintenance of fish sanctuaries is continuing in phase-II. As a part of the program during the year 2003-04 a total of 1,100,000 fingerlings of indigenous carps and 126,000 fingerlings of other native wetland fish species were planned for stocking. Unfortunately due to the unprecedented flood during production season of fish fingerling the assigned fish farms were washed away along with available fish for stocking. Following the flood the fingerlings shown in Table 22 were re-introduced in three sites. Since inception of the project a total of almost 970,000 fingerlings of 13 different threatened species were re-introduced in wetlands under the MACH project initiated by the RMO.

Table 22: Fingerlings re-introduced during the period November 2003 to October 2004.

Species	HH	TB	KM	Total
Rui (<i>Labeo rohita</i>)	52468	-	20344	72812
Gonia (<i>Labeo gonia</i>)	305793	-	69119	374912
Kalbaush (<i>Labeo calbasu</i>)	5632	13622	5298	24552
Total	363893	13622	94761	472276

As water levels have receded in the farm ponds it is expected that some fingerlings of indigenous wetland species can be introduced in and around sanctuaries during December'04- January'05. These will start growing quickly as soon as water will gain temperature in next February/ March of 2005.

4. Pollution Abatement Initiatives

Introduction. As reported in the MACH-II Semi-Annual Report (June 2004) the last year has seen the establishment of and undertaking of activities under, an initiative on pollution abatement. This initiative is based on the continued concern over the extent of pollution in Mokesh Beel and Ratanpur canal in Kaliakor Thana, Gazipur District, and is the result of work undertaken during two other initiatives. The first was a MACH supported one-year quantitative assessment of water quality and supplementary observational data undertaken between March 2001 and February 2001. This work was followed by a two-year project, "Managing Pollution from Small and Medium Scale Industries in Bangladesh", which is funded under the Department for International Development (DFID) and is being undertaken by a team from the Stockholm Environment Institute (SEI), the University of Leeds, UK, and BCAS. This project focused its activities in two areas; on ways to reduce the volume of effluent generated by factories in the area, particularly dye houses, the tannery and poultry farms; and secondly on ways to promote the uptake and improved management of effluent treatment facilities in the area. The MACH pollution abatement initiative is being conducted by BCAS in association with this DFID funded project.

The overall goal of the MACH pollution initiative is to improve the quality of wetland ecosystems and thereby the livelihoods of the people who use them, by reducing pollution at source and treating residual pollution both within factories and in the wider environment. The project has several components to achieve this. These are: pollution identification and an assessment of the health impacts of the pollution; leading to options to optimize industrial processes to improve efficiency and

reduce pollution; technical support to industries for pollution treatment options; training of factory staff to build capacity in cleaner production options and effluent treatment; and awareness raising of national and international buyers on environmental compliance criteria.

Environmental Pollution Analysis. Six sets of environmental samples have been collected over the project period. Of these four were of water in the *khal* and *beel*, and two were of sediment and fish. A summary of the results of the water quality analysis can be found in Table 23.

Table 23: Summary of Water Quality Analysis Results

Parameter	National Standard for effluent (ppm)	Khal (ppm)	Beel (ppm)
COD	200	200 - 1500	32 – 300
BOD	50	100-600	20 – 130
DO	4.5 – 8.0	0	0 – 100
pH	-	7.7 – 10.9	9.2 – 9.5
Sulphide	1 ppb	40 –300 ppb	0 – 66 ppb
Sulfate	-	96 – 460	115 – 310
TDS	100	1000 - 2500	450 – 1700

All the parameters tested for were found to exceed national standards (where they exist). Of particular concern are chemical oxygen demand (COD), pH, dissolved oxygen and sulphide.

Sediment samples analyzed in the UK using inductively coupled plasma (ICP) spectroscopy, were found to contain high sulphur and aluminum levels. It may be that the high aluminum levels are not an indication of aluminum pollution but are because the acid used to dissolve the samples broke down the soil matrix. The high sulphur levels however are almost certainly related to the high quantities of sodium sulphate that are used in textile dyeing.

Fish samples had very low metal concentrations but this may not to be indicative of the pollution load as the fish were very small and young of the year with little time for accumulation and storage..

Data collected from water and chemical use in textile industries, and waste from poultry farms and domestic sanitation are currently being used to calculate pollution contributions from each of these sectors. Results show that textile factories contribute approximately 127,000 cubic meters per year of wastewater to the system annually containing a number of chemicals (Table 24).

Table 24: Quantities of Five Auxiliaries Entering Textile Dyeing Wastewater

Auxiliaries	Mass used per year (metric tons)
Acetic Acid	105
Soda Ash	432
Glauber salt	1550
Common salt	115
Dyes	167

The solid waste from poultry farms has been calculated to be around 97 metric tons. A portion of the excreta from households in the area with or without sanitation facilities enters the *beel*. Calculations from CNRS (2001) and Bangladesh Bureau of Statistics (1999 and 2001) suggest that approximately 100 metric tons of excreta although this figure is only a crude estimate. It was anticipated that the BOD and COD load from these three contributors would have been determined by this stage, however, due to staffing problems the activity has been delayed and will be completed by December 2004.

Optimum Production. Optimum production is being pursued with the textile dyeing industries in the Kaliakor. The project team have been working with four industries to develop and trial optimal dyeing recipes, to improve fixation, “lab to bulk” reproducibility and “right first time”, and thereby reduce the quantity of dye and other chemicals entering the waste stream. Laboratory and full-scale trials to modify the dyeing profile have been undertaken in all four factories. The results show that in all cases it is possible to improve fixation and in some this improvement was as much as 20%. Through discussions with factory managers the team found that there is often a problem with

achieving “right first time” dyeing and the bulk trials showed that improving the dyeing profile could help to address this.

The trials also revealed that there was inadequate knowledge about dye types, which influences the recipes and dyeing profiles, and therefore contributes to inefficiencies and pollution. The project team has been writing booklets to provide information to the factories on: identifying dye types; developing optimum dyeing profiles; and good housekeeping and factory floor practices. Workshops have also been held with factory managers on these aspects of optimal production, and training for factory floor workers is planned with two of the industries.

Replacement of chemicals with others that pose less of an environmental risk is also being pursued as part of the project activities. The team has conducted an “audit” to identify the chemicals being used and to determine whether alternative options exist. Sodium sulphate (Na_2SO_4) is a key chemical that can be replaced. It is highly polluting and reacts in the environment to produce metal sulphides or the poisonous gas hydrogen sulphate. In aerobic conditions the sulphides will be oxidized, thereby removing oxygen from the water body. Na_2SO_4 can be replaced by sodium chloride (NaCl), which is less of an environmental risk and is required in a slightly smaller quantity than Na_2SO_4 . Trials have taken place in one factory to determine how much NaCl would be needed and whether the dyeing quality is as good. The results were inconclusive and further trials are planned.

The project team is in the process of signing an agreement with the Bangladesh College of Textile Technology to enable them to use their laboratory facilities to further develop optimal production options to share with the factories in Kaliakor.

Effluent Treatment. Only three industries in the project area currently have effluent treatment plants (ETPs). The project team has visited all of these and has provided technical suggestions about their operation and maintenance. Samples from these ETPs have been collected from different stages of the treatment process and have been analyzed microscopically. The results show relatively little biological activity suggesting the plants are under loaded and/or are not operated properly. Feedback has been given to the industries in reports explaining the results of the samples and providing recommendations. Making the industrialists aware of the importance of running their ETPs continuously has also been stressed. The operation process of one of the existing ETPs has already been changed according to the suggestions of the project team.

The project team has also provided technical support on the design of seven planned ETPs and has offered support to ETP design firms. At present two factories are in the process of finalizing the civil designs of the ETPs and it is hoped that construction will begin soon. The project team is writing a booklet with advice for industrialists who intend to develop ETPs. The booklet provides information on ETP types and the necessary components of them, as well as things that the industrialist must consider when planning an ETP, including among other things, effluent quantity and quality, national criteria, buyers requirements, land availability, and capital and running costs.

The team is in the process of establishing a network of ETP designers, operators and suppliers to help build in-country capacity in ETP design and operation.

Health Survey. A survey was conducted to identify changes to patterns of health problems, which may relate to the increase in industrial pollution over the past 10 years. Seventeen focus group discussions (FGDs) and eight in-depth interviews were held in 15 villages in the study area, and secondary data was collected from the public health facilities.

Skin irritations were ranked in the FGDs as the most commonly occurring health problem and the participants felt that incidence of skin problems had been increasing. This may be associated with the high alkalinity of the beel and khal due to chemicals such as sodium hydroxide and sodium carbonate, which are used in dyeing. Diarrhea, gastric ulcers or other gastric disorders, were the next most commonly cited problems, followed by respiratory illness and anemia. Problems during pregnancy, which were noted in FGDs and by local doctors, have in other studies been associated with exposure to hydrogen sulphide, which is known to be a problem in the area.

Pollution from household activities and poor sanitation has also been identified as a potential cause of the health problems, which are indirectly linked with industrial development as the increase in number of factories has resulted in a sudden increase in the population in Kaliakor without a corresponding increase in sanitation facilities.

Training and Workshops. Training workshops were held in Kaliakor for around 20 dye managers, factory managers and ETP managers. This activity was undertaken to disseminate findings and to improve the dye managers understanding of dye chemistry and effluent treatment which was identified in factory visits to be lacking. This knowledge is essential for designing optimal recipes that most effectively utilize the properties of each dye class and ensure that dyes of the same class and requiring the same dyeing conditions are used together, again reducing waste and improving performance. The workshop feedback forms found that all the participants responded that the workshop and material provided were extremely useful and requested further training sessions. The project team is in the process of preparing training materials to be used for in-factory training of dye and laboratory managers, and separate materials for training of factory floor workers. It is also intended to develop these into training material for teaching at universities and colleges as expertise in color chemistry and effluent treatment is limited throughout Bangladesh. Due to the success of this workshop the project team are currently planning a national training workshop with Bangladesh Garment Manufacturers and Export Association (BGMEA) Members at the beginning of July. Further workshops will follow.

Factories are increasingly asked to meet certain criteria by buyers but these are often conflicting, impossible to achieve or focus on corporate social responsibility but not environmental responsibility. The project team therefore intends to hold a workshop for buyers to discuss reasonable environmental compliance criteria and to develop a consensus on the criteria required by all buyers. Previous attempts at this have been hampered by concerns over the intentions of the project and the project team is therefore in the process of contacting buyers individually to prepare the way for such a workshop.

Meetings have been held with community members (fishermen, farmers and women) to discuss the pollution problems and to keep the community informed of project activities. The last meeting held with participation from the local community at Kaliakor was in May 2004.

Improving Environmental Compliance. Aspects of cleaner production and effluent treatment increasingly form part of the compliance criteria of international buyers. However, it appears many international buyers have limited knowledge of the production processes used in dye processes and the chemicals used, to develop effective criteria and limited procedures to ensure that factories comply with these criteria. There is anecdotal evidence of factories being asked to meet certain criteria by buyers that are based on incorrect information. For example, it appears that some buyers request the use of azo-free dyes whereas in actual fact it is only a small group of azo dyes that should be avoided. It is also clear that the focus very much remains on issues around labor conditions and compliance criteria to ensure this rather than on criteria to ensure environmental degradation is minimized. To facilitate this, in July the project held a workshop with representatives of garment buyers from Europe and North America to provide information on dyes, dyeing processes and effluent treatment, and to begin the process of examining the compliance criteria each of them sets for their suppliers.

The commitment to meet compliance criteria has been found to vary greatly both in terms of Bangladeshi suppliers attempting to meet criteria and in international buyers ensuring they are met. For example, many firms with ETPs do not run them to reduce operational costs, whilst few international buyers appear to have either the knowledge or the commitment to determine if such units are operating effectively. As a result, the majority of ETPs in Bangladesh including those in the Kaliakor area may be considered “window dressing”. The project has started developing the most appropriate methods by which buyers will be able to determine that ETPs are operating effectively.

In parallel with this process, staff from SEI working on the KAR project have held discussions with representatives from H & M, one of the largest garment retailers in Sweden (and globally). Through these discussions it is agreed that H & M will collaborate in the development of compliance criteria as

well as distribute the material developed on optimizing the production process and improving effluent treatment by the two projects to their suppliers in Bangladesh. Similar discussions have started with M & S in the UK.

Progress Towards Achieving Reduction in COD/BOD and other Pollution Parameters. The initiatives key indicator is the reduction of total amounts of COD and BOD and other pollution parameters discharged from the factories and the levels found in Ratanpur canal. Neither of these sets of parameters are particularly easy to evaluate. In the case of the former, whilst samples can be taken, tested and compared to samples taken at the beginning of the project the discharge varies depending on the activities of the machinery on a given day (they may be dyeing, re-dyeing or simply washing) and then within each of these process there are variations within each of these, for example, weight of fabric being dyed on a particular day, and the type of dyes being used that day (in several different machines).

The second is, however, not solely dependent on the factories the project is working with as new factories are being opened monthly. The intention is to ensure that new firms do comply with effluent treatment standards and include an ETP but this will involve the development of a new component of the project. This is currently being discussed by the project team. Major responsibility for completion of this activity lies with BCAS and in association with SEI through the EU funded KAR project.

5. Preparation of Geospatial and Non-geospatial Database

Introduction. This annual report on preparation of geospatial and non-geospatial database for the Management of Aquatic Ecosystem through Community Husbandry (MACH II) covers the activities carried out and products provided during November 2003 to October 2004 by Geographic Information System (GIS) Division of Bangladesh Centre for Advanced Studies (BCAS). During this period field survey, discussion with field coordinators, meeting with other partner organizations and developing map products were carried out. MACH-BCAS has processed data, created maps and tables, and conducted analyses for the project.

Activities and Deliverables. The GIS support is largely one of mapping and spatially recording data for use in planning, monitoring and evaluation. Planned activities and deliverables are shown below:

1. **Resource Management Organizations :** In order to incorporate new resource management organization namely Ramedia, new resource management maps for Hail Haor have been prepared according to MACH planning and implementation requirement.
2. **Preparation of Maps on Re-excavation Scheme 2003-04:** Prepared a set of maps on planned re-excavation sites of three working areas (Hail Haor, Turag Bangsi and Kangsa Malijhee) of MACH. In order to prepare maps on re-excavation scheme, field visits and inputs from the site coordinators and ISMP team were used.
3. **Preparation of Maps on Re-excavation Scheme 2004-05:** Prepared a set of maps on planned re-excavation sites of three working areas (Hail Haor, Turag Bangsi and Kangsa Malijhee) of MACH. In order to prepare maps on re-excavation scheme, field visits and inputs from the site coordinators and ISMP team were used.
4. **Mapping on Bilashi and Burburia Chora:** In order to control erosion and sedimentation of Bilashi and Burburia Chora a detail mapping exercise using GPS has been carried out during this period. The mapping exercise included identification of potential re-forestation sites, erosion sites, and landslide sites along with land cover mapping of the Bilashi catchments. Final output is given in the hardcopy map format showing general land use of the catchments, potential reforestation site, and erosion and landslide sites.
5. **Updating of Maps of the MACH indicators :** This includes ten types of maps on each site indicating progress and impacts of project activities against baseline data and information. It is to be noted that impacts on biodiversity due to project activities is not included in this annual report. It also includes a map showing USAID funded projects on best practices.

6. **Updating Project Activity Database:** during this period, the project activities database including re-forestation, conservation sites, re-excavated sites etc. were all updated. Maps can be produced on locating any of the project activities if necessary.
7. **Hydrological Analysis:** hydrological analysis for the year 2003 on Hail Haor and revision of 2002 has been carried out during this period. All hard copy maps with comparative analysis are available.
8. **Central Sanctuary Maps and Analysis:** Digital Elevation Maps on Central Sanctuary of Hail Haor and Contour/Inundation maps were prepared. It will help to prepare re-excavation and restoration work for the central sanctuary.
9. **Maps for American Day:** A map for American Day showing all MACH working areas was developed.

Planned Activities.

- Hydrological analysis for the year 2004
- Update project activities and mapping including impacts on fish resources.
- Maps of the ISMP re-excavation scheme for 2005-06
- Preparation of geospatial and non-geospatial database and maps of the outreach program, if necessary
- Input to Technical Paper Preparation (maps)
- Industrial Pollution and its threat to the Mokesh Beel Wetland Habitat (maps)

6. Hydrology Monitoring

To understand the complexities of the wetland ecosystem, it was determined that MACH should monitor the hydrology to be able to better understand and evaluate the changes made to the system. Wetland ecosystems depend on upper watershed hydrology. Degraded watersheds cause high runoff and less infiltration, which is one of the reasons for insufficient water availability in the streams, rivers, and wetlands in the dry season. In addition, the high sediment load coming from the degraded watershed is carried into the stream system and wetlands, causing rapid filling of streambeds and the Haor or lake basins. This of course can impact biodiversity and the ecosystem of the wetland. For this reason, from the beginning of the project, MACH has looked at in a very limited way the hydrological factors affecting wetlands as well as their upper watershed.

At the three sites of the project, MACH is monitoring the water level, rainfall, and stream discharge. Some work was done earlier on sediment loading of streams and sediment deposition rates. Data will be compiled and a technical report prepared relating site hydrology with trends in the fish production. This report will be completed following the last year of fish catch monitoring which ends in September of 2005.

B. Component 3

Continue to enhance policy environment for natural resource co-management. The intermediate result within this component is IR 6.3 Selected policies implemented that support IR 6.1 and IR 6.2. Major responsibility for completion of this component lies with MACH-BCAS.

1. Policy towards leasing of water bodies.

For quite sometime, the GOB had been following the policy of leasing out water bodies for a period of three years with a 25% increase in 1st year followed by 10% increase in each of the subsequent two years. This policy continued to be in operation from 1991 to 2003 after which it was changed to the policy of leasing for five years with 25% increase only in the 1st year. The MACH Project was involved along with DOF and other projects in bringing in this beneficial change in GOB policy regarding the lease of water bodies.

With this three year lease policy in practice for quite sometime, lease values of some of the water bodies went up disproportionate to the resources existing in the water bodies. Such cases were mostly automatically taken care of through the lack of offers/bids and after several tender fixation of a fresh lease value through negotiation with tenderers commensurate with the existing resources was done. The lease of water bodies to the MACH project RMOs being guided by the provisions of MoU signed between the Ministry of Land (MoL) and Ministry of Fisheries & Livestock (MoFL), the benefit of this automatic adjustment of high rent has not been available in their case.

MACH Project and the resource management organizations have been operating since October 1998 and the three-year lease policy has been applied to most of the water bodies taken on lease by the project so far. Consequently in some cases in spite of rise in fish production, the lease value has become exorbitant. Addition of the 25% to the lease value under the new policy has made the lease extremely high in some of the cases..

Sustainable management of wetland resources requires that the lease value be commensurate with the resources available. MACH Project has pointed out this incongruity to the MoFL and MoL. The MoU signed between the two ministries for the MACH Project, however, contains a beneficial clause. It has empowered the Jalmahal Committee constituted under the MoU to consider the resources available in the wetland before fixing lease value at the time of the subsequent lease. But the Committee fixes new lease values at 25% higher rate in a routine manner. This practice or attitude affects the sustainable management and conservation of resources of water bodies. All that is needed is a proper understanding of the delegated power by the Jalmahal Committee and its judicious application. A government circular clarifying the issue needs to be issued.

MACH is preparing for making a presentation on this and other connected issues in a joint meeting of MoL and MoFL.

2. Policy Issues in pineapple cultivation.

Pineapple farmers in the Hail Haor watersheds have long been traditionally practicing up and down the hill slope/vertical line planting of pineapple. Such practices provoke accelerated soil erosion causing rapid siltation of water courses and lake beds. MACH-I identified this as a prime factor responsible for sediment transportation to, and rapid siltation of project wetlands.

Changing the traditional planting practices to a contour cultivation method and to more plants on the slope is some of the ways that leaf cover on the slopes can be increased and soil erosion can be decreased. MACH has created awareness among the traditional farmers regarding the detrimental land use and the urgent need for its change. To demonstrate appropriate land use, MACH set up 30 on-farm contour cultivation demo plots during 2000-2003. The benefit from the new cultivation methods were publicized to local cultivators and GOB officials.

Based on the encouraging positive outcome of contour cultivation demo program, MACH is pushing for policy changes with the concerned GOB agencies, particularly the local UNO and the DC (the land administration local officials).MACH is urging them to initiate GOB policy and legislation

changes making contour cultivation method mandatory for pineapple cultivation in hilly terrain. MACH is also currently working to move the MOL and MOFL to heed the need for policy and legislative changes on these issues.

For making the policy changes in the cultivation system in hills a proposal has been submitted to MoL through MoFL. It is hoped that the MoL will make a circular in this regard for the inclusion of proposed clause in all future lease agreement in the hilly areas.

3. Policy change initiatives planned

Establishment of sanctuary is a tested method of conservation and a method which has been proven to improve the output of fish from aquatic resources. The MACH Project has made a major contribution towards the use and success of wetland sanctuaries.

A sanctuary is established mainly in the deepest part of the water body and if required it is further deepened by excavation to provide better shelter for fishes. This part always remains untouched and un-harvested, and whenever fishing is done in the water body fishes take shelter in the sanctuary escaping fishing gears. The catch is therefore less than what it would otherwise have been.

In order to compensate for the fishes conserved in the sanctuaries and also to provide incentive for establishment and maintenance of sanctuaries, MACH Project is proposing to the MoL through MoFL for a minimum of 10% reduction in lease value for retaining and managing of a sanctuary in the leased area. Because of the concentrating effect of the sanctuaries this should be a minimum reduction. Larger reductions would be subject to situations where more than 10% of the area of the lease is set aside and then the reductions would be proportionate to the percentage set aside.

C. Component 4

The awareness raising and communication components of the MACH project continued during the reporting period as an integral part of the approach to improve wetland resources and capacity for their sustainable management in Bangladesh. MACH is extending its efforts to strengthen cooperation in communication, not just with the project beneficiaries and the government counterparts, but also with like-minded NGOs and other development partners in the environmental conservation sector.

MACH-II has increased emphasis on its communications efforts. During the reporting period the project recruited a full time Communications Specialist who is responsible for the development of MACH communications activities at different levels, coordination with GO/NGO partners, maintaining liaison with media people, arranging workshop/training/orientation sessions, doing program advocacy at central and site levels, preparing communications materials targeting different stakeholders, and other aspects of the project promotion.

Also during this reporting period a series of initiatives have been taken to strengthen skill and capacity of the MACH partners/staff. The Communication and Training Officer, MACH, CNRS attended a six weeks training course on “*Principles of Television production*” arranged by ETV, Dhaka. Several sessions have been conducted on “*Basic concepts of communication and its effective techniques*” where all the site level staff participated. Orientation sessions on the Courtyard Meeting Guide have been conducted at all the project sites to improve field level staff facilitation skills especially in the case of arranging courtyard meeting of RUG and RMO members. In addition a short communication skill training will be provided to the communications team and stakeholders by US based Winrock specialists sometime in year 2 yet to be identified.

A list of the core messages on different areas under the MACH project has been developed through a brainstorming workshop. The participants of the workshop were the central level communications people and relevant site levels staff members. The representatives from CNRS, Caritas Bangladesh, and BCAS were also present in the workshop. MACH believes that a list of clear, concise and catchy messages highlighting different areas/activities of MACH can facilitate the promotion of wetland issues and MACH approaches to the wider segment of the society. These selected messages are being used in posters, signboards, bill boards, folders and electronic media.

During the reporting period communication materials developed using ISM funds, including: Panel boards (Bangla and English both), Folders (Bangla and English both), MACH Caps and MACH key rings. MACH is in the process of developing a documentary highlighting the project activities, approaches, best practices, lessons learnt and achievements. MACH is also taking preparation for developing three Radio spots, a set of cinema slides and a MACH calendar 2005.

The MACH project has already identified its stakeholders and beneficiaries at two different levels. They are:

1. *The Policy making level*
2. *The Local or Project Site level*

The policy making level– All the activities were to facilitate the Department of Fisheries (DoF), The Ministry of Fisheries and Livestock (MoFL), Ministry of Land (MoL) relevant projects, donor and NGOs and influence policy level people for pursuing wetland issue at different levels.

The Local or the Project Site level - All the activities implemented at site levels targeted primary and secondary stakeholders/beneficiaries of the AMCH project.

The MACH communications objective is to focus the communication approaches and activities at each level and contribute towards the achievement of MACH’s overall goal and specific objectives at different tiers.

To address all levels and meet its objectives, several communications initiatives were undertaken at different tiers during the 1st year of the MACH II. The targeted beneficiaries for the 1st year were 30,000 but during the reporting period November 2003 to October 2004 the total attendance at MACH communications activities were more than 54,000 individuals.

The major communications initiatives conducted at the two stakeholder levels are mentioned below:

1. Communications initiatives at policy-making levels.

MACH TV Program. The MACH project has signed a contract with a private TV channel (Channel I) as an integral part of the communications efforts to promote best practice in wetland resource management to a wider audience. A total of six episodes/program will be developed highlighting the major activities, lessons and achievements of the project. The ground work for all the episodes has been completed and the series is expected to start airing from November 2004. The program will also be telecast on Bangladesh Television in due course. This of course will have impact at the project stakeholder level as well.

MACH Radio program. Radio is one of the effective communication media for disseminating messages especially to the village community. During the reporting period MACH has taken initiatives to work closely with an on-going weekly radio program “*Amader Sarker*” sponsored by ARD, USAID. The program mainly covered the experiences of the Union Parishad and RMO members about wetland issues and MACH initiatives in Sherpur site. It is expected that other project areas will be covered in near future. This will have impact at both levels on policy makers and the local stakeholders.

Journalist workshop. Journalists can play a significant role in disseminating the MACH messages and help in raising awareness of the importance of wetland resources conservation. The project arranged a daylong workshop inviting journalists from the leading Bangla and English newspapers of the country. Staff from Bangladesh Sangbad, Sanest and the Environment Journalist Forum attended. The workshop yielded a positive response from journalists and several news items and articles were published in national newspapers with a wide readership.

Observance of America Week 2004. The MACH project actively participated in the “*America Week Rajshahi, 2004*” with other USAID funded projects. The aim of the week was to foster understanding and build bridges of cooperation between Bangladesh and United States. The MACH project optimized that opportunity by sharing and disseminating project information to the wider audience. MACH set up a booth decorated with eye-catching display materials that attracted a good audience. During the week MACH also arranged a quiz competition that generated a lot of interest especially among the young generation. In addition, MACH distributed communications materials like key rings, MACH caps, folders, etc. and shared the project core messages.

Observance of World Environment Day. The project actively participated in the World Environment Day 2004 centrally and at site levels. The project had a stall in the two day long fair at Usmani Milonayatan, Dhaka and attracted thousands of people’s eyes to the panels and posters. The quiz competition again attracted many people especially the younger generation. Video shows and distribution of give away materials also attracted a huge audience. All the project sites also observed the event.

Workshops and contributions to the DoF , 4th Fisheries Project, and the MoFL. During the reporting period MACH worked closely with the DoF and its Fisheries Officers. The project worked with the 4th Fisheries Project to formulate the Inland Open Water Management Strategy. A 4 days long participatory workshop was jointly arranged by MACH and 4th Fisheries projects at Sreemongal where more than 45 Fisheries Officers from central, district and upazila levels participated. In that workshop MACH shared their experiences, approaches and best practices. MACH also shared their approaches to the all Project Directors under DoF in a workshop arranged by DoF, Dhaka. And in November of 2004 MACH participated in the finalization of the Inland Open Water Management Strategy that includes much of the MACH approach.

MACH continued its efforts to provide suggestions and recommendations to the DoF and MoFL for programmatic replication of the MACH approaches through meeting, workshop and special sessions. The project also arranged field visits for DoF officials and different project people to its different project sites.

MACH and GONGO development partners. MACH has developed close relationships with relevant government officials and development partners at both the policy and local levels through formal and informal meetings and discussions. MACH has worked with ARD and disseminated MACH messages through their sponsored Radio Program “ Amader Sarker”. Negotiation is going on with Bangladesh Environment Law Association (BELA) for establishing a process for strengthening local government bodies and RMO members in regards to the legal authority and responsibilities of local government and how they can work for protecting environment and natural resources. MACH-Caritas has sought and received help from the JOBS project in identifying areas for enterprise development and use of the larger planned loans to the resource user groups. MACH is also working with a team of USAID partners from different sectors trying to determine additional measures that all our programs can do collectively to have an impact on good governance and raising accountability in out sectors and project areas.

Contributing to the Wetland Network. MACH is continuing its support for policy level coordination between relevant departments of the government, the wider NGO community and the development partners especially in the field of wetland resources. During the reporting period MACH continues to support the network for pursuing issues at the project, department and national level.

2. Communications initiatives at the Site Levels

Below some examples of the activities conducted at the site level, to improve awareness, have been given. These have been carried out during the reporting period from November 2003 through October 2004.

Development of Courtyard Meeting Guide . Courtyard Meetings with the resource users is one of the regular communications activities in all the project sites. A Courtyard Meeting Guide is being developed to facilitate the front line workers of MACH partners for conducting the Courtyard Meeting sessions in a more efficient and effective manner. Fourteen topics have been selected for courtyard meeting sessions; other issues may be included considering the need of the audiences. Text for each session and a detailed implementation process has been described in the guideline.

Orientation on Courtyard Meeting guide. After drafting the Courtyard Meeting Guide, orientation sessions have been arranged in the three project sites where all site level staff participated. The objective(s) of the orientation sessions were to introduce the newly developed Courtyard Meeting Guide and demonstrate how the field staff could utilize the courtyard meeting sessions for promoting wetland issues and MACH messages. A follow-up plan has also been made and necessary preparation to be undertaken before finalizing the courtyard-meeting guide.

Courtyard meeting. Courtyard meetings were the most regular and effective communication tool to maintain the relationship with the communities and educate them to the wetland issues. During the reporting period a total of 442 courtyard meetings have been conducted and 7641 respondents were attended in the three project sites (see Table 25)

Table 25: Courtyard meeting in three sites during 1st year of MACH phase I.

Project sites	Courtyard meeting conducted (#)	Number of participants
HH Site	170	3697
TB site	90	1834
KM site	182	2110
Total	442	7641

The respondents were mainly RUG and RMO members. In addition another 284 village and 22 Union Parishad meetings were held in the MACH sites where respectively 7404 and 307 people attended. (See Table 26)

Observance of important days. MACH optimized the occasion of international environment days to support its messages of sustainable resource use. Days observed included World Wetland Day (February 2), Pohela Baishak (April 14), World Earth Day (April 22), World Biodiversity Day (May 22) and World Environment Day (June 5). Activities on these important days included mass rallies,

stall decoration, discussion sessions, school children awareness meetings, quiz competition, video show, reforestation, and field visits. Some examples of these are given below:

World Environment Day 2004. World Environment Day 2004 was observed in all three project sites. The project actively participated in the District and Upazila levels exhibition/fairs arranged by the Department of Environment. MACH has arranged discussion sessions highlighting the importance of environment over the population and nature as well. Colorful rallies arranged by the school students, RUG and RMO members, local government officials and community people were conducted. Display materials were used to disseminate the core messages of MACH.

World Earth Day 2004. Considering the importance of the Earth Day the Management of Aquatic Eco-systems through Community Husbandry (MACH) Project has been supporting the observance of Earth Day for the last five years in the three project's sites. This year Earth Day was observed by MACH through colorful rallies participated in by hundreds of people. Primary and secondary school students, teachers, local elites, local government officials, MACH project staff and environmentally conscious people from the community.

MACH arranged discussion sessions on Earth Day in the communities where the project works. Local government personnel, teachers, representatives of wetland Resource Management Organizations, Wetland Resource Users Groups, Local elites, MACH project staff and a large number of fisherman, day labors, shopkeepers, religious leaders, and students attended the sessions.

MACH also participated in various traditional Pohela Baishak Fair (1st day of the year) and attracted large audiences because MACH or fish appeals to everyone.

Workshop with Art school students. Children will be inheriting the environment around them and art is the visible reflection of one's aspiration. A two days long workshop was held in Sreemongal to combine the creativity of young children with the development of awareness tools. There were 16 young children who participated in the workshop drawing more than 60 paintings. Their paintings covered elements around the wetland and in particular the Fish sanctuary, Bio-diversity, reforestation, Bird hunting, Alternative Income Generation, and others. All the paintings are extremely good and they all encourage conservation of wetland resources. It is planned that out of 60 paintings the best 12 will be used in the MACH awareness calendar for 2005.

Live Drama. During the reporting period a total of 8 Live Environmental Dramas were performed at TB Site, as part of the awareness campaign and to sensitize the communities around Boalia Khal, TB Site. It was the experience from the MACH awareness survey of 2004, that Live Drama is one of the most effective communication tools for disseminating the project messages. Keeping that in mind MACH project is arranging another 100 Live Drama shows at the project sites in early 2005. (See Table 26)

MACH Awareness Survey. A survey has been conducted to assess the current awareness level of the community and different stakeholders where MACH is working. The survey was conducted in all three project sites and covered all types of stakeholders of the project. Around 300 respondents were interviewed under the survey. The survey used Focus Group Discussion, in-depth interview, observation, consultation and reviewed relevant secondary information including: office records and project documents. An independent consultant team of two researchers and four field investigators carried out the study.

The survey showed that MACH communications interventions are contributing to increase the awareness level amongst the wider community and the government officials. Out of 16 types of MACH communications interventions (regular and campaign) six interventions namely Courtyard Meeting, Important Days Observance, Rally, Live Drama, Folk Songs, announcements through loud speakers in the village, and Fair/Exhibition got the maximum scores for effectiveness compared with other on-going communications activities. The usefulness of MACH communications activities was assessed using a 5-point Likert Scale scoring. Similar scoring was applied for measuring the effectiveness of media and materials used in the MACH project. During the project period of MACH - II another two surveys will be conducted to review the trend of mass awareness about wetland resources, sustainable conservation techniques and the initiatives of MACH project.

Table 26: Awareness Program (Participant No.) in three MACH sites
(November 2003 – October 2004)

Activities	HH		TB		KM		Total		All Total
	CNRS	Caritas	CNRS	Caritas	CNRS	Caritas	CNRS	Caritas	
Para Level/Uthan Baithak	100(1345)	70(2352)	20(289)	70(1545)	166(1670)	16(440)	286(3304)	156(4337)	442(7641)
Village Level	124(3431)	-	12(635)	-	141(3041)	7(297)	277(7107)	7(297)	284(7404)
UP Level	3(50)	-	13(204)	-	6(53)	-	22(307)	-	22(307)
Upazila level/District level	-	-	12(113)	-	-	-	12(113)	-	12(113)
School Programs	64(675)	-	15(674)	-	47(159)	-	126(1508)	-	126(1508)
Drama	-	-	8(4000)	-	-	-	8(4000)	-	8(4000)
Day Observance	1(550)	-	2(1600)	-	3(1225)	-	6(3375)	-	6(3375)
Knowledge/Experience sharing/discussion on formation of URUC at group level	1(22)	156(3074)	2(28)	139(2242)	3(465)	106(2034)	6(515)	401(7350)	407(7865)
L. Others(Fish week, Field day, Rally, Community announcements, Fair, Exhibition etc.	2(9000)	-	4(5000)	1(800)	14(6780)	-	20(20780)	1(800)	21(21580)
Awareness meeting on watershed	-	-	-	-	4(577)	-	4(577)	-	4(577)
Total	295(15073)	226(5426)	88(12543)	210(4587)	384(13970)	129(2771)	767(41586)	565(12784)	1332(54370)

Participant in parenthesis

3. CBO network

Background. Over 200 Community Based Organizations active in Fisheries and Wetland management (CBO-F/W) have been established in Bangladesh by different projects including MACH for the purpose of participatory fisheries management. Wetlands and Jalmohal's have been transferred for community management under DOF oversight for 10 years which is expected to be renewed depending on the performance of CBO-F/Ws. While MACH-II aims to address the key question of what will happen after project funding, for the CBO-F/Ws (RMO) that it has established and aims to ensure their resource and organizational management capacity and support from endowed Upazila committees. This is only part of a bigger picture. At a national level Bangladesh has a major investment in community based management of fisheries and wetlands and will have many CBO's registered but they are scattered and DOF staff have many competing demands on their time.

If piloting is successful, networking of these CBO's could result in:

- A forum where CBO-F/Ws can interact with each other, and with government.
- Improve resource management through sharing of experience and new ideas and learning.
- Be a way for CBO-F/Ws to access technical advice and messages from DOF and others.
- A forum that can lobby to gain and improve fisher and wetland user access rights.
- Peer group pressure being exerted on CBO-F/Ws to ensure good practice continues, through mutual comparison of activities and results.
- Provide advocacy and legal rights support for CBO-F/Ws to maintain their access rights to fisheries, and to influence policy.
- Be a route to provide funds for existing or new CBO-F/Ws to improve resource management.
- And would be consistent with programmatic approach of a sub-sector strategy.

Progress and immediate plans . In late 2003 the CBFM-2 project, with the active support of MACH and other projects, held four regional workshops of CBO-F/Ws. The CBO-F/Ws came from FFP, MACH, CBFM-2, PBAEP, SEMP, OLPII, and AqDP. Each region issued an initial newsletter and formed an organizing committee with sites supported by all concerned projects represented. CBO-F/W leaders agreed their organizations would contribute annual membership fees to part cover future activities.

Following this initiative, during 2003-04 MACH has taken a leading role in advocating a joint approach to such networking across projects. Through a series of meetings with other projects, donors and DOF, agreement has been reached with Fourth Fisheries Project and Danida to share costs with MACH for further CBO meetings, workshops, visits and newsletters involving a wide range of CBO-F/Ws, including the RMOs supported by MACH, during 2004-05. Proposed activities include:

- Bringing together CBO-F/Ws supported by different projects that face common issues,
- Quarterly meetings and annual workshop in each of four regions, and
- Quarterly newsletters for each region.

Long term issues. Assuming that collaboration with other projects continues and this pilot networking activity is successful, there is the issue of how to make it sustainable. MACH would take a lead in the next year in identifying mechanisms to support this, for example an endowed trust fund where the interest earned would cover annual networking costs and into which donors could invest. Quality assurance mechanisms would be needed to ensure that networks and the CBO-F/Ws do represent the views of fishers and wetland resource users and especially the poor, this could include checks on CBO-F/Ws to see that they are fisher based and not dominated by elites or exploiting fishers. Links between CBO-F/Ws and appropriate service providers could also be made, for example with the Bangladesh Environmental Lawyers Association (BELA) which could address a key need for legal aid to CBO-F/Ws and already has experience of doing this through other projects. Without the collaboration of the other projects and the DoF this effort will not be done by MACH alone. MACH will continue to try to work with the DoF and the other projects to jointly support this effort.

4. Gender initiatives

Gender is a cross-cutting issue for MACH and it has been given special attention. MACH is working to ensure equitable participation and opportunities for women at all levels including within the RUGs, RMOs and in the newly formed federations and executive committees. During the reporting period MACH has taken numerous initiatives at different levels for ensuring women's participation in all project activities. As a part of women's empowerment, MACH has put together a total of 1630 women as RUG members and 166 in the RMOs. These women are receiving skills development training on income generating activities, awareness raising sessions on different socio-economic and life oriented issues, leadership training and adult literacy training. The women also have access to credit facilities through the ongoing MACH credit and savings program operated by MACH-Caritas. (see Table 27). A total of 28% (approximate) loan already been disbursed to the female RUG member during the reporting period. For details please see Appendix-1 MACH-Caritas target & achievement.

Table 27: Credit given to the female RUG members November 2003 to October 2004

Activity	Project site			Total number
	HH Site	TB Site	KM Site	
Number of Loan disbursement	388	123	267	778
Amount of Loan	Tk. 2999000	Tk. 1158000	Tk. 1761760	Tk. 5918760
Number of individual	47	46	44	137
Number of Enterprise Loan	13	11	8	32
Amount of Enterprise Loan	TK. 275000	TK. 300000	Tk. 147840	Tk. 722840

Gender Study. A gender study was conducted to determine the attitudes of the different stakeholders regarding gender integration in resource management and to prepare a plan of action for integration of women in wetland resource management in MACH. The study was done in two different steps, conducting survey with 226 representatives from three MACH stakeholder groups (RUG, RMO and project staff) and arranging a sensitizing workshop with all the participants who took part in the survey. The study determined that women can play a role in wetland resource management made recommendations on how they could be further integrated into programs. Specific targets that were set are being acted upon by the project.

Inclusion of more women as RUG members. During the reporting period another 104 women are included with the existing RUG and/or with newly formed RUGs. It is expected that an additional 136 women will come under the resource user groups in the remaining part of the project period.

Inclusion of women in RMOs. MACH is committed to the inclusion of 25% women members in the RMO General Bodies and 20% participation in the RMO Executive Committees. As the expression of the continuous effort MACH was able to incorporate 166 (12%) women in the RMO General Body and 32 (11.5%) women are in RMO Executive Committees since MACH II began.

Recruitment of female staff within the project. MACH believes on women's capacity and taking every effort for ensuring women's participation at different levels of the project. The MACH project has given special emphasis for recruiting female staff at different levels. During the reporting period MACH recruited a female Communications Specialist and two more staff at central level and another four female field level staff also been hired at project sites. In addition MACH appointed a female Gender Consultant for reviewing project initiatives carefully and guiding the MACH management to pursue its gender goals and targets in line with the indicators of USAID. Also replacement staff at the assistant field officer level is earmarked for women or at the very least women are given preference.

Leadership and Literacy training to the women. There were a total of 127 women provided with Leadership training and 260 women received six months of adult literacy training. This training is equipping them leadership, reading, writing and easy calculation skills.

Provided training on AIGA trades. There were a total of 221 women that received training to become skilled in a number of different trades. The training courses mostly covered poultry, tailoring, cow rearing, management of micro enterprise, fish culture, vegetable cultivation, and the making of bamboo to be sold through Caritas handicraft outlets.

During the remaining project period MACH will continue to pursue its gender goals and targets in line with the GoB's PRSP and USAID's suggestions.

5. Outreach Program

The aim of the outreach program is to extend and demonstrate physical interventions for wetland habitat restoration and improved management in locations outside the MACH sites. To have the desired impact this program needs to be linked with existing initiatives from government or NGOs that have already established community organizations for resource management but lack the financial resources to make significant improvements in habitat. Through this outreach it is expected that in addition to benefiting the fisheries and user communities of these locations, the target national organizations, projects and donors will be sensitized to the potential for this type of intervention and will seek to mainstream this in future through their own programs. Available interventions through this program can include: re-excavation of link canals and dry season refuges, placement of permanent fish shelters in sanctuaries, and restoring/planting swamp forest.

During the year the target was to finalize outreach sites and approve works to be done during the 2004-05 dry season, ready to finalize agreements with the recipient organizations and communities in December 2004, for physical interventions to start in early 2005.

Because the outreach program has only two dry seasons to work in, and because the benefits of habitat restoration works that are undertaken without having appropriate local community co-management institutions in place will almost certainly be captured disproportionately by local elites, leaseholders and other better off people, it was decided to limit the program to sites that were already supported by other projects that involve community management. To move this process forward, CNRS was contracted to visit and screen potential outreach sites. During the year it completed the following:

- made contact with the Fourth Fisheries Project (FFP) of DOF, supported by DFID and World Bank, which through consultation with its sites and partner NGOs identified 24 potential water bodies for the outreach program;
- reviewed an additional three sites where FFP had planned fish friendly water control structures;
- reviewed eight sites of the Community Based Fisheries Management project phase 2 (CBFM-2) of WorldFish Center, DOF and NGOs supported by DFID;
- reviewed two sites from the relevant wetland management component of the Sustainable Environmental Management Program (SEMP) of IUCN and MOEF supported by UNDP, one of which overlaps with a CBFM-2 site;
- reviewed one site proposed for the Community Based Resource Management Project of LGED supported by IFAD; and
- Reviewed three sites adjacent to existing MACH sites which do not have community based organizations but where excavation works could benefit the larger system including the communities presently supported by MACH.

This clearly established that there is a demand for such a program of support that cannot be met from resources available under those projects, and gives a total of 40 sites considered for possible outreach activities. Reconnaissance visits were made to 16 within the first year to identify the potential works and demands from the community, to make a preliminary assessment of their feasibility including sketch maps of the locations, and to make a rough cost estimate. It was decided that sites for any outreach activities in the 2004-05 dry season should be located in the north-central or north-eastern regions of Bangladesh (Dhaka division north of Padma River and Sylhet Division) for ease of planning and supervision, since these are the regions where MACH is presently working.

Progress on this component was somewhat affected by delays in getting the ISMP funds approved and released. This means that the funds available for dry season 2004-05 are limited, so this will be treated

as a pilot, if this is effective there would be a larger outreach activity in the following 2005-06 dry season. Screening of some remaining possible sites is scheduled for November 2004 before short listing a limited number of sites for immediate activities. It is intended that the sites that are finally selected for the 2004-05 implementation season will include representative sites from as many of the target projects and organizations reviewed as possible. Issues that will be resolved in the coming year include making agreements with the concerned projects and community based organizations, establishing simple impact monitoring systems, providing feedback to the target organizations, and establishing a screening, planning and supervision process for the 2005-06 dry season when it is expected that the outreach activity will be greater.

D. Component 5

Component 5 is the “Institutionalization of a sustainable co-management of natural resource system”. The intermediate result within this component is IR 6.5 Improved institutional capacity. Major responsibility for the completion of this task under component 5 lies with partner MACH-BCAS.

1. Institutional Considerations.

Acquisition of beels for Resource Management Organizations (RMOs). An MoU has been signed between MoL and MoFL covering the 12 water bodies in the Table 28 below and possession of 9 water bodies have already been handed over to MACH RMO's. Handing over of possession of the remaining 3 water bodies is under process.

Table 28: MOU signed for handing over the beels to RMO's of the Sreemangal site.

Sl.	Name of Beels	Union	Area (in acre)
1	Lori	Nazirabad	1.58
2	Charurdoba & Chatladoba	Bhunavir	2.31
3	Latua-Metra & Kankata	Bhunavir	7.15
4	Dumer beel	Bhunavir	125.00
5	Dhalidoba	Bhunavir	3.00
6	Patradoba	Bhunavir	8.73
7	Udgai *	Kalapur	3.26
8	Barakuma	Nazirabad	11.30
9	Chhotokuma	Nazirabad	1.35
10	Arardar*	Kalapur	17.00
11	Jurmehedi	Nazirabad	3.89
12	Budaidoba*	Kalapur	1.00
	Total		185.57

*The beels under * mark are under process of taking over possession by RMOs.*

Sharing of benefit of swamp reforestation in Khas land in HH. The RMOs under MACH Project have planted 31,825 swamp trees on 9.25 ha khas land in HH. The Sreemangal LGC in consultation with the District Administration has decided that the benefit of planting will be shared as follows:

- Upazila Land Office ----- 25%
- MACH-RMO ----- 65%
- Union Parisad ----- 10%

Formal documents will be drawn up shortly.

Strengthening of Upazila Fisheries Officer (UFO). During MACH I and into MACH II the Upazila Fishery Officer (Senior UFO) has been the member secretary of the Local Government Committee (LGC) and has worked hand in hand with the MACH site coordinator in the implementation of the project. Upon completion of MACH II the S/UFO will carry out the responsibilities of sustaining the wetland and fishery management approach established by his offices and the project. In view of this a draft TOR for the UFO was developed and distributed to the field for comment. The draft TOR has been finalized in consultation with the DoF and has been submitted to the MoFL through the Department of Fisheries for necessary approval.

Formation of UWRMC/ UFMC. Four Local Government Committees (LGCs) constituted in the four Upazilas where the MACH Project is operating have played a vital role in coordinating and channeling MACH project activities. These Committees will cease to function after completion of the MACH Project. As the MACH-RMO's will continue to function, continuation of the local government committee in some form has become imperative.. The proposal formulated for formally establishing the local government committee in this regard in consultation with the LGCs was placed in the MACH Project National Steering Committee (NSC) meeting held in July 2004. The NSC agreed on principle to the establishment of such a committee with the stipulation that, instead of establishing an altogether new committee, it would be better to merge its activities with those of one of the existing standing committees at Upazila level the Jalmahal Committee.

In response, MACH has further reviewed the matter and the Upazila Development Coordination Committee (UDCC) being already a fairly large body saddled with many responsibilities, it is in the process of recommending the following committee to replace the LGC.

1. Upazila Nirbahi Officer	Chairman
2. Upazila Assistant Commissioner (Land)	Member
3. Upazila Engineer	Member
4. Upazila Agriculture Officer	Member
5. Upazila Livestock Officer	Member
6. Upazila Cooperative Officer/ Social welfare officer	Member
7. Concerned UP Chairmen	Member
8. Senior/ Upazila Fisheries Officer	Member-Secretary
9. One representative from RMO	Member (without voting power)
10. One representative from each concerned Union Federation of RUCs	Member(without voting power)
11. One representative from NGOs working in the area	Member (without voting power)

In formulating this committee, MACH has:

- a) Added to the membership of existing Jalmahal Committees.
- b) Expanded the TOR of the Jalmahal Committee, and
- c) Originally suggested an alternate name as "Upazila Wetland Resource Management Committee" that has just been changed to Upazila Fisheries Management Committee by consensus in a fisheries strategy workshop with the DoF.

The constitution of this Committee was also discussed in a workshop held in the DOF on 4 November 2004 and agreed upon.

Inclusion of Wetland agenda in UDCC. The Upazila Development Coordination Committee (UDCC) coordinates all development activities in the Upazila and where necessary makes recommendations to higher authorities for action.

Under the clause 2.8 of its charter of duties it is also required to carry out such responsibilities as may be assigned to it by the Government. The MACH Project will be proposing that the policy related issues raised by the "Jalmahal Committee" (i.e. the future Upazila Fisheries Management Committee/previously the LGC) be placed before and considered by the UDCC and where necessary such matters be referred to higher authorities for action. This will be included in the proposal to the Government in respect of item D above.

Endowment Fund. Investment Support to MACH (ISM) Project's PP is under revision. It has been decided that prior to revision of the PP, a mid-term review will be conducted by the Govt. The team comprises representatives from the MoFL, Planning Commission, IMED, ERD and DoF. The review team will start its work soon. After this mid-term review and in the light of recommendations of the Review Committee, proposal for an endowment fund will be included in the PP for consideration. Meanwhile, a draft deed for establishment of the Endowment Fund is being prepared in anticipation.

2. RMO Sustainability

Introduction. Throughout the plans and activities of the present MACH phase there is a crosscutting emphasis on building sustainable institutions and organizations so that the physical resource management and changes in local attitudes achieved by MACH can continue in the long term in the three sites after the project ends. This experience and the institutional arrangements established in this phase are also expected to set precedents and demonstrate good practices that may be replicated. The central element on which this strategy depends is the Resource Management Organization (RMO).

The MACH strategy for RMO sustainability is based on these organizations being registered and legally recognized local welfare bodies that are also recognized in an Upazila committee where government and community organizations will jointly take key decisions and co-manage resources.

To achieve this efforts in the past year and for the remaining two years will focus within the RMO's on empowering the RMOs and especially the resource users and poorer people represented in the RMO's, ensuring sound management practices, developing understanding of resource management issues and practices, and ensuring financial sustainability. Outside the RMOs the focus is on ensuring working arrangements between local government and the RMOs that are formally recognized by the Government of Bangladesh and are also functioning in practice and therefore can be expected to continue after the project.

Achievements in the year. Recognizing the need to take a systematic approach to developing RMO capacity and addressing weaknesses and gaps, a review of RMO status was carried out in June 2004. This will be repeated at six month intervals. The key findings and action plans for project staff to address gaps in each individual RMO were prepared and agreed. In support of this a system of 3-monthly progress reporting that focuses on quantitative achievements of each RMO has also been introduced and will continue throughout the remainder of the project. Table 29 summarizes the general status of the RMO's. This has been followed in October 2004 by a consultation with field staff on key indicators for RMO success and issues arising in the field.

Specific areas that are being addressed based on these findings include:

The composition of RMO membership. The numbers of fishers, RUG members and women in each RMO's general body has been reviewed and membership is being modified to ensure sufficient representation of these stakeholders. A target of 60% RUG representatives in RMOs (i.e. representatives of poor wetland users) is attainable and is now almost reached in all RMOs, but not all of these people fish for an income, and the next step will be to ensure that they are seen as and understand that they are representatives of their RUG's rather than being members of the RMO as their own right. A target of 20% RMO membership being women is not yet achieved, emphasis will be on continuing to add women who actively use wetland resources, but in some RMO areas there are few women involved in any wetland resource related activities.

The participation of poorer RMO members . In a number of RMO's the leadership is dominated by better off people. Their involvement is necessary and desirable, to the extent that they act in the interests of the whole community and can influence opinion and represent the wider user community. However, the project over the next year will work to increase the active role of primary resource users in decision making and management activities of the RMO's. This will involve gradually replacing dormant members with potentially more active people who use the wetlands, capacity building training for poorer RMO members, and systems of sub-committees that spread responsibilities among more of the general membership

To aid this process of RMO review and strengthening the following have been prepared during the year:

Log frame to guide RMO strengthening. Associated indicators and measures that will now be quantified as part of a review in each 6-month period. This is an elaboration of the initial reviews in June 2004 that incorporates practical experience and consultations in the field (see Table 29). The purpose of this project component has been elaborated to be: "Effective community based resource management mechanisms implemented, that ensure sustainable and pro-poor local management of wetland resources (aquatic and terrestrial) through active participation of all stakeholders through representative RMO's."

A general guideline for RMO operations. This has a focus on resource management practices and formation of sub-committees (the main ones now being formed cover audit, beel management and reforestations).

A financial guideline for the duration of the project. This seeks to devolve to the RMOs responsibility for managing funds for implementation works (with oversight from project staff) to strengthen the RMO capacities to handle funds and to sub-contract work. This will involve a series of sub-committees to spread responsibilities and will only be followed in those RMOs that are assessed as having a low risk of any misappropriation or malpractice. This guideline also focuses on appropriate budgeting - the RMOs already have outline budgets for a 5-year period, but these are now

being reviewed to ensure that the planned activities match the resource management and fishery needs, and that the funds raised will be sufficient without generating too much excess beyond a reasonable contingency fund (to avoid RMOs extracting surplus from fishers and thereby reducing the benefits of improved resource management reaching poor people).

Constitution revisions. In addition the constitutions of the RMO's have been reviewed and a number of revisions have been made by the RMOs after advice from the project team and following the procedures set out in the constitutions, these are now under processing from the concerned government authority.

Table 29: Indicators for RMO assessment

Target OVI	Data item (Qn =Quantitative, Ql = Qualitative)
Output # 1: Poor resource users have a major role in RMO decision making and RMOs are recognized by all categories of poor in the community as representing their interests	
1.1 Each RMO assessed for its capacity for sustainable pro-poor management of resources, and actions plans for any necessary remedial action by MACH staff agreed	Qn no of fisheries rules in place Ql appropriateness of fishery rules for sustainability Ql extent rules protect interests of poor Ql extent that RMO rules and plan covers all RMO area or just handed over jalmohals Qn existence of water use and agriculture plan Ql appropriateness of water/agriculture rules/plan for sustainability Ql extent water/agriculture rules/plan protect interests of poor
1.2 Over 60% of each RMO's member households have under 0.5 acres of land	Qn landholdings of RMO members
1.3 Leadership of RMO not dominated by a few powerful people	Ql role of elites in RMO decisions, extent of debate etc Qn no of people ever members of RMO's sub-committees and PIC
1.4 Ex leaseholders (if non fishers) not in RMO	Ql status of RMO members
1.5 Over 60% of members of each executive committees come from poor households (under 0.5 acres)	Qn landholdings of EC members
1.6 At least one office bearer in each RMO is poor	Qn landholdings of executive officers of RMO
1.7 Regular feedback and consultation mechanisms between RMO stakeholder representatives and their peer groups formalized, functioning and cover all stakeholder categories and all villages within RMO jurisdiction	Qn No of villages with meetings Ql if meetings held with stakeholders separately Ql if meetings held with women Ql extent that fishers are satisfied their views reach RMO and responses Ql extent that landless men are satisfied their views reach RMO and responses Ql extent that women wetland resource users are satisfied their views reach RMO and responses Ql extent that farmers are satisfied their views reach RMO and responses
Output # 2: RMOs are organizationally strong, capable and acceptable to all categories of local resource users and stakeholders as trusted CBOs for resources management.	
2.1 All RMOs hold at least 12 EC and 3 GB meetings per year with 75% participation of members and meeting decisions are rightly addressed	Qn No of EC meetings and attendance Qn No of GB meetings and attendance Ql Extent that decisions are appropriate Ql extent that decisions are implemented
2.2 At least 5 members in each RMO are able to write meeting minutes and are capable of conducting internal audit and maintaining book of accounts	Qn No persons who can and do write minutes Qn no persons who can and do maintain/ understand accounts Qn no persons who are in audit sub-committee Ql quality of accounts – if follow guidelines
2.3 All the RMOs have a realistic financial plan.	Qn financial plan exists Ql financial plan is realistic (sufficient but not excess for reasonable activities)
2.4 At least one round of annual external financial auditing of all RMOs by the social services department is completed and RMOs received feedback and took any resulting necessary action.	Qn audit done (date) Qn feedback received by RMO Ql RMO actions in response
2.5 Constitutions of each RMO to be reviewed and amendments to ensure sound procedures and participation of poorer stakeholders agreed by the GB and get approval from the Social Welfare Department	Ql constitution is pro poor Qn constitution acceptable to project and RMO approved by GOB

Target OVI	Data item (Qn =Quantitative, Ql = Qualitative)
2.6 At least 25% women with an interest in wetland resources as member in GB and 20% in EC.	Qn % women in GB Qn % women in EC Ql extent women in RMO are involved in wetland resource use Ql role of women in RMO decision making and its sub-committees
2.7 All EC members and 50% GB members know the key points (as defined) of their constitutions	Qn % EC members know constitution Qn % GB members (non EC) understand parts of constitution
2.8 Election in each RMO held timely for the new office bearers in transparent manner supervised by local institutions and officials with MACH staff as only observers	Qn if election held and date Ql how election was supervised and if seen as fair and unbiased
2.9 Those RMOs who received loans from MACH-CNRS have repaid their installments as per schedule	Qn amount of outstanding debt from RMO to project (if any)
2.10 the need for and appropriateness of any membership subscriptions to RMOs is reviewed for each RMO and appropriate systems are agreed among the GB and wider community. By June '05 any contribution/subscription system has a 90% collection rate.	Qn if have subscription system Ql system for paying Qn % RMO members paying Ql views of different stakeholders specially RUG representatives about such systems and payments
2.11 all RMOs have their offices built and maintained properly	Qn if office exists Ql condition of office
Output # 3: RMOs are technically skilled and transparent in pro-poor and consensual management of wetland resources in their respective area of operations.	
3.1 all RMOs updated their resource management plan through a process of debate with user communities	Qn date of last revision to resource management plan Ql extent stakeholders know about resource management plan Qn resource management map exists and displayed Qn main points of management plan/rules displayed
3.2 each RMO has a resource management operational manual/guideline and agrees to implement it accordingly	Qn if resource management guideline agreed by RMO exists Ql if guideline being followed
3.3 majority of local fishers/resource users and relevant stakeholders have been consulted for and say their views are reflected in preparing resource management plan, and believe the RMO's plan is in their and the community interests	Ql extent stakeholders are happy with process of formulation (where they involved, were their views heard, did they get explanation of why if their preferred options were not included,)
3.4 all RMOs updated the list of poor fishers and resource users in their respective area of operation and ensured their access to resources at acceptable level and within provisions of the resource management plan	Qn list of poor fishers/resource users exists Ql quality of updating (any left out or wrongly included) Ql plan has provisions for these people to get fair access within an overall sustainable level of exploitation Ql stakeholders view about arrangement
3.5 majority of local fishers/resource users and relevant stakeholders are happy with the implementation of the resource management plan	Ql is any stakeholder category specially happy or unhappy with resource management plan or how it is implemented, and why
3.6 there are no incidents of breaking of RMO rules and norms as set out in the RMPs by residents of the villages covered by each RMO.	Qn no of incidents of breaking RMO /RMP rules and norms by people from RMO covered area/villages in 6 month period Qn no of incidents of breaking RMO /RMP rules and norms by outsiders (not from RMO covered area/villages) in 6 month period Ql actions taken against rule breakers
3.7 relationship between RUG and non-RUG members within the RMO is healthy	Ql opinions of RUG and non-RUG members bout each other's involvement Ql RUG and non-RUG members have roughly equal influence on decisions
Output # 4: Acceptability or recognition of RMOs at local level assessed and factors for sustainability identified	
4.1 At least 80% of RMOs received required services and benefits from local administration and government officials	Ql RMO plans identify services expected from Upazila Qn no of times RMO requests Upazila officials help Qn no of times RMO received requested help
4.2 All concerned UPs extend required supports to RMOs for implementing their plans and activities relevant to wetland-watershed management, and respond positively to any reasonable request for help and advice from the concerned RMO.	Ql RMO plans identify services expected from UP Qn no of times RMO requests UP help Qn no of times RMO received requested help Ql satisfaction of RMO with UP help
Output # 6: RMOs are active in networking with other CBOs/groups and take pro-active role in raising voice in protecting their rights and influencing the policy.	

Target OVI	Data item (Qn =Quantitative, Ql = Qualitative)
6.1 All RMOs from each MACH site have formed a network and listed issues for policy advocacy and policy support	Qn no of site-based network meetings held Ql extent RMOs find such networking useful Ql policy issues raised to appropriate target audiences
6.2 RMOs' play active role in wider network of fisheries-wetland CBOs by June '05	Qn if RMO is active in such a network

Shaded OVIs and the associated measures are priority ones for work in November-December 2004.

Note that **Output # 5:** DoF internalizes the approach of RMO-led community-based fisheries/wetland resources management is not amenable to assessment at the RMO level.

In parallel the project has been pursuing institutionalization of the Upazila-based co-management of wetland resources. One area of influence in the year has been on the Department of Fisheries, in close cooperation with the "Fourth Fisheries Project" of DOF, MACH hosted a retreat and study visit to Hail Haor in March 2004 by the working group and senior DOF staff involved in preparing an Inland Capture Fisheries Strategy. Through this and other workshops, this draft strategy is now based on applying the model of an Upazila committee to oversee wetland and fishery management through community participation. It is hoped that this linkage will continue during the remainder of the project so that the institutionalization of MACH's approach in its four Upazilas is seen as a pilot for a larger program that would enable co-management of aquatic resources.

Much of the responsibility for the completion of this task under component 5 lies with partner MACH-CNRS.

3. RUG Sustainability

Plan for transforming RUGs into independent Federations of RUGs . In the design of MACH-II it was recognized that the Resource User Groups (RUGs) would require strengthening and would need stronger links with local government for their sustainability after the project. It was also agreed through the project steering committee that the micro-credit funds would be turned over to federations of RUGs, and that the capacity of these union based organizations would be developed so that by July 2006 these organizations would be able to manage their own funds with oversight provided by the Upazila local government committees that would in parallel be constituted and developed.

During the first year of this phase the project has worked to operationalize this concept by preparing a more detailed exit strategy which is based on a series of transition steps. The sequence which has been planned and is underway is summarized in Table 30 (and is given in detail in Appendix 5 Table 14).

Table 30: Overview of transition phases in establishing sustainable FRUGs

Sl no	Step	Timing (pm, second phase)	Target month
Phase I – Forming FRUGs			
1	Organize RUGs into respective FRUGs (13 in total)	1-12	Oct 04
2	Develop constitutions for FRUGs and then register them as legal entities under the social welfare department	4-16	Feb 05
3	Regularize FRUG meetings and develop a plan for their operation	7-12	Oct 04
Phase II – Pilot FRUG credit management, capacity building and transfer of funds			
4	Agree transition program with field staff and FRUGs and identify most capable FRUG in each site (with registration) for fast-track piloting	13-15	Jan 05
5	Transfer credit fund to fast track FRUGs, provide and develop with them on-the-job training from Caritas staff, operate planned long term system but with Caritas staff working for these FRUGs	15-21	Jul 05
6	Build capacity of remaining FRUGs, revising and completing constitutions and registration as needed	15-21	Jul 05
7	Prepare and have approved TOR and guideline for Upazila committee (and any sub-committee that may be proposed) for oversight of FRUGs and wetland related credit and savings. (It is planned that one Upazila committee will oversee RMO and FRUG matters. So this step will be simultaneous with the guideline development in II-D-1 and may be brought forward)	16-23	Sep 05
8	Evaluate performance of pilot FRUGs, review and assess capability and status of other FRUGs	21	Jul 05
9	Adjust long-term operational arrangements and guidelines for FRUGs and remainder of transition plan based on evaluation and review	22	Aug 05
10	Transfer credit fund to remaining FRUGs, provide and develop with them on-the-job training from Caritas staff	22-24	Oct 05
Phase III FRUGs responsible for operations but work jointly with full NGO support			
11	FRUGs with project assistance recruit their staff	25	Nov 05
12	Upazila committees review credit and operations of FRUGs in their jurisdiction in their regular meetings	25 onward	From Nov 05
13	FRUGs operate according to their guidelines/manual with their own staff working in tandem (shadowing) Caritas staff and learning-on-the-job as well as formal training	25-30	Apr 06
14	Continual assessment process for FRUGs and their staff by Caritas, with feedback into training and mentoring	25-36	Oct 06
15	External review study of FRUGs financial viability for credit operation, decision on what support is needed and how it will be arranged after project	31	May 06
Phase IV FRUGs responsible for operations, project-funded NGO (Caritas) support just for supervision			
16	FRUG staff work without day to day NGO support, Caritas phases out many of its field staff but continues some who provide quality check and trouble shooting service. Note the timing of this phase out may be earlier for some fast track FRUGs, or later for others.	31-36	Oct 06
Phase V Long term operations of FRUGs			
17	FRUGs function under long term arrangement of Upazila committee oversight. There would also be some support and supervision offered from Caritas (without project funding), which is to be decided and agreed within step 14.	37 onward	From Nov 06

Note: target months are when each step will be completed, except they are the starting month for long-term activities that will continue after project funding.

Progress in establishing FRUGs. During the first year of the project phase, 13 out of 14 planned FRUGs have been formed. These are organized broadly in line with the villages covered by Union Parishads (local government elected councils), but where there were few RUGs in a particular union they have been included with the RUGs in an adjacent union to form an FRUG. The main criteria were that the groups and villages should be near to one another and the total number of RUGs in an FRUG should be at least sufficient to make effective use of and be able to pay for one employee working for the members. On an average there are 15 RUGs in each FRUG but in some of the cases the number of RUGs is different as the RUGs were formed as per water body complex and are scattered. The breakdown of FRUGs is shown in Table 31.

Table 31: Summary of FRUGs as on 30th Oct. '04

SL. no.	Name of the FRUG	Date of formation	No. of RUGs	No. of RUG members	No of EC meetings of FRUG held	No. of GB meeting	Remarks
1.	Jhenaigathi Union FRUG	08.06.2004	24	481	4	3	Kangsha-Malijhee area
2.	Malijikanda Union FRUG	19.05.2004	21	435	4	3	
3.	Dhansail Union FRUG	20.06.2004	*8	127	2	3	
4.	Aura Baura Beel FRUG	10.06.2004	24	469	2	3	
5.	Pakuria, Bhatshala, Dhala union FRUG	27.06.2004	26	454	2	3	
6.	Mowchak, Madhapara Union FRUG	26.05.2004	16	330	1	3	Bangshi-Turag area
7.	Chapair, Madhapara, Boali Union FRUG	27.05.2004	13	225	2	3	
8.	Ajgana, Chapair Sutrapur Union FRUG	15.05.2004	15	292	1	3	
9.	Sreemongal Union FRUG	27.05.2004	15	340	3	2	Hail Haor area
10.	Kalapur Union FRUG	03.06.2004	22	468	3	2	
11.	Nazirabad Giasnagar Union FRUG	06.06.2004	17	373	2	2	
12.	Vhunobir Mirzapur Union FRUG	10.06.2004	16	345	3	2	
13.	Ashidron Vhunabir Union FRUG	10.06.2004	16	350	3	2	
	Total		233	4,689	32	34	

* It is planned to form another 7 RUGs during project year 2 to reach up to 15 RUG.

The RUGs have selected their representatives for the FRUG general body (two per RUG), and the general bodies have already selected their executive committees and elected their executive officers. The project team prepared a standard constitution for the FRUGs through an extensive process of discussion with RUGs/FRUGs and among staff of the project partners and the FRUGs with Caritas help are going through the registration process with the social welfare department. It is expected that this will be completed by February 2005. The FRUGs have already started regular monthly meetings, ahead of schedule, and are due to open their own bank accounts through Caritas sponsorship which will be jointly operated with Caritas. The member RUGs have through member subscriptions collected funds to cover registration costs and some initial operating costs. They are also identifying land where they can establish their own office-meeting/training rooms (to be constructed with project funds during project year 2).

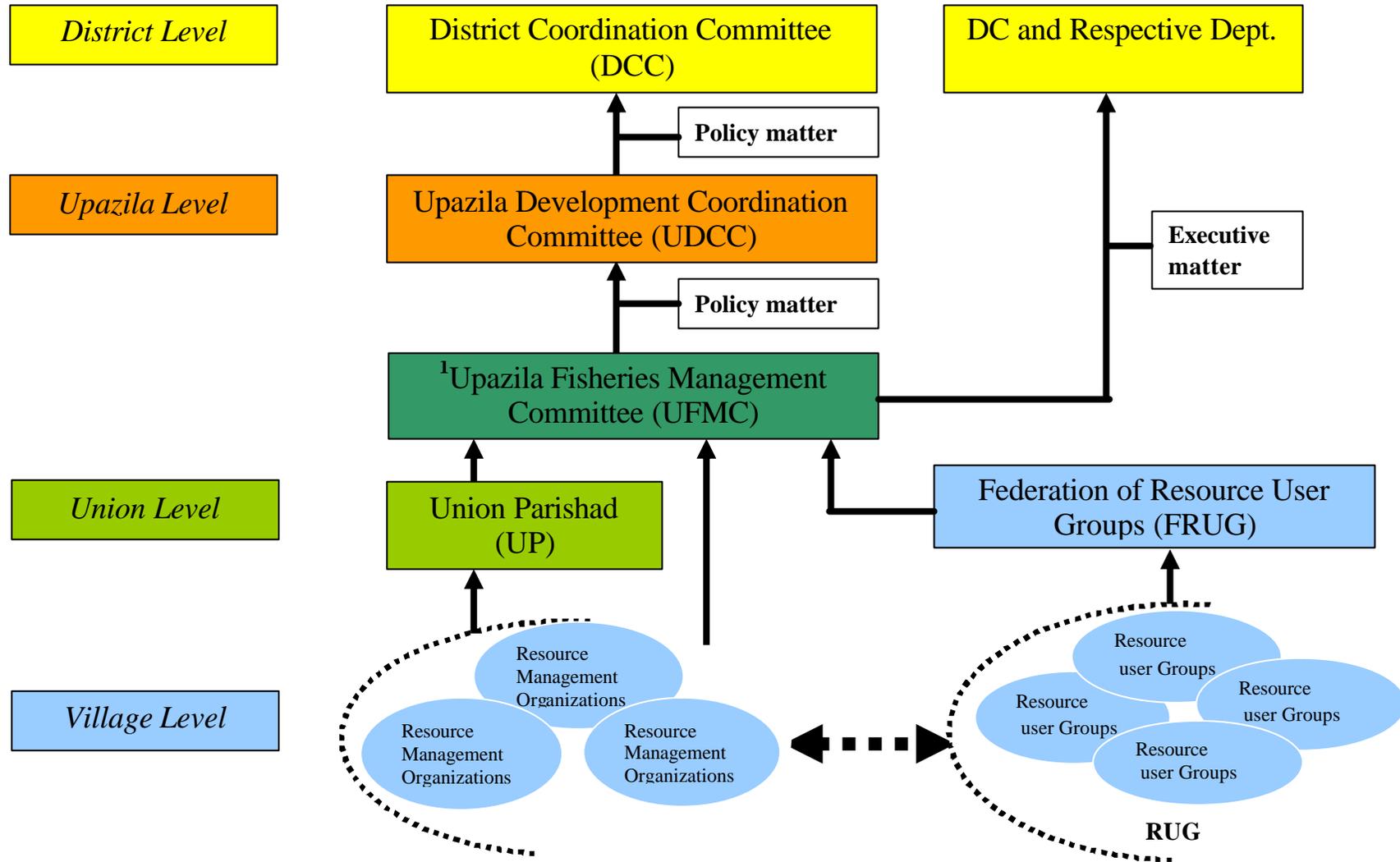
A major activity in project year 1 has been to prepare a credit operational guideline/manual for the FRUGs, particularly on how they will operate the revolving loan funds which the project will transfer to the FRUGs and how they will manage the savings that their members have accumulated so far and will continue to accumulate. This is now ready for final agreement with and implementation by field staff.

Plans for FRUG support in 2004-05 and following year. Project year 2 will be a phase of developing FRUG capacity to manage funds with the staff involved in operational activities being regular Caritas staff (the same staff as in the first year). This is a critical year for testing the approach and finding out if the FRUGs and participants/members of the program will be capable of self-managing their own savings and credit programs. Within this phase two tracks have been planned. A fast track will pilot FRUG operation of funds in one FRUG in each of the three project sites. Based on lessons and experience gained from six months of this piloting, the guidelines and procedures will be improved. Meanwhile Caritas staff supporting the other FRUGs will concentrate on bringing each of those FRUGs and the component RUGs up to the standards, capabilities and understanding needed so that within the year all FRUGs can have their funds transferred to them. Based on the outcomes of this phase the plans for project year 3 will be reviewed and may be modified.

Project year 3 comprises two phases. In phase III the FRUG staff will work jointly with Caritas staff (in effect there will be a doubling of field staff with FRUG staff paid from the FRUGs interest earning and Caritas staff paid from the project for this phase of about 6 months), this is designed to develop the capacity of staff to be recruited by the FRUGs, and to develop the capacity of the FRUGs to supervise their staff and conduct their general operations. Based on this progress the FRUGs will move to phase IV where there will be more limited Caritas supervision from project paid staff. During this period of transition the Upazila committees that will have already been formalized (Section II-D-1) will take on responsibility for oversight of the FRUGs and their credit activities. During project year 2 the project team will agree on a set of milestones and criteria that FRUGs and their staff should reach before moving to phase IV. The continual assessment process will then help direct the project staff and resources to FRUGs according to needs and gaps to be closed.

Much of the responsibility for completion of this task within component 5 lies with partner MACH-Caritas.

Figure 2: Community-Based Co-Management of Natural Resources: An Institutional Framework (MACH II)



¹Current MACH LGC merged with existing Upazila Committee established under MoU's between MoL and MoFL

The members of UFMC are 1. U.N.O – Chairman , 2. A. C (Land) – Member 3. Upazila Fishery Officer – Member Secretary 4. Upazila Engineer – Member, 5. Upazila Agriculture Officer– Member , 6. Upazila Livestock Officer – Member' 7. Upazila Cooperative Officer – Member , 8. Concern UP chairman & representative – Member , 9. Representative from RMO (one from each)– Member , 10. Representative from FRUG (one from each) – Member , 11. Representative from NGO working in the area - Member

III. Site Activities, Targets and Achievements

Targets and achievements of some of the major indicators are discussed below:

Extent of best practices. MACH II has been working with DoF and 4th fisheries to extend the best practices of MACH partly or fully as others require and accept. MACH of course cannot force other project to adopt, but can only demonstrate and show. During reporting period LGED sought MACH's advice and has been established best practices (sanctuary, habitat restoration, CBO formation) on 3 occasions in the Upazilas of Sunamgonj sadar, Biswamvarpur and Jamalgonj of Sunamgonj district. In addition MACH II has been working closely with the Department of Fisheries and the staff of the Fourth Fisheries Project through workshops and field trips to encourage the incorporation of selected MACH best practices into the overall Department of Fisheries Inland Freshwater Fisheries Strategy and into the 4th fisheries programs. Many of MACH best practices have been incorporated into the final draft of the Inland Freshwater Fisheries Strategy and into 4th Fisheries approaches.

Increase of fish production in wetland resources. One of the major indicators is increase of fish production in the concerned wetlands. At the end of MACH-I, average production of all three sites was around 200 kg/ha. At the end of 1st year of MACH-II i.e. through 4th impact year, cumulative weighted average of fish returns is 217 kg/ha. Fish catch has continued to at least be maintained and or increased over the baseline established in 1999. Anecdotal information from fishermen and people living around the water bodies at all three sites also bear this data out. The consumption data and rate of catch also bear the main catch data out.

Area under improved management. A total of 18,868 ha was brought under improvement management through MACH activities during MACH-I. At the end of 1st year of MACH-II a total of 820 hectares of new area mostly in Turag-Bangshi site (780 ha) was brought under improved management through introduction of some norms, practices and execution of restoration activities. About 40 ha was established in Hail-Haor site. The target for the year was 800 ha.

Aquatic habitat converted from seasonal to perennial. A total of 29 schemes of habitat restoration were executed in beels and canals during the 1st year of MACH-II. As a result of the restoration through deepening of beels and canals a total of 367 ha water bodies against targeted area of 200 ha have become fully perennial water bodies.

Fish sanctuaries established. During 1st year of MACH-II six sanctuaries against a target of 5 have been established to conserve and re-establish fish biodiversity in the related water bodies of Turag-Bangshi and Kangsha-Malijhee sites. The total area of these newly established sanctuaries is about 2 hectares. A comprehensive plan has also been developed for the central sanctuaries located in Hail-Haor. Execution of the planned restoration within the sanctuary area will start as soon as water recedes.

Riparian & Swamp habitat improvement. Reforestation is one of the tools for the improvement of wetland and riparian habitats. During the 1st year of MACH-II a total of 204,876 saplings of approximately 45 different riparian and swamp tree species have been planted on 102 km and about in 10 ha land. Of the 204,876 saplings about 73,000 are of the deep water or swamp variety.

Increase of supplemental income of RUG individuals. During the 1st year of execution of MACH-II, newly selected RUG members were trained to make them capable to handle the loan to be received. Some of them have received loans in the later part of the reporting year. So their increased income could not be assessed during the reporting period. Increase of supplemental income of old loanees was assessed. During last reporting year (1st year of MACH-II) their average supplemental income increase was Tk.3,518.00. The target may be revised for these old loanees (see Table 33). During the reporting period a total of 2,609 new loans were disbursed out of which 365 were new members who received loan first time.

Water bodies leased to RMOs. During MACH-I total 24 water bodies were handed over to RMOs. At the end of 1st year of MACH-II twelve water were allocated to RMOs in Hail-Haor

site. In those 12 water bodies 9 have been formally handed over to RMOs and remaining 3 were in the process of being handed over.

Individuals reached by public awareness. To make the community based organizations (RMOs/ RUGs/ FRUGs) sustainable, the entire village community surrounding the water body is to be made aware of the resources under management of the RMO, conservation, and the responsibilities of the RMO. In view of this public awareness activities e.g., folk drama, rallies, village meetings, day observance etc. were continued and a total of 54,370 individuals were made aware in the 1st year of MACH-II against target of 30,000 individuals.

Resource management issues discussed in local Govt. meetings. This same activity is being continued in MACH-II to keep the local Govt. authorities involved in the resource management activities by the community based management organizations. A linkage has also been established between the CBOs (RMO) and the local Govt. authorities that will hopefully lead towards the sustainability of the MACH approach. During the 1st year of MACH-II several resource management issues were discussed in 130 local Govt. meetings against target of 100.

Communities adopting key regulations. In MACH-II an additional 10 communities have adopted key regulations related to wetland resources management in the newly expanded areas. Target was 8 communities.

Re-introduction of fish species. During 1st year of MACH-II a total of 472,276 fingerling of three different indigenous species (Rui, Gonia & Kalibaush) were re-introduced in the wetlands. Due to severe flood in 2004 other contracted farms could not supply. As a result the re-introduction program was affected to some extent. The program will continue in the following year also to further strengthen their populations ensuring full recovery.

Pineapple cultivation in contour system. During 1st year of MACH-II fifteen demonstration plots of 15 ha area have been brought under contour pineapple cultivation in the hills at Sreemangal site. This cultivation practice is very effective for reducing soil erosion and increasing leaf cover and pineapple yields.

Table 32: MACH II Selected achievements by activity by site

Activities	Hail Haor	Turag Bangshi	Kongshow-Malijhee	Total
1. Area under improve management (ha)	40	740	-	820
2. Establishment of sanctuaries (no)	-	4	2	6
3. Reforestation of Riparian, Roadside Institution/Homestead & Patch forest trees (no.)	9193	27900	94827	131920
4. Reforestation of swamp trees (no.)	34598	16229	22129	72956
5. Re-excavation beel (ha)	2.37	9.77	4.30	16.44
6. Re-excavation canal (meter)	4406	8000	333	15739
7. Allocate water bodies to RMO	12	-	-	12*
8. No. of communities follow fishing norms	4	4	2	10
9. Awareness programs (no. of participant)	20499	17130	16741	54370
10. No. of new RUG formed	3	11	7	21
11. No. member start AIGA	167	75	123	365
12. Skill Dev. Training (batch)	13	11	9	33
13. Pineapple Demonstration program	15	-	-	15

* Out of 12 beel 9 beel already handed over and remaining 3 are in the process of being handed over

SO 6 targets and accomplishments

In accordance with the RFA and the USAID Performance Monitoring Plan the MACH project has a set of objectives designed to build toward the Strategic Objective 6 of the USAID mission in Dhaka. To achieve the SO 6 there are Intermediate Results (IRs) that have been set to be achieved through MACH interventions. To measure the intermediate results there are 19 measurable indicators identified. Table 33 presents the preliminary achievements through the first year of the project.

Table 33: MACH-II Targets and Accomplishments of the first year.

Indicators	Unit	Target for Year-1*	Achievement Nov'03- Oct'04	Remarks
SO 6 Indicator: 6.a Extent to which best practices from USAID projects are used elsewhere	No. of Occasions	3	3	Project is working with Department of Fisheries and the Fourth Fisheries Project to incorporate many of MACH best practices (community based approaches) into the Departments Open Inland Fisheries Strategy to be used in all Upazilas of the country. Also worked with LGED in the establishment of best practices (sanctuary, restoration, and CBO formation) in 3 occasions in as many as 3 Upazilas. Total target is 9 occasions over the life of the project.
SO 6 Indicator: 6.b Maintaining or increasing Fish production of natural resources	Kg/ha/Year	195	217	Cumulative weighted average yield of 3 sites from end of year 3 through impact year 4.
	No. of Riparian and wetland trees	100,000	204876	A total of 72,956 wetland trees and 131,920 riparian, roadside, institution/homestead and patch forest trees
SO 6 Indicator 6.c Maintaining or increasing biodiversity	No. of fish species	-	N/A	This target will be assessed at the time of project completion as these changes are to be measured over multiple years. Substantial increases occurred in phase I already and 3 species are targeted for increase during the 3 year phase II.
	No. of Tree species	-	N/A	This target will be assessed at the time of project completion as these changes are to be measures over multiple years. Substantial increases occurred in phase I already and 2 species are targeted for increase during the 3 year phase II.
IR 6.1 Indicator: 6.1.a Area of floodplain where sustainable management is implemented	ha	800	820	New areas taken under management mostly in the Turag Bangshi (TB) site where a total of 780 ha. of new area was taken under sustainable management. A further 40hectares was established in Hail Haor (HH).
IR 6.2 Indicator: 6.2a Aquatic habitats converted from seasonal to perennial	ha	200	367	The area shown represents the beel and khal basin area converted from seasonal to perennial.
IR 6.2 Indicator : 6.2b Riparian Habitat improved	km	50	100.35 + 9.93 ha	Riparian and roadside reforestation for all three sites.
IR 6.2.1 Indicator: 6.2.1a Number of new sanctuaries established	No.	5	6	Four new sanctuaries have been established in the Turag Bangshi site and two in the Kangsha-Malijhee site

Indicators	Unit	Target for Year-1*	Achievement Nov'03- Oct'04	Remarks
IR 6.2.1 Indicator: 6.2.1b Number of wetland/riparian trees successfully established	No.	100,000	Wetland- 72956 Riparian- 32934 Roadside- 84121 Inst./Home- 1475 Patch forest-13390 ----- Total- 204876	Same as shown in 6b above
IR 6.2.2 Indicator: 6.2.2a Average annual increase in targeted individual RUG member supplemental income	Tk.	1,500	3518	These are the old loanees and the targets for the old loanees readjusted to 3,500 at the end of year 3. Supplemental income not expected to increase much from that at the end of the 1 st year. New loanees will be receiving loans in early 2005 and target (supplemental income increase) for new loanees is set at 2,000 Tk.
IR 6.2.2 Indicator 6.2.2.b Number of RUG fishers having reduced effort. (Among 2,655 fishers)	Hours (total reduction of daily fishing hours)	2,400	2495	This indicator changed to the total hours of reduced fishing. Among the targeted fishermen (RUG fishers) the average fishing hours per RUG fishermen was 3.96 in 2003. By September of 2004 this had reduced to 3.02 or a reduction of 0.94 hours of fishing per day. Targets reestablished at 2,400 hours, 2,500 and 2,600 by 2006
IR 6.2.2 Indicator: 6.2.2.c Total number of new AIG loans	No. of loans	2,500	A total of 2,609 new loans have been disbursed. 365 members have taken first loan during the reporting period	This is based on data through October or 1 year of MACH II
IR 6.3 Indicator: 6.3a Number of water bodies leased to community RMO	No.	3	12	A total 12 additional beels have been leased by the RMOs in HH site during phase II. Out of 12 water bodies 9 have been handed over to RMOs, remaining 3 are in process.
IR 6.3 Indicator: 6.3b Number of communities adopting key regulations	No. of communities	8	10	In phase II 10 additional communities have adopted key regulations, 4 in Hail Haor, 4 in the Turog Bangshi area, and 2 in the Kangsha Malghee or Sherpur site)
IR 6.4 Indicator: 6.4a Number of individuals reached by the public awareness activities	No.	30,000	54,370	Activities included: folk drama, rallies, village meetings, observation of international wetland and environment days, and rallies.
IR 6.4 Indicator: 6.4b Percentage increase in awareness of wetland resource issues from baseline	Percentage	-	-	Baseline survey has been conducted in May of 2004. 1 st impact survey will be conducted next year at the same time with result to be shown in next years annual report.

Indicators	Unit	Target for Year-1*	Achievement Nov'03- Oct'04	Remarks
IR 6.5 Indicator: 6.5a Number of local government meetings where resource management issues discussed	No.	100	130	These were held at the Upazila level, Union level, and District level with 19 at the Turog Bangshi site, 52 at the Kangsha Malghee, and 59 at the Hail Haor site).
IR 6.5 Indicator: 6.5b Permission for RMO members to attend UP meetings		-	1	Permission granted at all sites, RMOs are attending UP meetings and agreements have been reached at the Union level.
IR 6.5 Indicator: 6.5c UWRMC (Apex co-management body) formed with Charters/GoB circulars in place	No.	-	Process initiated ToR draft prepared and discussed in steering committee meeting. Preliminary discussions held in DoF.	Name of the co-management organization to remain in place after MACHII (UWRMC/LGC) is subject to change depending on results of workshops currently being held with the DoF to try to gain consensus on the name and the people/position at the local government level to be on the committee. Formation of organizations to come in year 2 or 2005. A total of 4 Upazila level organizations to be formed by the end of year 2.
IR 6.5 Indicator: 6.5d Trust Fund Established for Institution	No.	-	Trust fund or endowment fund requirement agreed in principal at RPT level. Approved conditionally in Steering committee meeting. Discussions with DG Fisheries held.	Discussed in Steering Committee meeting of 04 and approved conditionally on the PP being approved with the change. This is dependent on GoB approval of the ISM fund use for this and their approval on the fund being set aside as a trust fund or endowment. Discussions with Ministry and DoF ongoing and PP revision in process for ISM funds.

* Year1- November 2003 – October 2004

IV. Finance & Administration

A. Financial Control

Winrock International, the grantee, has the sole responsibility for funds to operate MACH II programs. The funds are administered according to the terms and conditions set forth in the 22 CFR226, entitled 'Administration of Assistance Awards to US Non-governmental Organizations', Attachment 1, entitled 'Schedule', Attachment 2, entitled 'Program Description', and Attachment 3, entitled 'Standard Provisions'. **Winrock** and its Partners are subject to standard USAID financial controls that include annual USAID financial audits.

The financial tables for this annual reporting can be seen on Tables 34, 35, 36 & 37 provided below.

Table 34: Financial activities during the reporting period MACH-II

LINE ITEM	YEAR 1	YEAR 2 & 3	TOTAL EXPENSES	% of Budget spent
	EXPENSES	EXPENSES		Total Budget
	Oct'03 – Sep '04 12 months			
Salaries and Fringe Benefits	\$204,930	\$ -	\$204,930	32%
Short-Term Specialist	\$ -		\$ -	0%
Travel Per Diem	\$ 13,851		\$ 13,851	30%
Allowances	\$ 86,224		\$ 86,224	38%
Procurement	\$ 6,243		\$ 6,243	8%
Program Activities	\$ 14,768		\$ 14,768	64%
Other Direct Cost	\$130,571		\$130,571	35%
SUB-TOTAL	\$456,587	\$ -	\$456,587	16%
Sub- Contracts	\$319,216		\$319,216	29%
Indirect Costs	\$158,621		\$158,621	27%
TOTAL DIRECT COSTS	\$934,424	\$ -	\$934,424	13%
Cost Sharing Match	\$294,750		\$294,750	47%
TOTAL PROJECT COSTS	\$1,229,174	\$ -	\$1,229,174	33%

**Table 35: Financial activities during the reporting period ISMP
Period: April 2003 - June 2004 & July 2004 - September 2004**

LINE ITEM	YEAR - 1 & 2	YEAR - 3	TOTAL EXPENSES	In lakh Taka
	EXPENSES	EXPENSES		% of Budget spent
	April'03- Jun '04 Fifteen months	Jul '03 – Sep '04 Three months	Total 18 months	Total Budget
Staff Salaries and Allowance	51.51	10.68	62.19	54%
Procurement	52.27		52.27	84%
Project activities:			-	
Re-excavation – Khal	167.43		167.43	21%
Re-excavation – Beel	72.45		72.45	7%
Re-vegetation/re-forestation	96.47	9.03	105.50	80%
Physical infrastructure	9.01	-	9.01	6%
Sanctuary establishment	118.77	5.42	124.19	21%
Credit Program	10.00	11.72	21.72	22%
Water pollution Control	22.30	6.89	29.19	49%
Training workshop/awareness	45.44	0.50	45.94	46%

LINE ITEM	YEAR - 1 & 2 EXPENSES	YEAR - 3 EXPENSES	TOTAL EXPENSES	In lakh Taka % of Budget spent
	April '03- Jun '04 Fifteen months	Jul '03 – Sep '04 Three months	Total 18 months	Total Budget
Outreach	3.25		3.25	17%
Other Direct Cost	42.50		42.50	100%
SUB-TOTAL	691.40	44.24	735.64	
Consultants	12.72	15.03	27.75	28%
Indirect Costs	45.88	3.83	49.71	24%
TOTAL DIRECT COSTS	750.00	63.10	813.10	24%

Table 36: Utilization of Person Months MACH-II
Period: November 2003 - September 2004

Line Item	Status	No. of	Person month utilized			Total PM
		Persons	YR 1	YR 2	YR 3	Utilized
WINROCK International						
Home Office Support	ST	3	3.00			3.00
Chief of Party/Team Leader	LT	1	10.00			10.00
Natural Resource Advisor	LT	1	7.00			7.00
Expatriate Consultant	ST					-
Local Consultants	ST					-
Admin/Accounts/Supports	LT	6	66.00			66.00
Sub-total		11	86.00	-	-	86.00
BCAS						
National Coordinator	LT	1	11.00			11.00
Database Manger/GIS	LT	1	3.60			3.60
Communication Specialist	LT	1	9.00			9.00
Habitat Restoration Specialist	LT	1	11.00			11.00
Fisheries Policy Specialist	ST	1	1.50			1.50
Sr. Consultant	ST	1	4.00			4.00
Consultant/Others	ST	2	2.00			2.00
Data entry & Supports	LT	6	66.00			66.00
Sub-total		14	108.10	-	-	108.10
CARITAS						
Coordinator	LT	1	11			11.00
Field Coordinators	LT	2	22			22.00
Institution Dev. Specialist	LT	1	6			6.00
Field Officer	LT	5	53			53.00
Asstt. Field Officer	LT	19	137			137.00
Agriculture Extension Officer	LT	2	11			11.00
Accounts and Supports	LT	13	203			203.00
Sub-total		43	443	-	-	443
CNRS						
Project Coordinator/Monitoring	LT	1	7.00			7.00
Flood Plain Ecologist	ST	1	1.00			1.00
Site Coordinator/NRP	LT	3	36.00			36.00
Field Biologist	LT	4	40.00			40.00
Field Officer	LT	16	111.00			111.00
Consultant/Others	ST		-			-
Data Programmer/MIS	LT	1	11.00			11.00

Line Item	Status	No. of	Person month utilized			Total PM
		Persons	YR 1	YR 2	YR 3	Utilized
Data Entry Operator	LT	2	20.00			20.00
Accounts & Supports	LT	2	22.00			22.00
Sub-total		30	248.00	-	-	248.00
Total MACH II		98	885.10	-	-	885.10

**Table 37: Utilization of Person Months ISMP
Period: April 2003 - June 2004 & July 2004 - September 2004**

Line Item	Status	No. of	Person month utilized			Total PM
		Persons	YR 1 & 2 4/03 - 6/04	YR 3 7/04 - 9/04	YR 3	Utilized
WINROCK International						
Executive Engineer	LT	1	18.80	3.00		21.80
Assistant Engineer	LT	3	24.00	9.00		33.00
Sub-assistant Engineer	LT	6	74.00	18.00		92.00
Survey assistant	LT	6	80.00	18.00		98.00
Accountant	LT	1	15.00	3.00		18.00
Accounts assistants	LT	6	86.00	18.00		104.00
Secretary	LT	1	13.00	3.00		16.00
MLSS	LT	4	52.00	12.00		64.00
Sub-total		28	362.80	84.00	-	446.80
BCAS						
Habitat Restoration Specialist	LT	1				-
Communication Specialist	LT	1				-
Pollution Expert	ST	1	5.00	3.00		8.00
Resource management Specialist	LT	1				-
Sub-total		4	5.00	3.00	-	8.00
CARITAS						
Institution Dev. Specialist	LT	1				-
Agriculture Extension Officer	LT	3				-
Accounts assistants	LT	2	18	6		24.00
Cook/Bearer	LT	8	60	24		84.00
Peon/Guard	LT	5	35	15		50.00
Sub-total		19	113	45	-	158
CNRS						
Project Coordinator/Monitoring	LT	1				-
Data Programmer/MIS						
Data Entry Operator	LT	2				-
Training Coordinator	ST	1		3.00		3.00
Sub-total		4	-	3.00	-	3.00
Total ISMP		55	480.80	135.00	-	615.80

B. Administration

1 Partner Agreements

Winrock signed its agreement with USAID in October 2003. Long-term Sub-agreements were signed with the MACH NGO partners (BCAS, CARITAS and CNRS) in November 2004 for the period November 2003 – October 2006. A similar agreement was signed with MACH NGOs covering staff and activities to be accomplished by them through ISMP funding during the period November 2003 – June 2005. These agreements contained partner work statements, laid out management issues and contained detailed budgets covering three sites.

2 Staff Recruitment

MACH II-Winrock. The full-time MACH-Winrock office staffing is complete. A MACH-Winrock staff manual was prepared. Staff provident funds were established as required by local laws & regulations and a life/hospitalization insurance policy was established for all MACH long-term employees. Among those recruited were the Administrative and Finance Manager, Accountant, administrative assistant, two Accounts Assistants, and Receptionist /Secretary and other support personnel.

Full-time ISMP technical and support staff as in PP are also completed. Among those recruited were the one Executive Engineer, three Assistant engineers, six Sub-assistant engineers, six Survey assistant, one accountant, six accounts assistants, one secretary and three MLSS personnel.

A complete list of MACH II and ISMP Program staff is found in Appendix 6.

MACH II/ISMP-BCAS. Fourteen staff members were recruited by MACH II/ISMP-BCAS, eight of whom are with the Dhaka headquarters and five are site-based in Sreemongal, Kaliakor and Sherpur. Recruited were the Executive Director, Habitat restoration Specialist, National Coordinator, a Hydrologist, a Research Officer, two Senior Fellows, an officer in charge of GIS and three site office word processors and three support staff. A list of MACH II/ISMP-BCAS Program staff is in Appendix 6.

MACH II/ISMP-CNRS. CNRS recruited a total of 31 staff, including short-term professionals and all have been posted in the three project sites as well as in the CNRS headquarters. Fourteen of the staff members were posted in Hail Haor, five in Turag Bangsi and five in Sherpur site. The MACH II/ISMP-CNRS at the headquarters includes a Computer Programmer, Database Programmer, Data Entry Operator/Manager, Training/ and Communications Officer, Monitoring Coordinator, Fisheries Biologist and a short-term Floodplain Ecologist and short-term and Institution Development specialist. A list of MACH II/ISMP-CNRS program staff is in Appendix 6.

MACH II/ISMP-CARITAS. CARITAS completed staff recruitment, hiring 54 program, field and support personnel. Recruited were three long-term Program Officer/Coordinators, five Field Officer, sixteen assistant field officer, two agriculture extension officer, one short-term Institution Development Specialist, four accounts staff in Dhaka and 23 field support staff. A list of the MACH II/ISMP-CARITAS program project staff is in Appendix 6.

3. Office Sites

The main MACH program office was established in Dhaka. Three site offices, four training centers and three camp offices were set up in the three project sites. The following MACH program offices were established:

Dhaka:

House 2 (Fourth Floor), Road 23/A, Gulshan-1, Dhaka 1212

Phone: 881 4598, 881 9587, 8816602, 9887943

Fax No. 880-2-8826556

E-mail: ddeppert@winrockbd.org, wjcollis@winrockbd.org, mshab@winrockbd.org

Hail Haor:

at Varaura Rd, Uttara Abasik Alaka

Sreemongal, Moulvibazar District (Tel. 08626- 88286, mobile:0171 811906, 0171431669)

Email: hhaor@mach.bangla.net

Two field offices at Mirzapur (mobile: 0171811904) and Kalapur (mobile: 0171431667) Unions.

Turag Bangsi.

at Tan- Baroibari Bazar, Boali Union, Kaliakor Thana, Gazipur District.

Tel: 0171646568 and 0171406650

A field office is at Taltoli. The Taltoli structure is an abandoned Social Welfare Center. MACH has acquired the use of the structure for the project period. In lieu of rent, MACH has conducted repairs of that government field office.

Kongshaw Malijhee:

at 159 Madhabpur, Sherpur town, Sherpur District

Tel: 0931 -61967, mobile 0171 620459, 0171431668)

Email: sherpur@mach.bangla.net

There are three field offices in Jenaigathi (0171435636), Tinani Bazar(0171431670) and Sheikhhati

4. Procurement

All major project procurement is completed. The major furniture procurement for the MACH Dhaka and site offices has taken place. Computers and other office and Engineering equipment have been purchased as in PP through the ISM fund and are in use. Eighteen motorcycles have been purchased also through the ISM fund. These are in addition of furniture, Computers, Office equipments and Motorcycles of MACH I authorized by USAID to be used under MACH II.

Vehicles. MACH II (as in MACH I) and ISMP has no provision to purchase Vehicles. Project is renting vehicles for field trips and temporary rented Vehicle on need basis both in Dhaka and at project sites. Rental is mainly done from the ISM fund.

5. Future Procurement

Normal expenditure for materials that include computers, office and audio-visual materials will continue to take place.

Appendix 1

Project activities, Targets and Achievement

MACH-II detailed Targets and Achievement
Wetland Resource Management Activities

Reporting Period: Nov 2003-Oct2004

Activities	Unit	Target Year-1	Site based target & achievement Year-1						Overall Achievement	Remarks
			Hail Haor		Turag Bangshi		Kongshow Malijhee			
			Target	Achievement	Target	Achievement	Target	Achievement		
1. Improved Management Area (ha) 6.1a-SO6	ha.	800	150	40	600	780	50	-	820	
2. Increased production (kg/ha) 6.b-SO6	kg/ha	195	290	162	275	315	145	316	217	
3. Increased Bio-diversity (No. of spp.) 6.c-SO6	Fish (no.)	3	3	-	3	-	3	-	-	
	Plant (no.)	2	2	-	2	-	2	-	-	
4. Re-introduction fish fingerlings	no.	850000	550000	363893	100000	13622	200000	94761	472276	
5. Re-introduction fish species	no.	4	4	3	2	1	4	3	3	
6. No. of new sanctuaries established 6.2.1a-SO6	no.	6	1	-	4	4	1	2	6	
	Area(acre)	4.00	0.50	0.00	3.00	3.00	0.50	2.00	5.00	
7. Lease of water bodies to RMOs (no.) 6.3a-SO6	no.	9	8	12	1	-	-	-	12	Out of 12 beel 9 have been handed over to RMOs and 3 are in under process
	Area(acre)	165.00	150.00	185.57	15.00	0.00	0.00	0.00	185.57	
8. Improved institutional capacity (Market indicator)		-	-	-	-	-	-	-	-	
9. Extent of use of practices (occasions) 6.a-SO6	no.	-	-	-	-	-	-	-	3	
10. Riparian Habitat improvement 6.2b-SO6										
(a) Riparian (chhara, river, canal etc.) plantation	no.	81100	22500	3415	39300	24700	19300	18209	46324	Riparian-4819(5 km) & Patch forest-13390(5.65 ha) in Kongshow Malijhee.
	km	35.87	11.45	3.3	24.42	1.75	-	5	10.05	
	Area(ha.)	2.15	-	-	2.15	9.93	-	5.65	15.58	
(b) Swamp Plantation	no.	24900	11200	34598	4500	16229	9200	22129	72956	
	Area(ha.)	0.8	-	12.05	0.8	5.94	-	-	17.99	
	km	4.95	2.95	3.19	2	1.2	-	12.5	16.89	
(c) Instn. & homestead plantation	no.	5700	2700	0	1000	275	2000	1200	1475	
(d) Roadside plantation (Wetland area)	no.	167000	-	5778	2000	2925	165000	75418	84121	
	km	169.5	-	5	2	2	167.5	83.3	90.3	
11. Habitat Restoration (ISMP supported) :										
a. Beel rehabilitated/re-excavated	Area(ha.)	34.27	16.06	2.37	9.77	9.77	8.44	4.3	16.44	
	no.	17	6	6	5	5	6	6	17	
b. Canals rehabilitated/re-excavated	no.	12	4	4	4	4	4	4	12	
	length(meter)	15743	4410	4406	8000	8000	3333	3333	15739	
c. Aquatic Habitat (Beel & khal) converted from seasonal to perennial 6.2a-SO6 (Area of the waterbody)	Area(ha)	200	40	52.17	150	293.88	10	21.25	367.30	
	no.	16	6	10	4	9	6	10	29	
12. Floodplains/wetlands resource management organizations (RMOs)										
a. Formation of new RMOs in expanded area	no.	-	-	-	-	-	-	-	-	
b. Formation of new Chhara/jhara/kum/kur/Daho RMOs	no.	1	-	-	1	1	-	-	1	
c. Delineate potential resources areas for management (beel/kum/daha)	no.	2	-	-	1	-	1	1	1	
d. Participatory community planning		16		8		4		4	16	

**MACH-II detailed Targets and Achievement
Wetland Resource Management Activities**

Reporting Period: Nov 2003-Oct2004

Activities	Unit	Target Year-1	Site based target & achievement Year-1						Overall Achievement	Remarks
			Hail Haor		Turag Bangshi		Kongshow Malijhee			
			Target	Achievement	Target	Achievement	Target	Achievement		
- Resources planning meeting	no.	13	8	8	1	-	4	-	8	
e. Plantation committee meeting	no.	-	-	-	-	-	-	6	6	
13. Strengthening and capacity building of RMOs										
a. Reg. of RMOs (Beel/Chhara/jhara/kum/kur/Daho)	no.	10	6	1	1	-	3	-	1	
b. Constitution amended or revised	no.	15	7		4		4	-	-	
c. Constitution for chhara	no.	5	5	1					1	
d. Training module developed for RMO capacity building	no.	6	2	-	4	-	-	-	-	
e. Capacity building training for RMOs	no.	22	8	-	4	-	10	1	1	
f. RMO review workshop/assessment	no.	16	8	8	4	4	4	4	16	
g. Cross visits	no.	4	2	-	1	-	1	-	-	
h. Refresher training	no.	18	8	-	5	-	5	-	-	
i. EC meetings of RMO	no.	179	96	83	48	32	35	21	136	
j. GB meetings of RMO	no.	71	36	34	16	11	19	17	62	
k. CRMO meetings/Daha/Kum Committee meeting	no.	276	45	37	228	63	3	9	109	
l. Resources management plan implemented	no.	19	8	-	4	-	7	14	14	
m. RMOs resource mapping and inventory done	no.	12	8	-	4	-	-	4	4	
n. Community monitoring program established	no.	16	8	-	4	-	4	14	14	
o. No of local government meetings where resource management issues discussed 6.5a-SO6	no.	160	52	59	52	19	56	52	130	
p. Official circulars for UDCC agenda item & permission for RMO members to attend UP meetings as needed	no.	-	-	1	-	1	-	1	1	Permission granted at all sites, RMOs are attending UP meetings and agreements have been reached at the Union level.
14. awareness program(Env/Institution Mobilization)										
a. Para level /Uthan Baithak	Program(no.)	360	60	100	100	20	200	166	286	
	Participant(no.)	4400	1200	1345	1200	289	2000	1670	3304	
b. Village level	Program(no.)	356	36	124	20	12	300	141	277	
	Participant(no.)	6900	900	3431	1000	635	5000	3041	7107	
c. UP level	Program(no.)	16	4	3	6	13	6	6	22	
	Participant(no.)	1560	60	50	1000	204	500	53	307	
d. Upazila level /District Level	Program(no.)	4	1		1	12	2	-	12	
	Participant(no.)	225	50		75	113	100	-	113	
e. Introductory Seminar (for new areas only)	Program(no.)	-	-	-	-	-	-	-	-	
	Participant(no.)	-	-	-	-	-	-	-	-	
f. School programs	Program(no.)	175	40	64	75	15	60	47	126	
	Participant(no.)	3700	2500	675	1000	674	200	159	1508	

MANAGEMENT OF AQUATIC ECOSYSTEM THROUGH COMMUNITY HUSBANDRY (MACH II)

**MACH-II detailed Targets and Achievement
Wetland Resource Management Activities**

Reporting Period: Nov 2003-Oct2004

Activities	Unit	Target Year-1	Site based target & achievement Year-1						Overall Achievement	Remarks
			Hail Haor		Turag Bangshi		Kongshow Malijhee			
			Target	Achievement	Target	Achievement	Target	Achievement		
g. Drama	Program(no.)	42	-	-	12	8	30	-	8	
	Participant(no.)	18800	-	-	3800	4000	15000	-	4000	
h. Baul songs	Program(no.)	13	3	-	-	-	10	-	-	
	Participant(no.)	4000	2000	-	-	-	2000	-	-	
i. video shows	Program(no.)	28	8	-	10	-	10	-	-	
	Participant(no.)	7500	2500	-	3000	-	2000	-	-	
j. Day observance	Program(no.)	7	2	1	2	2	3	3	6	
	Participant(no.)	2600	600	550	1000	1600	1000	1225	3375	
k. Knowledge/Experience sharing among GO/NGOs/RMOs/community, etc.	Program(no.)	5	2	1	1	2	2	3	6	
	Participant(no.)	185	50	22	35	28	100	465	515	
L. Others(Fish week, Field day, Rally, Community miking, Fair, Exhibition etc. Please specify no. and part. at remarks	Program(no.)	12	3	2	4	4	5	14	20	
	Participant(no.)	6500	1500	9000	2000	5000	3000	6780	20780	
m. Awareness meetings on watershed	Program(no.)	4	1	-	-	-	3	4	4	
	Participant(no.)	500	200	-	-	-	300	577	577	
n. No. of individuals reached by public awareness activities 6.4a-SO6(Sum of 14.a to 14.m)	Program(no.)	1022	160	295	231	88	631	384	767	
	Participant(no.)	56870	11560	15073	14110	12543	31200	13970	41586	
o. % increase in awareness of wetland resource issues 6.4b-SO6	%	45	-	-	15	0	30	10	10	
p. Awareness Raising through various media	Program(no.)	12	-	-	2	1	10	1	2	
	Observance(no.)	-	-	-	-	-	-	-	-	
q. No. of communities following regulations (no. of community) 6.3b-SO6	no.	8	3	4	2	4	3	2	10	
15. Watershed Management										
a. Pineapple demonstration plots	no.	15	15	15	-	-	-	-	15	
	Area(acre)	37	37	37.57	-	-	-	-	37.57	
b. Pineapple farmers under demonstration	no.	2	2	7	-	-	-	-	7	
c. Expansion of Contour system of cultivable pineapple area	Area(acre)	5	5	37.57	-	-	-	-	37.57	
16. UWRMC formed 6.5c-SO6	no.	-	-	-	-	-	-	-	-	
17. Trust fund established 6.5d-SO6	no.	-	-	-	-	-	-	-	-	
18. MACH general workshop conducted on policy issue	Program(no.)	3	1	1	1	1	1	1	3	
	Participant(no.)	225	50	45	75	36	100	45	126	
19. Outreach Program (No. of locations)	no.	-	-	-	-	-	-	-	-	

MANAGEMENT OF AQUATIC ECOSYSTEM THROUGH COMMUNITY HUSBANDRY (MACH II)

Detailed Targets and Achievements
Community Development and Alternative Income Generation

Reporting Period : November 03 - October 04

Activities	Units	Target Year -I	Site based target Year -I & achievement up to October 04						Achieve up to Oct 04	Remarks
			Hailhaor		Kongsa-Malijee		Turag-Bongsi			
			Target	Achie.	Target	Achie.	Target	Achie.		
1. Awareness program										
a. Village level	Program	17	5	-	6	7	6	-	7	
	Participants	1,400	500	-	300	297	600	-	297	
b. Para level	Program	80	25	70	15	16	40	70		
	Participants	2,275	625	2,352	450	440	1,200	1,545	4,337	
c. Knowledge sharing / discussion on formation of URUC at group level	Program	246	86	156	100	106	60	139	401	
	Participants	2,460	860	3,074	1,000	2,034	600	2,242	7,350	
d. Annual Rally	Program	5	2	-	2	-	1	1	1	
	Participants	1,500	600	-	600	-	300	800	800	
2. Livelihood Generation										
Nos. of RUG	Man	13	2	1	3	3	8	9	13	
	Women	7	1	2	2	4	4	2	8	
	Total	20	3	3	5	7	12	11	21	
Nos. of group members	Man	340	80	14	100	170	160	178	362	
	Women	165	35	80	50	104	80	50	234	
	Total	505	115	94	150	274	240	228	596	
Group Savings	Men	772,500	300000	401,283	315,000	604,098	157,500	236,096	1,241,477	
	Women	318,000	100000	242,716	135,000	263,496	83,000	182,297	688,509	
	Total	1,090,500	400000	643,999	450,000	867,594	240,500	418,393	1,929,986	
# Resource Users Com.										
No. FRUG formed	nos	14	5	5	5	5	4	3	13	
FRUG meeting	nos	58	20	24	20	9	18	9	42	
AGM of FRUG	nos	13	5	#REF!	5	0	3	1	#REF!	
3. Training										
a. Resource Users Trainings										
Group Development Training										
# Group management	Batch	25	5	2	8	8	12	7	17	
	Participants	500	100	37	160	140	240	119	296	
# Leadership	Batch	14	5	4	5	2	4	1	7	
	Participants	280	100	91	100	39	80	18	148	
# Accounts keeping	Batch	12	3	3	5	1	4	1	5	
	Participants	240	60	63	100	21	80	16	100	
# Resources awareness	Batch	25	5	8	8	5	12	3	16	
	Participants	500	100	157	160	103	240	55	315	

MANAGEMENT OF AQUATIC ECOSYSTEM THROUGH COMMUNITY HUSBANDRY (MACH II)

Detailed Targets and Achievements
Community Development and Alternative Income Generation

Reporting Period : November 03 - October 04

Activities	Units	Target Year -I	Site based target Year -I & achievement up to October 04						Achieve up to Oct 04	Remarks
			Hailhaor		Kongsa-Malijee		Turag-Bongsi			
			Target	Achie.	Target	Achie.	Target	Achie.		
RUC Development training										
# RUC formation & Management	Batch	14	5	5	5	4	4	3	12	
	Participants	280	100	85	100	92	80	41	218	
# Leadership Development	Batch	5	2	-	2	-	1	-	-	
	Participants	125	50	-	50	-	25	-	-	
kill dev. for IGA, Demo & Enterprise										
# Cow rearing & fattening	Batch	6	3	2	1	-	2	1	3	
	Participants	72	36	24	12	-	24	12	36	
# Goat rearing	Batch	3	1	1	1	-	1	1	2	
	Participants	60	20	20	20	-	20	14	34	
# Poultry/Duck rearing	Batch	7	3	2	1	1	3	2	5	
	Participants	84	36	24	12	10	36	24	58	
# Tailoring	Batch	4	2	2	1	-	1	-	2	
	Participants	48	24	24	12	-	12	-	24	
# Micro-entrepreneurship	Batch	14	5	3	4	1	5	2	6	
	Participants	280	100	62	80	20	100	40	122	
# Bamboo & cane	Batch	1	-	-	1	1	-	-	1	
	Participants	12	-	-	12	12	-	-	12	
# Embroidary/Advance tailoring	Batch	2	1	-	-	-	1	-	-	
	Participants	24	12	-	-	-	12	-	-	
# Driving	Batch	3	1	-	1	-	1	-	-	
	Participants	30	10	-	10	-	10	-	-	
# Pond culture/nursery	Batch	3	1	1	1	2	1	1	4	
	Participants	45	15	19	15	30	15	10	59	
# Plant nursery	Batch	1	-	-	1	-	-	1	1	
	Participants	20	-	-	20	-	-	19	19	
# Vegetables cultivation	Batch	5	2	2	2	4	1	1	7	
	Participants	100	40	39	40	74	20	21	134	
# Adult literacy teacher training	Batch	3	1	-	1	2	1	-	2	
	Participants	25	10	-	10	10	5	-	10	

Detailed Targets and Achievements
Community Development and Alternative Income Generation

Reporting Period : November 03 - October 04

Activities	Units	Target Year -I	Site based target Year -I & achievement up to October 04						Achieve up to Oct 04	Remarks
			Hailhaor		Kongsa-Malijee		Turag-Bongsi			
			Target	Achie.	Target	Achie.	Target	Achie.		
4. Demonstration activities										
# Pond culture										
Farmers engaged	nos.	18	8	6	5	7	5	4	17	
Water area of pond	decimal	180	80	75	50	105	50	59	239	
# Pond nursery										
Fishers engaged	nos.	5	2	2	3	3	-	-	5	
Water area of pond	decimal	80	30	30	50	40	-	-	70	
# Madrazi owal katchu										
Farmers engaged	Nos	12	-	-	2	1	10	5	6	
Area	decimal	50	-	-	10	3	40	10	13	
#Year round vegetable cultivation										
Farmers engaged	nos.	42	15	15	15	10	12	3	28	
Area	decimal	160	60	45	40	40	60	109	194	
# Jujubee buding										
Farmers engaged	nos	130	-	-	80	51	50	50	101	
# Roadside plantation										
Lenght of road	Km	10	4	3	4	4	2	2	9	
Sapling planted	nos.	10,000	4,000	3,415	4,000	3,820	2,000	1,800	9,035	
# Plant nursery										
Farmers engaged	nos	-	-	-	-	5	-	3	8	
Sapling produced	nos	190,000	80,000	28,700	50,000	34,912	60,000	23,500	87,112	
# Homestead plantation										
Members selected	nos	900	500	-	400	400	-	-	400	
Sapling distribution	nos	4,500	2,500	-	2,000	1,200	-	-	1,200	
# Fruit Garden										
Farmers engaged	nos	15	5	4	5	1	5	1	6	
Saplings planted	nos	300	150	36	75	20	75	49	105	

MANAGEMENT OF AQUATIC ECOSYSTEM THROUGH COMMUNITY HUSBANDRY (MACH II)

Detailed Targets and Achievements

Community Development and Alternative Income Generation

Reporting Period : November 03 - October 04

Activities	Units	Target Year -I	Site based target Year -I & achievement up to October 04						Achieve up to Oct 04	Remarks
			Hailhaor		Kongsa-Malijee		Turag-Bongsi			
			Target	Achie.	Target	Achie.	Target	Achie.		
5. Credit										
IGA Loan										
a. RUG member getting loan service	Men	230	80	120	100	79	50	29	228	
	Women	120	40	47	50	44	30	46	137	
	Total	350	120	167	150	123	80	75	365	
b. Total loan disbursed (nos)	Men	1,800	700	730	700	742	400	248	1,720	
	Women	700	300	388	250	267	150	123	778	
	Total	2,500	1,000	1,118	950	1,009	550	371	2,498	
c. Disbursed amount (Tk)	Men	9,400,000	4,200,000	5,550,000	2,800,000	4,901,120	2,400,000	2,152,000	12,603,120	
	Women	3,700,000	1,800,000	2,999,000	1,000,000	1,761,760	900,000	1,158,000	5,918,760	
	Total	13,100,000	6,000,000	8,549,000	3,800,000	6,662,880	3,300,000	3,310,000	18,521,880	
d. Realized amount	Taka	11,000,000	4,500,000	8,248,570	4,000,000	5,732,505	2,500,000	4,209,725	18,190,800	
e. Realization rate	%	100	100		100	90	100		30	
Enterprise loan										
a. RUG member getting loan service	Men	80	40	25	20	25	20	24	74	
	Women	33	15	13	8	8	10	11	32	
	Total	123	65	38	28	33	30	35	106	
b. Total enterprise loan disbursed (nos)	Men	80	40	30	20	25	20	24	79	
	Women	33	15	13	8	8	10	11	32	
	Total	123	65	43	28	33	30	35	111	
c. Disbursed amount (Tk)	Men	2,000,000	1,000,000	695,000	400,000	418,880	600,000	590,000	1,703,880	
	Women	835,000	375,000	275,000	160,000	147,840	300,000	300,000	722,840	
	Total	2,835,000	1,375,000	970,000	560,000	566,720	900,000	890,000	2,426,720	
d. Realized amount	Taka	530,000	375,000	282,370	75,000	154,156	80,000	195,910	632,436	
e. Realization rate	%	100	100	97	100	99	100			
6. Alternative income increased for project beneficiaries (Baseline 1999/2000 = \$25/capita)										
Suplimental income increase	taka	2,500	2,500	2,723	2,500	3,960	2,500	4,502	3,518	
*Suplimental income increased (new)	Taka	1,500	1,500	-	1,500	-	1,500	-	-	Will be shown in next report
* Number of RUG fishers having reduced effort	hrs	2,400	-	-	-	-	-	-	2,495	
* No. of new loan for IGA	nos	2,500	1,000	1,161	950	1,042	550	406	2,609	

Detailed Targets and Achievements
Community Development and Alternative Income Generation

Reporting Period : November 03 - October 04

Activities	Units	Target Year -I	Site based target Year -I & achievement up to October 04						Achieve up to Oct 04	Remarks
			Hailhaor		Kongsa-Malijee		Turag-Bongsi			
			Target	Achie.	Target	Achie.	Target	Achie.		
7. Healthcare & nutrition services										
a. Tube wells distributed	Nos.	30	10	-	10	-	10	-		
b. Pit latrines distributed	Nos.	150	-	-	150	-	-	-		
c. Support for homestead gardening										
RUG members	nos	1,500	500	225	600	400	400	300	925	
8. Education										
# Adult literacy										
Course conducted	nos	25	10	9	10	10	5	5	24	
# Child school (UCCEP)	nos	2	-	-	2	-	-	-	-	
10. Cross visits										
# Intra-site	nos	7	3	2	2	-	2	1	3	
	Participants	120	60	32	20	-	40	20	52	
# Inter-site	nos	3	1	-	1	-	1	-	-	
	Participants	45	15	-	15	-	15	-	-	

Appendix 2

Alternative Income Generation Activities

Alternative Income Generation Activities (AIGA). MACH-Caritas has been implementing alternative income generating activities to help poor and disadvantages wetland resource users to increase their family income and reduce dependency on the resources. A total of 2,609 new loans (including 111 enterprises) have been disbursed to 2,609 RUG members on 31 trades during November 03 to October 04. Out of 2,609 members, a total of 365 new members came under loan services during the reporting period. The disbursed loan ceilings are 5,000, 8,000 and 10,000 for normal IGA and up to 30,000 taka for enterprise loan.

Summary Status of Implemented new AIG by the RUG Members

Kind of AIGAs	MACH-II : target & achievement during Nov.03- Oct. 04				
	Target	HH	KM	TB	Total
Total 31 types	2,500	1,161	1,042	406	2,609

Details of Implemented new IGA by the RUG members during November 03 to October 04

Sl	Kind of IGAs	HH	KM	TB	Total
1	Agriculture	192	120	32	344
2	Blacksmith business	6	0	1	7
3	Buffalo rearing	32	0	1	33
4	Carpentry /Wood business	34	5	21	60
5	Cloth business	6	7	4	17
6	Cow rearing & fattening	141	118	29	288
7	Dried rice business (Muri, chira, khai, chanachur)	2	10	2	14
8	Dry fish business	45	0	0	45
9	Duck rearing	21	6	0	27
10	Fish business	196	53	70	319
11	Fish fry business/Fish culture/Fish nursery	9	0	0	9
12	Fruit business	10	8	4	22
13	Furniture	0	0	6	6
14	Fish culture	18	6	4	28
15	Goat rearing	2	5	2	9
16	Grocery shop & small business	82	93	29	204
17	Handicraft business	21	4	6	31
18	Hawker / Ferry business (News paper, etc.)	0	16	3	19
19	Rickshaw/ Van/ Mishuk purchase & driving	7	158	5	170
20	Land/ Pond/ Beel purchase & lease	2	0	6	8
21	Milk cow rearing	66	144	95	305
22	Milk/ curd/ sweetmeat business	3	0	0	3
23	Poultry	13	17	15	45
24	Paddy business	119	89	2	210
25	Power tiller/ pump	2	0	0	2
26	Plant nursery	4	1	0	5
27	Rice business	57	110	6	173
28	Sewing machine / Tailoring	8	5	10	23
29	Vegetable business	12	12	13	37
30	Workshop	4	5	1	10
31	Others (Sand, electric, Medicine, courier, Tea stall, coverlet, etc)	47	50	39	136
	Total	1161	1042	406	2609

* Some of similar item merged into one, so types are reduced from semi annual 2004

Appendix 3

Training

List of Imparted Training
Hail Hoar site, Sreemangal, MACH-II, Caritas

Reporting month : February 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Group management	Kalapur field off	24-25/02/04	18	
2	Poultry	Hajipu, Kalapur	15/02-14/03/04	12	

Reporting month : March 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Goat rearing	Site off, Sreemangal	8-10/03/04	20	
2	Enterpreneurship	Site off, Sreemangal	16-18/03/04	19	
3	Resource awareness	Kalapur field Off	13-14/03/04	21	
4	Group management	Site off, Sreemangal	22-23/03/04	17	
5	Tailoring	West varaura, Sreemangal	15/03-23/05/04	12	

Reporting month : April 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Resource awareness	Kalapur field off	27-28/04/04	18	
2	Poultry & duck rearing	Gazibari, Mirzapur	22/03-21/04/04	12	

Reporting month : May 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Resource awareness	Boroiury Pri school, Nazirabad	11-12/05/04	18	
2	Resource awareness	Site off, Sreemangal	18-19/05/04	23	
3	Leadership	Mirzapur field off	17-19/05/04	20	
4	Micro enterpreneurship	Site off, Sreemangal	25-27/05/04	20	
5	Cow fattening & rearing	Udnarpar, Ashirdrawn	26/04-29/05/04	12	

Reporting month : June 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Tailoring	Kashipur, Mirzapur	03/06-02/09/04	12	
2	Cow fattening & rearing	Baulashir, Mirzapur	03/06-03/07/04	12	
3	Vegetable cultivation	Site off, Sreemangal	05-06/06/04	20	
4	Leadership	Kalapur field off	07-09/06/04	26	
5	Federation formation & mgt	Site off, Sreemangal	09-10/06/04	14	
6	Federation formation & mgt	Kalapur field off	12-13/06/04	22	
7	Federation formation & mgt	Kalapur field off	14-15/06/04	17	
8	Federation formation & mgt	Mirzapur field off	16-17/06/04	16	
9	Micro enterpreneurship	Site off, Sreemangal	19-21/06/04	22	
10	Federation formation & mgt	Mirzapur field off	22-23/06/04	16	
11	Pond fish culture	Site off, Sreemangal	22-23/06/04	19	

Reporting month : August 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Resource awareness	Mirzapur field off	21-22/08/04	20	
2	Leadership	Site off, Sreemangal	22-24/08/04	25	
3	Resource awareness	Site off, Sreemangal	29-30/08/04	20	

Reporting month : September 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Resource awareness	Kalapur field off	11-12/09/04	23	
2	Resource awareness	Site off, Sreemangal	14-15/09/04	19	
3	Accounts keeping	Kalapur field off	18-20/09/04	24	
4	Leadership	Mirzapur field off	21-23/09/04	20	
5	Vegetable cultivation	Site off, Sreemangal	25-26/09/04	19	
6	Accounts keeping	Mirzapur field off	25-27/09/04	19	

Reporting month : October 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Accounts keeping	Nazirabad UP	16-18/10/04	18	

List of Imparted Training
Turag - Bongsri River Basin, Kaliakoir site, MACH-II, Caritas

Reporting month : March 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Goat rearing	Site Off.	09-11/03/04	14	
2	Group management	Azgana	17-18/03/04	17	
3	Group management	Site Off.	21-22/03/04	14	
4	Year round vegetable cultivation	Site Off.	24-25/03/04	21	
5	Resource awareness	Site Off.	28-29/03/04	16	

Reporting month : April 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Resource awareness	Site Off.	06-07/04/04	15	
2	Fish culture	Site Off.	24-25/04/04	10	
3	Cow fattening & rearing	Baroibari	21/3-24/04/04	12	

Reporting month : May 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Group management training	Site Off.	08-09/05/04	15	
2	Accounts keeping	Site Off.	15-17/05/04	16	
3	Plant nursery	Site Off.	19-20/05/04	19	
4	Poultry-duck rearing	Baroibari	24/04-25/05/04	12	

Reporting month : June 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Resource awareness	Site Off.	05-06/06/04	21	
2	Leadership training	Site Off.	19-21/06/04	18	
3	Micro-entrepreneurship	Site Off.	08-10/06/04	21	
4	Micro-entrepreneurship	Taltoli Off.	12-14/06/04	19	
5	Federation formation & management	Taltoli Off.	09-10/06/04	16	
6	Federation formation & management	Site Off.	13-14/06/04	15	
7	Federation formation & management	Site Off.	15-16/06/04	11	

Reporting month : July 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Poultry-duck rearing	Azgana	09/06-10/07/04	12	

Reporting month : August 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Group management	Site Off	23-24/08/04	16	
2	Group management	Taltoli Off	24-25/08/04	19	

Reporting month : September 04

Sl	Name of training	Venue	Duration	Participants	Remarks
				Total	
1	Group management	Site off	18-19/09/04	19	

Reporting month : October 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Group management	Site off	30-31/10/04	20	
2	Resource awareness	Site off	19-20/10/04	18	

**List of Imparted Training
Kangsha-Malijhii site, Sherpur, MACH-II, Caritas**

Reporting month : March 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Vegetable cultivation	Jhinaigati	23-24/03/04	20	
2	Vegetable cultivation	Sherpur sadar	29-30/03/04	20	
3	Poultry-duck rearing	Jhinaigati	01-31/03/04	10	
4	Adult literacy teacher training	Sherpur sadar	20-22/03/04	5	
5	Adult literacy teacher training	Jhinaigati	23-25/03/04	5	

Reporting month : April 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Group management	Jhinaigati	24-25/04/04	18	
2	Group management	Jhinaigati	26-27/04/04	18	
3	Fish culture	Sherpur sadar	20-21/04/04	15	
4	Fish culture	Jhinaigati	27-28/04/04	15	

Reporting month : May 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Group management	Jhinaigati	16-17/05/04	15	
2	Resource awareness	Jhinaigati	08-09/05/04	22	
3	Resource awareness	Tinani	23-24/05/04	20	
4	Bamboo cane	Sherpur sadar	01/03-03/05/04	12	

Reporting month : June 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Group management	Jhinaigati	14-15/06/04	20	
2	Group management	Jhinaigati	16-17/06/04	18	
3	Group management	Jhinaigati	21-22/06/04	18	
4	Group management	Jhinaigati	26-27/06/04	19	
5	Leadership	Sherpur sadar	26-27/06/04	19	
6	Accounts keeping	Sherpur sadar	28-30/06/04	21	
7	Resource awareness	Jhinaigati	05-06/06/04	20	
8	Resource awareness	Jhinaigati	19-20/06/04	21	
9	Resource awareness	Jhinaigati	28-29/06/04	20	
10	Micro entrepreneurship	Sherpur sadar	23-24/06/04	20	
11	Federation development & mgt	Jhinaigati	12-13/06/04	18	
12	Federation development & mgt	Sherpur sadar	14-15/06/04	24	
13	Federation development & mgt	Sherpur sadar	21-22/06/04	22	
14	Federation development & mgt	Jhinaigati	23-24/06/04	28	

Reporting month : October 04

Sl	Name of training	Venue	Duration	Participants	Remarks
1	Group management	Jhinaigati	27-28/10/04	14	
2	Leadership	Sherpur sadar	12-14/10/04	20	
3	Vegetable cultivation	Jhinaigati	17-18/10/04	17	
4	Vegetable cultivation	Sherpur sadar	28-29/10/04	17	

Appendix 4

Re-excavation Plan and Accomplishment

Earth work scheme list for FY 2004-05 at Hail Haor Site

Sl. No.	Name of Scheme	Location (Mouza)	Total Area in Ha	Proposed area/length in Ha	Approximate volume (Cum)	Remarks
Beel						
1	Chapra	Habibpur	1.6	1.0	504,000	To be implemented by RMO
2	Chatladoba beel	Alisharkul	0.9	0.6	365,904	To be implemented by RMO
3	Latua Metro Kankata	Sasan	2.9	1.4	838,530	To be implemented by RMO
4	Patrodoba beel	Loiarkul	1.2	0.6	383,328	To be implemented by RMO
5	Errordor	Boruna	6.9	3.2	1,393,920	To be implemented by RMO
6	Lalerdoba beel	Boruna	250.8	3.0	1,796,850	To be implemented by RMO
7	Ramai with link canal	Gorachao	2.5	1.6	557,147	To be implemented by RMO
8	Maguria beel	Habibpur	7.3	2.2	37,349	Enlisted contractor
9	Jaduria beel	Habibpur	48.8	2.9	49,233	Enlisted contractor
10	Balla*	Gondorbopur	28.6	1.8	31,948	Enlisted contractor
11	Digholee beel*	Bimshi	10.1	3.3	61,224	Enlisted contractor
12	Domer beel*	Bimshi	20.5	1.2	24,400	Enlisted contractor
	Sub Total		382.1	23.1	6,043,833	
Canal			Meter	Meter		
1	Bargangina P - III	Boruna, Habibpur	5340	1,520	1,225,000	To be implemented by RMO
	Sub Total		5340	1,520	1,225,000	
	Total				7,268,833	

* The scheme to be implemented by dredger machine, which requires wet season. So, the scheme will go under FY 2005-06, if PP revise, But processing is require from now.

Earth work scheme list for FY 2004-05 at Kangshaw-Malijhee Site

Sl. No.	Name of the Scheme	Location (Mouza)	Total Area in Ha	Proposed area/length in Ha	Tentative Basic earthwork volume in Cum	Remark
Beel						
01	Bailsha Beel		2.83	0.40	6,800	To be implemented by RMO
02	Dholi Beel*		5.57	0.81	33,985	Enlisted contractor
			8.40	1.21	40,785	
Canal			Meter	Meter		
01	Katakhali Khal (Pagler muk-Paikura)		2,000	500	12,461	To be implemented by RMO
02	Katakhali Khal (Dakurpar-Bamboo bridge)		2,000	500	12,461	To be implemented by RMO
03	Katakhali Khal (Near shashan ghat)		2,500	200	6,250	To be implemented by RMO
04	Bogadubi to Dholi Beel		3,000	200	12,461	To be implemented by RMO
05	Tenachora Khal (Dholi-Baila)		5,000	1,000	20,000	To be implemented by RMO
06	Tenachora Khal (Bailsha)		5,000	1,000	20,000	To be implemented by RMO
			19,500	3,400	83,633	
	Total		-	-	124,418	

* The scheme to be implemented by dredger machine, which requires wet season. So, the scheme will go under FY 2005-06, if PP revise, But processing is require from now.

Earth work scheme list for FY 2004-05 at Turag-Bangshi Site

Sl. No.	Name of Scheme	Union Parishad	Total area Ha	Proposed area for re-excavation, Ha	Tentative basic earthwork volume in Cum	Remarks
Beel						
1	Krishner hari	Ajgana	1.619433	0.61	3,749	To be implemented by RMO
2	Guear hari	Ajgana	1.01	1.50	9,281	To be implemented by RMO
4	Dulibari ghuna -Bamoner ghuna-3	Chapair		0.51	3,124	To be implemented by RMO
5	Nowkhola - Doli doha - 2	Maddapara	13.96	1.21	7,498	To be implemented by RMO
6	Boro doha beel*	Chapair	22.01	2.02	30,867	Enlisted contractor
		Sub - Total	38.60	5.85	54,520	
Canal			Meter	Meter		
1	Goliar River V	Boali	12,000	1,200	44,625,850	Enlisted contractor
		Sub - Total		1,200	44,625,850	

* The scheme to be implemented by dredger machine, which requires wet season. So, the scheme will go under FY 2005-06, if PP revise, But processing is require from now.

Khal and Beel earthwork re -excavation FY 2003-2004 of Hail Haor

SI No.	Name of scheme	Length of scheme meter	Targets Volume of earthwork in Cubic meter	Achievements Volume of earth removed in cubic meter
Canal				
01	Lalitagangina II	671	6,840	6,840
02	Bargangina II	2,095	8,780	18,786
03	Bargangina extention	1,520	22,050	12,738
04	Lalita Gangina to Agari Link canal	120	830	713
	Sub-total	4,406	48,507	39,077
Beel		Area(ha)		
01	Balla Beel			1,330
02	Digholee Beel	0.00		3,529
03	Khoia Beel	0.00		
04	Medi beel with link canal	0.00		2,783
05	Ramai beel with canal	1.28	19,731	9,406
06	Sananda beel	1.09	9,797	8,953
	Sub-total	2.37	29,528	26,001

Khal and Beel earthwork re -excavation FY 2003-2004 of Turag-Bangshi

Sl. No.	Name of scheme	Length of scheme meter	Targets Volume of earthwork in Cubic meter	Achievements Volume of earth removed in cubic meter
Canal				
01	Goliar Khal-1	2,000	67,069	66,000
02	Goliar Khal-2	2,000	67,513	66,000
03	Goliar Khal-3	2,000	67,887	66,000
04	Goliar Khal-4	2,000	67,034	66,000
	Sub-total	8,000	269,503	264,000
Beel		Area (ha)		
01	Nawkhola and Dholi	1.40	10,204	11,586
02	Dhulibari ghuni and Bamuner ghuni ii	2.60	15,143	15,112
03	Dhulibari ghuni and Bamuner ghuni iii	1.77	11,370	4,337
04	Falimara doha	1.50	9,381	9,349
05	Vangidagar Ghuna	2.50	6,480	6,480
	Sub-total	9.77	52,578	46,864

Khal and Beel earthwork re -excavation FY 2003-2004 of Kongshow-Malijhee

Sl. No.	Name of scheme	Length of scheme meter	Targets Volume of earthwork in Cubic meter	Achievements Volume of earth removed in cubic meter
Canal				
01	Bogadubi Khal	1,524	41,417	1,462,346
02	Tenachora Khal	938	17,330	753,137
03	Tenachora Khal Kanduli Village	304	7,724	303,052
04	Katakali Khal	567	18,644	587,622
	Sub-total	3,333	85,115	3,106,157
Beel		Area (ha)		
01	Dholi Beel	2.23		
02	Bailsha Beel	1.26	16,232.00	16,070.00
03	Kaitary Beel	0.00		
04	Kewta Beel	0.00		
05	Batia Beel	0.81	13,083.00	13,031
06	Chaira Beel	0.00		
	Sub-total	4.30	29,315	29,101

Aquatic habitat converted from seasonal to perennial in targeted areas

November 2003-October 2004				
Sl. No.	Name of scheme	Area of excavated water-bodies (ha)	Total area of water-bodies, ha, (in wet season)	Remarks
		Ha	Ha	
HH Site:				
01	Ramai beel wit link canal	2.00	2.53	Partially excavated
02	Lalitagangina II	1.20	29.50	
03	Bargangina II	1.91	3.82	
04	Bargangina III	1.26	2.52	
05	Lalita gangina to Agari link canal	0.10	0.20	
06	Sananda	0.58	3.60	
07	Balla beel	1.82	2.00	Partially excavated
08	Digholee Beel	3.34	3.50	Partially excavated
09	Khoia Beel	2.27	2.50	Partially excavated
10	Medi Beel with link canal	1.86	2.00	Partially excavated
Sub-total area (Ha)		16.34	52.17	
KM Site:				
1	Dholi beel	2.50	3.15	
2	Balisha beel	1.50	10.27	
3	Batia beel	1.00	1.20	
4	Bogadubi khal	2.00	3.48	
5	Tenachura khal	0.48	0.95	
6	Tenachura khal at Kanduli village	1.50	0.76	
7	Katakhal khal	1.00	1.44	
8	Kewta Beel	2.25	2.50	partially excavated
9	Kaitary Beel	1.25	1.00	partially excavated
10	Chaira Beel	2.25	2.50	partially excavated
Sub-total area (Ha)		9.98	21.25	
TB Site:				
1	Nowkhola and Doli beel	4.00	50.20	
2	Folimara-doha	3.50	27.53	
3	Dholi bariguni & Bamuner guni II	2.59	12.15	
4	Dholi bariguni & Bamuner guni III	2.00	2.50	partially excavated
5	Goliar khal-1	6.00	50.00	
6	Goliar khal-2	6.00	50.00	
7	Goliar khal-3	6.00	50.00	
8	Goliar khal-4	6.00	50.00	
9	Vangidangar Ghuna	1.25	1.50	
Sub-total area (Ha)		37.34	293.88	
Total		63.66	367.30	

Appendix 5

Project Work Plan

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Introduction

Recognizing the need for new approaches to floodplain and wetlands resource conservation and management, the Governments of Bangladesh and the United States of America have jointly developed a program called Management of Aquatic Ecosystems through Community Husbandry (MACH). An agreement to implement this program was signed in May 1998 and then later revised on January 15, 2003 where it was agreed that the Strategic Objective Grant Agreement or SOAG signed between the two governments would also extend MACH for a further 3 years. MACH was extended and the phase II is aptly entitled MACH II. MACH II essentially is an extension of the first phase of MACH. MACH-II began on November 1, 2003 and will end on October 29th, 2006.

The major purpose of the MACH project is to demonstrate to communities, local government and policy-makers the viability of a community approach to natural resource management and habitat conservation in Bangladesh over an entire wetland. The MACH 'community' includes those people dependent either economically or nutritionally on the wetland and its products. The program has emphasized and worked with poorer individuals and groups, particularly fisher communities who are generally the poorest members of rural communities, but must include local government as well as the local elite if the program is to be truly sustainable.

The MACH II goal remains the "Demonstration of environmentally sound community management of wetland resources (fisheries and other wetland products) for the sustainable supply of food to the poor of Bangladesh". The objectives are (i) to implement effective community-based resource management mechanisms, (ii) improve and protect select habitats and ecosystems, (iii) implement best practices for resource management, (iv) increase fish production and biodiversity trends at MACH Sites, (v) increase income to targeted beneficiaries, (vi) improve public awareness of key resource issues, (vii) fully develop the community-based resource management organizations (RMO) and MACH resource user groups (RUG) to ensure their sustainability, (viii) further develop the constituency for co-management of natural resources through an expanded outreach and continued public education effort, and (ix) to make the MACH approach available to the wider GoB and donor communities.

During phase I, MACH either equaled or exceeded in most cases the targets set for the project. After four years of field activities, MACH has begun seeing results in the wetlands and communities where it works. Positive trends are being seen in fish production as well as overall biodiversity at all MACH sites. MACH has also appreciably influenced institutions and national and local wetland policy and widely disseminated lessons learned both within Bangladesh and in other countries. For example, the government recently made several decisions of environmental importance for the country, establishing important precedents for the future management of public wetlands.

Communities have also succeeded at all three sites in securing:

- Year-round wetland sanctuaries
- Fishing time closures during critical spawning and both pre- and post-spawning periods
- A halt to destructive fishing practices in the managed areas
- Conservation of reintroduced endangered or threatened fish species.

Through these measures and other MACH interventions, fish catch and consumption have not only been maintained, but increased in all three MACH sites for the past three years. Maintaining the fishery in these floodplains would have been an accomplishment in itself, considering the degradation and loss of habitat and over fishing that had been taking place. Fish and plant diversity has also been enhanced at all sites, both through creation of sanctuary areas and perennial water and reintroduction of selected, previously present mature adults of species at newly created deep sanctuary habitats, both in *beels* and rivers. Some species have already successfully reproduced.

The Strategic Objective Framework established by MACH's USAID Environment Team was modified in November 2001. A summary table of the intermediate results, and indicators for MACH II is shown below in table 1. The methodology and approach for collecting and reporting the data are described in the Monitoring & Evaluation section. (Appendix 7)

Table 1: SO 6 Intermediate results and indicators for MACH-II

SO 6: Improved Management of Open Water and Tropical Forest Resources	
• Indicator 6a:	Extent to which best practices from USAID-funded projects are used elsewhere
• Indicator 6b:	Increased production of natural resources in targeted areas
• Indicator 6c:	Increased biodiversity in targeted areas.

Intermediate Results	Indicators
IR 6.1: Effective Community Based Resource Management Mechanisms Implemented	Indicator 6.1a: Area of floodplain where sustainable management is implemented.
IR 6.2: Select Habitats and Ecosystems Improved	Indicator 6.2a: Aquatic habitats converted from seasonal to perennial in targeted areas Indicator 6.2c: Riparian habitat improved in targeted areas
IR 6.2.1: Innovations and Best Practices Adopted	Indicator 6.2.1a: Number of sanctuaries established Indicator 6.2.1b: Number of wetland/riparian trees successfully established
IR 6.2.2: Alternative Incomes Realized for Target Groups	Indicator 6.2.2a: Average annual increase of RUG member supplemental income Indicator 6.2.2b: Number of RUG fishers having reduced effort Indicator 6.2.2c: Total number of new AIG loans
IR 6.3: Select Policies Implemented that Support IRs 1 & 2	Indicator 6.3a: Leases of water bodies to community resource management groups granted in target areas. Indicator 6.3b: Number of communities adopting the following key regulations in target areas: <ul style="list-style-type: none"> • Restrictions on the use of inappropriate fishing methods and gear • Restrictions on the fishing season and harvesting of fish fry • Restrictions on the areas of fishing
IR 6.4: Public Awareness of Key Issues Increased	Indicator 6.4a: Number of individuals reached by the public awareness activities Indicator 6.4b: Percentage increase in awareness

Intermediate Results	Indicators
	of wetland resource issues from baseline(% households aware of issues)
IR 6.5: Improved Institutional Capacity	Indicator 6.5a: Number of local government meetings where resource management issues discussed Indicator 6.5b: Official circulars for UDCC agenda item and permission for RMO members to attend UP meetings as needed Indicator 6.5c: UWRMC formed with charters/GOB circulars in place linking local government to resource management organizations Indicator 6.5d: Trust Fund established for Institution

This work plan sets out the activities and tasks envisioned for the MACH II project period over 3 Years. Details of the MACH II targets and a monitoring and evaluation plan can also be found in this Annual report. This work plan is subject change particularly depends on timely availability of the local currency funds of ISM for which the project is dependent. This is submitted in partial fulfillment of the contractual requirements under MACH II.

Work plan Organization and Methods

Work plan by component

Component 1: To build on the successes in MACH I and to further develop the community-based co-management approach to resource management in existing MACH areas.

Component 2: To intensify and consolidate wetland rehabilitation activities for full assessment of impact.

As component 1 and 2 both address the consolidation and building on successes of MACH the activities and tasks for achieving have been shown together below. The intermediate results (IR) that are expected from these two components and as a result of completing the activities and tasks shown below are: (i) IR 6.1 – Effective community-based resource management mechanisms improved; (ii) IR 6.2 – Fully developed and effective community-based resource management mechanisms implemented; (iii) IR 6.2.1 – Innovations and best practices adopted; (iv) IR 6.2.2 – Alternative incomes realized for target groups. Again the indicators of success can be seen in table 1 above. It is planned that the following activity/task groups when completed shall result in the accomplishment of the above intermediate results (IRs) and along with the following components 3-5 result in meeting the overall goal and objectives of the project.

- 1.0 RMO strengthening and sustainability.
- 2.0 RUG strengthening and community development
- 3.0 Investment support to MACH
 - 3.1 Earthwork and structures
 - 3.2 Trees and vegetation
 - 3.3 Fish Diversity enhancement
 - 3.4 Pollution abatement initiative

3.5 GIS and Hydrology

3.6 Outreach activity

The following tables 2-9 describe the tasks, outputs and responsibilities over the life of the project for the following major activity groups.

Table 2: 1.0 RMO Strengthening and Sustainability¹

Component 1. Build on successes in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas.

IR 6.1 Effective community based resource management mechanisms improved

Component 2. Intensify and consolidate wetland rehabilitation activities for full assessment of impact.

IR 6.2 Fully developed and effective community-based resource management mechanisms implemented. IR 6.2.1 Innovations and best practices adopted.

Activity/Task 1.0 RMO Strengthening and Sustainability	Output	Quarter of Nov'03 - Oct'04				Quarter of Nov'04 - Oct'05				Quarter of Nov'05 - Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
1.1 Develop detailed MACH work plan by site for each RMO.	Work plan developed		■		● (Jul'04)	● (Jan'05)				● (Jan'06)				MACH CNRS PC	CNRS
1.2 Resource management plans of the RMOs ensuring financial viability prepared & published.	Resource management plans published for each RMO and approved in LGC				■				(Feb'05)					MACH CNRS PC	CNRS
1.3 Improve gender equity in RMOs awareness and encouragement	Women hold positions in the executive committee and represent at least 20% of the GB and EC				■				(Mar'05)					MACH CNRS PC	CNRS
1.4 RMO linked to the Union Parishad to allow RMO to attend meetings of UP.	Inclusion of two RMO representatives in the UP meetings through letter or charter.				■				(Feb'05)					MACH CNRS PC/ CBO / ID Specialist	CNRS
1.5 Submission of RMO plans to UP for inclusion in plan books.	Plan books revised and wetland resource management plans incorporated				■				(Apr'05)					MACH CNRS PC/ CBO / ID Specialist	CNRS
1.6 Acquisition of new beels for RMOs	Letter received from MoL				■									Mujibur Rahman	BCAS
1.7 Continue to increase sanctuary and develop permanent sanctuary management plans	Pursued and policy changed		■										(Oct'05)	SN Chowdhury ²	BCAS
1.8 Rewrite and finalize RMO constitutions and complete submission & acceptance of Social welfare.	Revised constitution approved and submitted.				■				(Jun'05)					MACH CNRS PC/ CBO / ID Specialist	CNRS
1.9 Operationalize the institutional system as part of institutional work plan.	RMO in UP, UFMC & various committee meetings								(Jun'05)					MACH CNRS PC/ CBO / ID Specialist	CNRS
1.10 Organize follow-up session for RMOs to update the MACH objectives activities and highlight the roles and responsibilities of RMOs for Wetland Resource management and its conservation	* Guide for the follow – up sessions * Follow – up session held. * Report of the Orientation sessions				■								(Jun'06)	MACH CNRS PC/ Communication Specialist	CNRS

¹ Some of these activities dependent on ISM fund releases by GoB.

² NC can assign individuals to do various parts of plans.

MANAGEMENT OF AQUATIC ECOSYSTEM THROUGH COMMUNITY HUSBANDRY (MACH-II)

Activity/Task 1.0 RMO Strengthening and Sustainability	Output	Quarter of Nov'03 - Oct'04				Quarter of Nov'04 - Oct'05				Quarter of Nov'05 - Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
1.11 RMO plan development	Semi annual, Annual, 5 years plans to include budgets & source of income.			● (Jun'04)		● (Dec'04)		● (Jun'05)		● (Dec'05)				CBO / ID Specialist / MACH CNRS PC	CNRS
1.12 RMO progress monitoring & evaluation. At the end of the project final evaluation will be done.	Every six month term to evaluate CBO / ID Specialist /MACH CNRS PC /SC report submission			● (Jun'04)		● (Dec'04)		● (Jun'05)		● (Dec'05)				CBO / ID Specialist / MACH CNRS PC	CNRS
1.13 RMO data sheets	RMO data sheets filled out quarterly and summary matrix created and filled quarterly.				●	●	●	●	●	●	●			MACH CNRS PC / Rony	CNRS
1.14 Involving UFO in wetland resource planning and operations.	UFO fully engaged.													MACH CNRS PC/ NC	CNRS
1.15 Turn operation over to UFO and MACH acts as support.	UFO in charge.												■ (Apr1'06)	MACH CNRS PC/ CBO / ID Specialist/ NC	CNRS
1.16 UFO coordinating UFMC meeting and brings agenda to UDCC meeting.	UFO acting as coordinator of UFMC													MACH CNRS PC/ CBO / ID Specialist	CNRS
1.17 Endowment support made available through UNO / UFO provided funds allocated by GoB.	UNO / UFO providing funds through endowment.													Mujibur Rahman	BCAS
1.18 Final evaluation of status of RMO sustainability.	Completed Evaluation.												■ (Aug'06)	MACH CNRS PC/ CBO / ID Specialist	CNRS

■ Denotes the endpoint of the output.

Note: The lead person shown above will assign sub-tasks to staff at the project sites. Lead person(s) are to follow up and ensure the site staffs have accomplished.

Activity/Task 2.0 RUG strengthening and community Development⁶	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person(s)	Lead Organization	
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th			
c. FRUG Development training^b	Strengthened and well managed FRUG														CBO/ ID Specialist	Caritas
# Management	12 batch		■	■		■			(Jan'05)						CBO/ ID Specialist & Mostaque	Caritas
# Leadership Development	7 batch			■		■	●								CBO/ ID Specialist & Mostaque	Caritas
# Credit Management	6 batch				■	■	■		(Mar'05)						CBO/ ID Specialist & Mostaque	Caritas
# Accounts keeping	6 batch				■	■	■		(Jan'05)						CBO/ ID Specialist & Mostaque	Caritas
# Advocacy & networking	3 batch						■			■					CBO/ ID Specialist & Mostaque	Caritas
# Mediation & Conflict resolution	3 batch			■				■	(Apr'05)						CBO/ ID Specialist & Mostaque	Caritas
# Gender & Development	5 batch			■	■			■		■	●			(Jan'06)	CBO/ ID Specialist & Mostaque	Caritas
2.7 Skill dev. for IGA, Demo. & Enterprise	Skilled RUG members in the following area														Mostaque	Caritas
# Cow rearing & fattening	11 batch		■	■	■	■	■	■						(Apr'06)	Mostaque	Caritas
# Poultry/Duck rearing	13 batch		■	■	■	■	■	■							Mostaque	Caritas
# Tailoring	10 batch		■	■	■	■	■	■							Mostaque	Caritas
# Micro-entrepreneurship	28 batch		■	■	■	■	■	■							Mostaque	Caritas
# Bamboo & Cane	2 batch		■	■				■		■					Mostaque	Caritas
# Embroidery/Advance Tailoring	6 batch				■	■		■		■					Mostaque	Caritas
# Driving	4 batch				■	■		■		■					Mostaque	Caritas
# Goat rearing	3 batch							■	●						Mostaque	Caritas
# Pond culture/nursery	7 batch		■	■				■		■					Mostaque	Caritas
# Plant nursery	3 batch		■	■				■							Mostaque	Caritas
# Vegetables cultivation	16 batch		■	■				■		■				(Jan'06)	Mostaque	Caritas

⁶ See also RUG sustainability section in component 5 that follows.

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Activity/Task	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person(s)	Lead Organization	
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th			
2.0 RUG strengthening and community Development³																
# Adult literacy teacher training ⁷	1 batch				■										Mostaque	Caritas
2.8 Demonstration Activity	Found profit oriented IGA & technology transferred														Mostaque	Caritas
# Pond culture			■	■	■	■	■	■	■	(Oct'05)					Mostaque	Caritas
Water area of pond	440 decimal		■	■	■	■	■	■	■						Mostaque	Caritas
# Pond nursery			■	■	■	■	■	■	■	(Jul'05)					Mostaque	Caritas
Water area of pond	160 decimal		■	■	■	■	■	■	■						Mostaque	Caritas
# Madrazi Owl Katchu			■	■	■	■	■	■	■	(Oct'05)					Mostaque	Caritas
Area	125 decimal		■	■	■	■	■	■	■						Mostaque	Caritas
# Year round Vegetables cultivation ⁸		■	■	■	■	■	■	■	■	■	■	■	■	■	Mostaque	Caritas
Area	440 decimal	■	■	■	■	■	■	■	■	■	■	■	■	■	Mostaque	Caritas
# Maize Cultivation					■	■	■	■	■	■	(Jan'06)				Mostaque	Caritas
Area	400 decimal				■	■	■	■	■	■					Mostaque	Caritas
# Jujube Budding	450 nos. of sapling		■	■	■	■	■	■	■	■					Mostaque	Caritas
# Roadside Plantation	Water shade & environment improved & group members benefited		■	■	■	■	■	■	■	(Jul'05)					Mostaque	Caritas
Saplings planted	8,000 nos.		■	■	■	■	■	■	■						Mostaque	Caritas
Length of Road	8 km.														Mostaque	Caritas
# Plant nursery	Quality saplings ensured & entrepreneurship developed														Mostaque	Caritas
Saplings producing	470,000 nos.	■	■	■	■	■	■	■	■	■	■	■	■	■	Mostaque	Caritas
# Homestead plantation	Nutrition, fuel, fodder demand fulfilled														Mostaque	Caritas
Group member selected	2,000 nos.		■	■	■	■	■	■	■	(Apr'05)					Mostaque	Caritas
Saplings distributed	9,200 nos.			■	■	■	■	■	■	■	■	■	■	■	Mostaque	Caritas
# Fruit Garden	Income increased & nutrition deficiency reduced (38 nos. gardens)									■	(Jul'05)		■	(Jul'06)	Mostaque	Caritas
Saplings	570 nos.			■	■	(Jul'04)	■	■	■	■	(Jul'05)				Mostaque	Caritas
# Pond Re-excavation	Quality fish culture ensured (20 nos.)														Mostaque	Caritas
2.9 Credit	Income increased and reduced fishing pressure														Mostaque	Caritas
IGA loan⁴															Mostaque	Caritas
a. New RUG member receive service	1,015	■	■	■	■	■	■	■	■	■	■	■	■	■	Mostaque	Caritas
b. Total loan disbursed (nos)	5,600 male	■	■	■	■	■	■	■	■	■	■	■	■	■	Mostaque	Caritas

⁷ Refresher training will be conducted if required.

⁸ This will continue to the end as it is low cost and required very little supervise.

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Activity/Task 2.0 RUG strengthening and community Development³	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person(s)	Lead Organization	
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th			
Enterprise loan⁴	Income increased and reduced fishing pressure													Mostaque	Caritas	
a. Total Enterprise loan disbursed (nos)	360													Mostaque	Caritas	
2.10 Alternative income increased & fishing reduced	Assessment to be conducted													Mostaque	Caritas	
* Income increased target	1,700 Tk.												Mostaque	Caritas		
* Number of RUG fishers having reduced effort	1,060												Mostaque	Caritas		
2.11 Healthcare & nutrition services	Safe drinking water and sanitation ensured											(Oct '06)	Mostaque	Caritas		
a. Tube wells distributed	80 nos.												Mostaque	Caritas		
b. Pit Latrine distributed	850 nos.								(Oct '05)				Mostaque	Caritas		
c. Support for homestead gardening	Increase vegetable consumptions												Mostaque	Caritas		
RUG members engaged (nos)	3,000										(May '06)		Mostaque	Caritas		
2.12 Adult literacy	RUG members able to read, write & accounts												Mostaque	Caritas		
Course conducted	66 nos.													Mostaque	Caritas	
2.13 UCCEP	Literate children in the community (2 school.)													(Oct '05)	Mostaque	Caritas
2.14 Cross visits	Best practice ensured												Mostaque	Caritas		
# Intra-site	18 nos.								(Apr '05)				Mostaque	Caritas		
# Inter-site	6 nos.								(Oct '05)				Mostaque	Caritas		

Denotes the endpoint of the output.

Table 4: 3.1 Earth work & Structures

Component 1. Build on successes in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas.

IR 6.1 Effective community based resource management mechanisms improved

Component 2. Intensify and consolidate wetland rehabilitation activities for full assessment of impact.

IR 6.2 Fully developed and effective community-based resource management mechanisms implemented. IR 6.2.1 Innovations and best practices adopted

Activity/Task (ISMP related) 3.1 Earth work & Structures⁹	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organization	
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th			
Excavation & Structures (to be done through RMOs)																
3.1.1 RMO Involvement	Develop RMO proposals, documentation,			—	(Aug'04)			—	(Aug'05)						Site coordinator	CNRS
3.1.3 Plan Development & approval	Schemes to be reviewed and approve by RPT / HQ			—	(Sep'04)			—	(Sep'05)						Exec. Eng Site Eng	WI
3.1.2 LGC Approval	Approved by LGC			—	(Oct'04)			—	(Oct'05)						Site Coordinator / Site Eng.	CNRS / WI
3.1.4 Excavation & Structure Design, survey and estimates	Annually prepare designs and estimates of excavation and structure activities.			—				—	(Aug'05)						Exec Eng	WI
3.1.5 Land Handover	Identify and hand over khas and other lands to RMOs or Project.	—			—				—	(Nov'06)					Site Coordinator, Mujib, NC	BCAS / CNRS
3.1.6 Execution, Supervision and payment	Oversee construction and payments	—	—	—	—	—	—	—	—	—	—	—	—	(Aug'06)	Exec Eng/MAF to review	WI
3.1.7 Post Construction Review	Completion reports			—				—				—	(Aug'06)		Exec Eng to compile	WI
Excavations and Structures by Contractors																
3.1.8 RMO Involvement	Develop RMO proposals, documentation,			—	(Aug'04)			—	(Aug'05)						Site coordinator	CNRS
3.1.9 LGC Approval	Approved by LGC			—	(Aug'04)			—	(Aug'05)						SC / Site Eng.	CNRS / WI
3.1.10 Plan Development	Schemes to be reviewed and approve by RPT / HQ			—	(Sep'04)			—	(Sep'05)						Exec.Eng Site Eng	WI
3.1.11 Bidding	Develop bid documents. Evaluate and award.			—				—	(Oct'05)						COP/ NC / MAF/ Exec.Eng	WI / BCAS
3.1.12 Land Handover	Identify and hand over khas and other lands to RMOs or Project.	—			—				—	(Nov'06)					Site Coordinator, Mujib, NC	BCAS / CNRS
3.1.13 Execution of works	Excavation and structures completed	—	—	—	—	—	—	—	—	—	—	—	—	(Aug'06)	Exec.Eng	WI

⁹ All activities shown here are dependent on the timely release and availability of local currency funds through the ISMP. If funds are not available or unavailable when needed, targets & schedules cannot be maintained.

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Activity/Task (ISMP related) 3.1 Earth work & Structures⁹	Output	Quarter of Nov'03 - Oct'04				Quarter of Nov'04 - Oct'05				Quarter of Nov'05 - Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
3.1.14 Supervision, Payments	Oversee construction and payments	████████████████				████████████████				████████████████ (Aug'06)				Exec Eng/MAF to review	WI
3.1.15 Post Construction Review	Completion reports			████				████				████ (Aug'06)	Exec Eng to compile	WI	

██████ Denotes the endpoint of the output.

Table 5: 3.2 Trees & vegetation

Component 1. Build on successes in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas.

IR 6.1 Effective community based resource management mechanisms improved

Component 2. Intensify and consolidate wetland rehabilitation activities for full assessment of impact.

IR 6.2 Fully developed and effective community-based resource management mechanisms implemented. IR 6.2.1 Innovations and best practices adopted.

Activity/Task	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person(s)	Lead Organization		
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th				
3.2 Trees & vegetation¹⁰																	
3.2.1 Tree plantation schemes in different project sites are identified, technical and social feasibility carried out and the schemes finally selected, number of different categories of saplings needed are determined	Developed scheme, plans prepared													(Oct'05)	Site coordinator ¹¹	CNRS	
3.2.2 Schemes received from site offices scrutinized at MACH, HQ and annual plantation program finalized based on budget line	Annual plantation plan finalized													(Oct'05)	Ali Akber ¹²	BCAS	
3.2.3 Existing nursery stock with RUGs, CNRS and contract nursery growers assessed; future nursery program finalized; saplings need be procured from commercial nurseries for the year's plantation program is assessed	Nursery stock with RUGs, CNRS and contract nursery growers finalized. Nursery program established.													(Jan'06)	Ali Akbar	CNRS/ BCAS	
3.2.4 a. Tender documents prepared with proper terms and conditions assessing previous year's performance effectiveness with contracts. b. Tender notice reviewed by members of procurement committee and approved by COP for publicity.	Tender document for sapling supply and planting made ready for floating in the newspaper and other circulation media														(Mar'05)	Ali Akbar, NC, MAF	BCAS / WI
3.2.5 Tender notice sent to newspaper, site office official and PD & members of the Procurement committee	Tender notice sent to newspaper for publication & official media for circulation														(Mar'05)	Ali Akbar, MAF and Probir	BCAS / WI
3.2.6 Procurement committee examines tender, when needed verify genuineness, qualifications and capability of tenderers; recommend valid tender for approval and COP approves tender; Contractor deposits SD money; agreement made for contracted work; work order issued.	Tenders examined and approved														(May'05)	Procurement committee members, Shah Alam, Reza, MAF & Ali Akber, NC	BCAS / WI

¹⁰ All activities shown here are dependent on the timely release and availability of local currency funds through the ISMP. If funds are not available or unavailable when needed, targets & schedules may not be maintained

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Activity/Task	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
3.2.7 Ali Akbar and SCs will communicate and organize training on need basis	Tree Plantation Training to staff, PIC and Contractors		■				■							Ali Akbar	BCAS/ CNRS
3.2.8 Work/scheme distribution at each site for planting	Scheme wise plans with responsibilities completed	■	■	■	■	■	■	■	■					Site Coordinator	CNRS/ BCAS
3.2.9 Tree Nursery production and supply	All native non-commercial tree needs are met	■	■	■	■	■	■	■	■	■	■	■	■	Ali Akbar	BCAS/ CNRS
3.2.10 Tree Planting	Trees planted according to yearly plans	■	■	■	■	■	■	■	■	■	■	■	■	Site Coordinator	ISM/ CNRS
3.2.11 Tree Maintenance and Care by RMOs supervised by staff.	Trees maintained and survival above 80% after 2 years	■	■	■	■	■	■	■	■	■	■	■	■	Site Coordinator	CNRS
3.2.12 Pineapple demonstrations	Demonstrations write up in MACH reports		■		■		■		■		■			Ali Akbar	CNRS
3.2.13 Workshops and farmer field days pineapple	Growers in the HH basin aware of the benefits of contour planting			■			■				■			Site Coordinator Hail Haor Ali Akbar	CNRS/ BCAS
3.2.14 Management plans and sharing arrangements for riparian, wetland and roadside/canal bank plantations to be developed	Sharing arrangements Completed	■		■		■		■		■		■		Ali Akbar	BCAS
3.2.15 Preparatory and final planting work done by contractors under the intensive supervision of program staff, PIC and RMOs	Major annual planting work done	■		■		■		■		■		■		Site coordinators/ Ali Akbar	CNRS/ ISM
3.2.16 Progress of plantation activity, problem identification & solution, and success assessed on a continuing basis	Plantation progress & success monitoring	■	■	■	■	■	■	■	■	■	■	■	■	Ali Akbar and SC	CNRS/ BCAS

■ Denotes the endpoint of the output.

¹¹ Jobs to be accomplished by SCs, FCs, SEs in consultation with site staff and RMOs, and advice & guidance from Ali Akbar

¹² Ali Akbar to do in consultation with NC, MAF, EE, PCs MACH-CNRS, & MACH-Caritas, and approval of COP and SNRA

Table 6: 3.3 Fish Diversity Enhancement

Component 1. Build on successes in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas.

IR 6.1 Effective community based resource management mechanisms improved

Component 2. Intensify and consolidate wetland rehabilitation activities for full assessment of impact.

IR 6.2 Fully developed and effective community-based resource management mechanisms implemented. IR 6.2.1 Innovations and best practices adopted.

Activity/Task	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person	Organization
		1st	2nd	3rd	4 th	1st	2nd	3rd	4th	1 st	2nd	3rd	4th		
3.3 Fish Diversity Enhancement¹³															
3.3.1 Develop Detailed stocking plan including responsibilities and deadlines	Stocking plan complete	█	(Jan'04)			█	(Jan'05)							NC	ISM
3.3.2 Procurement procedure	Tender finalized			█	(Apr'04)			█	(Apr'05)					NC	ISM
3.3.3 Supply arrangement	Proceedings & suppliers finalized				█	(Jun'04)			█	(Jun'05)				NC	ISM
3.3.4 Native fish reintroduction	Fish stocked as per plan					█	(Oct'04)			█	(Oct'05)			NC	ISM

█ Denotes the endpoint of the output.

Detailed Activity Plans.

Sl.	Activities	Output/ result	Date of planned accomplishment	Lead Responsibilities
1	a. Site coordinator & staff decide with RMOs about species.	Species and number recommended for stocking in the beels.	15 October	SCs & Catch monitoring officers
	b. Headquarter team review for final approval.	Approved plan	31 October	NC, Bill, Darrell, Mokhles
2	a. Draft tender documents preparation with terms and conditions.	Tender document ready for floating in the newspaper	15 November	NC
	b. Review of tender documents by procurement committee and finalization of document.		30 November	AAB, Exec. Eng., NC, MAF
3	a. Tender notice to be sent to newspaper	Tender notice is sent to newspaper for publication.	1 December	NC, Shah Alam
	b. Notice to be sent to sites also for local circulation among the local fry producers.			
	c. Notice to be sent to members of procurement committee.			
4.	a. Paper/s to be collected for record.	Tender published in newspaper.	10 December	

¹³ All activity shown here are dependent on the timely release and availability of the local currency funds through the ISMP. If funds are not available or unavailable when needed, targets and schedules cannot be maintained.

Sl.	Activities	Output/ result	Date of planned accomplishment	Lead Responsibilities
5	a. Tenders to be received and opened in presence of members of procurement committee and the interested tenderers.	Tenders received	30 December	NC, AAB, Exec. Eng., MAF
6.	a. Comparative statement to be prepared for the meeting of the procurement committee for decision	Comparative statement of received tenders is ready.	6 January	NC, Shah Alam
7	a. Decision to be taken for lowest rate approval and visit of qualified farms assessing the capability of suppliers.	Procurement committee's meeting is held	10 January	AAB, Exec. Eng., NC, MAF
8	Committee will take final decision for recommending tenderer	Team reported the committee about capability of farms	15 January	NC, MACH CNRS PC / Exec. Eng.
	Procurement committee will finally recommend the tender for approval	Final recommendation of procurement committee	20 January	AAB, NC, Exec. Eng., MAF
9	Tender approved by Chief of Party	Committee's decision to be taken to CoP for approval.	25 January	CoP
10	Agreement signed between supplier and MACH	Term & conditions of agreement to be developed and supplier to be invited to sign.	20 February	NC, Exec. Eng., MAF
11	Work order to supplier issued	Work order to be prepared.	30 March	NC
12	Fingerling receiving committee formed	A proposal to be submitted to CoP for approval of the receiving committee.	30 March	NC, CoP
13	Supplier submitted supply schedule to Sc and HQ for carps	Carp fingerling supply	Last week of June	SCs, NC
14	Supplier submitted supply schedule to Sc and HQ for other than carp	Other species	April/ May	SC, NC
15	Stocking started (Carps) & ended	Receiving committee will certify each consignment of supply	June 1st week - 15 September	SC, FC, UFO, RMO & others
16	Stocking started (other species) & ended	Receiving committee will certify each consignment of supply	Mid May & Mid October	SC, FC, UFO, RMO & others
17	Bill submitted by supplier	Bill will be processed for payment	August – October	NC
18	Other species stocking continued	Time may be extended for re-introduction of native beel resident species if available	October – November	SC, NC

Note: This is the re-introduction schedule of fish fingerling in the beels to re-establish the threatened and less available fish species back into their original habitats.

Table 7: 3.4 Pollution Abatement Initiatives

Component 1. Build on successes in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas.

IR 6.1 Effective community based resource management mechanisms improved

Component 2. Intensify and consolidate wetland rehabilitation activities for full assessment of impact.

IR 6.2 Fully developed and effective community-based resource management mechanisms implemented. IR 6.2.1 Innovations and best practices adopted.

Activity/Task 3.4 Pollution Abatement Initiative¹⁴	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05 ⁱ				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organizat ion
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
1. Monitoring Pollution 1.1 Sample analysis after adopting alternative production 1.2 Monitoring ETP 1.3 Analysis total pollution load in khal water	To evaluate the impacts of the measures taken to reduce the level pollution under the project				_____ (Mar '06)								BCAS Pollution Team / SEI	BCAS	
2. Alternate Production Trials a. Changing of dye parameters b. Changing in process (e.g. Introducing environmental friendly salt) > Through trials > Dye managers Training > Prepare and Distributing Manuals	Make industries adopt cleaner production options and thereby reduce pollution				_____ (Dec'05)								BCAS Pollution Team / SEI	BCAS	
3. Support for the existing ETP (Knit Asia & Apex Tannery) 3.1 Monitor efficiency through sample analysis 3.2 Advice on improving design 3.3 Training the ETP operators 3.4 Prepare manuals for monitoring	The industries will be able to check whether their ETP is functioning efficiently through simple and quick monitoring procedures through checking micro organisms and hours of operation of ETP				_____ (Dec'04)		_____ (Jun'05)		_____ (Mar'05)					BCAS Pollution Team / SEI	BCAS
4. Existing factories to establish ETP (Fareast & Interstoff) 4.1 Advice on design of ETP 4.2 Monitor after construction 4.3 Training (budgeted for capacity building)	Convince industries who can setup an ETP and are required to do so.				_____ (Mar'05)				_____ (Dec '05)		_____ (Jun'06)			BCAS Pollution Team / SEI	BCAS

¹⁴ All activities shown here are dependent on the timely release and availability of the local currency funds through the ISMP. If funds are not available or unavailable when needed, targets & schedules cannot be maintained. Funds beyond June of 2005 not available unless PP revisions accepted.

This table on pollution is subject to revision based on new work plan being developed for KAR or the EU funded main program.

Activity/Task 3.4 Pollution Abatement Initiative¹⁴	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05 ⁱ				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
5. Installing a model/ pilot ETP in one factory 5.1 Design the ETP 5.2 Finalize bill of materials 5.3 Construct the ETP 5.4 Equipment procurement 5.5 Flow segregation 5.6 Re use part of the process water 5.7 Demonstration of operation and efficiency of model ETP to other industries in the area 5.8 Monitoring	After the right choice of design of ETP, the model will help convince the industries of its efficiency and cost effectiveness of a biological treatment plant.													BCAS Pollution Team / SEI	BCAS
6. Capacity Building 6.1 Local and National Dyeing Training workshops 6.2 Training of Trainers for ETP operation and maintenance 6.3 Training at Universities 6.4 Increased community awareness	a. Dissemination of modern methods and recipes for better dyeing efficiencies thus reducing pollution b. Trained operators will operate the ETPs efficiently and continuously c. To create a pool of experts in the Universities which will raise the standard of environmental education in the country d. Communities will have sufficient information and awareness to create pressure on the industries to comply and reduce pollution													BCAS Pollution Team / SEI	BCAS

Activity/Task 3.4 Pollution Abatement Initiative¹⁴	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05 ⁱ				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
7.Ensuring and enhancing compliance 7.1 Workshop for buyers 7.2 High level bodies meetings with MDs BELA, DOE, Upazilla chairman	a. Convince the industries of the importance and compliance both in terms of marketing and social responsibility by reducing levels of pollution b. Buyers to be convinced that the industries compulsory comply with the international standards													BCAS Pollution Team / SEI	BCAS
Suggested New objective 1. Intervention to ensure new industries comply with pollution control measures as per ECA 95 ECR 97¹⁵ a. Meet with industries b. Arrange meetings with regulatory bodies, Upazilla chairman, BELA	a. Advice on implementation of ETP b. Explore possibilities of joint ETP to new industries in the area.													BCAS Pollution Team / SEI	BCAS

¹⁵ Dependent on revised funding

Activity/Task 3.4 Pollution Abatement Initiative¹⁴	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05 ⁱ				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
Suggested New objective 2. Outreach, policy Dialogue¹⁶ a Workshops b Film c Tele cast d Fact sheet	(b) Lessons learned from the past and ongoing activities to be taken to other clusters in close association with Bangladesh Textile Mills Association (BTMA) & Bangladesh Garments Manufactures and Exporters Association (BGMEA) (c) Advocacy with DOE to set and implement stringent regulations and standards for textile dyeing and industries. (d) Policy discussions with international and national buyers on market access issues. (e) Sensitize GoB on aspects of incentive disincentives and broader issues like industrial zoning, central, clustered or joint effluent treatment and plants and other infrastructure developments. (f) Mobilize industries and other GoB agencies on certification, compliance for industries to have market access opportunities.													BCAS Pollution Team / SEI	BCAS

NB. DFID funding under KAR has ended in June 2004. EC proposal is currently under review by the European Commission. On successful outcome of the EC program BCAS will discuss with MACH to ensure complementarities.

— Denotes the endpoint of the output.

¹⁶ Dependent on revised funding.

Table 8: 3.5 GIS & Hydrology

Component 1. Build on successes in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas.

IR 6.1 Effective community based resource management mechanisms improved

Component 2. Intensify and consolidate wetland rehabilitation activities for full assessment of impact.

IR 6.2 Fully developed and effective community-based resource management mechanisms implemented. IR 6.2.1 Innovations and best practices adopted.

Activity/Task 3.5 GIS & Hydrology ¹⁷	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
3.5.1 Maps of the ISMP re-excavation plan	Map				▬				▬	(Oct'05)				Babu	BCAS
3.5.2 Hydrological Analysis	Map and Inundated area data		▬		▬		▬		▬		▬		(Apr'06)	Babu	BCAS
3.5.3 Update project activities and mapping including impacts	Map			▬				▬			▬		(Apr'06)	Babu	BCAS
3.5.4 GPS survey and mapping of all re-excavation activities undertaken under ISMP and prepare maps as per requirement of the project.	Map	▬	▬			▬	▬			▬	▬		(Apr'06)	Babu	BCAS
3.5.5 Outreach (As required)	Materials provided as required	▬												Babu	BCAS
3.5.6 Semi annual & Annual Report and Maps	Reports and Map		▬		▬		▬		▬		▬		(May'06) (Oct'06)	Babu	BCAS
3.5.7 Preparation and supervision of project technical reports.	Technical reports completed.			▬	▬	▬	▬	▬	▬	▬	▬		(Feb'06)	Babu	BCAS

▬ Indicates the endpoint of the output.
 ▬ Indicates TBD (To be decided).

¹⁷ All activities shown here are dependent on the timely release and availability of the local currency funds through the ISMP. If funds are not available or unavailable when needed, targets & schedules cannot be maintained.

Table 9: 3.6 Outreach Activity

Component 1. Build on successes in MACH I to further develop the community-based co-management approach to resource management in existing MACH areas.

IR 6.1 Effective community based resource management mechanisms improved

Component 2. Intensify and consolidate wetland rehabilitation activities for full assessment of impact.

IR 6.2 Fully developed and effective community-based resource management mechanisms implemented. IR 6.2.1 Innovations and best practices adopted.

Activity/Task 3.6 Outreach Activity¹⁸	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
3.6.1 Feasibility, Site selection, outreach program work plans.	Feasibility, site selection, outreach program work plans completed							█						Mokhesur Rahman	CNRS
3.6.2 Final selection, module development & approval.	Module developed & approved													Exec Eng. / MAF/ COP / PD of Concern organization	WI / Concern Organization
3.6.3 Agreement with recipient organizations.	Agreement done.						█							Exec Eng./ MAF/ NC COP / PD of concern organization (s)	WI/ BCAS / Concern Organization
3.6.4 Implementation of activities identified in work plans for selected sites.	Selected sites outreach successfully implemented							█						NC / Exec Eng.	BCAS/ WI
3.6.5 Support to the other projects as required in sustainable management of outreach program Social Institutional side.	Management group formed and local govt. involved.							█						CBO / ID Specialist / MACH CNRS PC	CNRS
3.6.6 Monitoring status of outreach program a) Execution status (ISMP) b) Impact assessment (CNRS)	Status & Impact assessed													Exec Eng./ MACH CNRS PC/ MAF	WI/ CNRS

█ Denotes the endpoint of the output.

¹⁸ All activities shown here are dependent on the timely release and availability of local currency funds through the ISMP. If funds are not available or unavailable when needed, targets and schedules cannot be maintained.

Component 3: Continue to enhance policy environment for natural resource co-management.

The intermediate result within this component is IR 6.3 Selected policies implemented that support IR 6.1 and IR 6.2. MACH is working to ensure access by the resource management groups over selected critical wetland habitat through intervening with the community at the local level and at the national level with the MoFL and the MoL. The activity list shown below proposes work leading to the enhancement of the policy environment surrounding the water body/wetland leasing system (4.0 Policy initiatives).

Table 10: 4.0 Policy Initiatives

Component 3. Continue to enhance policy environment for natural resource co-management. The intermediate result within this component is IR 6.3 Selected policies implemented that support IR 6.1 and IR 6.2

Activity/Task 4.0 Policy Initiatives	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05				Quarter of Nov'05- Oct'06				Lead Person	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
4.1 Lease of water bodies' handover to community based groups.	Water bodies handed over to RMOs	██████████				(Oct'04)								Mujibur Rahaman	BCAS
4.1.1 Selection of beels by RMO preparation of plan.	Beels selected	████	(Jan'04)											MACH CNRS PC	CNRS
4.1.2 Meeting with MoL officials for clarification of proposal.	Meeting held	██████████		(Apr'04)										Mujibur Rahaman	BCAS
4.1.3 Approval of proposal by MoL	Proposal approved			██████████	(Sep'04)									Mujibur Rahaman	BCAS
4.2 Seek MoL clearance for a reduction in exceptionally high lease of some jolmohal and reduced lease value for jolmohals incorporating sanctuary in their management.	Proposal provided to MoL seeking reduction.					██████████ (Feb'05)								Mujibur Rahaman	BCAS
4.2.1 Generate field evidence on problem of exceptional lease rates and more appropriate levels	Evidence for agreement				██████████		(Dec'04)							NC, Mokhlesur Rahman	BCAS CNRS
4.2.2 Write to MOFL seeking reduction for specific sites, and proportionate reduction for jolmohals minus sanctuary area.	Letter and annexes submitted to MOFL					████	(Jan'05)							Mujibur Rahaman	BCAS
4.2.3 Pursue applications and presentation to MOFI, MoL etc.	Presentation and agreement with ministries					████	(Feb'05)							Mujibur Rahaman	BCAS
4.2.4 Cooperation and sharing with other DoF projects on sanctuary proposal.	Similar proposals from other projects, shared view				██████████		(Feb'05)							NC, SNRA	BCAS, WI
4.3 Encourage the MoL to include in their lease agreements for the hills a clause stipulating that the lessee must plant in a contour fashion.	Issuance of circular by MoL for inclusion	██████████					(Jan'05)							Ali Akbar Bhuiyan	BCAS
4.3.1 Submission of proposal regarding inclusion of clause.	Proposal submitted			██████████			(Dec'04)							Ali Akbar Bhuiyan	BCAS
4.3.2 Presentation to MoL/MoFL regarding benefit of contour system of cultivation.	Presentation made					████	(Feb'05)							Ali Akbar Bhuiyan	BCAS
4.4 Swamp plantation in GoB Khas land and sharing agreement.	Agreement finalized			██████████				(Mar'05)						Mujibur Rahaman	BCAS
4.4.1 Submission of agreement to DC	Agreement submitted						██████████	(Apr'05)						Mujibur Rahaman	BCAS

██████████ Denotes the endpoint of the output.

Component 4: Further develop constituency for co-management of natural resources “Roll Out” approach to GoB and donors.

The intermediate result within this component is IR 6.4 Public awareness of key issues raised. To achieve the intermediate results proposed activities have been shown on tables 11 & 12 that follow (5.0 Communication Initiatives and 6.0 Gender Initiatives):

Awareness and advocacy are primary components of MACH’s integrated approach to improving resource management in Bangladesh. As such, MACH – II has given a special emphasis for a comprehensive communication package that combines awareness and advocacy efforts and brings cohesion to their implementation. The overall communication objective of MACH II is to promote key wetlands issues and its approaches. Specific objectives are (i) to increase public awareness levels on wetlands key issues, (ii) to “roll out” its co-management approaches to the wider government and donor communities, (iii) to further develop the constituency for co-management of natural resources through an expanded outreach and public education efforts, (iv) to raise the understanding levels of RMOs and RUGs on wetland issues and their roles/responsibilities to sustain the community co-management approaches, and (v) to promote the best practices of the project utilizing different media.

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Activity/Task 5.0 Communication Initiatives¹⁹	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organization	
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th			
5.2.5 Develop and distribute materials with MACH logo and key messages to the RMOs, UP members and all stakeholders in the field.	Flyers, pocket note book, wall calendar, desk calendar, sun cap etc.					—————				—————		(Jan'06)			Shahnaz/ Arzoo	BCAS/ CNRS/ISM
5.2.6 Observance of Important Environmental Days	* Rally * Special communication events and materials highlighting the events		—————					—————		(Oct'05)					Shahnaz/ SC / FC ²²	BCAS/ CNRS / Caritas
5.2.7 Develop Bill Board showing different activities of MACH project and fix in public places	* 9 Bill Boards (3 in each sites)			—————					(Jun'05)					Shahnaz/ Arzoo	CNRS Arzoo to organize	
5.2.8 Writing key messages on public and government wall at site levels	* Minimum 9 Wall paintings			—————				—————		(Oct'05)					Arzoo/ SC	CNRS
5.2.9 Arrange competition among school students	* 9 Drawing competition * 3 Essay competitions * 18 Quiz competitions				—————				—————		(Jan'06)			Arzoo/ SC	CNRS	
5.2.10 Organize live Drama at the site levels.	* 300 shows of live Drama placed			—————					—————		(May'06)			Shahnaz/ SC at site/ FC	BCAS /CNRS/ Caritas	
5.3 Disseminate information to policy makers on MACH approaches and inputs and how to roll out best practice	Policy makers understand need for and how wetlands can be conserved	—————												Shahnaz Arzoo	BCAS CNRS	
5.3.1 Develop a documentary for the policy makers highlighting the MACH approaches, major achievements, and possibilities of replication of MACH BEST practices.	A documentary of 20-30 minutes (dependent on ISMP fund availability).							—————		(Oct'05)					Shahnaz	BCAS
5.3.2 Writing articles on MACH initiatives	Articles/case study/success story will be written in national dailies and newsletter			—————					—————		(Apr'06)			Shahnaz Arzoo	BCAS CNRS	
5.3.3 Organize advocacy workshop s/meetings with MoL, MoFL seeking policy changes on land and jolmohal issues	Workshop/dialogue meetings held			—————					(Jun'05)					Mujib/ NC /Shahnaz/ Partners	BCAS	
5.3.4 Organize briefing sessions along with field visits the national and local level journalists including competitions for best articles	* Briefing Notes * Workshop Reports * News coverage			—————				—————		(Oct'05)					Shahnaz/ SC / FC	BCAS/ CNRS / Caritas
5.3.5 Design and develop updated Project Flyer to disseminate MACH approaches and major achievement to the wider community	* Project Flyer on best practice in Bangla.	————— (Jan'04)				————— (Jan'05)								Shahnaz/ Arzoo	BCAS/ CNRS	

²² Site sends proposals and recommended by Shahanaz.

Component 5: The “Institutionalization of a sustainable co-management of natural resource system”.

MACH has been a leader in the sector in use and development of strong local partnerships at local government levels. Other programs involved in community-based management have looked up to and agreed with the MACH approach with regard to local government participation and linkages. Discussions are ongoing with other projects and the GoB on the future strategy for open water/wetland management.

MACH phase II institutional systems are continuing to incorporate a co-management approach that can be replicated in other areas with the support of the Ministry of Fisheries and Livestock (MOFL) and LGRD. MACH phase II will recommend institutional replication to the MOFL’s Department of Fisheries (DOF) based on MACH successes. With the local government structure involving the upazila fishery officer in all phases of planning, the DOF is expected to disseminate the model successfully. MACH will work with the DOF and the ministries through the steering committee to promote dissemination and replication of the approach.

Progress and plans for forming UFMC and the endowment fund. A draft structure of the Upazila Fisheries Management Committee (the existing LGCs future name) and TOR have been formulated, which is being discussed and reviewed in workshops with the DoF, in the RPT/PMU, and in the steering committee. The steering committee has already approved principle as has the DoF. It has already been discussed at the field level with the members of the LGC at site workshops held at each of the sites. In the proposed structure the UNO will chair the Committee and S/UFO will act as member-secretary just as they have been for more than 3 years in the MACH LGC.

To make the Upazila Fisheries Management Committee (UFMC) functional and operationally effective after the exit of the MACH project, a provision of an endowment funds is being considered. One fund will be used for the organizational expenses and for the physical development and management of resources by the RMOs and the other will be used for a Community-based Organization (CBO) network. A detailed operational manual will be developed after the approval of the revised PP of ISMP in which a provision of the endowment fund has been incorporated.

Initiatives to strengthen UFO role in management and providing wetland resource management coordination role. Upon completion of MACH II the S/UFO will carry out the responsibilities of sustaining the wetland and fishery management approach established by his offices and the project. In view of this, a draft TOR for the UFO has been developed and distributed to the field for comment. The draft TOR will be finalized in consultation with the DoF and approval of the MoFL. During MACH II the UFO continues to play a key role in the management of resources through MACH in his/her Upazila areas.

The intermediate result within this component is IR 6.5 Improved institutional capacity. Through activities shown in the tables 13 & 14 below (7.0 Institutional considerations for RUG and RMO sustainability and 8.0 RUG sustainability). It is envisioned that the intermediate result will have been achieved and local co-management institutions will be able to carry on after the project. Also included on table 15 is the monitoring and evaluation tasks & outputs over the life time of the project

Table 13: 7.0 Institutional considerations for RUG & RMO sustainability

Component 5. Component 5 is the “Institutionalization of a sustainable co-management of natural resource system”. The intermediate result within this component is IR 6.5 Improved institutional capacity.

Activity/Task	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
7.1 Establish Upazila Fisheris Management Committee (UFMC) with links to the Upazila Development Committee (UDCC).	UFMC formed, operational and linked to UDCC.					██████████ (Jul'05)								MujiburRahman ²³	BCAS
7.1.1 Preparation of proposal including structure & TOR of the UFMC.	Proposal drafted			██████		██████								Mujibur Rahman/ NC / CBO/ ID Specialist	BCAS
7.1.2 Review proposal with DOF inland fisheries strategy and agreement, TOR etc.	Proposal consistent with DOF strategy.					██████								Mujibur Rahman, NC	BCAS
7.1.3 Special LGC meeting to review proposal	Upazila endorsement					██████								Mujibur Rahman	BCAS
7.1.4 District consultation on proposal (DC, DFO etc.)	District endorsement					██████								Mujibur Rahman	BCAS
7.1.5 Revise proposal in light of consultation	Final proposal					██████								Mujibur Rahman	BCAS
7.1.6 Submit proposal to MoFL, MoL and USAID for action.	Proposal presented in Ministry to MoFL MoL and USAID.						██████							Mujibur Rahman	BCAS
7.1.7 Made presentation to Inter-ministerial meeting of MoFL and MoL.	Inter-ministerial meeting held						██████							Mujibur Rahman	BCAS
7.1.8 Government order from MoL establishing Upazila committee (UFMC)	Acceptance and approval of new ToR for committee by GoB (order issued).							██████						Mujibur Rahman	BCAS
7.1.9 Government order from Cabinet Division specifies considering UFMC issues in UDCC	GoB order linking UFMC with UDCC							██████						Mujibur Rahman	BCAS
7.1.10 Request UNOs to agree that key issues from LGC will be covered within UDCC under existing clauses in the UDCC TOR	Practical link under development project clause						██████							Mujibur Rahman	BCAS
7.1.11 Switch from LGC to Upazila Wetland Resource Management Committee which will also operate as an RMO Apex	Operating UFMC in each site (1 st meeting held)							██████						Mujibur Rahman	BCAS
7.2 Establish Endowment (s) at three sites for use by the UFMC to fund selected RMO proposals and for the operation of limited support staff maintenance and committee supports²⁴	Endowment fund established and operational					██████████								Mujibur Rahman	BCAS

²³ Mujib to seek support for pursuing as necessary from CBO/ ID Specialist, NC, MACH CNRS PC & others if necessary.

²⁴ This is of course contingent on the GoB agreeing to the establishment of the endowment and allowing MACH to use funds from ISMP and subject to revised PP approval.

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Activity/Task	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
7.0 Institutional considerations for RMO sustainability															
7.2.1 Endowment proposal and guideline for the operation of the endowment as two alternatives: government endowment or trust fund with endowment.	Completed proposal and guidelines.				■	(Nov'04)								SNRA/ NC/ MAF	BCAS
7.2.2 Submission of the proposals in the steering committee meeting.	One option approved in principle by steering committee.				■	(Dec'04)								Mujibur Rahman / NC	BCAS
7.2.3 Prepare detailed proposal and guidelines	Properly constituted draft articles etc. for proposed fund.					■	(Mar'05)							Mujibur Rahman, Lawer	BCAS
7.2.4 Submission of formal proposal to MOFL for onward transmission to relevant ministries.	MoFL forwards proposal with revisions to other ministries.					■	(Apr'05)							Mujibur Rahman	BCAS
7.2.5 Pursue & seek approval by concerned ministry.	Approved by concerned ministries						■	(Jun'05)						Mujibur Rahman	BCAS
7.2.6 Establish endowment fund	Funds placed in Upazilas							■	(Oct'05)						
7.3 Strengthening of Upazila Fisheries Officer (S/UFO) role and capacity.								■	(Jan'05)					NC	BCAS
7.3.1 Finalization of proposal and proposed TOR for S/UFO	TOR finalized.				■	(Oct'04)								NC	BCAS
7.3.2 Submission to DoF/ MoFL for approval and issuance.	TOR submitted to DoF/ MoFL.				■	(Nov'04)								NC	BCAS
7.3.3 DG issue letter /Execution	Approved by DG & letter issued with TOR.					■	(Jan'05)							MACH CNRS PC	CNRS
7.3.4 Orientation for S/UFO	S/UFOs understand revised responsibilities and TORs						■	(Apr'05)						NC	BCAS

■ Denotes the endpoint of the output.

Table 14: 8.0 RUG Sustainability

Component 5. "Institutionalization of a sustainable co-management of natural resource system". The intermediate result within this component is IR 6.5 Improved institutional capacity.

Activity/Task 8.0 RUG Sustainability	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
8.1 RUG will complete their group's election to form Executive Committee.	Executive committee formed	■												FC	Caritas
8.2 Foundation work to sensitize RUGs for FRUG formation	RUG groups have accepted & agree to FRUG formation		■											CBO/ ID Specialist / FC	Caritas
8.3 Select / elect 2 representatives from each RUG for FRUG.(One will be selected from EC and the other one will be selected from the general member)	Representative chosen.		■											FC	Caritas
8.4 The selected representatives will meet and form 15 members Executive Committee from 30 representatives.	15 member executive committee formed.		■											FC / ID Specialist	Caritas
8.5 A constitution for RUGs and another constitution for FRUG to be developed	All RUGs and FRUGs have an operating constitution and are running their organization as per constitution		■											CBO/ ID Specialist	Caritas
8.6 Conduct a consultative meeting with different stakeholders / partners for presentation and sharing of final FRUG draft constitution	Consultation meeting conducted			●										CBO/ ID Specialist	Caritas
8.7 Both these draft constitutions thoroughly discussed at the weekly meetings of the RUGs	Drafts reviewed and discussed.				■									FC	Caritas
8.8 A two days training on FRUG formation will be organized where draft constitution will be discussed.	Drafts further modified		■											FC / ID Specialist	Caritas
8.9 Recommendations of the above workshop to be presented to LGC for approval	Approval of the LGC				■									CBO/ ID Specialist	Caritas
8.10 A seminar will be organized at 3 sites taking 3/4 representatives from each FRUG for final approval.	Final seminar held at each site.				■									CBO/ ID Specialist	Caritas
8.11 After final approval of the constitution it will be published and circulated to each RUG and FRUG.	Circulation of constitution				■									PC	Caritas
8.12 FRUGs registered under the Department of Social Welfare	FRUGs Registered				■									PC,FC	Caritas
8.13 FRUGs meet at least once in a month to implement and monitor the activities, see that accepted guidelines are followed, and manage the revolving fund.	Meeting of FRUG held													PC / ID Specialist	Caritas
8.14 Field staff will monitor and follow up whether guidelines are strictly followed or not. Steps will be taken based on their feed back.	Field staff monitoring showing result													FC / ID Specialist	Caritas
8.15 Field staff facilitation and preparation of RUGs yearly work plan with budget.	All RUGs have their yearly work plan in place and are properly implementing			●				●				●		PC / FCs	Caritas
8.16 Same process will be followed at the FRUG level to prepare their yearly work plan with budgetary provision	All FRUG yearly work plan in place.			●				●				●		PC / FCs	Caritas

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Activity/Task 8.0 RUG Sustainability	Output	Quarter of Nov'03- Oct'04				Quarter of Nov'04- Oct'05				Quarter of Nov'05- Oct'06				Lead Person(s)	Lead Organization					
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th							
8.17 Work plan implementation monitoring.	Work plan successfully implemented.				■									do	Caritas					
8.18 Credit operational guide line will be developed incorporating co management system. The guideline to be approved first by MACH and MACH RPT.	A credit operational guide line for Revolving Loan Fund (RLF) and savings exists and followed.			■		(Oct'04)								CBO/ ID Specialist / PC	Caritas					
8.19 Conduct workshop with stakeholders (FRUG, MACH-HQ, MACH partners) for "finalization of draft credit operational guideline"	Workshop conducted				■	(Nov'04)								CBO/ ID Specialist	Caritas					
8.20 Provide 2 day training session to the FRUG leaders and MACH-Caritas staff on "credit operational guide line and management system". (one batch in each site)	Conduct training				■	(Nov'04)								CBO/ ID Specialist	Caritas					
8.21 At least one FRUG per site selected for hand over of RUGs credit fund on trail basis.	Funds placed with at least one FRUG in each site						■	(Jan'05)						CBO/ ID Specialist / PC	Caritas					
8.22 On-the-job training and operation of credit fund between FRUG and concerned Caritas field staff	At least one FRUG operationalized at each site.								■	(Aug'05)				PC/ field coord	Caritas					
8.23 Provide training to the staff and selected leaders of the FRUG on the following courses - Advance Facilitation skill for the staff (one batch) - Leadership and organizational management (3 batch in each site) - Credit accounts keeping - Advocacy and networking (one batch in each site) - Gender and Development (2 batch in each site)	RUGs & FRUGs capable of managing RLF/AIG support.			●	(May'04)		●	(Dec'04)		●	(Apr'05)		●	(May'05)	●	(June'05)	CBO/ ID Specialist / PC	Caritas		
8.24 Organize exchange program for the FRUG leaders with similar programs.	Exchange visits conducted									●	(May'05)						CBO/ ID Specialist / PC	Caritas		
8.25 Performance of FRUG trial will be evaluated after 6 months of operation.	Evaluation of FRUGs trial complete										■	(Jul'05)					CBO/ ID Specialist / PC	Caritas		
8.26 Review and revise guidelines and transition plans for FRUGs based on pilot experience including budget analysis for each FRUG to cover its operating costs including staff	Revised guideline, work plan and budgets											■	(Aug'05)				CBO/ ID Specialist / PC	Caritas		
8.27 Based on recommendations of the performance evaluation MACH-Caritas will hand over RLF to the rest of the FRUGs	Handover of RLF to all FRUGs.												■	(Oct'05)			CBO/ ID Specialist	Caritas		
8.28 FRUGs with MACH-Caritas assistance recruit their staff	FRUG Staff recruited													■	(Nov'05)		FRUG / PC	Caritas		
8.29 FRUGs operate with their own staff and MACH-Caritas staff working in tandem for on-the-job learning, plus MACH-Caritas will oversee and support the FRUG managerial functions.	FRUG functions semi-independently															■	(Apr'06)	CBO/ ID Specialist / PC	Caritas	
8.30 Site wise quarterly coordination meetings will be arranged for maintaining uniformity among the FRUG.	Site wise FRUG coordination meeting held.																■	(Oct'06)	FO,FC, ID Specialist	Caritas
8.31 Continual assessment of FRUG and their staff performance by MACH-Caritas	Assessment reports against agreed criteria																■	(Oct'06)	PC	Caritas
8.32 FRUGs operate with their own staff, MACH-Caritas will oversee and support the FRUG managerial functions.	FRUG functions with own staff and without day -to-day project staff																■	(Oct'06)	CBO/ ID Specialist / PC	Caritas

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Activity/Task 8.0 RUG Sustainability	Output	Quarter of Nov'03 - Oct'04				Quarter of Nov'04 - Oct'05				Quarter of Nov'05 - Oct'06				Lead Person(s)	Lead Organization
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th		
8.33 To meet up the organizational expenditure of the FRUG and its future self reliant alternative source of income will be identified and CBO/IDCS with the stakeholders will prepare a guideline for use of part of 12% interest charged for management of the system. This guideline will be approved by the project RPT/PMU/FRUG.	Guideline established and approved by the stakeholder by the MACH RPT.											█ (Jan'06)		CBO/ ID Specialist	Caritas
8.34 Completion of office building for each FRUG ²⁵	Office building establish											█ (Dec'05)		CBO/ ID Specialist / PC	Caritas
8.35 Develop a guideline for UFMC credit function including the TOR portion.	Guideline & TOR of UWRMC developed and approved.											█ (Sep'05)		CBO/ ID Specialist	Caritas
8.36 UFMC (2 nd half credit functions) will hold their regular quarterly meetings for ensuring supervision and oversight of the credit operation. Respective staff will assist the FRUG leaders to prepare different kinds of statements and reports for presentation at those meetings at Upazilla level.	UFMC meeting held and credit issue resolved.											█ (Nov'05)		FC,FO, RUC leaders, UWRMC	Caritas
8.37 Management and credit operation by FRUGs reviewed and based on the review a plan for further support by CARITAS after the project will be evaluated.	Review and evaluation of support needs of Caritas as proposed evaluation and course set.												█ (May'06)	CBO/ IDCS/RPT/PMU specifies team RPT/USAID	Caritas

█ Denotes the endpoint of the output.

²⁵ Pending approval of PP.

Table 15: 9.0 Monitoring & Evaluation Activities

Activity/Task 9.0 Monitoring & Evaluation Activities	Output	Quarter of Nov'03-Oct'04				Quarter of Nov'04-Oct'05				Quarter of Nov'05-Oct'06				Lead Person(s)	Lead Organization	
		1st	2nd	3rd	4th	1st	2 nd	3rd	4th	1st	2nd	3rd	4th			
9.1 Data collection for catch household consumption	Semi annual , annual data result tables													(Apr'06)	Rony	CNRS
9.2 Data collection for awareness changes at sites	Semi annual , annual data result tables				(Jul'04)			(Jun'05)						(Jun'06)	Shahanaz Rony	BCAS
9.3 Data collection for all other indicator targets being measured.	Semi annual , annual data result tables													(Sep'06)	Rony	CNRS
9.4 Develop site wise targets that will ensure attainment of over all project targets (These should include the SO 6 targets as well as all our task specific targets)	Completed target table for each site		(Mar'04)												SN Choudhury	BCAS
9.5 Develop Site wise data collection and reporting formats for maintaining a database of all achievements. This should include all basic through summary sheets.	Completed data collection and reporting formats for maintaining a database	(Jan'04)													Rony	CNRS
9.6 Monthly target/achievement summary report	Monthly target sheets turned into HQ													(Sep'06)	Site coordinators NC, Rony ²⁶	CNRS BCAS
9.7 Semi-annual reporting of targets and achievements	Semi-annual reporting period data complete		(Jun'04)					(Jun'05)						(Jun'06)	SN Choudhury Rony ²⁷	BCAS CNRS
9.8 Annual reporting of targets and achievements	Annual reporting of achievements completed				(Dec'04)					(Dec'05)					SN Choudhury Rony ²⁷	BCAS CNRS
9.9 Completion report	Completion report completed													(Oct'06)	SN Choudhury Rony ²⁷	BCAS CNRS

— Denotes the endpoint of the output

²⁶ Site coordinators to be instructed by NC followed up by Rony.

²⁷ Rony has to pull data together from sources and NC to finalize for report.

Appendix 6

List of MACH-II staff

List of MACH-II & ISMP Employees:

MACH -II Winrock

Name of Employee	Designation	Status	Work Location
Mr. Darrell L. Deppert	Chief of Party	Long Term	Dhaka
Mr. Paul M. Thompson	Sr. Natural Resource Advisor	Short Term	Dhaka
Mr. Md. Shahbuddin	Manager Admin & Finance	Long Term	Dhaka
Mr. Md. Danial Bhuiyan	Institution Development Specialist	Long Term	Dhaka
Mr. Probir Kumar Roy	Sr. Accounts and Admin Assistant	Long Term	Dhaka
Mr. Md. Mahmud Ali	Accountant	Long Term	Dhaka
Mr. Shah Alam Howlader	Admin and Account Assistant	Long Term	Dhaka
Ms. Sultana Pervin	Executive Secretary	Long Term	Dhaka
Ms. Kazi Ismat Ara Bina	Secretary	Long Term	Dhaka
Ms. Rita Costa	Telephone Operator/Receptionist	Long Term	Dhaka
Mr. Modhu Hazong	Peon Cleaner	Long Term	Dhaka
Mr. Mukhlesur Rahman	MLSS	Long Term	Dhaka
Mr. Syed M. Anwarul Islam	Office Bearer & Cleaner	Long Term	Dhaka
Mr. Saiful Islam	MLSS	Long Term	K-M Site
Mr. Narayan Harizon	Cleaner	Long Term	K-M Site
Mr. Nirod Chandra Dev	Cleaner	Long Term	Hail Haor
ISMP-Winrock			
Mr. Mizanur Rahman	Executive Engineer	Long Term	Dhaka
Mr. Mohammad Abdur Rouf	Sr. Assistant Engineer	Long Term	Dhaka
Mr. Morshedur Rasheed Reza	Accountant	Long Term	Dhaka
Ms. Rita Costa	Secretary	Long Term	Dhaka
Mr. Rana Sangma	Peon/Cleaner	Long Term	Dhaka
Mr. Md. Fazlul Haque	Sr. Sub Assistant Engineer	Long Term	Hail Haor
Mr. Bimal Kumar Sarker	Sub Assistant Engineer	Long Term	Hail Haor
Mr. Md. Monaj Ahmed	Survey Assistant	Long Term	Hail Haor
Mr. Mnowar Hossain	Sr. Account Assistant	Long Term	Hail Haor
Mr. Md. Masud Hasan	Sr. Account Assistant	Long Term	Hail Haor
Mr. Mostafizur Rahman Mozumder	Sub Assistant Engineer	Short Term	Hail Haor
Mr. Md. Jahangir Alam	Peon/Cleaner	Long Term	Hail Haor
Mr. Md. Subash Chandra Sheel	Sr. Sub Assistant Engineer	Long Term	K-M Site
Mr. Sk. Md. Alamgir Hossain	Sub Assistant Engineer	Long Term	K-M site
Mr. Mafidul Islam	Survey Assistant	Long Term	K-M Site
Mr. Md. Shahdat Hossian Dewan	Account Assistant	Long Term	K-M site
Mr. Md. Golam Mustafa	Account Assistant	Long Term	K-M Site
Mr. Shamsul Huda	Sub Assistant Engineer	Short Term	K-M site
Mr. Rustam Ali	Peon/Cleaner	Long Term	K-M Site
Mr. Abdul Haque Azad	Sr. Sub Assistant Engineer	Long Term	T-B Site
Mr. Hasanul Islam	Sub Assistant Engineer	Long Term	T-B Site
Mr. Sk. Sharifuzzaman	Survey Assistant	Long Term	T-B Site
Mr. Md. Habibur Rahman	Survey Assistant	Long Term	T-B Site
Mr. Abu-Al-Khattab	Sr. Account Assistant	Long Term	T-B Site
Mr. A. K. M. Abdul Gani	Account Assistant	Long Term	T-B Site
Mr. Saiful Islam	Sub Assistant Engineer	Short Term	T-B site
Mr. Md. Solaimun	Peon/ Cleaner	Long Term	T-B Site

MACH II-BCAS

Name of Employee	Designation	Status	Work Location
Dr. A. Atiq Rahman	Consultant	Short Term	BCAS-HQ
Mr. Mujibur Rahman	Consultant	Short Term	BCAS-HQ

Name of Employee	Designation	Status	Work Location
Mr. Liaquat Ali	Consultant	Short Term	BCAS-HQ
Mr. S. N. Choudhury	National Coordinator	Long Term	MACH-HQ
Mr. Ali Akber Bhuiyan	Plantation Specialist	Long Term	MACH-HQ
Ms. Shahnaz Parvin	Communication Specialist	Long Term	MACH-HQ
Mr. Mozharul Alam	Data Base Management	Short Term	BCAS-HQ
Ms. Mirza Arifah Ahmad	GIS Analyst	Short Term	BCAS-HQ
Mr. Md. Abdul Alim	GIS Analyst	Short Term	BCAS-HQ
Ms. Ismot Ara	GIS Analyst	Short Term	BCAS-HQ
Mr. Akhtar Mahmood	Data Entry/Office Manager	Long Term	Hail Haor
Mr. A. K. M. Meherul Islam	Office Manager	Long Term	K-M Site
Mr. Khairul Ahsan	Office Manager	Long Term	T-B Site
Mr. AFM Golam Samdani Quarishi	Peon	Long Term	Hail Haor
Mr. Md. Ahsi Iqbal Bachchu	Peon	Long Term	K-M Site
Mr. Anwar Hossain	Peon	Long Term	T-B Site

MACH II-CNRS

Name of Employee	Designation	Status	Work Location
Mr. Mokhlesur Rahaman	Floodplain Ecologist	Short Term	CNRS-HQ
Mr. Sachindra Halder	Monitoring Coordinator	Short Term	MACH-HQ
Mr. Mainur Rahman	Tr. and Communication Officer	Long Term	MACH-HQ
Mr. Rony Robert Rozario	MIS Officer	Long Term	MACH-HQ
Mr. Saleh Kazbin	Assistant MIS Officer	Long Term	MACH-HQ
Mr. Md. Shofiqul Islam	Assistant MIS Officer	Short Term	MACH-HQ
Mr. Mazharul Islam	Site Coordinator	Long Term	Hail Haor
Mr. Md. Alauddin	Sr. Field Officer	Long Term	Hail Haor
Mr. Touhidur Rahman	Field Biologist	Long Term	Hail Haor
Mr. S.M. Monjurul Ahsan	Field Officer	Long Term	Hail Haor
Mr. Md. Ashraful Islam	Field Officer	Long Term	Hail Haor
Mr. Md. Zahed Sadeque Chowdhury	Field Biologist	Long Term	Hail Haor
Mr. A K M Farhad Kabir	Field Biologist	Long Term	Hail Haor
Mr. Achintya Kumar Sarker	Field Biologist	Long Term	Hail Haor
Mr. Md. Emdadul Haque	Field Officer	Long Term	Hail Haor
Ms. Mita Barua	Field Officer	Long Term	Hail Haor
Mr. Mehedi Hasan Tarafder	Accounts Assistant	Long Term	Hail Haor
Mr. Naymul Kabir Chowdhury	Site Coordinator	Long Term	T-B Site
Mr. Pallab Sarker	Sr. Field Officer	Long Term	T-B Site
Mr. Golam Kibria	Field Officer	Long Term	T-B Site
Mr. Md. Shourav Mahmood	Field Officer	Long Term	T-B Site
Mr. Anisuzzaman Chowdhury	Field Officer	Long Term	T-B Site
Mr. Md. Khalilur Rahman	Field Officer	Long Term	T-B Site
Mr. S. Md. Ziaul Huque	Site Coordinator	Long Term	K-M Site
Mr. Subodh Kr. Biswas	Sr. Field Officer	Long Term	K-M Site
Mr. Md. Nuruzzaman	Field Biologist	Long Term	K-M Site
Mr. Md. Liakat Ali	Field Biologist	Long Term	K-M Site
Mr. Amirul Islam	Field Officer	Long Term	K-M Site
Mr. Noor Ahmed	Account Assistant/Plantation support officer	Long Term	K-M Site
Mr. Ali Azam Khan	Field Officer	Long Term	K-M Site

MACH 11-CARIATS

Name of Employee	Designation	Status	Work Location
Mr. A.S.M. Mostaque	Program Coordinator	Long Term	CFP-HQ

Name of Employee	Designation	Status	Work Location
Mr. Mizanur Rahman	Program Officer	Long Term	CFP-HQ
Mr. Joachim Gomes	Senior Accountant	Long Term	CFP-HQ
Mr. Bablu D' Costa	Peon	Long Term	CFP-HQ
Ms. Mrittika Adiya	Junior Accountant	Long Term	Dhaka Region
Mr. Md. Obaidul Haque	Field Coordinator	Long Term	Hail Haor
Mr. Gregory Halder	Jr. Accountant	Long Term	Hail Haor
Mr. Md. Kamrul A. Chowdhury	Field Officer	Long Term	Hail Haor
Mr. Edward Corraya	Field Officer	Long Term	Hail Haor
Mr. Sajal Kumar Das	Agriculture Extension Officer	Long Term	Hail Haor
Ms. Rehana Akther	Assistant Field Officer	Long Term	Hail Haor
Mr. Patrick Rozario	Assistant Field Officer	Long Term	Hail Haor
Mr. Jharna Rani Voumik	Assistant Field Officer	Long Term	Hail Haor
Mr. Sk. Alamgir Hossain	Assistant Field Officer	Long Term	Hail Haor
Mr. Mukul Chandra Shaha	Assistant Field Officer	Long Term	Hail Haor
Mr. Taposh Gomes	Jr. Field Accountant	Long Term	Hail Haor
Mr. Md. A.B. Shiddik	Jr. Field Accountant	Long Term	Hail Haor
Mr. Adhir Ch. Saha	Assistant Field Officer	Long Term	Hail Haor
Mr. Amal Kumar Das	Assistant Field Officer	Long Term	Hail Haor
Mr. Md. Jahangir Hossain	Assistant Field Officer	Long Term	Hail Haor
Mr. Nipu Gonsalves	Cook/Bearer	Long Term	Hail Haor
Mr. Dominic Rozario	Cook/Bearer	Long Term	Hail Haor
Mr. Bachon Konda	Cook/Bearer	Long Term	Hail Haor
Mr. Remis Indoar	Cook/Bearer	Long Term	Hail Haor
Mr. Md. Abul Kashem	Peon/Guard	Long Term	Hail Haor
Mr. Hazarat Ali	Peon/Guard	Long Term	Hail Haor
Mr. Abu Hanifa	Peon/Guard	Long Term	Hail Haor
Mr. Makhlisur Rahman	Field Coordinator	Long Term	T-B Site
Mr. ABM Touhidul Alam	Agriculture Extension Officer	Long Term	T-B Site
Mr. Prokash Chandra Sarker	Field Officer	Long Term	T-B Site
Mr. Vinsent Mrinal Biswas	Field Accountant	Long Term	T-B Site
Mr. Abul Kalam Majumder	Assistant Field Officer	Long Term	T-B Site
Mr. Md. Shahjahan	Assistant Field Officer	Long Term	T-B Site
Ms. Rabeya Begum	Assistant Field Officer	Long Term	T-B Site
Ms. Rejina Akhter	Assistant Field Officer	Long Term	T-B Site
Mr. Akhter Hossain	Cook/Bearer	Long Term	T-B Site
Mr. Ariful Islam	Peon/Guard	Long Term	T-B Site
Mr. Mithu Ignatias Rozario	Peon/Guard	Long Term	T-B Site
Mr. Nipu Augustin Costa	Cook/Bearer	Long Term	T-B Site
Mr. Swapan Das	Field Coordinator	Long Term	K-M Site
Mr. Uzzal Kumar Datta	Agriculture Extension Officer	Long Term	K-M Site
Mr. Balaram Shaha	Field Accountant	Long Term	K-M Site
Mr. Tapon Roy	Assistant Field Officer (ID)	Long Term	K-M Site
Mr. Borhan Uddin	Field Officer	Long Term	K-M Site
Mr. Uzzal Chakraborty	Assistant Field Officer	Long Term	K-M Site
Ms. Lipi Chowdhuri	Assistant Field Officer	Long Term	K-M Site
Mr. Bennoy S Chisim	Assistant Field Officer	Long Term	K-M Site
Ms. Mahfuza Akhter	Assistant Field Officer	Long Term	K-M Site
Mr. Jihusai Sangma	Junior Field Accountant	Long Term	K-M Site
Mr. Ohimas Imon Sangma	Peon/Guard	Long Term	K-M Site
Ms. Shanti Begum	Cook/Bearer	Long Term	K-M Site
Mr. Sumanta Barman	Peon/Guard	Long Term	K-M Site
Mr. Osim Mankin	Cook/Bearer	Long Term	K-M Site
Mr. Ratan Kamkar	Field Officer	Long Term	K-M Site

Name of Employee	Designation	Status	Work Location
Ms. Fahima Aktar	Assistant Field Officer	Long Term	K-M Site
Mr. Nirmal Chandra Shaha	Assistant Field Officer	Long Term	K-M Site
Mr. Shamal Chakraborty	Assistant Field Officer	Long Term	K-M Site
Mr. Bakul Chandra	Junior Field Accountant	Long Term	K-M Site
Mr. Adhir Rongdi	Peon/Guard	Long Term	K-M Site
Mr. Parimal Rozario	Cook/Bearer	Long Term	K-M Site
Mr. Saiful Islam	Assistant Field Officer	Long Term	K-M Site
Mr. Douglas Gonsalves	Peon/Guard	Long Term	K-M Site
Mr. Janin Nokrek	Cook/Bearer	Long Term	K-M Site

Appendix 7

Monitoring & Evaluation

Monitoring and Evaluation. MACH II is following the Performance Monitoring Plan developed by the USAID/Bangladesh (Environment Team) on November of 2001 taking note of revisions as they come. The basic monitoring plan was already provided in the Technical Application submitted to the Mission on September 11, 2003 (a part of the cooperative agreement no. 388-A-00-04-00001-00) and shown once again in table 2 at the end of this annex with appropriate revisions to better evaluate performance. MACH II has incorporated some additional indicators of success and these can be seen on table-2 where the intermediate results and the indicators for MACH II have been summarized. In the text that follows, the indicators being used to measure achievement of the results are described and shown in more detail. The method used to collect the indicator data has also been briefly described, as well as the targets set for indicators by year, achievement and remarks. At this annual reporting time the indicators have been adjusted slightly in some cases to better represent the desired outcome.

At the end of the indicator discussion one can also find on Table- 1 the milestone accomplishment sheet that will be presented with every semi-annual and annual report. This monitoring and evaluation plan has been formulated based on each of the individual indicators specified in table 2 that was provided in the Technical Agreement and later reflected in the MACH II cooperative agreement.

The MACH II monitoring plan is based primarily on the need to verify completion of activities and achievements of results package intermediate results and indicators. MACH II is not a new program but a continuation of MACH I, with adaptive modifications based on the Mid-term Review and other inputs to enable the program to better reach its strategic goals. Major efforts are continuing in the area of fish catch monitoring, followed by other technical monitoring of plants, wildlife and consumption. MACH will continue to comply with requirements to monitor progress, providing a means of verifying attainment of the results package, assessing impact, and producing “evidence” for policy influence.

During MACH I the “evidence” of change was used frequently to influence policy changes, particularly with the Land Ministry. The main issue being that the Ministry of Land has been increasing lease values of the public fisheries at very high rates and has not been giving any credits for conservation measures. MACH has demonstrated to policy makers in the Ministry how existing policies are degrading existing aquatic resources. While changes are slow in coming the MoL has agreed to reduce a portion of the regular lease increment. During MACH II continued effort will be made to use monitoring data to effect further beneficial changes. Specifically to beneficially impact the resources and allow credits to be received for conservation measures. MACH monitoring results will continue to be used as evidence of why the changes are necessary and a good idea.

From its three project areas MACH is generating more than 10,000 data sheets per month. Impacts (fish catch and consumption) are assessed for each year in June and September. During MACH II the semi-annual reports will be available in June every year and the annual reports in December. There will of course be a completion report at the end of the project when a full assessment of the results will be provided.

The objectives of MACH II will be achieved as the intermediate results and indicators specified in the SO6 PMP and shown in Table 2 are achieved.

Most of the indicators from MACH I have remained and are still appropriate. Additional indicators of achievements have been added particularly regarding institutions and improved institutional capacity building that is emphasized in MACH II.

Progress monitoring occurs principally through partner’s records at each of the sites that are sent to Dhaka and compiled in the projects information system now operating out of the MACH headquarters. Progress monitoring is then compiled on an annual and semi-annual basis and supplied to the RPT and others. In addition monthly reports are, after compilation sent back to the sites linking resource use with the results. MACH has developed and maintains a data management system at the headquarters. This is headed by an MIS specialist. The project also relies on partner BCAS for GIS services and representation of activity data spatially and for imagery and mapping services for planning.

Catch and Household Monitoring Programs. The existing impact monitoring being conducted for fish catch and household consumption in MACH I will continue during MACH II. Also to continue will be hydrological monitoring at each of the three sites. These major monitoring activities will continue to build the existing MACH I database and provide data relevant to the impact trend monitoring required. This data will be shared with other agencies and Wetland Network partners. Because these major impact monitoring programs began in April of 1999 we wish to continue to monitor through a full cycle. We would recommend that the data collection continue at least through April (Hail Haor/Turog-Bangshi) and August (Sherpur) 2005. The collection of data will be discontinued on April 1, 2005 in two sites and from the end of August, 2005 in Sherpur. Analysis of the data will be available in the Annual reports and finally summarized in the completion report.

The following pages contain the individual indicators of success and the project targets. There is a short description of the indicator and the monitoring protocol used as well as the target and achievement.

Strategic Objective 6: MACH II Indicators (A total of 19 indicators)

1. Indicator 6a: Extent to which best practices from USAID funded projects are used elsewhere.

As the project cannot guarantee that other programs and groups will take up the approach, this indicator is termed a “Special Status” indicator.

The examples of “Best Management Practices” specified in the performance monitoring plan are:

1. Co-management of natural resources
2. Sanctuary development
3. Alternate income generating activities for Natural Resources dependent populations

The unit of measure is to be the number of occasions where these are used by other organizations (eg. Projects, NGOs, GoB, communities).

It must be understood that the project cannot force others to use approaches found successful in MACH. MACH is demonstrating to others through example and field demonstration. MACH is also the founding member of the Wetland Network where all major and minor organizations involved in resource management particularly in wetlands meet and exchange ideas and develop policy recommendations for government. The project has taken other project personnel and NGO personnel working in similar programs to the MACH sites. MACH continues to take government officials particularly from the Department of Fisheries, Ministry of Fisheries, and Ministry of Land to project sites. These visits of course continue to generate awareness of the approach and its merits.

Unit of measure: The number of occasions that best practices are used by other organizations.			
Year	Planned	Actual	Remarks
<i>Year 1</i>	3	3	MACH II has been working with DoF and 4 th fisheries project to extend the best practices of MACH partly or fully as others require and accept. MACH of course cannot force other project to adopt, but can only demonstrate and show. During the reporting period LGED sought MACH's advice and has used the advice and established best practices (sanctuary, habitat restoration, CBO formation) on 3 occasions in 3 different locations (i.e.the Upazilas of Sunamgonj sadar, Biswamvarpur and Jamalgonj of Sunamgonj district). In addition MACH II has been working closely with the Department of Fisheries and the staff of the Fourth Fisheries Project through workshops and field trips to encourage the incorporation of selected MACH best practices into the overall Department of Fisheries Inland Freshwater Fisheries Strategy and into the 4 th fisheries programs. Many of MACH best practices have been incorporated into the final draft of the Inland Freshwater Fisheries Strategy and into 4 th Fisheries approaches.
Year 2	3		
Year 3	3		
Total	9		

The other aspect is that the environmental NGOs working within MACH are also working in other similar projects where they are exporting the ideas to these programs. Examples of this are CNRS and CARITAS as they are involved in not only MACH but in CBFM, SEMP, and parts of the fourth fisheries project. The approaches and successes developed in MACH are taken by these NGOs to other programs. BCAS also retains some of the key positions in projects like the fourth fisheries project and Empowerment of Coastal fishing community for livelihood security project where staff have been interchanged from MACH.

MACH is also working with the Department of Fisheries in the development of the Inland Capture Fisheries Management Strategy and through this process of dialog and workshops has encouraged the adoption of best management practices found to be most successful in MACH. Currently the draft that is circulating proposes many of the best practices employed in MACH and the strategy lays out the framework for this to be done in all the Upazilas. Data is collected for this indicator from the other projects both with the Department of Fisheries and in some cases outside. Data is also collected from the MACH II partners based on their involvement in the other programs.

2. Indicator 6b: Maintaining or increasing Fish production of natural resources in targeted area. Increase in wetland and riparian trees.

There is no historical data set of sufficient quality and temporal magnitude to accurately represent fish production in the MACH Project sites before the project. It is therefore very difficult to accurately measure open water fish production impacts against a backdrop of non-existent historical trend data. The project having a very short lifetime cannot develop sufficient background trend data to understand all the natural variations and complexities of the existing fishery fully. The catch data taken by the project can be very reliable (in itself) but the variables that determine the catch are different every year. The periodicity of and area of water coverage (extent) for example varies from year to year. These hydrologic and climatological changes cause variation in the catch normally. It is these "normal" fluctuations for which historical trend data is insufficient in Bangladesh. For the specific MACH sites there is also no historical record of area and extent of inundation from year to year. Therefore the results shown by the project data may not all be attributable to USAID's assistance. The project will continue to use the project life data that has been gathered to try to understand the gross trend in the production for each of the areas taking into account the hydrology recorded by the project. One significant trend has been noted though through MACH I and into

MACH II. This has been that the catch/yield at all sites irregardless of the year has been trending upwards and this has been further strengthened by the fact that fish consumption around the sites has

Unit of measure: Kg/ha/year			
Year	Planned	Actual	Remarks
<i>Year 1</i>	<i>195</i>	217	Cumulative weighted average yield of 3 sites from end of year 3 through impact year 4.
Year 2	200		
Year 3	205		
Total	205		
Unit of measure: Number of wetland and riparian trees planted			
Year	Planned	Actual	Remarks
<i>Year 1</i>	<i>100000</i>	204876	A total of 72,956 wetland trees and 131,920 riparian, roadside, institution/homestead and patch forest trees
Year 2	100000		
Year 3	-		
Total	200000		

also increased.

Sampling Protocol. Floodplain fisheries, with their spatial and temporal variations in fish and water abundance, are as complex and dynamic as the fishing practices. The type of fishing gear used affects a fisher's catch within a specific habitat. A sample unit was considered to be one set of gear used for a catch attempt. The effectiveness of the fishers and their motivations are also significant in setting parameters for recording sample units. The selection of sample fishing units while recording catch data is crucial and it requires the judgment of the fisheries biologist. Accordingly, attempts have been made to be consistent so that the best possible estimates can be made from the collected data.

To offset any bias from the spatial distribution of fishing gear used the field biologist collected data from different locations at the monitoring locations. For each gear type at least three fishing units were monitored. If there were more than 30 fishing units of one particular gear type operating in a day data was collected from not less than 10 percent of the operating fishing units. Irrespective of catch data from individual fishing gear use by all types of fishing units in operation were counted during the catch monitoring day. This is the effort for that day. At the end of the day a list of fishing units by gear type was prepared. In order to accommodate for possible temporal variations in a single month the sampling intensity was set at a 10 days interval and accordingly data was collected three times a month from the selected locations. Gear of the same type with differing dimensions were standardized in the survey to 100 feet" (See MACH, Baseline report on fisheries, vegetation, wildlife and protein consumption).

Monitoring Parameters. Fish catch assessment monitoring collects data on fishing intensity, species diversity, catch composition, fishers by category and fishing gear through a questionnaire. The data gathered on these parameters acts as a benchmark during the baseline and was used to measure impacts.

The actual catch data from MACH I proved to be in the ranges that would be expected and the differences found between sites in the Catch per Unit of Area seem very plausible. In general regional averages for yields per hectare in high quality active floodplain are in the range of 300 to 400 kgs per hectare. The Turag Bangshi site being a highly degraded system was quite low at the beginning of MACH I (58 kgs. during the baseline year). The Turag Bangshi site has the least dry season water followed by the KM site. Hail Haor has the most dry season water area of the 3 sites and had the highest baseline yield. With management and dry season sanctuary establishment it seems quite likely that significant increases could be brought about in the fishery and was proved true in MACH I.

The project continues to monitor the catch on an intensive 10 day frequency and this has continued into MACH II. The data collection has not been reduced and MACH II will continue to record many hundreds of actual fishing events in all types of habitat and with all types of gears. MACH II will also continue to record anecdotal evidence from the many interviews that are taken at the monitoring sites.

With regard to the tree numbers these are the numbers planted. The project is trying to maintain this number at least during the life of the project with between 70-80% survivals at a minimum. The significant increase in achievement over what was planned is attributed to availability of local currency fund and the increased interest on the part of the community groups and local government to reforest larger areas than originally anticipated.

3. Indicator 6c: Maintaining or Increasing Biodiversity

Biodiversity preservation and enhancement is a direct indicator of habitat quality. Habitat quality can be improved through better management of the resources. Biodiversity increase depends on the restoration of degraded habitats, success in establishing sanctuaries, protected areas and buffer zones and compliance with the natural resources laws by the resources user communities. Changes are expected as habitat complexity increases. This indicator will be reported at the end of the strategy period.

Bio-diversity within a system is dependent upon the quality of the habitat. The wetland habitat that exists in the floodplains where MACH works is degraded and often not functional. Dysfunction in the systems in which MACH works has a lot to do with the reductions in diversity of fish and other animals as well as vegetation.

Restoration of habitat can take years to accomplish and the resultant increases in diversity likely from habitat improvements can take even longer. Full restoration to historical conditions is most often not possible because of human needs and requirements. Restoration programs in the US, where natural processes are allowed to perform the restoration, can take between 15-20 years to show meaningful change.

The MACH project baseline year for the Hail Haor and the Turag-Bangsi (T-M) site was from April of 1999 through March of 2000. For the Konsha-Malghee (K-M Sherpur) site the baseline year was from August 2000 through July of 2001. Establishment of sanctuaries and the reduction of fishing seasons did not begin until 2000 and 2001.

Unit of measure: Number of species			
Year	Planned	Actual	Remarks
Year 1	-	-	This target will be assessed at the time of project completion as these changes are to be measured over multiple years. Substantial increases occurred in phase I already and 3 fish species and 2 plant species are targeted for increase during the 3 year phase II.
Year 2	-		
Year 3	-		
Total	5		

With the improvement of habitat, the diversity should improve. The types of habitat improvement practiced by community groups (guided by MACH) have implemented are permanent twelve month per year wetland sanctuaries, restricted fishing times, re-excavation of canals and low areas of beels to make them perennial, and re-introduction of native trees with community protection over grazing and destruction in riparian and wetland areas.

The areas where the project has intervened has been through the re-introduction of lost fish species and the habitat change created through the planting of trees in riparian and wetland areas. The growth

of the canopies of these areas will take 10-15 years alone. It is not expected that diversity changes in wildlife such as birds or mammals for example would be seen before 10 years. The experience in the US has been where habitat is improved or created, improvements to the diversity of organisms do occur in time.

This indicator will be reported on during the submission of the completion report and is measured through analysis of the fish catch and vegetation data. This indicator is also evaluated through a determination of actual survival of restored tree populations re-introduced by MACH.

4. Indicator 6.1.a: Area of Floodplain where Improved Management is implemented

The area under improved management is that area where:

A. Participatory mechanisms in place:

1. Community based Resource Management Organization (RMO) formed and functional
2. Union Parishad chairmen and members are involved and meet regularly on area resource management issues and serve as advisers to the RMOs when requested
3. Upazila committee formed and active in area resource management, co-management practiced

B. Resource Management Plan in place identifying priority needs and resources, with environmentally sound resource use procedures established

C. Best management practices being adopted (procedures for sound resource use established):

1. Sanctuaries established
2. Time or area fishing closure periods established and effectively implemented
3. Refrain from destructive harvest practices (de-watering reduced, spawn collection reduced)
4. Re-introduction of previously existing species into sanctuary habitat
5. Restoration of wetland areas from annual to perennial
6. Introduction of fish aggregating and fish harvesting prevention devices in sanctuaries

Unit of measure: ha			
Year	Planned	Actual	Remarks
Year 1	800	820	New areas taken under management mostly in the Turog Bangshi (TB) site where a total of 780 ha. of new area was taken under sustainable management. A further 40 hectares was established in Hail Haor (HH).
Year 2	700		
Year 3	-		
Total	1500		

Methodology for Area Delineation. The project has worked at 4 levels in improving the management of resource areas. The organization at the resource level (1st level) is the Resource Management Organization (RMO) and this is a community-based organization managing a part or an entire wetland area. The Union Parishad Chairman can be an advisor to this organization and plans are done through the Union Parishad (2nd level) and the next level at the Upazila (3rd level). MACH has formed Local Government Committees for providing GoB support and strength to the resource management decisions made by the RMO and agreed to at the Union Parishad level. The fourth level is the MACH Steering Committee at the National Level.

The Area under improved management has been determined as that area which has come under the best management practices of a Resource Management Organization and the institutional support of Local Government both at the Union and the Upazila level where best management practices described above and being implemented.

5. Indicator 6.2.a: Aquatic habitat converted from seasonal to perennial in targeted areas

The targets for this indicator were based on the approval and availability of the “Investment support fund (416b)” in the year 2000. This fund did not become available to MACH until April of 2003. This indicator was not an original project indicator.

Unit of measure: Ha			
Year	Planned	Actual	Remarks
Year 1	200	367	The area shown represents the beel and khal basin area that exists in wet season which is converted from seasonal to perennial.
Year 2	300		
Year 3	-		
Total	500		

The areas shown are those water bodies that prior to the project intervention dried during the dry season or retained insufficient water to support a fish population. The impact of the drying of the pools of water bodies is that residual fish stocks diminish and fewer individuals are available for reproduction to replenish the stocks on the floodplain in the wet season. Diversity also diminishes due to the lack “over the dry season” habitat area. By restoring these dry season fish reserves, adult brood stock can be retained to quickly repopulate the floodplain during the wet season and the impact is over a larger beel and floodplain area. These activities impact the entire wet season wetland area. The aquatic habitat converted from seasonal to perennial is that area that expands in the wet season and contracts in the dry season and is considered a beel or a fishery.

The increase in perennial wetland area will likely have some of the most pronounced and prolonged impact on the function of the wetland and thereby the fish production and diversity. It also does not require large areas to be protected during the dry season to have an impact. Small areas that are well protected provide for larger individual parent fish from one year to the next and assured level of reproduction to repopulate larger water floodplains.

6. Indicator 6.2b: Riparian habitat improved in targeted areas

Unit of measure: km			
Year	Planned	Actual	Remarks
Year 1	50	100.35 km + 9.93 ha	Riparian and roadside plantation for all three sites.
Year 2	30		
Year 3	-		
Total	80		

The planned levels of performance are dependent totally on the Investment support (416b) fund continuing to be available. All funds for this activity come from local currency funds. If for any reason this fund is not available then the planned work could not be done. During the 1st year because of a delay in receiving the last quarter fund the tree planting had to be halted. Essentially two months of prime planting time were lost and this had an impact on both the quantity and quality of planting. Because the last quarter fund was not arranged in a timely manner programs had to be shut down to wait for the fund from the GoB.

MACH uses upwards of 45 different species in the riparian and low wetland areas to ensure varied habitat for birds and other animals. There are benefits to both the communities managing in terms of the future value of the trees, which is considerable, and to the stream itself through improving bank

stability and reduced erosion. The trees provide structure to the stream banks and income to the communities that was previously not there.

The scope for riparian corridor reforestation is quite large at the HH and KM sites. The long-term benefits would be in improving stream bank stability and thereby reducing erosion, providing potential movement and shelter corridors for birds and other animals (forest to the wetland), and a potential enhanced income to the communities with future selective harvest. Verification is done by direct measurement of the stream distance that has been planted. These will be included on site activity maps as well.

7. Indicator 6.2.1a: Number of new sanctuaries established

One of the objectives of the MACH project is to conserve and enhance the biodiversity. Increased biodiversity through establishing sanctuaries has been emphasized and reflected in project documents. The MACH project in the phase I established the conservation of fish through establishing sanctuaries. The MACH supported communities have established sanctuaries in the deep scour holes of rivers, in beels where 10-year lease arrangements have been arranged by the project through the MoL and most recently MACH and its community-based programs have been granted permanent

Unit of measure: number			
Year	Planned	Actual	Remarks
Year 1	5	6	Four new sanctuaries have been established in the Turag Bangshi site and two in the Kangsha-Malijhee site. Most of the required sanctuaries have been established in phase I and only those new leases established at the end of phase I and beginning of phase II will have the potential for new sanctuary establishment
Year 2	4		
Year 3	-		
Total	9		

National level sanctuaries over an entire beel lease forever.

Sanctuary Rational: The floodplain fishery in Bangladesh has in the past been very rich and diverse. To maintain a sustainable floodplain fisheries production, it is necessary to maintain the fish community, the habitat diversity and practices of sustainable fishing or harvesting. Sanctuaries are important today because of the extreme loss of habitat for fish in the dry season. The sanctuaries form a very important link for replenishing the stocks of fish in floodplain ecosystems and providing shelter throughout the year. Permanent sanctuaries can provide dry season shelter for increasing quantities of parent stock necessary for replenishing a defined floodplain ecosystem through reproduction each year.

Selection of sites: The sanctuaries established are of a reasonable size to provide adequate space and shelter for parent fish stocks to be able to hold over and repopulate the habitat managed by the RMOs. Prior to selecting the locations, detailed information has been gathered on the biological condition, social interaction (fishing intensity & users status), existing management system and physical condition of the proposed area. Consideration has also been paid to the location of the sanctuary site. The collected data has been analyzed, reviewed and the technical feasibility has been established to ensure the restoration and improvement activities are successful.

Management: All sanctuaries are established based on RMOs decisions and long term plans. Brush piling with tree branches and bamboo has been made in all sanctuaries to improve habitat quality as well as to protect fish. Signboards, slogans and red flags have been erected at sites to draw the attention of the people. MACHII also continues to support the RMOs in using permanent fish aggregating and protection devices (concrete hexapods) to create shelter for fish and aquatic invertebrates as well as provide permanent protection from inadvertent or illegally planned netting.

Management plans are developed by the community (by the RMOs) that lay out the regulations to be put in place in the wetlands including the water bodies and sanctuaries. The regulations can include full closure of all fishing 12 months per year, time closure (dry season) or particular times of the year, ban on the use of destructive gears like the khata jal, current jal (to protect the aquatic vegetation and spawn of the fish), stop or reduce fry/brood fishing, stop dewatering in the water body and the sanctuaries. Fishing has in most cases been totally banned in the specified sanctuary areas within the beels. The individual RMOs are responsible for guarding of the sanctuaries round the year and they also inform the community and local government about the sanctuaries.

Re-introduction of locally threatened fish species. Re-introduction of locally threatened fish species is a means to enhance the bio-diversity. Broods of Meni (*Nandus nandus*), Pabda (*Ompok pabda*), Sarputi (*Puntius Sanana*) Foli (*Notopterus notopterus*), Kalibaus (*Labeo calbasu*) are reintroduced in the sanctuaries where male/female ratio was maintained at 2:1.

Sanctuary locations are mapped and located through field GPS reconnaissance. Declaration of permanent sanctuary is by the Government order based on requests from the community and the MACH project.

There are three types of declared sanctuaries, those are Complete beel (water body) as sanctuary, part of a beel (water body), and Kur/Kum (deepest part of river) of river as sanctuaries. These sanctuaries have been declared by memo no. ML/Sh-7/Misc.-40/2002 dated 01/07/2003 in the MoFL/MoL.

7. Indicator 6.2.1b: Number of wetland/riparian trees successfully established

The restoration of stream banks and the creation of habitat for aquatic and terrestrial animals is an important element of MACH. MACH plans to support riparian and wetland forest creation at all three sites. Accomplishing this indicator is totally dependent on the local currency funds continuing to remain available as all tree planting activities fall under the Investment Support to MACH fund.

MACH has a detailed monitoring program set up with data sheets filled out on each scheme on a semi-annual basis showing planting survival and replacement. There are two separate independent counts done first by the community groups themselves and secondly by an independent team of individuals to verify and count on a quarterly basis. Direct counts are the means of verification of this indicator. It is expected that 70-80 % will survive and MACH works to replace during the following

Unit of measure: number			
Year	Planned	Actual	Remarks
Year 1	100,000	Wetland- 72956 Riparian- 32934 Roadside- 84121 Inst./Home- 1475 Patch forest-13390 ----- Total- 204876	More than 45 species of trees. Have been able to exceed the planned target in spite of ISM funding constraints in June and July.
Year 2	100,000		
Year 3	-		
Total	200,000		

year at least once.

9. Indicator 6.2.2a: Average annual increase in targeted individual RUG member supplemental income

Recognizing that the reduction of fishing pressure is a key element to the revival of the floodplain fisheries, MACH has included supplemental income generating activities that focused on fishers and

others dependent on wetland resources. Average income amongst MACH RUG households at the beginning of the program was approximately Tk 35,000 per year. The GOB household poverty line has been set at Tk 45,000 indicating that most MACH RUG members were amongst the poorest people in rural Bangladesh. Surveys, undertaken by MACH and others, show that the poor generally take on a wide variety of income generating activities, as compared to (relatively) more affluent members of the community. Income sources amongst the poor are a moving target as the poor are more opportunistic in adopting new occupations. As sources of income change from year to year and even season to season, this has made the identification of what is alternative and what is the main

Unit of measure: Tk (Old loanee)			
Year	Planned	Actual	Remarks
Year 1	2000	3518	These are the old loanees and the targets for the old loanees readjusted to 3,500 at the end of year 3. Supplemental income not expected to increase much from that at the end of the 1 st year. New loanees will be receiving loans in early 2005 and target (supplemental income increase) for new loanees is set at Tk.2,000 by the end of year 3.
Year 2	2500		
Year 3	3500		
Total	3500		

income source difficult to identify and track.

Unit of measure: Tk (New loanee)			
Year	Planned	Actual	Remarks
Year 1	-	-	New loanees have only developed their groups or have been only newly admitted into community groups. They will receive their first loans for alternative income generation in 2005 or year 2 and can be reported on.
Year 2	1800		
Year 3	2000		
Total	2000		

The overall finding of both MACH surveys completed by CARITAS and an independent consultant (RMC/ Socio-Consult), were that project credit is having a positive impact and exceeding planned targets during phase I. In MACH II measurement of the average annual increase in RUG member supplemental income as well as the number of RUG fishers having reduced effort, will indicate whether MACH is having an impact on helping the poor to improve their livelihoods and what the reduction in fishing is.

The main basis for determining the supplemental income for MACH RUG group members has been the annual surveys undertaken by CARITAS. The annual survey takes place in September and is reported on in the annual report.

10. Indicator 6.2.2b: Number of RUG fishers having reduced effort

This indicator is a new indicator established for MACH phase II. This has been instituted to determine the impact of alternative income generation, credit and training on the success of fishers to reduce effort on the fishery. During this reporting period it was seen that the previous unit of measure did not reflect the change in fishing level as many fishermen are part time. It was determined that a better measure would be hours of reduction which has been reflected below.

Unit of measure: Ave. Number of reduced daily fishing hours by RUG fishers			
Year	Planned	Actual	Remarks
Year 1	2400	2495	This indicator changed to the total hours of reduced fishing a day. Among the targeted fishermen (RUG fishers) the average fishing hours per RUG fishermen was 3.96 in 2003. By September of 2004 this had reduced to 3.02 or a reduction of 0.94 hours of fishing per day. Targets reestablished at 2,400 hours, 2,500 and 2,600 by 2006
Year 2	2500		
Year 3	2600		
Total	2600		

Methodology: MACH is working with 2655 fishers to reduce the fishing pressure at three large wetland sites through implementing different income generating activities and providing training and credit. Attempts by MACH-Caritas have been made to be consistent, so that the best possible estimation can be made with the collected data.

Data Collection & Analysis: Data is collected from 15% (400 fishers) of MACH organized fishers. The 15% base sample is selected randomly and data is collected during September of each year to determine the effort reduction. Data is analyzed in the following manner.

- a) Daily average fishing hours of fishers at the end of previous year is considered as baseline.
- b) Present daily average fishing hours after implementing IGA for at least 12 months is calculated in the following manner.
 - i) Average daily fishing hours of sampled fishers
 - ii) Average no. of fishing day in 365 days for the sampled fishers
 - iii) Average fishing hours in a day for a fisher = $\frac{\text{Daily fishing hrs} \times \text{no. of fishing days in a year}}{365 \text{ days}}$
 - iv) Daily reduction or increase of total fishing hours = (daily base fishing hrs.- average fishing hrs. in a day in impact year) X total no. of fishers = hours.

11. Indicator 6.2.2c: Total number of new AIG loans

Recognizing that the reduction of fishing pressure is a key element to the revival of the floodplain fisheries, MACH has included supplemental income generating activities that focus on fishers and

Unit of measure: Number of loans			
Year	Planned	Actual	Remarks
Year 1	2500	2609	A total of 2609 new loans have been disbursed in which 365 members have taken first loan during the reporting period. This is based on data through October or year 1 of MACH II.
Year 2	3000		
Year 3	-		
Total	5500		

others dependent on wetland resources.

Plan for achieving the results: A large number of loans have been disbursed to RUGs for implementing alternative income generation activities during MACH-I. Considering the result of MACH-I, a need based site-wise plan has been developed to continue the effort in MACH-II, so that the resource users could reduce their fishing effort, increase family income and finally to reduce dependence on wetlands. MACH is providing training and demonstrations for different skills to RUG members utilizing loan money. RUG members have been utilizing 5,000 as 1st ceiling, 8,000 as a second and 10,000 as a third ceiling. As the members from MACH I are now becoming skilled and capable to utilize more money, MACH-II is planning to implement a forth ceiling up to 15,000 as a

normal loan. MACH-II has also planned to expand large-scale enterprise loan for skilled and potential RUG members where the ceiling will go to 30,000 tk and above. Already 127 such enterprise loans have been handed out. To cover the majority of the resource users and provide a service to the wider community, the project plans to form new groups and include some new users (that may have been overlooked) in the existing RUGs. Thereby creating some 1st time loan users during MACH II.

Means of Verification: Loan data is being collected monthly and reporting is done semi-annually and annually.

12. Indicator 6.3.a: Number of water bodies leased to community resource management groups in targeted areas

Some of the critical water bodies in the floodplain areas of MACH sites have been leased out for up to 10 years (and onward with evaluation every 5 years for the long term) to Resource Management Organizations by the Ministry of Land in collaboration with the Ministry of Fisheries and MACH. In addition MACH has been successful in getting the GoB through the Ministry of Land to grant MACH community groups perpetual rights over 8 significant areas in MACH wetlands. These 8 locations will be permanently secured as sanctuaries for all time. Among the 8 areas there are 2 beels of 122 acre area that have been declared as National sanctuaries foregoing annual lease value worth in excess of Tk. 80,000. These 2 beels have been leased to the registered respective RMO for Tk. 501 per annum.

Unit of measure: Number of leases			
Year	Planned	Actual	Remarks
Year 1	3	12	A total 12 additional beels have been leased by the RMOs in HH site during phase II. Out of 12 water bodies 9 have been handed over to RMOs, remaining 3 are in process.
Year 2	5		
Year 3	-		
Total	8		

In addition to 24 water bodies granted by the MoL to Resource Management Groups formed in MACH areas or to sanctuaries for the entire areas. A further 12 beels of 186 acre have been leased to RMOs for improved management in Hail-Haor area during this reporting period. Out of 12 water bodies 9 have been handed over to RMOs and remaining 3 are in process.

The copies of the government orders for the handover and the signed handover document at the site will serve as evidence.

13. Indicator 6.3b: Number of communities adopting two or more of the following key regulations in target areas:

- Restrictions on the use of inappropriate fishing gear
- Restrictions on the fishing season & harvesting of fish fry and
- Restrictions on the area of fishing

Regulations adopted by the Community Organizations

The MACH project works with communities and local government to improve management over large areas of degraded or non-functional wetlands in Bangladesh. The community organizations are formed with all types of stakeholders including wetland resource users particularly the poor fishers. To ensure sustainable management of the wetland resources the community organizations adopt regulations in the areas under their management.

Unit of measure: Number of communities			
Year	Planned	Actual	Remarks
<i>Year 1</i>	8	10	In phase II 10 additional communities have adopted key regulations, 4 in Hail Haor, 4 the Turog Bangshi area, and 2 in the Kangsha Malghee or Sherpur site
Year 2	4		
Year 3	-		
Total	12		

The communities have also instituted regulations on harvesting of fish fry within their management areas. The communities monitor and regulate the destructive harvest of certain species that have schooling young for example.

Communities through resource management organizations have adopted regulations preventing fishing in sanctuary areas and secured a minimum buffer of 200 ft around the beel sanctuary. This has been done to prevent the gill netting of species coming in and out of sanctuary areas. Within the managed water bodies the communities have stopped fishing through de-watering in the dry season. The de-watering is particularly destructive as it claimed all species and generally all fish in an area.

Communities or villages to be counted must adopt at least two best management practices shown above. The number is arrived at through direct enumeration by the partners.

14. Indicator 6.4a: Number of individuals reached by public awareness activities in the country

This is a process indicator that records the number of people attending or participating in selected awareness generation activities. Public awareness activities include community training activities, attendance at MACH-sponsored cultural events (e.g. Village theatre, folk song events, day observances, and school events) with environmental messages.

Public awareness of the decline and or change in status of their natural resources and their environment is an important first step on the road to improving the management through community-based organization and co-management solutions. The ultimate goal is to build locally a consensus on the issues and problems and then develop the capacity to conserve and maintain wetland resources for the continuous benefit of the poor. MACH has taken many steps at the local level to achieve the

Unit of measure: Number of people			
Year	Planned	Actual	Remarks
<i>Year 1</i>	30000	54,370	Activities included: folk drama, rallies, village meetings, observation of international wetland and environment days, and rallies.
Year 2	40000		
Year 3	40000		
Total	110000		

increased awareness of the wetland issues.

In addition to the above, MACH has been conducting a continual awareness campaign at the central government level which has resulted in some very significant policy changes particularly at the Ministry of Land. MACH has worked extremely hard at educating senior officials in government on the benefits of proper resource management through workshop and field visits for the officials. MACH has conducted awareness building field visits and made critical presentations seeking policy changes particularly with regard to land and water leasing policies. MACH through its awareness programs has achieved permanent sanctuary status for 8 water bodies in the three project sites. This is the first time ever that the Land Ministry has foregone revenue for a conservation measure.

The results are determined through actual counts at the events where MACH environmental messages are provided. Breakdown of the numbers have not been provided here because of the space required to report (25 pages) but are kept in MACH database systems and are available on request.

15. Indicator 6.4b: Percentage increase in awareness of wetland resource issues from baseline

MACH is conducting this survey through an independent organization. As this indicator was not one of the original MACH I indicators, the survey is first of all to establish a baseline. In May 2004 the baseline survey has been conducted and baseline has been established. On this baseline the actual percentage change will be determined on a yearly basis. This will measure the actual change in awareness of the stakeholders of the MACH project. The next scheduled impact survey will be conducted in May of 2005.

Unit of measure: % households aware of issues			
Year	Planned	Actual	Remarks
Year 1	20%	-	Baseline survey has been conducted in May of 2004. 1st impact survey will be conducted next year at the same time with result to be shown in next years (year 2) annual report.
Year 2	30%		
Year 3	40%		
Total	40%		

16. Indicator 6.5a: Number of Local Government (Upazila and Union level) meetings where resource management issues discussed.

To achieve sustainable local management of wetland resources, MACH has helped form Resource Management Organizations (RMOs) made up of members from the local user communities of the resource. These resource management organizations manage the natural wetland resources within their locality in a sustainable manner and continue to derive benefits even after the project support is over. The RMOs participate in a co-management setup with local government and manage the resources with local government.

Unit of measure: Number of meetings			
Year	Planned	Actual	Remarks
Year 1	100	130	These meetings were held at the Upazila level, Union level, and District level with 19 at the Turog Bangshi site, 52 at the Kangsha Malghee, and 59 at the Hail Haor site).
Year 2	100		
Year 3	100		
Total	300		

MACH has worked toward institutionalizing the following into the resource management organization and their linkages and co-management with local government through various local government meetings.

Organizational aspects of RMO

- Registered with government agencies and have legal status
- Perform regular organizational activities, viz. meetings, group and community actions .
- Have fund flow and financial activities
- Maintain transparent financial management
- Rapport and linkage development with concerned agencies viz. UPs, UZs & district administration and GOB agencies, NGOs and other related bodies

Technical aspects of the RMO

- Understand wetland resources management problems and issues
- Skills in identifying problems and making consensual interventions plans
- Capable of implementing wetland management interventions
- Capable of monitor changes in productivity (quality and quantity) due to management interventions
- Capable generate community awareness about sustainable use of resources

Governance aspects of the RMO

- Adopt and practice pro-poor management and benefit distribution of approaches
- Ensure access to wetland resources by the poor and fishers
- Accountable and transparent in all aspects
- Wider acceptance among the communities as their own institutions
- Practice and value participatory decision making for all aspects of management issues

The RMO meets at two levels. One being the general body consisting of anywhere from 50-200 individuals from the community of the target area. The RMO does most of its planning and building capacity through executive committee meetings and training sessions. Decisions and plans are approved by the general body with quite often the Union Chairman as advisors. Special meeting of the UP are held to secure plans and gain support for the measures to be placed before the local government committee which includes all the UP chairmans, RMO representatives and the Upazila officials including the UFO and the UNO. During the LGC's or Local Government Committee Meeting the resource users, the local elected officials (UP chairman) and the upazila authorities increase their capacity to manage wetland resources by discussion and planning. Their knowledge and capacity is enhanced through meeting procedures established first by the project and now taken on by them.

This indicator reports on the members of those on the job (meetings) capacity building experiences for local government officials and community based management organization members. Data on the number is maintained at the sites and also in the MIS of HQ.

17. Indicator 6.5b: Official circulars for UDCC agenda item and permission for RMO members to attend UP meetings as needed

This indicator was created for MACH II specifically. The Upazila Development Coordination Committee or UDCC meets monthly on all issues within the Upazila. Policy issues discussed in the UWRMC meetings that require discussion and approval of the UDCC will be taken there. For this it has been the plan of MACH to seek the addition of an agenda item or a change in the ToR of the committee to review and place up to the District level. Provided the GoB agrees this will be accomplished and once accomplished the letter or circular will stand as proof of completion.

Union Parishad is the root level local government body, UP is planning & executing some of the development activities in the Union. RMO's issues and plan of activities needs to be aware by the Union Parishad. To maintain a close linkage with UPs RMOs are attending in the UP meetings for a specified time to discuss their issues.

Unit of measure: Number of official circulars or letters			
Year	Planned i)UDCC - 1 ii)UP meeting -1	Actual	Remarks
<i>Year 1</i>	-	i) - ii) 1	ii) Permission granted at all sites, RMOs are attending UP meetings and agreements have been reached at the Union level.
Year 2	2		
Year 3	-		
Total	2		

18. Indicator 6.5c: UFMC formed with charters/GoB circulars in place linking local government to resource management organizations

Four Local Government Committees (LGC) have been constituted in the four MACH project Upazilas in pursuance of the provisions contained in the MOU signed between the Governments of Bangladesh and USA to coordinate and approve MACH project activities at the Upazila level. These committees will cease to function after the MACH project is phased out. As the Resource Management Organizations (RMOs) will hopefully prosper and continue to function, it has been proposed in the MACH RPT and later in the MACH II documents to reformulate the Jalmahal Committees at the Upazila level (specified in the MoU between the MoL and the MoFL) to carry out the functions of MACH LGCs after the exit of the project. The composition of the reformed Jalmahal committee will be the same as that of the existing LGC. The nomenclature, composition and ToR of the committee is under process through discussion with other similar projects of the DoF. In recent meetings with the DoF the final name for this committee has been agreed to the Upazila Fisheries Management Committee or UFMC. The ToR was also provided to the DoF and the planners of the Inland Fisheries Management Strategy.

Any policy matter requiring Upazila level administrative approval or onward transmission for further action will be placed before the Upazila Development Coordination Committee (UDCC) by the UFMC. For general matters of execution the UNO with the UFMC members will take decisions and or pass matters directly to the District Committee if required. In collaboration with the Ministries of LGRD and Fisheries & Livestock, the UFMC will be given an institutional shape. The achievement will be determined by the government orders forming.

Unit of measure: Number of UWRMC formed with Government orders issued			
Year	Planned	Actual	Remarks
<i>Year 1</i>	1	Process initiated ToR draft prepared and discussed in steering committee meeting. Preliminary discussions held in DoF.	Name of the co-management organization to remain in place after MACHII (UWRMC/LGC) is subject to change depending on results of workshops currently being held with the DoF to try to gain consensus on the name and the people/position at the local govt level to be on the committee. Formation of organizations to come in year 2 or 2005. Required steering committee approval and waited for the concurrence of the DoFs inland fisheries strategy before forming and instituting. A total of 4 Upazila level organizations to be formed by the end of year 2.
Year 2	3		
Year 3	-		
Total	4		

19. Indicator 6.5d: Trust Fund established for Institution

To make the Upazila Fisheries Management Committee (UFMC) functional and operationally effective after the exit of the MACH project, a provision of two to three endowment funds is being considered. One fund will be used for the organizational expenses, the second will be used for the physical development and management of resources by the RMOs and the third will be used for a Community-based Organization (CBO) network. A detailed operational manual will be developed after the approval of the revised PP of ISMP in which a provision of the endowment fund is being incorporated. This proposal was placed in the Steering Committee meeting of July 2004 and the committee agreed in principle conditionally on approval of revised PP. Depending on government approval and availability of the local currency fund, these organizations will be created. This is fully dependent on GoB agreement which would be when the revised PP is approved which should be sometime in 2005.

Unit of measure: Number of Trust Fund established			
Year	Planned	Actual	Remarks
<i>Year 1</i>	-	Trust fund or endowment fund requirement agreed in principal at RPT level. Approved conditionally in Steering committee meeting. Discussions with DG Fisheries held.	Discussed in Steering Committee meeting of 04 and approved conditionally on the PP being approved with the change. This is dependent on GoB approval of the ISM fund use for this and their approval on the fund being set aside as a trust fund or endowment. Discussions with Ministry and DoF ongoing and PP revision in process for ISM funds. Review team of GoB to recommend early 2005.
Year 2	4		
Year 3	-		
Total	4		

Table 1MACH II MILESTONE LOG (Major Events/Activities)¹

Description	Planned Completion Date	Actual Completion Date	Comments
Institutional Capacity Building/Sustainability			
• Final RMO plans in place	Dec 2005		Work ongoing
• UWRMC/UFMC Formed	April 2005		Work ongoing
• Agenda to UDCC modified in Upazilas of MACH Areas	April 2005		Work ongoing
• RUG expansion/creation	July 2004		Almost completed. 21 new RUG has been formed.
• Union Apex Resource User Committees formed (as needed)	August 2004	Formed	13 Apex (FRUG) has been organized. To make them operative work is in progress
• Endowment fund established	June 2005	With delays in the GoB approval of the revised PP which would allow the project to fund the endowments this June 2005 completion date may need to be shifted	Plans being made and approvals being sought for use of ISM fund from local currency. (Ongoing)
Dissemination			
• Dissemination reports completed	2 nd quarter 2006		Report preparation ongoing
• DoF Workshops	Annual = March Other = 2 nd quarter 2006	1. Jan 19, 2004 2. March 10, 2004 3. Nov 4, 2004	Three workshops with the DoF held
• NGO & CBO workshop	2004 Oct and June 2006		Date shifted for 1 st NGO/CBO to mid 2005 due to delay in getting approval for CBO network
Wetland Resource Enhancement (ISM)			
• Leases of new water bodies finalized (as required)	May 2005	Finalized October 2004	MOU signed between MoL & MoFL. Beels are being handed over to RMOs.
• Fish sanctuaries established	September 2005	October 2004	Ongoing with 6 established in this reporting period
• Riparian and wetland re-forestation	June 2006		Ongoing and on track
• Fish re-introduction completion	June 2006	September 2004	Ongoing completed 472,000 in 2004
• Pollution program completed (Phase I)	1 st quarter 2005		Ongoing DFID funded completed. KAR project with EU started
• Excavation of beels	May 2006		ongoing
Reporting and Monitoring²			
• Annual Reports	2004 Dec 2005 Dec	2004 completed Dec. 15 th 2004	Annual Report 2004 is on schedule
• Semi-Annual Reports	2004 Jun 2005 Jun 2006 Jun	June 2004 completed	on schedule
• Completion Report	October 2006		
• Annual Workshop USAID	March	Jan 2004	Held in Jan of 2004
• Steering Committee Meetings	2004 July, 2005 April/ May, 2006 July	July 2004	Delayed to June because of important pending issues for inclusion required delay
• LGC/UDCC Meetings	Quarterly		on schedule

¹ The above are subject to change and may be further modified by the MACH Results Package Team/Project Management Unit.

² Dates for submission of the semi-annual reports have been in agreement with the projects RPT/PMU and its CTO to coincide with accurate report timing.

Table 2: Framework of Intermediate Results and Estimated Targets³

Intermediate Result Level Indicators (Year)	Year 1	Year 2	Year 3	TOTAL	
Strategic Objective 6. Improved Management of Open Water and Tropical Forest Resources					
Indicator 6.a : Extent to which best practices from USAID projects are used elsewhere ² number of occasions.	3	3	3	9	
Indicator 6.b : Maintaining or increasing Fish production of natural resources in targeted area ³ (Kg. /ha / year) Increase in wetland and riparian trees ⁴	195	200	205	205	
	100,000	100,000	-	200,000	
Indicator 6.c : Maintaining or increasing biodiversity (Fish+ Plant) ⁵	-	-	-	3+2=5	
Intermediate Result 6.1: Fully developed and effective community-based resource management mechanisms implemented					
Indicator 6.1a: Area of floodplain where sustainable management is implemented ⁴ (ha)	800	700	-	1,500	
Intermediate Result 6.2 Selected habitats and ecosystems improved and restoration / rehabilitation activities intensified					
Indicator 6.2a: Aquatic habitats converted from seasonal to perennial in targeted areas (ha) ⁵	200	300	-	500	
Indicator 6.2b: Riparian habitat improved in targeted areas (km)	50	30	-	80	
Intermediate Result 6.2.1 Innovations and Best Practices Adopted					
Indicator 6.2.1a: Number of new sanctuaries established	5	4	-	9	
Indicator 6.2.1b Number of wetland/riparian trees successfully established	100,000	100,000	-	200,000	
Intermediate Result 6.2.2 Alternative incomes realized for targeted beneficiaries					
Indicator 6.2.2a Average annual increase in targeted individual RUG member supplemental income (Tk)	Old loanee	2000	2500	3500	3500
	New loanee	-	1800	2000	2000
Indicator 6.2.2b Number of RUG fishers having reduced effort (new) (Total number of RUG Fishers = 2,655) (Total reduction of daily fishing hours)	2400	2500	2600	2600	
Indicator 6.2.2c Total number of new AIG loans 2003-2006	2,5 00	3,000	-	5,500	
Intermediate Result 6.3: Selected Policies Implemented that Support IR \s 1 and 2					
Indicator 6.3a Number of water bodies leased to community resource management groups in targeted areas	3	5	-	8	

³ New targets do not include MACH I achievements

² Number of occasions where best practices used in MACH are used elsewhere

³ Combined average production all three sites combined. Weighted are by area of site, must be understood that these figures are highly dependent on water inundation in any given year. Something which the project has no control over.

⁴ Number of wetland and riparian trees that have survived through MACH afforestation program

⁵ Just maintaining the 25 already achieved and anticipating a further 5 species by the end of year 3.

⁶ Does not include 15,000 ha of MACH I

⁷ Does not include impact areas which are significantly larger

Intermediate Result Level Indicators (Year)	Year 1	Year 2	Year 3	TOTAL
Indicator 6.3b Number of communities adopting the following key regulations in target areas (i. Restrictions on the use of inappropriate fishing methods and gear; ii. Restrictions on the fishing season and harvesting of fish fry; and iii. Restrictions on the areas of fishing)	8	4	-	12
Intermediate Result 6.4: Public Awareness of key Issues Increased through expanded outreach and public education effort				
Indicator 6.4a Number of individuals reached by the public awareness activities in the country ⁶	30,000	40,000	40,000	110,000
Indicator 6.4.b Percentage increase in awareness of wetland resource issues from baseline (% households aware of issues) ⁹	20%	30%	40%	40%
Intermediate Result 6.5: Improved Institutional Capacity				
Indicator 6.5a. Number of local government (Upazila and Union level) meetings where resource management issues discussed	100	100	100	300
Indicator 6.5b. i) Official circulars for UDCC agenda item and ii) permission for RMO members to attend UP meetings as needed.	-	1+1=2	-	2
Indicator 6.5.c UWRMC formed with charters/GoB circulars in place linking local government to resource management organizations	1	3	-	4
Indicator 6.5.d Trust Fund established for Institution	-	4	-	4

⁸ does not include viewers of TV and videos.

⁹ Cumulative percentage

Appendix 8

Photo Section

Wetland Resource Management



FAD (Fish Aggregating Device) also serves to protect sanctuary



Sign board helps to mark major river fish sanctuary



Diversity & yield of fish is increasing in the Mach project sites.



Fish catch monitoring

Habitat Restoration



Women are taking part in Beel Deepening



Goalia khal in TB site converted from seasonal to perennial water body



Dry season sanctuary basin storage and fish habitat creation

Habitat Restoration



Reforestation of riparian strip at KM site



Reforestation as part of habitat restoration adjacent to seasonal beels.



Interview with the fishermen regarding management of beel area.



Woman participating in wetland resource management sessions.



Reforestation of newly created sanctuary areas.

Alternate Income Generation & Resource user groups

MACH is creating opportunity for self-employment and alternate livelihoods



Cow rearing



Handicraft



Small Trading Business



Poultry



Small business establishment



Tree nursery

Alternative Income Generation



Water use reduction by encouraging maize production



Duck Ranching on the beels/ haors



Homestead vegetable production



Small Business and handicraft establishment



Female RUG members attending credit/savings and AIG Meeting



Women are receiving training on tailoring

Communication and Awareness



MACH stall also attracted the young generation during America Week 2004 in Rajshahi



Live Drama – used in MACH project is an effective communication tool for wetland messages dissemination



Journalist briefing session



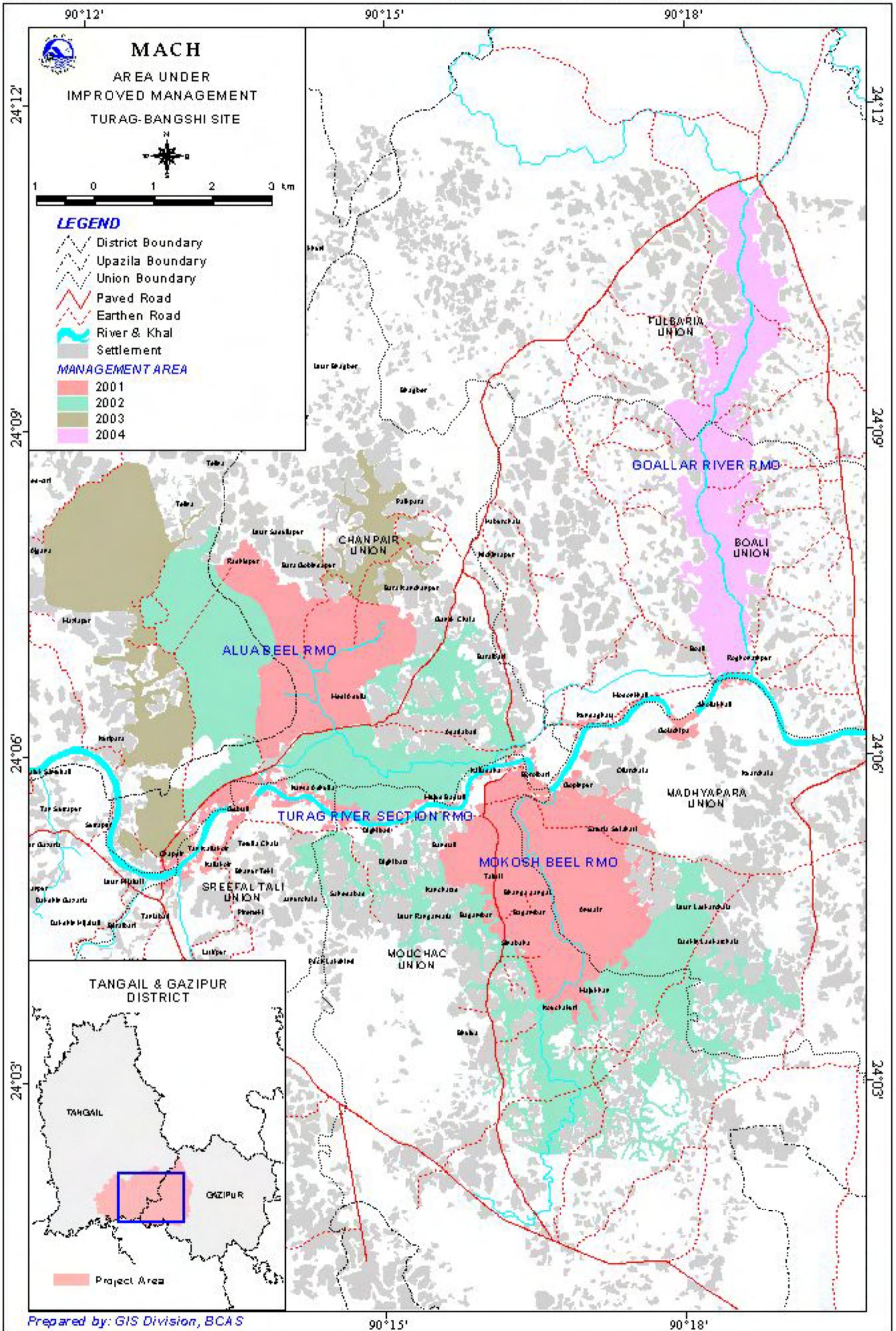
Art competition for environmental awareness creation



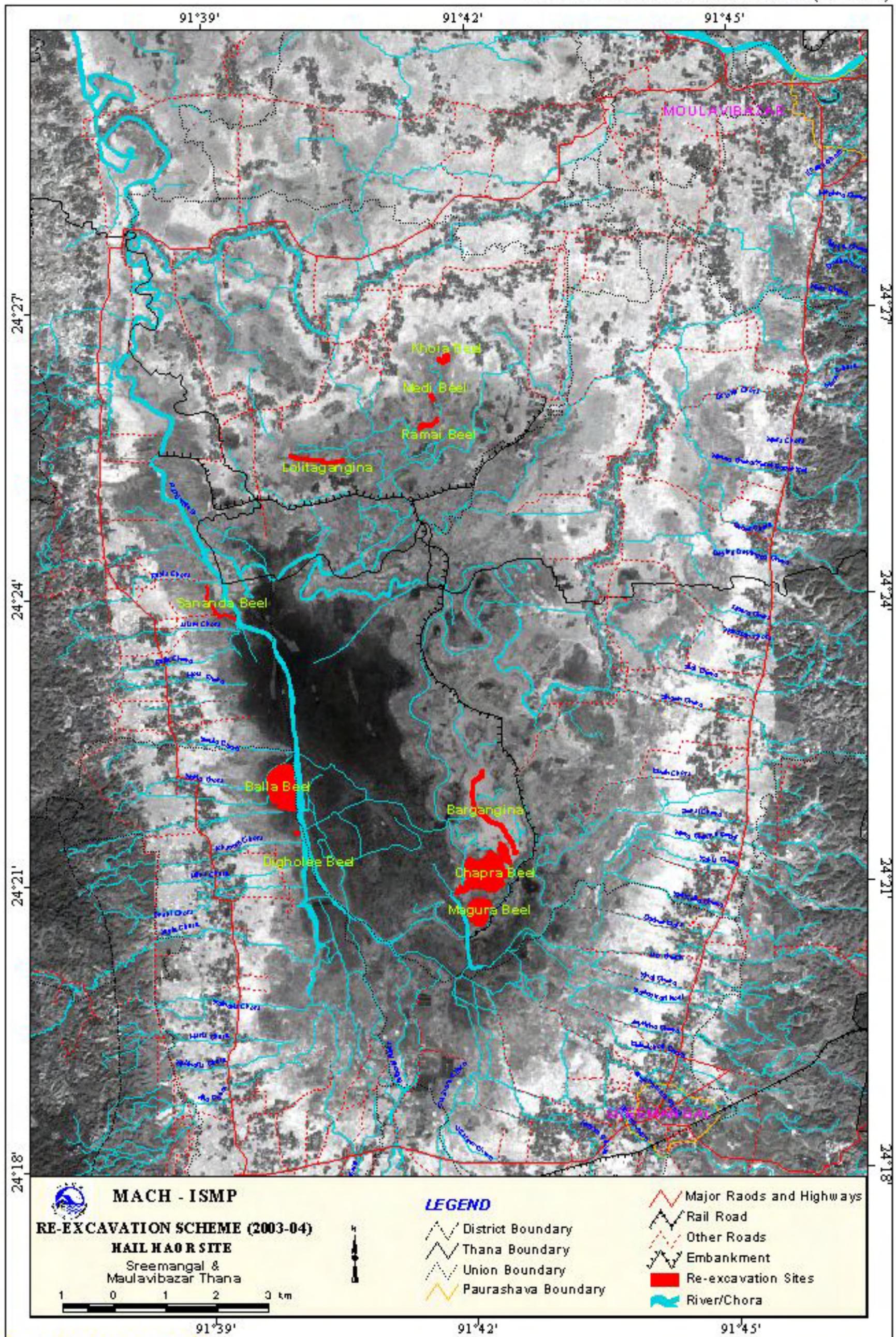
Children's participation on World Biodiversity Day

Appendix 9

Selected Project Map Examples



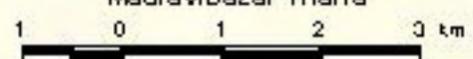
Hail Haor: Re-excavation Scheme (2003-04)



MACH - ISMP
RE-EXCAVATION SCHEME (2003-04)
HAIL HAOR SITE
 Sreemangal & Maulavibazar Thana

LEGEND

- District Boundary
- Thana Boundary
- Union Boundary
- Paurashava Boundary
- Major Roads and Highways
- Rail Road
- Other Roads
- Embankment
- Re-excavation Sites
- River/Chora



91°39'

91°42'

91°45'

24°27'

24°24'

24°21'

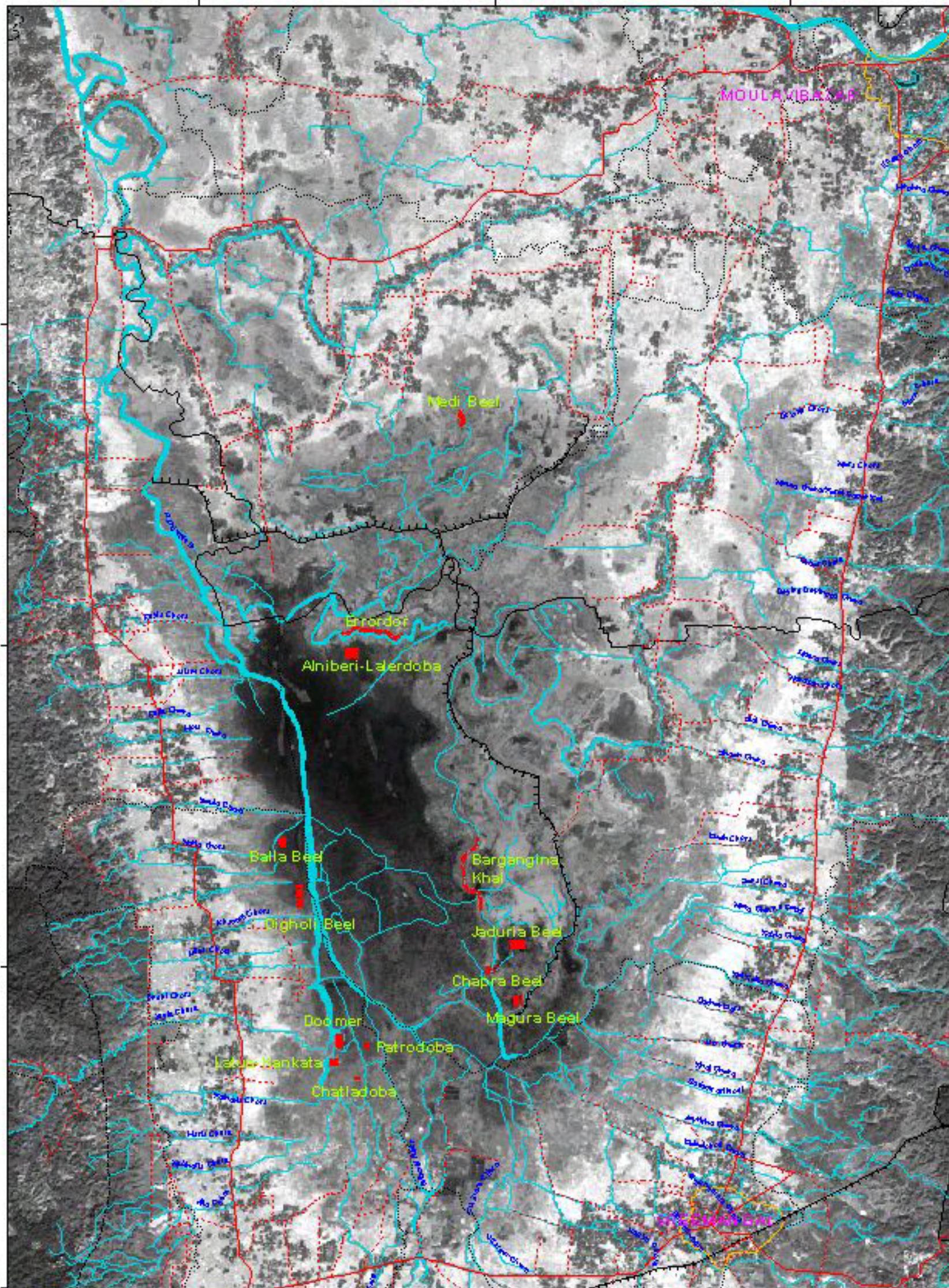
24°18'

24°27'

24°24'

24°21'

24°18'



MACH

RE-EXCAVATION SCHEME (2004-05)

HAIL HAOR SITE

Sreemangal &
Maulavibazar Thana

1 0 1 2 3 km



LEGEND

- District Boundary
- Thana Boundary
- Union Boundary
- Paurashava Boundary

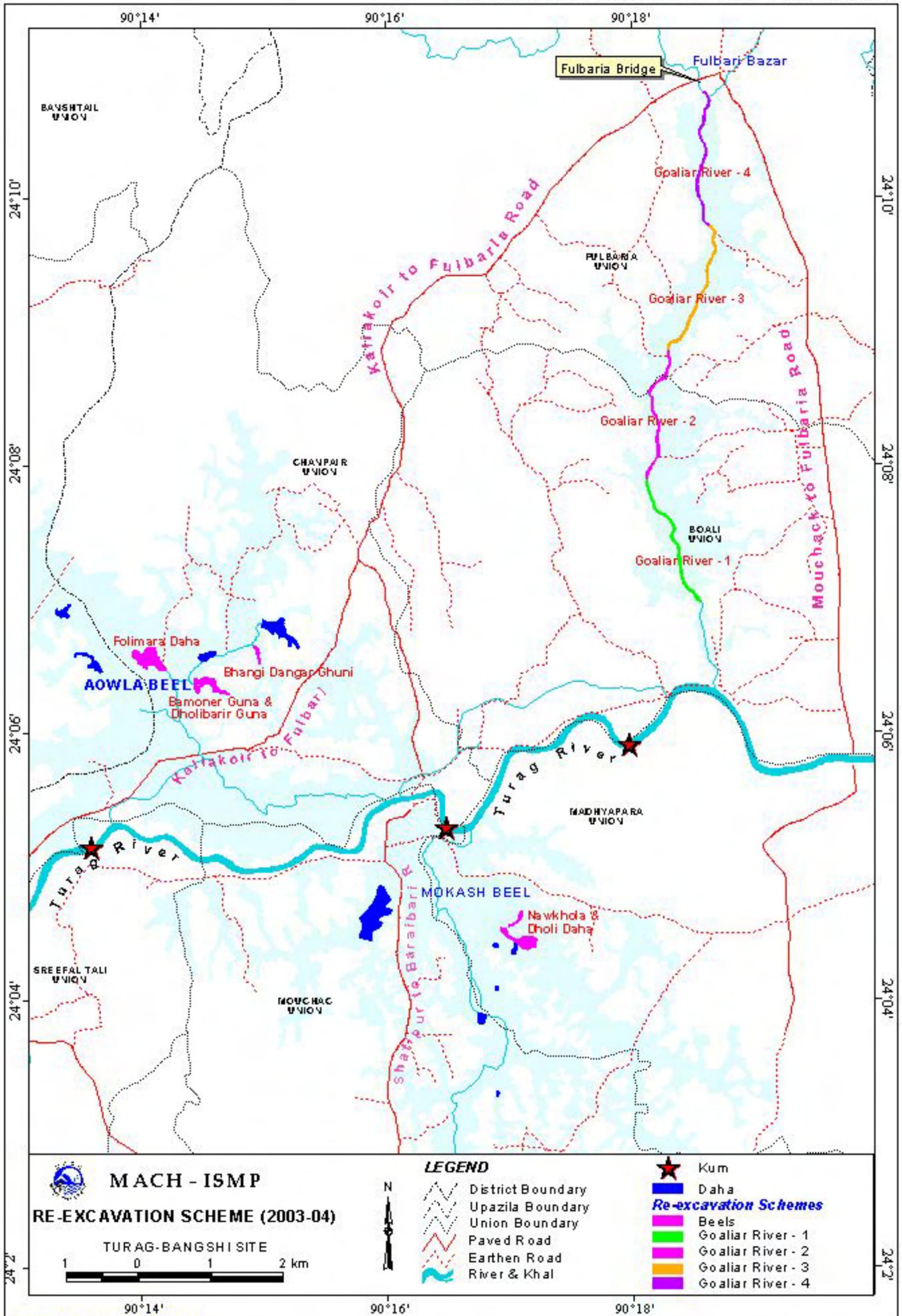
- Major Roads and Highways
- Rail Road
- Other Roads
- Embankment
- Proposed Re-excitation Sites
- River/Chora

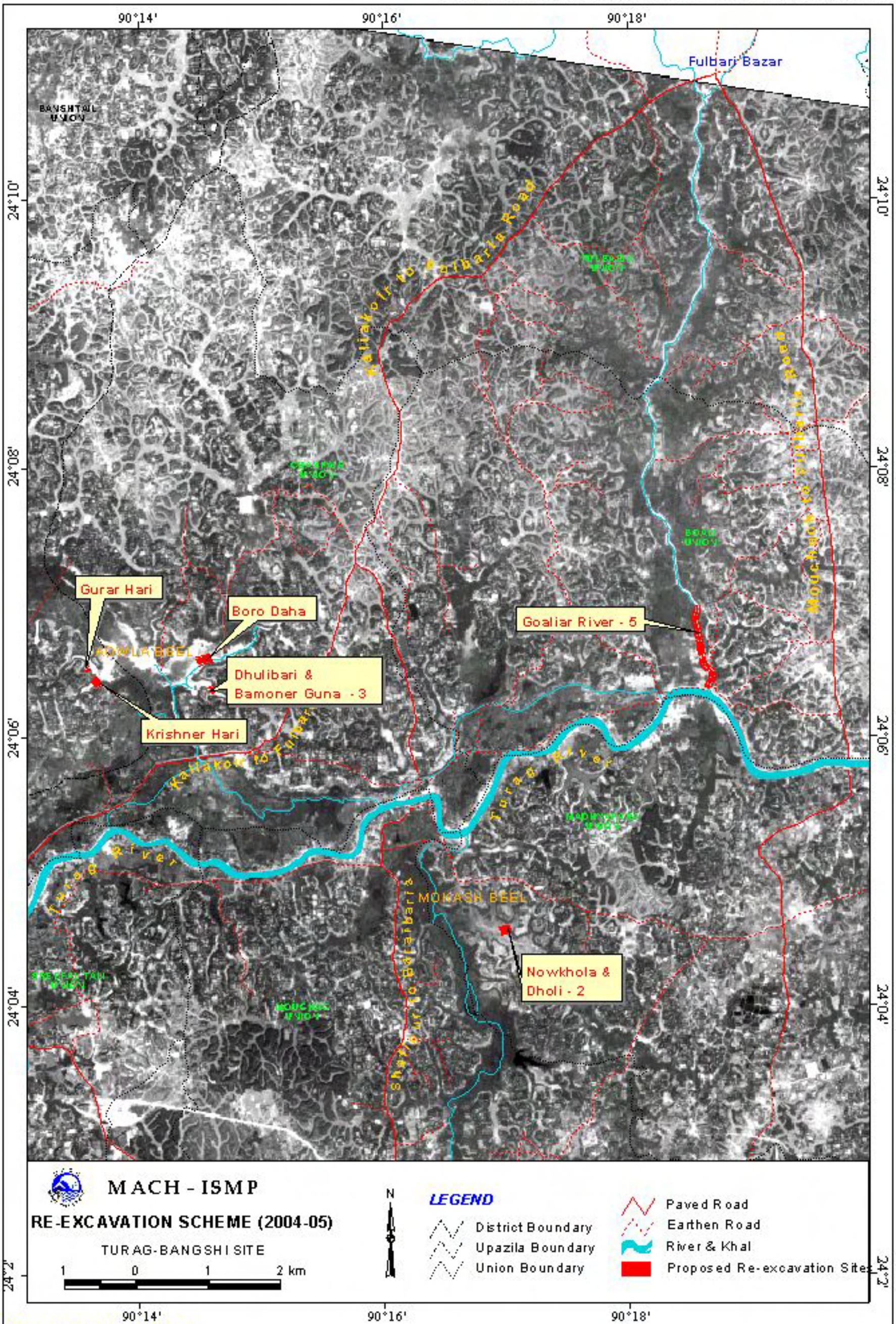
91°39'

91°42'

91°45'

TURAG-BANGSHI: RE-EXCAVATION SCHEME (2003-04)





MACH - ISMP

RE-EXCAVATION SCHEME (2004-05)

TURAG-BANGSHI SITE

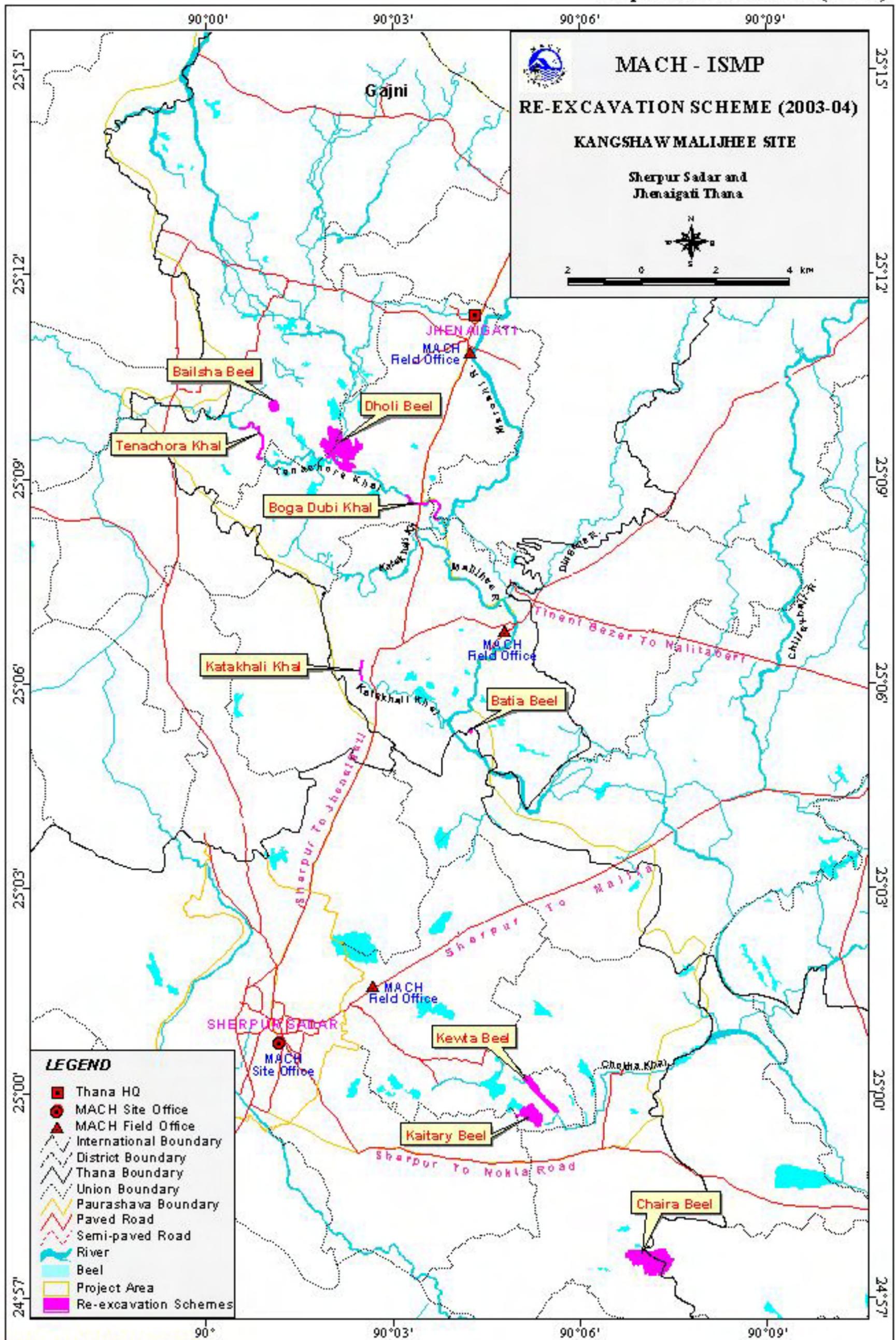
1 0 1 2 km



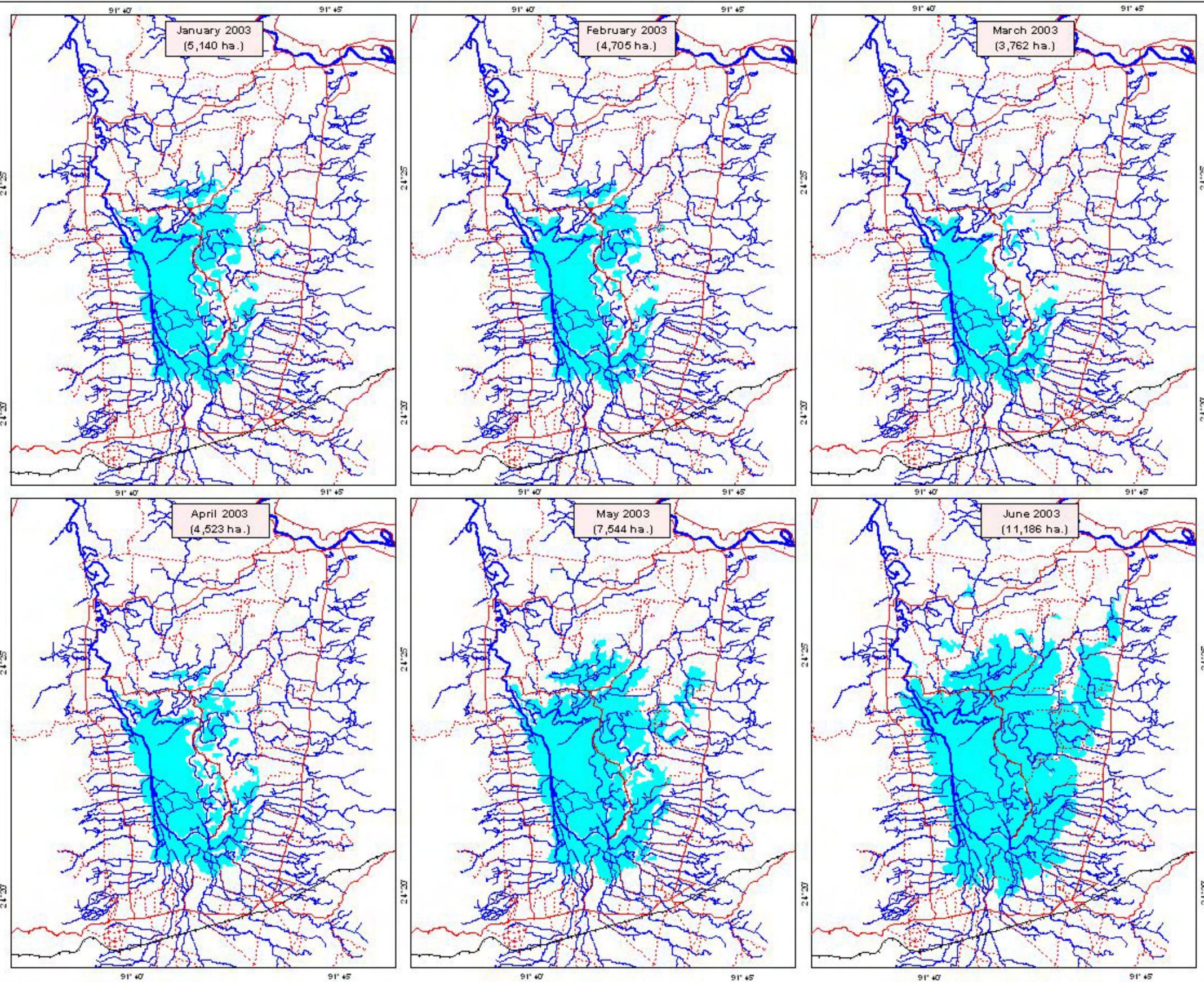
LEGEND

- District Boundary
- Upazila Boundary
- Union Boundary

- Paved Road
- Earthen Road
- River & Khal
- Proposed Re-excitation Site



INUNDATION MAP OF HAIL HAOR (January to June, 2003)



MACH
HAIL HAOR AREA

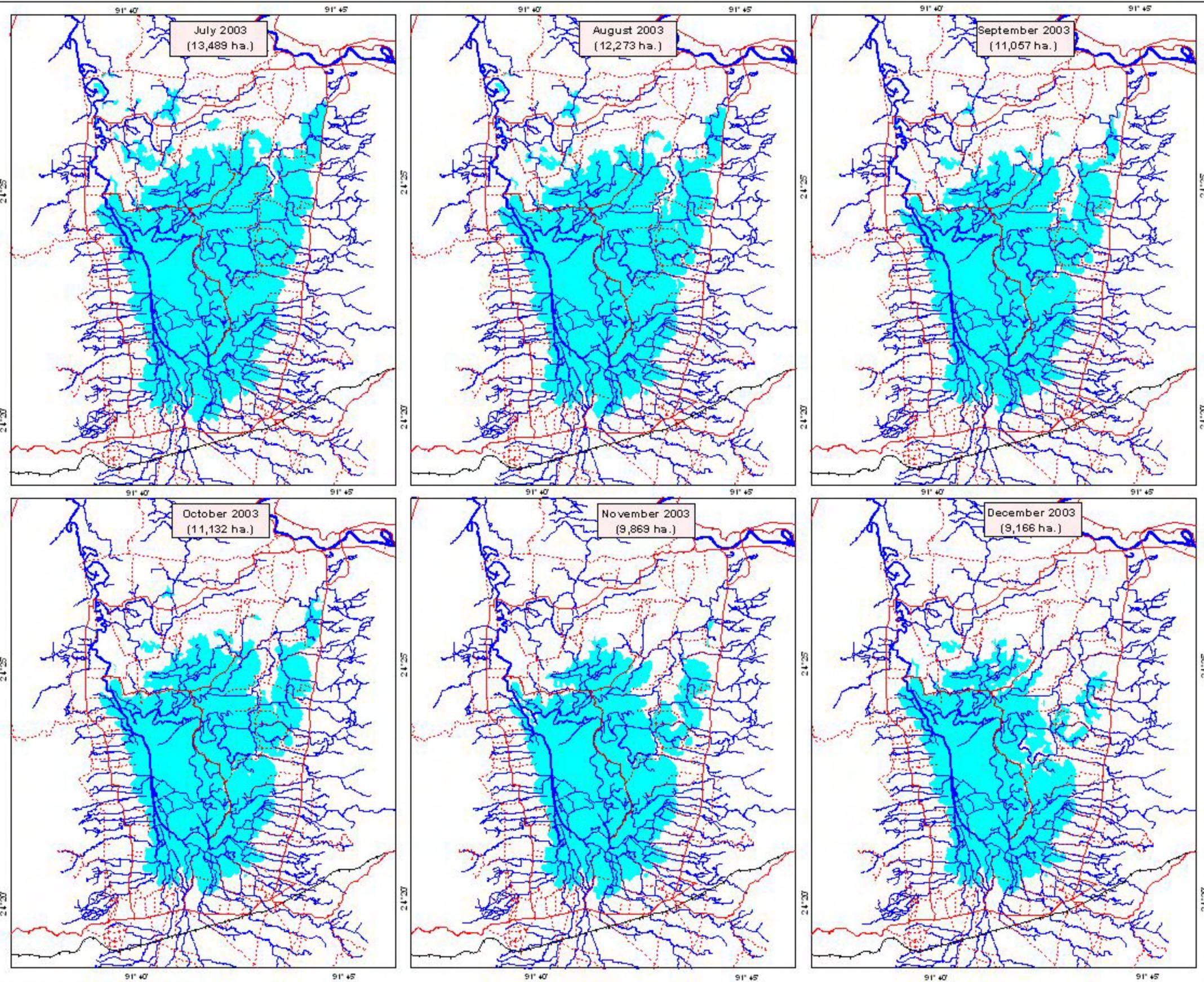
Sreemangal and Maulavibazar
Upazila



LEGEND

- Extent of Water
- Flood Free Land
- Main Road
- Other Road
- Rali Road
- Sub-Margable Dike
- River

INUNDATION MAP OF HAIL HAOR (July to December, 2003)



MACH
HAIL HAOR AREA

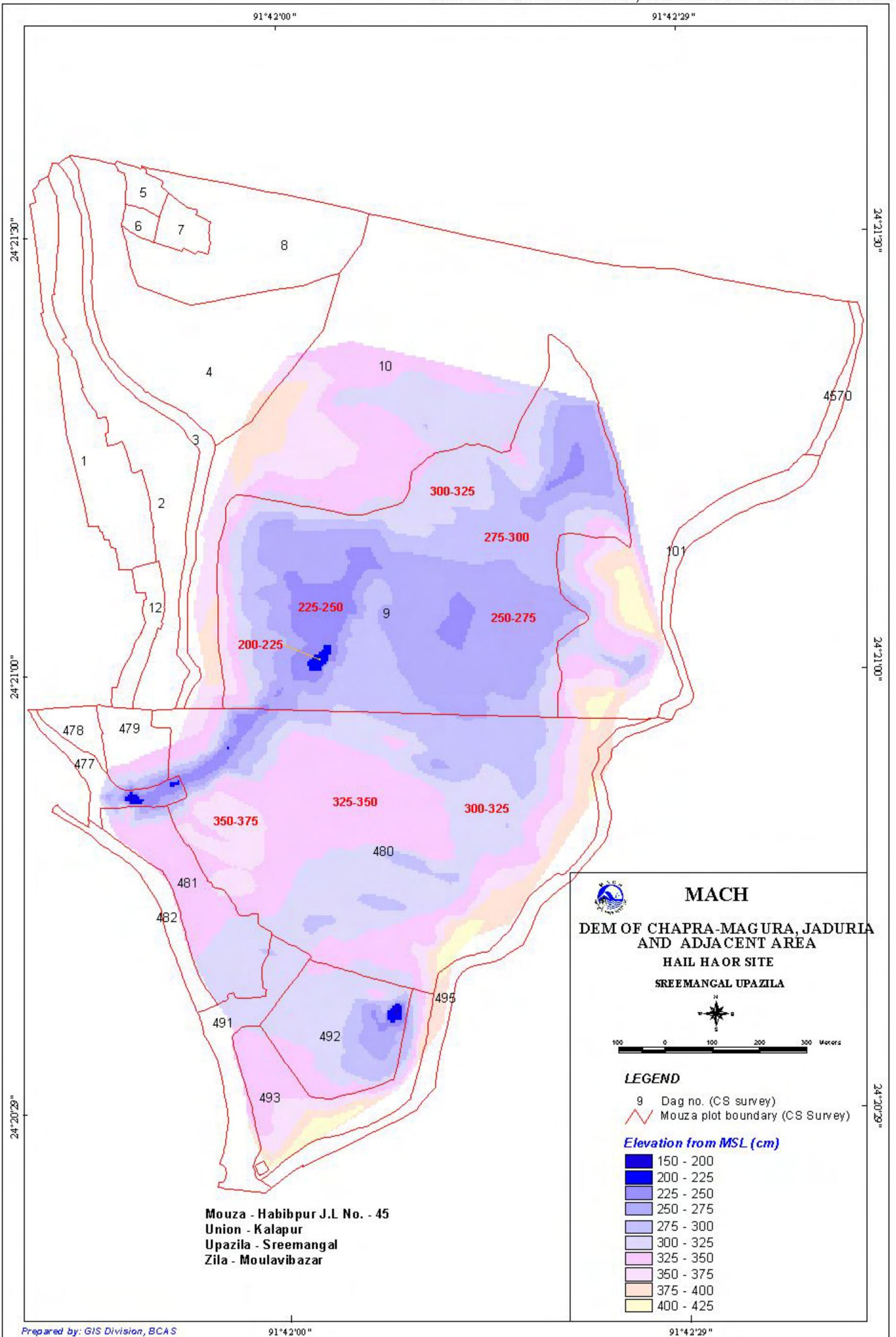
Sreemangal and Moulavibazar
Upazila



LEGEND

- Extent of Water
- Flood Free Land
- Main Road
- Other Road
- Rali Road
- Sub-Margable Dike
- River

DEM OF CHAPRA-MAGURA, JADURIA AND ADJACENT AREA



Mouza - Habibpur J.L No. - 45
 Union - Kalapur
 Upazila - Sreemangal
 Zila - Moulavibazar

MACH
 DEM OF CHAPRA-MAGURA, JADURIA
 AND ADJACENT AREA
 HAIL HA OR SITE
 SREEMANGAL UPAZILA

100 0 100 200 300 Meters

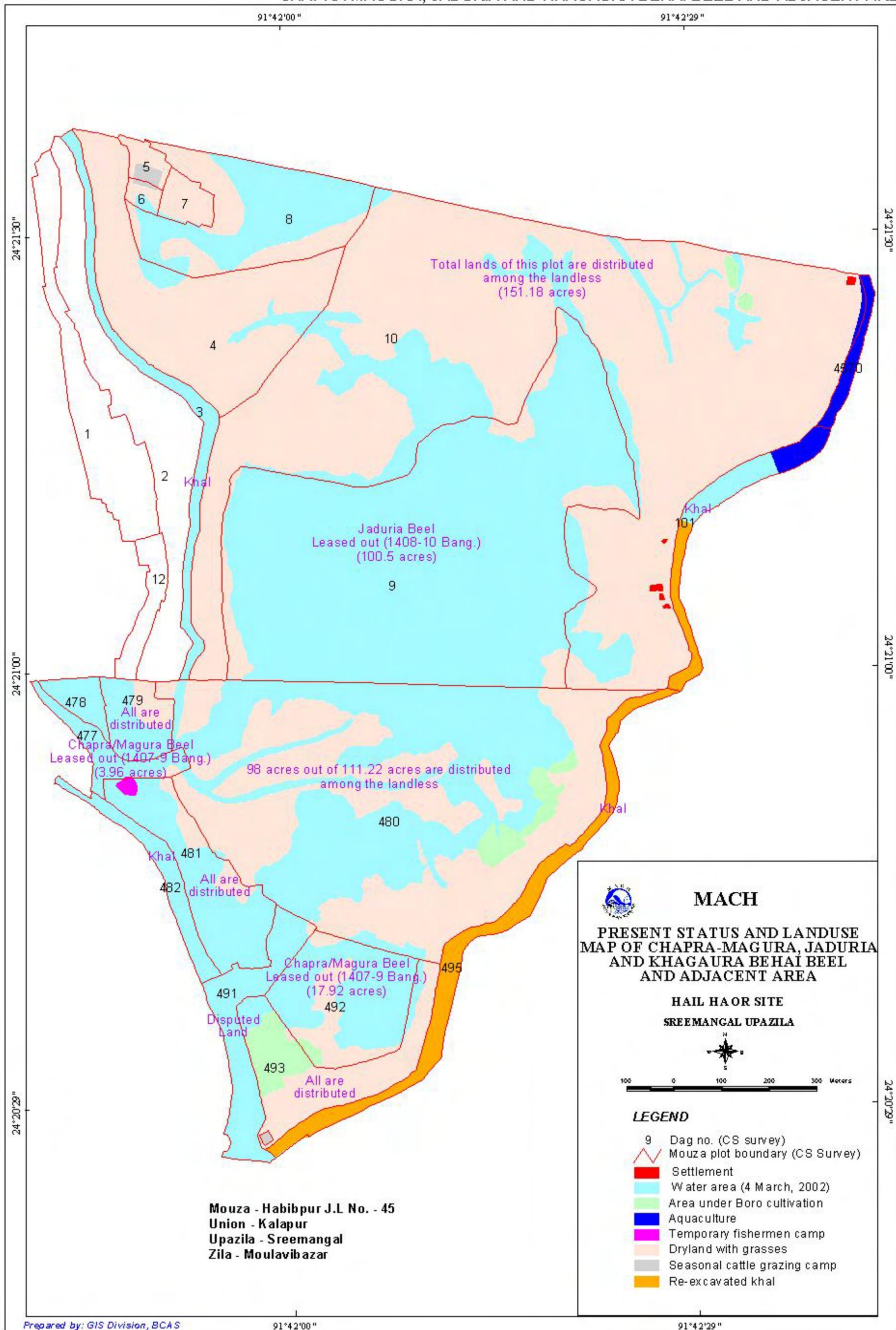
LEGEND

- 9 Dag no. (CS survey)
- Mouza plot boundary (CS Survey)

Elevation from MSL (cm)

- 150 - 200
- 200 - 225
- 225 - 250
- 250 - 275
- 275 - 300
- 300 - 325
- 325 - 350
- 350 - 375
- 375 - 400
- 400 - 425

**PRESENT STATUS AND LANDUSE MAP OF
CHAPRA-MAGURA, JADURIA AND KHAGAURA BEHAI BEEL AND ADJACENT AREA**





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**Winrock International
Bangladesh Centre for Advanced Studies (BCAS)
Center for Natural Resource Studies (CNRS)
CARITAS Bangladesh**



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