Government of the People's Republic of Bangladesh
Ministry of Fisheries and Livestock

Report of the Mid-Term Evaluation Committee
on
ISMP - Investment Support to Management of Aquatic Ecosystems through Community Husbandry (MACH) Project

January 2005

1. Mid-Term Evaluation Committee:

Ministry of Fisheries and Livestock formed a Mid-Term Evaluation Committee to evaluate the project " Investment Support to the Management of Aquatic Ecosystem through Community Husbandry " (ISM) on 9 October 2004. The composition of the Committee is as follows:

1. Mr. Ashraful Islam Joint Chief , MoFL	----------	Convenor
2. Mr. Abdus Sobhan Bhuiyan Joint Chief, Planning Commission (Forest, Fisheries and Livestock wing)	----------	Member
3. Mr. A N M Rokon Uddin Deputy Director , IMED	----------	Member
4. Mr. Syed Arif Azad Assistant Director, DoF	----------	Member
5. Mr. Mostafa Kamal Assistant Chief Economic Relations Division	----------	Member
6. Mr. S.N. Choudhury National Coordinator, MACH	----------	Member - Secretary

2. Terms of Reference of the Committee:

i. To visit project areas.
ii. To review project documents/works and evaluate the activities.
iii. To prepare the report.
iv. To submit report within three weeks.

The Committee may co-opt any member, if necessary.

3. Purpose of the Mid-Term Evaluation:

3.1 The purpose of the mid-term evaluation is to assess degree of progress made towards achieving the development component specific objectives and tasks of the project. The evaluation will focus on whether MACH in progressing towards the achievement of its goals and objectives and will assess future directions for MACH. The review will comment on whether improvements are necessary to make the program more effective in the years to come.

3.2 Mid-term evaluation is taking place with regard to MACH's Investment Support Project included in the ADP. Investment Support to MACH is to support MACH main project and both are inter related with each other and supplementary and complementary to each other. Implementation of one is dependent on the implementations of other. In view of this, mid-term evaluation of MACH as a whole has been conducted . This will give a clear picture about MACH activities.

4. Methodology

4.1 The MACH project has included three wetland /flood plain areas in Bangladesh which were selected earlier by the Project National Steering Committee. These are Hail Haor, Turag-Bangshi and Kangsha-Malijhee river basin. Located in three different districts, these sites include 6 upazillas, 26 unions and 341 villages. According to the original project design, MACH was obligated by the agreement to work in one to two sites but eventually MACH successfully implemented programs at three separate sites. The Mid-Term Evaluation Team visited all three sites. They collected necessary papers , documents and reports provided by the Project management and reviewed those. They held discussion with the project authority at the HQ and their partner organizations. During field visit the Team held discussion with the beneficiaries group members (RUGs), Resource Management Organizations RMOs), other wetland and watershed resource users, union Parishad Chairmen and members, Upazila government Officials and program staff. In Dhaka the Team reviewed documents and discussed with MACH , government officials , program staff and staff of the program partners and projects working with wetlands and fisheries. The mid-term evaluation report is based on review of relevant documents, collection of data and information , field visit and discussion with officials and target groups and general assessment. The team randomly selected specific project sites, beneficiaries , management committee and interviewed them.

5. Limitations:

5.1 Though the evaluation team visited all three sites but due to time constraints and other reasons , it was not possible for the Committee to visit all water bodies and to discuss and interview all organizations/ groups and beneficiaries . It would have been better if the Committee could make field visit to all water bodies and beneficiaries and local administration. Within limited time , intensive coverage of the activities of the RUGs/RMOs in the field through field visits and discussion with all concerned may be considered as sufficient for the purpose of evaluation.

6. Background of the project

6.1 The floodplains of Bangladesh form one of the world's most important wetlands and home to hundreds of species of unique plants, fish, birds and other wildlife. The wetlands provide critical habitat for over 200 fish species and thousands of migrating birds and most

importantly a source of income and nutrition for millions of people in rural Bangladesh. As many as 80% of rural households catch fish for food or to sell and about 60% of animal protein consumption comes from fish . In addition , poor and marginal households catch many small fish that are not included in official statistics or policies.

6.2 It may be mentioned that the wetlands consist of about 4 millions hectares of open water during the monsoon season. In the dry season the wetlands system reduces in extent to form of system of rivers , beels and haors. Conservation of the quality and quantity of wetlands during the dry season is critical for survival of the fish stocks that provide brood fish for spawning in the following wet season.

6.3 Unfortunately the wetlands of Bangladesh are in decline due to over-use, increased rate of sedimentation and habitat loss to agriculture , pollution and urban development. The decline in wetlands has resulted in more than 40% of species of all freshwater fish which are in danger of extinction . Since 1985, natural carp spawn production has declined by 75% and major carp and large catfish have declined by 50% .

6.4 The floodplain fishery plays a vital role in cushioning rural poverty and supplying animal protein and other critical nutrients to the rural poor. Besides, the tangible contributions of fish and fisheries are an integral part of the culture and lifestyle of the people and have been for centuries. Fish form a logical complement to a staple diet of rice. This fact probably gave rise to the Bengali adage "Mache-bhaate Bangali" (Fish+Rice=Bangali).

6.5 The Management of Aquatic Ecosystem Through Community (MACH) Program was formulated to develop new approaches to floodplain and wetlands resource conservation and management. The project was launched on a cooperative agreement system under the USAID Food Security Team of the Dhaka USAID Mission. The original cooperative agreement carried an effective date of July 28, 1998 and was modified eight times, the last modification extended the time for completion from October/2003 to October/2006.

6.6 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 MoFL selected Winrock International based in Morrilton , Arkansas as the guarantee. The Winrock team included three national partner organizations: CARITAS Bangladesh, Centre for Natural Resource Studies (CNRS) and the Bangladesh Centre for Advanced Studies (BCAS). The program started in September 1998 and following an inception period, field programs were initiated in Hail Haor in Moulvibazar district and the lower Turag-Bangshi River Basin in Kaliakoir Upazila in Gazipur district and part of Tangail district in June 1999. A third site at the upper Kongshow Malijhee River Basin in Sherpur district was started in July 2000.

6.7 Recognizing the need for new approaches to floodplain and wetland resource management the Governments of Bangladesh and the United States of America have jointly developed a program called Management of Aquatic Ecosystem Through Community Husbandry - MACH . The on-going or current MACH program has been in operation since October 1998 under a grant amounting to US $ 9.49 million provided by USAID . The on-going program has been extended upto October 2006. MACH activities are underway at three field sites. MACH Programs are being implemented by four NGO's namely the US based international NGO Winrock International and three national NGOs, the Bangladesh Centre for Advanced Studies (BCAS) , the Centre for Natural Resources Studies (CNRS) and CARITAS-Bangladesh.

6.8 The major purpose of the Investment Support Management Program is to support the on-going field activities of MACH Program. The goal of the on-going MACH program is to promote environmentally sound management of wetland resources (fish and other wetland products) for the sustainable supply of food to the poor of Bangladesh.

6.9 MACH since its inception has planned to procure outside funds to conduct large-scale physical interventions . The large-scale physical interventions are needed to support local institutions and improve wetland and floodplain fisheries habitat . To meet the objectives and targets of on going MACH program , MACH submitted a proposal to USAID for the use of GOB -USG 416b funds and USAID agreed in principle to the use of these local (416b) currency funds. The proposal was then sent by USAID to ERD requesting their approval . ERD agreed on condition that Fund will be released on preparation and approval of a supportive project by the government.

6.10 Then a TAPP was prepared costing Tk. 3456.00 lakh and was submitted to the Planning Commission. But since the activities envisaged in TAPP were investment type in nature it was later decided that PCP/PP instead of TAPP should be prepared and submitted to the Planning Commission. Accordingly a PCP was prepared which was approved by ECNEC on 25.08.2002. PP of the project was then approved by MoFL . Investment Support to MACH project (ISMP) is to provide support to MACH on-going project activities which are being implemented outside ADP . Duration of the main MACH project has been extended by 42 months i.e. from 29 October /03 to October /06. In order to ensure the sustainability of the field resource management activities and to support MACH main Project, it is essential to extend the implementation period of the Investment Support Project upto October/06. By extending the project upto October/06, it allows for synchronization between the main MACH project outside ADP and the Investment Support project to MACH included in the ADP.

7. Project Objectives:

7.1 The goal of MACH is to promote ecologically sound management of floodplain resources (fisheries and other wetland products) for the sustainable supply of food to the poor of Bangladesh .

7.2 The major purpose of Investment support project is to support the on-going MACH project. Investment support to MACH project will share the goals and objectives of MACH which remain:

a) Development of flood plain resources for the sustainable supply of food to the poor of Bangladesh.
b) Awareness building among the local community as well as in local government level regarding the floodplain eco-system management and its importance.
c) Creation of easy passage of fish movement and safe dry season habitat.
d) Creation of sanctuaries and conservation easements for the preservation and production of endangered species as well as other aquatic species of flora and fauna.
e) Generation of alternate income activities to reduce pressure on floodplain fisheries as well as agriculture.

f) As a measure of water preservation , sediment and pollution control, construction of sluice gates, check dams and other infrastructures as specific location of wetland.
g) A forestation program in the project area for the protection of soil erosion.
h) Ensure the sustainability of the various community management organizations formed under the project.

7.3 The major purpose of the program is to demonstrate to communities, local government and policy makers the viability of a community approach to the management of natural resources and habitat conservation in Bangladesh over entire floodplains . The community includes all people in a given area that are dependent either economically or nutritionally on the floodplain and/or its products. The program emphasizes and works with poorer groups particularly fisheries. It also includes local government as well as the local elite in order to make the program truly sustainable.

8. Location: Project Sites

8.1 The project is located in three different districts. MACH has focused on the development of three major wetland /floodplain areas in these three districts. The sites were selected by the National Steering Committee of the project headed by the Secretary, MoFL. The sites are Hail Haor, Turag-Bangshi and Kangsha-Malijhee river basins covering three districts which include six Upazilas , 26 Unions and 341 villages . According to the original project design MACH was obligated by the agreement to work in one to two sites but eventually MACH successfully implemented program at three separate sites which are as follows:

8.2 Hail Haor:

8.3 Hail Haor in the Sylhet Basin is located in between Balichara and Barshijura hills in the east and Satgaon Hills to the west. Water originates from the surrounding 350 small hill streams (at present only 59 stream are active) and the Lungla/Bilashi river. Hail Haor's only discharge is the Gopla River which connects it to the main Sylhet Haor and then to the Upper Meghna (about 20 km away) . The project site is located in 5 unions of Sreemongal Upazila and in two unions of Sadar Upazila of Moulvibazar district. During rainy season wetland area is approximately 13000 hectare and dry season area ranges from 3000 to 4000 hectare. The population is 172000.

8.4 Hail Haor is a shallow weedy basin , a large single body of water in the rainy season and many small (17 seasonal/47 perennial) beels in the dry season. It is surrounded on three sides by a chain of tea gardens, pineapple groves, rubber trees and natural forest blocks. Areas above flood level are intensively cropped (2-3 crops /year) with rice mono-cultures. .The surrounding hills, formerly forested are now cleared and either used for agriculture or tea plantation.

8.5 Fishing activities on the Haor occur year-round. During the rainy season subsistence and still net fishers predominate . Larger fish are collected from the drying beels in the dry season.

8.6 Turag-Bangshi Site:

8.7 The Turag-Bangshi site is located in 7 unions of Kaliakoir Upazilas under Gazipur district and in one union of Mirzapur Upazila of Tangail district. This site is typical of a floodplain

/wetland ecosystem whose water emanates from a major river system. As water rises in the major rivers at the beginning of the monsoon, it spills into distributaries and large floodplain areas . The water then recedes quickly , leaving small pockets that have nearly dried up in recent years . The area of this floodplain is around 4500 hectare is the rainy season diminishing to 17 hectare in the dry season . There are 20 beels of which 10 are now perennial . The population of the area around the wetlands where the project is working in 2.26 lakh.

8.8 The Lower Turag-Bangshi Basin is connected via Dhaleswari Pungli river to the greater Jamuna floodplain. At the lower end of the river, it is connected through the Tongi river and eventually connected with the Buriganga-Meghna river system. The major feature is the Upper Turag/Lower Bangshi which is the main source of water in the region and flows through the site. All associated beels and other floodplain areas are connected to the main river through a series of khals and other channels.

8.9 This is a deeply flooded area in the low-red soil hills of Madhupur forest . The floodplain increases when water flows out of the banks of the Turag Bangshi river. During the wet season the lower lying areas become an inter connected sheet of water. By late November most of the water recedes and T-Boro rice is planted in almost all of the area. High lands within the Madhupur forest itself or on raised earth platforms are the primary settlement areas.

8.10 Kangsha-Malijhee Site:

8.11 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 Malijhee 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 8000 hectare during the wet season which diminishes to about 900 hectare in the dry season. The floodplain area contains 47 beels or low pockets of which 18 are perennial. The population of the project working area is about 64 lakh.

8.12 Topographically a low-lying plain generally stopping from the north-west to south-east, this site was once a large lake. The higher land surrounding the site is intensively cropped. The entire floodplain area including the connecting khals, streams and rivers are intensively fished with a large variety of gears. There has been massive change in the last 20 years with rapid and almost complete deforestation of the wetland areas followed by a rapid loss of connections due to embankments and increased sedimentation.

8.13 The basin is part of the old Brahmanputra floodplain and northern piedmont plain. This area forms part of the catchments area of the Kangsha/Sylhet basin. All floodwaters in these areas come from the Garo/Megalaya Hills through a number of hill streams mainly the Thalang and the Bhugai. These turn eventually and drain through to the Bhugai and on to the Kaliganga/Kangsha which is part of the Sylhet Haor complex of rivers and streams. The site lies within the new LGED road that rings the area from Sherpur to Nalitabari and Nakhla and back to Sherpur town.

A location map of project sites is given at Appendix - 2 at page 39 of the report.

9. Project Activities:

9.1 Major activities of the project include the following:

a) Wetland Resource Management
b) Community Development and Supplemental Income generation.
c) Monitoring
d) Investment Support to MACH

a) Wetland Resource Management

9.2 Resource Management Organizations/Committees

9.3 Formation of Resource Management Organization (RMO) and Committees are important institutional organ of the project at the local level. These organizations are established after a series of awareness and community meeting which involve all users of the resources as well as the local government. All activities including habitat restoration, fishing regulations and development of sanctuary for a particular water body or stream are based on the request of the community . Any intervention is taken place with the support of concerned RMO . Target for formation of RMOs was 10 which was later revised to 30 by the project.

9.4 Awareness Raising

The basic principles of MACH are equitable , sustainable and environmentally sound co-management of natural resources. MACH identified a need to sensitize, inform ad educate communities, government and staff to these issues, MACH continues to spread messages to the communities using different mechanism of awareness raising . These activities are further discussed with the communication section of the project.

9.5 Management of Conflict

MACH with cooperation of DOF, LGED and other Union and Upazila administration manages conflict where it takes place. Conflict on taking over of common wetland area is common in Bangladesh and a major reason for the continuing losses of wetland habitats. MACH continues to bring about a greater understanding of the importance of the wetland resources to the local communities . The main goal of the project is to continue discussion and dialogue between/among the parties in conflict. When dialogue fails, the communities seek the assistance of the local administration including the UNO, UP chairman, UFO and in some cases LGED to try to bring people together to reach agreement through discussion at the community level.

9.6 Habitat Restoration.

9.7 Habitat restoration is a major part of MACH to promote through the community based Management Organizations in its sites. The communities through their Resource Management Organizations have developed both long and short term conservation management plans for their areas which include habitat restoration activities such as:

----- Physical works that include the deepening of dry season pools and increasing the perennial water area of the floodplain and secure habitat for wetland plants and animals.

----- The creation of natural and artificial structure as shelters for aquatic animals.
----- The establishment of sanctuaries where no activity takes place and the habitat is allowed to come back to the extent possible.
----- Reforestation on previously forested riparian and wetland areas.
----- Restoration of river bank stability through deep rooted grass re-establishment along rivers, streams and roads.
----- Re-establishment of river to floodplain connection and connection between individual wetlands.

Habitat restoration in MACH is accomplished by the community deciding to set aside certain areas as sanctuaries where no fishing or other disturbance occurs within a given area. This then allows for vegetation and the habitat to be restored to the level possible within the entire surrounding ecosystem. The community groups also start planting trees and other vegetation for habitat restoration which was historically available on the sites. They then go about protecting the newly restored habitats to enhance fish, plant and other animal numbers. In addition certain previously perennial wetland habitats have dried up leaving fewer places for floodplain resident fish species to be held over the dry season. Community groups have chosen to restore some of the critical aquatic habitats from seasonal to perennial.

9.8 Biodiversity Conservation and Enhancement.

9.9 Sanctuary habitats are one of the keys to conservation and enhancement of biodiversity .The loss of habitat in the past has had significant adverse impact on the status of biodiversity of the project area where MACH has worked. MACH groups are working to ensure that the old habitats are not degraded any further and that newly formed habitats are managed appropriately from the beginning. When the existing habitat is conserved and new habitats are created there will , over time, be an upward trend in the animal and plant diversity. The biodiversity conservation and enhancement programs have therefore been conducted and nurtured primarily on these premises. Marked improvements in this regard have been achieved by creating new habitats both terrestrial and aquatic. However it is realized that fruits of this program may not be visible for years. MACH strategy and specific activities in this regard are the establishment of small scale seasonal sanctuaries, appropriate number of permanent sanctuaries, reintroduction of locally threatened fish species and management interventions that include protection of brood fish and juveniles along with the aquatic vegetations.

9.10 Watershed Management

9.11 Watershed management efforts are based totally on the solution proposed by community groups and approved by local government. They tend to focus on establishing sound land and water use to improve flow and quality of water and reduce sedimentation. This on-going special program specifically addresses riparian and upper watershed that directly effect siltation of the Hail Haor wetlands and the degradation of the wetland habitat. To ensure a sustainable use of the natural resources of the watershed MACH seeks to:

------- Improve the level of awareness on stream , watershed, land water use and their resultant impact on their own water supplies and that of the Haor and downstream areas.

------- Promote stream bank stability and buffer erosive forces through project supported community management to restore riparian buffer vegetation corridors on selected demonstration chharas.
------- Improve land and water management in a selected upland watershed environment of the Hail Haor.
------- Monitor change in stream corridor vegetation cover, dry season stream flow and sediment transport along stream corridors for those selected portions of the Hail Haor sub-watershed.

9.12 Community Development and Supplemental Income Generation.

9.13 MACH activities with Resource User Groups include awareness raising, group formation, credit and savings to support AIG activities , AIG related demonstrations , group and skill training, literacy and health related activities and CARITAS social programs.

9.14 The main focus of MACH is to ensure equitable access for all community members to wetland resources. MACH is working to ensure access to poor and disadvantaged groups who depend on these water bodies for nutrition and income.

9.15 Formation of Resource Users Group (RUG)

9.16 RUGs are formed with poor and landless fishermen and other resource users who live in areas adjacent and around to MACH water bodies, access credit , training and savings schemes. Formation of 100 groups was originally targeted in PP.

9.17 Provision of Credit

9.18 Credit is one important input for income generating activities. The major cause of the decline of the fresh water fishery is over fishing . The main losers in this diminished fishery scenario is the poorest members of the community who are dependent on wetland products for their livelihood . The project provides credit to the RUG members through CARITAS to support AIG activities. MACH initially has made a provision of Tk. 10 million as credit.

9.19 Provision of Savings.

9.20 The project has made provision of savings as a means for capital formation . Each of the group members accumulates at least Tk. 5 per week and receive interest and to develop savings habit . Members have accumulated Tk.5.89 million as savings.

9.21 Training.

9.22 The project makes provision of training for both members of the groups and project staff of MACH-CARITAS. As part of the livelihood, support for group members MACH provides both group and skill training for members involved in AIG activities.
In addition group training participating NGO CARITAS provides a variety of staff training to strength the capability of field staff.

9.23 RUG Related Demonstrations.

9.24 In order to encourage RUG members and others to diversify agriculture, adopt more eco-friendly crops or farming methods and demonstrate profitable new crops, MACH

encourages carry out a variety of aqua-agriculture field demonstrations. This is done in cooperation with other USAID programs.
All agriculture demonstrations include the provision for farmer field days in cooperation with the concerned Upazila Agriculture , Livestock or Fishery officer.

9.25 Monitoring.

9.26 Monitoring is considered as an important tool in measuring progress over time towards the targeted goals and objectives of the project. Trends in progress and impact on the project areas are known through monitoring. The project makes provision for data collection of fish catch and household fish consumption. In addition the project provides for monitoring of wildlife and vegetation.

9.27 Development of Geo-spatial and Non-spatial data-base.

9.28 There is proposal for Geographic Information System(GIS) and Remote Sensing(RS) technologies to prepare geospatial and non-geospatial database on three project sites.

9.29 Investment Support to MACH.

9.30 Physical intervention activities are undertaken to allow the functioning of degraded wetland and riparian habitats. At the field level, RMOs will implement physical intervention activities with the active involvement of RUGs. Depending on local demand, anticipation and acceptance of local community and available resources in the locality implementation pattern will be different .

9.31 All physical interventions to be undertaken by the project must meet three basic criteria e.g. (i) biologically important and environmentally sound (ii) socially acceptable and (iii) technically feasible. The interventions must offer quantifiably significant and positive impacts for the concerned wetlands. The potential impacts must be of sufficient size to justify the interventions cost. MACH engineers determine the technical feasibility of re-excavation and if needed the structures required. MACH requires that if excavation is to take place a portion of the area excavated must become a sanctuary through out the year.

9.32 Interventions are undertaken only on specific requests from RMO's, community groups and other local government bodies with the concerned local Union Parishad and the approval of Local Government Committees(LGC).

9.33 Following are the types of interventions to be conducted . The targets are indicative. Based on the reality in the field, targets will be refixed during implementation.

(a) Excavation /re-excavation of 300 ha of khal (canal) to facilitate aquatic animal movements and water flow into and out of the wetlands.

(b) 320 ha beel (doba) possibly dua, kum or kur (riverine score holes) will be excavated to reestablish dry season refugees for fish and other aquatic species.

(c) 14 sluices/check dams will be constructed to maintain permanent water or reconnect floodwater to beel areas.

(d) 200 sanctuaries and conservation casements will be established for the protection of fish , watersheds, wildlife and plants. Community groups with the cooperation of local government will establish seasonal or permanent sanctuaries or specific conservation related easements. Each will be one hectare.

(e) At all three sites , a vigorous riparian plantation program will be continued with technical and supervisory support from a professional forester. A total 232 ha watershed area will be under this program.

10. Implementation Mechanism and Management Aspects.

10.1 The MACH project HQ is located in Dhaka. The project is being implemented by the Department of Fisheries through US based International NGO Winrock International under the administrative control of the Ministry of Fisheries and Livestock. The Investment Support to MACH project is meant to support ongoing MACH project activities. The current MACH project has management procedures in place which are already approved by the GOB and USAID. This current MACH programs are being implemented by the US based NGO Winrock International and three national NGO's. Winrock International has been selected as the grantee and the partner organizations, CARITAS-Bangladesh, CNRS, BCAS were also selected to work with Winrock International . In general management and supervision of all activities of this investment program will follow the same procedures as MACH.

10.2 Winrock International:

10.3 Winrock International , the grantee is a world leader in sustainable agriculture and natural resource management . The organization has considerable experience in management and execution of USAID-funded projects worldwide . Winrock is a nonprofit , non-governmental organization (NGO) . The organization has been working in some 40 countries on more than 100 projects / programs. In Bangladesh , Winrock is responsible for overall program and financial management and provision of specific technical inputs in geographic information system (GIS) , fisheries biology and watershed management .Winrock's headquarters in the United States provides overall program and financial support.

10.4 CARITAS-Bangladesh.

10.5 CARITAS- a large national NGO that has worked in Bangladesh since 1972 was established by the Catholic Bishops Conference of Bangladesh as a non profit organization. Through its activities CARITAS works for integrated human development and welfare that contributes to national development. For MACH, CARITAS is responsible for community development and alternative income generating activities (AIGAs) . For IGAs and socio-economic development of poor wetland resource users, CARITAS is responsible for awareness campaign , formation and mobilization of Resource User Groups (RUGs), training and skill development for groups, credit support for AIGAs, agricultural demonstrations, education, healthcare and nutritional activities. They work closely with CNRS in the area of awareness raising and the development /formation of committees.

10.6 Bangladesh Centre for Advanced Studies (BCAS)

10.7 BCAS, a non profit research NGO is one of Bangladeshi's leading environmental research and policy institutes. Formed in 1984, BCAS has been an experienced NGO contributing to establishing community open water fisheries management. The center is

among the major contributors to the current National Environmental Management plan which forms the basis for environmental regulation is Bangladesh . It also provides policy support, local coordination for MACH, short term specialist in policy reform as needed and support services for GIS, hydrology, fishery biology and other special areas.

10.8 Centre for Natural Resource Studies (CNRS)

10.9 CNRS is a non-governmental development organization which was formed in 1993. It focuses on ecological management of floodplain ecosystems through community based management approaches with a mission to restore, conserve, enhance and wisely use of natural resources supporting and influencing government strategies and initiatives. The centre has demonstrated a variety of field interventions towards developing sustainable wetland and fisheries management approaches with due consideration to environmental and socio economic issues. For MACH , CNRS is responsible for management of wetland resources through forming community based RMOs, helping them to determine biological, physical and social areas for development. CNRS is also responsible for generating environmental awareness and biological and sociological monitoring of project activities.

10.10 Since this is a special type of project being implemented by Winrock International in collaboration with the DOF and MoFL, an officer from MOFL in the rank of Deputy Secretary has been designated as Project Director for release of fund and its adjustment only.

10.11 Project Steering Committee

10.12 At the national level a Project Steering Committee has been formed with the Secretary, MoFL as its Chairman. The Committee is represented by the members from MoFL, MoL, Planning Commission, IMED, ERD, Finance Division, Ministry of Environment and Forest, DOF, USAID and Winrock International. Winrock represents the National NGO partners at the Steering Committee. Representatives from the MACH COP with the assistance of DOF representatives act as the Member-Secretary to the Committee . The Committee meets at least once a year or as and when necessary. The Committee provides policy guidelines and advice to MACH on management of programs. It also reviews project activities and approves annual work plan and budget etc.

10.13 Local Government Committee (LGC):

10.14 As each site there is a Local Government Committee at the Upazila level. It is the most important committee at the site or local level. The committee is chaired by Upazila Nirbahi Officer and members are concerned UP Chairman, other upazila level officials, MACH representatives , RMO representatives, others as appropriate and upazilla Fishery Officer serving as Member-Secretary . The Committee meets on quarterly basis as needed . LGC is the apex committee at the Upazila level for integrating the community based organizations (RMO) with all other nation building departments. The committee reviews physical intervention activities undertaken and offers support and guidance as needed.

10.15 The committee has a positive impact as a local level planning body and has been responsible for many of MACH's successes in resource management of critical wetland contest.

10.16 Results Package Team (RPT):

10.17 Result Package Team consists of a USAID-Bangladesh chairperson and members from MOFL, DOF, Winrock International and its partner organizations BCAS, CNRS and CARITAS. The team meets monthly throughout year and guides MACH operations and management . It has authority and responsibility to guide and monitor implementation of decisions. It acts as a self-directing and self monitoring team to formulate implementation strategies and monitors and reviews progress.

10.18 Functioning like the RPT a Project Management Unit exists for implementation of all project activities of the Investment Support to MACH Project. Members of the PMU are the same as the RPT. PMU makes decisions to be implemented by Winrock International. PMU meets regularly to oversee projects implementation and as well as project activities.

10.19 A Project Management Team (PMT) has been formed for internal planning and direct oversight of the project. Members of this PMT are representatives from Winrock, the DOF, project NGOs and other concerned project officials. Under the direction of the PMU , the PMT is responsible for reviewing , drafting and overseeing program plans and activities. In addition there are field operational and management guidelines for approval of the PMU as needed for the smooth operation of the program.

10.20 Deputy Director (Planning) of the Department of Fisheries with the help of MACH project officials submits the progress reports to the MOFL for monthly ADP review meeting detailing physical and financial progress. The project also from time to time submits reports to IMED,ERD and MOFL.
Total Project Management may be seen at Appendix - 3 of page 40-41.

11. Achievements of the Project (Upto October/03 since inception).

11.1 Annual physical targets are approved by Steering Committee of the project in April of each year.

11.2 Area under improved management:

11.3 A total of 19688 ha has been covered under improved management against the project target of 15800 ha .This area includes both water and land where intervention was made to improve the management of all types of resources. Plans are in place in these areas. The actual wet season impact area is much larger and in excess of 25000 hectares .

11.4 Resource Management Organizations/Committees.

11.5 A total of 16 wetland RMOs has been formed around water bodies with a wet season impact area in excess of 25000 hectares. Eight stream-based RMOs have been created around streams in the Hail Haor and Kangsha Malijhee sites and a total of 18 Kum/Doha based committees have been formed to manage critical deep water habitat in certain areas. Newly formed RMOs at present have as many as 70% of their members made up of poor resource users largely fishers.

11.6 Awareness Raising

11.7 Through a variety of awareness raising mechanism MACH continues to spread its environmental and project message to the communities. Performance of dramas with environmental themes have become a MACH awareness raising tool. MACH awareness programs with local songs and videos were presented to communities School art and quiz competitions along with classroom awareness session have been held. Knowledge -sharing meetings were conducted and environment days were observed by holding rallies, practical sessions and workshop. A project video , is complete and is now being used both at MACH sites and natoinally as an awareness tool. Since inception over 3,60,000 people have attended MACH awareness activities organized by MACH-CARITAS and MACH-CNRS.

11.8 Conflict Management.

11.9 MACH with the support of DoF, LGED and other Union and Upazila administration support is successfully managing a conflict over Kali Doha beel in the MACH Turag-Bangshi site. The beel lease was handed over by the government to the RMO for sustainable management with the participation of the community living in and around the beel. Influential people illegally put barricades across an open water course which threatened fish movement and the livelihood of many living around kalidaha Beel in Kaliakoir. RMO of Mokesh Beel and LGC resolved the conflict through legal frameworks and open discussion at the community level. The passage of fish and boats is open and free and the conservation and enhancement efforts continue at the community level.

11.10 Habitat Restoration.

11.11 The project has developed both long and short term conservation plans for the areas. Community groups have restored some of the critical aquatic habitats from seasonal to perennial . Since inception 600 hectare of aquatic habitat have been converted from seasonal to perennial.

11.12 As part of habitat restoration a total of 72 sanctuaries has been established. These were deepened through re-excavation. All the sanctuaries were marked and labeled by placing signboards, motivating slogans, bamboo fencing and red flags. The marking has been used as a technique that has been effective.

11.13 One of the original targets of the project was the deepening /re-excavation of canals that connect floodplains with the rivers and beels. MACH only takes up these schemes by the community that do not result in less wetland habitat. Each scheme is surveyed for probable results of the excavation with the goal being not only improved connectivity but also improved dry season wetland habitat conditions . The meters of canal rehabilitated by the community are 27032 since inception.

11.14 Reforestation and re-vegetation:

11.15 A total of 18057 lowland and wetland hizal trees were planted along a section of Turag river as part of reforestation program, 120000 tillers of vetiver were reintroduced to form erosion protective hedges along the riverbank and dholkolmi shrubs were allowed to regenerate . In upper watershed areas, an estimated 140000 tillers of vetiver grass have been introduced in the Turag Bangshi site. In the Kongshow-Malijhee site, a total of 464 000 tillers of vetiver have been introduced along the Malijhee river and 200,000 tillers at Hail Haor site .

Bamboo and vetiver grasses are also being planted at critical erosion points with community participation . A total of more than 537,913 wetland and upland trees have been planted since the inception of the project with a potential value in the hundreds of million taka in 12-15 years. With reforestation and revegetation program the project seeks to demonstrate the restoration of wetland and wildlife habitats.

11.16 Siltation:

11.17 Unplanned and aggressive exploitation of aquatic vegetation and swamps forest trees, bank erosion , industrial pollution and agro chemicals, severance of habitat connectivity etc. have resulted in water scarcity during dry season.

11.18 Consistent with the project's prime objective of habitat improvement , rehabilitation of the degraded habitat continued to receive attention in the MACH program implementation . Because of the ground breaking works and motivations done by the project in the past years, the user communities and RMOs demonstrated greater interest in the habitat restoration and rehabilitation programs. These included re-excavation of beels and khals, regeneration of riparian and swamp plantation, river and stream bank stabilization through earthwork, tree and bamboo plantation, vetiver hedgerow/soil binder grass establishment and enrichment of homestead groves and institution plantations. In the realm of habitat improvement through tree plantation , 113765 swamp plants have been planted since inception . The swamp species included Hijal, Koroch, Pitali, Barun, Jarul and Arjun.

11.19 Biodiversity Conservation and Enhancement.

11.20 Species diversity has diminished in wetlands habitats. MACH has supported the communities in re-introducing selected species of native fish into the beel and river sanctuary habitats. Brood fish of 5 threatened species have been reintroduced into sanctuary habitats of Turag -Bangshi site. Fingerling reintroduction of lost species continues at the two other sites. Selective stocking of threatened or endangered species will be continued where sought by the community groups. Reintroduction of locally threatened fish species as a means to enhance the biodiversity has continued.

11.21 Watershed Management.

11.22 MACH has started to generate a three tier canopy in riparian zones with the vetiver, shrubs and trees in selected chharas of Hail Haor. Eight kilometers of riparian habitat has already been planted with about 25 species of trees. The improvements are intended to promote erosion control , hold water for dry season discharge through the chharas to the haor and develop a secure wildlife corridor from the hill to the haor . The demonstration watershed restoration plan also includes improved pineapple and lemon orchard. Thirty five demonstration orchards were developed. Monitoring to capture the changes in the sediment load and water discharge is continuing . MACH is seeking to reestablish linkages between the Kushiyara river and Hail Haor to increase fish yield and species diversity.

11.23 Community development and Supplemental Income Generation.

11.24 RUG Formation:

11.25 Originally there was a target to form 100 groups. But so far MACH has organized 246 groups with 5194 members. Average membership per group is 21.One third of the members are women .

11.26 Credit :

11.27 In order to provide credit to the group members to take up alternative income generating activities, an amount of Tk. 10 million was provided as loan. Credit is provided for one year . After recovery funds are again disbursed for further loans. Total disbursement till today amounts to over 56.74 million taka. Recovery rate is 97%. In real terms the project has now more than 18 million taka revolving in the project areas. Interest rate is 12%. Number of loan provided is 9506 while number of RUG members received loan comes to 4423.

11.28 RUG Savings.

11.29 All members, of the RUGs contribute at least Tk. 5/- per week. In case of necessity members can withdraw their optional savings amount . So far members have been able to accumulate a total of tk. 5.89 million as savings. Highest amount (Tk. 2.48 million) was accumulated in the Hail Haor area followed by Kangsha-Malijee area (Tk. 2.38 million).

11. 30 RUG Training .

11.31 The project has provided 16642 people with group and skill training. Five group development training are provided according to standard CARITAS practice while 15 different type of skill training courses were given based on requests and need by the RUG members.In addition, the project is providing literacy training for group members. Till today 2100 members participated in this training program. This innovative training provided by the project requires that graduates train others after graduations from the course. Besides, training of the group members, MACH provides training to the staff.

11.32 RUG Related Demonstrations.

11.33 MACH has encouraged RUGs to conduct a variety of agriculture related demonstrations. This is done to encourage community to diversify agriculture and find out profit oriented IGAs. All agriculture demonstrations include the provision for farmer field days in cooperation with concerned Upazila Officials. Demonstration have been conducted in a variety of areas for commercial vegetables, potatoes, maize, wheat, fish culture (cage, ponds, pen, nursery) and the use of granular urea. Since inception more than 534 farmers have taken part in demonstration activities in an area of 3275 areas of land.

11.34 Monitoring Fish Catch.

11.35 Fish catch monitoring was conducted in all three sites from the start of the project activities in the site. The first year of collected data is considered as the baseline with the subsequent years as impact years or periods where project interventions may have influenced . The results of data collection in all three project sites at pre and project interventions situation show a rise from baseline conditions to the current season. Species diversity increased at all three sites. MACH continues to promote wetland conservation strategies

which include habitat restoration , community motivated sanctuary establishment, restriction on fishing gears and reintroduction of locally extinct or threatened species.

11.36 Consumption Monitoring:

11.37 Data collected shows fish intake has increased for both poor and rich at the project sites.

11.38 Wildlife:

11.39 Number of species observed has been higher compared to the baseline number of species.

11.40 Development of Geo-spatial and Non-spatial Data-base.

11.41 Geographic Information System (GIS) and Remote Sensing (RS) technologies are being used to prepare geospatial and non-geospatial database on three project sites. The noteworthy activities that have been carried out are detailed land use surveys of proposed permanent sanctuary as well as collecting of ownership and lease related information . In addition identification of the area under improved management through meeting with field staff and RMO members has been carried out. Based on the RPT recommendation the project activity database is updated every six months.Performance monitoring document activities were undertaken to prepare necessary maps and database.

11.41 Investment Support to MACH (MACH-II): Period November/2003 to October/2004

11.42 Investment support to MACH involves physical intervention activities which are site specific and based on community requests through RMOs . Activities include earthworks, excavation /re-excavation of Beel and Khal, establishment of sanctuaries Tetra-Pod/Pipe construction, demarcation of pillar/ Signboard, spar construction , scheme selection, khas land identification , plantation etc. The achievement during ISMP is provided below:

11.43 Fish Production:

11.44 As a result of project intervention, there has been tremendous increase in fish production . Average production of fish is all three sites was around 200 kg/ha in the first year of the ISM which increased to 217 kg/ha. Fish production has increased on average by 39% (from 144 kg/ha to 200 kg/ha) from 2000-2003 where it previously was in decline . During 2003-04 the increase was 50% over the base year figure when MACH started (from 144kg/ha to 217kg/ha). Fish consumption has also increased and both production and consumption are showing upward trends improving nutritional intake.

11.45 Area under improved management:

11.46 A total of 19688 ha was brought under improved management through MACH activities upto October/03. At the end of 1st year of ISM a total of 820 ha 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 the Hail Haor area. Target for the year was 800 ha. Total area brought

under improved management stands at 19688 ha. The actual wet season impact area is much larger and in excess of 25000 hectares.

11.47 Aquatic habitat:

11.48 As a result of restoration through deepening of beels and canals a total of 367 waterbodies against the target of 200 ha have become fully perennial waterbodies from seasonal waterbodies.

11.49 Sanctuaries Establishment:

11.50 The total number of sanctuaries is 72 with an area of 32.67 ha . On average the percentage of handed over jalmahal area as permanent sanctuaries is about 5% . Ministry of Land has given 122 acre of jalmahal in Hail Haor area as a national level sanctuary to be managed by the RMOs on a nominal lease money of Tk. 501 ignoring its previous lease value of Tk. 8000/- per year. During the first year of ISM 6 sanctuaries against a target of 5 were established to conserve and re-establish fish bio-diversity on Turag -Bangshi and Kangsha-Malijhee sites . Total area of them is about 2 ha.

11.51 In the year 2003-04, MACH had an ambious program for earth work. Various RMOs requested support to implement 17 beel schemes and 12 canal (khal) schemes for implementation . Overall progress was 95% of the 29 schemes , only four schemes could not be implemented due to land disputes. All others were completed.

11.52 Riparian and Swamp habitat improvement:

11.53 Reforestation is one of the tools for the improvement of wetland and riparian habitats. During the first year of ISM a total of 204876 saplings of approximately 45 different riparian and swamp tree species have been planted on 102 km and about in 10 ha land. Of the total sampling of 204876 about 73000 are of the deep water or swamp variety.

11. 54 Water bodies leased to RMOs:

11.55 So far 24 water bodies were handed over to RMOs . At the end of 1st year of ISM 12 water bodies were allocated to RMOs in Hail Haor site. In those 12 water bodies 9 have been formally handed over to RMOs while remaining 3 are in the process of being handed over.

11.56 Awareness Activity :

11.57 To make the community based organizations 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 the public awareness activities i.e. folkdrama , rallies, village meetings, day observance etc. were continued and a total of 54370 individuals were made aware in the 1st year of ISM against the target of 30 000 individuals.

11.58 Resource Management Issues discussed in LG meetings:

11.59 This activity is being continued to keep the local government authorities involved in the resource management activities by the community based management organization. A linkage has also been established between RMOs and the local government authorities that

will hopefully lead towards the sustainability of the approach. During 1st year of ISM several resource management issues were discussed in 130 local government meetings against target of 100.

11.60 Adoption of key regulation:

11.61 An additional 10 committees have adopted key regulation related to wetland resource management in the newly established area. Target was 8 communities.

11.62 Re-introduction of fish species:

11.63 A total of 172276 fingerling of three different indigenous species were reintroduced in the wetland s during ISM 1st year period . Re-introduction was affected due to severe flood in 2004 . The program will continue in the next year. Since inception of the project a total of almost 970 000 fingerling of 13 different threatened species were introduced in wetlands .

11.64 Pineapple Cultivation in contour system :

11.65 15 demonstration plots of 15 ha area has been brought under contour pineapple cultivation in the hills at Sreemongal site in the 1st year of ISM. This cultivation practice has been very effective for reducing soil erosion and increasing leaf cover and pineapple yields.

11. 66 Achievements by Activity MACH-II

Activity	Hail-Haor	Turag-Bangshi	Kongshaw-Malijhee	Total
1. Area under improved management (ha)	40	780	-----	820
2. Establishment of sanctuaries (no)	-----	4	2	6
3. Reforestation of Riparian , roadside institution homestead and Patch Forest trees (no)	9193	27900	94827	131920
4. Reforestation of swamp trees (no)	34598	16229	22129	72956
5. Re-excavation of beel (ha)	2.37	9.77	4.30	16.44
6. Re-excavation of Khal (meter)	4406	8000	333	15739
7. Waterbodies alloted to RMO	12	-----	------	12
8. No of communities follow fishing norms	4	4	2	10

Activity	Hail-Haor	Turag-Bangshi	Kongshaw-Malijhee	Total
9. Awareness programs (no of participant)	20499	17130	16741	54370
10. No of new RUG formed	3	11	7	21
11. New member start AIGA	167	75	123	365
12. Skill Dev. Training (Parti)	212	156	140	508
13. Pineapple demonstration Program	15	-----	----	15

11.67 Strengthening of RMO s

11.68 Out of 16 wetland RMOs, 15 have been registered with the Social Welfare Department and the remaining RMO-Goalia has submitted documents this year for registration. According to their need and experience the RMOs have made the required amendments in their existing constitutions and those were approved at their General Body meeting. The revisions are based on experience and mainly relate to newly added rules. The whole process including approval by the registration authority will be completed by January/2005.

11.69 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 RMOs are sending their representative to attend the relevant UP meetings to discuss and explain their activities.

11.70 Coverage of Communities by RMOs:

11.71 A total of 106 villages is represented by 16 RMOs and their members are 1335. The number of members per RMO varies from 40 to 142. On an average per village there are 13 representative members in the RMO.

11.72 In order to raise the membership of poor fishers and women in the decision making process of wetland management, new poor fishers and women have been included. This is in response to a decision that in all RMOs at least 25% of GBmembership and 20% of EC membership should be women.

11.73 Representation of RUGs in RMOs:

11.74 In almost all RMOs the GB members comprise at least 60% representations from the project formed RUGs. 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 RUG is still low. The project will continue to help more RUGs representatives develop their capacity and become office bearers of the RMOs.There are 545 professional fishers out of 1335 total members in 16 RMOs.

11.75 Land for RMO offices:

11.76 Out of 16 RMOs, 6 have managed to obtain land for construction of their office building . The rest of the RMOs are in the process of arranging land.

11.77 Waterbody within RMO jurisdiction:

11.78 A total area of 16605 ha is under improved wetland management by the RMOs. In addition 3081 ha are being managed by the RUG and other committees under MACH . Within this area , management activities are more intensive in the jalmahals that have been handed over for management by the RMO, this number stands at 36. During the year out of 12 allocated beels, 9 have been handed over to RMOs and remaining 3 are under process.

11.79 Strengthening of RUG:

11.80 CARITAS has formed 21 new groups with 596 members out of which 11 are at Kaliakoir site, 7 at Sherpur and 3 at Sreemongal site. Upto 2002-03, 225 groups with 4598 members were organized.

11.81 AIGAs:

11.82 A total of 2609 loans have been disbursed to 2609 RUG members for 31 different types of AIG activities. A total of 365 new members came under loan service out of 2609 members.

11.83 MACH has taken initiatives for large scale enterprise development , increase in normal loan amount and skill training to increase supplemental income, provide better service and benefit to the RUG members. AIGAs have enabled the poorest families to increase their income by 47% (more than Tk. 8000/-) in some areas while reducing pressures on wetland resource . During ISM, their average supplemental income increase was Tk. 3518.00 . A total of 2609 RUG members have received Tk. 18.52 million ascredit services for AIGAs. RUG members have accumulated savings of Tk. 1.93 million . Amount of savings upto 2002-03 was Tk. 3.962 milliion.

11.84 Training :

Type wise training imparted during the years is as follows:

Type of training and batch participants		Upto October/03	During November/03 to Oct/04
Group Dev:	Batch	337	29
	Participants	6580	544
Resource:	Batch	220	16
Awareness	Participants	4087	315
Skill Dev.	Batch	170	33
	Participants	2689	508
FRUG Dev.	Batch	------	12
	Participants	------	218
Total :	Batch:	814	90
	Participants:	15057	1585

11. 85 Literacy Courses:

11.86 MACH has identified literacy as a major factor in empowering economically disadvantaged wetland resource users. 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. Out of 480, 260 were female members. Considering the very poor literacy rate and poor facilities for children MACH has started two children schools at Sherpur site. Around 100 poor children are receiving education at these schools.

11.87 Demonstration Activities:

11.88 So far the project demonstrated wheat, maize and improved vegetable cultivation that all use less water that boro rice and 371 farmers participates in the demonstration. During the period the participated farmers was 163 in pond culture, pond nursery, madrazi owal katchu, year round vegetable, jujubee budding and fruit garden covering an area of 516 decimals.

11.89 Habitat Restoration through plantation:

11.90 The habitat restoration activity envisaged planting of 277700 saplings in the riparian, watershed and wetland situations, and institution precincts/homesteads. Against the target a total of 204876 sapling were planted. Plantations were affected due to floods during the period.

11.91 Pollution Abatement Initiatives

11.92 MACH has taken initiatives on pollution abatement. The overall goal of this initiative is to improve the quality of wetland ecosystem and thereby the livelihoods of the people who use them. 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 process to improve efficiency and reduce pollution , technical support to industries for pollution treatment options, training of factory staff to build capacity in clearance production options and effluent treatment and awareness raising .

11.93 The project is working on how to solve the pollution problem which will continue. Different initiatives including dialogue, studies/analysis of collected data with technical support with the industries in the Kaliakoir area have been taken.

11.94 Preparation of Geospatial and Non-geospatial Database:

11.95 During the period field survey, discussion with field coordinators, meeting with other partner organization and developing maps, map on new resource management, map on re-excavation of schemes, on Bilashi and Barfunia Chora, updating of maps of MACH indicators and activity database, hydrological analysis and central sanctuary maps and analysis were carried out.

12. Estimated Cost and Financing:

12.1 Total cost of Investment Support to MACH was approved at an estimated cost of Tk. 3456.00 lakh. Funds for the project are derived from monetized wheat provided to the GOB by USG program 416(b) via the United States Department by USAID. This project is included in the ADP while MACH main project is outside ADP. Out of the total cost of Tk.

3456.00 lakh, an amount of Tk.836.68 lakh was utilized upto October 2004 which is 24% of the total cost . Financial progress is behind the schedule.

13. Field Visit:

13.1 As part of the mid-term evaluation the committee visited all three sites of the project. The committee tried to inspect the project activities in the field by way of as much visits as possible . Within the limited time, the committee made field visits to schemes of different types covering 5 Upazilas. During field visits the Committee held discussion with RMO and RUG members, local government officials, NGO representatives and project staff. Names of the schemes with location where field visits were undertaken are provided below :

Date	Location	Activity Visited
13-12-04 to 15-12-04	Hail Haor Site in Sreemongal	Short briefing on site activities, field visit to see permanent sanctuary at Borogangina, swamp plantation and discussion with RMO and RUG membe at Hazipur/Baruna and Kalapur visit to Fish sanctuary at Agri Pineapple garden visit at Fayezabad, Chhara plantation visit at Alia and Joitra.Discussion with members of executive committee of Balla RMO and UNO, Sreemongal.
20-12-04	Turag-Bangshi Site	Site briefing at Taltoli in Kaliakoir office, visit to see plantation, water pollution, fish sanctuaries and discussion with Senabaha RUG and Mokosh RMO, visit to river sanctuary and discussion with Gopinpur RUG.
From 25-12-04 to 27-12-04	Sherpur KM Site	Briefing on site activities, meeting with DC,Sherpur, visit to female RUG at Chengunia village, Jhenaigathi and male RUG group at Haoraniz, Sherpur Sadar to see their AIG activities, visit to Katakhali Sanctuary,

riparian plantation at Katakhali and Paglamukh, MACH nursery at Ghagra Kamarpara,Bogadubi canal excavation in Jhenaigathi Upazila, Meeting with Bailsha RMO at Kamduli village in Jhenaigathi visit to Gojni to see MACH plantation in the base of Garo Hill.

13.2 During field visit the evaluation team met Deputy commissioner, Sherpur and officials and concerned persons who have termed MACH as a successful project which has benefited the community people and the poor fishers with increase in fish production and raising income and nutritional status.

14. Impact of the project on the areas :

14.1 In order to see the impact of the project on areas , it is necessary to have an impact study through survey . Impact study is time bound and it is a long process involving several years. So it was not possible for the evaluation team to conduct any independent impact study due to time constraints and other reasons . But the project carried out baseline survey in the beginning of the project and the impact study to see the impact after a few years of implementation. The team physically visited all three sites , talked to the people and the beneficiaries and held discussions with local officials and project staff. The impact study , monitoring report, field observations and discussions with the beneficiaries show positive sign of improvements in the project areas.

14.2 The impact study of the project shows that a major impact on the areas has been the increasing trend in fish production at all three sites .This is reflected in the monitoring data of fish catch and in year to year anecdotal evidence from fishers and community people. Based on the catch survey it appears that fish catch has gone up during the short life of the project in some cases quite significantly. Based on monitoring done by the project and anecdotal evidence provided by local fishers, provision of sanctuaries, restricted fishing during critical periods , securing increased dry season water availability and reintroduction of lost species have contributed to increased fish yields and consumption in the three areas. The increases have been on average more than 70 kg. of fish per hectare per year for the three sites resulting in as much as 1.80 million kg. of new fish produced. In the Turag-Bangshi site in certain areas of Mukesh beel aquatic plants are proliferating for the first time in many years due to the restricted netting imposed by the community on themselves. This has increased habitat which likely has allowed for better survival of juvenile fish and shrimp. Blooms of certain species that benefited from this were seen in both the catch data and from observation of the general trend. Overall fish and plant diversity has also impacted the yields as well as increased fish available for consumption . Fish consumption has increased in the areas which heavily benefits the poor with protein. The poor are reaping more than 60% of the benefits.

14.3 There has been has been positive impact due to reforestation programs and stocking of indigenous and often beel resident stocks that have been lost. More than 3,30,000 trees have

been planted which will provide significant wood yields and habitat benefits in the years to come.

14.4 The project has been able to demonstrate an approach that brings the community based RMOs together with local government authorities in an integrated planning and implementation framework. This co management between government and local communities is a model through which integrated resource planning can be conducted successfully . A good example of the impact of this coordinated planning at the local level has been in conflict management and resolution and establishing permanent sanctuaries in each of the sites.

14.5 More than 5194 of the poorest families through its AIGs have been benefited from the project. They were provided with training and credit which helped them to take up income generating activities. The group members were able to accumulate savings , their literacy rate increased, health and sanitation conditions improved. Agriculture demonstrations had a positive impact on the farmers. Improving trends in the fisheries have positively impacted the attitudes of the communities for continuing their management role. Average income of RUG members has increased up to MACH-I since inception 40.34 to 52.02 over the base income. The average income for individuals within the groups was found to be on average a 47% increase . The target set originally was for a 50% increase in supplemental income . During MACH-II individual RUG members increased Tk. 3518 over their base income and reduce fishing pressure 0.94hrs/day/fishers and total reduction of fishery hours is 2495hrs/day.

14.6 Changes in diversity generally take years to change on the upward side. Through habitat restoration efforts particularly in the riparian areas, 15-20 years will be required to see impacts on bird and mammal species. Sanctuary and other improved habitat will also yield diversity benefits but overtime. The project through restoration of habitat and efforts at repopulating lost species has resulted in early returns to the diversity pool. The project has seen an upward trend in diversity at each of sites with a total cumulative change in an upward direction.

14.7 MACH has provided guidance in development of strategies to be followed in the future in open floodplain resources. MACH has had major impacts on water body leasing policies and procedures of the government through its awareness and knowledge sharing campaigns. Because of MACH's successful approach the NGOs working with MACH are exporting the ideas to other programs of a similar nature in which they are involved.

15. Sustainability of the Project Activities:

15.1 MACH will end in October/2006. After completion project activities should continue and sustain. Sustainability has become the concern of both GOB and Donor. Sustainability means that organized groups or individuals of the groups will be able to operate independently self employment IGAs rendering return on such levels that they can sustain the family either as main income source of the family or being supplementary to other employment . The Resource Users Groups/RMOs will have access to necessary capital either from bank or from their own groups capital or endowment fund and IGA return. They will have access to other inputs and extension services required to operate the IGA, access to required technology and to the market and they will have acquired the necessary skills to run their enterprises profitably.

15.2 By achieving such levels of sustainability for the RMOs and RUGs it is expected MACH can phase out its assistance to the RMOs and RUGs by the year 2006 leaving behind mainly a credit intervention which will be financed by funds to be transferred to them and the endowment fund.

15.3 It is envisaged that with the full force of interventions from MACH reaching out to the organized groups , the project will by then have empowered the group members to manage their IGAs largely on their own. From the perspective of the group, phasing out will , however, be gradual starting from 2004-05. The group members who have reached economic sustainability of their enterprise will from then onwards be "graduated" i.e. MACH will reduce and finally discontinue its assistance to such members. The graduated entrepreneurs will continue to remain group members and they will be used to promote the development of other members.

15.4 MACH from the very beginning has taken steps so that RMOs and RUGs sustain. A sustainable wetland ecosystems management model is being followed by MACH. Over the last four years MACH activities have been implemented through community based RMOs and RUG organizations . On the question of sustainability of MACH activities Resource Management Organizations and Resource User groups activities have been incorporated at the local government level, namely Union Parishad and Upazila. Based on the MACH mid-term review conducted by a team that included MOFL and DOF personnel MACH has prepared exit strategies. As a result Union based committees have been formed and these committees will watch over RMO activities for sustainability . All RMO activities are now incorporated in the Union Parishad as well as the Upazila planning process. Further at the grass roots level Resource User Groups are involved in all decisions. The fundamental elements of MACH are awareness capacity building, organizational development and sustainability , maintenance of physical infrastructure, wetland resource management etc. These activities are of complex nature. However activities of the last few years indicate that the approaches envisaged in the beginning seem to be valid for sustainability . Nevertheless it will take some more time for the organization to be self reliant. At the grass-root level, RMOs, have been formed with the cooperation of entire resource user community . These organizations are registered with the Social Welfare Department and in every case these organizations work through local government Committees that include Upazila level government officials. So an administrative structure will be formed permanently at the field level so that administrative follow-up of the RMO activities will be possible. In this way an official relationship exists between the resource user organizations and government institutions that ensures future sustainability. The LGC meetings are held quarterly. This meeting reviews the last three months activities and determines the next three months activities. After review and through discussion they make recommendation and offer advice on various issues.

15.5 Financial Sustainability:

15.6 Wetlands in the area will be leased to the RMOs where sanctuaries will be established . Funding of RMO will come through tax collection by RMO from those who catch fish in the non-sanctuary khathas. In addition RMO funds will be generated vis planted saplings in khas lands, chara/jhara, wetlands, roadsides which will also provide funds. Loans from NGOs or project will be considered as a source of funding for RMO. Now the organizations will undertake activities utilizing these funds. CARITAS provides credit funds for income generating activities for poor fishers and other poor resource users as part of the overall project goal of reducing dependence on scare natural resources. After the completion of

MACH project, the revolving credit fund will remain with beneficiaries and be deposited with the Apex committees as agreed by the government. Organizational expenses will be met by earning money through a service change. As the organization formed by MACH are closely associated at the Union and Upazila levels the GOB will always keep in touch and be able to provide advice and guidance to the organizations.

15.7 Endowment Fund for sustainability:

12.8 Endowment fund will be created for sustainability of the management of the investments made during the project period. Without this fund sustainability after completion of MACH cannot be secured. The sustainability of MACH institutions at the site and national levels requires that the Upazila level and future RMO and RUG activities continue after completion of the project. For this some funds are necessary to help support the institutional structure set up and provide fund for continued improved resource management by the committees. An amount of Tk. 520.00 lakh has been provided in the project as endowment Fund. This has been created to ensure that funds are available in the long run for a variety of wetland related activities. Overall control of the fund will receive with the government.

15.9 The principal amount of the fund will be under the control of DOF. This fund may be shifted to other areas for similar services by the government if any mismanagement of fund is reported and local bodies do not require at some point of time in the future.

15.10 UWRMC Support Fund:

15.11 MACH will form a group at the upazila level that will continue to meet regularly to oversee activities of RMOs and RUG apex groups. This group will/replace the existing MACH LGCs. In addition the committee will provide recommendations on wetland activities to the UDCC. This fund of Tk. 40.00 lakh is for the logistic support of this committee. The UFO will be the member-secretary of the committee and responsible for ensuring regular meetings take place. It is suggested that UFO therefore has control of the interest on the fund and that fund release will require a joint signature of UFO and UNO.

15.12 UWRMC/RMO Fund :

After the completion of MACH the RMOs will need to continue and improve wetland management activities. These may include excavating beels and khals , planting wetland or riparian trees or even stocking lost species and other relevant physical activities. MACH estimates that each upazila involved could have activities amounting to a total of Tk. 3.00 lakh per year. MACH suggests that the endowment fund be made available to provide this level of annual funding to support wetland management proposals approved by the co-management setup. RMO will submit proposal to be reviewed, approved and funded by UWRMC. Not every RMO will have activities every year. Activities will be overseen by the UFO. Activities will require the approval of UWRMC and the signature on the check of the UFO and UNO. Provision for fund will be Tk. 240.00 lakh.

15.13 CBO Network:

15.14 The GOB IPRSP, the policies of DOF, USAID and others support community management of wetland resources. There is a need for the community based managers of those wetland -beels, baors and river sections-to communicate with the government . As a result , all of the various DOF supported wetland programs in the country are considering

joining to support the formation of a national wetland CBO network. The formation of these organizations is under consideration as a paint of the exit strategy of the project.

15.15 A provision of Tk. 240.00 lakh has been kept as CBO-Wetland Network Fund. A committee may be formed comprising members from government and CBOs to oversee the operation of fund regularly. This fund may also be withdrawn by the government if any misuse is reported.

15.16 Operation of Fund:

15.17 MACH recommends that the endowment fund be deposited in a nationalized bank branch in the four Upazilas as a fixed deposit. Users at the upazila level will only have access to a portion of the interest. 90% of the interest will be available for activities while the other 10% will go back into the fund as a hedge against inflation. The funds will be released based on approval of the Upazila Wetlands Resource Management committees previously the LGC and under the signature of the UFO and UNO.

16. Case Studies:

16.1 Case studies of 5 RUG members were conducted. The particulars of the case studies with regard to the beneficiaries from different schemes are given at Appendix - 4.These studies show how the project helped in changing the economic and social status of the rural poor fishermen and vulnerable groups.

17. Findings and Observations:

17.1. MACH project consists of two parts-MACH main project and Investment Support to MACH . Both are simultaneously under implementation. MACH main project is being implemented outside ADP under an agreement with USAID while the Investment Support to MACH project is an ADP project supported by USAID. So virtually two systems are followed for one project . This is not consistent with the planning discipline .This is contradictory and it has affected the project progress. One uniform system should have been followed in order to avoid that. As specialty in the execution system of MACH the ISMP part could be operated in the same way as that of initial MACH project.

17. 2. MACH main project is due for completion in October 2006, while the Investment Support project will end in June/2005 as per approved PP. Both projects are interrelated and implementation of one is dependent on the implementation of the other. These two projects are complimentary and supplementary to each other. The targets set for the activities envisaged in the PP cannot be completed within the stipulated time of June/2005 due to delay in the approval of the PP and finalization of modalities for release of fund through GOB fund release system resulting in late start of implementation of Investment Support project. So in order to complete the incomplete works and to bring synchronization between the two projects , it is necessary to extend implementation period of Investment Support project upto the time the main project has been extended i.e. upto October/2006.

17.3. It is observed that the targets set in the PP were indicative and these were ambitious and overestimated. The targets were not based on actual needs and realities in the field. These cannot be completed within the remaining period of project implementation. Progress up to October 2004 is only 35% of the targets. The targets should be made realistic and set in such

a way that these can be implemented within the revised project period. The activities which can be implemented within the project period may be seen at Appendix-5 .

17. 4. The project was approved at an estimated cost of Tk. 3456.00 lakh.An amount of Tk. 836.68 lakh was utilized upto October 2004 leaving a balance of Tk. 2619.32 lakh to be spent during the remaining period of the project. No additional fund will be required for this period. Only some adjustments and interhead changes within the total cost and components will be necessary.

17.5. The project identified wetland management areas around which Resource Management Organizations (RMOs) are organized. RMO is created by villagers living within the wetland management area. RMO is responsible for the management of the wetland resources and implementing the physical intervention such as establishment of sanctuaries, excavation of silted area of beel, plantation etc.The management intervention include total ban on fishing in sanctuaries, ban on fishing with certain types of gear and for specific species in all areas during late dry season /early monsoon, stop on de-watering etc. Some RMOs are collecting fees from fishers through collection of toll on fishing . This earning is used for the operation and management of the organization to some extent. There is no regular source of revenue to run RMOs affairs. Nor they are provided with loans . They depend on fishing on the beels where fishing is allowed. So far 16 RMOs have been formed. They are in the process of consolidating their activities. They have not yet been able to become financially viable. They are required to meet the office maintenance cost, meeting cost, conservation of sanctuaries, travel cost, katha setting, employment of guard, audit fees etc. RMOs sources of income are subscription from members, collection of toll/fee from fishermen for use of different types of fishing gears, income from selling of RMO's resource e.g sale of katha, fish, tree etc. Income from these sources is not sufficient to meet the operation and maintenance cost of the sanctuaries. Therefore, to support RMO's activities after completion of the project, a fund may be created under the Endowment Fund of MACH project. Special provision should be made for Chapra-Magura-Jaduria permanent sanctuary that consists of 122 acres of land and will face great financial crisis after completion of the project. RMO of Borogangina beel is lacking fund to bear the management cost of this sanctuary. An exercise may be worked out for all RMOs including Borogangina by MACH about the requirement of fund for their operation .A mechanism should be developed by MACH for operation and management of this Fund.

17.6 The mid-term evaluation is taking place in the middle of 3rd year of the ISM. MACH is working with a new approach of managing wetland resources by the community people in partnership with local government. The approach includes raising awareness of the community people for change with the expectation that this will bring benefits for them . So far the approach is concerned , it seems to be valid and is progressing well in achieving the objectives. Success of the project depends on the development of strong institution to manage the wetland resources after the completion of the project. Without appropriate institution /organizations, over exploitation of wetland resource is likely to resume. That is why MACH is giving emphasis on the development of strong organization /institutions at the local level . The organizations/groups that have been organized are working well. The evaluation team got evidence of this during field visit while discussing with RMOs and RUGs. But they need support and guidance from the project for some more time for stabilization .There is still about two years to go before the project ends in October/2006 . Now MACH is working for consolidating group activities with a view to withdraw support from the project gradually. The groups will be left to work independently and where they are stuck up the project will come up with help.

17.7 Training on activities relating to AIGAs was provided to the RUG members. It has been clear to the committee during field visit and discussion with all concerned that training given by the project was presented well by the staff and received well by the beneficiaries. Training is critical input for income generating activities . The provision of training and skill development is very popular among the group members as the training can bring more benefits for them. It enhances knowledge and skill. Timely provision of appropriate training increases the capacity of the group members about group activities and to repay the loans. Skill development and vocational training are in high demand from the group members. But the project could not provide the required training according to their demand. So training should be need -based and skill development should be given priority by MACH. These training facilities should be provided for both RMOs and RUGs members evenly.

17.8 Credit is considered an essential input to develop IGAs. Generally members of a group became eligible to receive credit for IGA about 5-6 months after formation of the group. Interest is paid on annual basis and the current interest rate is 12% which is lower than the rate of many other NGOs. The loan is repaid in 45 installments. Still some of the group members are outside loan coverage . First installment should start after several weeks when return from loan investment starts . Recovery rate is over 97% which should be maintained. More member should be covered under the credit program, provided the group members maintain group discipline and abide by the project rules. Credit is available on demand. Processing of credit application does not take more than two weeks. No bureaucratic obstacle causing delay has been reported during the field visit. A credit operation manual has beenshould be prepared by the project. The process of transferring the credit fund to the organization should be started by phases. Initially the process should be started on pilot basis with one organization in each site.

17.9 Group members are encouraged and motivated for regular savings. From the very beginning group members are being made aware through motivation of the importance and utility of savings which has been identified as a means for capital formation .Through regular habit of savings groups members can demonstrate their involvement with active participation. It represents a process which enables people to have more confidence on themselves. Each of the group members contributes at least Tk. 5.00 per week. A total of Tk.5.6 million has been accumulated as savings which can be considered as a sizeable amount. This can be used for the purpose of providing credit, if necessary . For utilization of savings fund a saving operation plan is being prepared by the project.

17.10 The project carried out a variety of demonstration in the field of agriculture related activities to encourage group members and others to undertake AIGAs and make them more productive and profitable . After completion of each demonstration activity an awareness raising program (Farmer Field Day) helped to disseminate useful aspects among interested farmers. The project provides inputs such as fingerling, seeds or fertilizers and technical assistance and the beneficiary households provide the labour and the land. During field visit the MTR committee observed that the demonstration were well accepted by the people and the demonstration are having widespread impact. It has a positive impact on incomes, production and environment . Through demonstrations, vegetable gardens and plant nurseries have been made popular. The overall results have been encouraging . People around the agriculture field were encouraged to see the good results achieved by demonstration . They tried to adopt the program. This was due to sincere efforts of CNRS-CARITAS staff and the cooperation of the participating farmers. The practice of demonstration may continue, on the basis of necessity as far as possible . It is a key activity in diversifying agricultural related activities .

17.11. Most of the beneficiaries are illiterate . They do not know how to read and write . Illiteracy of the group members makes them dependent on others which can be avoided if education can be provided to them . MACH among others has identified literacy as a major factor in empowering economically disadvantaged wetland users. As a result of literacy program participants have been able to a limited extent to read and write Bangla and maintain their day-to-day accounts. The achievement in the literacy program has been encouraging which should continue during the remaining period of the project. The project should educate all illiterate members. If resources do not permit at least a few members of each group should be given facility of education.

17.12 In order to maintain sustainability of the management of the investments made through the project, it is necessary to create an Endowment Fund . Without this fund sustainability of the project activities after completion cannot be secured. Endowments will be established to ensure that funds are available in the long run for a variety of wetland related activities. The Endowments will be established in such a way that MoFL and DOF will maintain ultimate control of the funds . This fund will be used for support of UFC, RMO activities, permanent sanctuaries and CBO wetland Network. The idea of creating this fund may be considered as pragmatic considering the issue of sustainability. But a mechanism for strong and secured management of this fund should be developed by MACH before the end of the project.

17.13. The project was designed to ensure direct access of the poor fishers to wetland resources and their sustainable management . The fishers are very poor and have no or very little agricultural land for cultivation. Fishing was their main profession and they used to live on fishing and fisheries related activities. MACH project has been able to bring direct benefits to the communities whose members are enhancing incomes, getting access to resources including credit, training and social services and gaining rights over fisheries and expertise in managing these fisheries on a more sustainable basis. The fishers have been organized into groups/committee. In the initial stage of formation, they needed guidance , advice and close supervision. It takes times to develop leadership and managerial capabilities to run group activities. Several years are required to reach maturity of the groups. The groups need to be supported for several years before it become self-reliant. The project has been able to improve their capabilities of providing leadership for group affairs. Management of the groups /organization seems to be transparent than before. They follow a regular fishing system. The project has been able to raise their awareness and social consciousness . They are passing through a process of learning and managing affairs of their own with the active support and cooperation from the project. Sustainable use and management of wetland resources can only be achieved where the community member are active participants in their management. The project has sought to empower fishing communities to become managers of these fisheries and thereby to ensure a more equitable distribution of benefits from fishing and other income generating activities. It is the general impression that the project is moving towards the right direction.

17.14. During field visit DOF officials at the district and upazila level informed the evaluation team that in the beginning of MACH they were not involved in MACH activities. It is true that the DOF officials were not very much in the initial stage, kept informed of MACH activities going on in the field. But this situation has changed At present they are actively engaged with the project activities because DOF officials, particularly at the upazila level will be the major factor in the sustainability program after completion and they will have to play key role in running the CBO's. In the 1st year there was little interaction between them and coordination and liaison between them was minimal. In order to establish close

linkage and better liaison , the DOF officials and MACH staff should continue to share experiences and regular exchanges of views. District level DOF officials should be kept informed of latest development. DOF personnel should also regularly visit MACH activities. Field level DoF staff should show interest to be involved in MACH activities.

17.15. Though this is a government project, it is being implemented as a special nature of project by a USA based International NGO Winrock International with 3 local participating NGOs (BCAS, CNRS & Caritas). Funds for this program are derived from monetized wheat provided to the GOB by USA. Wheat monetization funds are deposited by USAID in the American Express Bank, Dhaka. According to the ADP allocation, a Project Implementation letter is sent by the USAID to ERD for release the fund. ERD then accepts the proposal and sends it to the Finance Division for authorization. Finance Division sends the request to the Bangladesh Bank. For release of fund, one Deputy Secretary of MoFL has been designated as PD whose role is limited to the release of fund and adjustments of expenditure only. Overall Financial Management of the ISM is being operated as per original MACH system by Winrock International. Fund is released on quarterly basis following GOB procedures of fund release of other projects. The procedure is time consuming and causes delay. Since this is a special nature of project, it needs special treatment and arrangement. Funds provided in the ADP need to be released at a time in the beginning of each financial year for the sake of better execution of of works. No problem with regard to the fund release of MACH main project arises since this is outside ADP project. The problem with regard to release of funds at a time on the basis of ADP allocation may be resolved in a joint meeting with all concerned i.e, USAID, ERD, Finance, MoFL, Planning Commission and MACH authority. MoFL should initiate action on this. It is noted that in the PIL signed by both the governments they agree to release the entire fund at a time but this has not been followed.

17.1 For sustainability of RUG's , financial support has been arranged. Credit funds will remain with the groups. Accumulation of savings will continue. So it is quite clear that from financial point of view that there will be no problem of funds. If the organized group can manage the resources properly with honesty and sincerely, there will be no problem of sustainability. The problem will arise if the groups cannot independently manage the funds. Emphasis should be given on the consolidation of groups, management of their administration and funds . The measures taken by MACH for sustainability deserve appreciation.

17.17 The project is due for completion in October/06. There are about 22 months to go before completion. But sustainability of the groups after completion of the project is the main concern of GOB and a great challenge for the program. In the beginning neither groups members nor program staff were aware about how the micro credit, group savings and the IGAs will be operated after completion of the project . A committee was formed by MOFL to recommend on how micro-credit and savings fund will be continued after the project is over. The committee made several recommendations of this issue which was accepted by the GOB and activities on the basis of the recommendation are going on. Results are encouraging. After the MACH project period, the revolving credit fund will remain with the beneficiaries and be deposited with the Apex Committees (FRUGs) . Organizational expenses will be met by earning income through a service charge. So the project has taken adequate financial and other measures for sustainability . It is clear that there will be no short of funds to run the whole affairs. The only thing the groups will need guidance and advice from someone. That measure has been taken and there will be skeleton field staff to guide them and to be paid out of the interest recovered by the groups. Some time will be required to see the sustainability of the groups after completion without support from outside. So far, the project has been

successful with regard to the fulfillment of the goals and objectives. Adequate investments were made in the areas. There was support from the GoB local government, four NGOs worked in the area for a long time. Close supervision and monitoring helped in achieving the success during the pilot period.

17.18. MACH has developed an exit strategy which includes program for attaining sustainability of the groups. Sustainability of CBOs is a difficult task and it takes quite a few years. The project has 22 months to go before completion. Format of new groups other than those which are under process of formation should not be encouraged .Emphasis should be given on the consolidation of the group activities rather than forming new groups.

17.19. It was observed that RUG consists of members who are more or less homogenous in nature while RMOs include members who are heterogeneous. Normally homogenous groups work well. It is difficult to work with heterogeneous groups and reach consensus. So far no such problem with regard to the RMOs has been reported . MACH has been very much cautious about formation of RMOs. Emphasis have been given on the formation of organization with likeminded people having homogeneity as far as possible.

17.20 Awareness raising activities relating to the potential of natural flood plain resources are being implemented by the participating NGOs-CNRS and CARITAS. CNRS and CARITAS organize awareness raising activities for the communities living around the beels selected for inclusion in the program. CNRS organizes awareness raising activities through cultural programs, demonstration and annual rallies while CARITAs organizes awareness raising activities at para and village meetings. CNRS concentrates mainly on formation of RMOs while CARITAS concentrates on group formation and management , skill training, demonstration and development of IGAs for RUGs. Awareness raising activities may be maintained. The awareness raising activities of CARITAS and CNRS should be better coordinated closely by the Site Coordinators to ensure that consistent and uniform message about MACH activities are disseminated.

17.21. There is a number of industrial plants in the Kaliakoir project area. The Turag-Bangshi/Kaliakoir community identified industrial pollution as one of the major factors affecting their wetland resources. Industrial effluents are widely threatening local fisheries, wetlands, water supplies and human health. Most of the effluents flow into Ratanpur canal, which in turn connects with Mokosh Beel . MACH undertook activities to clear up the pollution through a dialogue with the industries. So far dialogue has been partly successful. The dialogue should continue with the industrialist to solve the pollution problems. Out of these industries, only three have effluent treatment plants. Owners of other industries in the area should be persuaded to establish one or two model ETP for demonstration purpose.

17.22. Success of the project depends on the proper management of the project activities and commitment and dedication of the staff. The project is being implemented under close supervision of MACH Authority. Adequate investments were made in the project areas. There are NGOs and project staff involved with the project works. Local administration extended their full cooperation for the success of the project. The beneficiaries have shown keen interest for their socio-economic development and are fully cooperating with MACH authority. There was no dearth of fund . Project activities were closely monitored. So there was little chance of failure during the pilot period. Beneficiaries have benefited from the project. It seems that they will sustain even after the closure of the project. Positive trends have been observed in fish production as well as raising income of the group members.

17.23. This is innovative and demonstration project and not a production project. For implementation of the project of this nature and magnitude close supervision, commitment and monitoring are necessary .The committee was of the opinion that the project authority and the partner NGOs performed their assigned responsibility properly . They regularly visited the project sites and monitored the activities. Besides, different local and supervisory committees were formed by the project to supervise and monitor the project . This is evident from the reports of the project and other agencies. During field visit the team got evidence of this.

17.24. The project has provision for facilities of social services like health care through supply of tubewells and sanitation. But the provision of fund for social services is very inadequate compared to the needs of and demand from the beneficiaries . Social service activities are very popular among the group members . The facilities which have been so far provided through social services have benefited the beneficiaries. Since this has been a very popular activity and useful , the facility should be extended covering more new beneficiaries if fund allows.

17.25. There are many haors and beels in Bangladesh where management of wetland resources is a great problem. MACH has been a successful project and through trial and error MACH has finally developed a model for proper management of wetland resources through CBOs. This model can be replicated in developing other haors and beels for which similar type of projects like MACH may be undertaken . MOFL may take initiative identifying the areas. MOFL may have dialogue with USAID through ERD regarding financing the future projects.

17.26. While the team was discussing with Balla RMO, Sreemongal, it was revealed that lease value of Balla beel has raised to exorbitantly high. Due to which the organization has been facing financial crisis to run the organization paying the high lease value. This needs to be considered by DC, Moulvibazar or MoL.

18. Recommendations

18.1. The policy of including one part of the same project in the ADP and keeping another part outside ADP may be avoided in future. There should be uniform policy with regard to this issue in order to maintain planning discipline.

18.2. Implementation period of Investment Support to MACH needs to be extended up to October/2006 in order to complete the incomplete works and to bring synchronization between MACH main project and Investment Support to MACH, as each part of the project is supplementary to each other.

18.3. Physical and Financial targets of Investment Support to MACH should be made realistic so that they can be completed within the extended period of October/2006 and the PP should be revised accordingly. The realistic targets as recommended by the evaluation team are given in Appendix -1, page-38 of the report.

18.4. Credit should be made available to the beneficiaries with the aim of AIG and poverty alleviation. Credit operational plan for management of the fund after completion of the project should be finalized by MACH-Caritas immediately and the process of transferring fund (revolving and earned interest) to the organization should be started on pilot basis in each of three sites by June 2005. If possible and feasible, repayment schedule of the credit

provided to the beneficiaries should be matched with the return from the AIGAs. More beneficiaries should be covered under credit program. Credit fund should be disbursed to the RUGs expeditiously.

18.5. An operation plan for management of the savings fund of RUGs after completion of the project should be finalized by MACH-Caritas on priority basis and the process of handing over to the organization should be initiated on experimental basis in each of three sites .

18.6. Within available resources of the project more beneficiaries should be covered under literacy program. If resources do not permit, at least a few members of each group should be provided with literacy facilities.

18.7. Agro-demonstration activities should be continued on the basis of necessity as far as possible.

18.8 The intensity of awareness raising activities may be maintained to keep momentum of development and to enhance knowledge and capacity of the RMOs/RUGs. The awareness raising activities should be continued under available fund resources.

18.9. Endowment Fund for the Upazila Fishery Committee UFC (previously the LGC or Local Government Committee) support, RMO activities, permanent sanctuary and CBO Wetland Network should be established in order to maintain sustainability of wetland related activities. Special provision should be made for operation and maintenance of Chapra-Magura-Jaduria permanent sanctuary after the end of the project. A strong and secured operational plan for management of Endowment Fund should be prepared by MACH at least 6 months before the end of the project. An exercise may be worked out for all RMOs by MACH about the requirement of fund for their operation. The provision of endowment fund should be included in the revised PP.

18.10. Water-bodies should be leased to the RMOs on a token lease value and for longer period (initially for 15 to 20 years). The Ministry of Fisheries & Livestock should take initiative on this to ensure the longer term lease from the Ministry of Land.

18.11. Appropriate measures including dialogue with the industrialist in the Kaliakoir area should be continued to work towards solving the problem of industrial pollution. The owners of the industries should be persuaded to establish effluent treatment plants. BCAS should prepare a realistic action plan in consultation with MACH and partners and develop strategy for proper implementation.

18.12. In order to facilitate uninterrupted implementation of project activities, the issue of release of fund provided in the ADP at a time in the beginning of each financial year should be resolved in a joint meeting with all concerned.

18.13. Formation of new groups of RUG other than those which are under process of formation should not be encouraged. Emphasis should be given on the consolidation activities for the groups.

18.14. Concerned senior Upazilla level Fishery Officer should be actively involved with MACH activities. District Fishery Officer should be kept informed of latest development. DOF officials should regularly visit project activities and should take more interest in

collaboration with MACH personnel. A minimum support for TA/DA at Upazilla & District level may be provided from MACH for visits to the sites.

18.15. Emphasis should be given on the gradual phasing out of the project support from the RMOs and RUGs so that they can become more involved in the management of local resources independently. Whereever they are stuck up, the project should extend cooperation.

18.16. Cross linkages should be established through visits of one another's work by NGOs, groups and fishery officers inter or intra sites.

18.17. Electronic media and press, folk songs, seminars' workshop, rally , drama, documentaries, etc. should be used for disseminating ideas and success of co- management.

18.18. After expiry of the normal functioning of the project the groups/organizations will need support, guidance and advice for some more time which should be provided by existing local partner NGO consortium as follow-up activities. A provision should be made in revised PP for funding follow-up activities.

18.19. Since MACH is approaching towards completion, the project should not be expanded into new areas other than the existing sites. As per exit plan of MACH closing of the project activities need to be followed.

18.20. Social services activities like health care and sanitation may be continued for the new Resource User Groups only.

18.21. Need based training program to be continued for RMO, RUG members and other potential community members.

18.22. The model developed by MACH should be replicated in developing other wetlands. MoFL should take initiative to identify the potential wetlands for co-management system. MoFL may also start dialogue with USAID through ERD regarding financing. The future strategy of the DoF for management of wetlands and inland fisheries should incorporate these approaches.

18.23. Due to regular increase of lease value by certain percentage rent of some water bodies have gone high exorbitantly. These lease value of water bodies leased to RMOs to be reviewed and reduced to a reasonable amount.

18.24. Additional beel should be allocated for Baragangina RMO for meeting the expenses of maintaining central permanent sanctuary-Chapra-Magura-Jaduria.

18.25. Site-wise federation of RMOs may be formed to make them institutionally strong.

18.26. Lease of water bodies may be fixed by following categories in consultation with the Ministry of Land.

a) Whole beel declared as sanctuary --- on a token lease value.
b) Part of Beel maintained as sanctuary ---- on proportionate reduction of lease value.

18.27. Final evaluation of the project should be carried out at the end of the project to assess the degree of overall success of the project.

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Appendix -6

List of RMOs

Site	Beel RMO	Stream RMO	Daha/Kum RMO
1. Hail Haor	Sanada RMO Jethua RMO Balla RMO Dumuria RMO Agari RMO Kajura RMO Borogangina RMO Ramaia RMO (Under process)	Alia Chhara RMO Boula Chhara RMO Jaag Chhara RMO Joita Chhara RMO Ful Chhara Committee	--------
2. Turag-Bangshi	Mokosh RMO Turag River RMO Alua RMO Goallar River RMO (Under process)	-------	Naler Daha Committee Moisher Daha Committee Burir Daha Committee Nawkhola + Dholi Daha Committee Bastoli Daha Committee Golachipa kum Committee Lalkhar Kum Committee Gabtoli Sayedpur Kum Committee Bamoner Ghuni Committee Bhangi Danga Daha Committee Doika Daha Committee Boro Daha Committee Folimara Daha Committee Dilarhari Daha Committee Krishnar Hari Daha Commitee Gurerhari Daha Committee
3. Kongshaw- Malijhee	Kewta RMO Takimari-Dharabashia RMO Dholi-Baila RMO Bailsha RMO	Kalaghosa-1 JRMO Kalaghosa-2 JRMO Nakshi-Mala JRMO	Bahar Ali Kur Committee Gaimara Kur Committee
Total (No):	16	8	18

Appendix -7

List of Leased Water bodies to RMOs

Site	Leased Waterbodies	Location
1. Hail Haor	Sanada Beel	Sreemongal
	Jethua Beel	do
	Balla Beel	do
	Agari Beel	do
	Kazura Beel	do
	Lori	do
	Arardor	do
	Jurmehedi	do
	Laler Doba Beel	do
	Baragangina Canal	do
	Barkandi Beel	do
	Chapra Magura Beel	do
	Jaduria Beel	do
	Budaidoba	do
	Ramai Beel	do
	Medi Beel	do
	Khaiya Beel	do
	Borokuma	do
	Chotokuma	do
	Charurdoba and Chatladoba	do
	Latua-Matra and Kankata	do
	Dumer Beel	do
	Dholidoba	do
	Patradoba	do
2. Turag-Bangshi	Mokosh Beel	Kaliakoir
	Turag River	do
	Alua Beel	do
	Kalidaha Beel	do
3. Kongsha-Malijhee	Kewta Beel	Sherpur Sadar
	Dhali Beel	Jhenaigathi
	Baila Beel	do
	Bailsha Beel	do
	Awra Baura Beel	Sherpur_Sadar
	Malijhee River	Jhenaigathi
Total:	34 Nos.	

These groups are utilizing best resource management practices on more than 1900 ha of rainy season wetlands and more than 50 km of streams.

Appendix-8

Summary Profile of RUGs

Site	No of groups	No of members	Remarks
1. Hail Haor			
(a) Female:	31	712	
(b) Male:	56	1184	
Sub-total:	87	1896	
2. Kongsha-Malijhee			
(a) Female	30	656	
(b) Male	78	1624	
Subtotal:	108	2280	
3. Turag-Bangshi			
(a) Female	17	337	
(b) Male	34	681	
Subtotal:	51	1018	
Total:	246	5194	

Average membership per group: 20

Appendix-9

Wetland Sanctuaries

Name of the Water-body	No of Sanctuaries	Area (Acre)
A. Turag -Bangshi Site		
1. Mokosh Beel	9	5.24
2. Turag River	3	5.80
3. Alua Beel	7	12.94
4. Goliar Khal	4	3.00
Sub-total:	23	26.98
B. Hail Haor Site		
4. Sananda Beel	3	0.42
5. Balla Beel	4	5.06
6. Jethua Beel	2	1.04
7. Kajura Beel	1	0.33
8. Agari Beel	5	2.64
9. Baragangina Canal	5	23.53
10. Dumaria Beel	6	6.63
Subtotal	26	39.65
C. Knogshaw-Malijhee Site		
11. Kewta Beel	4	0.92
12. Takimari-Dharabashia Beel	8	6.28
13. Balia-Dholi Beel	9	4.91
14. Balisha Beel	2	2.00
Subtotal:	22	14.11

Total (A+B+C) : 72, Area (Acre) : 80.74

Appendix-10

Accomplishments of Khal and Beel Schemes under ISMP

Site	No of scheme	Length of scheme khals in meter and Beels in ha	Percentage of Physical Progress
Khal Schemes			
Hail Haor	4	4406	81%
Sherpur	4	3333	100%
Kaliakoir	4	8000	98%
Sub-total:	12	15739	96%
Beel Schemes			
Hail Haor	6	2.37	88%
Sherpur	6	4.30	99%
Kaliakoir	5	9.77	89%
Sub-total:	17	16.44	92%
Total	29	----	95%

Appendix-11

Detailed Target and Achievements

1. Wetland Resource Management Activities

Activity	Unit	Targets Nov/03 to Oct/04	Achievements Nov/03 to Oct/04
1. Area under Improved Management	Hectare	800	820
2. Increased Production	Kg/ha	195	217
3. Increased Bio-diversity	Fish(no) Plant (no)	3 2	-----
4. Re-introduction of fish fingerlings	No	850000	472276
5. Re-introduction of fish species	No	4	3
6. Establishment of new sanctuaries	No Area(acre)	5 4.00	6 5.00
7. Lease of waterbodies to RMOs	No Area(acre)	9 165.00	12 185.57
8. Riparian Habitat Improvement			
(a) Riparian Plantation (Chhara, River, Canal)	No km Area(ha)	81100 35.87 2.15	46324 10.05 15.58
(b) Swamp Plantation	No km Area(ha)	24900 0.8 4.95	72956 17.99 16.89
(c) Institution and homestead plantation	No	5700	1475
(d) Road side Plantation (wetland) Area)	No km	167000 169.5	84121 90.30

Activity	Unit	Targets Nov/03 to Oct/04	Achievements Nov/03 to Oct/04
9. Habitat Restoration			
(a) Beel (Rehabilitated/ Re-excavated)	Area (ha) No	34.27 17	16.44 17
(b) Canals (Rehabilitated/ Re-excavated)	No Length(meter)	12 15743	12 15739
(c) Aquatic Habitat (Beel & khal converted from seasonal to perennial)	Area (ha) No	200 16	367.30 29
10. Floodplains/Wetlands Resource Management Organization (RMOs)			
(a) Formation of new Chhara/ Jhara/Kum/Daho RMOs	(No)	1	1
(b) Potential Resource areas for management (beel/kum/Doha)	(No)	2	1
(c) Participatory Community Planning		16	16
----- Resource Planning Meetings	(No)	13	8
(d) Plantation Committee Meeting	(No)	---	6
Strengthening and Capacity Building of RMOs			
(a) Registration of RMOs	No	1	1
(b) Constitution amended or revised	No	15	under process
(c) Constitution for Chhara	No	5	5
(d) Training Module developed for RMO capacity building	No	6	----
(e) RMO Review workshop/ Assessment	No	16	16

Activity	Unit	Targets Nov/03 to Oct/04	Achievements Nov/03 to Oct/04
(f)Refresher training	No	18	----
(g) EC Meeting of RMO	No	179	136
(h) GB Meeting of RMO	No	71	62
(i) CRMO Meeting /Doha/Kum Committee Meeting	No	276	109
(j) Resource Management plan implemented	No	19	14
(k) RMOs Resource Mapping and Inventory done	No	12	4
(l) Community monitoring program established	No	16	14
(m) No of local government meetings where management issues discussed	No	160	130
Awareness Program:			
(a) Para/Village/UP Upazila level	Program (No) Participant (No)	833 16760	760 15465
(b) School Program	Program Participant	175 3700	126 1508
(c) Drama/Baul Songs/ Video Show/Day/ Others	Program: Participant	95 34400	35 28955
(d) Knowledge Experience sharing among GO/NGO /RMO/Community	Program (No): Participant (No)	251 2645	407 7865
(e) Awareness meeting on Watershed	Program (No) Participant (No)	4 500	4 577
(f) No of individuals reached by public awareness	Program (No) Participant (No)	1358 58005	1332 54370

Activity	Unit	Targets Nov/03 to Oct/04	Achievements Nov/03 to Oct/04
Watershed Management			
(a) Pineapple demonstration plots	No Area (acre)	15 37	15 37.57
(b) Farmers under demonstration	No	2	7
(c) Expansion of contour system of cultivable pineapple	Area (Acre)	5	37.57
Livelihood Generation			
(a) No of RUG	No	20	21
(b) No of Members	No	505	596
(c) Group Savings	Lakh Tk.	10.90	19.29
Training			
Group Development.			
(a) Group Management	Batch Participant	25 500	17 296
(b) Leadership	Batch Participant	14 500	7 296
(c) Accounts keeping	Batch Participant	12 240	5 100
(d) Resource Awareness	Batch Participant	25 500	16 315
Skill Development for IGA , Demonstration & Enterprise	Batch: Participant	52 800	33 508
Credit:			
(a) RUG member getting loan service	No	350	365
(b) Total loan disbursed	No	2500	2498
(c) Disbursed Amount	Lakh Tk.	131.00	185.21
(d) Realized Amount	Lakh Tk.	110.00	181.90

Activity	Unit	Targets Nov/03 to Oct/04	Achievements Nov/03 to Oct/04
Enterprise Loan			
(a) Members getting loan	No	123	106
(b) Disbursed Amount	Lakh Tk.	28.35	24.76
(c) Realized Amount	Lakh Tk.	5.30	6.32
(d) Supplemental Income Increase	Tk.	2500	3518
Health Care			
(a) Tubewells distributed	No	30	-----
(b) Pit Latrine Distributed	No	150	-----
Education			
Adult Literacy course conducted	No	25	24
Child School	No	2	----
Demonstration Activities			
(a) Pond Culture/Pond nursery/	No	77	56
Madrazi owal Katchu/Vegetable	Area (decimal)	470	516
(b) Jujubee buding (Farmers)	No	130	101
(c) Roadside Plantation			
(i) Length of road	Km	10	9
(ii) Sapling Planted	No	10000	9035
(d) Plant Nursery			
(i) Farmers engaged	No	-----	8
(ii) Sapling Produced	No	190000	87112
(e) Homestead Plantation			
(i) Members selected	No	900	400
(ii) Sapling distribution	No	4500	1200
(f) Fruit Garden			
(i) Farmers engaged	No	15	6
(ii) Saplings Planted	No	300	105

Note: There are no specific total targets for the project. Targets are fixed on annual basis and approved by the Steering Committee.