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INTEGRATED PROTECTED AREA CO-MANAGEMENT (IPAC)

A Summary Report on
Work Planning Session with
DOF on Co-Management
of Protected Areas

July 06, 2008

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Integrated Protected Area Co-Management (IPAC)

A Summary Report on Work Planning Session with DOF on Co-Management of Protected Areas

Venue: DOF, Matsya Bhaban, Ramna, Dhaka-1000

July 06, 2008

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BELA, Asiatic M&C, Oasis Transformation
Module Architects, IUB/JU



International Resources Group
1211 Connecticut Avenue, NW, Suite 700
Washington, DC 20036
202-289-0100 Fax 202-289-7601
www.irgltd.com

Table of Contents

1. Introduction.....	1
2. Objectives & Program Schedule.....	1
3. The Participants.....	2
4. Workshop Events	2
4.1 Inauguration	2
4.2 Presentations; Responses; Questions & Answers	2
4.3 Discussion of DoF Plans and Proposals related to IPAC Goals and Objectives	4
Annex- 1: Program Schedule.....	7
Annex- 2: List of Participants	8
Annex – 3: Presentation on Inland Capture Fisheries (ICF) Strategy	10
Annex – 4: Presentation on Integrated.....	14
Protected Area Co-Management.....	14
Annex – 5: Presentation on Fisheries Development.....	20
& Conservation in & Around the Sundarbans Areas.....	20
Annex: 6: Presentation on Management of Aquatic Eco-System	24
through Community Husbandry (MACH)	
Annex – 7: Presentation on Impact of the CBFM on sustainable use.....	34
of inland fisheries in Bangladesh	

1. Introduction

Integrated Protected Area Co-Management (IPAC) Project is committed to develop a visible, recognizable national and integrated system of co-managed Protected Areas (PA) covering more than 367,500 hectares directly benefiting over two and a half million population at least four major new protected areas and an expanded array of more than 50 PAs, including forests, wetlands and ecologically critical areas by September 30, 2013.

The IPAC project just has begun in June 2008 and now the essential job is to consult with each of the concerned Government of Bangladesh (GoB) departments viz. Forest Department (FD); Department of Fisheries (DoF); and Department of Environment (DoE) for their understanding about the project and get inputs to achieve the aforesaid purpose.

The daylong ‘Planning Workshop of DoF, IPAC and Key Partners Engaged in Community Based Fisheries Management and Co-management of Wetlands’ is the initial response to address the needs.

The workshop was organized at conference hall, Matshya Bhaban, DoF on 6 July 2008.

2. Objectives & Program Schedule

The objectives of the workshop were:

- a. to exchange information on lessons learned from Management of Aquatic Eco-System through Community Husbandry (MACH) and on recent developments with community based fisheries management and implementation of the Inland Capture Fisheries (ICF) strategy;
- b. to familiarize DOF staff with scope and major components of IPAC; and
- c. to obtain inputs from DOF staff on key aspects to be taken into account in the work planning and implementation of IPAC, and in the preparation of the Development Project Proposal (DPP) for IPAC.

The agenda items covered during the sessions were presentations on:

- update of DOF programs and implementation of the ICF strategy;
- Sundarbans Project;
- lessons learned from Community Based Fisheries Management (CBFM);
- lessons learned from MACH project;
- context, scope and summary of statement of work for IPAC;
- review of DOF plans and proposals related to IPAC goals and objectives; &

- discussion of priorities for IPAC program support in the context of DPP preparation (Detail workshop schedule in Annex – 1)

3. The Participants

The workshop was attended by 52 participants of which 39 from DoF including Director General (DG), Director, four Project Directors, seven Deputy Directors, 13 District Fisheries Officers, five Assistant Directors, two Evaluation Officers, five Senior/Upazila Fisheries Officers & Superintendent Engineer; senior professionals from development partner organizations viz. four from MACH, three from World Fisheries Center (WFC), one from RDRS and three from IPAC/NSP including Chief of Party. The Director, Economic Growth Office, and Team Leader, Environment Team both from USAID Bangladesh were attended (Annex – 3).

4. Workshop Events

4.1 Inauguration

The workshop was inaugurated by Mr. Md. Rafiqul Islam, Director General, DoF where Ms. Anne Williams, Director, Economic Growth Office, USAID-Bangladesh spoke as special guest. The Director General, DoF chaired the workshop.

Mr. Mahbubul Haque, Deputy Director – Planning, DoF welcomed the participants at the beginning. Mr. Kazi M. A. Hashem, Training & Grants Coordinator, Nishorgo Support Project assisted the Chairperson for facilitating the workshop.

4.2 Presentations; Responses; Questions & Answers

The following topics were presented as per revised program schedule (Annex – 1):

- Mr. Masood Siddique, Evaluation Officer, Planning Section, DoF presented on Inland Capture Fisheries (ICF) Strategy (Annex – 3).

Response to the presentation:

- Director General stressed the importance of incorporating the DoF Road Map, in particular fish culture in seasonal flood plains, into IPAC wetlands strategy. There is also a necessity to coordinate the work being done in IPAC with that of DoF to prevent overlap.

- Mr. Bob Winterbottom, Chief of Party briefed on inter alia the objectives, purpose, components, areas of concentration, summary of statement of work and expected results for IPAC project team (Annex – 4).

- Dr. Azharul H. Mazumder, Team Leader, Environment, USAID-Bangladesh spoke on the context and scope of IPAC Project relating to lessons learned from Nishorgo Support Project & MACH Project. He also briefed on the broader

indication of IPAC project's theme which would create enabling environment where concerned stakeholders would be able to manage the natural resources effectively and efficiently.

Reponses to IPAC Presentations from participants:

- Need to set up a legal framework for designation, implementation and management of PAs
- Need a sound financial management system in place
- Owing to failures on the parts of other projects to ensure long-term sustainability of their actions, with reference to continuing the work of Community Based Organizations (CBOs) etc. IPAC should utilize DoF to act as the nurturing "mother" to the IPAC "baby." This places DoF with central ownership, working on facilitating and monitoring, not just implementing.
- For the project to really work, we need to work on population control. All aspects of the project should include some element of education regarding family planning, in order to prevent the uncontrolled population growth that is occurring at the moment and placing unmanageable pressure on the environment.
- Mr. Md. Abul Khair, Assistant Director, Planning Section, DoF presented on Fisheries Development and Conservation in and around the Sunderbans Areas (Annex – 5).
- Mr. S. N. Chowdhury, Ex-National Coordinator presented on MACH project (Annex – 6)

Question and Answer session following MACH presentation:

- Biodiversity enhancement needs to be quantified
 - 16 threatened species regained their populations, however, biodiversity is not just a question of numbers of species, but quantity, i.e. the growth of populations through enhanced re-colonization
 - There are also a number of non-fisheries species that have increased such as plant and bird species
- The species that were mentioned to have re-appeared are mainly the top feeding carnivorous species, is there any example of small indigenous species growth?
 - There is a comprehensive database of all species that have been monitored, which shows that overall there has been production enhancement indicative of a general change in fish species assemblage. Would need to consult the database, however, to find out about individual species/families.
- The MACH project shows issues with gender imbalance that need to be addressed IPAC

- Mentioned impacts in terms of %, is it possible to get actual numbers, so the challenge of scaling up can be quantified in order to justify the IPAC strategy
 - These numbers are found in the final MACH report

- How did individuals benefit from the water bodies?
 - The RMO system is much more flexible than the original leasing system. Most people in the RMOs are fishers and therefore benefit from more fish, but the 10% that were not fishers received indirect benefits and shared a common interest in serving the community (took on a voluntary-type role)
- How did you facilitate natural resource management?
 - Establishing connectivity of water bodies; de-silting canals and manipulating fishing practices (seasonal bans on fishing and certain gear use).
- Bob Winterbottom's comments:
 - It was mentioned that more legal authority needs to be given to sanctuaries, is this not the case also for CBOs?
 - How does governance work in terms of accountability – is it upwards or downwards?
 - What possible structures could be envisioned for integrated landscape/watershed management?
- Dr. M. Golam Mostofa, Fisheries Coordinator, WFC presented on Impact of the CBFM on sustainable use of inland fisheries in Bangladesh (Annex – 7).

Question and Answer session following CBFM presentation:

- What is the present situation of sustainability with reference to fisheries management?
 - In many areas CBFM is well sustained but there are some problems, such as where money is involved the management of funds has proved very difficult.
- Have experience with 10 CBFM water bodies but none are working as well as was thought. A good exit strategy is mandatory.
 - WFC has developed a network of CBOs for post-project support but exit strategy is still vital to ensure long-term sustainability.
- DoF need to be pro-active in terms of post-project management.

4.3 Discussion of DoF Plans and Proposals related to IPAC Goals and Objectives

- How is PA defined and the importance of a legal framework? This will need to incorporate existing structures for all relevant sectors:
 - Department of Forestry = National Parks
 - Department of Fisheries = Sanctuaries and Ramsar Convention
 - Department of Environment = Ecologically Critical Areas
- New areas need to be included:
 - St Martins
 - Rangpur District
 - Barisal and Rajshahi (including 4 Hilsa sanctuaries) clusters
 - The marine area within the 40m fishing zone
- New partners proposed to be included:
 - Universities: Bangladesh Agriculture University - Fisheries Department
 - Bangladesh Fisheries Research Institute for fisheries research
 - Climate change partner
- Lessons of other projects to consider;
 - FFP, ICZM and ECFC Projects
- Training needs to be done for leadership of beneficiaries to ensure their empowerment.
- Climate change needs to be central to all work, which will require a partner that can work specifically on this.
- Naming of IPAC Program (project is a discreet USAID-funded entity that sets out purely to fulfill a scope of work) which will represent the national approach taken to PA co-management of both wetlands and forests. Naming, however, will be an iterative process which may require a separate workshop with all relevant departments, held in consultation with ASIATIC
- Need for exit strategy to be developed from the beginning.

4.4 Review of Priorities for IPAC Program Support in the Context of DPP Preparation

- Training Needs Assessments required. When asked, the following were suggested as DoF training needs:
 - Improved resources for social impact assessment
 - Conflict management and resolution
 - Ecotourism (near zero experience) and EIAs (only 1 or 2 people in whole department who can do these)
 - M&E and manpower, IT necessary for implementation
- Also necessary for in-field Training Needs Assessment of stakeholders and beneficiaries

- Bob: in MACH and CBFM training was essential. Therefore, maybe the partners that were involved could work with DoF to determine the critical areas of training success to be replicated in IPAC for the generation of training modules
- From CBFM and MACH, DoF felt a lack of ownership but were also not pro-active enough themselves. However, in IPAC they want to take ownership
- Visual documentation for campaigns need support (mentioning success of street drama for attracting attention of thousands of people)
- Request from UFO's and DFO's to start DPP. This will require them to meet together, discuss, and plan. Whilst absolute decisions regarding location and activities of project needs to be finalized, DoF need to work with the provisional list to elaborate what will be needed for DPP.
- Look at ICF Road Map and suggest points for IPAC intervention
- Need to incorporate action that will work towards gaining power over pollution control. With three departments involved in IPAC, there is great scope for coordination of activities that work on pollution prevention.
- In terms of climate change, there is the obvious role that forests play in carbon sequestration, but also wetlands are of vital importance as well (e.g. within the CDM). There is a proposed 3-month training program on climate change with reference to forestry and wetlands that is being devised by JU.

4.5 Closing

- Mr. Bob Winterbottom made the following remarks:
 - progress has been made regarding how to move forward
 - will work to take account of key DoF sites and try to leverage support from organizations that can introduce new funding sources
 - training needs have been noted
 - want to take the DoF's work on Sanctuary Law forward and integrate with similar DoE and Department of Forestry Laws
 - the inclusion of more strategic partners and research institutes has been taken into account
 - want to ensure that IPAC move forward to develop national strategic framework to collectively support the policies of DoF.
- Finally the Director General as well as Chairperson of workshop thanked all participants for their contribution and closed the workshop with following remarks:
 - DoF are ready to work together in a sustainable way
 - DoF wants ownership not partnerships

In the near future project locations and activities needs to be finalized.

Annex- 1: Program Schedule

Tentative Schedule for the planning workshop of DoF, IPAC & CBFM Partners on Co-Management of Wetlands to be held at Department of Fisheries Conference Hall on Sunday, 6 July 2008

Purpose and Objectives:

- a. to exchange information on lessons learned from MACH and on recent developments with community based fisheries management and implementation of the Inland Capture Fisheries (ICF) strategy
- b. to familiarize DOF staff with scope and major components of IPAC
- c. to obtain inputs from DOF staff on key aspects to be taken into account in the work planning and implementation of IPAC, and in the preparation of the DPP for IPAC

Agenda:

9:00 am	-	9:10 am	Participants Receive IPAC Packet
9:10 am	-	9:20 am	Welcome
9:20 am	-	09:45 am	Update on DOF programs and implementation of the ICF strategy
09:45 am	-	10:00 am	Presentation on Sundarbans Project
10:00 am	-	10:15 am	Presentation on lessons learned from Community Based Fisheries Management
10:15 am	-	10:30 am	Presentation on lessons learned from MACH
10:30 am	-	10:45 am	Tea Break
10:45 am	-	11:15 am	Context and scope of IPAC–USAID Representative
11:15 am	-	11:45 am	Summary of Statement of Work for IPAC
11:45 am	-	1:45 pm	Review of DOF plans and proposals related to IPAC goals and objectives
1:45 pm	-	2:45 pm	Lunch Break
2:45 pm	-	4:45 pm	Discussion of priorities for IPAC program support in the context of DPP preparation
4:45 pm	-		Closing

Annex- 2: List of Participants

Integrated Protected Area Management (IPAC)

Planning Workshop of DOF, IPAC & CBFM Partners on Co-Management of Wetlands

Venue: Matshya Bhaban, Ramna, Dhaka
July 06, 2008

Sl.	Name	Designation	Address
01	Md. Rafiqul Islam	Director General	DoF, Dhaka
02	Md. Mahbubul Haque	Dy Director (Planning)	DoF, Dhaka
03	Md. Mashiur Rahman	Dy Director (Aquaculture)	DoF, Dhaka
04	Md. Abdul Mannan Mian	Dy Director	Dhaka Division
05	Kazi Abul Kalam	Dy Director	Sylhet Division
06	J. K. Biswas	Dy Director	Khulna Division
07	M. A. Khaleque	Dy Director (Shrimp)	DoF, Dhaka
08	Md. Shah Newaz Munshe	Project Director	Habitat Restoration Project, Dhaka
09	Md. Abdul Aziz	Deputy Director	Barishal Division
10	Habibur Rahman Khandaker	Project Director	Fresh Water Shrimp Culture Extension Project, Dhaka
11	Nasiruddin Md. Humayun	Project Director	SICD Project, DANIDA, Dhaka
12	Dr. Md. Abul Hasnat	Project Director	Brood Bank Project, Dhaka
13	Badrul Hassan Babul	Director (PIU DoF Part)	NATP, Dhaka
14	Chowdhury Md. Abul Farah	District Fisheries Officer	Moulovibazar
15	Md. Siraj Uddin	District Fisheries Officer	Sylhet
16	Md Mahbubul Alam	District Fisheries Officer	Sunamganj
17	Md. Selim	District Fisheries Officer	Habiganj
18	A. K. M. Kaykubad	District Fisheries Officer	Sherpur
19	Syed Arif Azad	District Fisheries Officer	Mymensingh
20	Kum Shahidur Rahman	District Fisheries Officer	Tangail
21	Md. Abdur Rashed	District Fisheries Officer	Khulna
22	Md. Abdus Sattar	District Fisheries Officer	Gazipur
23	Md. Nazrul Islam	District Fisheries Officer	Kishoreganj
24	Md. Asaduzzaman (Rep.)	District Fisheries Officer	Rangamati
25	M. Kabin Ahmed	District Fisheries Officer	Cox's Bazar
26	M. Ismail	District Fisheries Officer (Reserve)	ICF Section, DoF, Dhaka
27	Md. Abul Hashem (Sumon)	Assistant Director	Generel, DoF, Dhaka
28	Md. Abul Khair	Assistant Director	Planning, DoF, Dhaka
29	Md. Tofazuddin Ahmed	Assistant Director	Planning, DoF, Dhaka
30	S. A. Shamim Ahmed	Assistant Director	Aquaculture, DoF, Dhaka
31	Masud Ara Moni	Evaluation Officer	ICF Section, DoF, Dhaka
32	Masood Siddique	Evaluation Officer	Planning, DoF, Dhaka

Sl.	Name	Designation	Address
33	Nazrul Islam	Assistant Director	ICF Section, DoF, Dhaka
34	A. K. Barman	Superintendent Engr.	DoF, Dhaka
35	Shahidul Islam Bhuiyan	Sr. Uz Fisheries Officer	Sreemangal, Moulavibazar
36	Md. Mohsen Ali	Sr. Uz Fisheries Officer	Sadar, Moulavibazar
37	Md. Mominul Haque	Uz Fisheries Officer	Kaliakoir, Gazipur
38	Md. Mahbubul Alam Miah	Uz Fisheries Officer	DoF, Dhaka
39	Md. Aminul Haque	Uz Fisheries Officer	Jhenaigati, Sherpur
40	S. N. Chowdhury	Ex- National Coordinator	MACH/ISM Project, Dhaka
41	Mujibur Rahman	Senior Fellow	BCAS, Gulshan 1, Dhaka
42	Mokhlesur Rahman	Executive Director	CNRS, Banani, Dhaka
43	Anwara Begum Shelly, PhD	Director	Fisheries Program, CARITAS, Dhaka
44	Alice Millar	Research Assistant	WFC, Dhaka
45	Giasuddin Khan, PhD	Senior Fisheries Scientist	WFC, Dhaka
46	M. Golam Mostofa, PhD	Fisheries Coordinator	WFC, Dhaka
47	Raihanul Islam Chowdhury	Regional Coordinator, NSP	RDRS Representative
48	Anne Williams	Director	Economic Growth Office, USAID, Dhaka
49	Azharul H. Mazumder, PhD	Team Leader	Environment, USAID, Dhaka
50	Bob Winterbottom	Chief of Party	IPAC, Banani, Dhaka
51	Ram A. Sharma, PhD	Deputy Chief of Party	IPAC, Banani, Dhaka
52	Kazi M A Hashem	Training & Grants Coordinator	NSP, Banani, Dhaka

Annex – 3: Presentation on Inland Capture Fisheries (ICF) Strategy

Slide: 1

INLAND CAPTURE FISHERIES DEVELOPMENT & DoF Initiatives on Fisheries Co-Management

Slide: 2

POLICY INITIATIVES

1. Development of ICF Sub-Strategy

Based On:

- PRSP and Road Map
- NFS and Action Plan
- Experiences/Lesson learnt from Similar Projects like: FFP; CBFM-1,2; OLP-1,2; MACH.

Slide: 3

Issues Considered while Formulating ICF Sub-Strategy

- Habitat Destruction
- Pollution
- Reduction of Dry Season Water Flows
- Declining Catch from inland capture fisheries
- Loss of Aquatic Bio-diversity
- Lack of Fish Friendly Lease System
- No/Limited access for poor genuine resource users
- Weak Institutional support

Slide: 4

OBJECTIVE OF ICF SUB-STRATEGY

- To support sustainable and equitable growth in the benefits generated from increased fish production through community based co-management

Slide: 5

Area of consideration

- Institutional Development
- Consolidated support to Existing CBOs
- Expansion of Co-Management practices
- Technical Management Measures to protect aquatic biodiversity and enhanced fish production
- Wetland conservation
- Livelihoods and AIGA

Slide: 6

Institutional Development

- Review of NFS
- Updating Fish Acts and Laws
- Lease arrangement and access right
- Upazila Fisheries Committee (UFC)
- CBO Networking

- HRD Development for DoF, NGOs
- Strengthening ICF and M&E section of DoF

Slide:7

Consolidated support to Existing CBOs

Around 500 Community Based Organization developed under different projects which are functioning at present. These require:

- Continuous Monitoring;
- Further Support and
- Action Research

Slide: 8

Expansion of Co-Management practices

Objective is to decentralise Co-Management practices by forming at least 2000 CBOs in next 15 years ensuring equitable distribution of benefits generated from management and enhancement interventions. This will cover:

- Major Rivers;
- Major Wetlands;
- Other Water Bodies.

Slide: 9

Technical Interventions

Establishment of Fish Sanctuary:

- To ensure establishment of protected areas that will enhance fish recruitment for fisheries and help to conserve biodiversity and protect endangered species.

Slide:10

Fish Habitat Restoration:

To enhance fishery by restoring and improving the environment or the connectivity to promote natural recruitment and dry season survival.

Slide:11

Stocking of Fish Fingerling

To minimize natural loss and to enhance fish production in closed and semi-closed water bodies.

Slide: 12

Fishing Effort Control

- Reduction of Fishing Unit
- Mesh Size regulations
- Closed Season
- Alternative Livelihood options

Slide: 13

Alternative Livelihood Options

- Livelihood Analysis
- Training on AIGA
- Micro-Credit Facilitation

- Involving NGOs

Slide: 14

2. Public Water Body Lease Policy -2005

Proposed for amendment in 2007, that Includes:

- Biological Management of Water Bodies
- Access right of genuine fishers
- Updated Inventory and Classification of Water bodies.

Slide: 15

3. Fish Sanctuary Law

- Draft Proposed
- Water body Identification ongoing
- Schedule will be prepared very soon.

Slide: 16

4. Identification of Degraded Water Bodies

- National Task Force Committee formed
- Primary identification of degraded water area done
- 20 water bodies selected for immediate actions.

Slide: 17

Program Level Initiatives

- 500 CBO formed in around 450 water bodies,
- Water body handed over to CBOs for long term tenure (at least 10 years)
- Habitat restored in around 60 Beels

Slide: 18

Contd.....

- Fish Sanctuary established in 435 water bodies.
- 04 Hilsa Sanctuary declared to save Jatka.
- Fingerling Stocking implemented through different projects.
- Besides fingerling stocking program from revenue budget ongoing each year (Costing 3.00 crore taka.)

Slide: 19

Contd.....

- Alternative Livelihood Practices introduced among the Jatka Fishers through yearly revenue program
- AIGA implemented with micro-credit facilitation through different projects.

Slide: 20

Future Initiatives

- ICF Development Project proposed that sent to WB from ERD for donor assistances.
- Protection and conservation of Aquatic Resource Management in Sundarbans areas proposed
- Country wise extension of flood plain aquaculture project proposed
- Community Based Aquaculture project in Bhabodoho Beel flood plain proposed

Slide: 21

Why an Aquatic System get Degraded in Bangladesh?

- Natural Reasons:
 - Siltation
 - Decrease in water carrying capacity of main rivers
 - Loss of Connectivity

Slide: 22

Man-made Reasons

- Over & Indiscriminate Exploitation of Resources
- Industrial Pollution
- Excessive use of Insecticides
- Agricultural and Homestead Aggression that results squeezing of water area
- River administration by neighboring country

Slide: 23

Thank You

Annex – 4: Presentation on Integrated Protected Area Co-Management

Slide: 1

Briefing on IPAC

Integrated Protected Area Co-Management

Brainstorming and Planning Workshop

Department of Fisheries and CBFM / MACH Partners

6 July 2008, Matshya Bhaban, Dhaka

Slide: 2

IPAC Summary

- Funded by USAID/Bangladesh – Environmental Program, for five years (5 June 2008 – 4 June 2013)
- Designed to contribute to sustained, broad based Economic Growth through
 - Continued support to sustain successes in *biodiversity conservation* and A/G achieved at MACH, Nishorgo pilot sites
 - Expanded support for development an *integrated strategy* and *coherent national program* to support co-management, *environmental governance* and mitigation and adaptation to *Climate Change*
 - Increased emphasis on *training* and building *institutional capacity*
 - Targeted assistance to *scale up co-management* through a pro-poor landscape based participatory approach, in keeping with National Strategy for Accelerated Poverty Reduction
- Implemented through MOFL and MOEF with technical assistance from IRG

Slide: 3

Purpose of IPAC

- Support further development of natural resources management and conservation of biological diversity
- Develop an integrated Protected Area Strategy that applies to significant wetland and forest ecosystems
- Build technical capacity for PA co-management
- Expand the area under co-management and ensure long term success in extend benefits to communities
- Address climate change mitigation and adaptation

Slide: 4

Expected Results - Overall

- Strengthening of stakeholders* engaged in sustainable natural resource management and enhanced biodiversity conservation – to assist in the preservation of Bangladesh's natural capital while promoting equitable economic growth and stronger environmental governance systems
- Empowerment* of poor resource user groups and capacity building to enable their central role in participatory, multi-stakeholder, transparent approach to resource management and benefit sharing

Slide: 5

Expected Results - Overall

- *Widespread adoption* of co-management approach with local communities, local government bodies and central government assuming *joint responsibility* for sustainable use and conservation of aquatic and terrestrial ecosystems

Slide: 6

Specific Results over five years

- Formal policy recognition of a PA system and approval of a national integrated PA co-management strategy and action plan devolving authority to communities
- Institutionalization of co-management as the accepted approach for PA management and biodiversity conservation
- Implementation of approved IPAC strategy establishing sustainable, productive, resilient PA
 - Sustained co-management of existing MACH and Nishorgo sites
 - Increased number of hectares under co-management
- Pragmatic conservation financing mechanisms developed and approved by GOB to mainstream conservation financing in favor of co-management implementation
- Successful implementation of conservation financing mechanisms and demonstration of sustainability of conservation partnerships
- Climate change mitigation and adaptation through improved land use and adaptation of communities
- Communication Strategy and Action Plan in support of IPAC designed and implemented, and targeted outreach activities carried out

Slide: 7

Specific Results over five years (continued)

- Cadre of professionals trained in PA management and co-management within GOB institutions and community organizations
 - Needs for institutional capacity assessed and training plan developed
 - Development of a foundation course on integrated PA management
 - Strengthened capacity of existing training centers
 - Training programs at the community level conducted
 - Development at community level of a pool of trained extension agents
- Community based NRM organizations involved in IPAC are sustainable, transparent, pro-poor, equitable
 - AIG activities involving targeted beneficiary groups implemented
 - Development and demonstration of ecological restoration plans to rehabilitate degraded critical ecosystems through co-management
 - Public-private sector alliances for PA co-management established and successfully operating
 - Business plans for community-based eco-tourism developed

Slide: 8

Targeted Locations for Site Specific Implementation

- *Sylhet*: Tanguar Haor, Hail Haor, Hakaluki Haor, Lawachara, Rema-Kalenga, Satchari, Khadimnagar
- *Chittagong Hill Tracts*: Pablakhali, Kaptai

- Southeastern: Teknaf, Chunati, Inani, Himchari, Medha Kachapria, Fasiakhali
- Central: Kangsan-Malijhee watershed, Turag-Bangshi, Madhupur, Bhawal
- Sundarbans: Sundarbans Wildlife Sanctuaries and ECA

Slide: 9



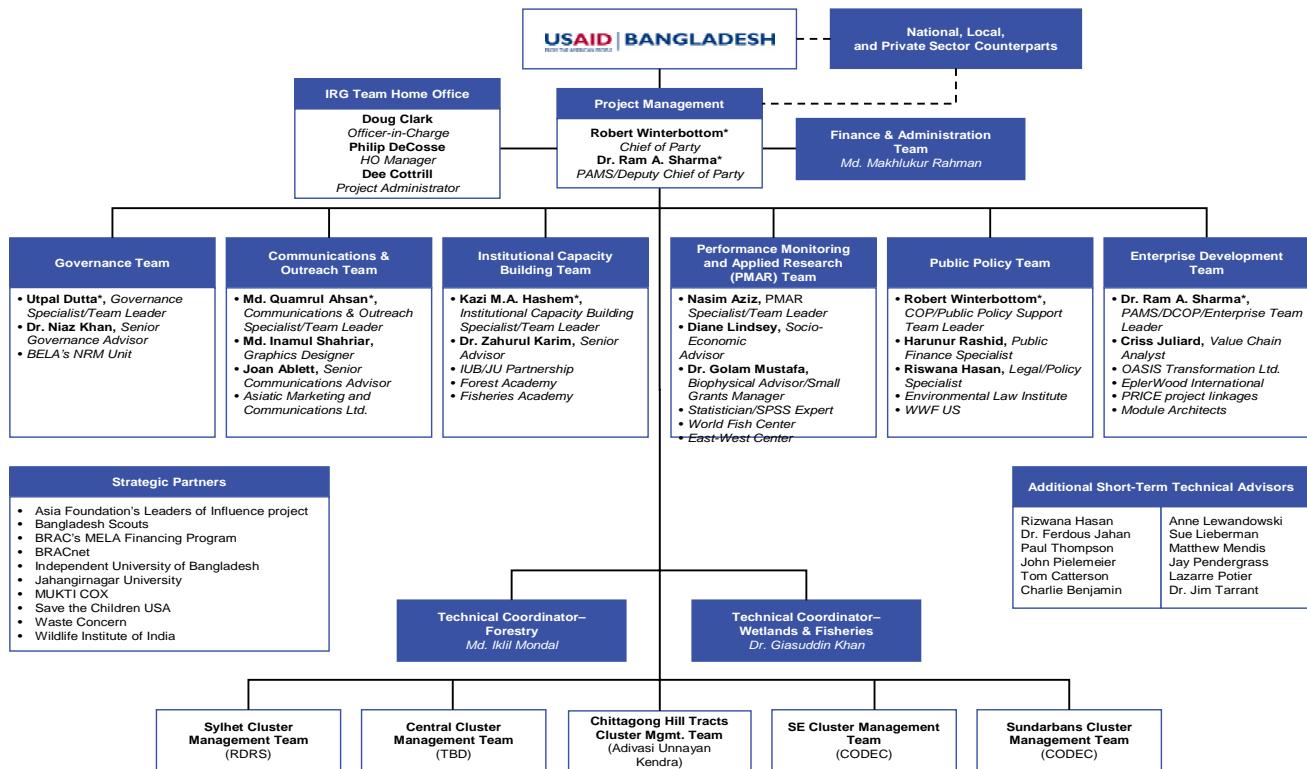
Slide: 10

IPAC Team / Implementing Partners

- Forest Dept., Dept of Fisheries, Dept of Environment
- Local government and local communities in targeted Clusters
- IRG with WWF, East West Center, Epler Wood Int'l, dTS, ELI
- World Fish Center – Bangladesh
- Adivasi Unnayan Kendra /Center for Indigenous Peoples Development - CIPD
- Rangpur Dinajpur Rural Services - RDRS
- Community Development Center - CODEC
- Asiatic Marketing and Communications, Ltd.
- Oasis Transformation Ltd.
- Independent University of Bangladesh/Jahangirnagar University
- Bangladesh Environmental Lawyers Association - BELA
- Module Architects
- Arannayk Foundation, Bangladesh Scouts, BRACNet and other strategic partners

Slide: 11

IPAC Team Organizational Structure



Slide: 12

Role of World Fish Center, in close collaboration with DOF and other IPAC partners

- Provide scientific information and technical support for best practices in community based fisheries management and extension / intensification of proven approaches / models

- Support applied participatory monitoring and action research in support of improved management of wetlands and fisheries
- Contribute policy, institutional advice, guidance for development of fisheries and wetlands components of IPAC strategy
- Support capacity building to implement IPAC strategy and to extend co-management to more wetlands / water bodies
- Engage in communications and networking in support of IPAC

Slide: 13

Work Plan Components and Tasks

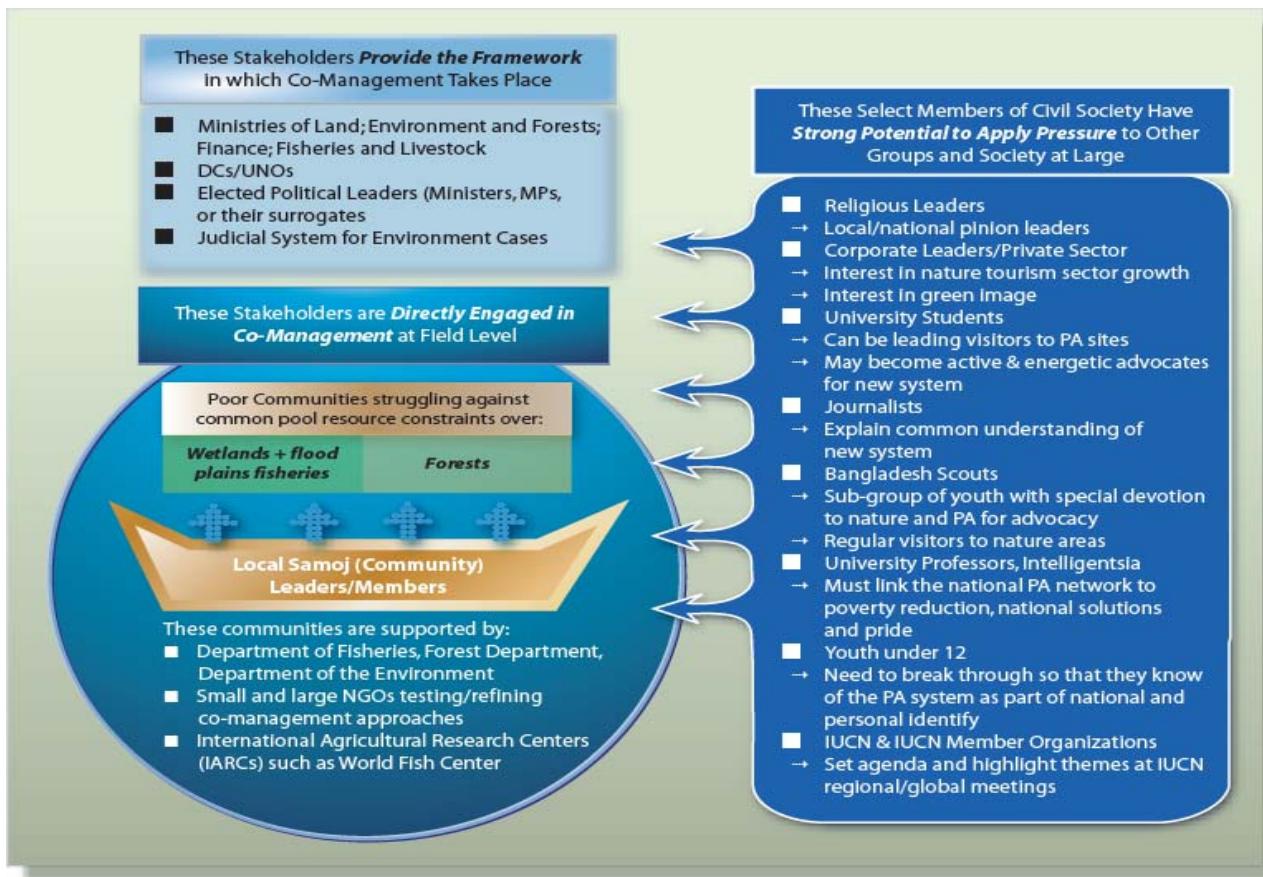
- Development of Coherent IPAC Strategy
- Constituency Building
- Strategy Development
- Partnership Building for Sustainable Financing
- Outreach
- Building Stakeholder and Institutional Capacity
- Training
- Local support services
- Site-Specific Implementation
- Selection of demonstration sites
- Alternative income generation and financing
- Outreach
- Cross-Cutting Approaches – gender and youth perspective

Slide: 14

IPAC Work Plan Priorities / Technical Approach

- Organize working group to develop IPAC strategy
- Facilitate and mobilize widespread support for national IPAC program
 - Engage national leadership, local government, civil society
 - Promote synergy and collaboration with other programs/projects
- Build on lessons learned from MACH, CBFM, Nishorgo and other co-management initiatives
 - Scale up from 45,000 ha to more than 350,000 ha
- Work with existing community based organizations and established entities – and replicate in other areas
 - UFC, RMO, FRUG, RUG, others established by CBFM
 - CM Councils, CM Committees, CPG, FUG, Federations, Nishorgo Clubs
- Emphasis on communication, training, social mobilization, environmental governance, partnerships and linking conservation and improved community well-being

Slide: 15



Slide: 16

Desired inputs from brainstorming / planning session

- Suggestions for site specific implementation of IPAC: wetland areas of greatest ecological and economic significance
- Additional, continuing assistance needed to sustain achievements and successes of MACH and CBFM
- Opportunities for extension / scaling up of co-management
- Ideas for IPAC communication strategy
- Training needs to implement IPAC; priorities for institutional capacity development
- Key constraints to be addressed to implement IPAC
- Other suggested priorities for first annual work plan for IPAC
- Inputs from DFOs on physical works planning for DPP

Annex – 5: Presentation on Fisheries Development & Conservation in & Around the Sundarbans Areas

Slide: 1

DEVELOPMENT PROJECT PROPOSAL (DPP) on

Fisheries Development and Conservation in and around the Sunderban Areas

Md. Abul Khair

Assistant Director, DoF

Slide: 2

Objectives of the Project

- To study and identify the fish fauna and breeding grounds of Sunderban area
- To protect and conserve the natural aquatic breeding grounds of Sunderban
- To implement the fish ordinance and acts for proper management of aquatic resources of sundarban
- To uplift the socio-economic conditions of the fishers of sundarban
- To establish permanent fish sanctuaries in the selected areas of Sundarban.

Slide: 3

- Location of the Project :
 - Khulna, Bagerhat and Satkhira district
- Estimated cost of the Project (In lakh Taka)
 - I) Total: 4097.59 (Grant); II) GoB : 4097.59; & III) P.A.
- Project Implementation Period :
 - i) Date of commencement: July, 2008 & Date of completion: June, 2013

Slide: 4

Background of the project

- Bangladesh is the home of the largest wetland system in the world, comprising a multi species fisheries ecosystem.
- Cheap source of protein meets the animal protein demand to the tune of about 60%
- fisheries sector contributes about 4.35% to the GDP (2006-07) which is about 20% of the value of agricultural production
- 1.2 million people directly involved in Fisheries sector and 12 million people whose livelihood depends indirectly on fisheries as subsistence fisher, part time fishing laborer, aquaculture operator, traders and business etc.
- The sector contributes about 4.9% to the country's total export earnings and the average growth rate of this sector was about 5.0% in the year 2006-2007

Slide: 5

Background of the project (contd.)

- The diversity of fishing habitats comprised in the open water capture fisheries like rivers and estuaries, sundarbans, beels, Kaptai Lake and huge floodplains
- The Sundarbans are the largest littoral mangrove belt in the world, stretching 80km (50 mile) into the Bangladeshi hinterland from the coast
- The Sundarbans is a complex ecosystem comprising one of the three largest single tract of mangrove forests of the world. Shared between two neighboring countries, Bangladesh and India, the larger part (62%) is situated in the southwest corner of Bangladesh.

- The total land area today is 4,143 km² (including exposed sandbars: 42 km²) and the remaining water area of 1,874 km² encompasses rivers, small streams and canals.

Slide: 6

Background of the project (contd.)

- The Sundarbans is a region of transition between the freshwater of the rivers originating from the Ganges and the saline water of the Bay of Bengal (Wahid *et al.* 2002)
- Many fish species such as *Penaeus monodon*, *Macrobrachium rosenbergii*, *Lates calcarif*, *Metapeneaus monoceros* and *Pangaisus pangaisus* depend for spawning and juvenile feeding on the Sundarbans aquatic habitat
- Sundarbans is home to many different species of birds, mammals, insects, crustacean, mollusk, reptiles and fishes. Over 120 species of fish and shrimp and 35 reptiles and eight amphibian species have been recorded in the Sundarbans
- The Sundhorbons water bodies are potential places for fisheries. This sector contributes 2% of total inland capture fisheries. In the year 2007 the total fish production from Sundhorbon is about 17,751 metric ton which is 30% higher than the year of 2002.

Slide: 7

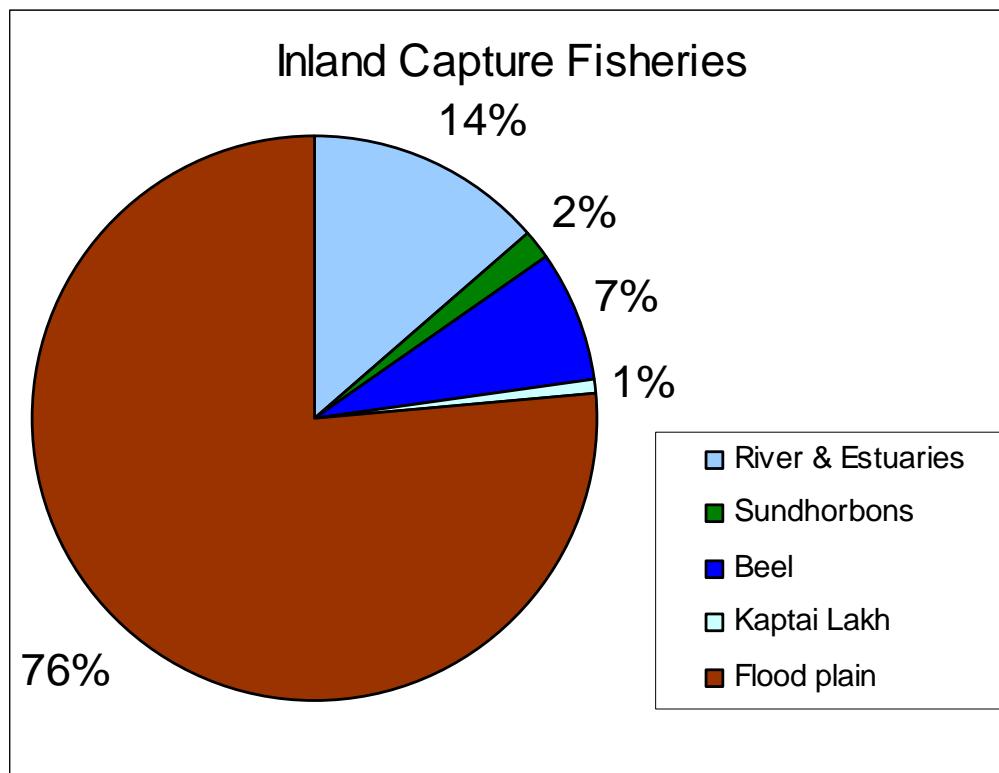
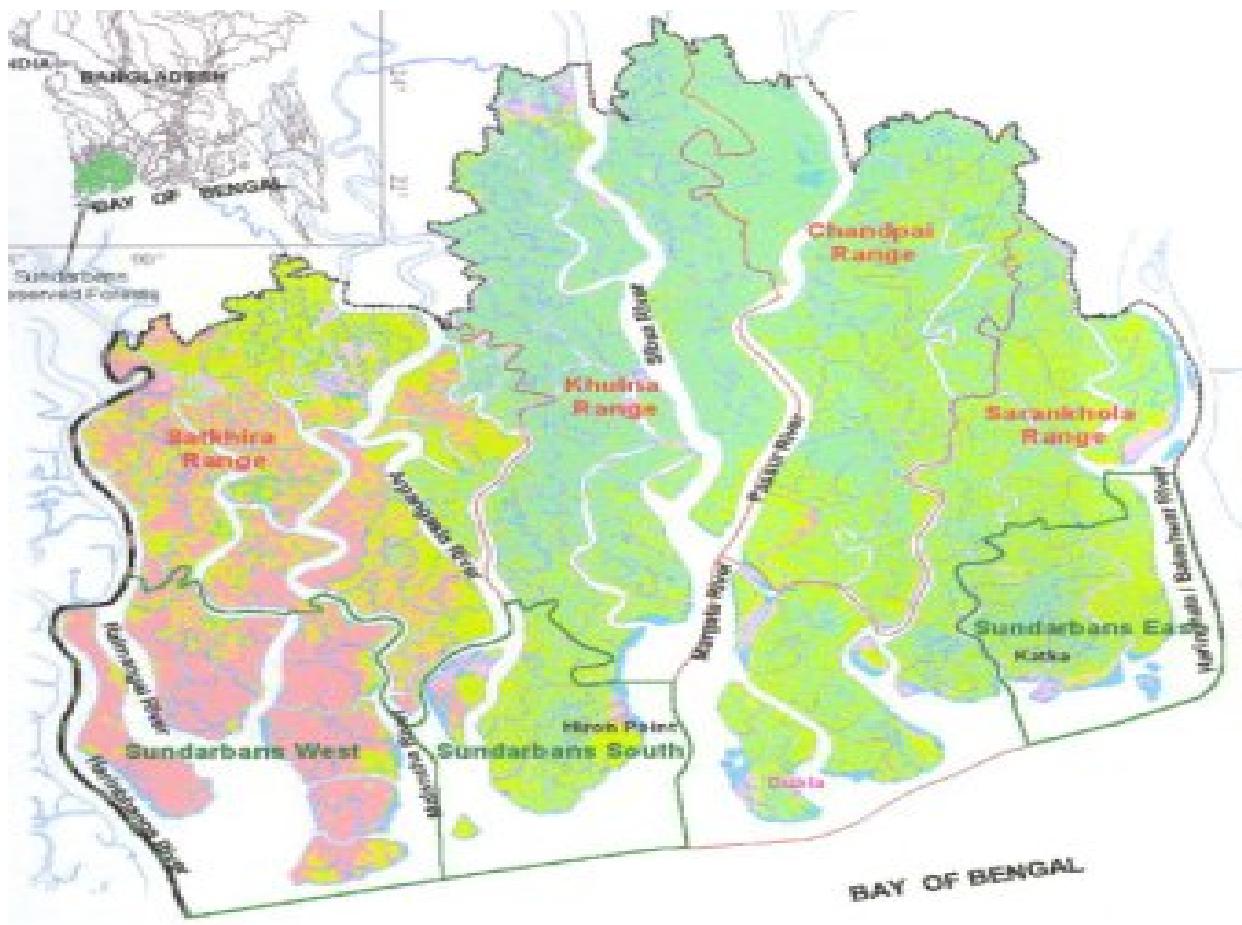


Figure: Percentage of fish production at different areas of inland capture fisheries (Year 2006-07)

Slide: 8



Slide: 9

Linkage of the Project

- Poverty reduction Strategy (PRS)
- In the strategic goal 20 of the policy matrix-4 of PRS, it is stated to raise the income of the poor fishers.
- Fisheries sector Road Map of the government
- In the road map it is stated to raise the production of Sunderban up to 16000.00 MT by 2009. The activities to be undertaken through this project could help to achieve the target of Road Map.

Slide: 10

Major components of the project

- Conduct survey to identify the fish species of Sunderban areas
- Conduct survey to identify the breeding grounds of Sunderban areas
- Establishment of fish sanctuaries
- Conduct comprehensive study on physico-chemical parameters
- Facilitate modern fish drying technologies for the fishers around Sunderban
- Create alternate income generating activities for the fishers around Sunderban
- Provide training for the fishers of Sunderban areas

- Purchase of sea going Speed boats

Slide: 11

The effect/impact

- The project will evolve and go forward the control of environmental /water/air pollution
- Biodiversity of the Sunderban areas will be restored due to establishment of sanctuaries
- Women and children will get food and nutrition and also create scope of work for the women. During selection of trainees, women participation will be ensured
- The project will create lot of work opportunities for the local people
- The income of the fishers will be increased due to alternate income generation
- poverty alleviation through increasing fish production and employment generation
- An institutional mechanism would be developed for the management of water bodies in and around Sunderban areas.

Slide: 12

Thank You

Annex: 6: Presentation on Management of Aquatic Eco-System through Community Husbandry (MACH)

Slide: 1

Management of Aquatic Ecosystems through Community Husbandry (MACH)

Implementation Period: October 1999- June 2008

Slide: 2

Lessons and Experience

Presented By

S.N.Chaudhury, Ex-NC, MACH Project

(Prepared by Mr. Mokhlesur Rahman, ED, CNRS; Mr. Mujibur Rahman, SF, BCAS; Dr. Anwara Begum Shelly, Director, Caritas; S. N. Choudhury, Ex-NC, MACH)

Slide: 3

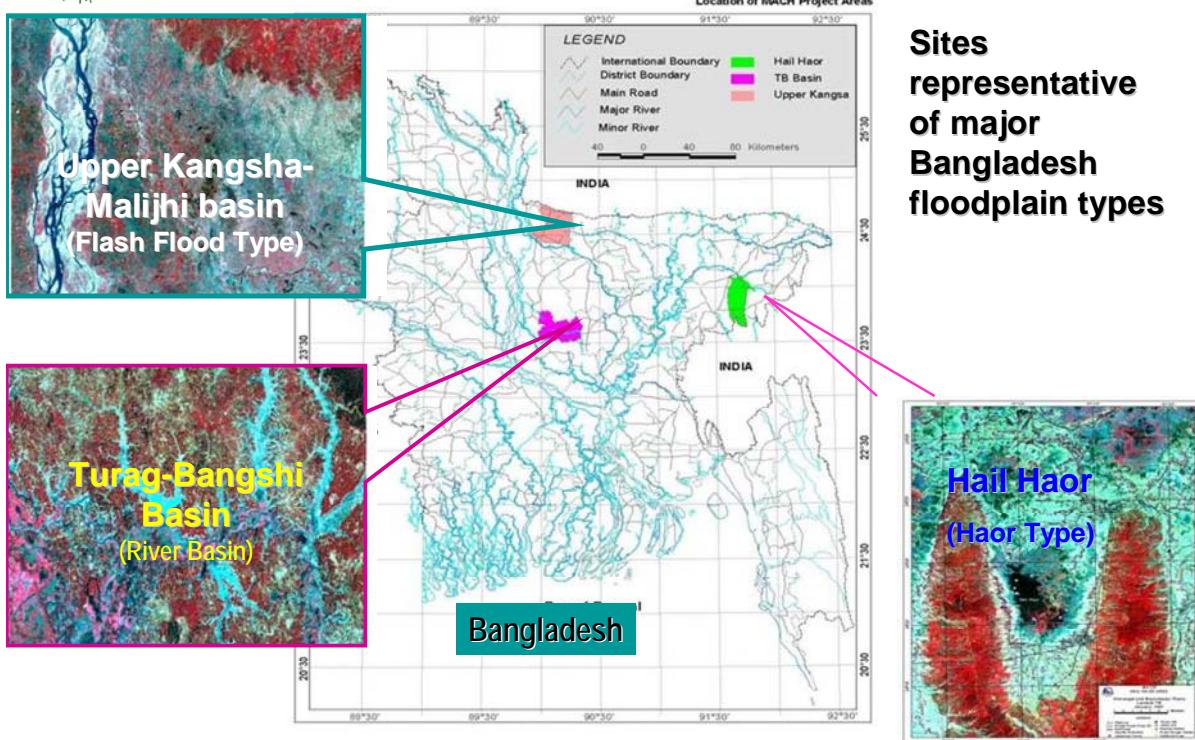
Scale and Significance of Bangladesh Wetlands

- Bangladesh has one of the largest freshwater fisheries resource in the world
- Bangladesh comprised of regularly inundated floodplains of 2.8 mill ha (excluding beel & rivers)
- About 40% of total fish production come from inland capture fishery
- 1970s 6.3 mill. ha of mostly seasonal wetland now about 2.8 mill. ha.
- Up to half of these may have been drained and silted up in same period
- Poor get most benefits from wetlands

Slide: 4



MACH Sites

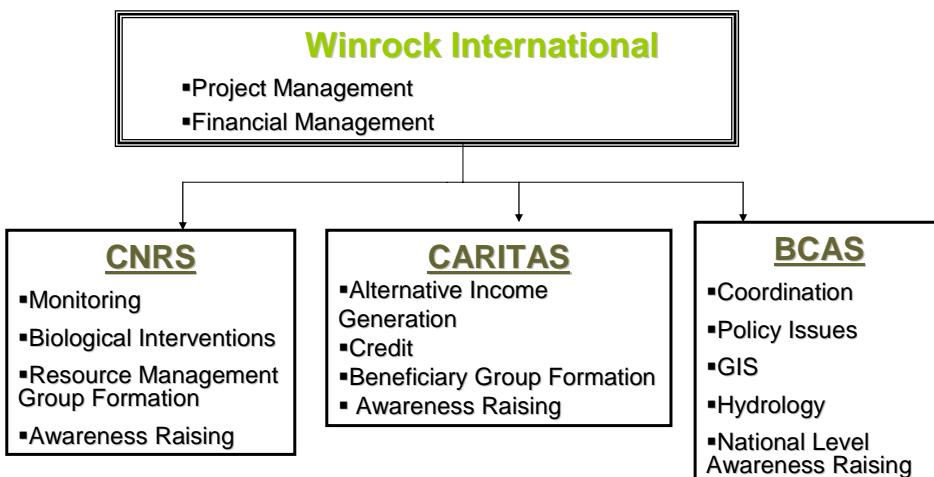


Sites
representative
of major
Bangladesh
floodplain types

Slide: 5



MACH Team



Slide: 6



MACH INITIATIVES

Slide: 7

Key MACH ACTIVITIES

- Apprise community, policy makers & local govt. on project
- Environmental Awareness
- Wetland Co-Management: RMOs
- Community Development : RUGs/ FRUGs
- Habitat Restoration
- Policy issues
- Wetland pollution abatement initiatives
- Monitoring (fish, GIS, hydrology, communities, credit)
- Administration

Slide: 8

UNDERSTANDING OF THE SYSTEM

- Biophysical characterization of the site (wetlands and watershed)
- Know the people and how the system operates
- Know the choices of people/user communities
- Identify key stakeholders having interests and influence

Methods and approaches:

- Reconnaissance field/social survey
- Village census / household survey
- Land use survey

- Village meetings and focus group discussions
- Observation and monitoring

Slide: 9

Planning: Participatory Action Plan Development (PAPD)

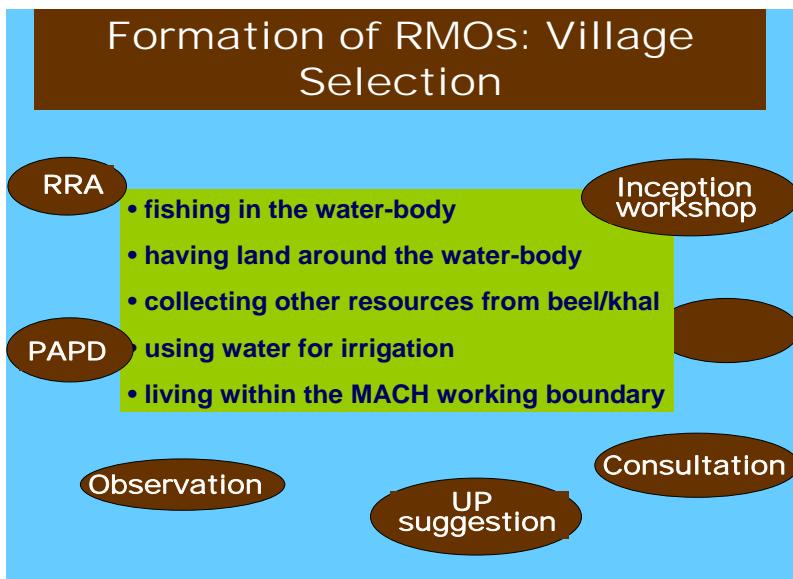


Slide: 10

Planning: Planning Sessions
 Problem census
 Cause-effect analysis by problems
 Workout possible solutions / interventions
 Stakeholders' analysis
 Impact analysis of interventions
 Consensus on management interventions
 Action plan for implementation

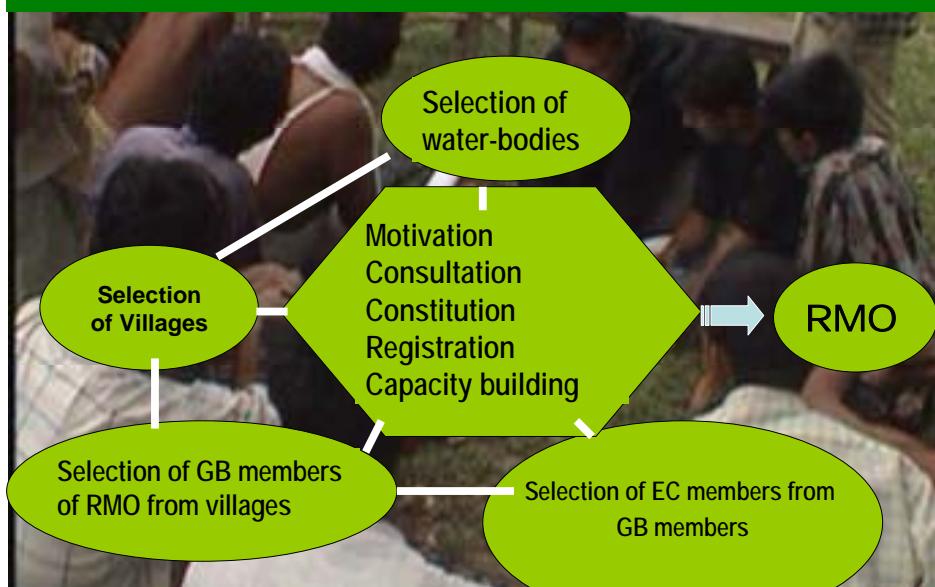
Slide: 11

Formation of RMOs: Village Selection



Slide: 12

Formation of RMOs: formation Process



Slide:13

RMO formation: Structure of EC, RMO

- Chairman
- Vice-Chairman
- Secretary
- Joint Secretary
- Treasurer
- Secretary (Women)
- Secretary (Communication)
- Members

RMO Advisors

- UP Chairman
- MACH staff

Slide: 14

Key role of RMO's: Resource Management

- Wetland management decisions and implementation of interventions

- Establishing wetland sanctuaries
- Habitat rehabilitation
- Formation of sub-committees
- Re-introduction of threatened fish species
- Developing and enforcing conservation norms and systems

Largely under the facilitations of the Project Team

Slide: 15

Transformation of organizational capacity and functions

Slide: 16

Transformation of RMOs

- Increased participation
 - Active role in resource management decisions and implementation
 - Incorporate women members
 - Become member of UFCs
 - Making direct contacts with Upazilas on various relevant issues
- Increased capacity
 - Come out of UP influence
 - Have their own offices
 - Expelled corrupt members from RMOs
 - Established rights by expelling illegal occupants of beels
 - Participatory monitoring of their own progress
 - Briefing the visitors on their works

Slide: 17

Transformation of RMOs

- Democracy and governance
 - Contesting role of leaders - Critical consciousness
 - Biannual Election through secret ballot
 - Role in village panchayet, reporting to wider communities
 - Women members in PICs and other committees
 - Benefiting the poorer members
- Widening scope and responsibilities
 - Building networks among them and with wider forum
 - National sanctuary management
 - Taking care of other issues – agriculture, forestry, livestock, education, disaster response

Largely community initiatives with partial support from project team

Slide: 18

Good Practices of RMOs

- Establishment and management of sanctuaries
- Periodic ban on fishing (breeding season)
- Stop use of destructive gears for fishing

- Conflict resolution at the community level
- Re-introduction and conservation of threatened species
- Habitat restoration through re-excavation and plantation
- Institutional linkages with UP, UZ and wider forum
- Awareness building on wetlands/fisheries management
- Contour plantation of pineapple in the hill slopes

Slide: 19

Sustainability of RMOs: they have acquired key skills

Organizational aspects

- Performing organizational activities
- Having fund flow and financial activities
- Maintaining transparent financial management
- Maintaining rapport and linkages with others

Technical aspects

- understand wetland management problems and issues
- skills in making consensual NRM intervention plan
- capable of implementing NRM interventions
- capable of monitoring changes due to NR interventions
- able to generate community awareness/conflict mgt.

Slide: 20

Sustainability of RMOs: they have acquired key skills

Governance aspects

- Practicing pro-poor NRM and benefit sharing
- Ensuring access to wetlands by the poor and fishers
- Showing accountability and transparency
- Having wider acceptance among the communities
- Practicing participatory decision making

Emerging issues & Fund provision

- Endowment fund and UFCs would help meeting the emerging issues and future needs

Slide: 21

Future Directions

- RMOs need to be fully transformed from wetland / fisheries CBOs to wider local development CBOs to respond to local development needs including fisheries
- RMOs need continuous technical, administrative and moral support to meet emerging challenges
- RMOs should be allowed and encouraged to raise their voices at UFCs and other local forums
- DoF field level officials are the key in sustaining the RMOs through taking proper and pro-poor decisions at UFC level
- UFC visiting wetlands /EF schemes and taking on site quick decisions / actions would facilitate sustainable local management of wetlands

Slide: 22

Community Development and Alternative Income Generation for Poor & Fishers

Slide: 23

COMMUNITY DEVELOPMENT & FORMATION OF RUG & FRUGS

Formation of Resource Users Group: (RUG)

- Purpose of RUG Formation: Reduction of excess fishing pressure & enhancement of supplemental income of poor
- Use of baseline households survey data for selecting RUG members
- Selection of RUG members: Poor fishers and other poor dependents on resources within criteria
- Gender equitability in RUG members: Ensure participation of women in resource management & community activities
- Participation of RUG members in resource management: More than 60% of RMO members are RUG members.

Slide: 24

Activities

- ❖ Community Development
 - a. Familiarize project objectives
 - b. Group Formation
 - c. Group Training (Group development, leadership, Accounts)
 - d. Education & healthcare
- ❖ Alternative Income Generation
 - a. Skill Training
 - b. Demonstration
 - c. Credit support

Slide: 25

Poverty Reduction and Sustainable Fisheries

- Restore fishery productivity to benefit poor fishing communities having secure access:
 - excavation,
 - sanctuaries,
 - fishing rules (e.g. closed season, ban on dewatering).
- Link livelihood support for fishers with improved resource management.
- Provide skill training and micro-credit for non-fishery enterprises.
- DOF should partner with relevant organisations to support this.

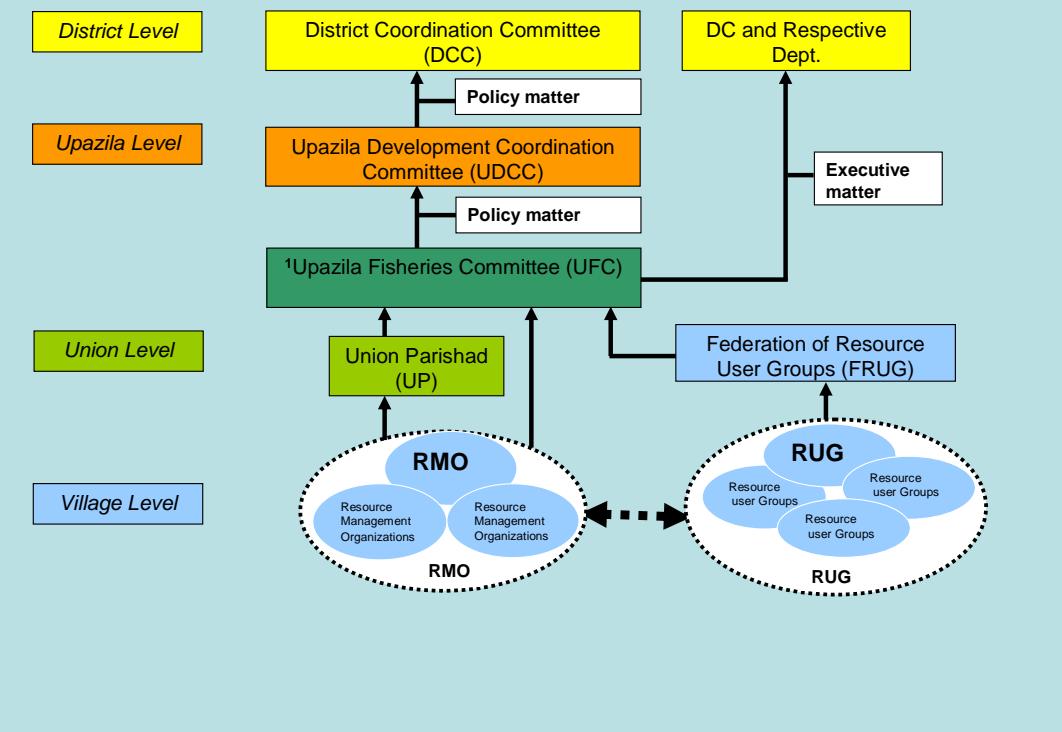
Slide: 26

Impact

- Fishing pressure reduced 0.94 hours/fisher/day (20-30 %)
- 10 % fishers left fishing
- 46 % income increased
- Small scale entrepreneurship developed by poor

Slide: 27

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



Slide: 28

Major MACH Achievements

- Production (Food Security)
- 44- 247% increase in production (trending upwards)
- Consumption (Food Security)
 - 27-72% increase + amount (also trending upwards)
 - Enhanced Biodiversity
 - Reduced Poverty (improved income to poor fishing families through AIG)
 - Policy (improved governance)
 - 8 Permanent Sanctuaries
 - Inland Capture Fisheries Strategies has been adopted

Slide: 29

Lessons Learned

1. Sanctuaries plus community restricted fishing and management can result in increased yields and diversity of fish from wetlands
2. Restoration of critical dry season habitat important and can lead to significant impact in the yield of much larger area
3. Wetlands valuable. Poor major beneficiaries of common property wetland resources.

Slide: 30

4. Re-introduction of lost or threatened species of fish into their old habitat can result in successful re-establishment when coupled with sanctuaries and improved management
5. For community-based management of wetland resources a strong link with local govt. committee is needed linking Upazila, UP, and CBO through Co-management

6. Alternative income generation can lead fishers to other trades and businesses reducing their individual effort in fishing.

Slide: 31

Sustainability and policy change

- Independent FRUGs with own Revolving Funds
- RMOs strengthened, resource access, good governance
- Institutional linkages - co-management through UFC
- Endowment Fund Created for continuing resource management in a sustainable manner
- DoF Inland Capture Fisheries Strategy incorporating key elements of MACH approach (UFC, major sanctuaries, endowment)
- A 24 months follow up plan in execution

Slide: 32

Scaling up Community Based Organisations for Fisheries Management

- Provide a legal framework for recognising and reserving FCBO management of jalmohals and other wetlands endorsed by UFCs.
- Develop national guidelines for equitable and transparent FCBOs that are adapted to local situations.
- Develop quality FCBOs in priority Upazilas.
- Provide grants to qualified FCBOs for works to conserve and restore their fisheries.

Slide: 33

Challenges

- Capture of wetlands under the management of CBOs by power structure of the society
- Conflict with other users of the wetlands
- Continuity of good cooperation among CBOs and UFCs
- Response of general community people in the protection of sanctuaries and resources
- Encroachment in fringe area of wetlands by influential people
- Group conflict within the CBOs if generates
- Misuse of RLF fund by the influential members of the FRUGs
- Continuity of administrative support from local govt. For the management and protection of wetland resources.
- Water body leasing policy

Slide: 34

The Wetlands of Bangladesh

THANK YOU

Annex – 7: Presentation on Impact of the CBFM on sustainable use of inland fisheries in Bangladesh

Slide: 1

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Impact of the CBFM on sustainable use of inland fisheries in Bangladesh

M G Mustafa

The WorldFish Center
Bangladesh & South Asia Office
Dhaka, Bangladesh
6 July 2008
cbfm-bd.org

Slide: 2

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CBFM-2 Project: Roles of Partners



Department of Fisheries – coordination waterbody policy, research, uptake



Coordination, research, dissemination, responsible to DFID



NGOs – testing CBFM – organising communities, development, advocacy

New: Ghoroni, SDC, SHISHUK



Media production



Legal advice, studies

Slide: 3

Background

- The Community Based Fisheries Management (CBFM) project was designed to test alternative management systems and policy issues,
- Partners: DoF in collaboration with the WorldFish Center and 11 NGOs,
- Project period: September 2001 to March 2007,
- Funded by DfID and spread over 47 sub-districts in Bangladesh.

Goal - to improve the livelihoods of poor people dependent on inland aquatic resources through ensuring – efficiency, equity and sustainability.

Study aim: Objectively determine whether management performance is better under CBFM regimes compared to the existing conventional approach.

Put more simply ... "Does the CBFM work"?

Slide: 4

Importance of Inland Fisheries in Bangladesh

- Bangladesh has rich inland fishery resources
- Still contribute 42% of the total fish production.
- 80% of rural households traditionally catch fish for subsistence.
- 1.1 million Full-time fishers and 12 million part-time fishers.
- 63% of the total animal protein supply and it is higher for rural poor

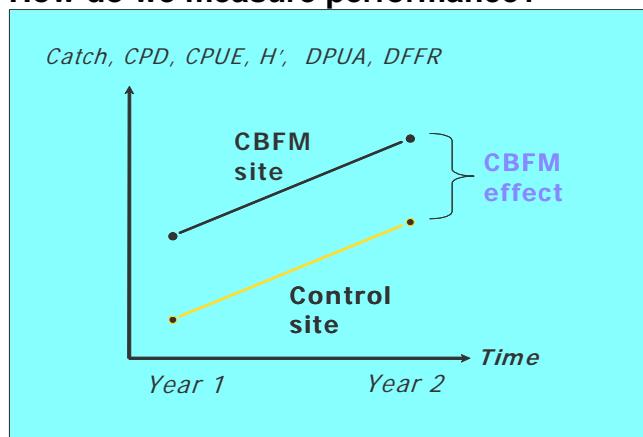
Slide: 5

How do we measure management performance?

- With quantitative indicators (measurements) of management performance:
 1. Production
 - Annual multi-species catch per unit area (CPUA)
 2. Sustainability
 - Catch per fisher's day (CPD)
 - Catch per unit effort (CPUE)
 - Biodiversity indicators – Shannon-Wiener Index (H')
 - Fishing Intensity – Annual days fishing per ha (DPUA)
 - Destructive fishing practices (proportion of total annual hours fished with destructive gears (DFER)

Slide: 6

How do we measure performance?



- Two possible approaches to determine if CBFM has improved:
 - Compare value of indicators at CBFM and non-CBFM (control) sites and/or
 - Compare value of indicators at each CBFM site through time (Trend analysis).

Slide: 7

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How do we explain management performance?

- Using explanatory variables:
 - ➔ Habitat type (River, Floodplain, Depression ...)
 - ➔ Management interventions (Sanctuary, Gear bans, Closed seasons ..)
 - ➔ Exploitation intensity (DPUA, Fishing hours ..)
 - ➔ NGO management performance
 - ➔ Water body size.....etc

- Max. of 107 of total 120 sites (CBFM & control)

Year	Split year	CBFM					Control				
		CB	FPB	Haor	OB	R	CB	FPB	Haor	OB	R
1997	1997-1998	2	2		2	10					
1998	1998-1999	5	2		2	10					
1999	1999-2000	4	2		2	9					
2000	2000-2001	2	2		2	8					
2001	2001-2002	2	2		2	7					
2002	2002-2003	9	23	6	20	16	1	4	4	4	6
2003	2003-2004	12	24	6	27	19	1	4	4	4	6
2004	2004-2005	12	23	6	22	20	2	4	4	4	6
2005	2005-2006	11	22	7	27	19	2	4	4	4	6

CB - Closed Beel
FPB-Floodplain
OB - Open Beel
R - River

Slide: 8

Methodology

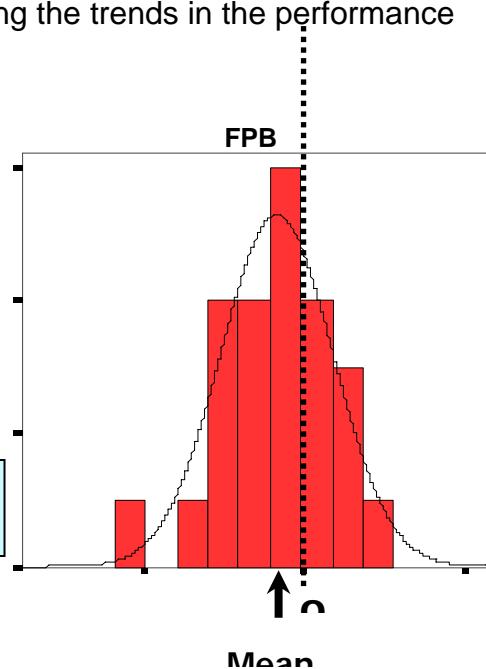
- Significant trends (slopes) in performance indicators through time were tested – GLM (General Linear Model) where time was covariate.
- Only sites with at least three years (36 months) of observations without data gap were included.
- Frequency of upward and downward trends in the indicators were compared.
- Chi-squared tests used to determine whether observed frequencies were significantly different than the expected frequencies.
- In all cases, it was assumed that the expected trends would be equal if the CBFM has no or little effect.

Slide: 9

Methods contd.

- Binary logistic regression analysis was used to determine which explanatory variables (predictors) were significant in determining the trends in the performance indicators (dependent variables).
- Explanatory variables were:
 - GNCPUE trend
 - DPUA trend (up/down)
 - DFER trend (up/down)
 - Sanctuary present (Y/N)
 - Relative Sanctuary size
 - Waterbody type (River, Floodplain ..)
 - Region (E, N, NW, SW)
 - Water body size
 - NGOs

A unit (average) value for the indicator trends (slopes)
was estimated after grouping sites by habitat type,



Slide: 10

Methods contd.

- An average 'Site score' also calculated for each site, s :

Indicator, i	Score $_i$	
	Upward Trend	Downward Trend
CPUA	+1	-1
CPD	+1	-1
GNCPUE ₈₋₉	+1	-1
DFER	-1	+1
DPUA	-1	+1
H'	+1	-1

$$\text{Score}_s = \frac{\sum_i^n \text{Score}_{i,s}}{n_s}$$

- Where n_s is the number of indicators scored at site s .
- Significant differences in mean site score between CBFM and control sites were tested using GLM (SPSS).
- The effect of fixed factors: NGO, water body type, geographical region and the covariate: water body size (area) on mean site scores were also examined using GLM.

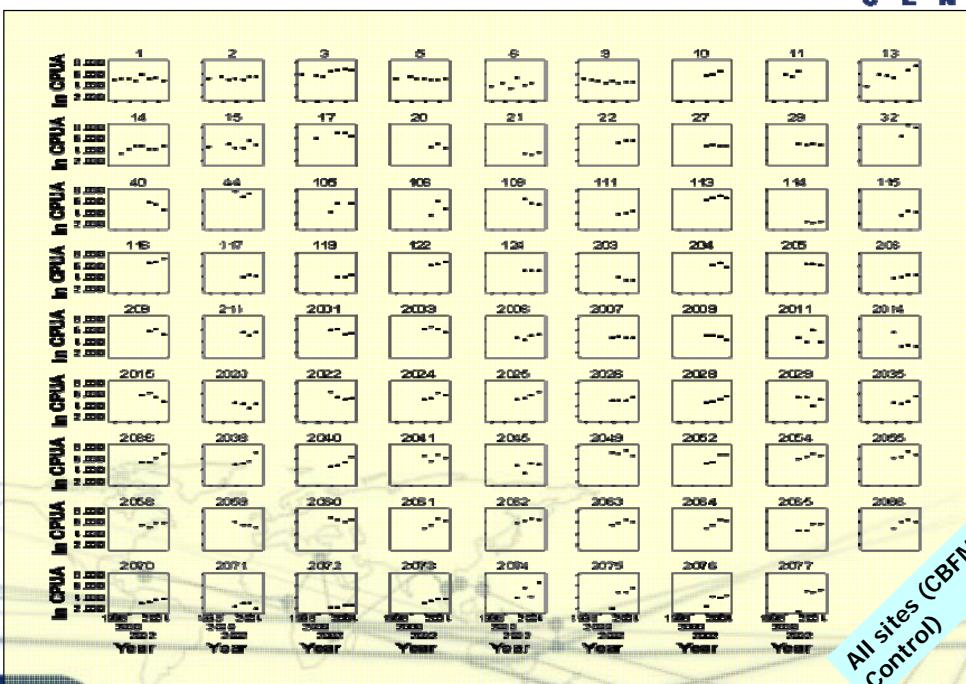
- MDS analysis of species assemblages were examined at CBFM & control sites using PRIMER.

Slide: 11

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Results-production CPUA: Time series analysis Annual production estimates for 3 or more years



Slide: 12

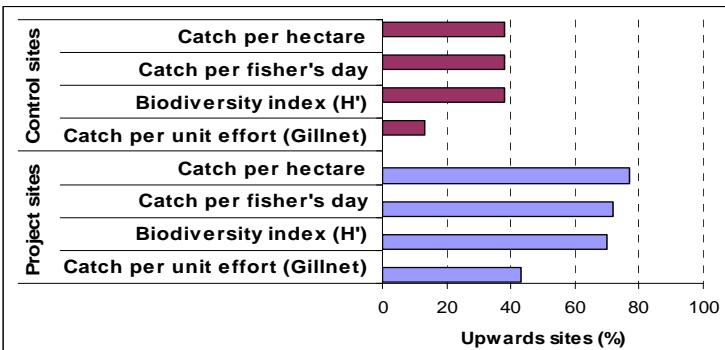
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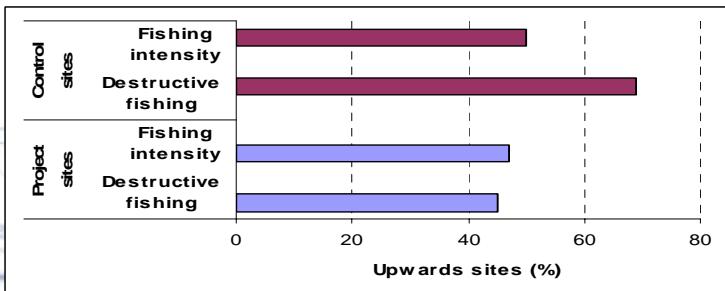
CBFM SITES ONLY						
		ICPUA		CPD	GNCPUE	DFER
		trend	Trend	Trend	Trend	DPUA
Trends	Total Up	50	46	29	29	29
	Total Down	14	18	40	35	35
	% Up	78	72	42	45	45
	Chi-squared (X ²) (P)	<0.01	<0.01	0.19	0.45	0.45
Significant Trends	Total Up	10	10	16	2	2
	Total Down	1	1	23	4	4
	Chi-squared (X ²) (P)	0.06	0.06	0.43	0.56	0.13



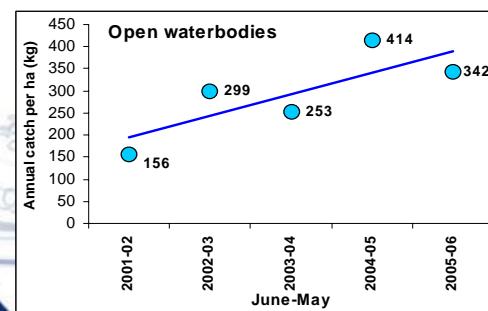
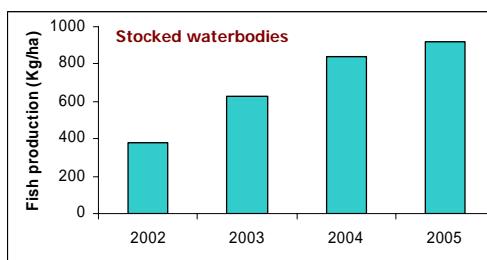
Results – Summary of the trends



Results of the trends in CPUA, CPD, Biodiversity, CPUE, fishing intensity and destructive fishing ratio



CBFM Approaches: Annual increase of fish production

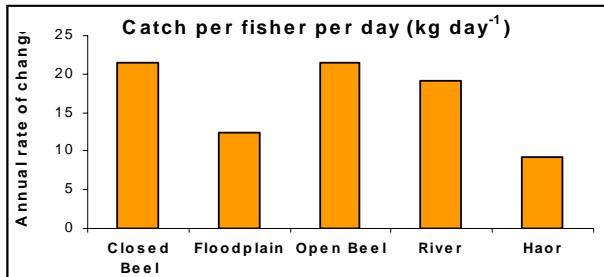


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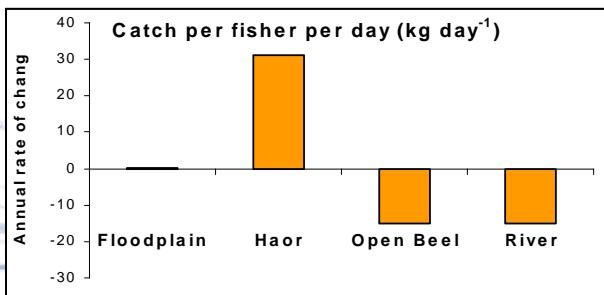
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Annual rates of change (%) by habitat for project and control water bodies



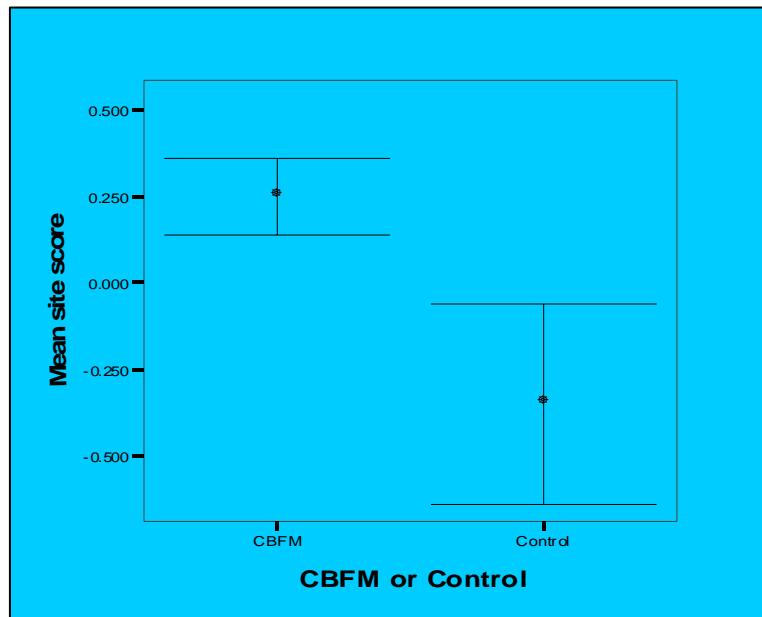
Project



Control

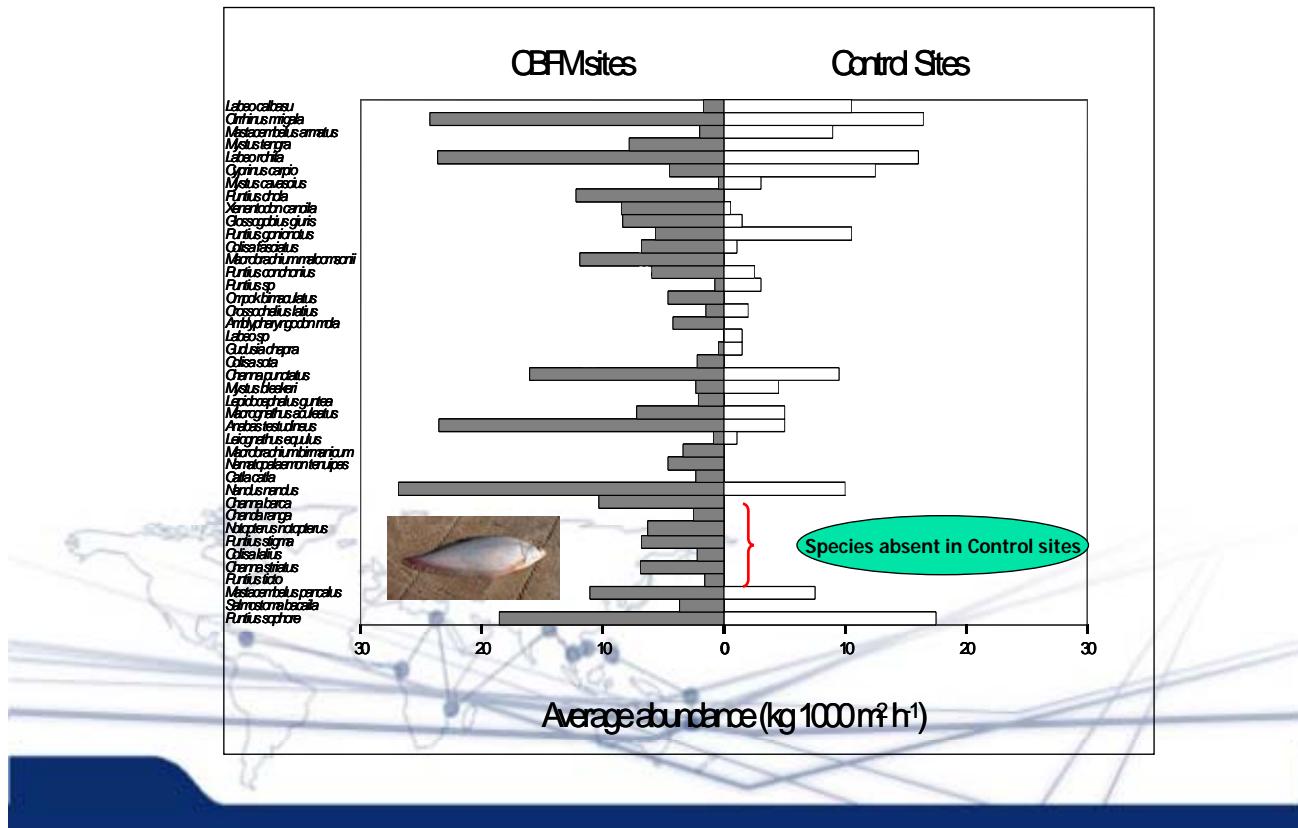
Slide: 16

Results – Mean Sites Score

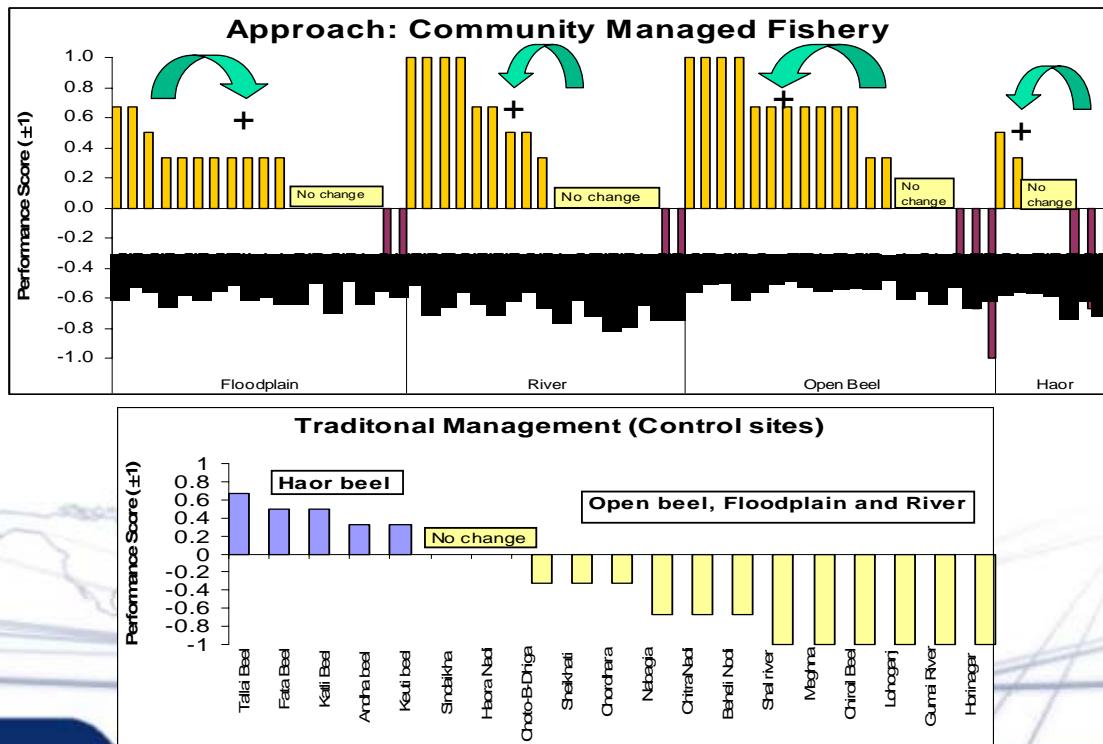


The mean site score, encapsulating the trends of all the indicators was found to be significantly greater at CBFM compared to control sites

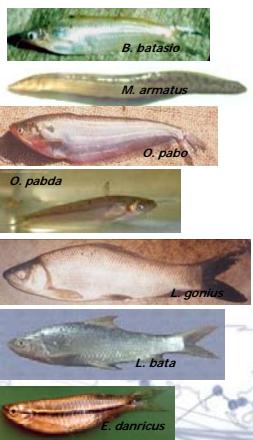
Floodplain habitat: Average abundance of species caught from CBFM and control sites



Management Approaches and Efficiency of Fisheries Management



Some endangered species reappeared in the catch after establishment of sanctuary



- **Tengra (*Batasio batasio*)**
- **Bara Baim (*Mastacembelus armatus*)**
- **Pabda (*Ompok pabo*)**
- **Madhu pabda (*Ompok pabda*)**
- **Goina (*Labeo gonius*)**
- **Bata (*Labeo bata*)**
- **Ekthola (*Demogenys pusillus*)**

Slide: 20

Key lessons learnt:

- Long-term perspective is needed to demonstrate the effectiveness of the local institutions and strengthen them.
- CBFM show that community co-management works in terms of improving productivity, biodiversity, and directly involved community members do benefit.
- Poor fishers were able to improve their livelihoods.
- Networking of community groups involved in fisheries management has been an essential part of the approach.
- In many cases it is best to manage aquatic resources as larger watershed based areas rather than individual wetland.
- Benefits from managing large wetland ecosystem may not be restricted to just fish. Experience show that these aquatic systems support a wide variety of valuable flora and fauna.
- Bangladesh has had comprehensive experience of CBFM. The gains must be consolidated and lessons harnessed for longer-term expansion of the approaches.

Slide: 21

Policy recommendations:

1. CBFM project has provided compelling evidence that production was found to have increased significantly through time, and daily catch rates by fishers increased.
2. The CBFM practice implemented in 116 sites in Bangladesh have improved fish biodiversity and significantly greater than control sites.
3. CBFM project has already demonstrated that CBOs are organized and registered, so, consideration might therefore be given to strengthening CBO organizations to support experimentation and learning under future fisheries resources management initiatives.
4. As a part of the institutionalization process, 130 Community Based Organizations (CBOs) have been developed and established under the project with legal entity.
5. Future research might aim to understand exclusively why the approach is successful at some sites but not others and project might choose to place greater emphasis on identifying habitat-specific interventions and arrangement to meet precise management objectives.

Slide: 22

Outcomes:

- National fish production will increase to meeting growing demand i.e., Fish, Food and Energy;
- Species biodiversity and sustainability will ensure;
- As a result of management strategies 164 fish sanctuaries have been established and restored fish habitat;
- CBFM program will produce benefit for Ecological Critical Areas (ECAs) and thousands waterbodies in Bangladesh;
- Improve sustainability of ECAs and inland open water fisheries; and help the communities dependent on these resources for secure food and income;
- CBOs are resilient against shocks and able to continue without external support;

Thank you

