



A Government of Bangladesh Project supported by USAID

Why MACH ?

MACH PROJECT

Open Water Fish Catch Decline

- Major Carp and Large Catfish at least 50% Decline
- Almost 40 % of fish species for which there is information are in danger of extinction
- Healthy floodplain in region 250-300 kg/ha
- Three major Bangladesh floodplain surveyed by MACH in 1999 only 51-160 kg/ha
- Lost fish production and lost diversity means loss of income and nutrition of the poor

Fish Consumption Declines 1995-2000 (BBS)

- Average -15% Per Capita Decline
- Poorest people - 38% Per Capita Decline

Wetlands are Valuable Need Protection

- MACH has determined wetlands can be worth more than 33,000 TK/ha/year
- Natural fish reservoirs of the country
- Wetlands provide value in vegetation, environmental services and other non-fish products
- The very poor are the main beneficiaries receiving over 50% of benefits

Rural Dependency on Wetlands

- Up to 85 % of rural households fish
- Up to 60% rely on wetlands for food and other products in MACH areas

Forests & Water

- Forest Cover: Over Last 150 Years 90% forest Lost
- Wetlands: Last 40 Years decreasing in size as much as 50% of dry season wetlands lost
- Padma/Ganges River: 50-70% Flow Reduction in dry season
- Turag River: Possibly 30-40% Reduction in dry season flow
- Lost/Impacted Wetland Habitats: Possibly 4-6 million hectares due to FCDI, roads and others obstructions



Water Scarcity, Hail Haor 1999



Degraded Stream Feeding Hail Haor

MACH Goal

Demonstrate environmentally sound community management of wetland resources (fisheries and other wetland products) for the sustainable supply of food to the poor of Bangladesh.



Deforestation



Water Scarcity, Hail Haor 1999

MACH Findings

- Lack of dry season water in wetlands and rivers with further declines expected
- Lost connections between wetlands/floodplains and rivers
- Increased sedimentation of wetlands (beels), rivers & canals
- Increasing pollution
- Destructive fishing practices & over fishing
- Loss of habitat for fish and other wetland organisms



Hail Haor, Sreemangal, Moulvibazar



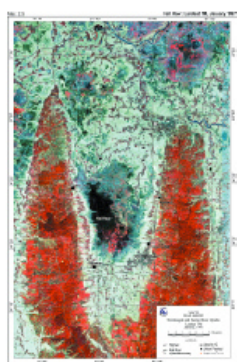
Management of Aquatic Ecosystems

Location and Approach

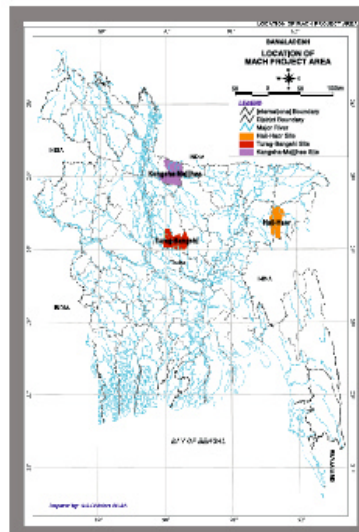
Project Locations

The MACH project is being implemented in three sites, Hail Haor in Moulvibazar district, Turag Bangshai in Gazipur district and Kangsha Malijhee site in Sherpur district. Hail Haor site is located in North East Bangladesh. Turag Bangshai is located in Central Bangladesh and Kangsha Malijhee is located in North Central Bangladesh in the East Basin of Bramaputra River.

Hail-Haor Site (HH):



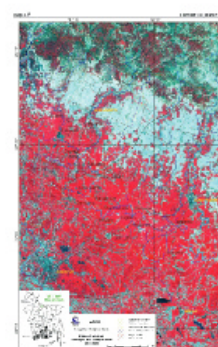
Hail Haor, in the Sylhet Basin, is located between the Balishara and Barshijura Hills in the east and the Satgaoan Hills to the west. Water that fills the haor originates from the surrounding 350 small hilly streams of which now only 59 streams are active. Hail Haor's only discharge point is the Gopla River that connects to the upper Meghna River by draining north out of the Haor. The MACH project is located in Mirzapur, Kalapur, Sreemongal, Ashidrone, Bhunobir Unions of Sreemongal Upazila and Nazirabad, Giasnager Unions of Moulvibazar Sadar Upazila. All these Unions and Upazilas are under Moulvibazar district.



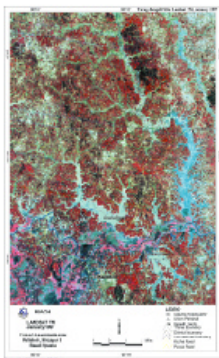
Kangsha-Malijhee Site (KM):



The Kangsha-Malijhee site of the MACH project is located in the North Central part of Bangladesh administratively under Sherpur district. Geographically the area is a part of Garo/Tura hills watershed and includes the catchment of the upper Kangsha and Malijhee river systems. The northern border of the project area is the base of the Garo and Tura hills. Once the area was covered with natural forests and now only remnants of the natural forest exist. Project is located in Jhenaigati Upazila, Sherpur Sadar Upazila and Nalitabari Upazila.



Turag-Bangshi Site (TB):



The lower Turag-Bangshi Basin is connected to the greater Jamuna Floodplain and at one time was connected to the old Brahmaputra through Daleswari-Pungli river. The MACH project area is located in Kaliakoir Upazila of Gazipur district and Azgona union of Mirzapur Upazila in the district of Tangail. The Turag-Bangshi site is typical of a floodplain/ wetland ecosystem where water emanates from a major river system, floods large areas at the beginning of the monsoon then recedes quickly leaving small pockets of water.



MACH Approach

- Collaborative Community Co-Management of Resources involving:
 - * Fishers, farmers, local leaders and elite
 - * Entire resource using community
 - * Local Government
- Considers an entire wetland including all elements (fish, plants, water etc.) and all factors impacting that wetland
- Supplemental Alternative Income Generation for poor resource users
- Policy Initiatives securing, land and water management with the community

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



Local Government Committee



Supplemental Income Generation Activity for Poor Fishermen



through Community Husbandry(MACH)



Project Components

Wetlands Resource Management



Fish Sanctuary Establishment

- Resource Management Organization (RMO) formation
- Sanctuary Establishment and Management
- Community imposed fishing bans during critical fish breeding times
- Habitat Restoration of beels and khals
- Restoring Watershed Function through Wetland, Riparian and Roadside reforestation
- Indigenous threatened species re-introduction
- Awareness building on resource management and conservation

As reduction of fishing pressure was likely to be a critical part of reviving floodplain fisheries, MACH included supplemental income-generating activities focused on the very poor, who still totally depend on fishing. More than 30% of those who directly benefit are poor women.

Community Development and Alternative Income Generation

- Resource User Group(RUG)) formation
- Credit and Savings Programs with poor people
- Supplemental Income/Environmental Demonstrations
- New Jobs for resource users through skills training
- Literacy Training/Health (sanitation and safe drinking water)
- Awareness Building



Wetland Resource Management Planning

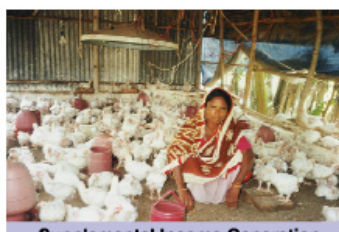


Enhancement of Policy Environment for Natural Resource Co-management

- Natural Resource Management problems related to existing policies identified with communities
- Recommendations for policy change developed with stakeholders and agreed to by local government
- Policy changes successfully made at central level and communicated back down to field
- Worked with others to form the "wetlands network" an organization supporting change in wetland management



Resource Users Group Training



Supplemental Income Generation Activity for Poor



Environmental Awareness through Village Drama

Special Programs

- Pollution abatement
- Wetland valuation
- Wetland Network support
- Improved watershed management

Monitoring

- Fish catch
- Fish and other protein consumption
- Vegetation and Wildlife
- Socio-economics
- Hydrology
- Credit



Fish Catch Monitoring

MACH Team



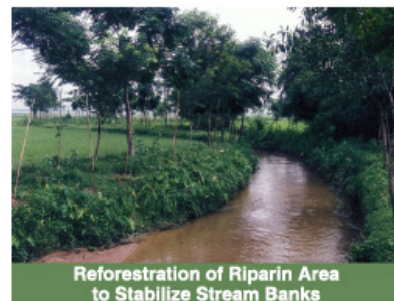
MACH has supported local communities in forming their own organizations for overall management of physical and biological components of selected ecosystems. The project has emphasized conservation and rehabilitation of degraded or lost aquatic habitats. Major habitat restoration activities have included reestablishment of dry season refuges for fish and others dependent on aquatic habitat (i.e., permanent beels and deep riverine kums or scour holes). The project has also included work with local industries to reduce pollution; reestablishment of watershed function through revegetation and reforestation, where feasible; and reduction of soil erosion by introducing suitable environmentally friendly agricultural systems.



Activities & Achievements

Wetlands Resource Management

Resource Management	Achievement
Area under improved wetlands/ floodplains resource management	18,866 ha
Resource management organizations (RMOs)	Beel 14 River/Stream 11 Kur/Doha 17
Fish sanctuaries	66
Habitat restoration (Re-excavation of wetlands)	Beels 270 ha Canals 11,293 m
Riparian habitat restoration	167 Km
Indigenous species reintroduction (Plants)	47
Fish species diversity enhanced	8 Species (HH) 10 Species (KM) 10 Species (TB)



Reforestation of Riparian Area
to Stabilize Stream Banks



Restoring Connections and Creation
of Dry Season Water



Resource Users Group
Meeting & Training

Resource User Group (RUG) Information

No. of RUGs	225 (M 155, F 70)
Group members	4,598 (M 3127, F 1471)
Group Savings	4 million Taka
Credit Disbursement	36 million Taka

Training	Participants
Group Development, Resource Awareness, Skill Development, Primary Health Care, Community Development	17,129

Permanent Sanctuaries

Declared by GoB in MACH areas 8



Baragangina Sanctuary, Hail Haor

Awareness Building	Participants
Drama, Meeting, Rally, Quiz, Day Observance etc.	306,448

Demonstration Activities

● Fish Culture ● Wheat Cultivation ● Vegetable
Cultivation ● Granular Urea application ● Cage Culture
● Road Side Plantation ● Plant Nursery ● Homestead
Plantation ● Potato cultivation ● Fish Nursery ● Year
round vegetable cultivation ● Maize cultivation



Fish yield and Fish Consumption Increased

Items	Achievement		
	Hail-Haor	Kangsha-Malijhee	Turag-Bangshi
Baseline Yield 2000 (kg/ha)	171	150	58
Yield after third year of project intervention 2003 (kg/ha)	287	273	140
Fish Consumption (baseline) 2000 (gm/person/day)	47	22	27
Fish Consumption (impact) 2003 (gm/person/day)	61	27	37

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