Management of haors, baors, and beels in Bangladesh: Lesson for Lake Basin management

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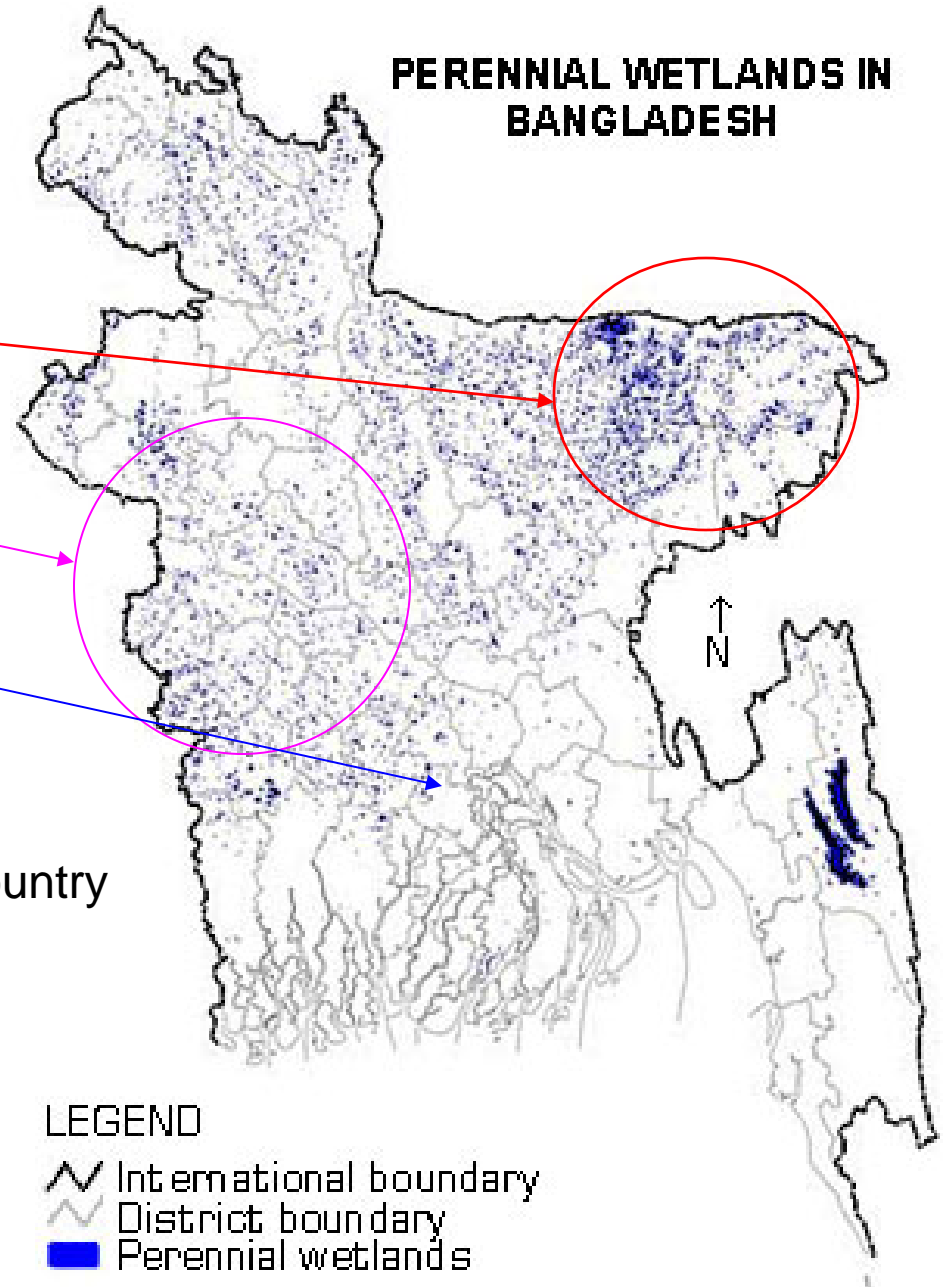
PERENNIAL WETLANDS IN BANGLADESH

Haor

Baor

Beel

Beels are scattered over the country

N

LEGEND
International boundary
District boundary
Perennial wetlands

Lake resources

Irrigation
Cattle
Livelihood
Biodiversity
Agriculture
Navigation
Fish
Flood control
Medicine

Lake ecosystem in Bangladesh supports atleast
240 species of Fishes
125 Species of waterfowls

The seed from the fruits of water lily is an important item of food.

The livelihood of a large number of community is totally dependent of the lake resources, like *Kaibarta*
Maimal
Bazbangshi

Threats of Lakes

Disappearing

Pollution

Over harvesting of the natural resources

Land use conflict

Lack of up stream water flow

Flood

Saline

Land erosion

Siltation

Development activities

- In the early 19th century Chalan Beel used to cover an area of about 1,085 sq km but it was reduced to 368 sq km in 1909, of which only 85 sq km remains underwater throughout the year. It has since shrunk to only 26 sq km.

Institutions involved in Lake Management in Bangladesh

Number of Government and Non Government Organizations are involved in lake Management in Bangladesh. Example-

Government Institutes (Departments)
- Bangladesh Water Development Board (BWDB)
- Department of Environment
- Department of Fisheries
- Ministry of Land
- Local Government Engineering Department (LGED)
- Space Research and Remote Sensing.

I/NGOs
- Center for Natural Resource Studies
- Bangladesh POUSH
- Bangladesh Center for Advanced Studies
- BRAC
- NACOM
- CFSD
- **IUCN**
- **Practical Action**

Universities

CBOs

Legislations on lake management

The Haor Development Board Ordinance, 1997
Bangladesh Environmental Conservation Act 1995
East Bengal Protection and Conservation of Fish Act, 1950
Bangladesh Wildlife (Preservation) (Amendment) Act, 1974
The East Bengal State Acquisition and Tenancy Act, 1950
The Land Reform Board Act, 1989

Beside the national Laws, Bangladesh is signatory of Ramsar, CITES, CMS, etc.

Wetland inhibitors follow number of Cultural and Religious norms, like
Secret wetlands: *Pana tirtha, Sumeswari*
Secret Rivers: *Brahmaputra, Sitalaskha*
Ban of Harvesting: Fish fry in Manikganj District
No Fishing: No fishing on Friday in Sundarban
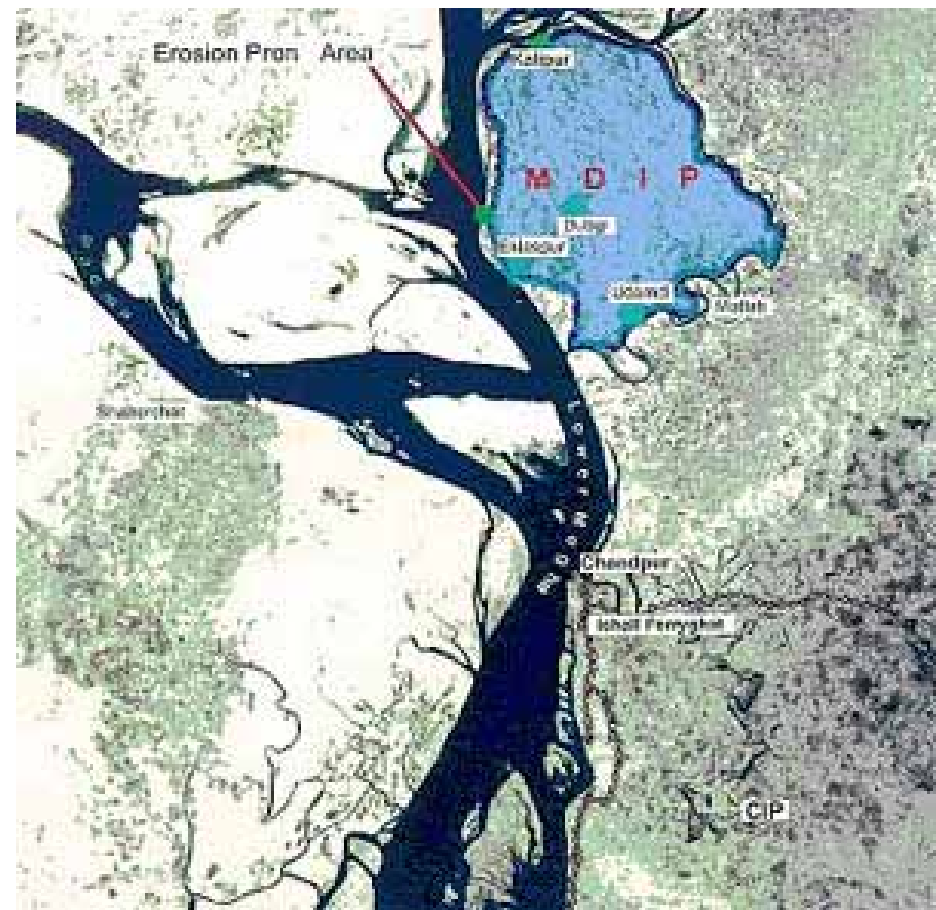
Poverty interferes norms

Number of projects have been implemented in Bangladesh for the Management of Wetlands. Some of the **Good Projects** and **Tools** are described in the following slides. Most of this projects and tools were practiced in large wetlands, like

- **Tangua Haor** (100 sq km of which 2802.36 ha is wetland, Ramsar Site)
- **Hail Haor**
- **Hakaluki Haor** (in rainy season 4,400 ha, in dry season 4,400 ha)
- **Marjat Baor** (200 ha)
- **Chalan Beel** (368 sq km)
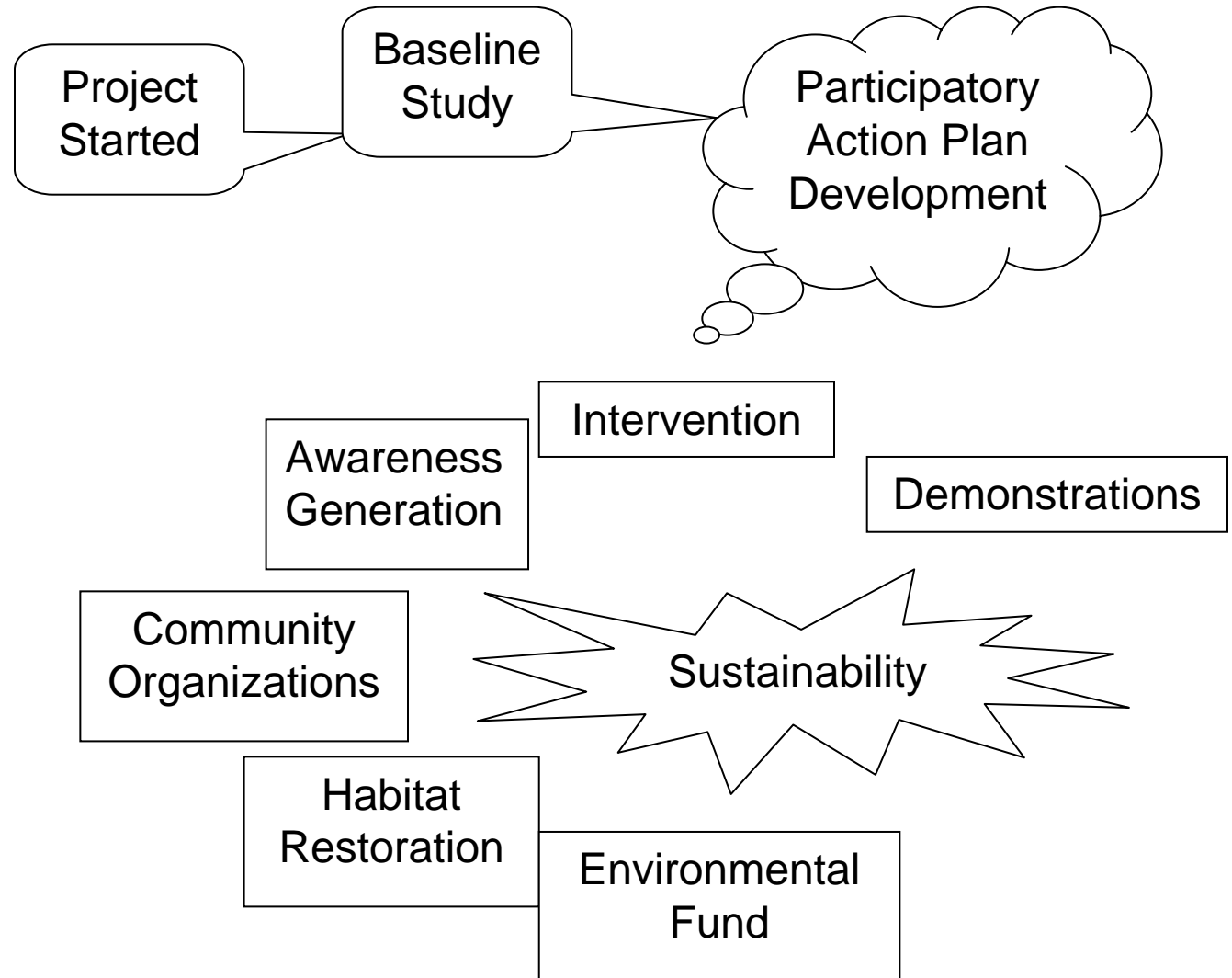- **Chanda Beel** (60 sq km)
- **Arial Beel** (723 sq km)

MEGHNA-DHONAGODA PROJECT by BWDB

❑ Water Users Organization formation for water management

❑ Involvement of Water User Group in cost recovery

❑ Involvement of distress woman in embankment maintenance

❑ Integrated Pest Management

❑ Small Scale Fisheries Development

CNRS worked for Haor, NACOM and BCAS worked for Padma-Jamuna, Brahmaputra – Stalakha floodplains; and the Madhumati floodplains respectively.

Project Started

Baseline Study

Participatory Action Plan Development

Intervention

Awareness Generation

Demonstrations

Community Organizations

Sustainability

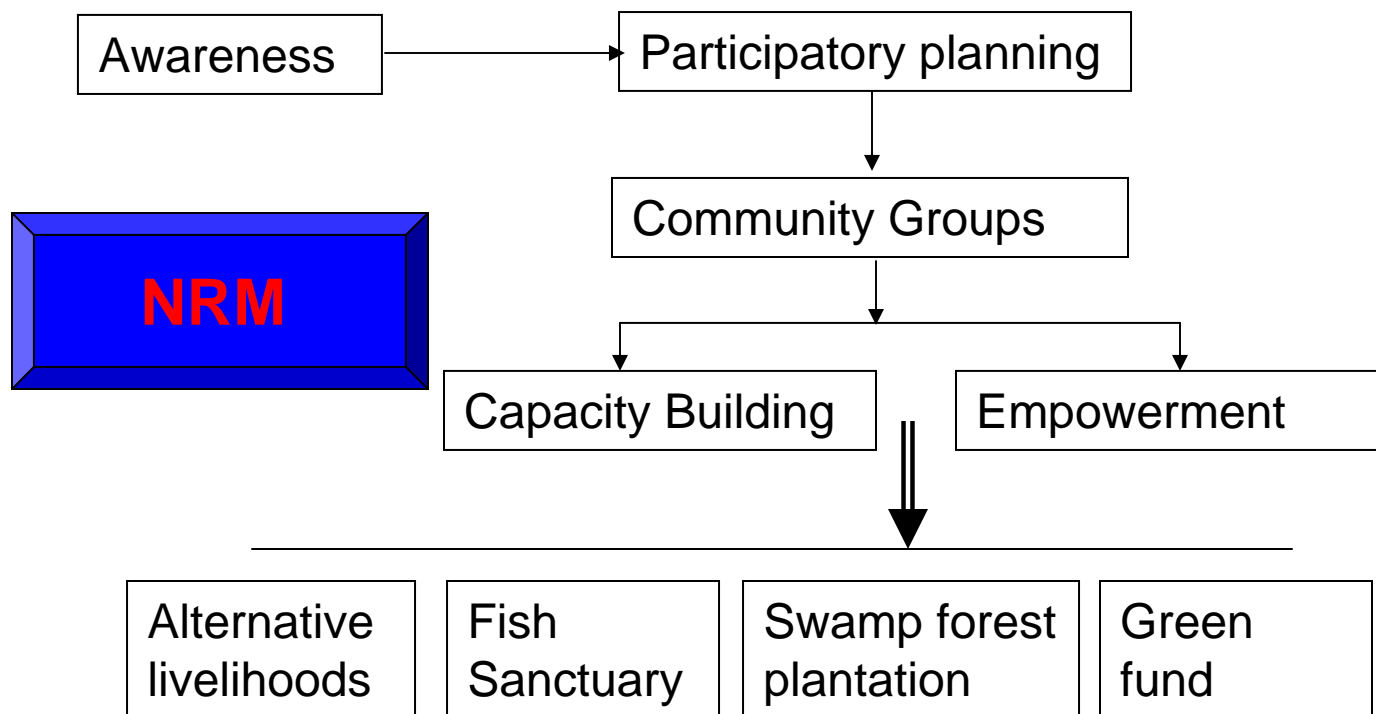Habitat Restoration

Environmental Fund

Community-Based Haor Resources Management under Sustainable Environment Management Program (SEMP 2.2.1/A) by CNRS

Pangner Haor
Sanuar Haor
Hakaluki Haor

5 years

Community

Local Govt

NRM

Awareness → Participatory planning

Community Groups

Capacity Building

Empowerment

Alternative livelihoods

Fish Sanctuary

Swamp forest plantation

Green fund

Management of Aquatic Ecosystem through Community Husbandry (MACH)

The project included realistic activity packages which covers household level livelihood planning and intervention,

- ❑ training needs assessment,
- ❑ awareness and institution building,
- ❑ habitat rehabilitation,
- ❑ afforestation,
- ❑ wise use of fish and other wetland resources,
- ❑ establishment sanctuaries,
- ❑ community development & local level institution building and
- ❑ social and biological monitoring.

Community Based Fisheries Management (CBFM)

community control over 116 water bodies has been established through 130 officially recognised, poverty-focussed, Community Based Organisations

Prime objectives of CBFM

•to ease the growing fishing pressure and stop fishing during the breeding season, usually for a three-month period – April to June each year.
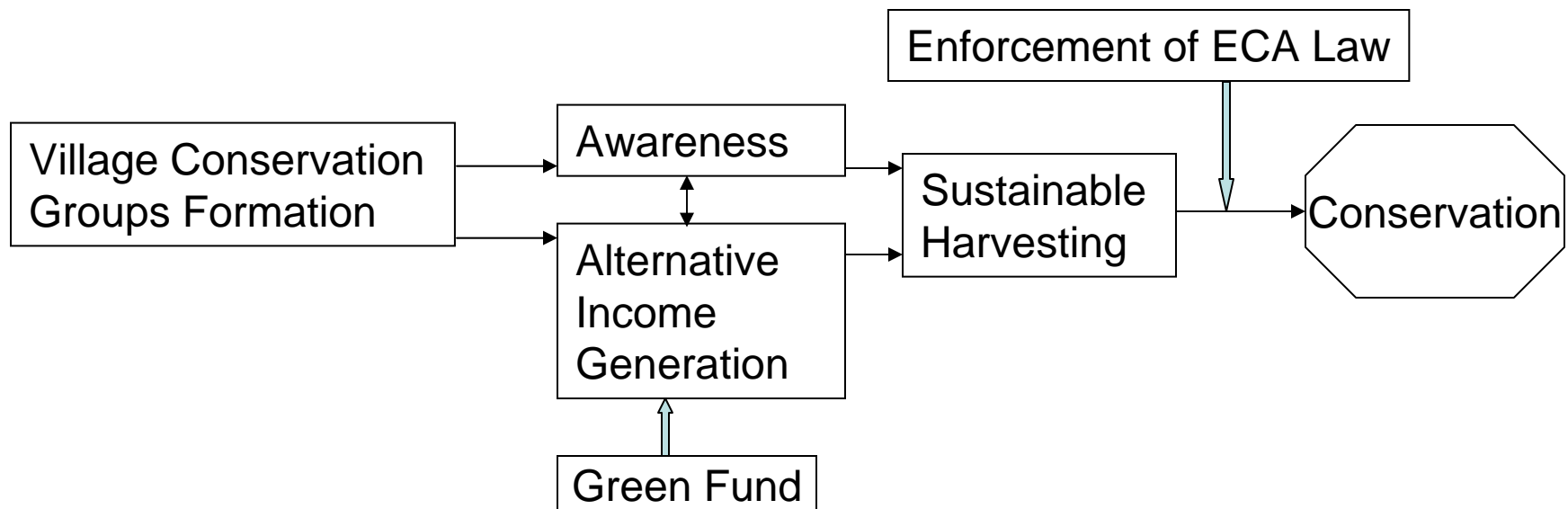•to establish fish sanctuaries where no fishing is allowed.

Sanctuaries are demarcated with red flags, accompanied by a signboard declaring that fishing is completely banned in the sanctuary. 164 fish sanctuaries covering over 90 hectares of water area have been established in 81 water bodies.

Costal and wetland Biodiversity Management Project (CWBMP)

Has been implanted since 2006 In the Ecological Critical Areas, viz.,
Sonadia Island, St. Martin's Island and Teknaf Peninsula and in Hakaluki Haor.

Object of the project is sustainable management of natural resource through community groups.

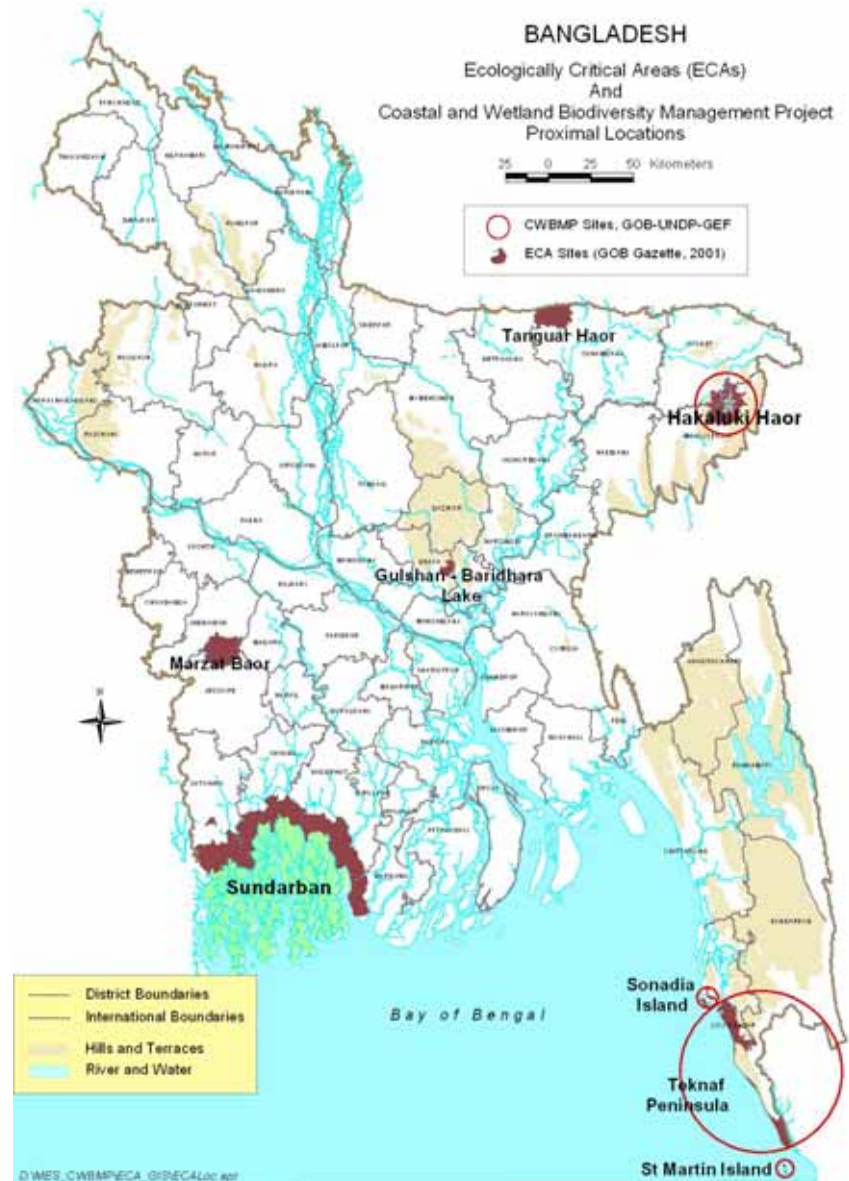Ecologically Critical Areas (ECAs) were declared under the 1995 Environmental Conservation Act (1995).

Enforcement of ECA Law

Village Conservation Groups Formation → Awareness → Sustainable Harvesting → Conservation

Alternative Income Generation

Green Fund

Costal and wetland Biodiversity Management Project

The ECA notification identifies the following activities as prohibited:

- Felling or extracting of trees and forest;
- Hunting and poaching of wild animals;
- Catching or collection of snail, coral, turtle and other wild animals;
- Establishment of industries that may pollute soil, water, air and/or create noise pollution;
- Any activity that is likely to threaten the habitat of flora and fauna
- Any activity that is likely to destroy/ alter the natural characteristics of soil and water,
- Any activity that is likely to cause harm to fish and other aquatic life

BANGLADESH
Ecologically Critical Areas (ECAs)
And
Coastal and Wetland Biodiversity Management Project
Proximal Locations

25   0   25   50 Kilometers

○ CWBMP Sites, GOB-UNDP-GEF
🦐 ECA Sites (GOB Gazette, 2001)

Tanguar Haor
Hakaluki Haor
Gulshan - Baridhara Lake
Marzat Baor
Sundarban
Bay of Bengal
Sonadia Island
Teknaf Peninsula
St Martin Island

District Boundaries
International Boundaries
Hills and Terraces
River and Water

Participatory Action Plan Development

Problem Census
Community members are divided into separate Stakeholder groups (e.g. fishermen, farmers, etc.) to identify the problems they face in their communities and solutions.

Problem Cluster and Prioritisation
Secondary stakeholders (e.g. chief executive of a sub-district (UNO); fisheries and agriculture officers, union parishad chairman, NGO representatives.) join with primary stakeholders to discuss and prioritise problems related to natural resources management.

Analysis of solutions
Separate stakeholder groups appraise identified solutions to assess the socio-economical, technical, environmental, political and sustainability (STEPS) impact of the actions needed to achieve the solutions.

Consensus on Solutions
Primary and secondary stakeholders jointly review the compiled analysis of solutions recommended by separate primary stakeholder groups and agree potential solutions
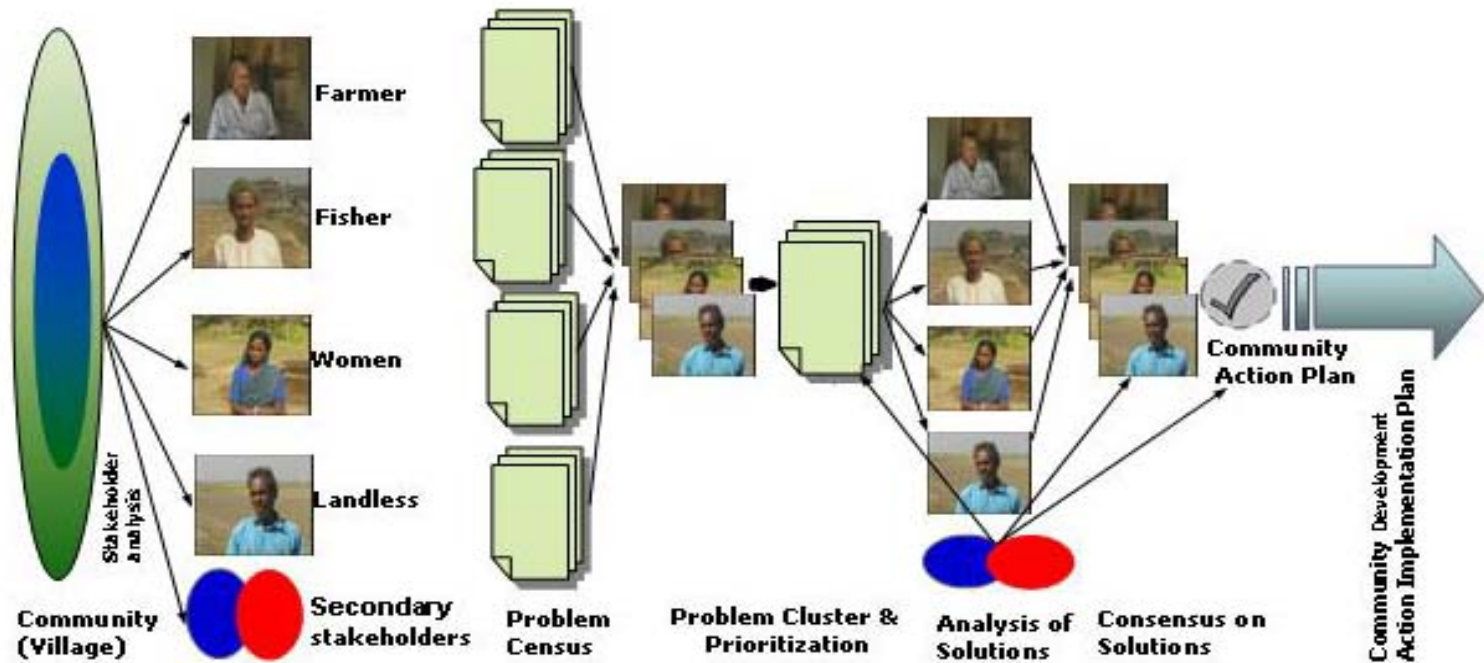
End product of PAPD is a consensual community action plan

After a PAPD, communities develop a more detailed action plan, which will be implemented through existing or newly formed local community institutions.
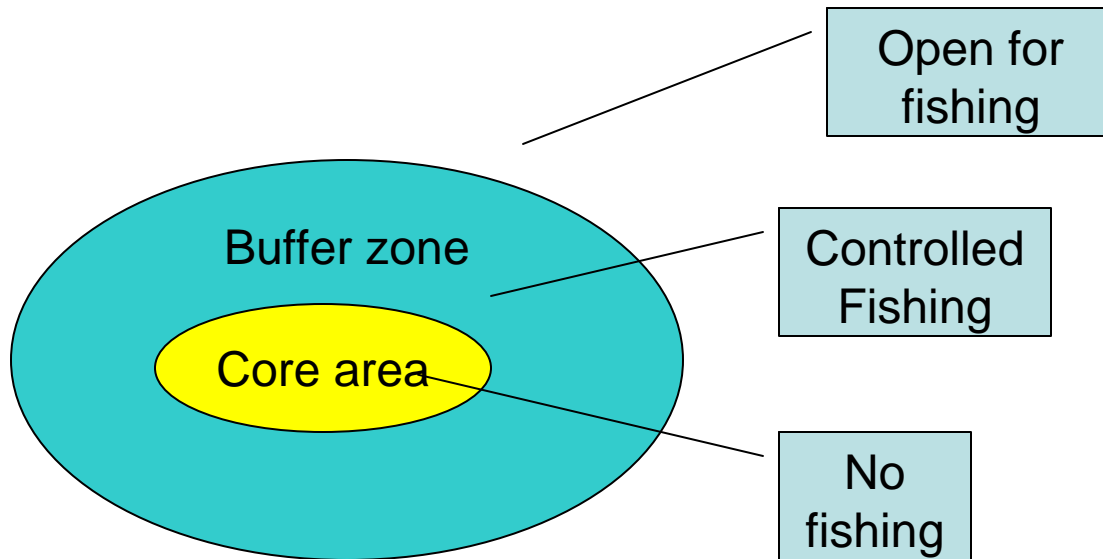
Participatory Action Plan Development

Stakeholder analysis

Farmer

Fisher

Women

Landless

Community (Village)

Secondary stakeholders

Problem Census

Problem Cluster & Prioritization

Analysis of Solutions

Consensus on Solutions

Community Action Plan

Community Development Action Implementation Plan

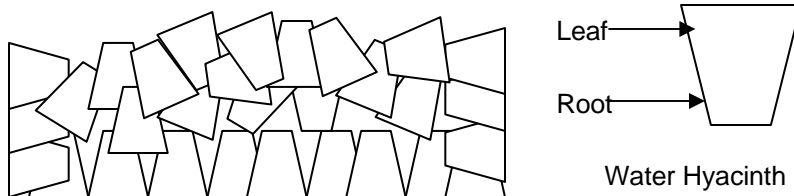**PAPD Activity Flow Chart**

Community based Fish Sanctuary

The community based fish sanctuary is community announced and practices project areas that is a no fishing zone with a core area and a buffer zone.

Open for fishing

Buffer zone

Controlled Fishing

Core area

No fishing

demarcated with red flags and filled with branches or tree roots as fish shelter and keep no fishing possible
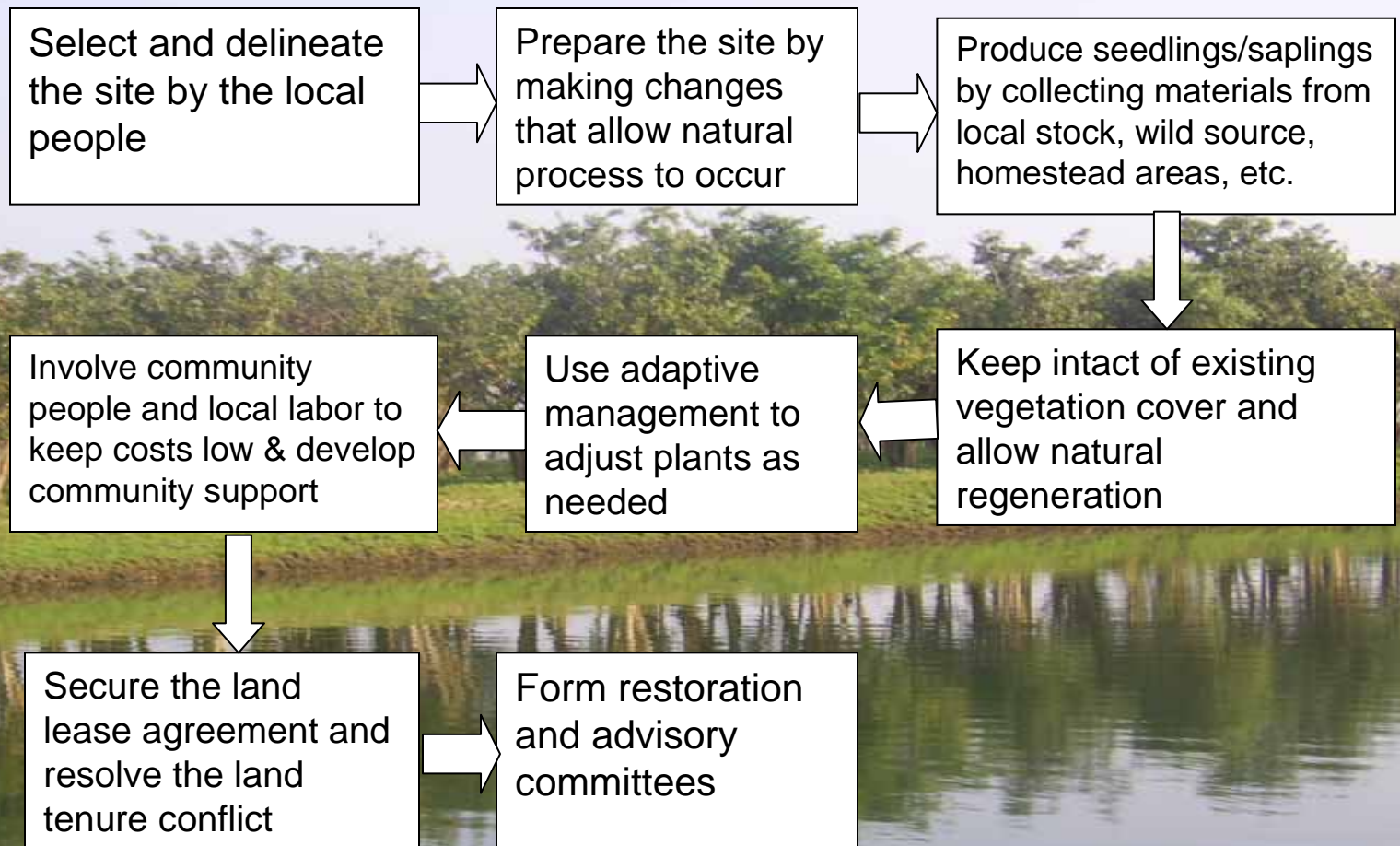
BAIRA -Floating Garden

❑ *Baira* is an indigenous practice of the farmers in southwest districts of Bangladesh

❑ *Baira* is a floating platform made of water hyacinth

❑ Is used as seed bad and for growing vegetable and spices

❑ 23 species of vegetable and 6 species of spices have been successfully produced and harvested

Leaf ➝

Root ➝

Water Hyacinth

To construct a baira farmers usually follow the above mentioned damping approach

Restoration of Swamp Forest in Haor

Select and delineate the site by the local people → Prepare the site by making changes that allow natural process to occur → Produce seedlings/saplings by collecting materials from local stock, wild source, homestead areas, etc. ↓

Involve community people and local labor to keep costs low & develop community support ← Use adaptive management to adjust plants as needed ← Keep intact of existing vegetation cover and allow natural regeneration ↓

Secure the land lease agreement and resolve the land tenure conflict → Form restoration and advisory committees
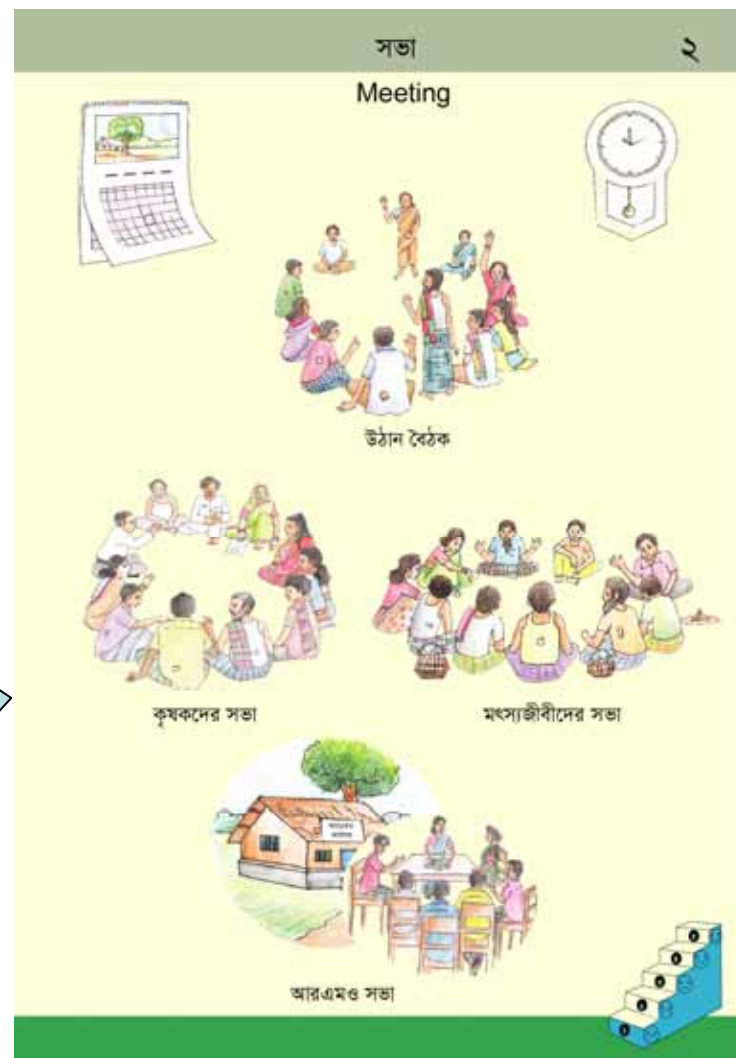
Report Card

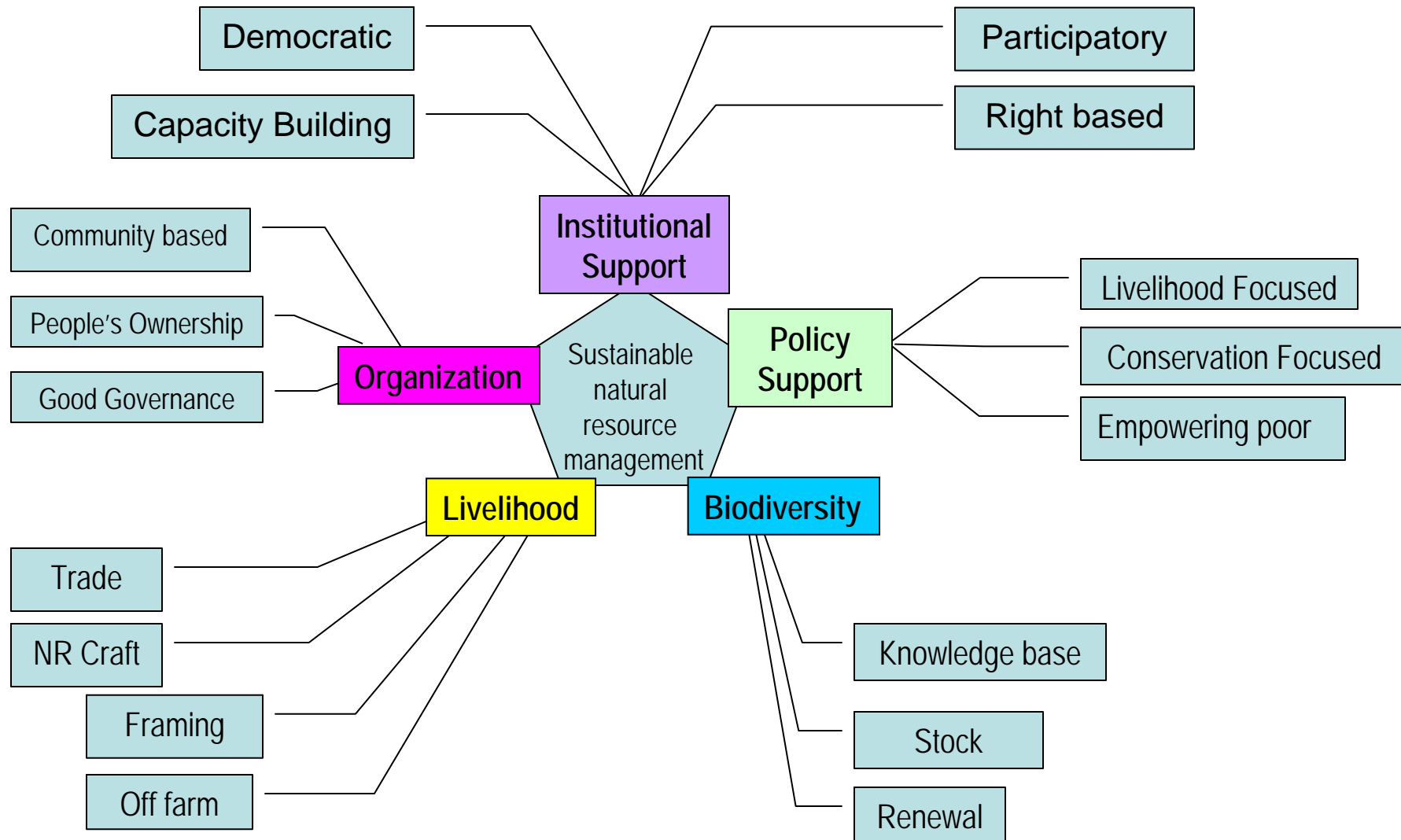■Report card is a very simple, effective, participatory self-monitoring monitoring tool.

■Report Card allows the community to monitor the processes of any development program or activities in their command area.

■In this process, pictures are used to understand the activities

Report card contents number of pages. One page is for one index. The indicators are described in picture. The community compare the progress of activities with the picture and score. In this page the calendar and watch is used as determine regularity and timeliness.

Institutional Arrangement for Sustainable Resource Management

Lake Basin management

The wetland management practices in Bangladesh is appreciable. Though there are bottlenecks, like corruption, poverty, political instability, etc. But the experience from Bangladesh can be replicated to other lake basins considering the ecology and social aspects. Based on those the following are **suggestions** to manage large lake basin:

- Involve local community in management (through PAPD)

- Ensuring Access to existing resource and Investment

- Explore scopes from exiting legislations rather than having new law

- Involve/Establish a community institution for monitoring

- Making conservation/protection economically valuable to community

- Respecting and Integrating Indigenous Knowledge

- Practice a culture of sharing benefit among the stakeholders

- Mass awareness and education on the practiced management through significant number of tools/event

- Ensure involvement of Government in every stages

Thank you