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INTEGRATED PROTECTED AREA CO-MANAGEMENT (IPAC)

Sundarbans Co-Management Coordination Workshop

May 24, 2011

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COVER PHOTO:

USAID Mission Director, Denise Rollins, discusses the importance of the Sundarbans as the Crown Jewel of Bangladesh's Protected Area system, an internationally recognized World Heritage Site, and a barometer for measuring our progress in climate change adaptation and mitigation during the opening of the Sundarbans Co-Management Coordination Workshop. This workshop provided an opportunity to strengthen coordination among government, donor, NGO and civil society stakeholders interested in conservation and co-management of the Sundarbans.

INTEGRATED PROTECTED AREA CO-MANAGEMENT (IPAC)

SUNDARBANS CO-MANAGEMENT COORDINATION WORKSHOP
MAY 24, 2011

USAID Contract N° EPP-I-00-06-00007-00

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Sundarbans Co-management Coordination Workshop Proceedings

This report documents the proceedings of the Sundarbans Co-Management Coordination Workshop, organized by IPAC and the Forest Department on May 24, 2011, and held at the Spectra Convention Center in Dhaka. A brief description of the Workshop is provided below. The report also includes speeches and presentations made during this one-day event.

The Sundarbans Co-Management Coordination Workshop brought together more than 60 participants representing GoB agencies including Forest Department, Department of Fisheries and Department of Environment; donors and donor projects; NGOs; representatives from the tourism sector and Sundarbans Co-Management Committee (CMC) leaders to discuss conservation and development efforts in and around the Sundarbans, and to propose approaches to strengthen collaboration. The workshop provided an opportunity for participants to present the current status of their work and seek opportunities for collaboration, as well as a discussion on a formalized communications mechanism to ensure more effective collaborations in Sundarbans conservation through co-management into the future.

In opening and closing plenary sessions, USAID's Mission Director Ms. Denise Rollins, Secretary of the Ministry of Environment and Forestry, Mr. Mesbah Ul Alam, Chief Conservator of Forest Mr. Ishtiaq Uddin Ahmad and USAID's Director of the Office of Economic Growth, Mr. Naren Chanmugam, spoke about the Sundarbans and its importance in the context of Bangladesh as well as in the international arena. Ms. Rollins said, "The Sundarbans is so important, so large and so complex that we will need to work together to ensure its effective conservation based on co-management, guaranteeing integrated conservation and development and climate change adaptation and mitigation."

The workshop included a series of technical sessions supporting effective conservation and development of the Sundarbans, culminating with presentations of the Sundarbans Integrated Resource Management Plan (IRMP) recently submitted to MoEF for approval as well as the CRISP forest-carbon finance proposal currently under review for potential funding. Representatives from the co-management committee from the Sundarbans were also present at the workshop.

A series of program update presentations were made by the Forest Department, EU SEALS, GIZ, IPAC, UNDP, World Bank, Wildlife Trust of Bangladesh and Wildlife Conservation Society. The Forest Department Initiatives delineated a three-year rehabilitation and development program of communication systems in Sundarbans, followed by Infrastructure rehabilitation and development programme of Sundarbans ending with the post SIDR cyclone initiatives funded by UNESCO.

The presentation by EU Seals covered the overall objective of support to contribute maintaining or improving ecosystem productivity and the environmental and social integrity of the north coastal lands of the Bay of Bengal. Establishing a sustainable Management Information System (MIS) to guide SRF protection and management is also a major part of their agenda.

GIZ's presentation talked about communities and relevant authorities gaining increased capacity to protect biodiversity enhancing climate change adaptation of pilot sites within the Ecologically Critical Area (ECA) of the Sundarbans. They set indicators to help develop a better understanding of the situation.

IPAC presented its current progress on co-management as a platform for conservation in Bangladesh, sharing progress on the establishment of the Nishorgo Network as an integrated network of forest and wetland protected areas conserved through co-management, with the Sundarbans as the crown jewel of this network.

The World Bank presentation mainly delineated the Biodiversity Conservation and Socio-Economic Sustainable Development of the Sundarbans Area where World Bank would provide Non-Lending Technical Assistance.

UNDP provided a general update on REDD and forest carbon financing both internationally and within Bangladesh.

Wildlife Trust of Bangladesh talked about how their aim was "to protect the natural heritage of Bangladesh", with their team of 40 passionate staff and a multi-disciplinary skillset with a motive for bringing social change through the reduction of key threats to a landscape using a social marketing approach to change human behaviours.

Elisabeth Mansur, representing Wildlife Conservation Society, presented on the importance of the Sundarbans for protection of two freshwater dolphin species, explaining that this is the only place in the world that this occurs, and discussing conservation management strategies toward ensuring their survival.

Ram Sharma of IPAC presented the current Integrated Resource Management Plan, or IRMP, being submitted by Forest Department to MoEF for approval. This document will provide a roadmap for conservation of the Sundarbans through co-management for the next teen years.

The Collaborative REDD+IFM Sundarbans Project (CRISP) presented by Mr. Philip DeCosse explained how the project would work with Forest Department of MOEF as the project proponent. CRISP would be implemented by the gazetted 4 CMCs by gainfully associating local communities including VCFs from the interface landscape. USAID's IPAC project would support technically at Forest Department's Initiatives with GOB funds.

Growing Stock Analysis presented by M. A. Latif, gave a thorough account of the volume of poles and trees in Sundarbans, with DBH (cm) class distribution of different important species of Sundarbans in 2009 & 1996, Gewa and Sundari and other species.

A study on the Conservation and Management of Fisheries Resources of the Sundarbans presented by M. G. Mustafa, explained how providing information needed to assess the present situation of Sundarbans fisheries resources was being carried out. Identifying recommendations and actions that could be implemented to ensure the long term conservation, improved fisheries ecosystem and habitat management and sustainable utilization of the Sundarbans fisheries resources, giving the SRF its due value and recognition. The key highlight of this project would however be Alternative Livelihood Option.

Along the same line of thought, Value Chain (VC) Study Sharing by Mahmud Hossain described the existing VC situation of Sundarbans and mainly stressed on the need to provide a foundation upon which economic & other interventions can be efficiently designed, while pointing out the various practices and future options in hand.

A concluding session was held on Sundarbans Coordination Mechanism discussing ways of collaborating with each other moving forward. It was agreed to establish quarterly or semi-annual coordination meetings to be held at the Forest Department. It was also agreed to establish

knowledge sharing platforms for ensuring equitable access to information and initiatives associated with conservation management of the Sundarbans. This includes posting of information on one or more existing web sites as well as making available hardcopy information at Wildlife Trust of Bangladesh's information center.

IPAC Chief of Party, Reed Merrill, emphasized the importance of amplifying our conservation efforts rather than duplicating them. He reiterated the importance of forming a modality for sharing information that would extend beyond the field level so it might also lead to eventual policy interventions. He also mentioned how the Forest Department could facilitate the task by arranging quarterly sessions of two hours within the department premises, regarding updates on the work being done around the country, supported with a knowledge management platform. This quarterly meeting could also include organizations related to work on the Sundarbans, hence creating a more efficient platform for involvement. The discussion also brought to light some issues regarding the need to have a knowledge center where digitized information would be available as an inventory for any future research. On a similar note, a request was put forward to make the MIS cell of the Forest Department more accessible to all. The WTB team also offered the use of their inventory of materials while further inviting the participants to strengthen this database by sending in their respective publications and other data sources for future use.

Sundarbans Co-Management Coordination Workshop

Gulshan Spectra Convention Center, Dhaka, May 24, 2011

Agenda

9:30-9:35	Welcome by Reed Merrill, Chief of Party, IPAC
9:30-9:45	Introduction by Mr. Ishtiaq Uddin Ahmad CCF, Forest Department
9:45-10:00	Address by Ms. Denise Rollins, USAID Mission Director
10:00 – 10:15	Short Documentary on the Sundarbans by Enam Ul Haque, President of Bird Club Bangladesh
10:15-10:30	Address by Mr. Mesbahul Alam Secretary, MoEF
10:30-10:45	Tea Break
10:45-12:00	Technical Session 1: Moderator – Mr. Farid Uddin Ahmed, Executive Director Arannayk Foundation
Presentations:	- FD Initiatives - EU SEALS - GIZ ECA project - USAID IPAC - UNDP-REDD - WB initiatives - WTB
12:00-01:00	Technical Session 2: Moderator – Mr. AKM Shamsuddin, Technical Coordinator,
IPAC Presentations:	- IRMP Management Plan - CRISP forest-carbon financing plan - Discussion
01:00-02:00	Lunch
02:00-03:30	Technical Session 3: Moderator- Mr. Md. Mokhlesur Rahman, Executive Director, CNRS
Presentations:	- Sundarbans Value Chain Study - Sundarbans Fisheries Study - WCS - Growing Stock Analysis
03:30-4:00	Sundarbans Coordination Mechanism: Moderator - Reed Merrill, Chief of Party, IPAC
04:00-04:15	Closing Remarks and Vote of Thanks – Naren Chanmugam, Director EGFE, USAID

Presenters at the Workshop

1. Forest Department Initiatives by Md. Akbar Hossain
2. European Union SEALS by Koen Duchateau
3. GIZ ECA by Md. Abdullah Abraham Hossain and M. Assaduzzaman
4. IPAC, by Reed Merrill
5. UNDP REDD by Mamunul H Khan
6. World Bank by Shakil Ahmed
7. Sundarbans Co-management Coordination Workshop by Reed Merrill
8. Wildlife Trust of Bangladesh by Md. Anwarul Islam and Christina Greenwood
9. Sundarbans IRMP by Dr. Ram Sharma
10. CRISP by Mr. Philip Decosse
11. Sundarbans Value Chain Study by Mahmud Hossain
12. SRF Fisheries Study by M G Mustafa
13. Wildlife Conservation Society's Bangladesh Cetacean Diversity Project by Elisabeth Fahrni Mansur
14. Growing Stock Analysis by M. A. Latif

Address by Ms. Denise Rollins, Mission Director USAID

As-salam-u-alaikum and good morning everyone!

On behalf of the U.S. Agency for International Development, the U.S. Government's principal development agency, I am grateful for this opportunity to come together with the Government and people of Bangladesh, as well as other partners, to talk about Bangladesh's environment conservation through co-management.

For more than a decade, USAID has been one of Bangladesh's strong partners in environment conservation. It started with two pilot initiatives: Nishorgo to conserve forest protected areas and, MACH Management of Aquatic Ecosystems through Community Husbandry (MACH) for community-based wetlands management. Both of these initiatives demonstrated that conservation of nature key environmental components, contributing to Bangladesh's economic development, is possible when communities share rights and responsibilities in conservation management. Also, the communities do gain economic benefits, in turn, through environment conservation.

USAID primarily focuses on expanding broad-based economic opportunities while conserving natural resources, such as forests and wetlands. The USAID -developed the 'co-management' model along with the Government of Bangladesh that devolves delegates environmental management to local communities, whose lives are directly or indirectly dependent on natural capital. The communities are encouraged to "co-manage" approximately 350,000 hectares of protected land across Bangladesh in cooperation with Bangladesh government officials.

In addition, USAID is currently planning to assist the Government to prepare carbon projects under which Bangladesh can earn carbon "credit" that can be traded to high carbon emitting countries that have agreed in global climate change forums to pay for their excessive carbon emissions.

Bangladesh is situated at the unique juxtaposition of the composite and interlinked Ganges-Brahmaputra-Meghna (GMB) river systems, the second largest river system in the world. Because of this unique geophysical location, the country has been endowed with rich biological diversity, hosting a rich variety of species superbly evolved to populate the ecosystems of the country.

One of the greatest natural resources of Bangladesh is the Sundarbans, the world's largest mangrove forest! The Sundarbans is the jewel in the crown of Bangladesh's protected area systems. It is also the essence of 'co-management' which brings together different government agencies, development partners, the NGO community, and more than one million Bangladeshis living in the Sundarbans borders on the same platform striving to save their environment. All these stakeholders work together to conserve this World Heritage Site, home to the Royal Bengal Tigers, contributor to the local economy, and buffer against the increased incidence of natural disasters resulting from climate change.

The Sundarbans represent a barometer and is the front-line in Bangladesh's fight against climate change. Its conservation can mitigate climate change by reducing Green House Gas (GHG) emissions into the atmosphere. And its conservation fosters adaptation to climate change by providing a resilient buffer against cyclones, storm and tidal surges.

USAID is proud to support improved co-management in Sundarbans. Conservation of the Sundarbans has been a top priority not just for USAID but many other donor agencies and the Bangladesh Government as well. From campaigns like "Vote for the Sundarbans" as one of the natural wonders" to the work on carbon inventory, the range of focus has been both technical and

awareness based. Sundarbans is, indeed, very dear to all of our hearts, it's a great asset for Bangladesh and the importance of conserving it is also recognized internationally.

However, the Sundarbans is so important, so large and so complex that we all will need to work together to ensure its effective conservation based on co-management, guaranteeing integrated conservation, development and climate change adaptation and mitigation.

This workshop provides a great forum to share our commitment to the Sundarbans and the people dependent on it. I hope that this workshop will stimulate greater collaboration between the Government, donors, NGOs and projects to achieve a common good, and that this will be followed by current and future coordination initiatives. Most importantly, we hope that these initiatives will lead to significant results in terms of conservation of the Sundarbans and improved lives for the people dependent on it.

Before closing, I would like to share with you some aspects of about the five-year Country Development Cooperation Strategy (CDCS), from 2011 – 2016, that USAID is currently in the process of finalizing. Improved responsiveness to climate change is being considered as one of the four development objectives. that USAID is targeting to achieve these objectives through improved natural resource management, increased adaptive capacity and resilience to shocks and enhanced capacity for low emissions development. Our current and future activities in the Sundarbans will be focused on achieving the targets based on this development objective.

Finally, as we are getting closer to celebrate the World Environment Day soon on June 5th, as we have since 1973, I would like to reaffirm the U.S. Government's leadership in regional innovation and in the transformation to a greener economy.

Today, the United States is learning firsthand how fragile our ecosystems are and how quickly a treasured landscape can become endangered. As President Obama recently stated, protecting the earth's biodiversity is a responsibility that all of us share. It is also reflected in the commitment of the United States to building global partnerships to preserve the earth's rich biodiversity.

However, while we have learned a great deal about environmental conservation since the first World Environment Day 38 years ago, there is much more for us to learn and do. Let us individually and collectively redouble our efforts to protect the environment, for the benefit of generations to come.

Thank you, everyone!

Address by Mr. Ishtiaq Uddin Ahmad, Chief Conservator of Forests, Bangladesh

Honorable Secretary Mr. Mesbah ul Alam, Mission Director of USAID, Ms. Dennis Rollins;
Chief of Party, IPAC Nishorgo project Mr. Reed Merrill, Distinguished Representative of Development Partners; Representative from Forest Department;
Distinguished members of different co-management committee and council, Non-Govt. organization, different media journalists, colleagues, ladies and gentlemen;

Assalamualaikum and good morning.

Distinguished guests, it is my immense pleasure to be here with you. You know Sundarbans with its bounty of resources secure lives and livelihoods for millions of people by providing goods and services. It creates employment opportunities, generates revenues. The livelihoods of over 500 thousand people depend and on Sundarbans directly or indirectly. The ecological and socio-economic importance of the Sundarbans is associated with its rich biodiversity and the ecosystem.

Sundarbans is home to many species of plant and wildlife including Bengal Tiger, cetacean spp and rich in biodiversity. It protects human lives from cyclones and tidal surges, acting as a nursery for fish and aquatic life, produces timber, fuel wood thatching material.

Forest department has managed Sundarbans for more than a century now. We also have limitations. The limitations of Forest Department to manage Sundarbans are identified as: Manpower Shortage, logistics insufficiency, lack of infrastructures fund limitation, untrained manpower.

However, we have to protect and manage our Sundarbans for the security of lives and livelihoods of millions of people and to survive from natural calamities. Recognizing the fact that resources of Sundarbans has been reducing rapidly; several programs and actions have been carried out by different agencies of the government and non-governmental organizations in order to ameliorate and improve the condition. We have to find out a solution or modality how we can manage it.

Honorable guests, as a response to the increasing pressure on Protected Areas of Forests, limited manpower for protection, realizing the involvement of community people for forest protection and management, owning the forest as their property as a source of benefits, the Forest Department has adopted the Protected Areas Management Program through USAID sponsored Nishorgo Network with an strategy of Co-management approach. The Nishorgo Program is a comprehensive effort to improve the management of the Protected Areas. Nishorgo focuses on building of partnerships between the Forest Department and key local, regional and national stakeholders that can assist in conservation efforts. This approach contributes to protect biodiversity and poverty alleviation in the fringe communities. Under the Nishorgo program, 'Nishorgo Support Project (NSP)' funded by USAID have successfully demonstrated in the 5 protected areas of forests from 2004 to 2008. The USAID funded Integrated Protected Area Co-management (IPAC) project is built on the experiences of NSP and promote and institutionalize an integrated protected area co-management system for sustainable natural resources management and biodiversity conservation.

In Bangladesh people are dependent on forest produces for their livelihood. Exploitation and unmanaged forestry practices causes degradation and loss of biodiversity. People now realized that this practice will ultimately reduce their livelihood dependence on forests. Previously we associated people on social forestry mainly on an individual basis. His attachment to the forestry is only with the

plantation allocated for him. He didn't show any responsibility to the overall concern and development of forestry. Through Co-management organization we tried to give it an organizational structure with the thought of permanent structure. This organization will not only by responsible for forestry conservation at the same time will be responsible for the socio-economic upliftment of the forest community. USAID has initiated and supported the initiative through project funding. The initiative of co-management need to be continued beyond the life time of the project. All effort from the project need to be taken now to ensure the sustainability of the co-management activities.

Ladies, and gentlemen, recently our honorable Prime Minister has committed to share of 50% of sell proceeds of Non Timber Forest Products derived from Sundarbans with the forest dependent people around the Sundarbans for their livelihoods security as well as reduce the dependency on Sundarbans resources.

We are working to find an acceptable modality of co-management for Sundarbans. Your valuable suggestions and opinion will help defining modality by which we can conserve the ecosystem reduce Tiger Human Conflict(THC) and at the same time socio-economic upliftment of local people as well as decrease the dependency on the resources of Sundarbans. Your discourses and insights will help us to take the correct measures to conserve natural resources of Sundarbans for the future generation.

Sundarbans acts as barometer to measure the health of the worlds environment and climate. Any changes in the climate effects the health of the forest.

On this regard I congratulate the co-management council and committee members for their bold stake to take measure to save Sundarbans.

Thank You All.

Sundarbans Co-Management Coordination Workshop
Gulshan Spectra Convention Center, Dhaka
May 24, 2011

Sl.	Name	Organization
1.	Alamgir Hossain	USAID
2.	Sumaiya Firoze	USAID
3.	Farzana Yasmeen	USAID
4.	Mahmud Hossain	IPAC/USAID
5.	Sylvia Megret	IRG Washington
6.	Philip Decosse	IRG Washington
7.	Abdul Muyeed Chowdhury	Tiger Tours Ltd
8.	Tim Steel	Tiger Tours Ltd
9.	Moududur Rahman	CCEC Khulna
10.	Koen Duchateau	European Union
11.	M. Assaduzzaman	GIZ
12.	Md. Touhidur Rahman	DoF
13.	Mihir Kumar Doh	Forest Division
14.	Ram Sharma	IPAC/USAID
15.	Md. Abdullah Abraham Homain	Forest Department
16.	M.A. Latif	Bangladesh Fisheries Research Institute
17.	Dr. M. Khairul Alam	IUCN
18.	A.S.M Jahir uddin Akon	Forest Department
19.	M. Mokhlesur Rahman	CNRS
20.	Berthold Schrim	GIZ
21.	Salman Haider	German Embassy
22.	Sultan Ahmed	CEGIS
23.	Ishtiaque U. Ahmad	Forest Department
24.	Mamunul H. Khan	UNDP
25.	Dr. Niaz Ahmed Khan	IUCN
26.	Haradhan Banik	Forest Department
27.	Dr. Tapan Kumar Dey	Forest Department
28.	P.K. Pasha	IPAC/USAID
29.	Mohammed Mahbubul Alam	IPAC/USAID

30.	Elisabeth Fahrni Mansur	BCPP/WCS
31.	Panchanon Kumar Dhali	GIZ
32.	Md. Anwarul Islam	Wildlife Trust of Bangladesh
33.	Christina Greenwood	Wildlife Trust of Bangladesh
34.	M. A. Wahab	IPAC/USAID
35.	Dr. M. G. Mustafa	Worldfish Centre
36.	Md. Nazrul Islam	Chairman Shyamnagar uppazila
37. 38.	Md. Monirul Islam	Member IPAC Co-management committee, Koyra
	Abul Kalam Azad	President IPAC Co-management committee, Mongla
39.	Mihir Kumar Bhandary	Member IPAC Co-management committee, Chandpai
40. 41.	Md. Muzammil Hossain	President IPAC Co-management committee, sarankhola
	Md. Touhidur Rahman	IPAC Cluster Director, Khulna
42.	Zahir uddin Ahmed	Forest Department
43.	A. K. M. Shamsuddin	IPAC/Forest Department
44.	Md. Akbar Hossain	Forest Department
45.	Fazle Rabbi Sadeque	Department of Environment
46.	Masud Hossain	The Bengal Tours Ltd
47.	Tangina Mehnaz	CNRS-WBRP
48.	Kazi Sanzida Lisa	International University of Bangladesh
49.	Masood Siddique	CNRS-WBRP
50.	Shahrier C Rahman	Brooklyn College, USA
51.	Sayam U Chowdhury	Bangladesh Bird Club
52.	Shakil Ahmed	World Bank
53.	Zahirul Haque Khan	IWM

54.	Md. Shafiul Adnan Khan	IPAC/USAID
55.	Reema Islam	IPAC/USAID
56.	Iffat Nawaz	IPAC/USAID
57.	Jahanara Aktar	IPAC/USAID
58.	Asif Ahmad	Asiatic MCL

Rehabilitation and development programme of communication system in Sundarbans

Programme period: 3 years

Programme costs: 656.700 lakh

1st year (2009-2010) 294.343 lakh
2nd year (2010-2011) 329.276 lakh
3rd year (2011-2012) 33.081 lakh

Main components:

a) Water vessel maintenance:

i) Bana Rani and Bana Kannya 2 nos.

ii) Launch 46 nos.

iii) Speed boat, cabin cruiser and trawler 10 nos.

Main components:

b) Water vessel construction:

i) Wooden body trawler and country boat 58 nos.

ii) Cabin cruiser 1 no.

iii) Life jacket 85 nos.

- **Main components:**
- **c) Wireless network and solar system development**:

- i) Wireless network establishment
- ii) Solar system 33 nos.
- iii) Fire extinguisher 20 nos.
- iv) Engine for cabin cruiser 2 nos.

THANK YOU

Infrastructure rehabilitation and development programme of Sundarbans

Programme period: 3 years

Programme costs: 867.282 lakh

1st year (2009-2010) 325.554 lakh
2nd year (2010-2011) 278.828 lakh
3rd year (2011-2012) 262.900 lakh

Main components:

a) **Infrastructure rehabilitation:**

i) Office and residential building repair 66 nos.

ii) Jetty repair 25 nos.

iii) Pond sand filter repair 8 nos.

iv) Ecotourism spot maintenance

v) pontoon 5 nos.

Main components:

b) Infrastructure developments:

i) Office and residential accommodation 13 nos.

ii) Pond excavation and re-excavation 45 nos.

iii) Pond Sand Filter 5 nos.

Main components:

b) Infrastructure developments:

iv) Rcc foot rail 1.93 km

v) Gangway pontoon 4 nos.

vi) Deep tube well 1 no.

vii) Security fencing with plastic coating 3 km

viii) Boundary wall 400 rm

THANK YOU


Support to Essential Management Capacity in the Sundarbans WH Site following the passage of cyclone SIDR Phase I and II funded by UNESCO

Project Period:

From June 2008 to May 2011

Project Cost:

Tk 74.80 Lakh

Main Components:

Phase I:

i) Maintenance of Staff qtr. 4 nos.

ii) Maintenance of office building 2 nos.

iii) Water vessel construction 12 nos.

Main components:

Phase II:

i) Maintenance of patrol post 1 no.

ii) Maintenance of RCC jetty 1 no.

iii) Tiger darting equipment

iv) Wildlife management training 40 persons

THANK YOU

Sundarbans Environmental And Livelihoods Security (SEALS)

Co-funded by EU and Government of Bangladesh

Implemented by the Forest Department

SEALS

The overall objective of the EU support is to contribute to maintaining or improving ecosystem productivity and the environmental and social integrity of the north coastal lands of the Bay of Bengal.

SEALS

The purpose of the EU support is sustainable development of the Sundarbans Reserved Forest and the people who currently depend on its resources.

SEALS

The two expected interlinked results are:

- Restored and improved GoB capacity to protect and manage the SRF
- Sustainable SRF resource extraction and dependence of surrounding communities on resources gathered from the Sundarbans and their exposure to natural disasters reduced sustainably

SEALS

- Result 1: Restored and improved GoB capacity to protect and manage the SRF.
- Main Activities:

1. Restore, modernise and cyclone-proof SRF protection by Forest Department in light of the new management plan.

2. Establish sustainable Management Information System to guide SRF protection and management.

SEALS

- Result 2: Sustainable SRF resource extraction and dependence of surrounding communities on resources gathered from the Sundarbans and their exposure to natural disasters reduced sustainably.
- Main Activities:

1. Improve sustainability of SRF resource extraction
2. Develop alternative livelihoods for SRF dependent households
3. Reduce disaster risk of SIZ communities dependent on SRF

SEALS

Operational duration: 54 months starting on 10 November 2010

Category Breakdown	EU (EUR)	Grantee (EUR)	Total (EUR)	Contracting Authority	Paying Authority
• Services	1 000 000	-	1 000 000	EU or FD	EU or FD depending on thresholds
• Works	1 500 000	-	1 500 000	EU or FD depending on thresholds	EU or FD depending on thresholds
• Supplies	2 000 000	-	2 000 000	EU or FD depending on thresholds	EU or FD depending on thresholds
• Operating costs	1 000 000	-	1 000 000	EU or FD depending on thresholds	EU or FD depending on thresholds
• Grants	4 000 000	444 444	4 444 444	EU	EU
• Communication & Visibility	100 000	-	100 000	FD	FD
• Contingency	400 000	-	400 000	-	-
TOTAL	10 000 000	444 444	10 444 444	-	-

SEALS

Where are we now:

- FD SRF boat & related infra study completed
- FD-WTB SRF protection assessment completed
- EU-GoB Financing Agreement signed on 10.11.10
- DPP approved by ECNEC on 16.01.11
- Start-up programme estimate (FD work plan & budget) ongoing, initial procurements launched
- Long-term Technical Assistance service contract nearly signed
- Grants Call for Proposals launched on 15.05.2011

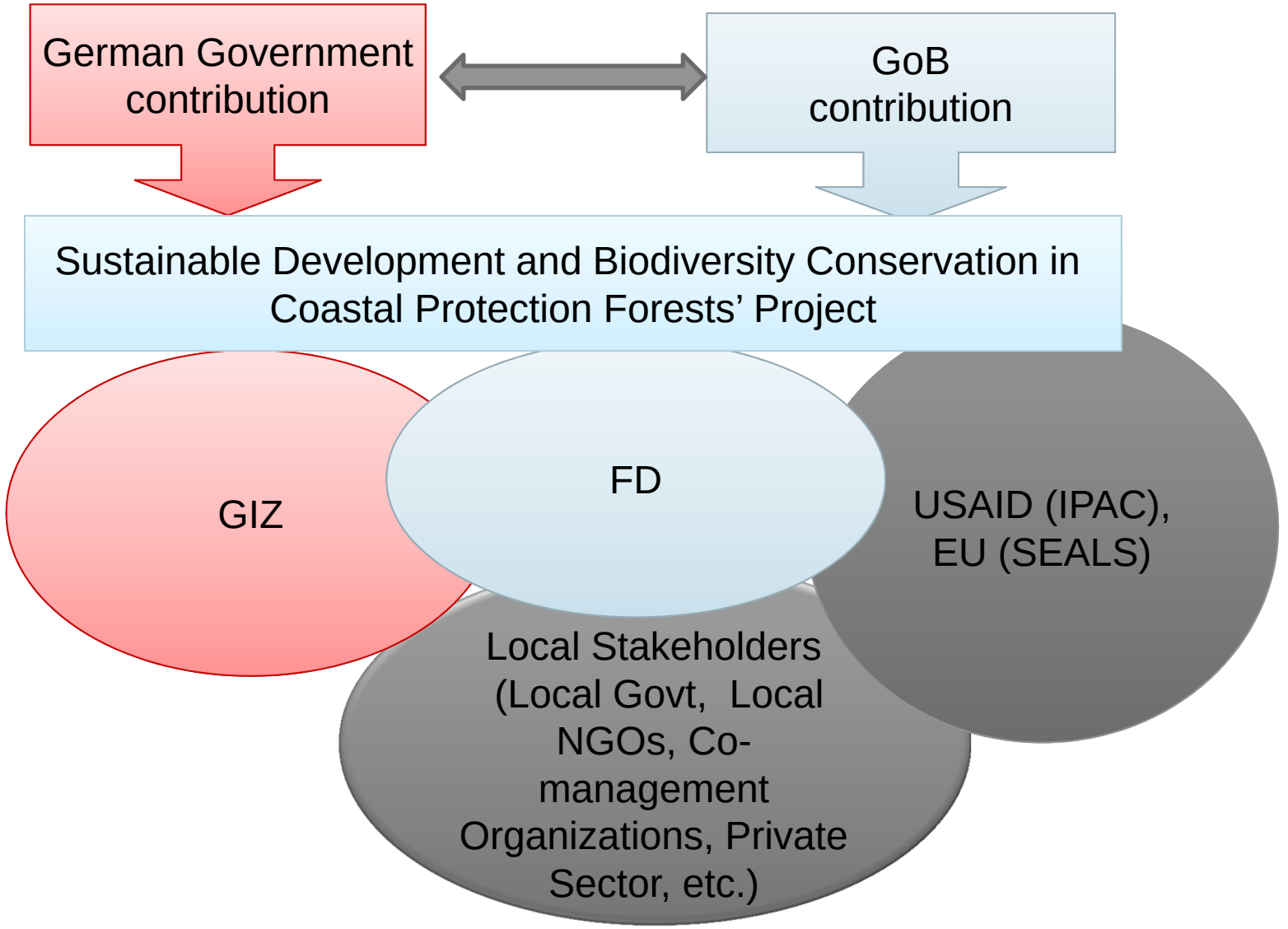
Sustainable Development and Biodiversity Conservation in Coastal Protection Forests, Bangladesh

An overview of the project

By
Md. Yunus Ali
DCCF Planning Wing
Bangladesh Forest Department

Md. Abdullah Abraham Hossain
ACF, Development Planning Unit
Bangladesh Forest Department
and
M Assaduzzaman, Consultant
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

SDBC-CPF Project



Overall project objective

Communities and relevant authorities have increased capacity to protect biodiversity and to enhance climate change adaptation of pilot sites within the Ecologically Critical Area (ECA) of the Sundarbans.

Indicator 1

Stakeholder groups in at least one of the three coastal districts of the Sundarbans (Satkhira, Khulna, Bagerhat) rehabilitate and maintain embankments based on co-management agreements signed with the Bangladesh Water Development Board (BWDB)

Indicator 2

Biodiversity within the areas covered by co-management agreements is maintained or increased

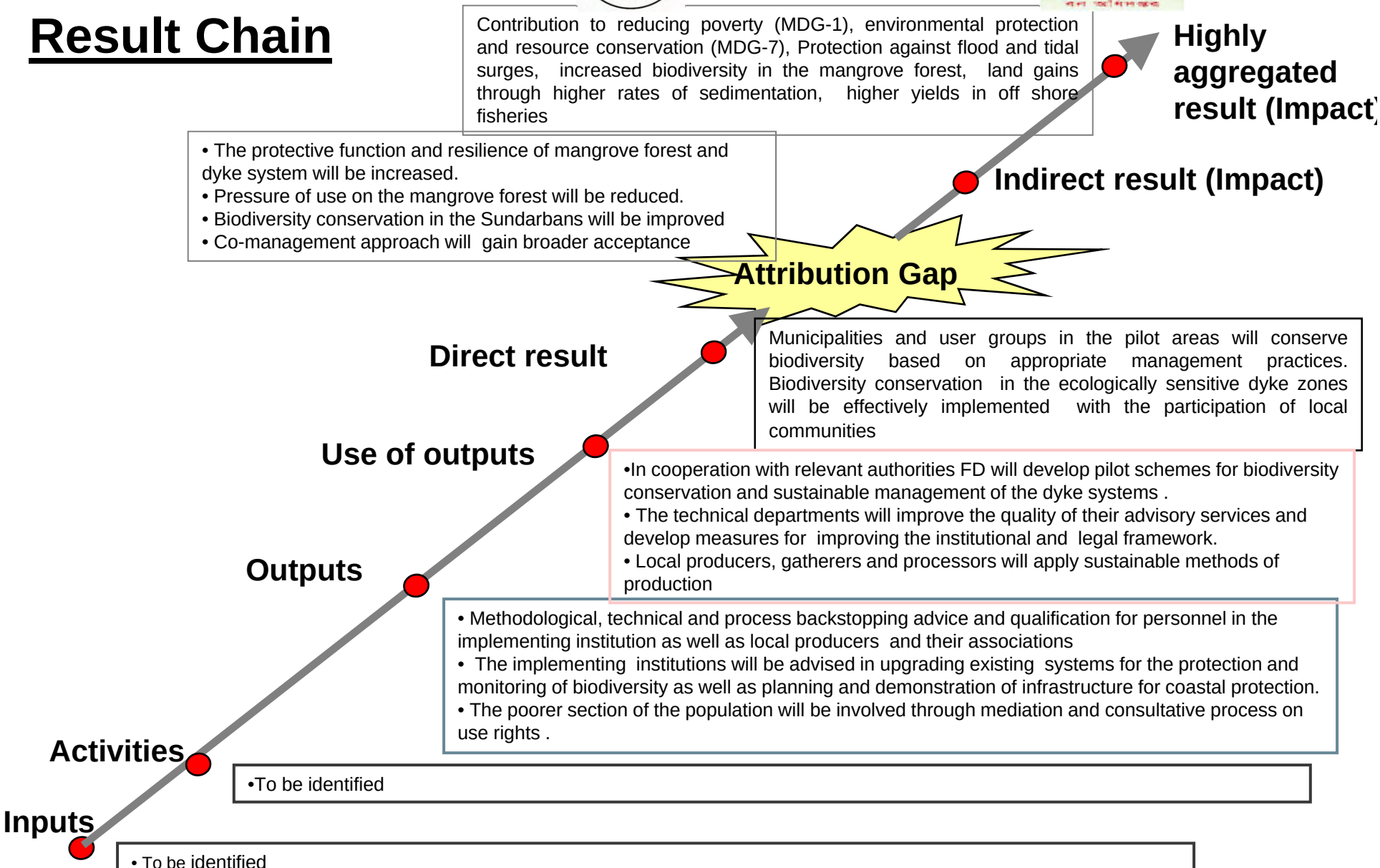
Indicator 3

Technical departments at district level and sub-district level (e.g. FD, DoE, BWDB, LGED, DoF) and other service providers (NGOs, private sector, etc.) provide new advisory services to pilot communities within the Sundarbans ECA

Indicator 4

The willingness of other donors to invest in the dissemination of successful co-management approaches has increased

Result Chain



Donor Coordination

- FD is the focal point
- GIZ has MoU with USAID
- Interface with livelihood approach (EU) to be explored
- Support Resource Mgt Plan of Sundarbans (with IPAC)
- First field visit and more interfaces to be explored…

Thank you…

OVERVIEW OF REDD+
UNREDD PROGRAMME
&
BANGLADESH COUNTRY STATUS

Mamunul H Khan
mamunul.khan@undp.org

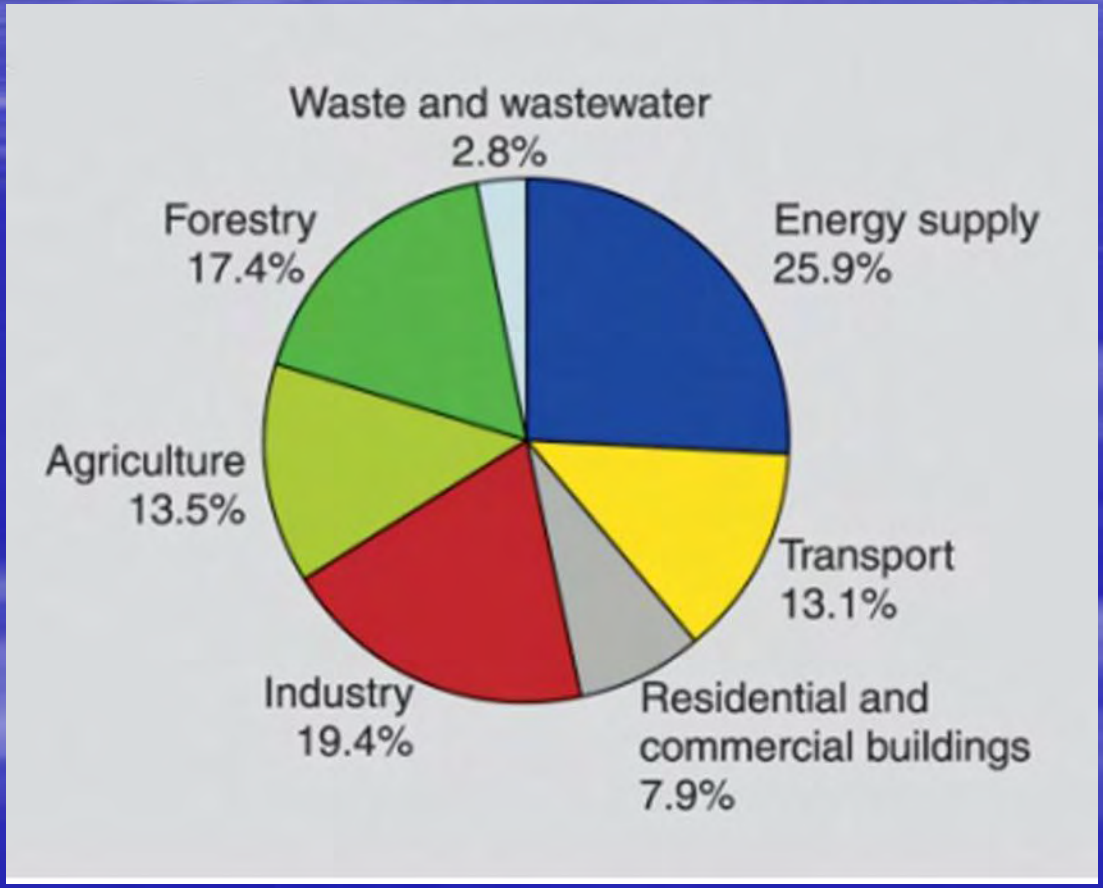
Sundarbans Co-Management Coordination Workshop
24 May 2011

REDD & REDD+

Reducing **E**missions from **D**eforestation and Forest **D**egradation; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks

+ = conservation, SFM and enhancement of forest carbon stocks

Justification



Origin and Development of REDD and REDD plus

- Compensated reduction of deforestation first proposed at COP 11 in Montreal in 2005
- In subsequent SBSTA meetings and workshops degradation was also discussed and included
- Compensated conservation suggested by India (2007) and supported by others

REDD in Bali Action Plan 1b(iii)

Enhanced national/international action on mitigation of climate change, including, inter alia, consideration of:

- Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries and the role of conservation , sustainable management of forests and enhancement of forest carbon stocks in developing countries

Copenhagen Accord - para 6

- We recognize the crucial role of reducing emission from deforestation and forest degradation and the need to enhance removals of GHG emission by forests and agree on the need to provide positive incentives to such actions through the immediate establishment of a mechanism including REDD-plus to enable the mobilization of financial resources from developed countries.

Copenhagen Accord – para 10

- We decide that the Copenhagen Green Climate Fund shall be established as an operating entity of the financial mechanism of the Convention to support projects, programme, policies and other activities in developing countries related to mitigation including REDD-plus, adaptation, capacity-building, technology development and transfer.

REDD-plus in Cancun Agreement

- REDD-plus activities:

  (a) Reducing emissions from deforestation;

  (b) Reducing emissions from forest degradation;

  (c) Conservation of forest carbon stocks;

  (d) Sustainable management of forests;

  (e) Enhancement of forest carbon stocks;

REDD-plus in Cancun Agreement

- Parties will get adequate and predictable financial and technological support from the developed country parties for the following elements:

  (a) A national strategy or action plan;

  (b) A national forest reference emission level

  (c) A robust and transparent national forest monitoring system

REDD-plus in Cancun Agreement

- *Decides* that the activities undertaken by Parties should be implemented in phases, beginning with the development of national strategies or action plans, policies and measures, and capacity-building, followed by the implementation

- Subsidiary Body for Scientific and Technological Advice to develop a work programme on the matters related to:

  – land use, land-use change and forestry activities in developing countries, in particular those that are linked to the drivers of deforestation and forest degradation, identify the associated methodological issues to estimate emissions and removals resulting from these activities, and assess the potential contribution of these activities to the mitigation of climate change, and report on the findings and outcomes of this work to the COP 18

  – Develop, as necessary, modalities for measuring, reporting and verifying anthropogenic forest-related emissions by COP 17

REDD Readiness

Readiness Focused on:

- Preparing effective strategy to reduce emission, developed for stakeholder consultation
- Institutional, technical and human capacity building
- Designing/implementing MRV systems, forest carbon accounting
- Developing baselines/reference scenarios against which deforestation reductions can be measured
- Transparent, equitable and accountable benefit sharing mechanisms
- Safeguards and protect the interest of the poor and forest dependent people
- Clarification of forest and land tenure

Phases of REDD Mechanism

- Phase 1: Initial support for national REDD strategy development supported by voluntary contributions, grants such as UN-REDD, FCPF, and other bilateral sources
- Phase 2: Financing linked with performance in the implementation of REDD strategy
- Phase 3: Financing based on performance in reductions and removals against agreed reference level

Support for REDD

- UN-REDD programme (UNDP, UNEP, FAO)
- World bank: forest carbon partnership facility (FCPF)
- Forest investment programme
- Governments: UK, Norway, Australia, Germany and Denmark
- Private foundations: Clinton Climate Initiative, Packard foundation, Moore foundation, Forest Philanthropy Action Network

What is UN-REDD?

- Supports countries to benefit from REDD+
  - National REDD+ Strategies and Readiness
- Established in 2008 by FAO, UNDP & UNEP
  - Response to UNFCCC Bali Action Plan
- Offers UN Joint Programme: Delivering as One UN
- Builds on wider UN agency roles
  - E.g. National programs; as GEF Implementing Agencies, coordinate and collaborate closely with development partners

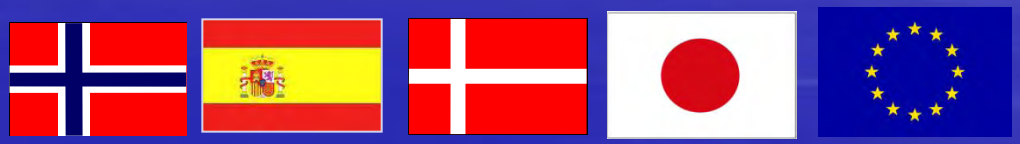
UN-REDD: Vision & Mission

VISION:
Developing countries have significantly reduced their forest and land-based emissions, as a result of incentives from a performance-based REDD+ mechanism, while achieving national developmental goals in a sustainable and equitable manner.

MISSION:
To support countries' efforts to reduce emissions from deforestation and forest degradation through national REDD+ strategies that transform their forest sectors so as to contribute to human well-being and meet climate change mitigation and adaptation aspirations.

UN-REDD: Funding & Governance

- Current funding portfolio: US$168 million
- Donor countries
  - Norway
  - Spain
  - Denmark
  - Japan
  - EU



- Governed by Policy Board representatives from partner countries, donors to the Multi-donor Trust Fund, Civil Society, Indigenous Peoples and three UN agencies, observers such as UNFCCC, GEF, etc
- Secretariat in Geneva - coordination
- UN-REDD Regional and country teams (FAO, UNEP, UNDP)

UN-REDD: Two components:

1. National Programmes

- **Capacity building for readiness**
- Original 9 countries
  - **Africa**: DRC, Tanzania, Zambia
  - **Asia & Pacific**: Indonesia, PNG, Vietnam
  - **LA & Caribbean**: Bolivia, Panama, Paraguay
- $ 1-6 million per country - 13/29 funded
- Newly funded countries: Cambodia, the Solomon Is, the Philippines > $500k

2. Global Programme

- **Policy and guidance to support NPs**

  guidelines, advice, regional/ international dialogue, analyses (FPIC, stakeholder engagement, safeguards, MRV, transforamtional policy, etc.)

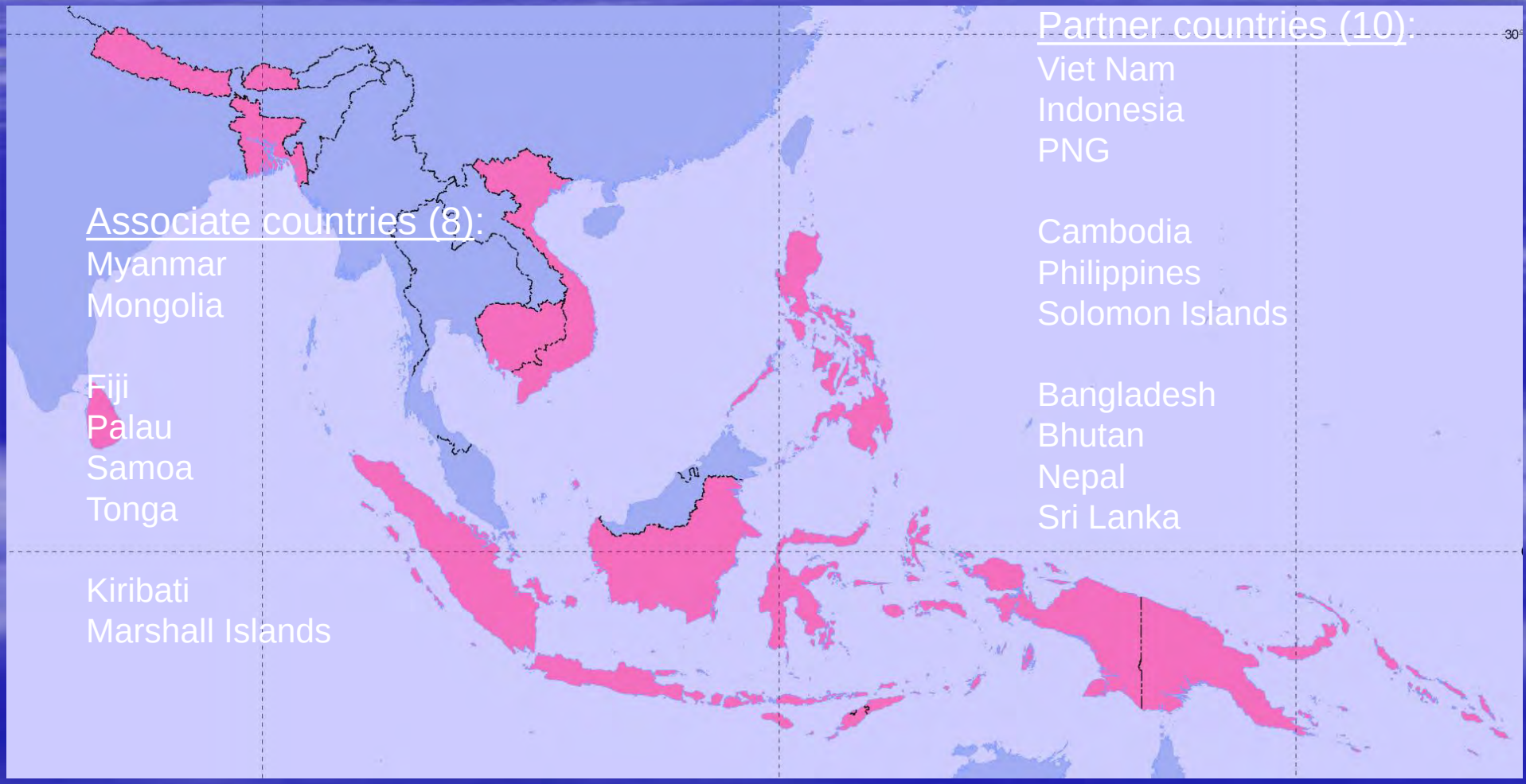
⇒ that support country action

⇒ that support the UNFCCC process on a global scale

UNREDD: Country Program

- Country-driven support for demonstration activities:
  - National REDD strategy development
  - REDD dialogue and consultations (governance, stakeholder engagement)
  - Safeguards
  - REDD assessment and monitoring (MRV)
  - REDD payment structuring and distribution options
  - Policy support (multiple benefits, opportunity costs, etc)

UNREDD: Partner and Associate countries in A/P



Our readiness

- National REDD Technical Committee already formed
- Formation of National Steering Committee underway
- Application submitted for country inclusion in the UN-REDD Program
- UNDP CO resource allocation
- UNREDD Mission in June
- Carbon accounting and concept for Sundarban completed (USG/IPAC)

Tasks ahead

- Preparation of REDD strategy including benefit sharing strategy.
- Capacity development for REDD readiness such as understanding reference line/ base line, understanding methodology, leakage, double counting, additionally, project boundary, carbon accounting and international carbon market.
- Develop bilateral and multilateral co-operation for REDD readiness
- Development of REDD projects
- Development of MRV for REDD
- REDD financing modalities in ongoing international negotiation should be monitored and work accordingly

THANKS

World Bank Involvement in Sundarbans Area

May 24, 2011

Contents

Non-Lending Technical Assistance

Bangladesh Climate Change Adaptation, Biodiversity Conservation and Socio-Economic Sustainable Development of the Sundarbans Area

Regional Project

Strengthening Regional Cooperation for Wildlife Protection Project

Global Tiger Initiative

Bangladesh Climate Change Resilience Fund

Afforestation and Reforestation for Climate Change Risk Reduction in Coastal and Hilly Areas

Sundarbans: Non-Lending Technical Assistance

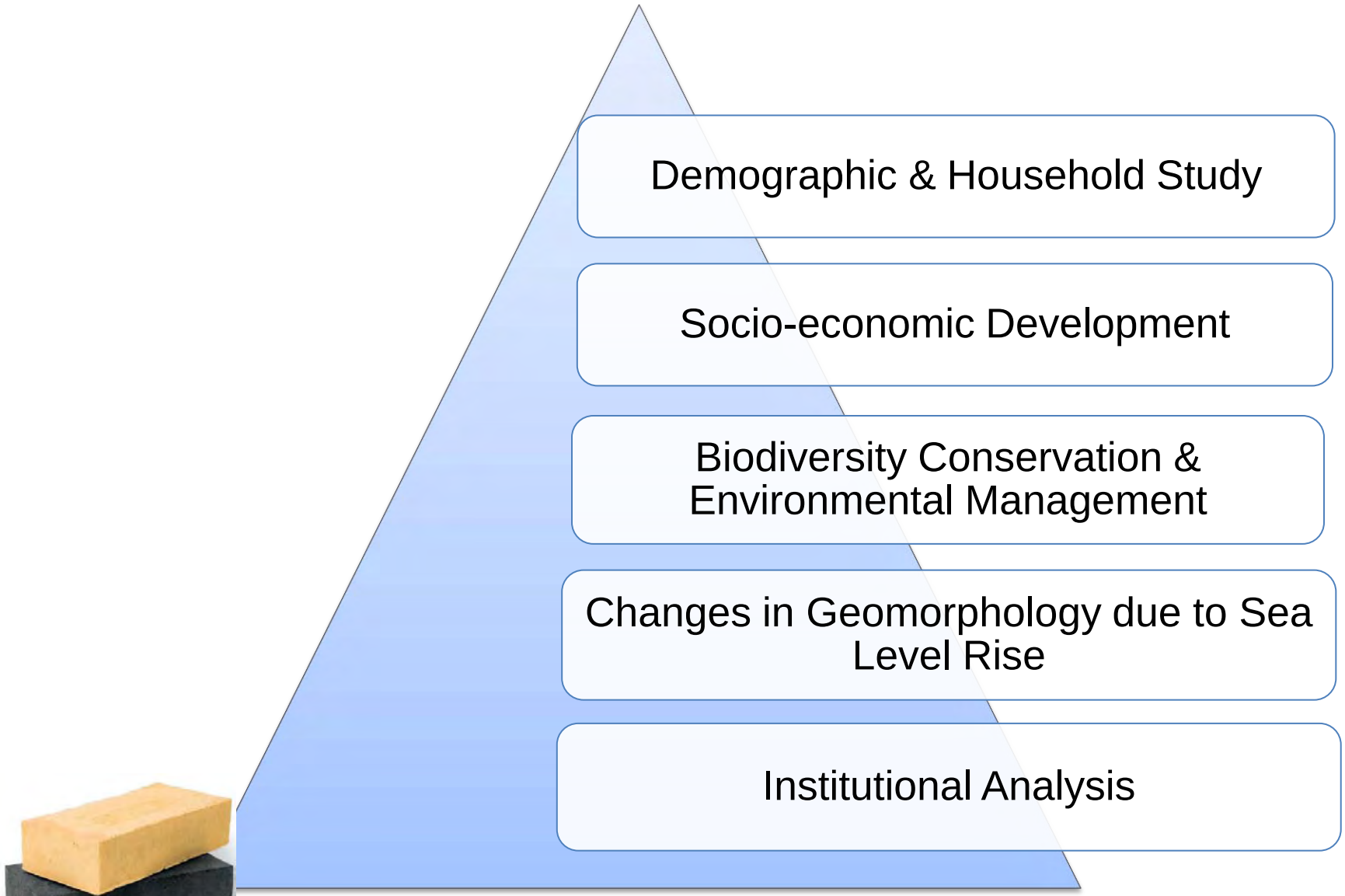
Objectives

1. Specific recommendations on best investments planning and policies formulation for the Sundarbans area
2. Create a ground for regional cooperation on effective ecosystem management by Bangladesh and India

How the Objectives to be Achieved?

1. Establish a baseline in order to provide a sound understanding of existing conditions and challenges, and create a sound technical knowledge base for informed decision making
2. Identify ways to address major gaps and weaknesses in the existing institutional framework, including mechanisms for decision making and cross sectoral coordination
3. Provide insights into opportunities to engage the private sector, NGOs, academic centers & local communities in efforts that contributes to the region's sustainable development
4. Initiate regional dialogue between Bangladesh and India on Sundarbans eco-system management

Building Blocks of the NLTA



Demographic & Household Study: Key Focus

- Demographic structure and trends (age, gender and caste breakdown of the community, birth/death rates, migration rates)
- Social behavior over limited common property resources
- Employment, occupation and income
- Government programs and non government programs present in the site
- Presence of (community level) disaster risk management plans in place

Socio Economic Development: Key Focus

1. Agriculture & Fisheries
2. Small Scale Rural and Community Infrastructure
3. Livelihood Options
4. Health and Education



Biodiversity Conservation & Environmental Management: Key Focus/Activities

- Identify and map vulnerable regions/spots of Sundarbans
- Preparation of a comprehensive Bio-diversity Conservation and Management Plan (BCMP) for the Sundarbans and its Ecologically Critical Area (ECA)
- A proposed structure for establishing a Trans-Boundary Platform for Conservation of Sundarbans
- An International Workshop on Biodiversity Conservation in the Sundarbans

Changes in Geomorphology: Key Focus/Activities

- Investigation on the standard of defense provided by the embankments of the Bangladesh Sundarbans, including flood return interval, crest height, flood defense standards, locations and past embankment failure
- Model analysis to predict future geomorphological changes in the estuaries of Bangladesh
- Development of a Strategic Landform and Embankment Management Action Plan based on the results of the analytical modeling

Institutional Analysis : Key Focus

- Inter Agency Co-ordination
- Capacity Building
- Service Delivery Mechanisms
- Local Governments
- Community Organizations

Strengthening Regional Cooperation for Wildlife Protection Project

- ***Not only for the Sundarbans- covers whole Bangladesh***
- ***Not only for Tiger- includes all wildlife***



Why regional approach?

No single country can effectively manage or eliminate the threats of poaching and the illegal wildlife threats alone.

Objective

Assist the participating governments to build or enhance shared capacity, institutions, knowledge and incentives to collaborate in tackling illegal wildlife trade and other regional conservation threats to habitats in border areas

Project Components

- **Component 1:** Capacity building for wildlife conservation and cooperation for addressing the transboundary illegal wildlife trade in Bangladesh (US$ 8.3m)

  Sub-component 1.1 - Institutional Strengthening in Wildlife Conservation and Illegal Wildlife Trade Control in the Wildlife Circle

  – Sub-component 1.2 - Staff Capacity Building and Training

- **Component 2**: Promoting wildlife conservation in South Asia (US$ 23.5m)
  - Sub-component 2.1 Virtual regional centre of excellence for wildlife conservation
  - Sub component 2.2 Competitive Funding to support Protected Area Management with Regional Conservation Benefits

Project Components

- Sub component 2.2 Competitive Funding to support Protected Area Management with Regional Conservation Benefits
  - *Window 1: Conservation, protection and management of protected areas*
  - *Window 2: Innovative pilot projects addressing human-wildlife conflicts and ecotourism*

- **Component 3:** Project coordination and communications plan (US$ 4.6m)
  - Regional project coordination
  - National project coordination
  - Project communications plan

Project Period: July 2011- June 16

Global Tiger Initiative (GTI)

An alliance of governments, international agencies, civil society, and the private sector **united to save wild tigers from extinction**

Global Tiger Initiative (GTI) works to
Strengthen Capacities for Habitat Protection and Management: Knowledge Exchange & Technology Transfer

It is also supporting TRC for wildlife crime enforcement, reduce tiger parts demand by creating awareness, promoting smart infrastructure for safeguarding tiger landscape, community incentives and innovative finance.

- **Bangladesh Climate Change Resilience Fund**

  Afforestation and Reforestation for Climate Change Risk Reduction in Coastal and Hilly Areas

The Project Concept has been approved by the Management Committee very recently

Overview

- A project of Bangladesh Climate Change Resilience Fund
- Project Budget USD 25m
- Spread over Coastal and hilly areas of Bangladesh

Focus Relevant to Sundarbans Area

- Establish mangrove plantation over 3500 ha

Thanks……..

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Sundarbans Co-Management Coordination Workshop

USAID's IPAC Program Update

Spectra Convention Center – May 24, 2011

USAID
আমেরিকার জনগণের পক্ষ থেকে

Department of Fisheries

Department of Environment

নিসর্গ নেটওয়ার্ক

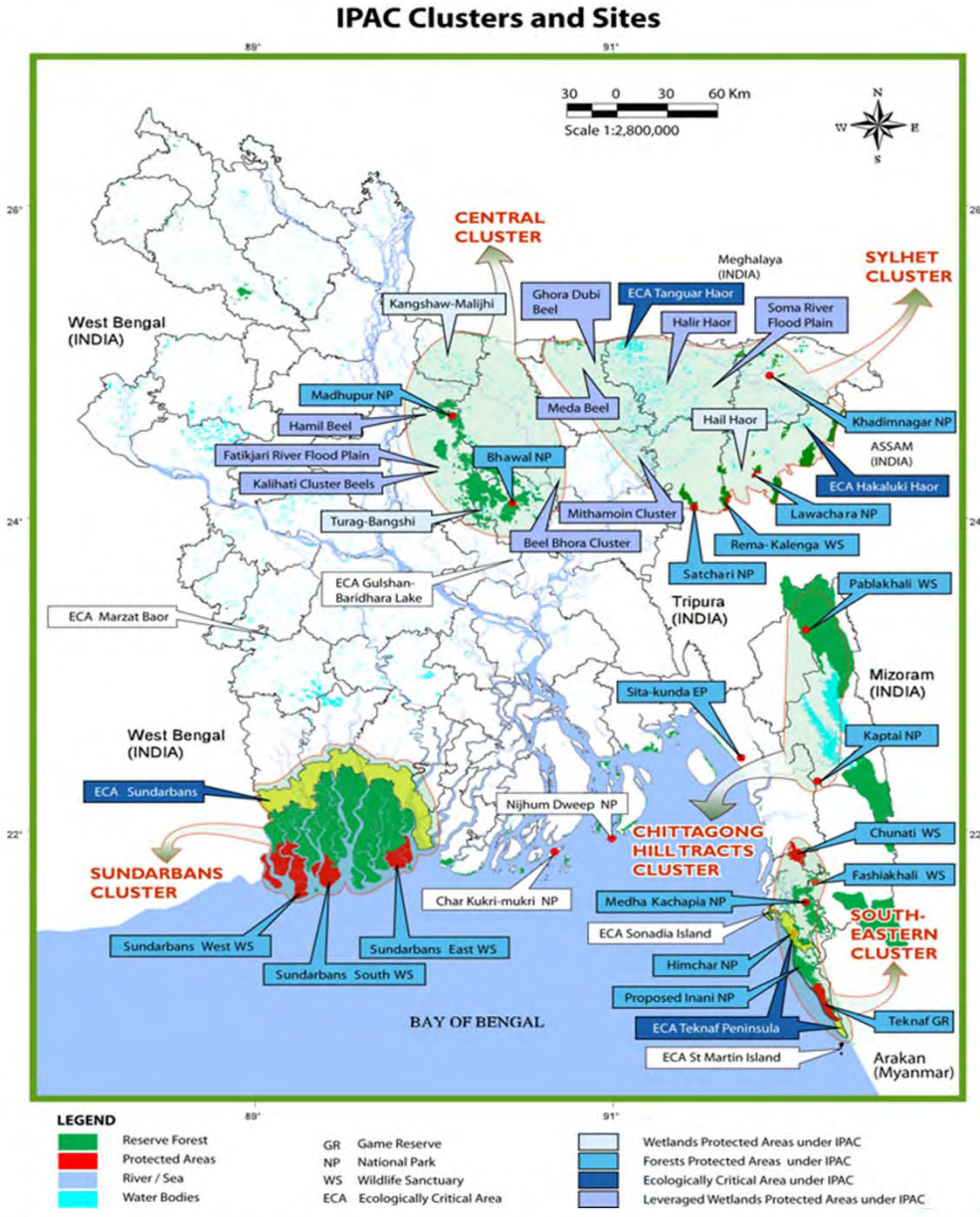
USAID's IPAC Project Overview

- Develop a national network of forest and wetland PAs based on Co-management
- Expand area under co-management, building capacity while demonstrating integrated conservation and development benefits
- Support climate change adaptation & mitigation
- Demonstrate links between conservation and sustainable development
- Enhance food security by protecting Bangladesh's key eco-systems and their services

IPAC Working Areas

নিসর্গ নেটওয়ার্ক

- 5-year USAID contract, from June 2008 thru June 2013
- Work with FD, DoF, DoE, community & other partners
- Activities in 26 PAs managed from 5 cluster offices
- The co-management platform involves 34 CMOs and more than 700 VCFs
- This includes former NSP & MACH sites as well as new areas including Sundarbans
- Current focus on sustainability of co-management to support integrated conservation and development



IPAC in the Sundarbans

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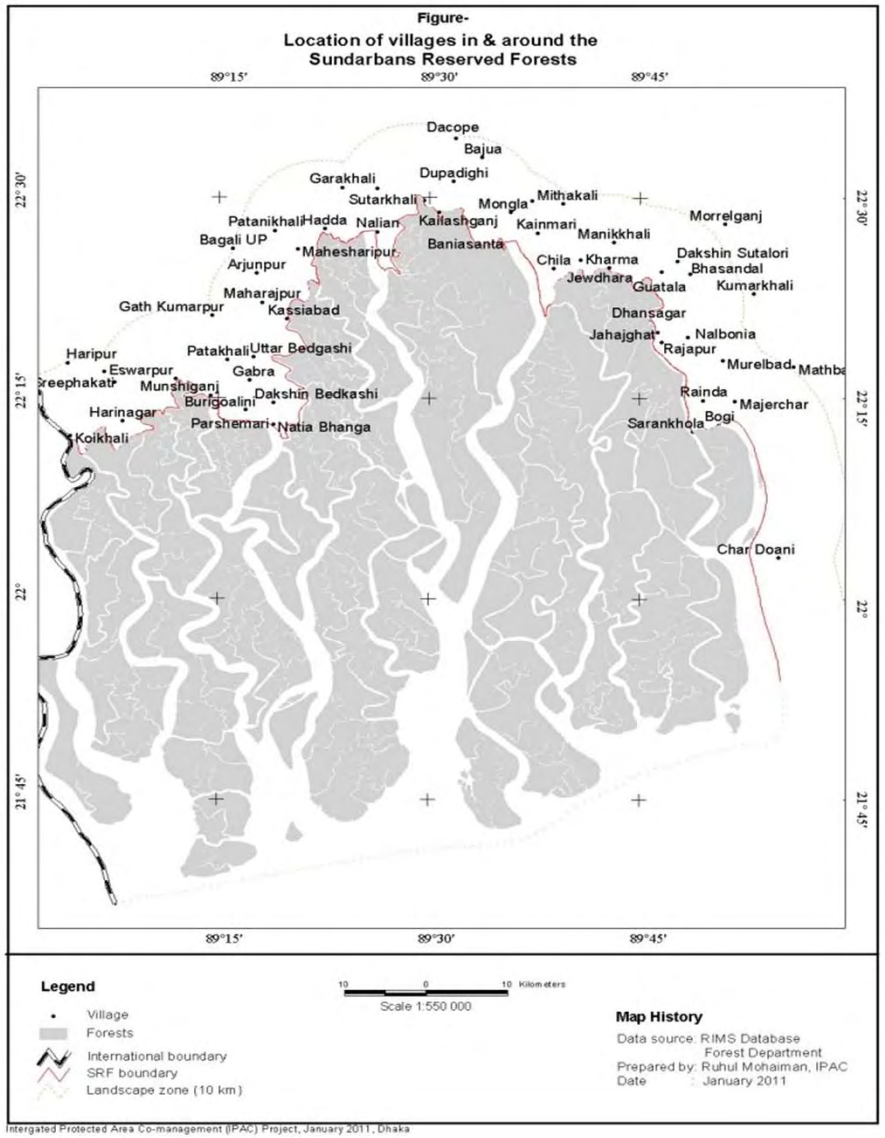
- IPAC works with FD and other stakeholders to strengthen conservation by building a strong co-management platform
- Field-based work in the SIZ to mobilize communities and build a foundation of co-management
- Technical support provided for IRMP and potential forest carbon finance initiative
- Foundation of science & analysis to inform conservation management decisions



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Sundarbans Co-Management

- Co-Management Committees (CMCs) established in Sarankhola & Chandpai (Sundarbans East Wildlife Sanctuary)
- CMCs under development in Mushigong & Dacope-Korya for Sundarbans West & South Wildlife Sanctuaries
- 4 Peoples Forums (PFs) established and active
- 179 Village Conservation Forums (VCFs) established and active
- On-going activities to support conservation & climate change awareness as well as alternative income development
- Revenue sharing policy under development

Alternative Income Generation & Livelihoods Development

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- Draw pressure off Sundarbans while generating appreciation for conservation & development links
- Provide entry point for climate change adaptation, especially as it relates to food security
- Aquaculture & homestead vegetable gardening increases income & improves nutrition at household level
- Improved water systems increases access to fresh water
- Eco-Guides employ youth in conservation-based jobs
- Poverty, population and lack of resources pose real challenges for long-term sustainable development in SIZ

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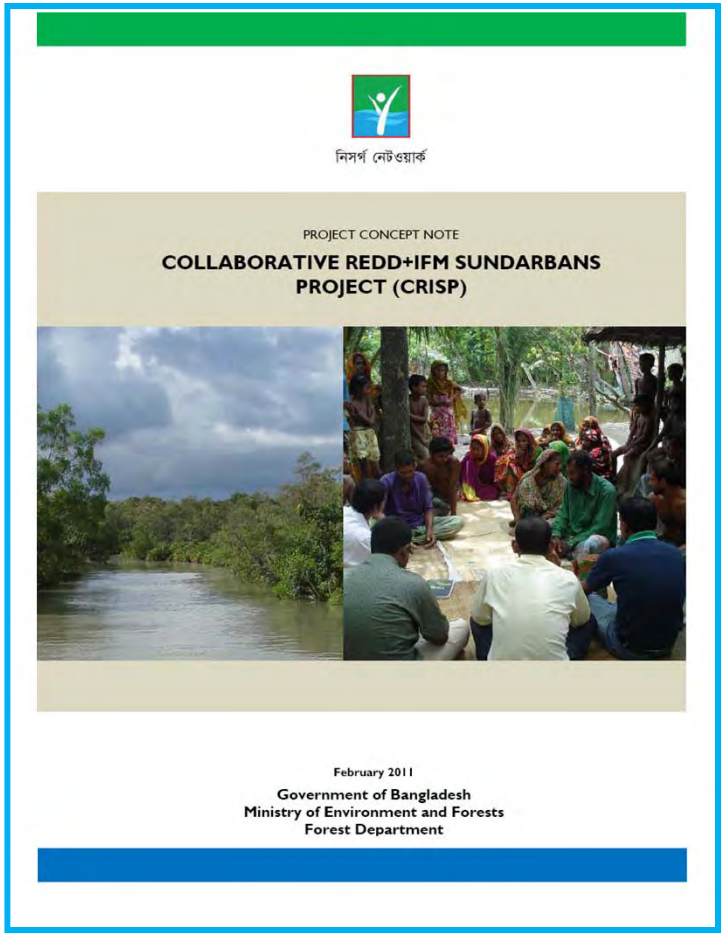
Sundarbans Management Support

- Contribute to long-term conservation management & sustainable financing of Sundarbans & SIZ
- Base this support in strong science & analysis as evidenced by various studies & assessments
- 10-year IRMP developed with FD and based on a range of technical studies and assessments
- Potential forest-carbon finance initiative under development; based on detailed carbon inventory & ready for international markets



Sundarbans Conservation & Co-Management

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- Sundarbans is the Jewel of Bangladesh's PA system; a World Heritage site home to Royal Bengal Tigers; a Barometer for Global Climate Change
- Conservation of Sundarbans rests on effective co-management for conservation, sustainable development, and climate change A & M

- Co-management among government agencies, the donor community, NGOs and Universities, private sector and local communities

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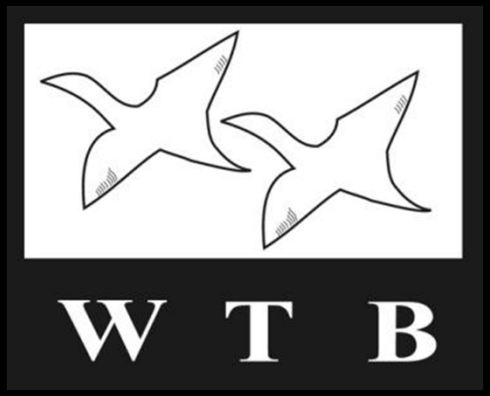
Thank You



Overview of WTB and our work in the Sundarbans

Md. Anwarul Islam and
Christina Greenwood

Agenda

- Who we are
- Where we work
- How we approach conservation
- What we do
- Working with communities

Who we are - WTB

- A Bangladeshi non-profit organisation founded in 2003 with a mission “to protect the natural heritage of Bangladesh”
- A team 40 ***passionate*** staff with a multi-disciplinary skillset
- Previous and current funders include USFWS, Banglalink, EU, and philanthropic individuals
- A strong implementation partnership with ZSL and WVI

Who we are – ZSL

- **A UK charity** founded in 1826 with a mission "To promote and achieve the worldwide conservation of animals and their habitats"
- **Science-based conservation**: A team of over 100 scientists in our own Institute of Zoology in London
- **Projects in over 80 countries**: field based projects , biodiversity monitoring, advising industry and government
- Bangladesh is one of our 12 hub sites

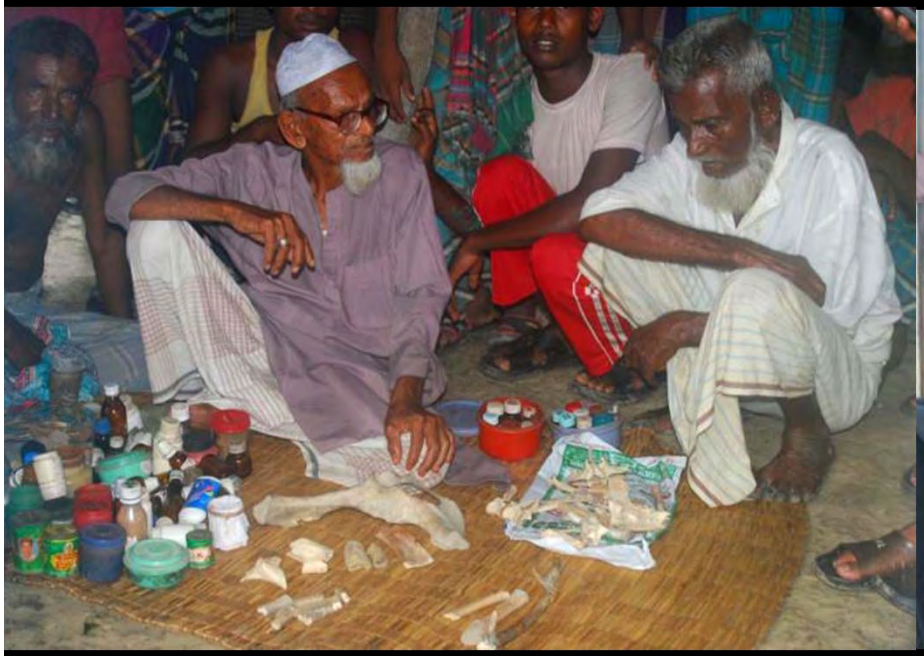
Who we are –WVI

- A UK charity of wildlife vets specialising in provision of veterinary services and training to other countries

How we approach conservation

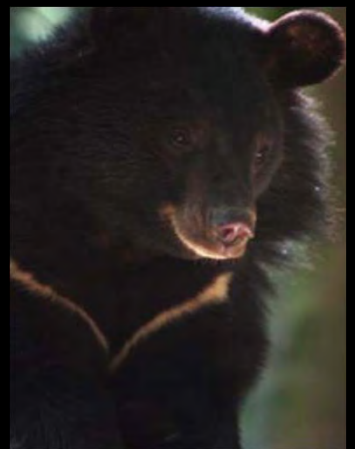
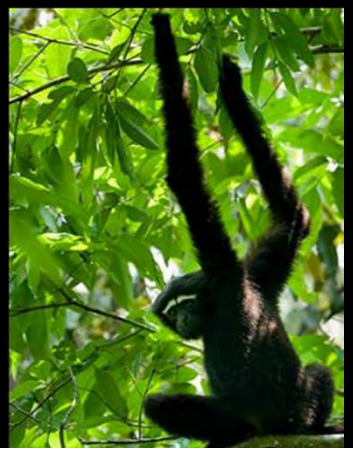
How we approach conservation

- ***Social change*** > the reduction of key threats to a landscape using a social marketing approach to change human behaviours



How we approach conservation

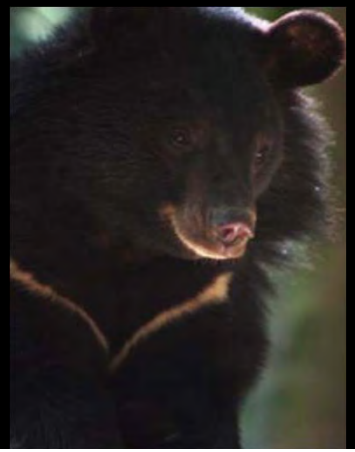
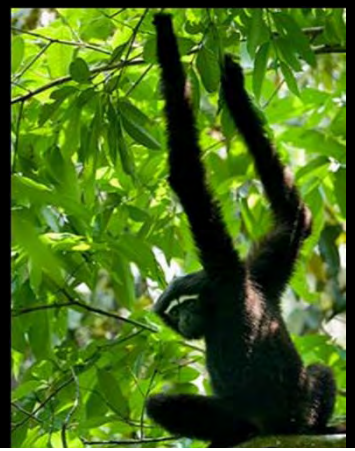
- This approach uses key biological indicators called “targets” to measure the success of conservation actions across a landscape
- Without these, we cannot measure the results of any project that aims to conserve Sundarbans


How we approach conservation

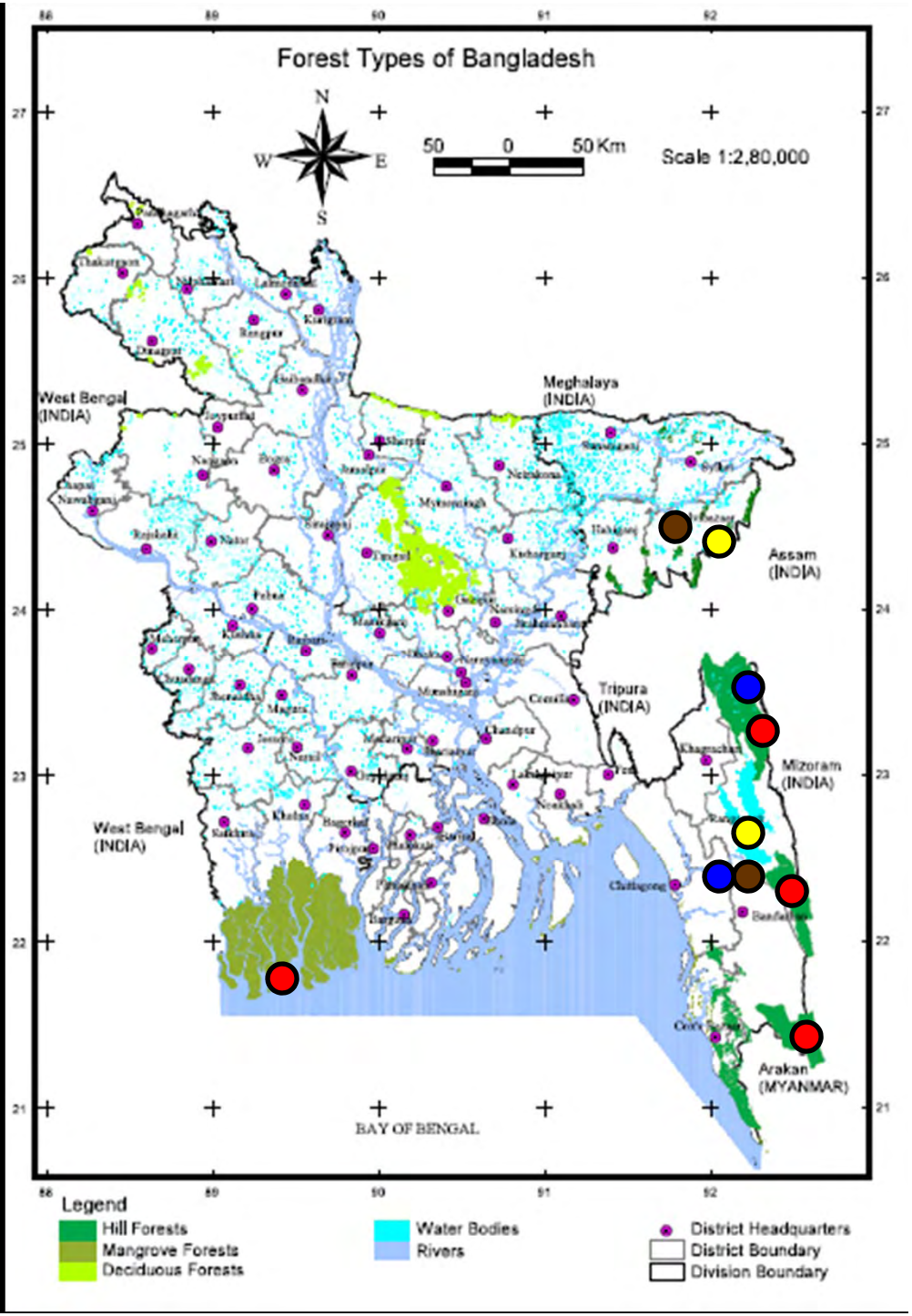
- This approach uses key biological indicators called “targets” to measure the success of conservation actions across a landscape
- Without these, we cannot measure the results of any project that aims to conserve Sundarbans

A blend of the latest methods from the CBD CEPA, The Nature Conservancy, IUCN, WWF, and environmental marketing think tanks.

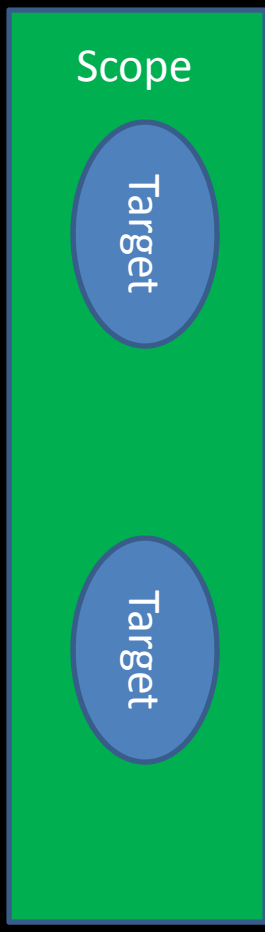





Where we work

- **Tiger**
  - Sundarbans
  - Hill Tracts
- **Asian Elephant**
  - Hill Tracts
- **Bear**
  - Hill Tracts
  - North East
- **Hoolock Gibbon**
  - North East
  - Hill Tracts



How we approach conservation



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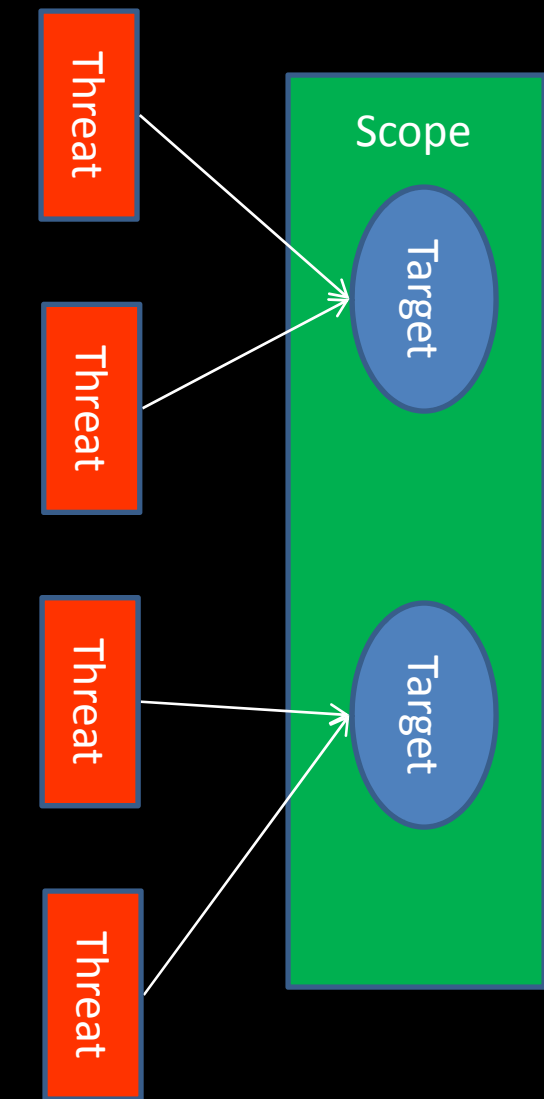
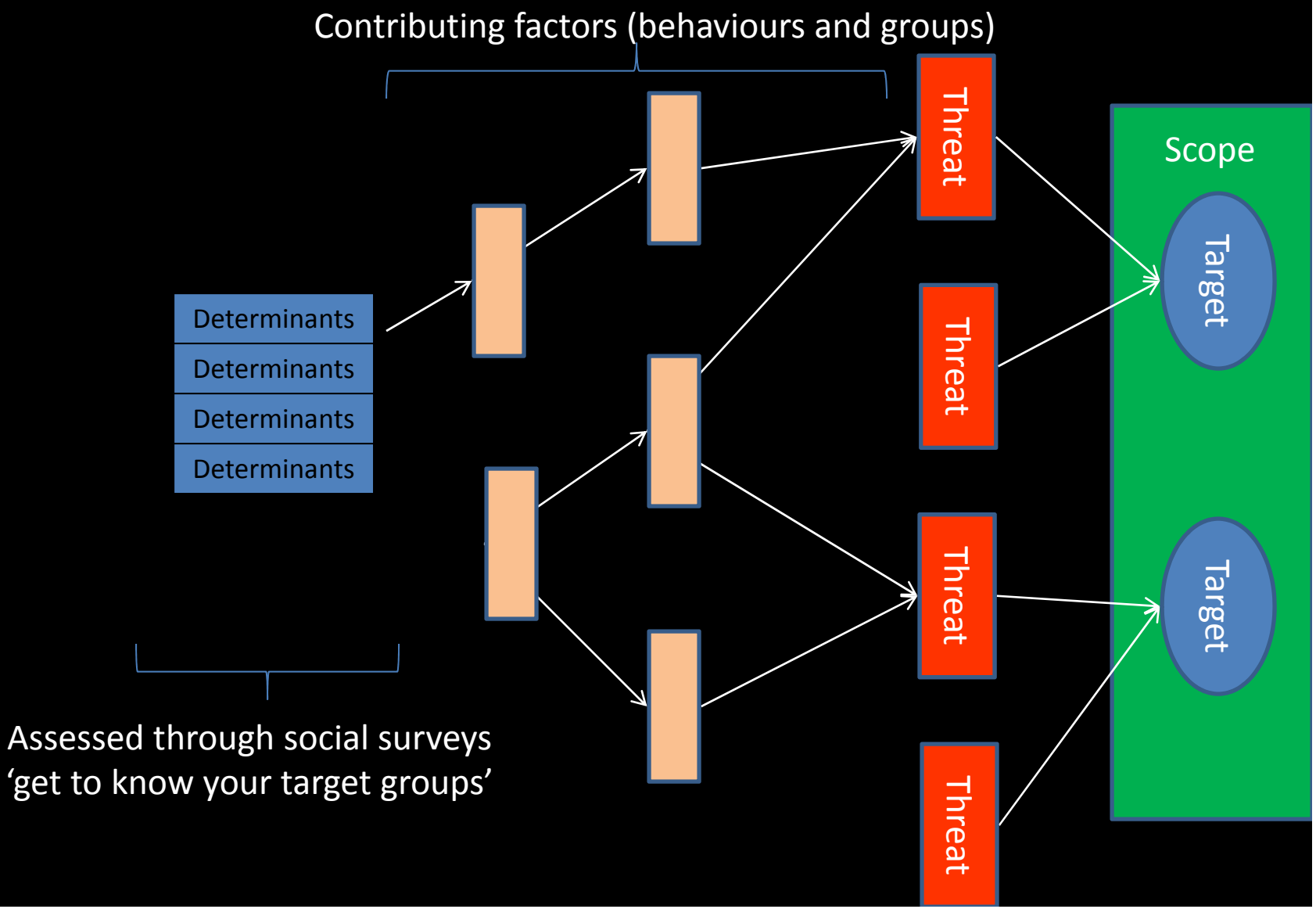


How we approach conservation



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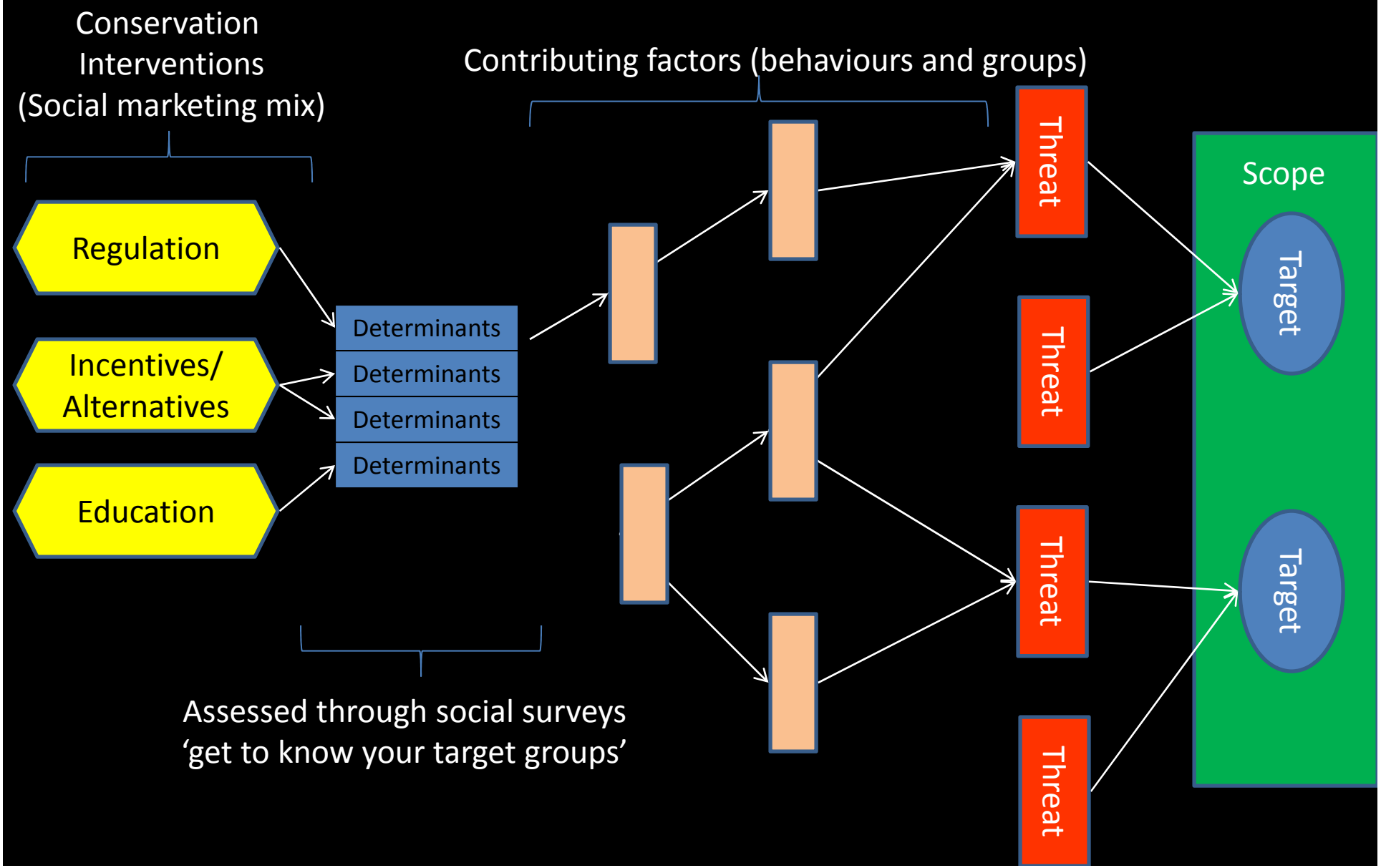

Target	Threat	Priority
Tiger	Tiger poaching	
	Stray tiger killing	
	Tiger disease	
	Inbreeding depression	
Prey	Prey poaching	
	Prey disease	
Habitat	Sea level rise	
	Upstream water extraction/divergence	
	Wood collection	
	Fishing and harvesting aquatic resources	
	Invasive species	
	River pollution	
	Mineral and gas extraction	
	Storm and tidal surge	
	Melting himalayan glaciers	
	Temperature change	
	Sea acidification	
	Commercial infrastructure	
	Plant disease	
	Housing infrastructure	
	Livestock grazing	
	Fire	
	NTFP collection	
	Noise pollution	

Ranked based on:

- Scope
- Severity
- Irreversibility

High priority

Medium priority

Low priority

Target	Threat	Short-term reduction (2009-2017)	Medium-term reduction (2018-2025)	Long-term reduction (2026+)	Unscheduled pending further research
Tiger	Tiger poaching				
	Stray tiger killing				
	Tiger disease				
	Inbreeding depression				
Prey	Prey poaching				
	Prey disease				
Habitat	Sea level rise				
	Upstream water extraction/divergence				
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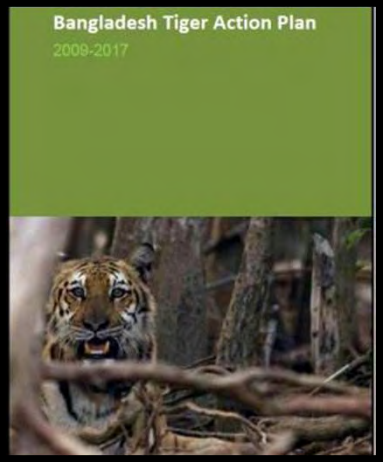
	Temperature change				
	Sea acidification				
	Commercial infrastructure				
	Plant disease				
	Housing infrastructure				
	Livestock grazing				
	Fire				
	NTFP collection				
	Noise pollution				

What we do

Strategy

- Work with the FD to formulate key strategy documents e.g.
  - Bangladesh Tiger Action Plan
  - BTAP Threats Assessment
  - BTAP Research agenda



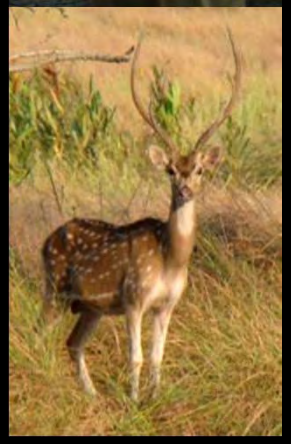
Research

- Improve knowledge base on targets and threats, e.g.
  - Ecology of Sundarbans tigers
  - Monitoring of tigers and prey
  - Wildlife poaching (Tiger, Deer)
  - Sea-level rise
  - Socio-economic impacts of tiger-human conflict and solution

What we do

Regulation

- Provide advice to Wildlife Advisory Board and UNDP Biodiversity Group
- Facilitate creation of key documents to improve regulation e.g.
  - SEALS protection assessment: target state report
- Provide advice to FD / MoEF on policy and legislation e.g.
  - Wildlife Act
  - Biodiversity Act
  - National Biodiversity Status Report to CBD



Communication, Education, and Public Awareness (CEPA)

- Creation of Conservation Knowledge Centre
- Creation of campaigns to help change attitudes and practises in local communities e.g.
  - Upcoming campaign to reduce prey poaching and consumption

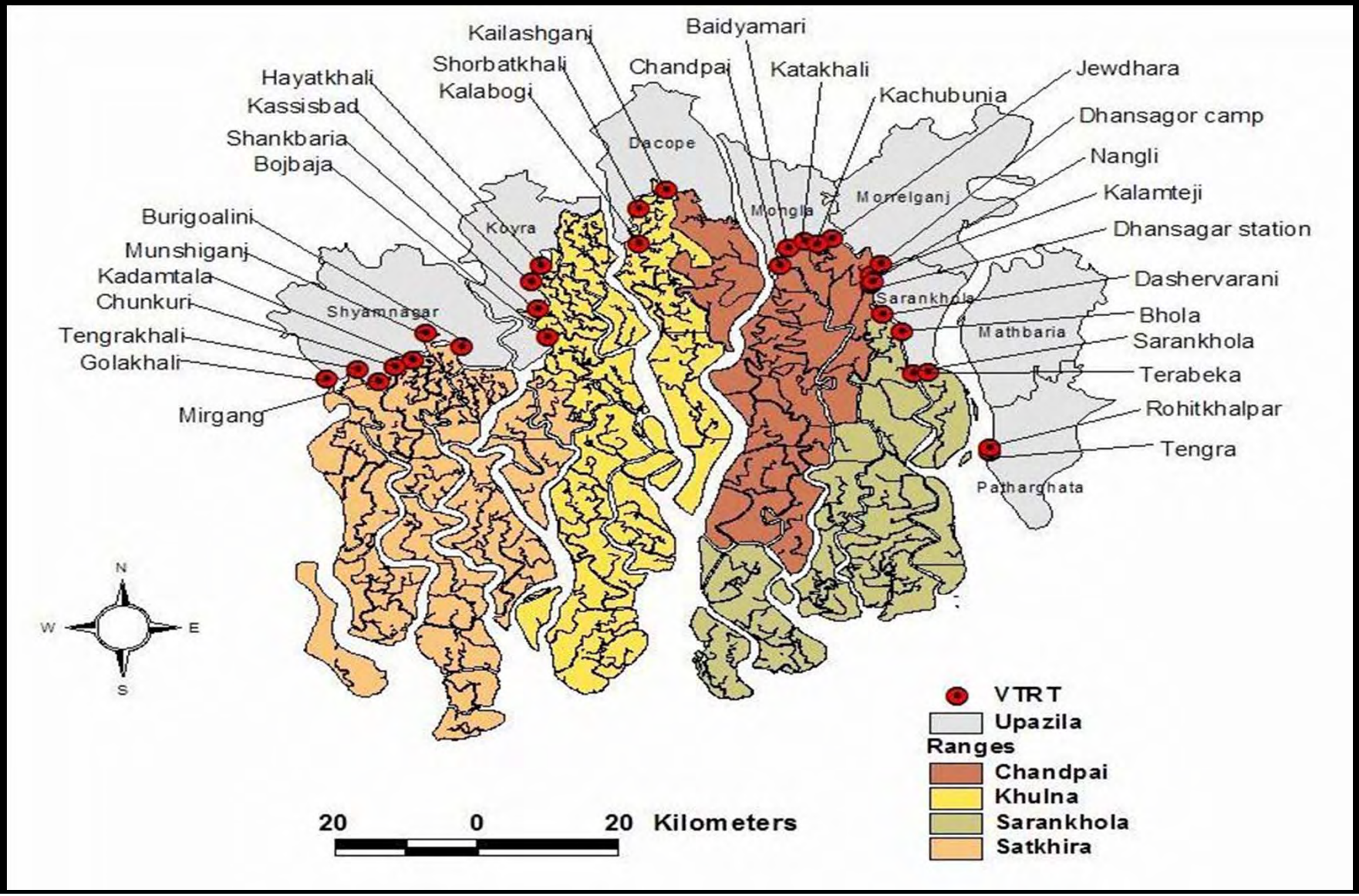
What we do

Alternatives/incentives

- Creation of boat-based Tiger Response team
- Training FD staff to respond to Tiger-Human Conflict (THC)
- Creation of 29 Village Tiger Response Teams to empower villagers to reduce THC

Working with communities

Working with the communities to reduce tiger-human conflict




Thank you!

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Integrated Resources Management Plans (IRMP) for the Sundarbans

24 May 2011

USAID
আমেরিকার জনগণের পক্ষ থেকে

Department of Fisheries

Department of Environment

SUNDARBANS

The World's Largest Natural Mangrove Forests

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The Sundarbans

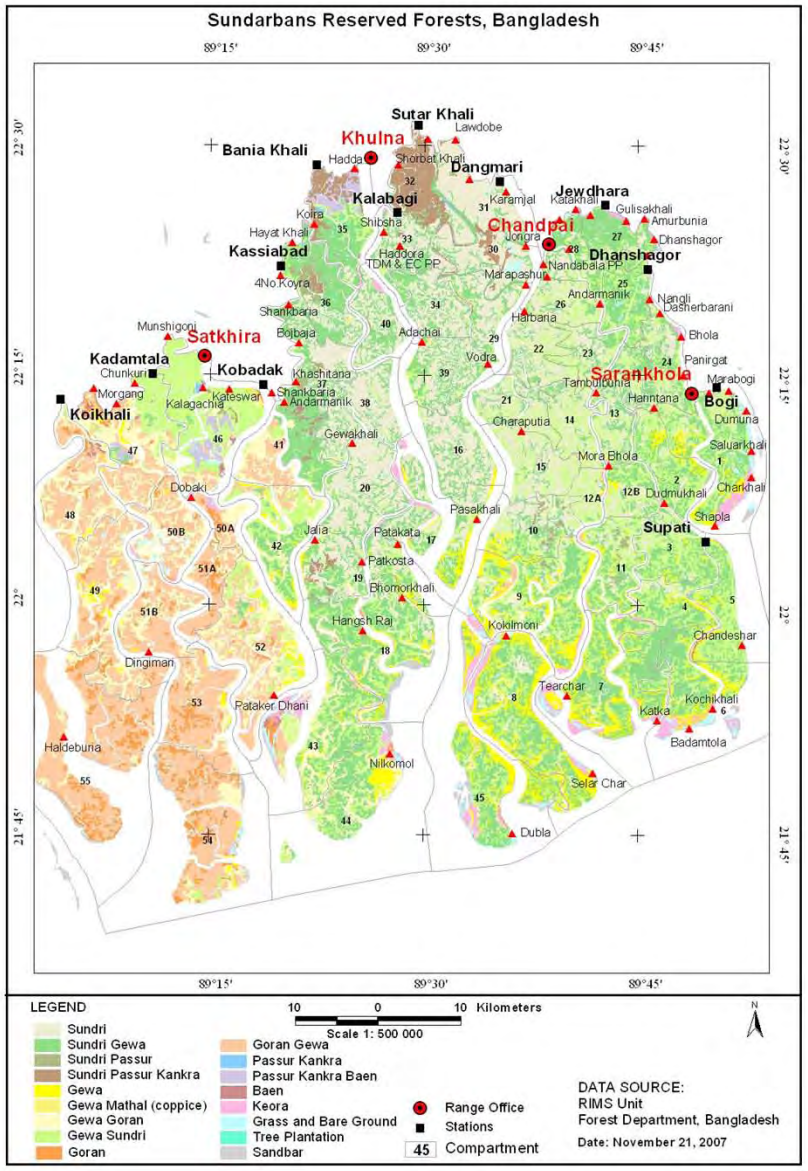
Sundarbans Reserved Forests :

Total Area: 6017 Sq.Km.

Land Area: 4113 Sq. Km

Water Body:1904 Sq.Km

Major Rivers: Pasur, Baleshwar, Shibsa



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World Heritage Site

- Wildlife Sanctuaries

❖ 798th WH Site declared in 1997.

❖ WH Area 1390 Sq. Km.

❖ Consists of 3 Wildlife Sanctuaries

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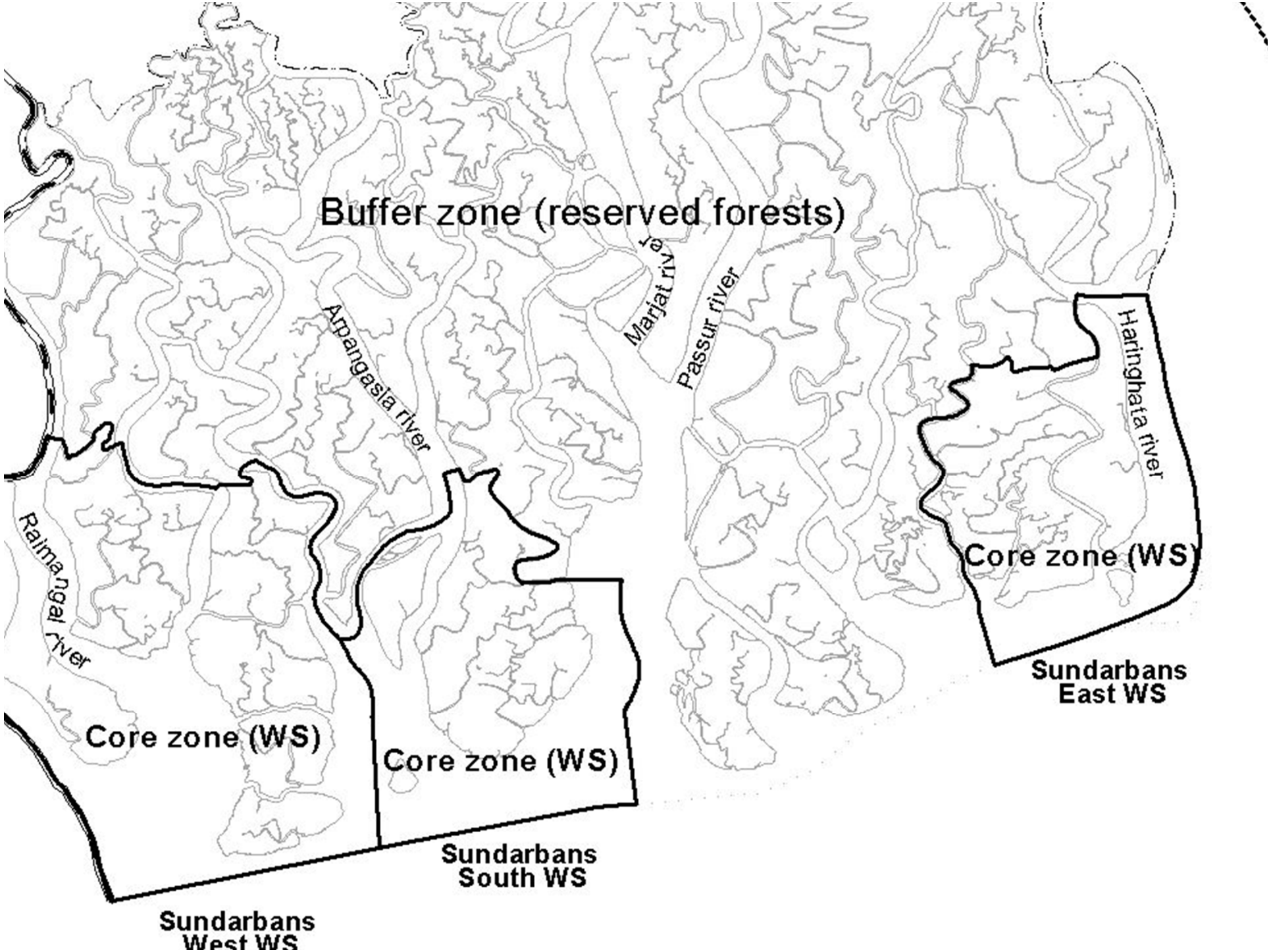
Buffer zone (reserved forests)
Marjat river
Passur river
Haringhata river
Core zone (WS)
Sundarbans
East WS
Arpangasia river
Raimangal river
Core zone (WS)
Core zone (WS)
Sundarbans
South WS
Sundarbans
West WS

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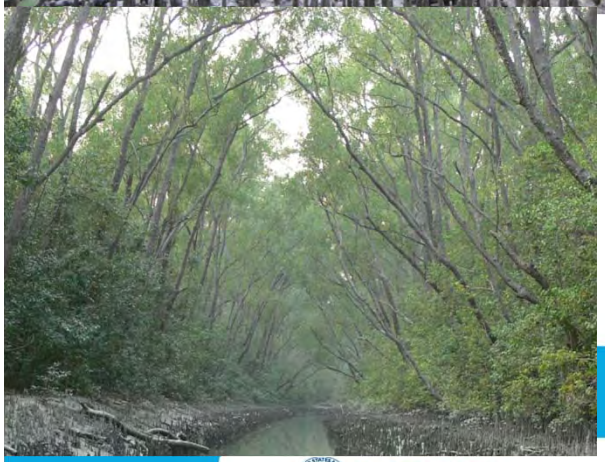
Major Vegetation Types

Sundari

Gewa



Keora

Goran

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Fishes

- 191 species
  - Whitefish 210
  - Shrimp 24
  - Crabs 14
  - Molluscs 43

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Cetaceans

Gangetic, Irawady & Bottleneck Dolphin are found in Sundarbans

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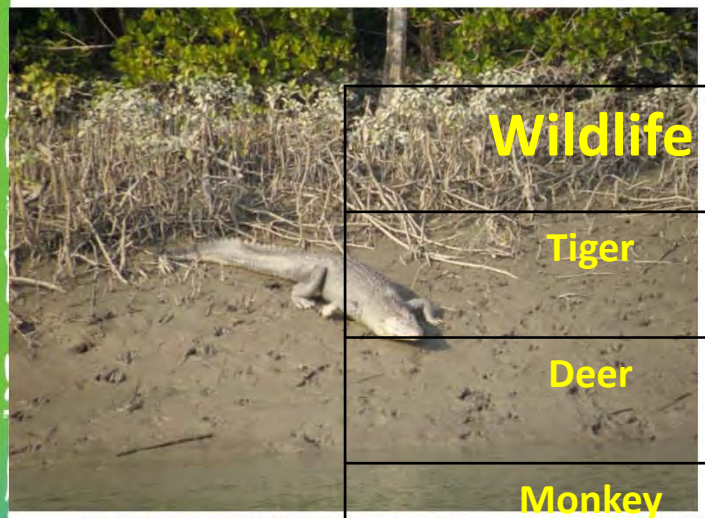
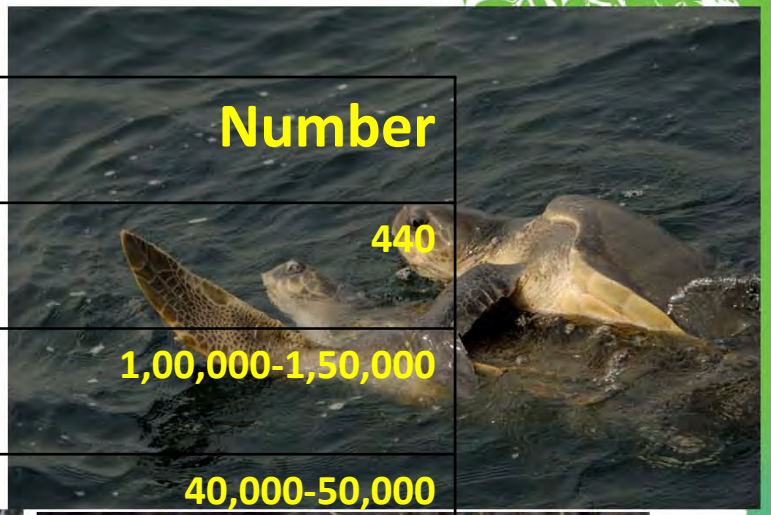
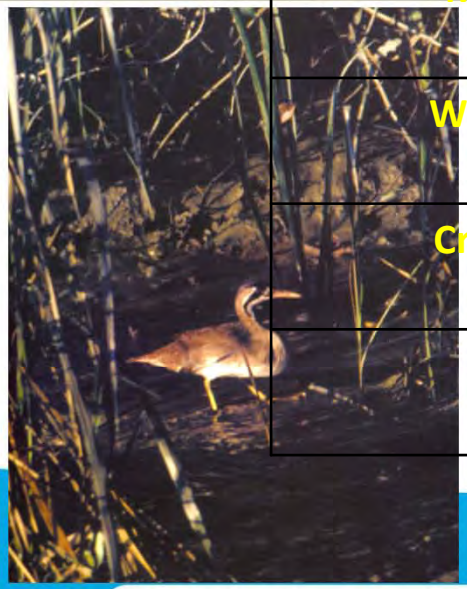
Wildlife





Wildlife	Number
Tiger	440
Deer	1,00,000-1,50,000
Monkey	40,000-50,000
Wild Boar	20,000- 25,000
Crocodile	150-200
Otter	20,000- 25,000



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Management Units and Staff

Administrative Units

- Circle - 1
- Divisions - 2
- Ranges - 4
- Revenue Stations - 16
- Check Station - 1
- Patrol Posts - 72

Compartments: 55

Manpower - 1068

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Sundarbans and Livelihood

1 million local people are dependent on Sundarbans

Item	Amount (Annual Average of Last 5 years) in Tones
Fish	4750
Golpata	23000
Honey & Wax	1460
Goran Stem	3626

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Livelihood Cont.

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Eco-Tourism in the Sundarbans

Tourist spots :

- Karamjol
- Harbaria
- Katka, Kochikhali
- Dubla Island, Alor- Kul
- Nilkomol (Hiron point)
- Shekhertek
- Mandarbaria
- Notabenki
- Dobenki

A Canal During Low Tide

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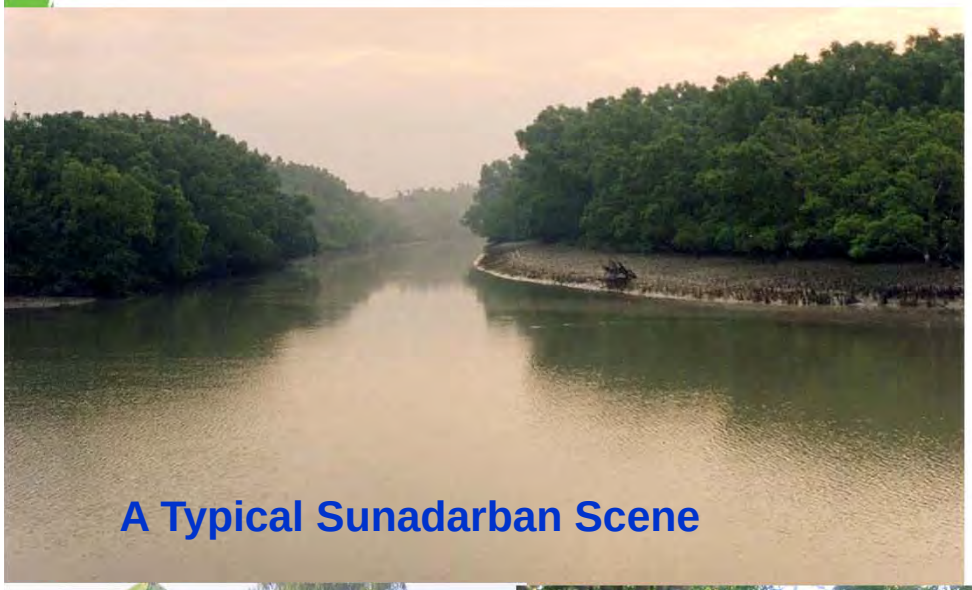
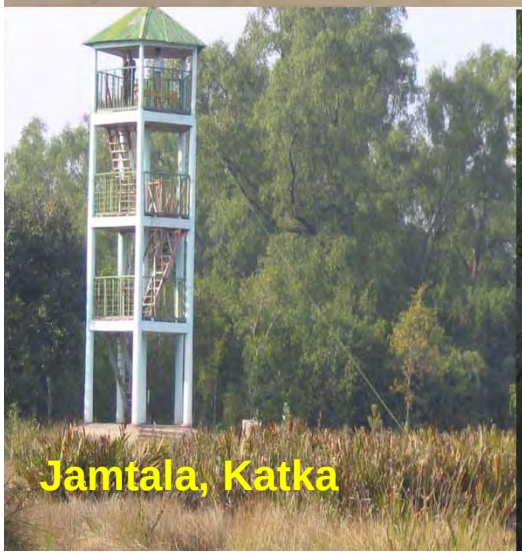
Eco-Tourism in the Sundarbans



A Typical Sunadarban Scene

Harbaria



Jamtala, Katka

Karamjal trail

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Eco-Tourism in the Sundarbans

Katka Beach

Each Year Nearly 100 Thousand Eco-Tourists Visit the Sundarbans

Rash Festival at Alor- Kul

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Why the IRMP for the Sundarbans?

- Conservation Management Plan (Wildlife Plan) for the three Wildlife Sanctuaries expired in 2002
- Integrated Forest Management Plan (IFMP) expired in 2010.
- Both the Management Plans required a revision and integration & at the request of FD, IPAC initiated the preparation process during 2009-2010.

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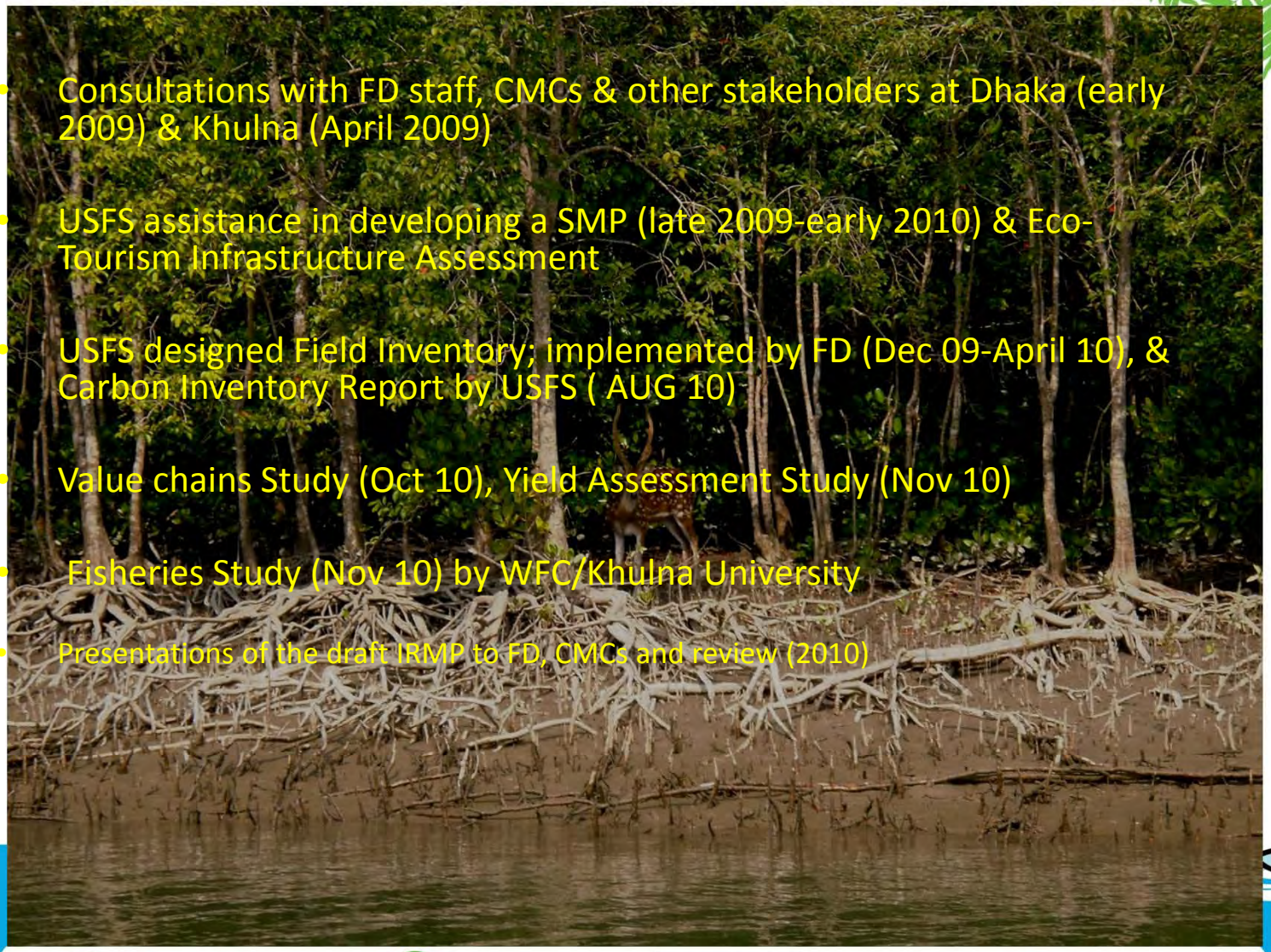
IRMP Preparation Process



- Consultations with FD staff, CMCs & other stakeholders at Dhaka (early 2009) & Khulna (April 2009)
- USFS assistance in developing a SMP (late 2009-early 2010) & Eco-Tourism Infrastructure Assessment
- USFS designed Field Inventory; implemented by FD (Dec 09-April 10), & Carbon Inventory Report by USFS (AUG 10)
- Value chains Study (Oct 10), Yield Assessment Study (Nov 10)
- Fisheries Study (Nov 10) by WFC/Khulna University
- Presentations of the draft IRMP to FD, CMCs and review (2010)

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IRMP 2010

- PART I: Analyses of the Management Situation
  1. The Context
  2. Strategic Goals & Objectives of the Sundarbans Management;
  3. Biodiversity Conservation Attributes
  4. Biodiversity and Habitat
  5. Assessment of Biodiversity Management Practices
  6. Interface Landscape

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IRMP 2010

- **PART II: Recommending Strategic Programs for Sustainable Sundarbans:**

1. Habitat Protection Programs
2. Wildlife Sanctuaries Management Programs
3. Sustainable Forests Management Programs
4. Food Security and Wetlands Management Programs
5. Climate Change Mitigation Programs
6. Climate Change Adaptation Programs
7. Eco-Tourism Programs
8. Facilities Development Programs
9. Conservation Outreach, Research, Participatory Monitoring and Capacity Building Programs
10. Administration and Budget Programs

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IRMP 2010: New frontiers

- Habitat protection through co-management
- Sustainable forests conservation & management
- Wildlife management and Tiger management; cetaceans diversity management
- Landscape identification and management
- Wetlands management as an integral part of sustainable forests management
- Fisheries conservation and management based on MSY
- Identifying climate change impacts on forests, wetlands & ecosystems
- Carbon stock assessment and MRV system
- Adaptation of local communities to climate change
- Conservation-linked value chain programs in the landscape
- Promotion of Eco-tourism and facilities development
- Conservation outreach, applied research, capacity building, and participatory monitoring

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Thanks

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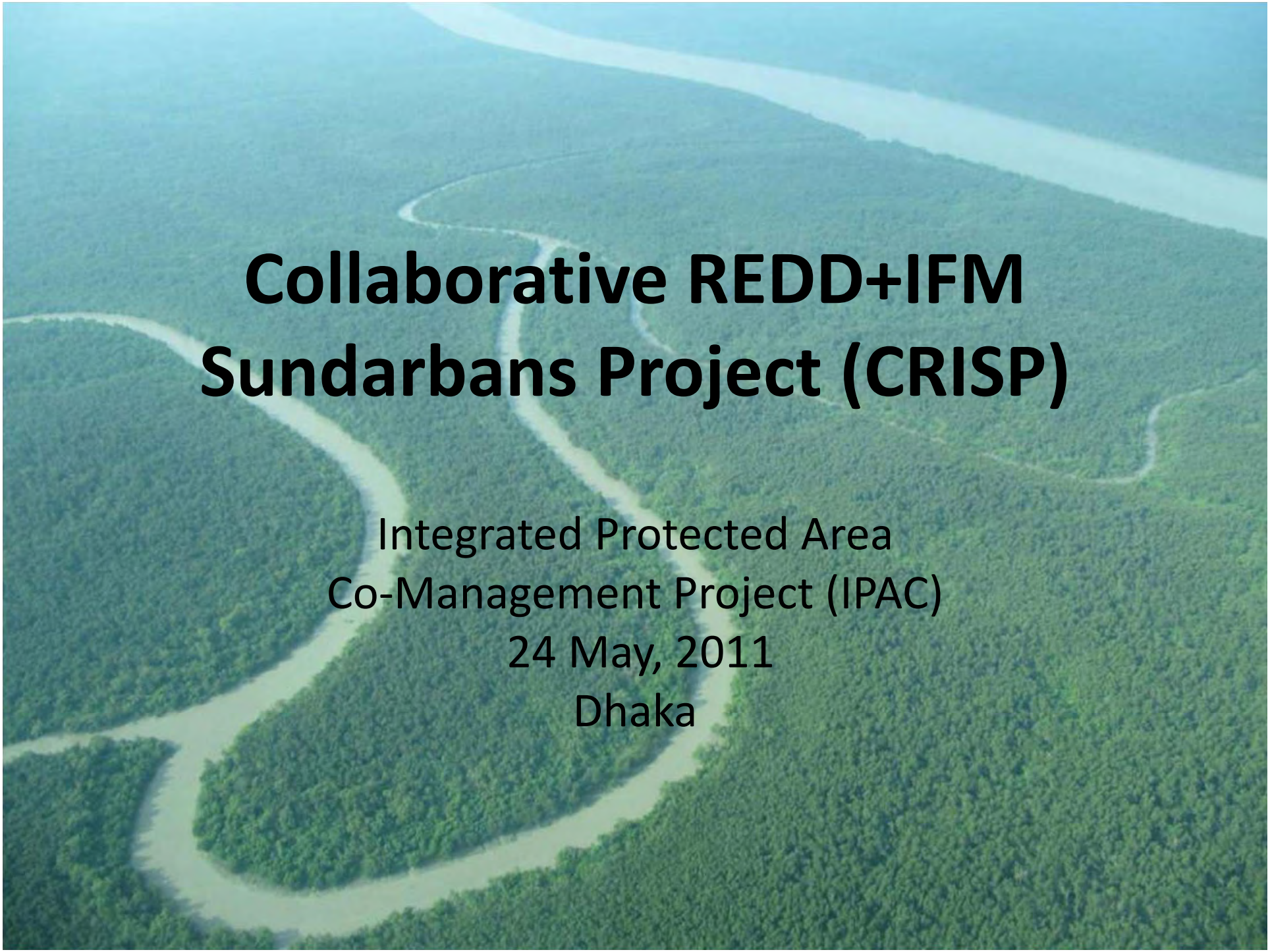

Collaborative REDD+IFM Sundarbans Project (CRISP)

Integrated Protected Area
Co-Management Project (IPAC)
24 May, 2011
Dhaka

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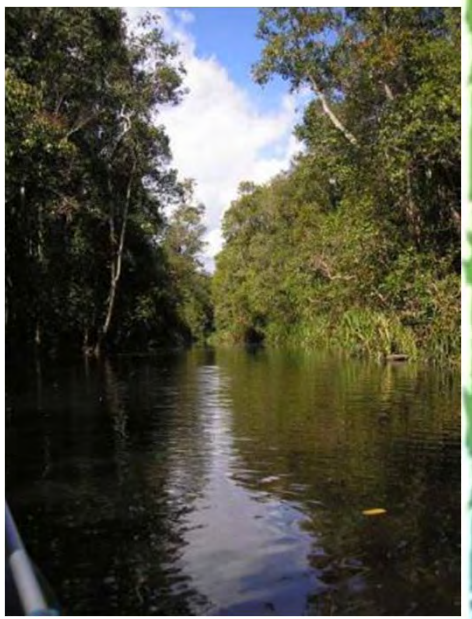
Outline

- Overview
- Actors & Stakeholders
- Project Design Process
- Project Social & Biodiversity Standards and Certification
- Meeting Drivers of Forests Degradation
- Project Financing
- Community Benefits
- Forest Carbon Rights
- Project Financing
- Next Steps



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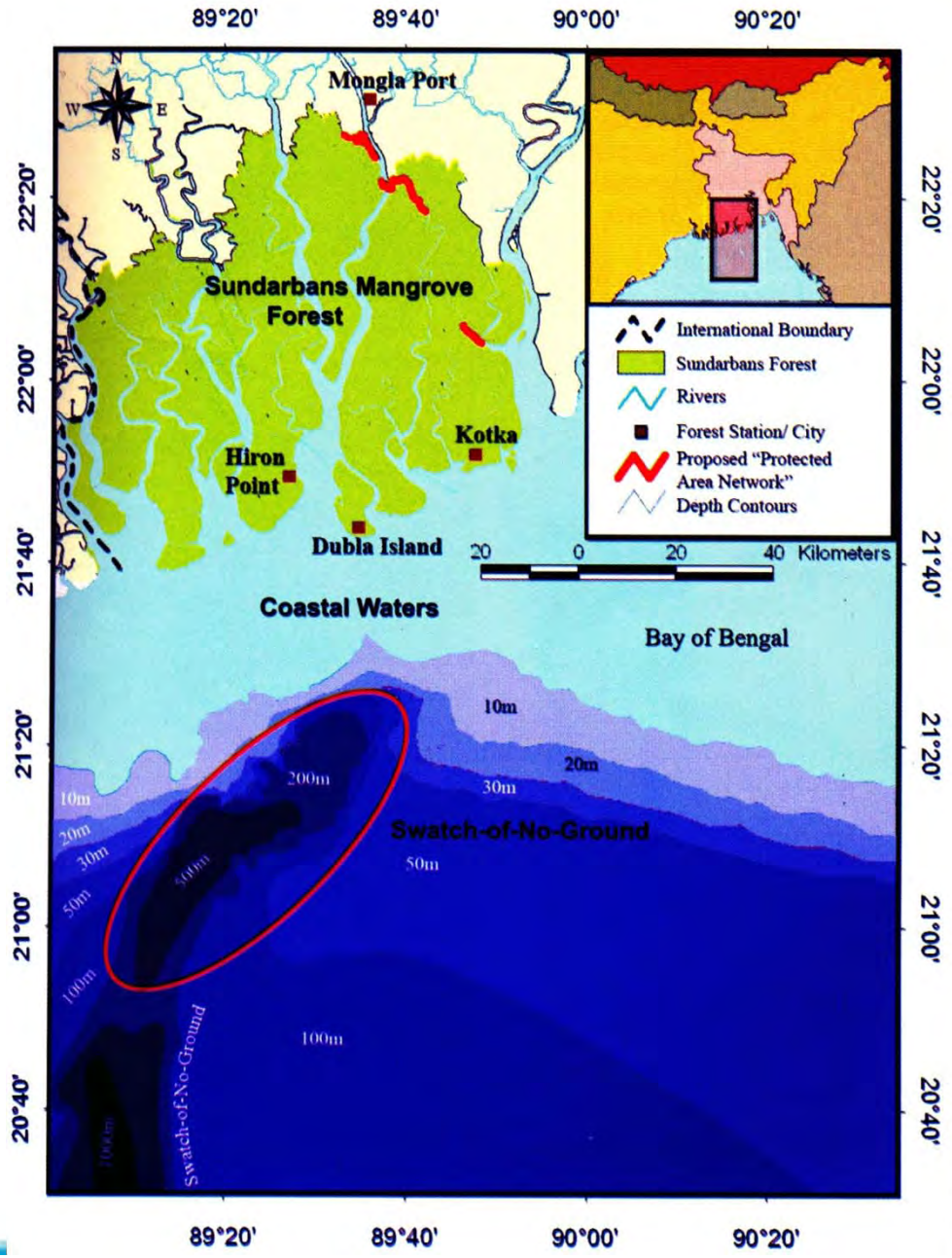
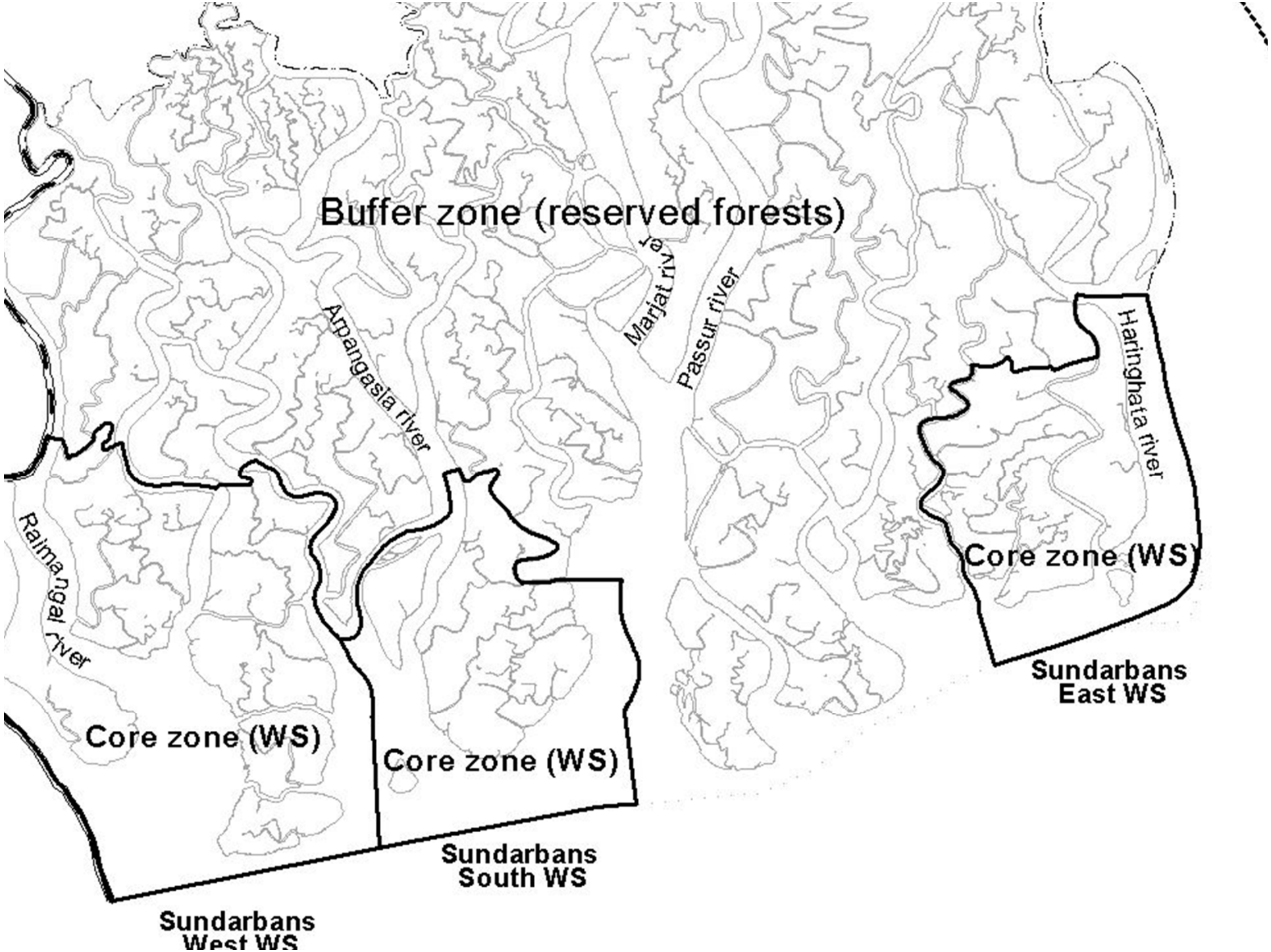
Overview

- Sundarbans-6,000 sqkm with 2/3rd as forests (half of the country's forests)
- Mosaic forests degradation in 1/3rd of the SRF
- Socio-ecologically and economically important to conserve
- More than a million people, mainly poor from the landscape depend on the SRF, mainly on fisheries and NTFPs
- Important for coastal protection and fish breeding
- 30 years project

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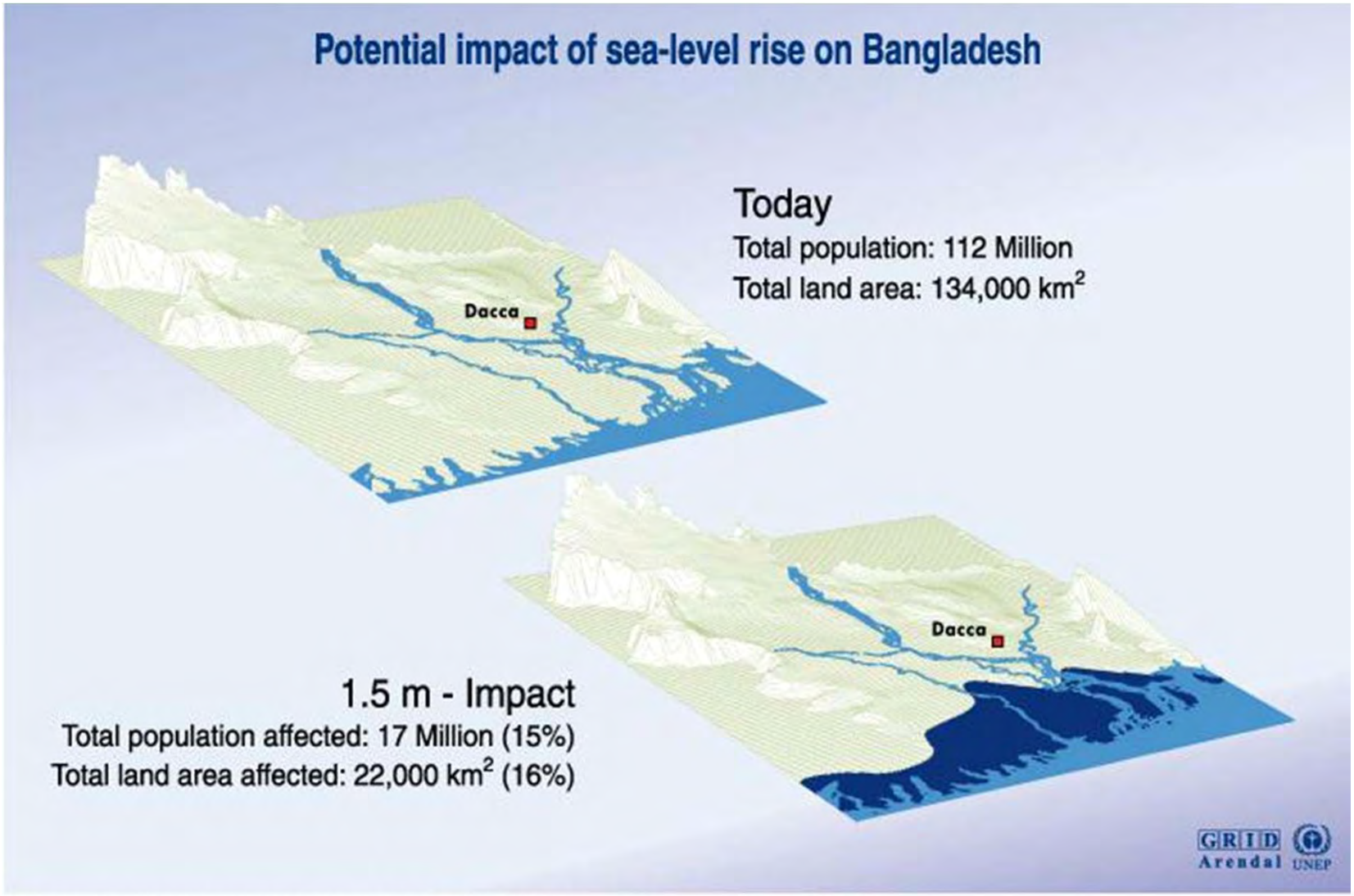
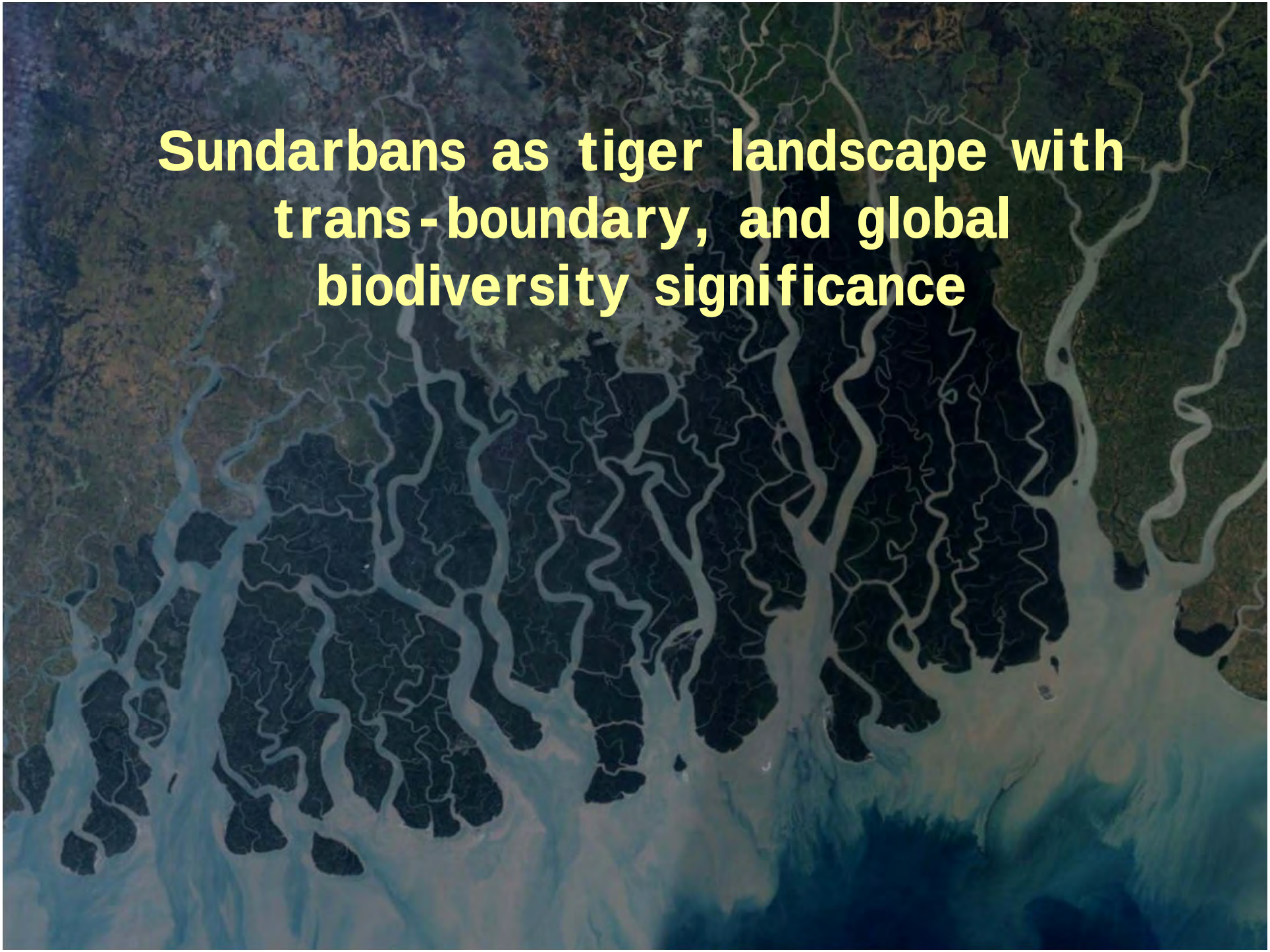
Bangladesh



Source : UNEP/GRID Geneva; University of Dacca; JRO Munich; The World Bank; World Resources Institute, Washington D.C.


Sundarbans as tiger landscape with
trans-boundary, and global
biodiversity significance

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Actors & Sundarbans as tiger landscape with trans-boundary, and global biodiversity significance Stakeholders

- FD of MOEF is the project proponent
- CRISP to be implemented by the gazetted 4 CMCs by gainfully associating local community including VCFs from the interface landscape
- USAID's IPAC project supports technically
- FD's Initiatives with GOB funds
- WB, EU, GIZ, etc
- Tiger habitat (440)

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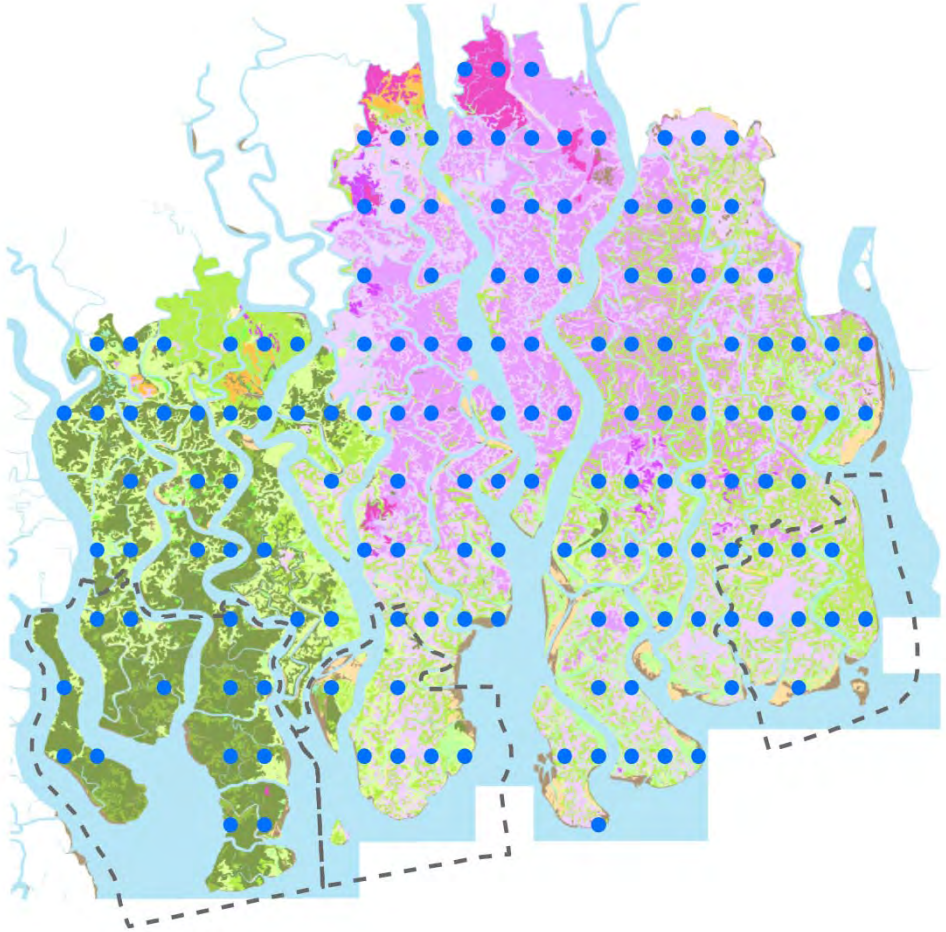
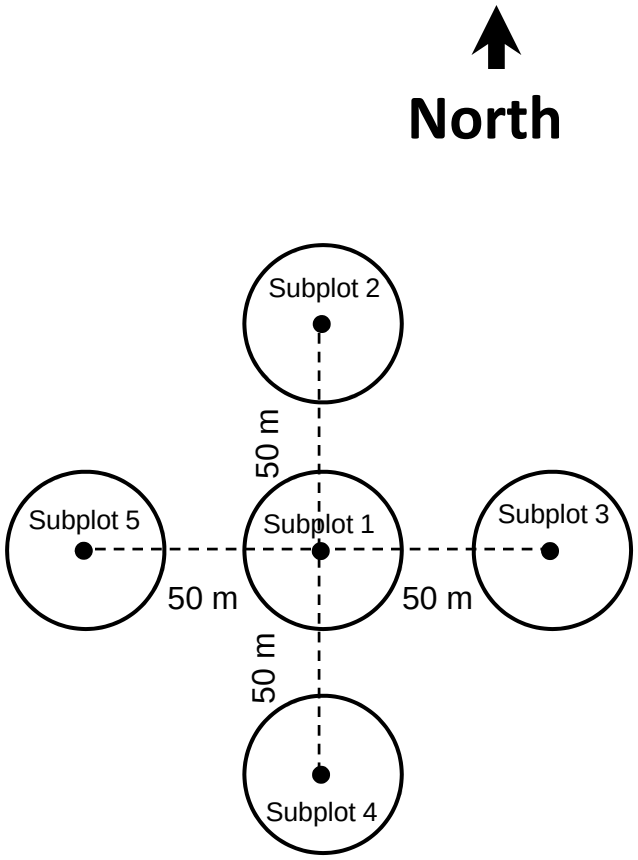
CRISP Process

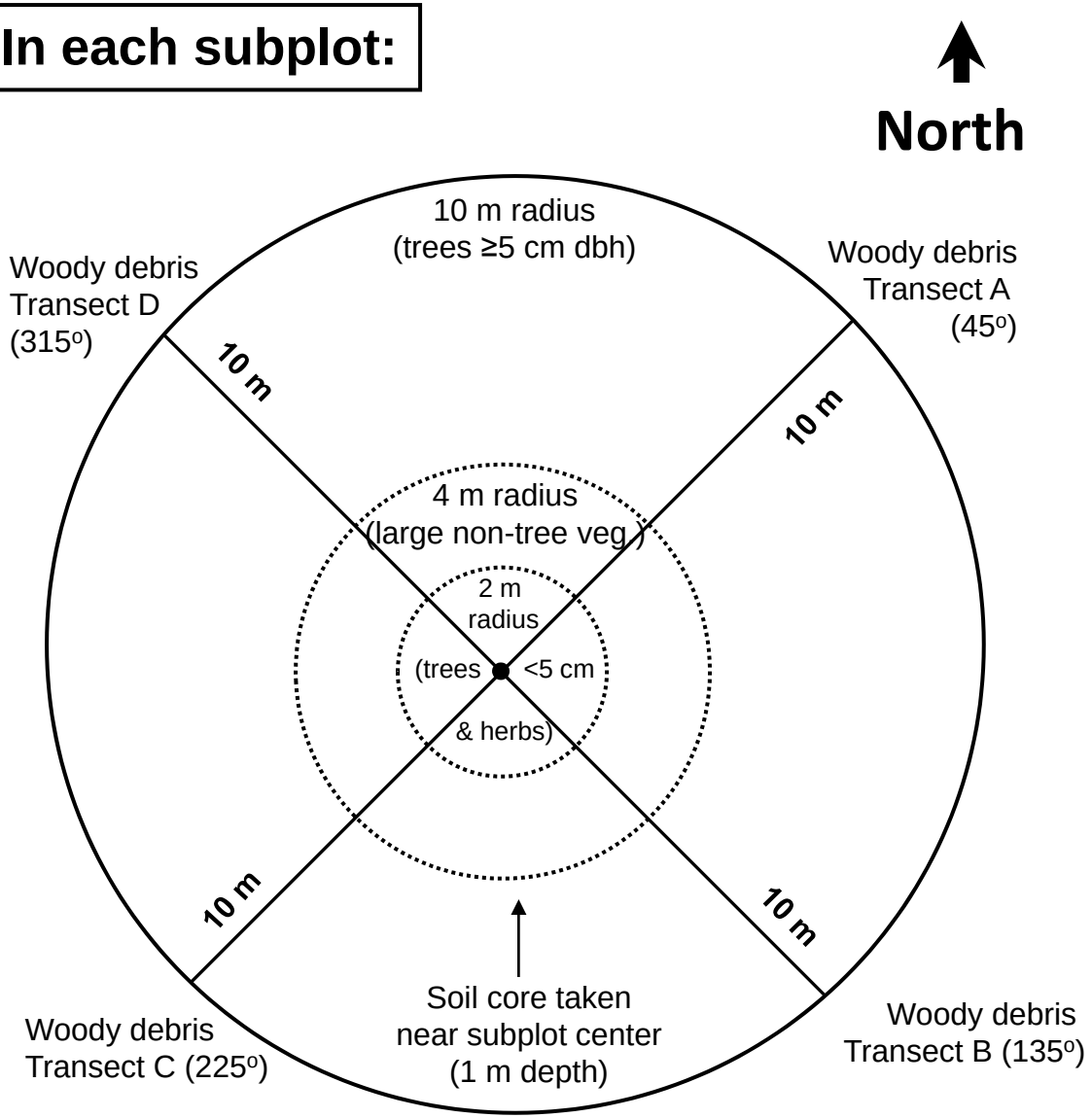
- Initial discussions with FD & CMCs (July 09)
- Carbon proposal training (Aug 09)
- Field Inventory design (Oct 09)
- Field Inventory by FD (Jan-April)
- Baseline assessments (June)
- Community interactions (cont.)
- IRMP (cont.)
- CRISP (Feb.---)
- Discussions with WB



In each plot:



In each subplot:



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Baseline assessments

150 plots

95,000 trees

112,000 logs

8000 shrubs

1500 soil samples

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Carbon Standards & Methods

- VCS 2007.1 for voluntary carbon markets
- Meets CCBA process standards
- Mainly IPCC inventory methods
- Meets AFOLU requirements

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MRV

- Carbon stock change method (1967, 1985, 1996, 2010, 2015,..)
- Carbon pools-above-ground (tree, sapling, seedling, etc.), on-ground (woody debris, dead tree, leaf litter, etc.), below-ground (soils, roots)
- IPAC carbon inventory methods (sampling design, intensity, permanent sample grid and plots, inventory methods and training)
- Avoided deforestation assessed by using IRS imageries in RIMS
- Avoided forest degradation (canopy density) assessed by temporal inventory of permanent grid plots in RIMS
- Volume models of FD

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Mitigating Drivers of Frontier Deforestation & Mosaic Degradation

- Capacity building of FD field staff
- Strengthening FD stations & camps
- Strengthening joint (community & FD) patrols on the north and eastern borders
- Improved communication
- AIG and value chains including fisheries

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Financing & Community Benefits

- Capacity building & PDD development with IPAC assistance
- Certification by CCBA & others with IPAC assistance
- PDD to be submitted for WB Biocarbon Fund
- CMCs to manage carbon funds
- Local community to be involved in benefits sharing and livelihoods programs

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Carbon Rights

- FD as state representative will be contract signing authority
- Presently no carbon rights legal framework
- PM has formally indicated – REDD benefits to be assigned to local community
- Benefits sharing guidelines under preparation by IPAC
- Present temporary Moratorium on commercial to be permanent

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Ways forward

- Soil C Addionality to be estimated
- PDD to be finalized and adopted by host Govt.
- Certification
- REDD Policy and enabling legal framework
- FD RIMS to be strengthened
- MRV to be implemented by CMCs
- Empowered CMCs and local community
- THANKS

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Eyes of Sundarban

Value Chain Study Sharing

Presented By
Mahmud Hossain
Enterprise & PPP Specialist
IPAC

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Major Objectives

- Existing VC situation of Sundarban
- To provide a foundation upon which economic & other interventions can be efficiently designed

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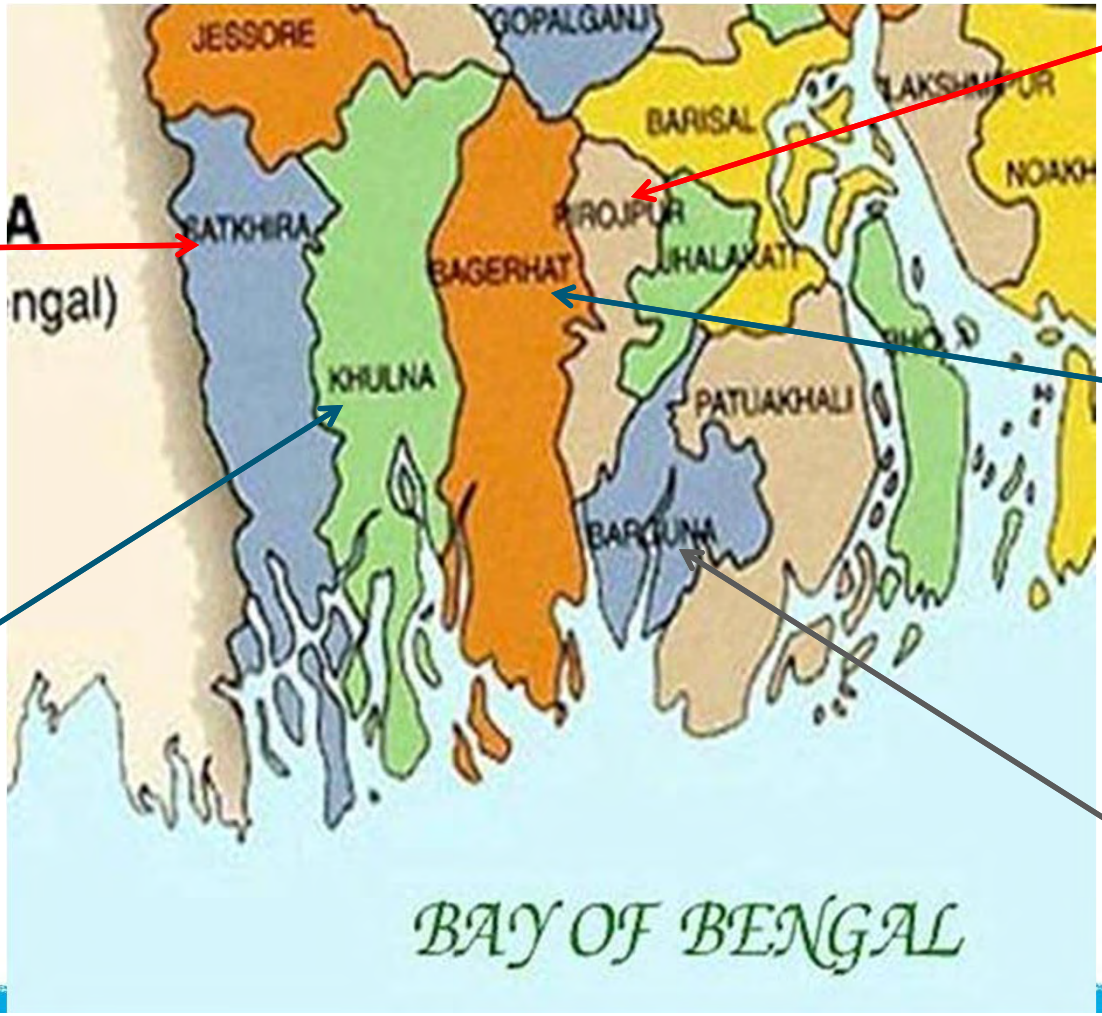
Sundarban study area
Union-151 & Vill -1302



Pirojpur
Mathbaria

Satkhira
Shymnagar

Bagerhat

Sadar, Mongla,
Morrelganj, Sarankhola

Khulna

Dacope,
Koyra,
Paikgacha

Barguna

Patharghata

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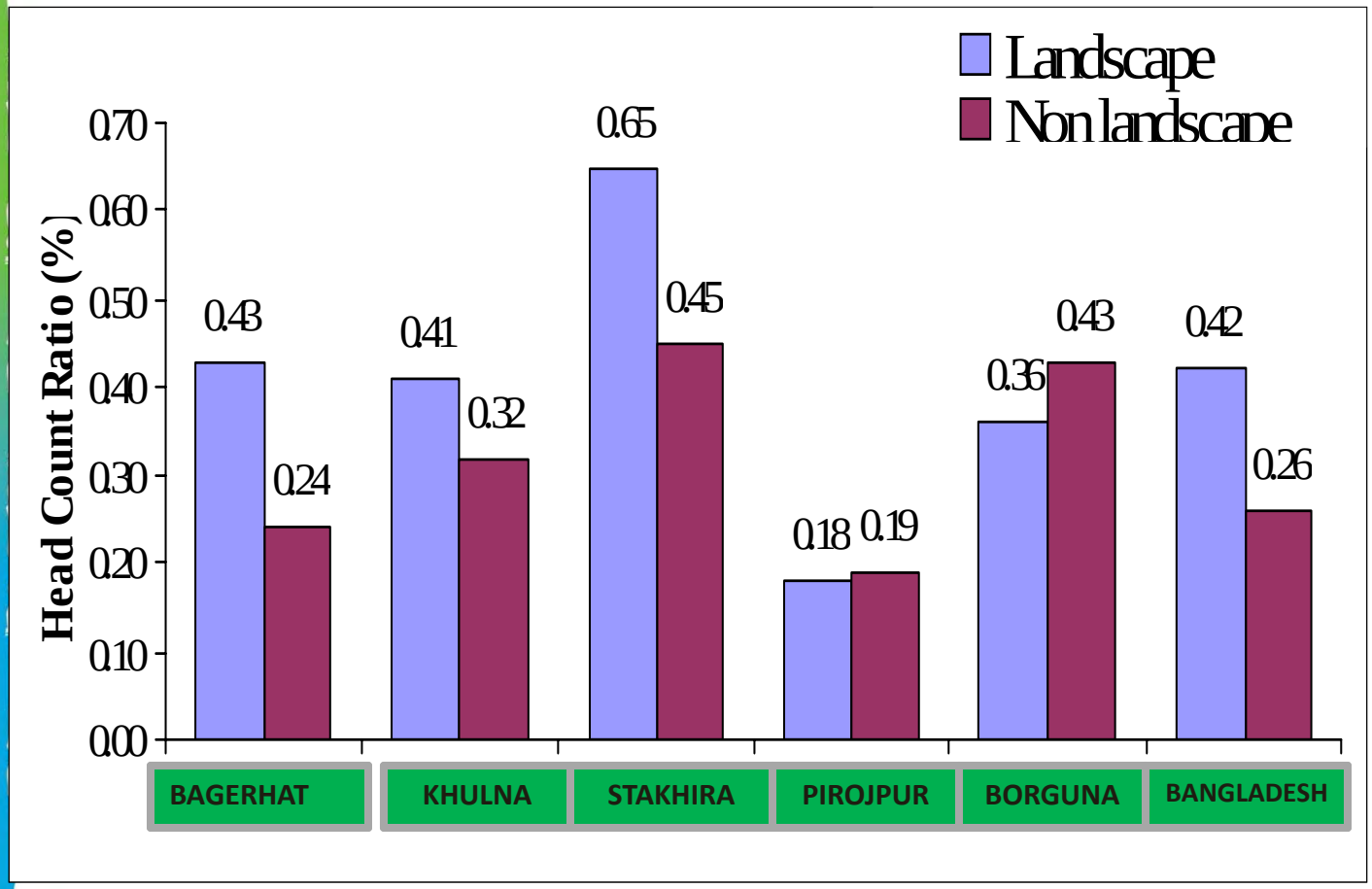
Poverty Situation of Landscape and Non-Landscape



BBS- 2005

Bangladesh overall poverty =40%

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Some key findings

- *LandScape, comprising 10 upazilas of 5 districts, is a severely poverty-stricken region.*
- *Dismal picture on poverty – landscape upazilas have a much higher (extreme) poverty rates (0.42) compared to a average non-landscape upazilas in Bangladesh (0.26).*
- *9 out of 10 landscape -upazilas (except Patharghata), have a much higher extreme poverty levels than the corresponding non-Landscape upazilas*

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Value chain study

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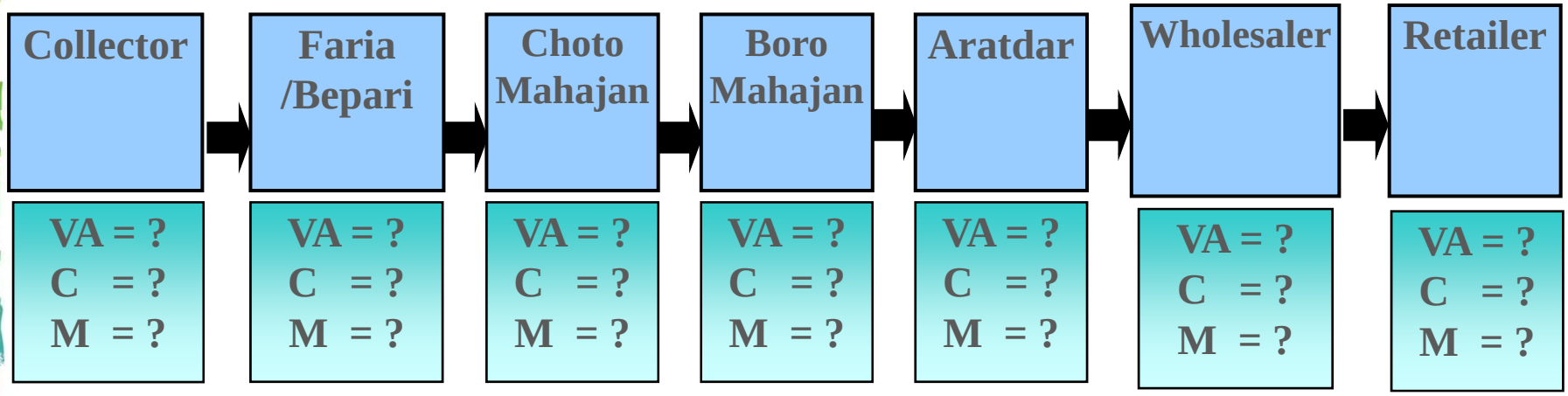
VALUE CHAIN ANALYSIS

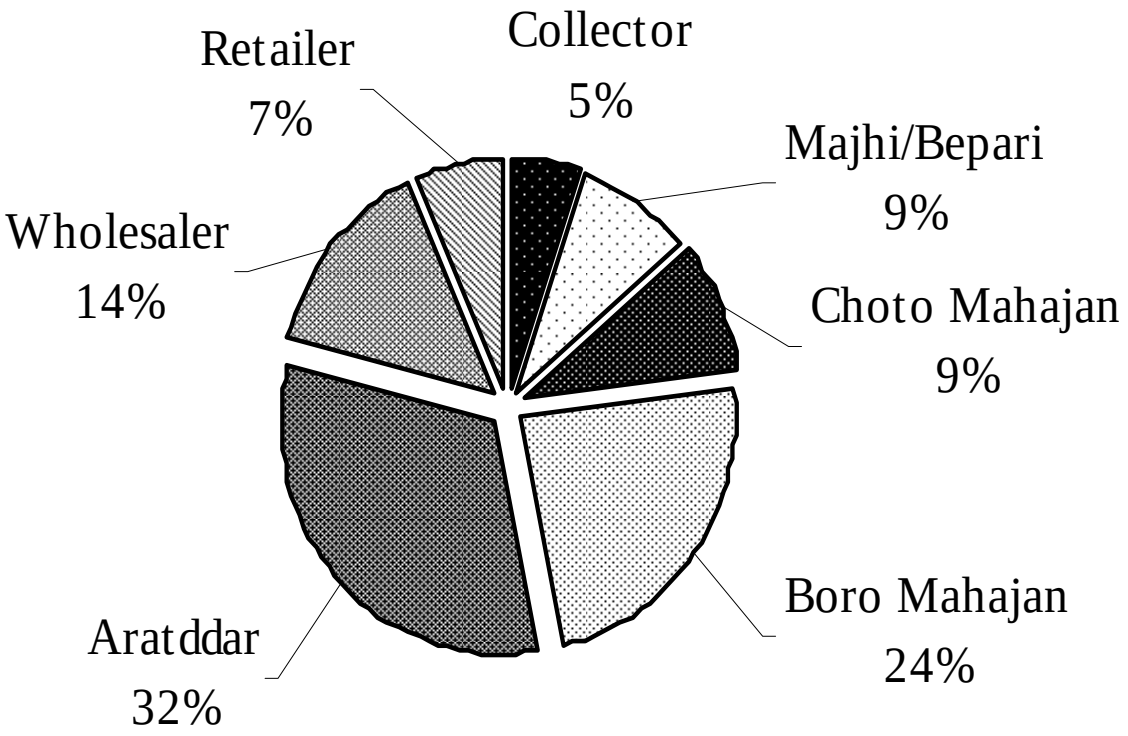
A simplified SRF marketing system & VC of the actors (% of retail price)



VA = Value addition; C = costs; M = Margin = VA – C

In practice, Actors involved in Value Chains have innumerable combinations, having, again, multiple roles and dealing with multi-products- poses problem with individual value chain calculation

Annual income level (%) of SRF Actors



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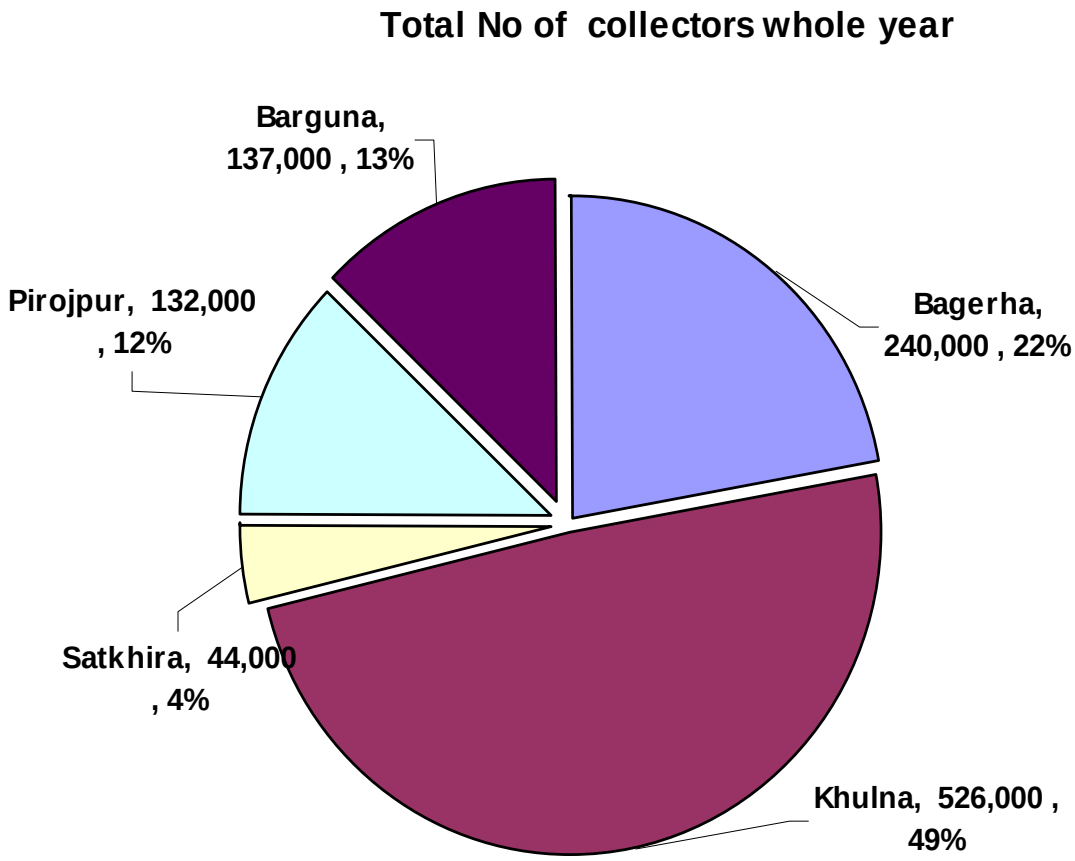
Estimates of total No of collectors of Landscape



Assuming total collectors

=6 Lacs

VC Findings

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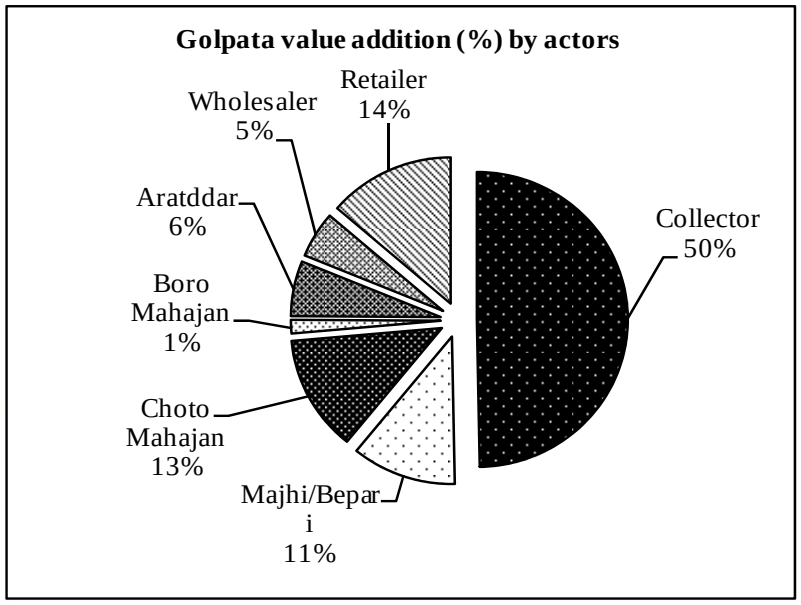

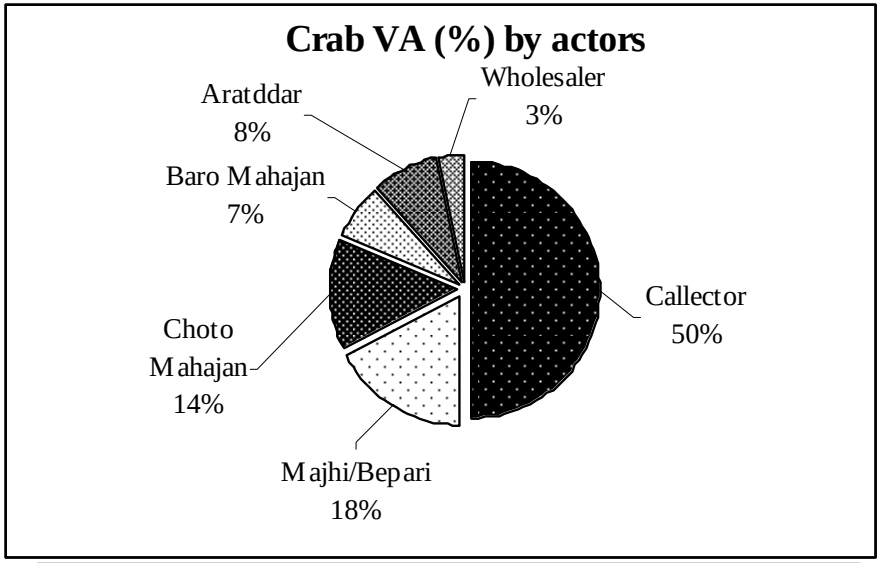

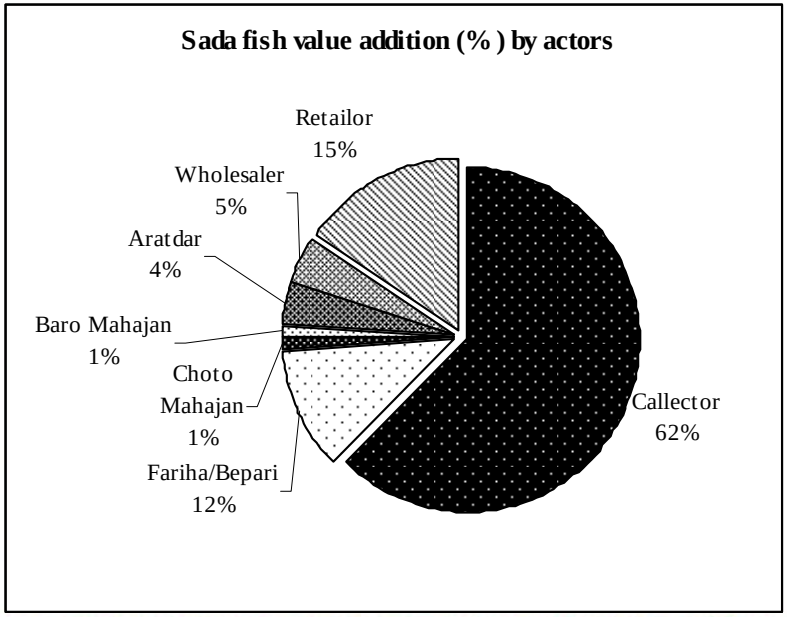

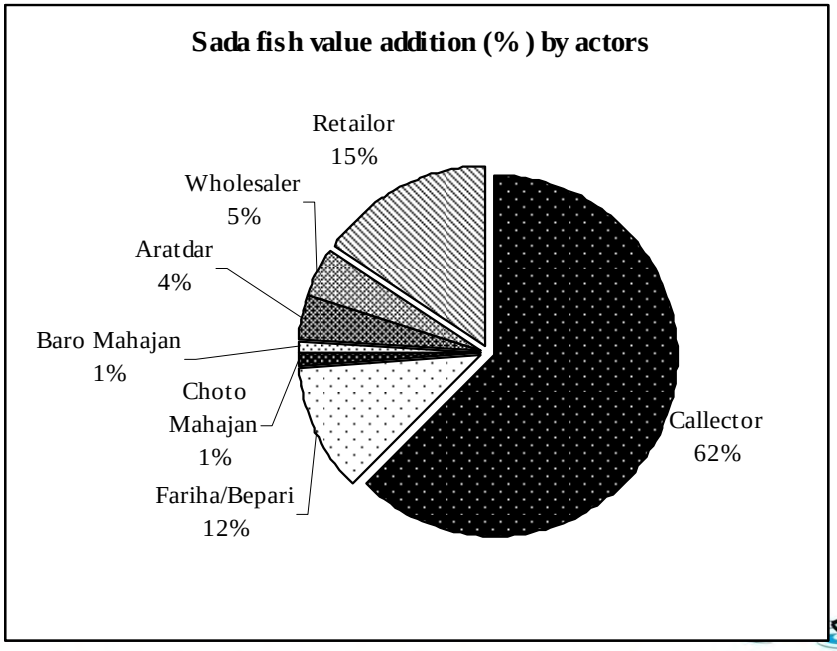

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To Make this VC efficiently

- Working with primary market of the VC is the main focus
- Strengthen the capacity of the local farmers and diverting them to landscape practice
- Strengthen capacity of Nishorgo Shahayak as a facilitator
- Working with the primary market (supply side) and End Market (demand side)Improving access to commercial service providers and

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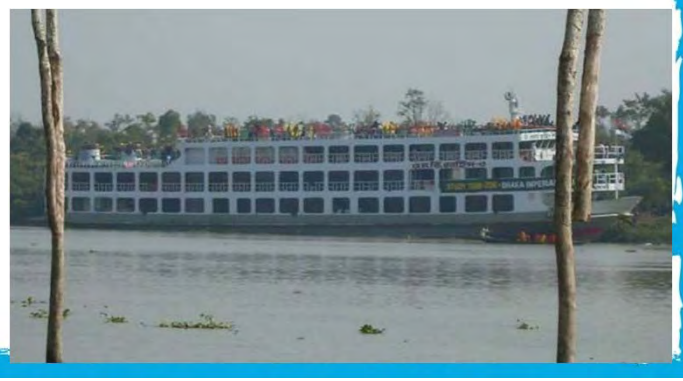
AIGVC Framework Initiatives at Sundarban

- 2700 HHS of 90 VCF
- Fish, Homestead agriculture
- Backward and forward Market linkages
- Nishorgo Shahayak as community volunteer for AIGVC imp
- Eco Guide development and national linkages with tour operators
- Tourist Spot (trail mapping & promotion)
- Forest Fire
- Poison Fishing



THANK YOU

নিসর্গ নেটওয়ার্ক

Study on the Conservation and Management of Fisheries Resources of the Sundarbans

Presented by:
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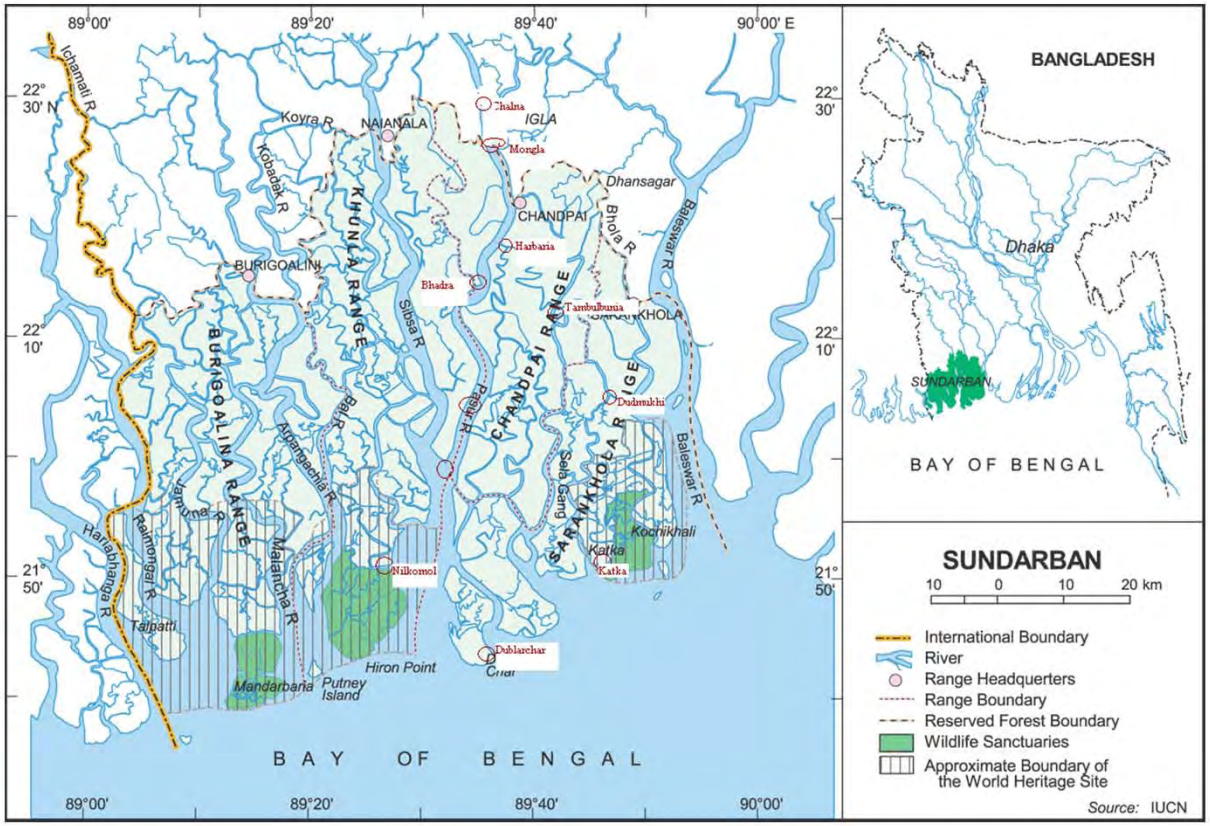
Department of Fisheries

Department of Environment



- **Total area 7620 Km² including coastal belts (4143 Km² land; 1874 Km² water, 1603 Km² marine zone)**
- **Water area is 33% of the total SRF (4 major rivers systems, more than 450 canals)**
- **Highly rich in fisheries resources.**

Objective of the Study

- To provide information needed to assess the present situation of Sundarbans fisheries resources
- To identify recommendations and actions that could be implemented to ensure the long term conservation, improved fisheries ecosystem and habitat management and sustainable utilization of the Sundarbans fisheries resources

Approach / Methodology

- Study Duration: May-August, 2010
- Submission of final report: August 2010
- The study has been done based on literature review and consultation with stakeholders
- Field visits and perception study were made to assess the current situation
- Finally recommendations were made with the consultation of all level of stakeholders specially FD, DoF, DoE, NGOs and coastal fishers communities.

River Systems of the Sundarbans

- Sundarbans is characterized by extensive network of rivers & canals.
- There are 4 major river systems and more than 450 small rivers and canals.

Raimangal: West of the SRF and border between Bangladesh and India. The river Raimangal and Jamuna comprise the system.

Arpangasia: East of raimangal. The river Arpangasia and Bhadra comprise the system.

Shibsha-Pasur: Middle of the SRF. The two rivers Shibsha and Pasur merge together to the extreme south of SRF.

Baleshar system: The Baleswar makes the eastern boundary of the SRF.

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Importance of Sundarban Fishery

- Contribute 3-5% of total capture fisheries.
- Annual production: 1,120 mt (2009-10, FD)
- Annual Revenue: Tk. 5.3m Taka (2009-10).
- 40,000-70,000 boats, 0.2m fisher
- Livelihood: 0.2m HH, 11m people.
- 16 type stakeholders.
- Artisanal fishery contributes 85–95% of coastal and marine catch, highly influenced by mangroves.
- Supports main land shrimp farming.
- Forest and mudflats provide vital breeding and nursery ground.
- Supports offshore and deep sea fisheries as nursery ground.

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Types of Sundarbans Fishery

- 204 bony & 20 cartilaginous species - >40 commercially important
- Prawn & Shrimp: 26/24 Species - Golda & Bagda high commercial value.
- Crab: About 7 species
- 27 families and 53 species of pelagic fish
- 49 families and 124 species of demarsal fish
- 5 families and 24 species of shrimps
- 3 families and 7 species of crabs
- 2 species of gastropods
- 6 species of pelecypods
- 8 species of locust lobster and
- 1 family and 3 species of turtles (IUCN 1994).
- Mammals: Dolphin: biodiversity indicator, role in tourism expansion.
- Post Larvae: Bagda and Golda, high economic value.
- Dry Fishery: Dublar char-Seasonal income source for poor fishermen

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Fishing Gear, Season & Target Species

Fishing Gear	Main Fishing Season	Target Species
Hilsha gill net (drifting, multi/mono filament)	Ashar- Aswin	Ilish
SBN	Year round (peak: Asar-Sarban)	chingri, parse, tengra, vetki, crab, dogra
Cast net	Year round	tengra, parshe, golda,
Hook and line	Ashar-Kartik	pangas, vetki, kaow, jaba
Hook and line	Sravabn- Chaitra	Golda (Prawn)
	Sraban - Chaitra	Golda (Prawn)
Long line	kartik - Magh	Crab
Beach seine/Shore net	Year round (Main:Kartik- Magh)	Phasa, datina
Gill net		Poa
Gill net (drifting, multifilament)		Pangas & other large species
Canal Gill Net	Year round (Main: Kartik- Magh	Different types of fishes
Lift/seine net	Year round	Large size fish
SBN	Magh- Baishak	PL-Bagda
SBN	Baishak- Ashar	PL-Golda
Gill net (drifting, monofilament)	Pous - Ashar	Zatka (Ilish)

Key issues in Sundarban Fisheries

- Over recent decades the emphasis of development and research initiatives in the fisheries sector of Bangladesh has been on inland freshwater systems;
- This has resulted in a constant lack management capacity and information regarding coastal and mangrove fisheries,
- This has also resulted in a lack of recognition of the value of Sundarban fisheries and their current and potential contribution to food security and poverty alleviation in rural coastal areas.

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Current Issues Related to the Reduction of Mangrove Fisheries Resources

- Indiscriminate PL Collection
- Zatka Fishing
- Destructive fishing gear (Set bag net, gill net etc.)
- Illegal fishing (Use of explosives, poison fishing)
- Insufficient freshwater supply
- Siltation and rising of riverbeds and forest floor
- Increased Trawling
- Pollution in mangrove water
- Improper implementation of fishing rules and regulations
- Destruction of fish habitat (nursery, breeding ground)

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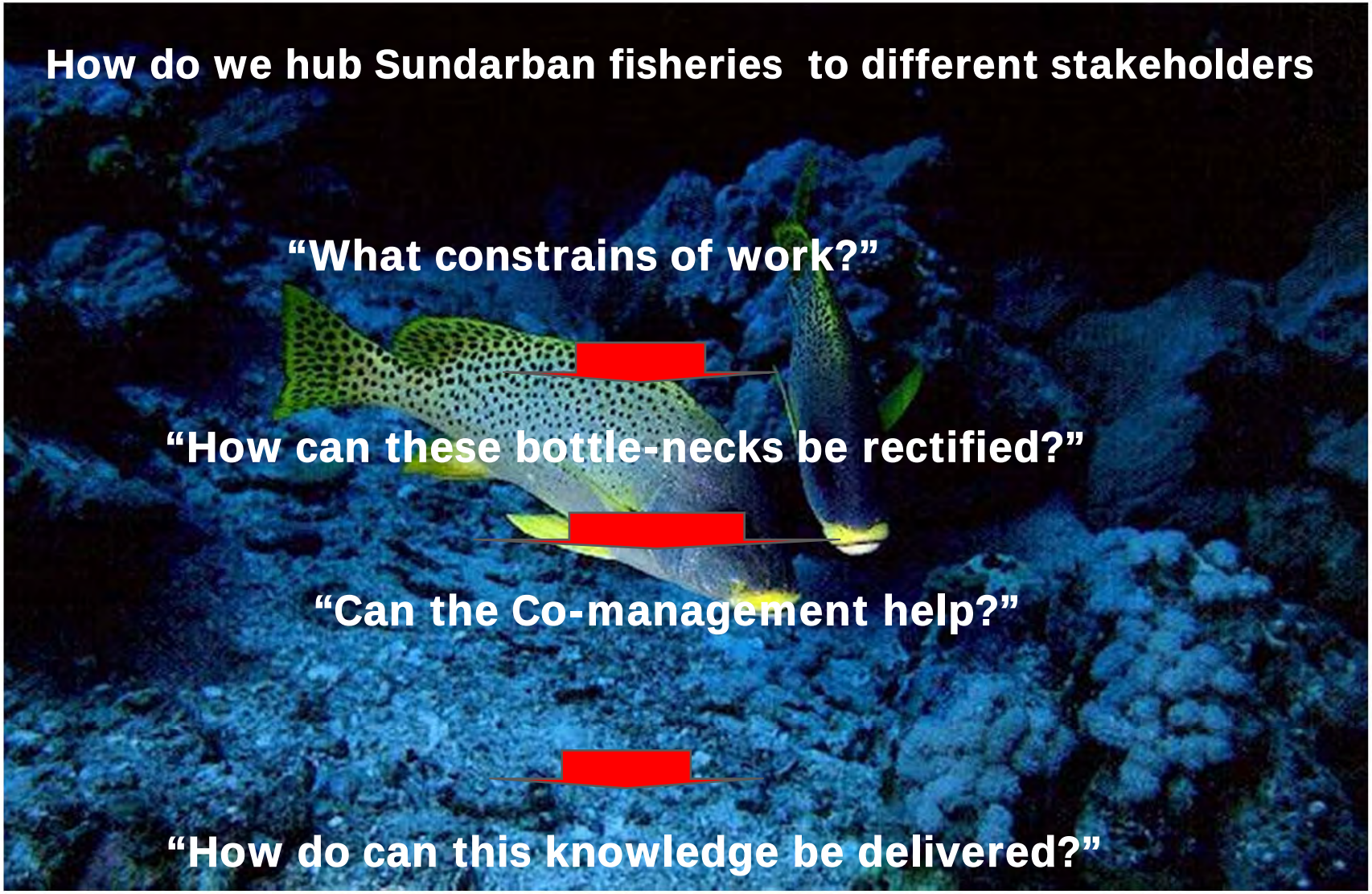
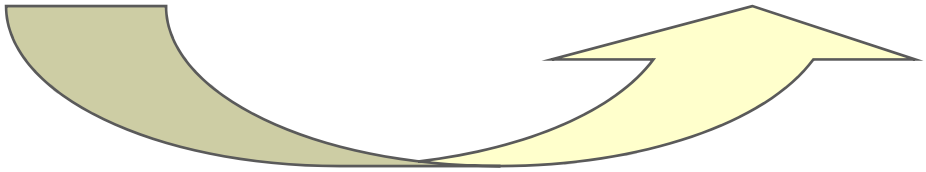

How do we hub Sundarban fisheries to different stakeholders
“What constrains of work?”
“How can these bottle-necks be rectified?”
“Can the Co-management help?”
“How do can this knowledge be delivered?”

How should we guide the Sundarban Fisheries

Sustainable → ***Ecosystem Management***



Sustainability of yields

Provision of Socioeconomic benefit

Maintenance of biodiversity

Protection from habitat degradation

“Biodiversity conservation and Co-management should be undertaken together”

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Management of Sundarbans Fishery

- Manager: Forest Department since 1869.
- First management plan in 1892
- Fisheries management System (FMS) developed in 1994.
- Management through Resource Management Plan.
- 17 Station offices, Key role in management & control
- 4 Range office, 2 Divisional Offices, one Circle Office
- Boat License Certificate (BLC) Issue - Annual.
- Permit issue, against boat, 1 week fishing/permit.
- Revenue: fishing & catch amount.
- Revenue rate on species-base.

Management Rules and Regulations

- Indian Forest Act of 1878
- Hunting, Shooting and Fishing Rules of 1959
- Khal Closure Regulation (1989)
- Collection and Export of Live Crab Regulation 1995
- Closed Season Regulation 2000
- Wildlife Sanctuary Regulation
- Protection and Conservation of Fish Act, 1950
- Marine Fisheries Ordinance, 1983

Rules & Regulations of the Fisheries Management

- FD is empowered to mange inshore and offshore fisheries in the SRF and 20km marine zone.
- 18 canals are under permanent fishing ban.
- No crab fishing in SRF from December to February.
- Fishing ban from 01 May to 30 June for five species of pangas, khorul, kaown magur,golda chingri and kakra.
- Permanent fishing ban in three wildlife sanctuaries.

  Sundarbans ES: Compartment no. 4, 5, 6 and part of 7 with an area of about 31,227 ha. Its head quarter is situated at Katka.

  Sundarbans SS: Compartment no. 43 and 44 with an area of about 36,970 ha. Its head quarter is situated at Nilkomol.

  Sundarbans WS: Compartment no. 53, 54 and 55 with an area of about 71,502 ha. Its head quarter is situated at Notabeki.
- Placing net across a canal and complete blocking is illegal.
- Catching of Ilish and Pangas below 23 cm is illegal during November-April
- Use of poison, explosive and other noxious substance is prohibited.
- Use of small mesh net is also prohibited

What need to be done towards Sundarbans fisheries management

1. Development program to ensure flow of freshwater in the rivers

A massive development program is imperative in the area for digging up of the principal rivers so that there can be flow of freshwater in the rivers, at least from the local catchment areas of the greater Jessore and Khulna.

2. Technical Expert/Expertise in the field of aquatic resources

People having degrees and diplomas on fisheries management supplemented with ecology, physiology, genetics, population sciences/ dynamics etc, are to be deployed in the forest/aquatic service.

3. Amendment of Existing Laws, Rules or Resolutions

Necessary amendments should be made to policies and laws to promote and support customary use of natural resources, and legal regime should also be updated.

4. Management policy reform

The revenue-oriented management system has to be replaced by a true biological resource generation – based management.

5. Support and Services for the Forest Officials/Staff

Proper manpower has to be deployed with sufficient facilities in their job and services.

Proper transport facilities both on the land and water, accommodation, security etc, have to be ascertained.

Communication facilities - Radio, television, modern wireless telephone, mobile phone, internet, video conference technology should be used wherever possible.

There should be a mobile medical team in SRF to offer medical support for FD personnel and other stakeholders.

6. Alternative Livelihood Option

The suitable alternative livelihood options are to be experimented for in the impact zone of the forest. Some plausible livelihood options can be thought of as follows:

Apiculture
Pen culture (fish)
Cage culture (fish)
Brackish water shrimp nursery
Goat rearing
Poultry rearing
Beef fattening
Producing handicrafts
Small businesses (street vending)
Tailoring
Basket making (bamboo)
Rickshaw / van paddling
Bicycle repairing
Welding technician etc.

7. Credit facility for the resource users

Special micro-credit program should be introduced for the different stakeholders adopting any alternative livelihoods for generation of income at the household level.

Together with the options for alternative livelihoods, the stakeholders are to be mobilized into groups and motivated for the importance of resource conservation for their long term benefit.

The important of breeding and nursery grounds of the fishes have to be identified and reserved. Fishing has to be restricted in 5 kilometers in sea ward offshore waters of the Bay of Bengal through bans on gears, species and seasons.

8. Provision for ID Card and Work Permit

All the local communities and indigenous groups dependent on the Sundarbans should be registered and provided with identity cards.

9. Special Law Enforcing Agency

The Sundarbans has two major challenges. These are dishonesty with some of the FD people and robbery in the forest areas. To deal with the latter it is recommend that a special law-enforcing agency have to be form with community.

10. Role Playing from Responsive Organizations

For effective conservation and management of the fisheries resources, an utmost collaboration and cooperation between the bodies is but an utter necessity.

Forest Department (FD),
Fisheries and Marine Resource Technology Discipline, KU
Center for Integrated Studies on the Sundarbans (CISS)
Department of Fisheries (DoF),
Bangladesh Fisheries Research Institute (BFRI)
Bangladesh Fisheries Development Corporation (BFDC)
Navy/Coastguards and Local Government's bodies
Mongla Port Harbour Authority (MPHA)
Bangladesh Water Development Board (BWDB)
Bangladesh Parjatan Corporation (BPC)
Different NGOs, and
Other Govt. and NGOs

11. Research initiatives for reliable fisheries related information

There is a dire necessity of reliable data and statistics of the Sundarbans resources. To be able to say about the nature and dynamics of productivity of the waters, critical studies are to be conducted on the following topics

Stock abundance, spatial distribution
species assemblages, seasonality, breeding and nursery areas,
Maximum Sustainable Yield (MSY)
Endangered/threatened species
Allowable fishing grounds
Dynamics of geo-physico-chemical parameters
Environmental degradation
Climate change impact on Sundarbans fishery
Pollution sources
Fisheries database development
Museum development with the available aquatic species

So, research and monitoring agenda has to be added in the new system of management of the resources.

12. Ban on Shrimp PL Collection

The government should develop a clear policy with comprehensive planning support on prawn fry collection from the Sundarbans.

13. Close Monitoring in the periphery

In the areas of interface between the villages of human settlement and the forest.

14. Controlling water pollution

Pollution due to oil spillage, agrochemical wastes, wastes from the shrimp farms, industrial, nearby cities and towns is a major concern. Moreover, huge number of visitors and the wastes generated by them has also been a serious problem in recent time. These all are to be seriously handled by the management.

15. Discourage to future oil and gas exploration program

Future oil and gas exploration program, if there is any, in the offshore areas of the forest has to be seriously discouraged.

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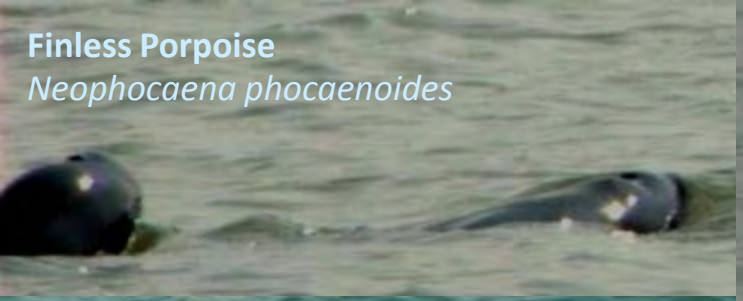
Thank you

Establishing three Wildlife Sanctuaries for Freshwater Dolphins in the Sundarbans Reserved Forest

Prepared by the Wildlife Conservation Society's
Bangladesh Cetacean Diversity Project

Rubaiyat Mansur Mowgli, Principal Researcher
Elisabeth Fahrni Mansur, Education and Training Director



Bangladesh has been identified as a global hotspot for cetacean diversity and abundance

The Wildlife Conservation Society's

Bangladesh Cetacean Diversity Project

conducts systematic **research and monitoring** of cetacean populations and habitat

enhances the **capacity of local scientists and resource managers** to devise, advocate and implement cetacean conservation research and interventions

increases **public awareness** and support through **educational outreach**

Freshwater Biodiversity in Asia is in crisis.

The fate of freshwater dolphins is particularly troubling.

→ **Sundarbans is the only place where Asia's last two remaining freshwater dolphin species co-occur, and at levels of abundance generally much higher than other areas of their range.**

Ganges River dolphin/Shushuk

Platanista gangetica

Red List Classification: “Endangered”

Estimated Abundance in Sundarbans of Bangladesh = 225 individuals (CV=12.6%)

Irrawaddy dolphin/Iraboti

Orcaella brevirostris

Red List Classification: “Vulnerable“

Estimated Abundance in Sundarbans of Bangladesh = 451 individuals (CV = 9.6%)

Ganges River and Irrawaddy dolphins partition their distribution according to **salinity** and **turbidity**.

Ganges River dolphins depend on low salinity, moderate depth and high turbidity.

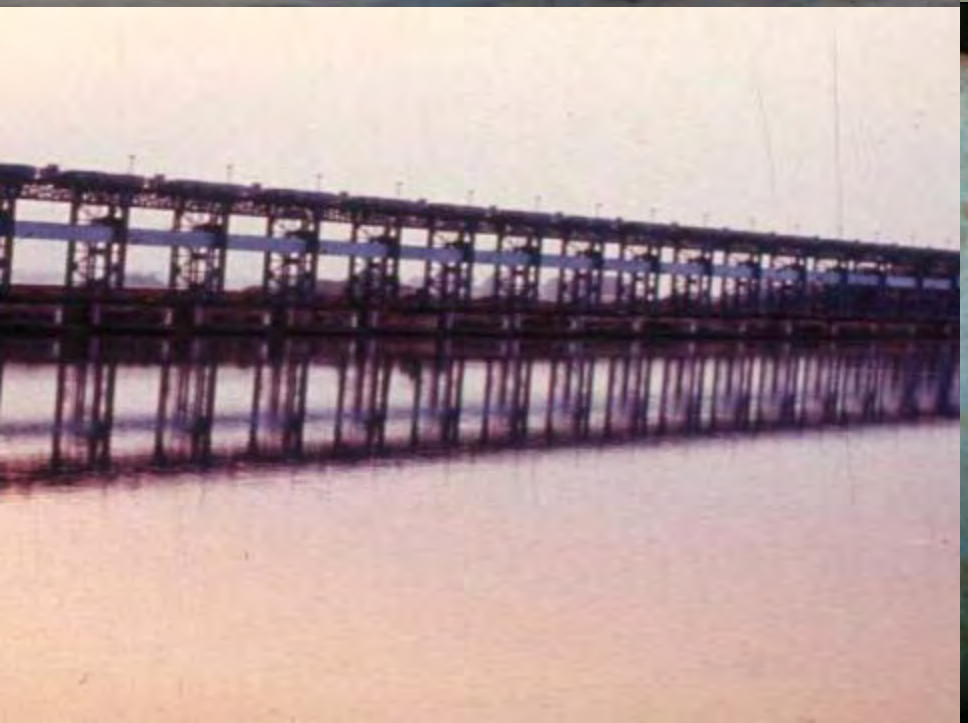
Irrawaddy dolphins depend on moderate salinity, and relatively deep and clear waters.

Both species also depend on counter-currents associated with confluences.

Reduced discharge and sea-level rise can result in channels narrowing at confluences.

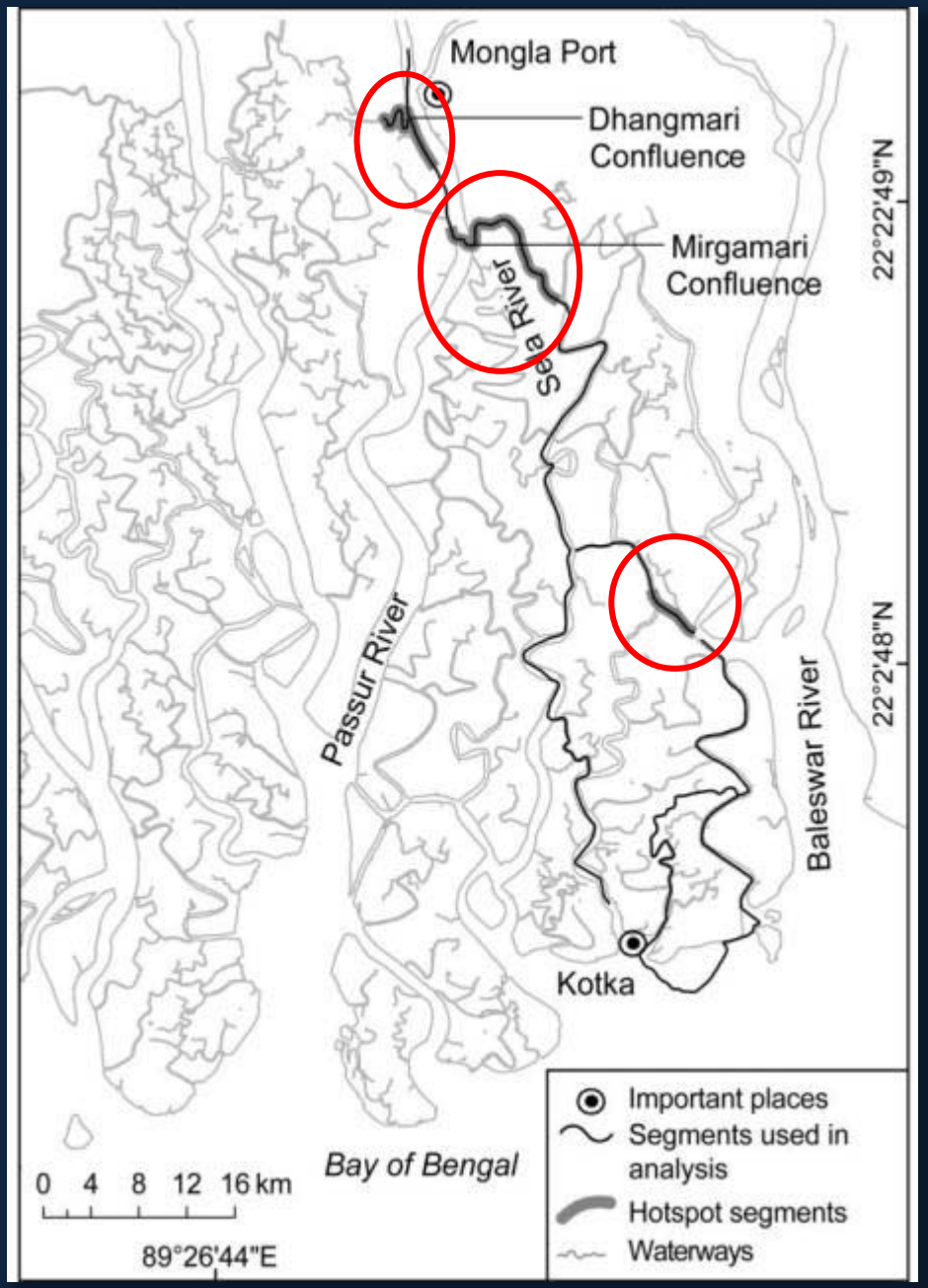
Confluence of Mirgamari and Passur channels is a major "hotspot" of Ganges River and Irrawaddy dolphin abundance.

Fisheries are vital to the food security of Bangladesh and provide employment to millions of people.



Six 5-km segments were identified as ***cetacean hotspots*** (**in red**) during more than 26,000 km of search effort conducted by captains of nature tourism vessels.

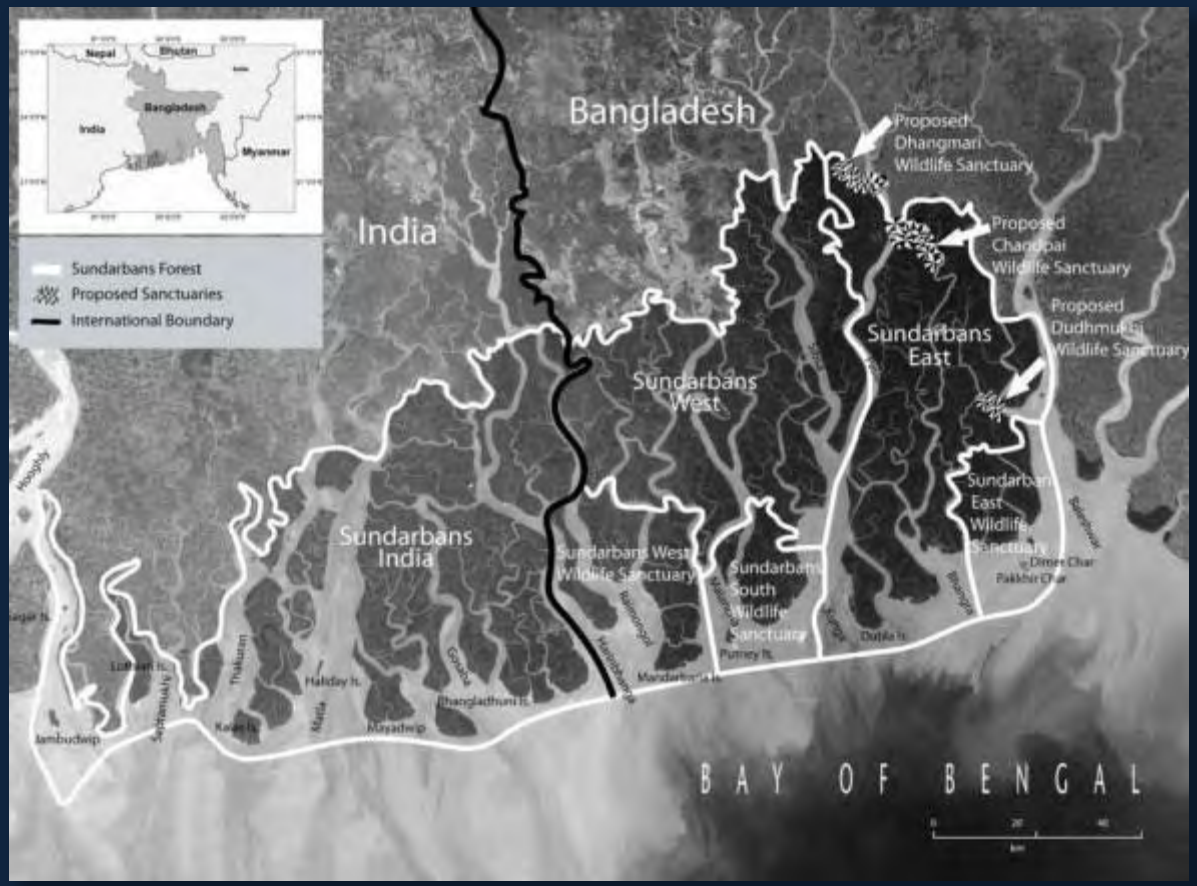
The hotspots segments accounted for **49%** of more than 1,000 Ganges River dolphin sightings and 23% of almost 300 of Irrawaddy dolphin sightings.



Protected Area Network for Cetacean Diversity

Goals

1. **Conserve cetacean diversity** in Bangladesh now while the current population sizes of a number of species at global risk are known to be sufficient for long-term survival if threats can be reduced.

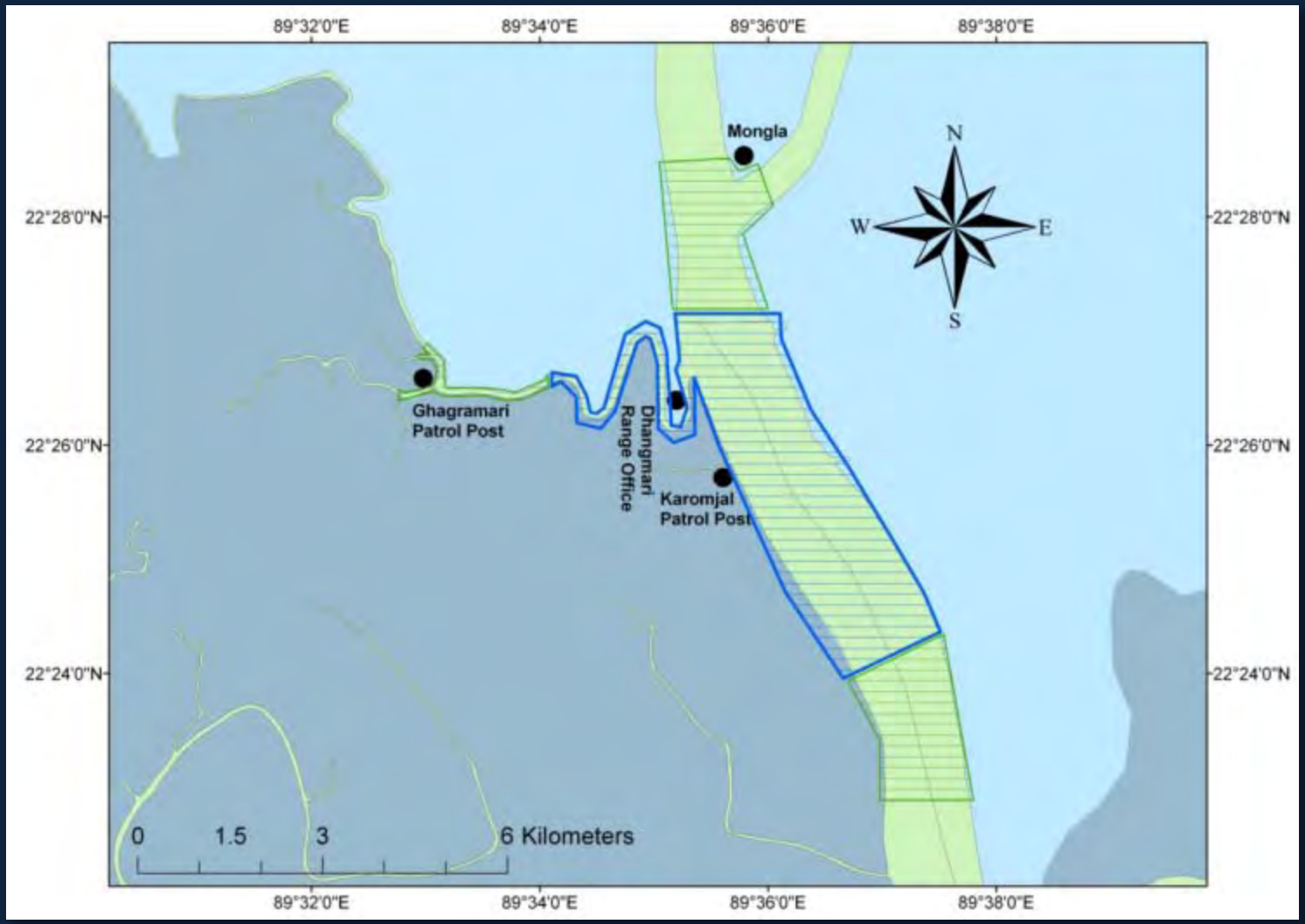


2. **Incorporate the needs of local communities** for freshwater and abundant fish and crustacean resources into cetacean protection plans.

3. Use the protected area network as **a mechanism for coping with and better understanding the ecological impacts of declining freshwater supplies and global climate change.**

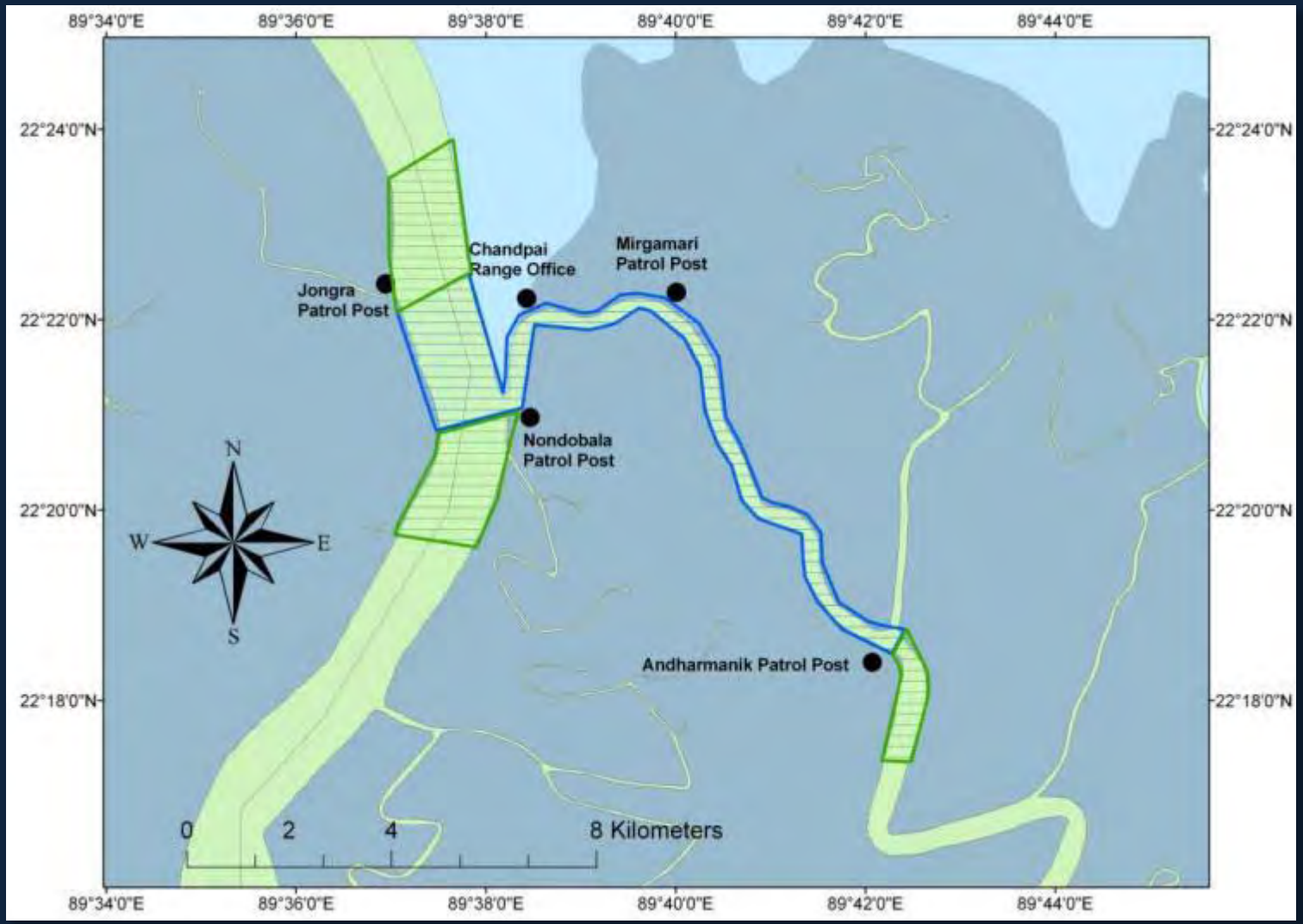
Proposed Dhangmari Wildlife Sanctuary for Freshwater Dolphins

12.2 km (7.6 mi) long channel segment; total area 9.0 km^2 (3.5 mi^2) + 2.5 km (1.6 mi) long buffer zone at each of the three ends composing 6.6 km^2 (2.5 mi^2)



Proposed Chandpai Wildlife Sanctuary for Freshwater Dolphins

15.8 km (9.8 mi) long channel segment; total area 7.4 km^2 (2.9 mi^2) + 2.5 km (1.6 mi) long buffer zone at each of the three ends composing 7.8 km^2 (3.0 mi^2)



Proposed Dudhmukhi Wildlife Sanctuary for Freshwater Dolphins

5.5 km (3.4 mi) long channel segment; total area 1.7 km^2 (0.7 mi^2) + 2.5 km (1.6 mi) long buffer zone at each of the four ends composing 5.5 km^2 (2.1 mi^2)

Justification and Opportunities

for establishing three Wildlife Sanctuaries for freshwater dolphins in the Eastern Sundarbans Reserved Forest

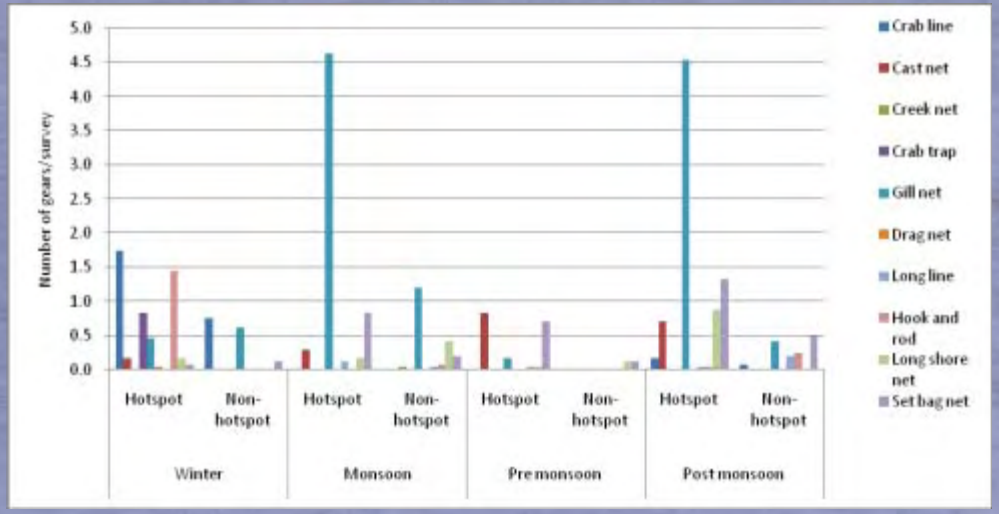
- → Saving IUCN Red Listed Species
- → Addressing National Planning Priorities
- → Climate Change Adaptation
- → Sustainable Human Use
- → Gender Balance
- → Attraction for Nature Tourism

Supporting Science

for establishing three Wildlife Sanctuaries for freshwater dolphins in the Eastern Sundarbans Reserved Forest

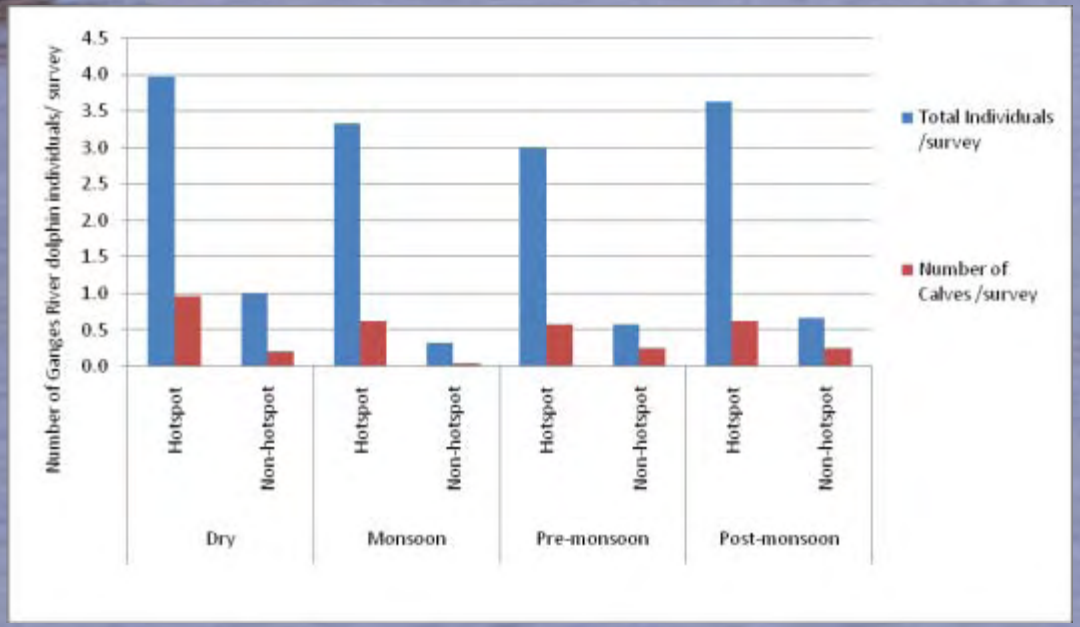
Ecological, human use and socio-economic investigations

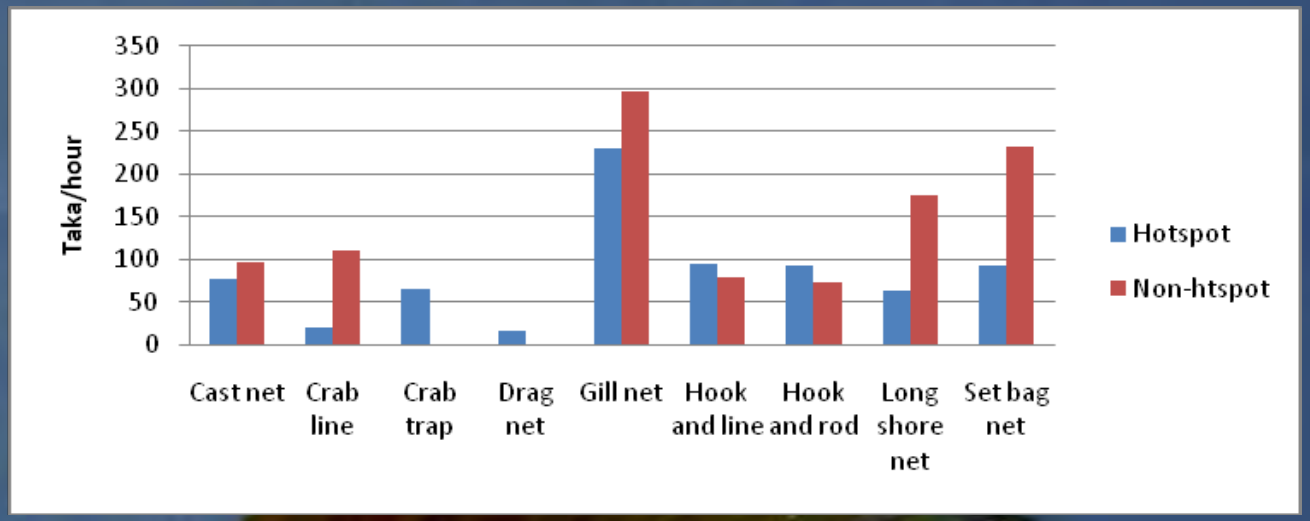
- → Relative abundance of freshwater dolphins in hotspots vs. non-hotspot segments
- → Investigations on fish and crustacean abundance and diversity
- → Fishing gear survey
- → Catch-per-unit-effort for fishing operations
- → Investigation on vessel traffic
- → Mortality monitoring
- → Socio-economic conditions of local communities according to interview surveys
- → Systematic interviews with Forest Department staff



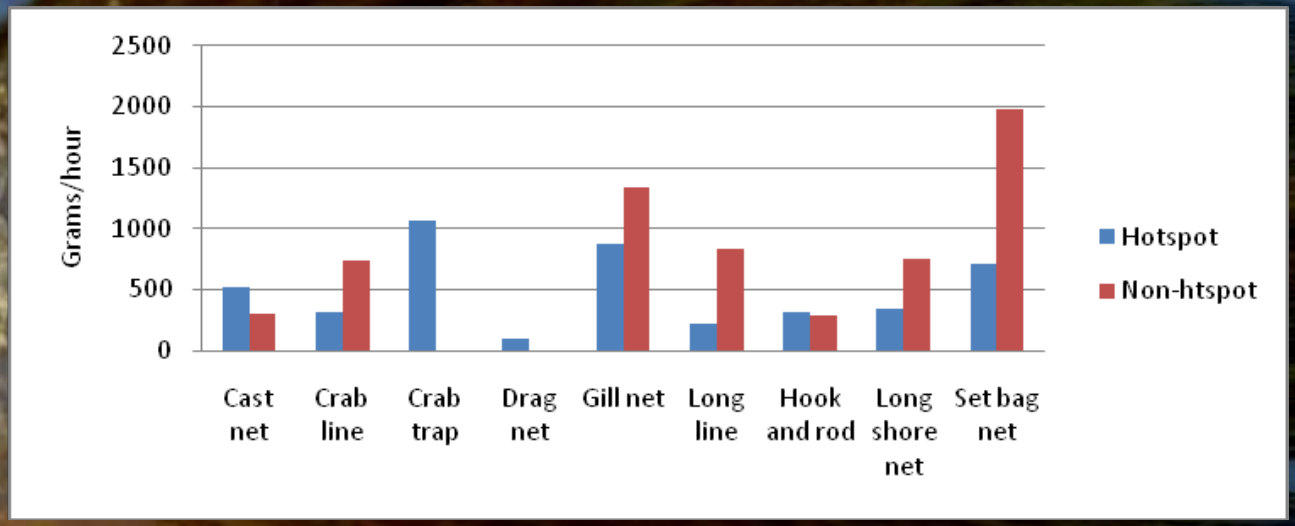
High impact in the hotspot segments from fisheries
(close proximity to villages)

Hotspot segments are year-round primary habitat for Ganges River dolphins and secondary habitat for Irrawaddy dolphins during the monsoon and post-monsoon seasons.

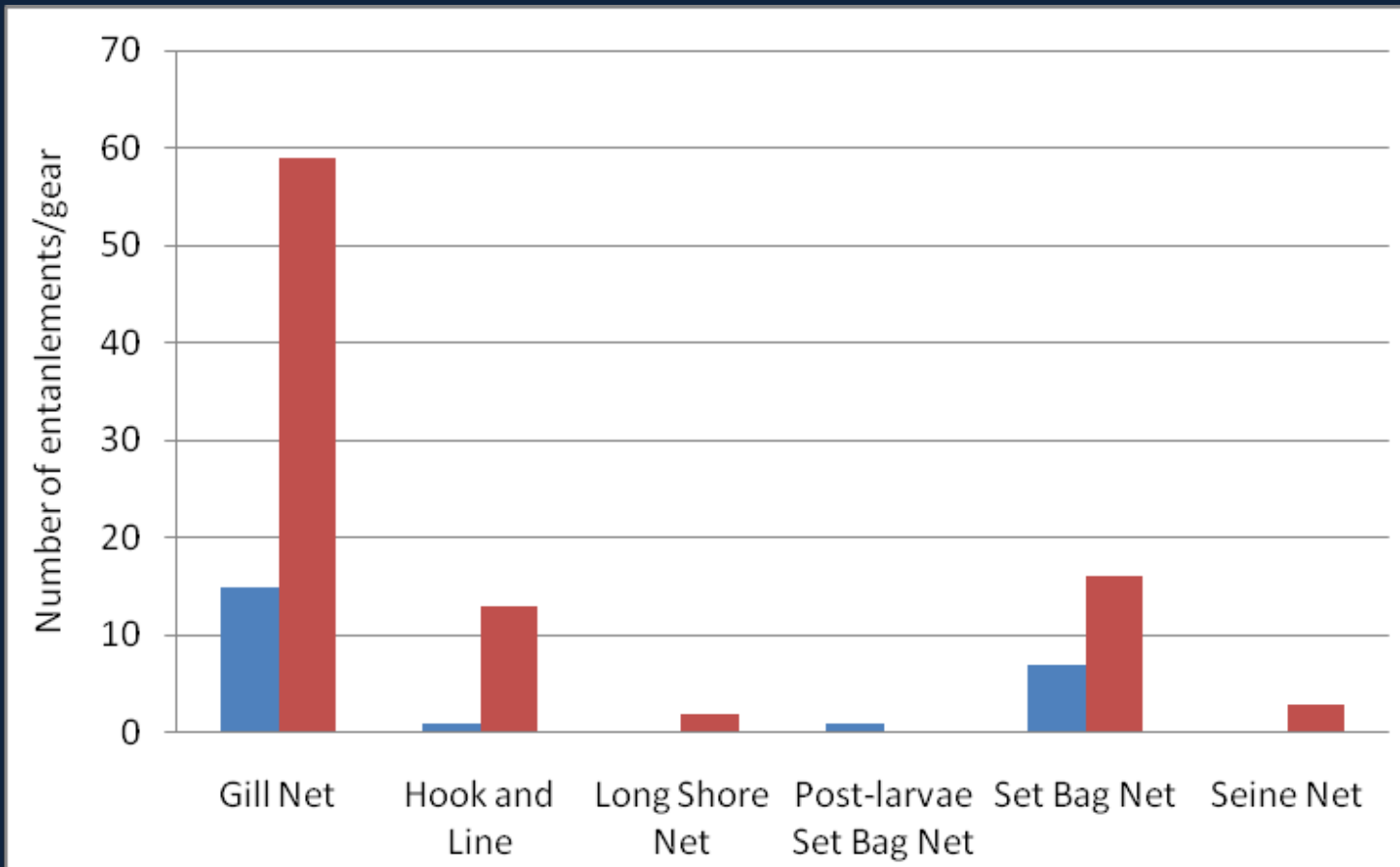




Economic value in Taka of fish catches per hour according to fishing gear types in 6 hotspot and 6 non-hotspot segments



Weight of fish and crustacean catch per hour in 6 hotspot and 6 non-hotspot segments



Irrawaddy Dolphin

Ganges River Dolphin

Numbers of Irrawaddy and Ganges River dolphin entanglements in different gear types based on interview surveys among 234 persons (196 head fishermen, 25 FD staff and 13 key informants).

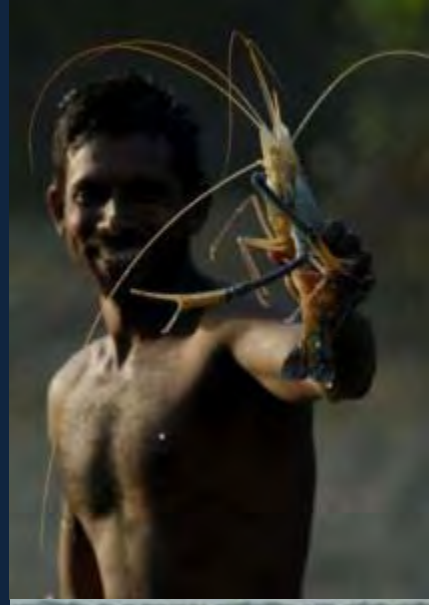
Gear types	Total sampled catch	Total Soak duration	Total individuals target species	Total individuals / hour target species	Total individuals bycatch	Total individuals bycatch per one larvae	Total number of bycatch hour
Post-larvae box net	26	882	97	7	90360	932	6147
Post-larvae hand-drag net	3	75	82	66	5840	71	4672
Post-larvae set-bag net	52	1358	643	28	403266	627	17817

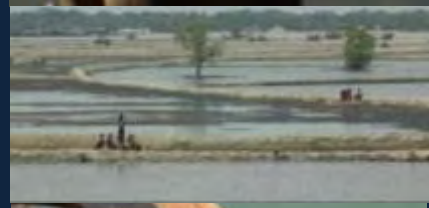
Shrimp and prawn fry collection from different types of collection gears during winter seasons in hotspot segments only with target and bycatch highlighted.

Conservation Targets

for establishing three Wildlife Sanctuaries for freshwater dolphins in the Eastern Sundarbans Reserved Forest

- → Healthy populations of freshwater dolphins
- → Protected habitat for aquatic biodiversity
- → Sustainable fisheries
- → Adaptive management
- → Community participation and benefits





Recommendations for Management

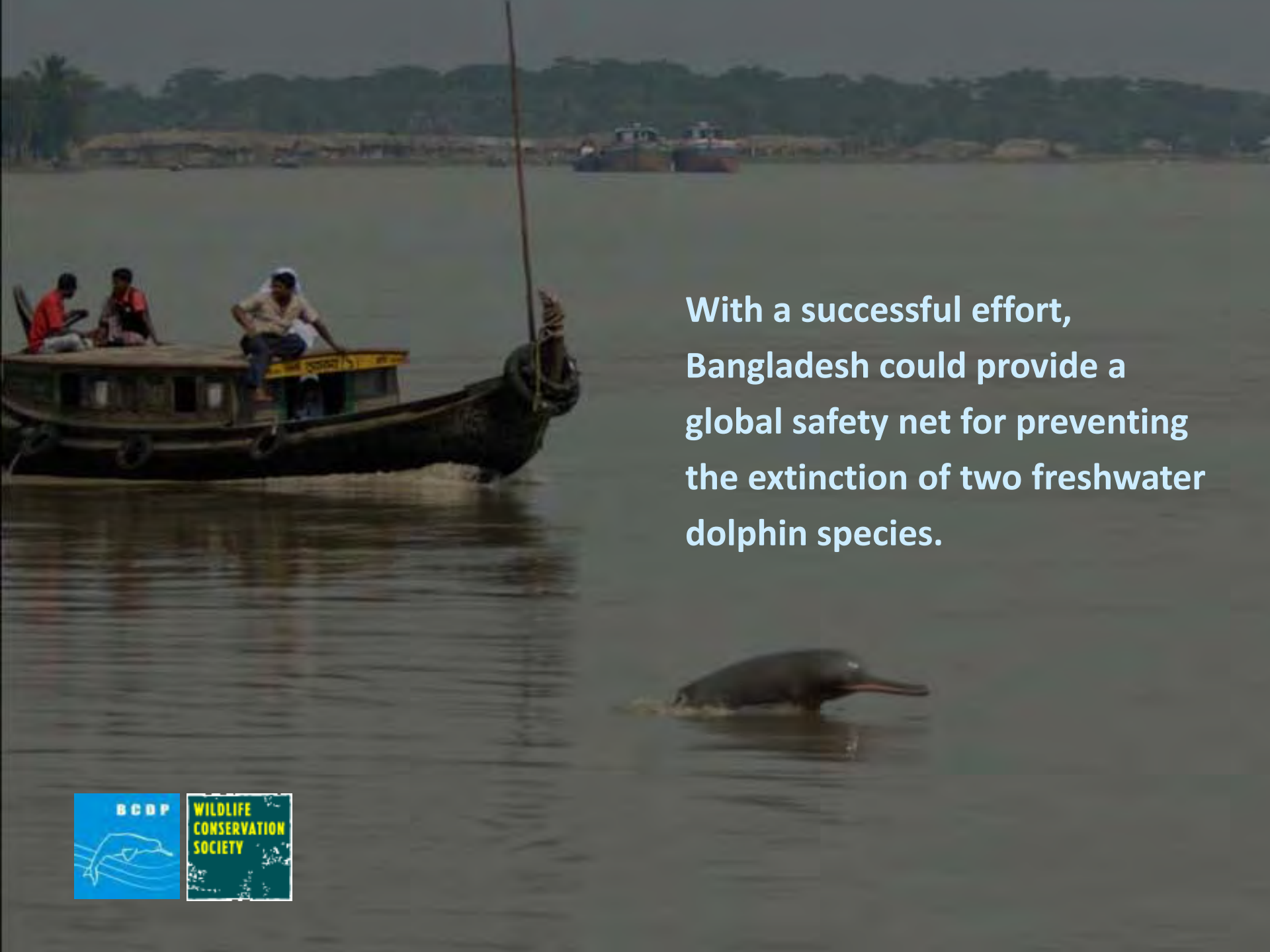
of three Wildlife Sanctuaries for freshwater dolphins in the Eastern Sundarbans Reserved Forest

- → Regulations and Enforcement
- → Sustainable Fisheries
- → Infrastructure and Administration
- → Collaborations
- → Training and Educational Outreach
- → Benefits for Local Communities
- → Research and Monitoring
- → Evaluation
- → Sustainable Financing

Foundations established

for establishing three Wildlife Sanctuaries for freshwater dolphins in the Eastern Sundarbans Reserved Forest

- → Consultations with local stakeholders and government agencies
- → Educational outreach
- → Capacity Building/Training


With a successful effort, Bangladesh could provide a global safety net for preventing the extinction of two freshwater dolphin species.
BCDP
WILDLIFE CONSERVATION SOCIETY

GROWING STOCKS of the SUNDARBAN RESERVED FOREST in 2009

M. A. Latif

Table 1. The number of seedlings, saplings, poles and trees in 2009 and 1996 in the Sundarbans

Spp	Poles 2.5-5	Poles 5-10	Poles 10-15	Trees	Seedlings	Saplings
2009	N/ha	N/ha	N/ha	N/ha	N/ha	N/ha
Sundri	2166	1596	234	205	34776	3044
Gewa	1984	2393	255	62	13235	1266
Others	854	375	18	30	5794	1236
1996						
Sundri	428	523	188	105	20522	3957
Gewa	476	560	184	18	5971	2627
Others	102	50	11	20	8231	1504

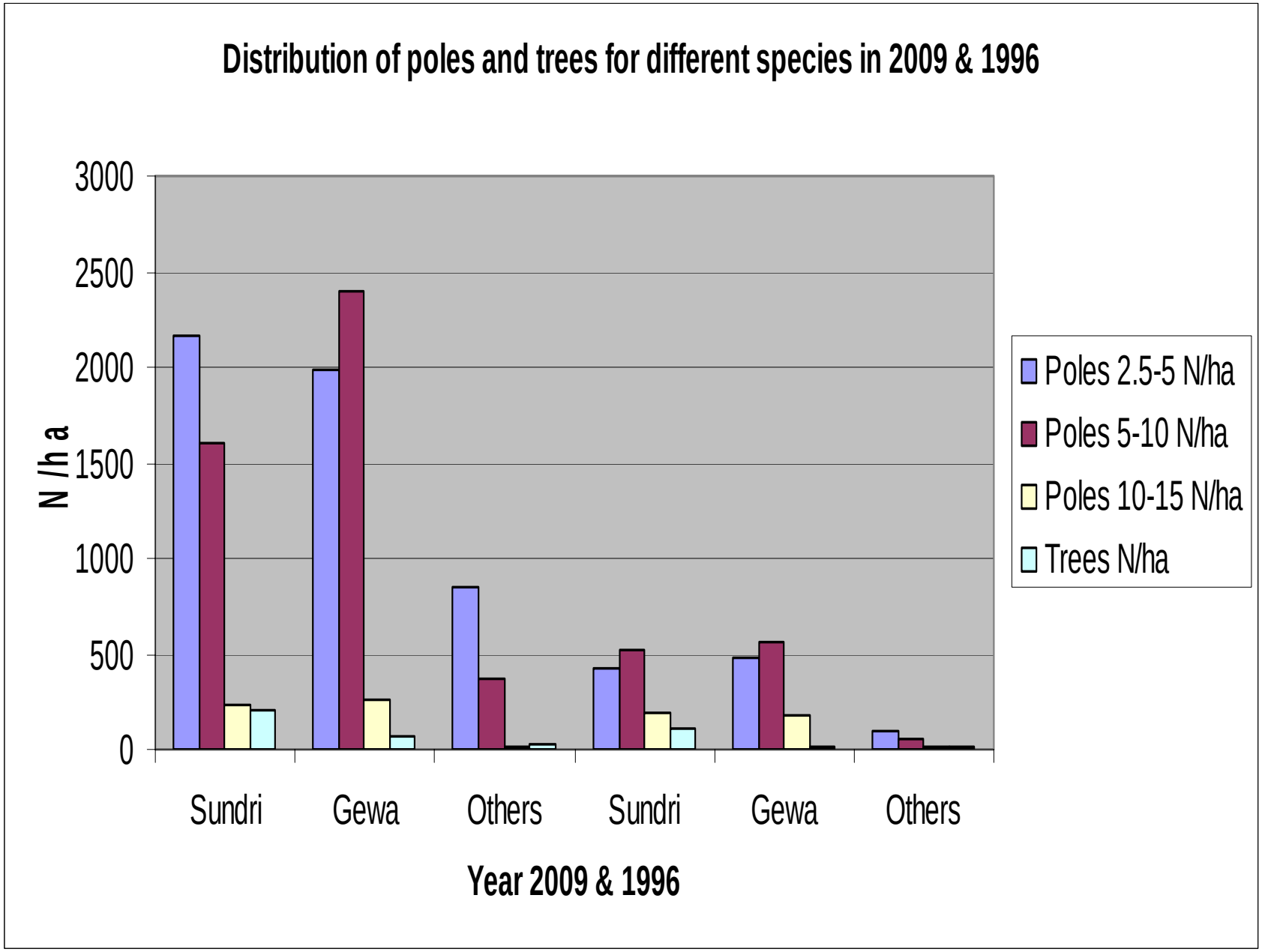

Distribution of poles and trees for different species in 2009 & 1996
3000
2500
2000
1500
1000
500
0
N /h a
Poles 2.5-5 N/ha
Poles 5-10 N/ha
Poles 10-15 N/ha
Trees N/ha
Sundri
Gewa
Others
Sundri
Gewa
Others
Year 2009 & 1996

Table 2: Volume (m^3/ha) of poles (DBH 10-15 cm) and Trees in Sundarban in 2009 & 1996

Species	Year 2009	Year 1996	Year 2009	Year 1996
Size class	Pole 10-15	Pole 10-15	Tree	Tree
Sundri	13.922	10.397	48.204	19.016
Gewa	9.844	6.647	7.84	2.268
Others	0.723	0.414	11.121	7.259
Total	24.49	17.457	67.166	28.543

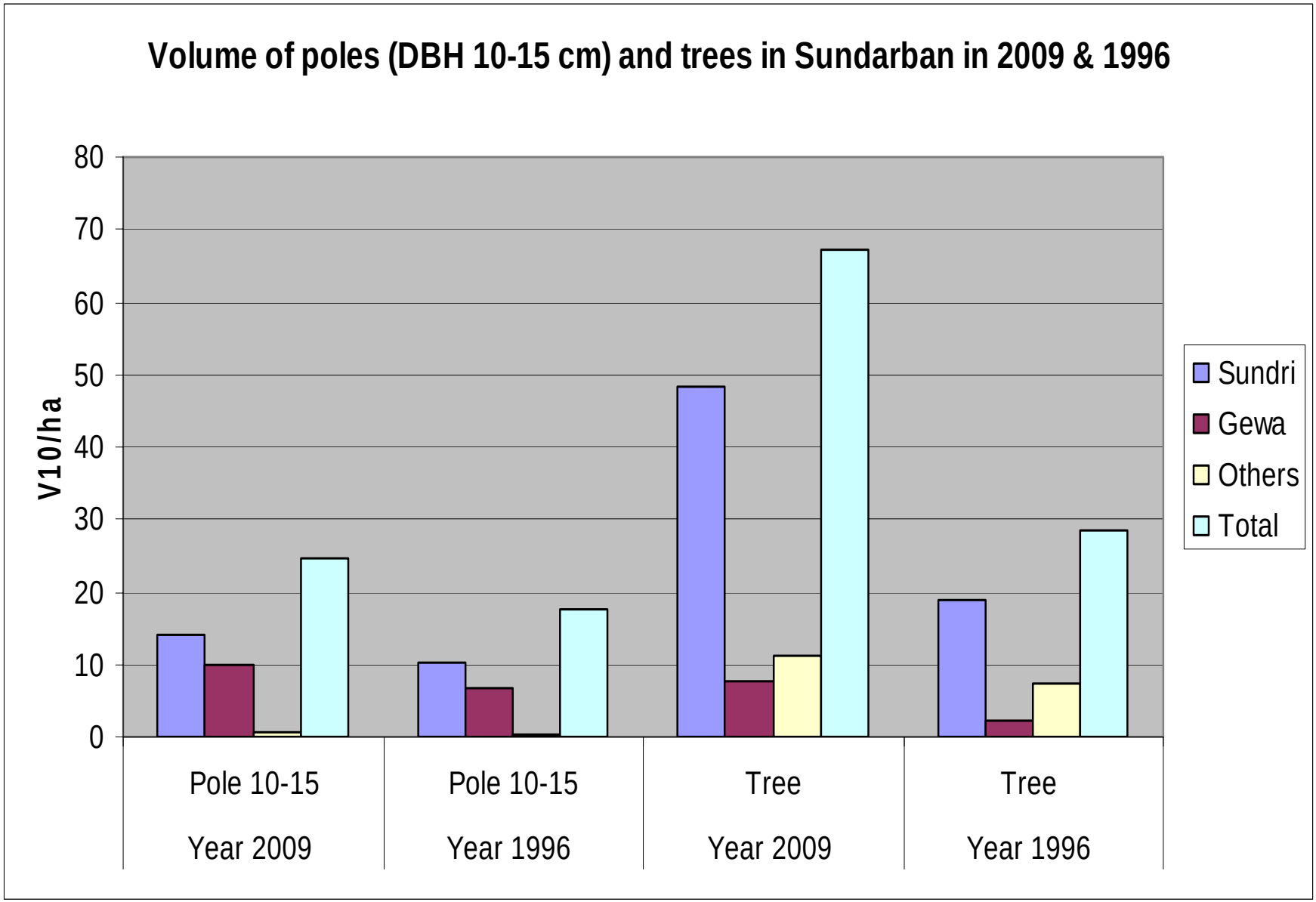
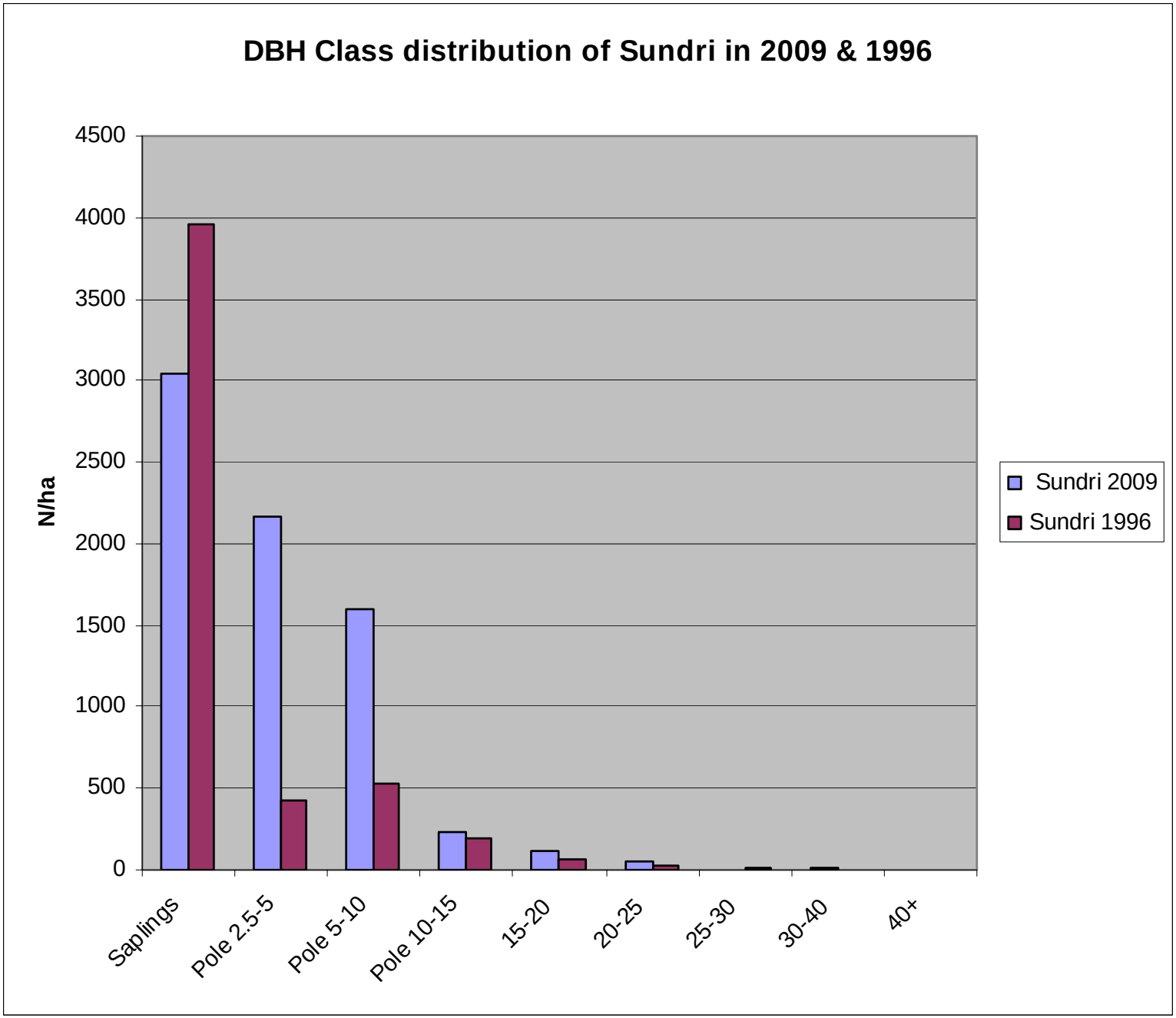
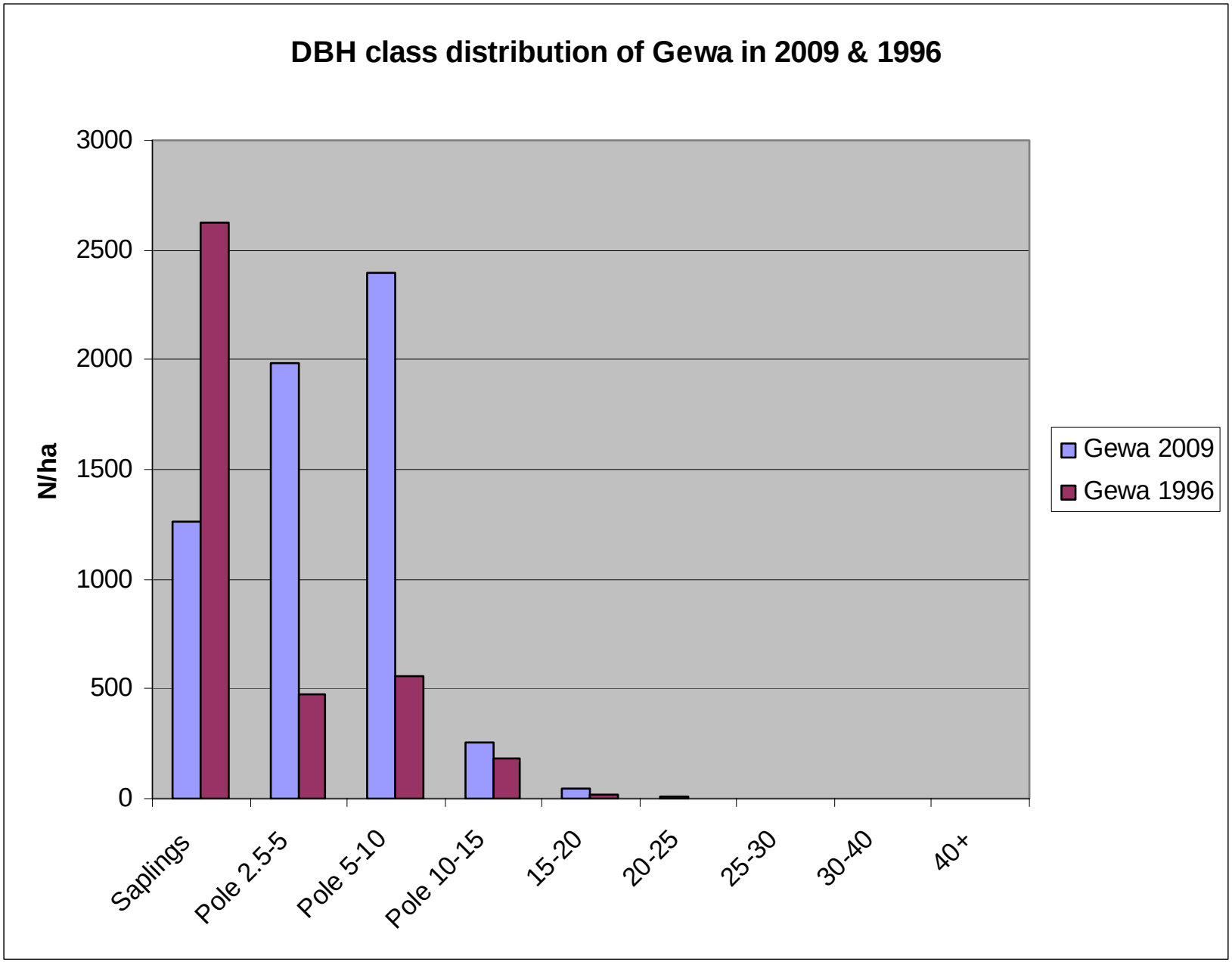

Volume of poles (DBH 10-15 cm) and trees in Sundarban in 2009 & 1996
V10/ha
80
70
60
50
40
30
20
10
0
Pole 10-15
Year 2009
Pole 10-15
Year 1996
Tree
Year 2009
Tree
Year 1996
Sundri
Gewa
Others
Total

Table 3: DBH (cm) class distribution of different important species of Sundarbans in 2009 & 1996

DBH class	**Sundri 2009**	**Sundri 1996**	**Gewa 2009**	**Gewa 1996**	**Others 2009**	**Others 1996**
Saplings	3044	3957	1266	2627	1236	1503
Pole 2.5-5	2166	428	1983	476	853	102
Pole 5-10	1596	523	2393	560	375	176
Pole 10-15	234	188	255	184	18	11
15-20	117	63	50	14	8	5
20-25	54	30	9	3	7	4
25-30	1	8	0	1	0	4
30-40	11	3	1	0	5	4
40+	1	0	0	0	4	2
Total	**7225**	**5201**	**5957**	**3865**	**2507**	**1812**


DBH Class distribution of Sundri in 2009 & 1996
N/ha
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Saplings
Pole 2.5-5
Pole 5-10
Pole 10-15
15-20
20-25
25-30
30-40
40+
Sundri 2009
Sundri 1996


DBH class distribution of Gewa in 2009 & 1996
N/ha
3000
2500
2000
1500
1000
500
0
Saplings
Pole 2.5-5
Pole 5-10
Pole 10-15
15-20
20-25
25-30
30-40
40+
Gewa 2009
Gewa 1996

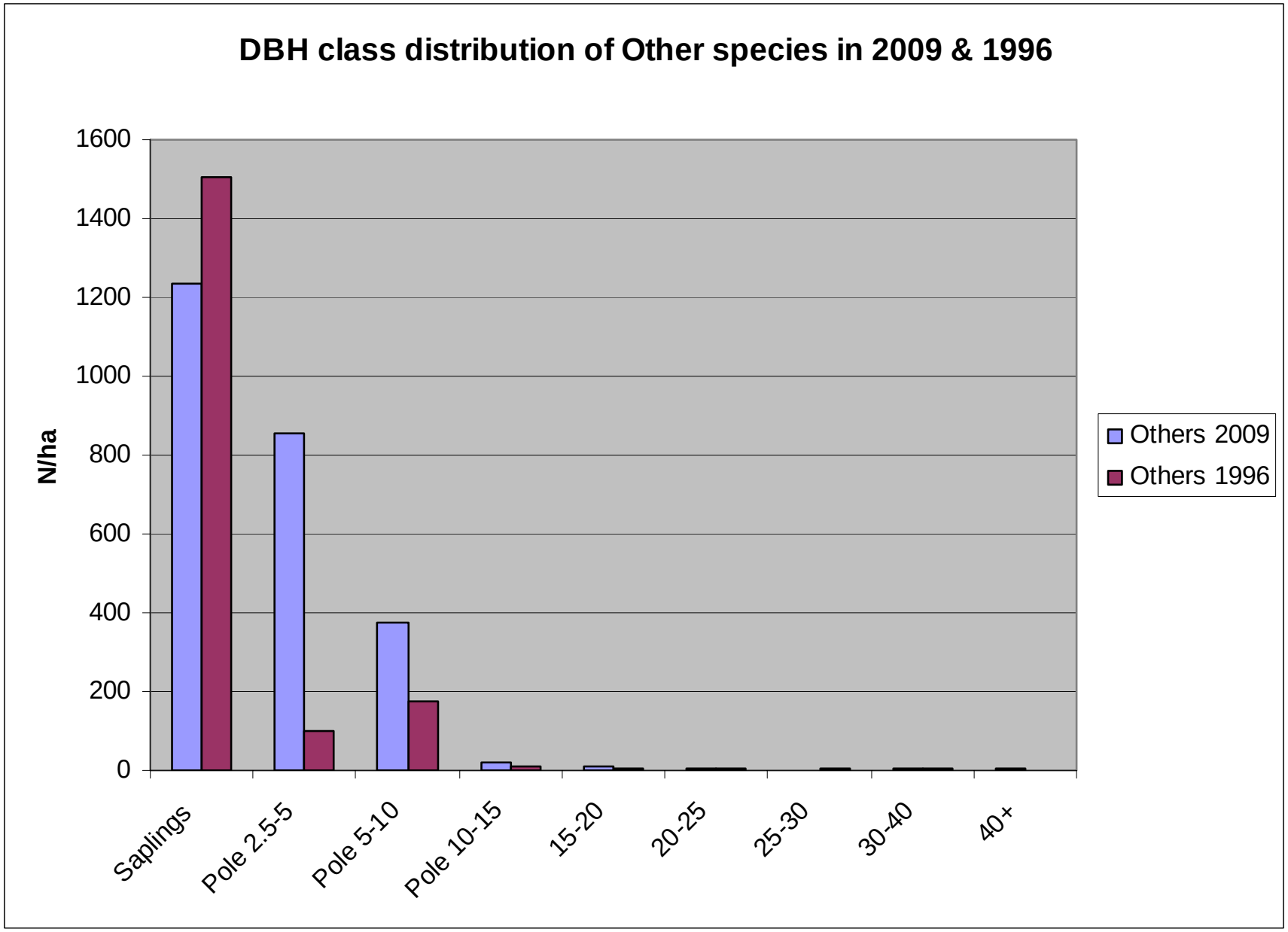

DBH class distribution of Other species in 2009 & 1996
N/ha
1600
1400
1200
1000
800
600
400
200
0
Saplings
Pole 2.5-5
Pole 5-10
Pole 10-15
15-20
20-25
25-30
30-40
40+
Others 2009
Others 1996

Table 4: Comparative tree compositions in 2009 and 1996

Species	2009	1996	2009	1996	Change
	N/ha	N/ha	%	%	%
Sundri	205	105	69.00	73.58	-4.60
Gewa	62	18	20.77	12.70	8.10
Others	30	20	10.23	13.72	-3.60
Total	**297**	**142**	**100**	**100**	**0**

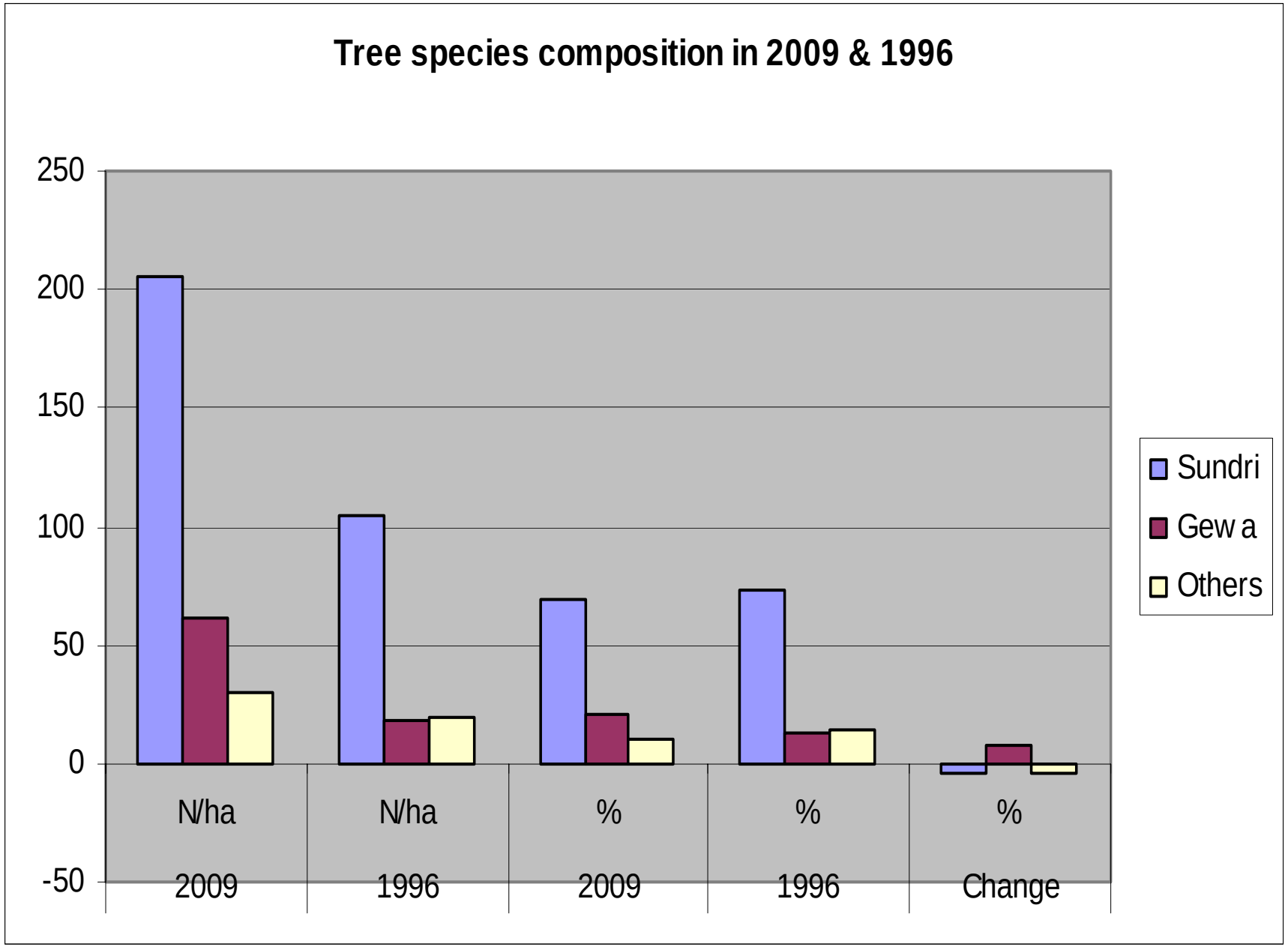

Tree species composition in 2009 & 1996
250
200
150
100
50
0
-50
N/ha
2009
N/ha
1996
%
2009
%
1996
%
Change
Sundri
Gew a
Others

Table 5: Comparative species (Poles +Tree) compositions in 2009 and 1996

Species	2009	1996	2009	1996	Change
	Tree+ Poles	Tree+ Poles	%	%	%
Sundri	4201	1244	41.30	46.69	-5.39
Gewa	4693	1238	46.14	46.46	-0.32
Others	1277	183	12.56	6.85	5.71
Total	**10172**	**2665**	**100**	**100**	**0**

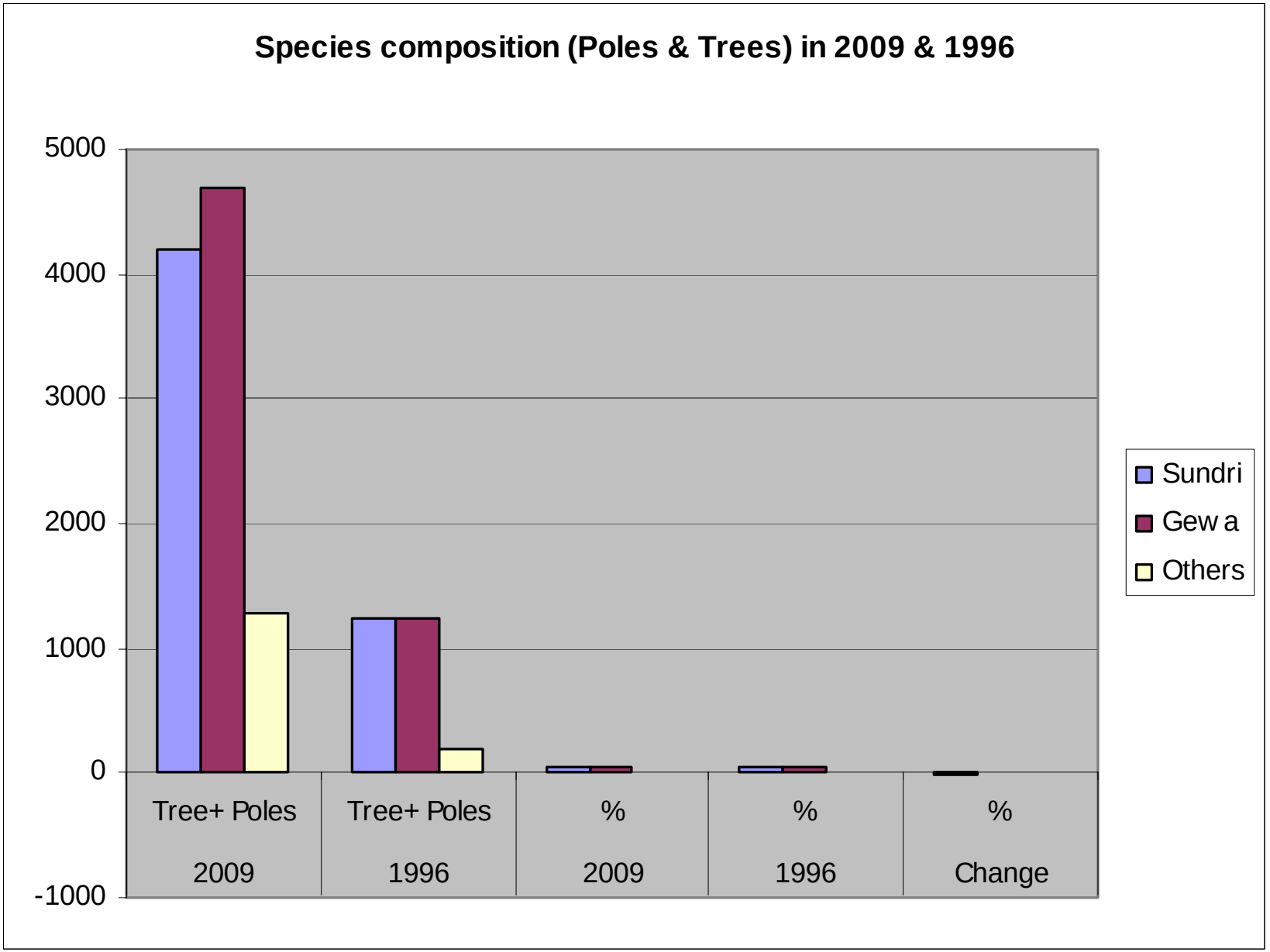

Species composition (Poles & Trees) in 2009 & 1996
5000
4000
3000
2000
1000
0
-1000
Tree+ Poles 2009
Tree+ Poles 1996
% 2009
% 1996
% Change
Sundri
Gew a
Others

Table 6: Comparative per hectare estimate of no. of trees 15-cm DBH and bigger

	Sundri	Gewa	Others	Total
2009	205	62	30	297
1996	106	20	20	144
1983	125	35	20	180
1959	211	61	24	296

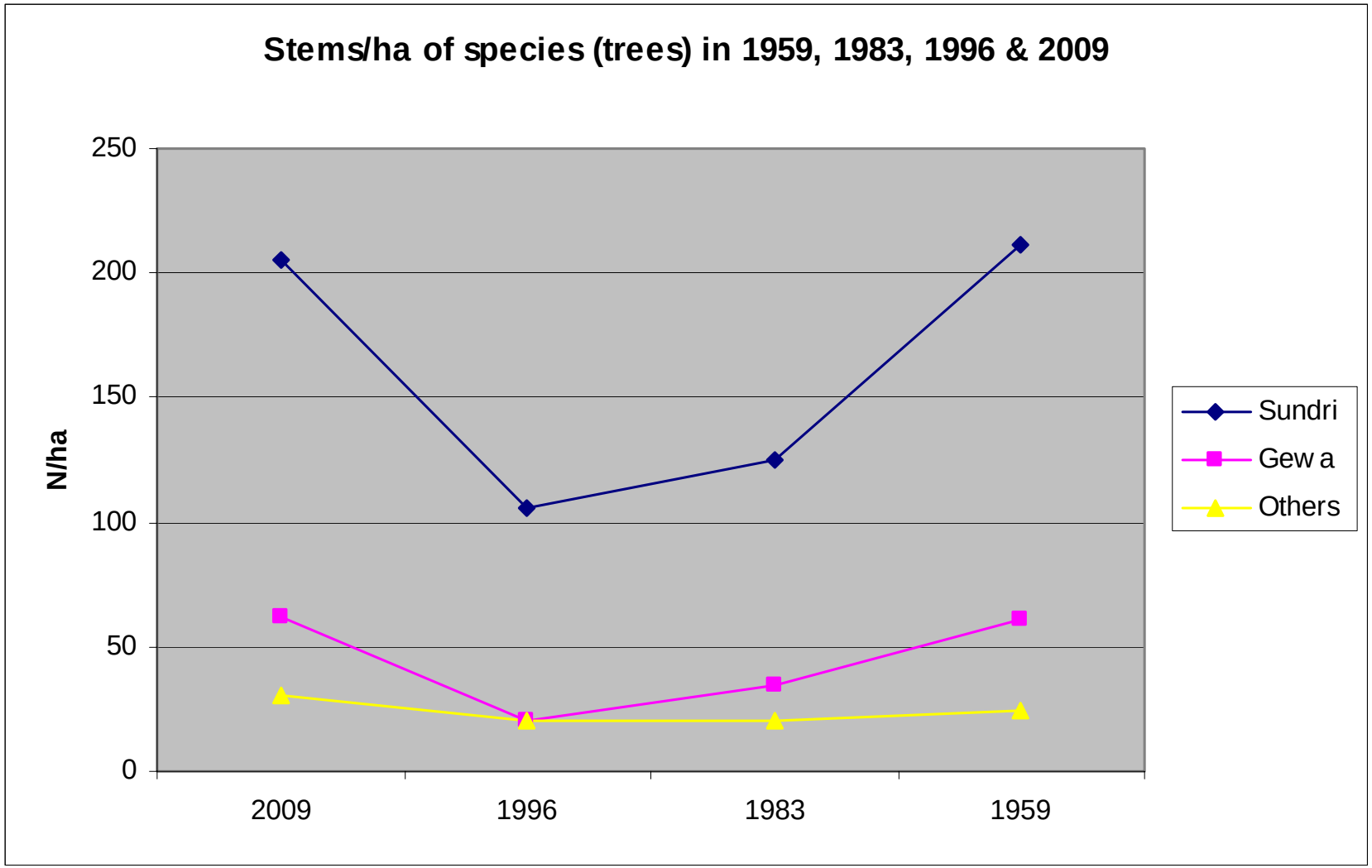

Stems/ha of species (trees) in 1959, 1983, 1996 & 2009
N/ha
250
200
150
100
50
0
2009
1996
1983
1959
Sundri
Gew a
Others

Table 7: Comparative per hectare estimate of volumes of trees 15-cm DBH and bigger

	Sundri	Gewa	Others
2009	48.2	7.8	11.2
1996	17.8	2.1	7.5
1983	19.9	2.7	7.1
1959	33.6	5	5.9

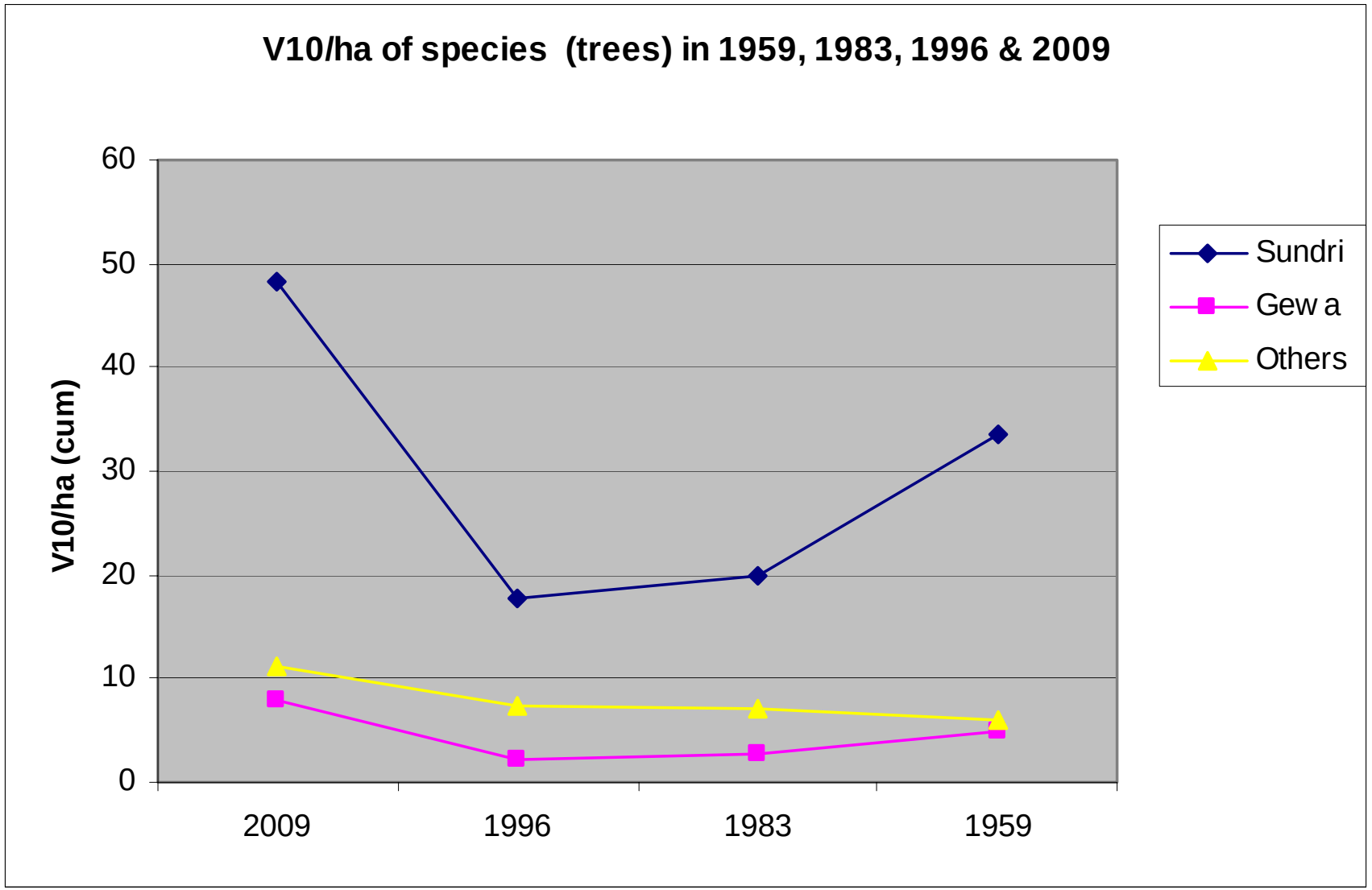

V10/ha of species (trees) in 1959, 1983, 1996 & 2009
V10/ha (cum)
60
50
40
30
20
10
0
2009
1996
1983
1959
Sundri
Gew a
Others

Table 8: Comparative per hectare estimate for number of stems of big pole & trees 10-cm DBH and bigger

	Species						
Year	Sundri		Gewa		Others		Total
	N/ha	%	N/ha	%	N/ha	%	
2009	439	55	317	40	41	5	797
1996	290	51.79	228	40.71	42	7.5	560
1983	296	53.14	224	40.22	37	6.64	557
1959	511	53.68	345	36.24	97	10.19	952

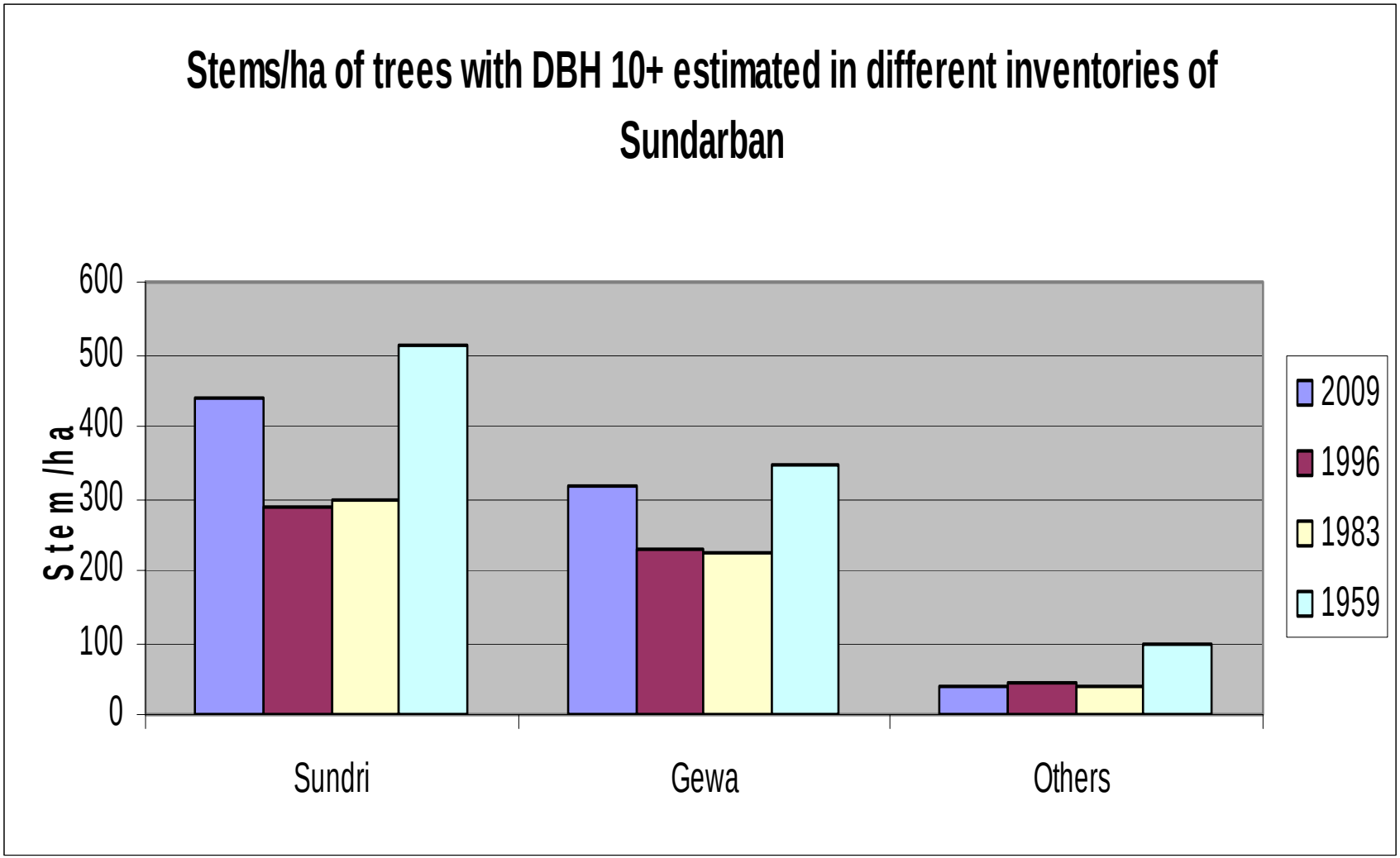
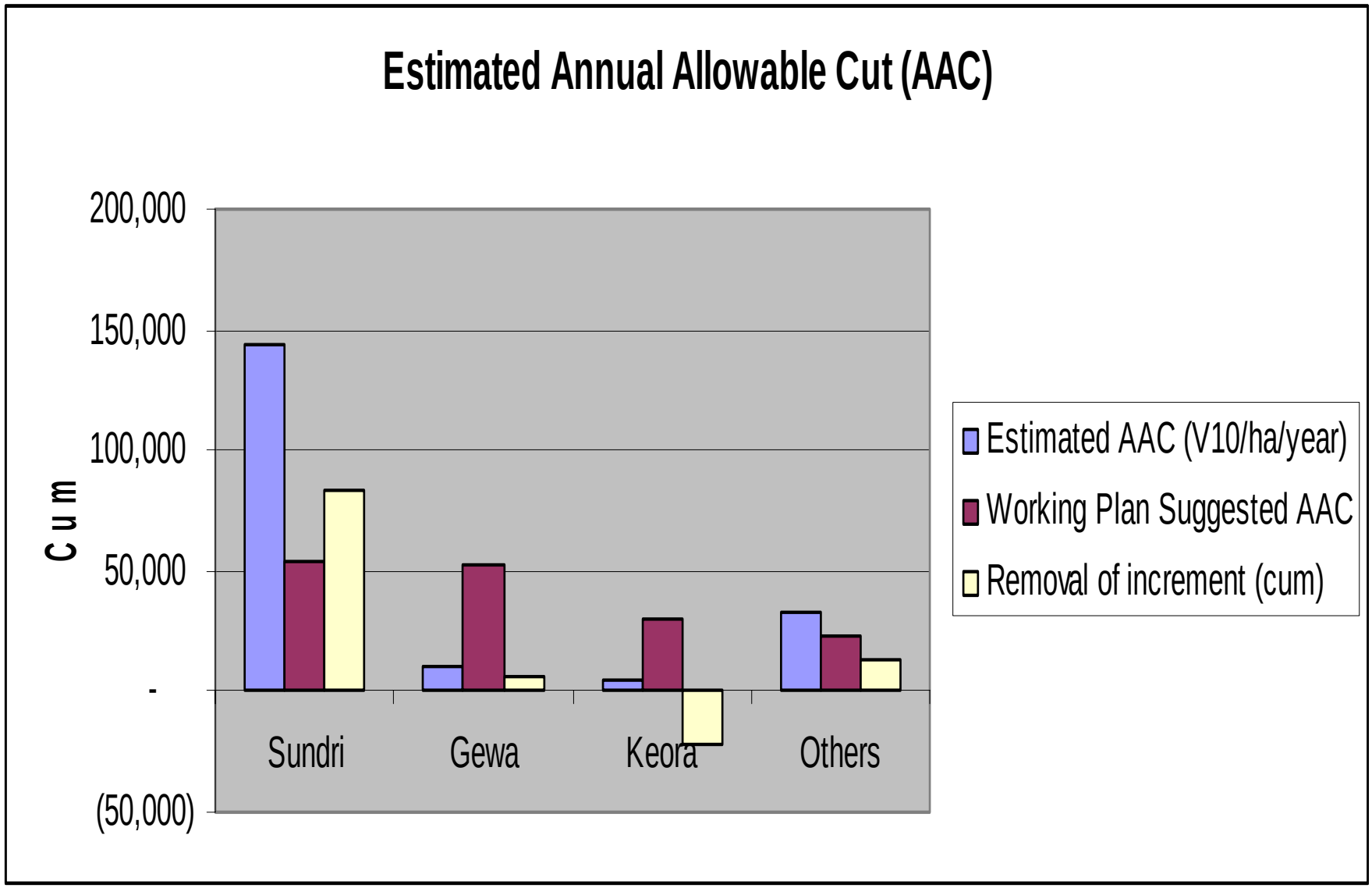

Stems/ha of trees with DBH 10+ estimated in different inventories of Sundarban
600
500
400
300
200
100
0
Stem /ha
Sundri
Gewa
Others
2009
1996
1983
1959

Table 9. Annual Allowable Cut (AAC) for different species in the Sundarban RF

Species	Growing Stock (V10/ha)	Increment (V10/ha)	AAC (V10/ha/ year)	DBH limit (cm)	Total area (ha)	Estimated AAC (V10/ha/ year)	Working Plan Suggested AAC (cum)	Removal of increment (cum)
1	2	3	4	5	6	7	8	9
Sundri	8.815	7.165	0.620	30	231159	143285	54000	82808
Gewa	0.462	0.410	0.033	15	296698	9887	53000	6081
Keora	0.945	-1.335	0.014	25	319201	4424	29852	-21308
Others	2.313	1.092	0.143	25	231159	33041	23000	12626


Estimated Annual Allowable Cut (AAC)
200,000
150,000
100,000
50,000
-
(50,000)
Cum
Sundri
Gewa
Keora
Others
Estimated AAC (V10/ha/year)
Working Plan Suggested AAC
Removal of increment (cum)

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