



**PILOT NATIONAL PROGRAM (PNP) FOR  
TIGER CONSERVATION IN BANGLADESH**

**BANGLADESH FOREST DEPARTMENT  
MINISTRY OF ENVIRONMENT AND FOREST  
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH**

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## ABBREVIATIONS AND ACRONYMS

ACCF	Assistant Chief Conservator of Forest
AIG	Alternate Income Generating
BCAS	Bangladesh Center for Advanced Studies
BCEDPB	Biodiversity Conservation of Eco-tourism Development Project, Bangladesh
BFRI	Bangladesh Forest Research Institute
BGB	Border Guard Bangladesh
BIWTC	Bangladesh Inland Water Transport Corporation
BTAP	Bangladesh Tiger Action Plan
CCF	Chief Conservator of Forest
CEGIS	Center for Environmental and Geographic Information System
CF	Conservator of Forest
CITES	Convention on International Trade in Endangered Species
CMCs	Co-management Committee
CoP	Communities of Practice
CPU	Central Processing Unit
DCCF	Deputy Chief Conservator of Forest
ETRT	Emergency Tiger Response Team
FTRT	Forest Tiger Response Team
GEF	Global Environmental Facility
GIS	Geographic Information System
GPS	Global Positioning System
GTI	Global Tiger Initiative
ICCWC	International Consortium on Combating Wildlife Crime
INTERPOL	International Criminal Police Organization
IPAC	Integrated Protected Area Co-management
IT	Information Technology
IUCN	International Union for Conservation of Nature
MIST	Management Information System
NGO	Non Governmental Organization
NICAR	National Implementation Committee for Administration Reforms
PD	Project Director
PNP	Pilot National Program
RAB	Rapid Action Battalion

SAARC	South Asian Association for Regional Cooperation
SAWEN	South Asia Wildlife Enforcement Network
SCBI	Smithsonian Conservation Biology Institute
SEALS	Sundarbans Environmental And Livelihood Security
SMART	Self - Monitoring, Analysis, and Reporting Technology
SRCWP	Strengthening Regional Co-operation for Wildlife Protection
SRF	Sundarbans Reserved Forest
TCC	Tiger Coordination Committee
TCL	Tiger Conservation Landscape
UNODC	United Nations Office on Drugs and Crime
USFWS	United States Fish and Wildlife Services
VTRT	Village Tiger Response Team
WC	Wildlife Center
WCCU	Wildlife Crime Control Unit
WCO	World Customs Organization
WII	Wildlife Institute of India
WPSI	Wildlife Protection Society of India
WVI	World Vision International
WWF	World Wildlife Fund
ZSL	Zoological Society of London

## FOREWORD

Tiger populations worldwide are in tremendous pressure of extinction. Bangladesh harboring one of the largest remaining populations of wild tigers in the vast areas of Sundarban mangrove forest has therefore a great responsibility to protect this beautiful creature.

Responding to the challenges, the government has been taking sustained steps to ensure the conservation of tigers and their habitats. The government endorsed Bangladesh Tiger Action Plan (2009), National Tiger Recovery Program (2011), endorsed the Wildlife Conservation and Security Act (2012) where punishment on poaching has been made tougher, compensation guideline (2011) and developed joint platform between India and Bangladesh on tiger protocol (2011) and MOU on Sundarban conservation (2011). Several key activities are ongoing for example, tiger monitoring through camera trapping, strengthened protection of resources and livelihood through projects supported by development partners.

I hope Pilot National Program (PNP) will bring more thrust to the past and present initiatives and help us to fulfill our commitment towards tiger conservation.

**Dr. Hasan Mahmud, MP**

Minister

Ministry of Environment and Forest

Government of the People's Republic of Bangladesh

Bangladesh Secretariat, Dhaka

## PREFACE

In November of 2010, for the very first time in the history, leaders of the 13 Tiger Range Countries (TRCs) assembled at an International Tiger Forum in St. Petersburg, Russia. To prevent the extinction of wild tigers, TRC leaders unanimously adopted the St. Petersburg Declaration on Tiger Conservation and endorsed its implementation mechanism, the Global Tiger Recovery Program (GTRP). The overarching goal of the St. Petersburg Declaration and the GTRP is to double the global number of wild tigers across their range by 2022, from an estimated 3,200 to more than 7,000.

Government of the People's Republic of Bangladesh was represented by Honorable Prime Minister Sheikh Hasina along with Dr. Hasan Mahmud, the Minister for Environment and Forest. Bangladesh committed that the by 2022, a demographically stable tiger population closes to carrying capacity will exist in the Bangladesh Sundarbans ecosystem. A long term National Tiger Recovery Program (NTRP) was formulated keeping the year 2022 in target laying out strategic actions under four priority components: 1) institutional capacity development for conservation; 2) eliciting community stewardship for effective conservation; 3) protection of tiger habitat including tiger of prey; 4) Strengthening monitoring, research and information management; and 5) Promoting awareness & education and 6) trans-boundary collaboration with India on illegal trade.

In order to keep the momentums going, the Smithsonian Conservation Biology Institute (SCBI) and World Bank led initiative further seeks to assist in developing Pilot National Programs (PNP) that will assist TRCs in developing and implementing a capacity building program consistent with the GTRP and NTRP. The SCBI supporting implementation of GTRP & NTRP came forward to assist Bangladesh Forest Department in developing PNP focusing short term strategies and action steps to meet capacity development needs based on consultation process and agreements.

The Pilot National Program for Tiger Conservation Program in Bangladesh is the outcome of the process. A three year plan laying out actions with stakeholder's roles and responsibilities and monitoring framework to measure our progress and achievements. The Bangladesh Forest Department is grateful to institutions, experts, enthusiasts who raised their hand in formulating the actions. Bangladesh Forest Department also likes to have their support in coming days for successful implementation of the same.

**Md. Shafiqur Rahman Patwari**

Secretary

Ministry of Environment and Forest

Government of the People's Republic of Bangladesh

## ACKNOWLEDGMENT

The Pilot National Program (PNP) for Tiger Conservation in Bangladesh enumerates prioritized activities needed within immediate future. The program has been identified based on Bangladesh Tiger Action Plan other strategic action plans for Sundarbans and with inputs from scientist, professionals, NGOs and community representatives. I would like to convey my gratitude to Dr. Hasan Mahmud, MP, Hon'ble Minister for Ministry of Environment and Forest (MOEF), Mr. Md. Shafiqur Rahman Patwari, Secretary, Ministry of Environment and Forest, Dr. Tapan Kumar Dey, Conservator of Forest, Wildlife and Nature Conservation Circle, BFD, Mr. Akbar Hossain, Conservator of Forest BFD, Dr. Steve Monfort, Director, Smithsonian Conservation Biology Institute (SCBI), and Dr. Mahendra Shrestha, Program Director, SCBI.

The Pilot National Program document has been prepared under the close guidance of Dr. Tapan Kumar Dey, Mr. Ishtiaq Uddin Ahmad, Country Representative, IUCN Bangladesh Country Office, Dr. Steve Monfort- SCBI, and drafted by Dr. M. Monirul H. Khan, Dr. Mahendra Shrestha and Mr. Iqbal Hussain of Bangladesh WildTeam and based on valuable inputs from workshop participants from tiger landscape in Bangladesh.

The stakeholder consultation and formulation of the document was made possible under fund from Global Tiger initiative (GTI) of World Bank in association with Smithsonian Conservation Biology Institute (SCBI). On behalf of Bangladesh Forest Department, International Union for Conservation of Nature Bangladesh Country Office facilitated the PNP development process.

**Md. Yunus Ali**

Chief Conservator of Forest  
Bangladesh Forest Department



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## EXECUTIVE SUMMARY

A two-day workshop, jointly sponsored by the Bangladesh Forest Department, IUCN, Global Tiger Initiative and the Smithsonian Conservation Biology Institute, was convened in Dhaka on 18-19 March 2013 to develop a Pilot National Program (PNP) that defined specific goals, strategies and action steps for the next 3-5 years that support achieving the objectives set forth in the Bangladesh National Tiger Recovery Program.

Around 100 participants from the Forest Department, universities, NGOs and community representatives worked in four thematic breakout groups: (1) Capacity Building; (2) Wildlife Crime Control; (3) Tiger-Human Conflict Resolution; and (4) Research and Monitoring. Each group identified objectives, challenges, current status of activities, then prioritized policies and projects for action, articulated specific short- (0-3 years) and longer-term (3-5 years) action steps, identified responsible agencies/partners, estimated tentative budgets and suggested potential sources of funding.

The results of these deliberations were used to create a shortlist of policies and projects to be reviewed by the Tiger Coordination Committee (TCC) and propose to the Ministry of Environment and Forest of Bangladesh for consideration for adoption and implementation as the first steps in implementing the PNP. Summary descriptions of six policy and seven project recommendations are provided below for TCC review and initiate government endorsement process to enhance tiger conservation in Bangladesh.

## TIGER COORDINATION COMMITTEE (TCC)

The Tiger Coordination Committee (TCC) will consider the recommended policy changes and projects for adoption and implementation as the first steps in implementing the PNP. The TCC will be chaired by the Secretary of the Ministry of Environment and Forests, with the Chief Conservator of Forests acting as the Member Secretary. Additional members will include the following: Conservator of Forests, Wildlife Circle (coordinator); Police Department representative with jurisdiction to Greater Khulna; Coast Guard representative with jurisdiction to Greater Khulna; Rapid Action Battalion representative with jurisdiction to Greater Khulna; Representative from Customs Department; Country Representative, IUCN; CEO, WildTeam; and a Scientific-Academic Institution representative. The TCC will meet four times a year to review and evaluate the performance indicators of activities of the PNP—at least one meeting a year at Khulna or inside the Sundarbans. The TCC mandate will be to (1) support field staff and promote institutional development of organizations working to professionalize tiger conservation, including in the policy, institutional and financial sectors; (2) assist in building a strong cadre of professional conservation practitioners; (3) review tiger conservation related research proposals to be applied to funding agencies and facilitate their approval by the Forest Department/Government of Bangladesh; and (4) additional functions as deemed necessary by the TCC to facilitate tiger conservation efforts.

## POLICY RECOMMENDATIONS

### *1. Updating Forest Department Organogram*

A proposed organogram including a Wildlife Wing has already been submitted to the Ministry of Environment and Forests by the Forest Department. This process must be accelerated to strengthen the management of the Sundarbans. According to the Sundarbans Reserved Forest Protection Assessment conducted in 2009, there are insufficient categories of positions, so some specialist skills are not addressed/included in the current organogram. Also there are coordination gaps between the Wildlife Division and Territorial Divisions of the Forest Department, which reduces the effectiveness of tiger-human conflict and wildlife management in the Sundarbans.

### *2. Amendment of Transfer Policy*

An amendment to the transfer process must be made to ensure that staff assigned to specialist positions are retained in their posts for a minimum number of years to increase staff effectiveness and reduce the need to re-train newly assigned Forest Department staff.

### *3. Allocating Budget for Tiger Conservation Activities*

Current budget allocations for regular tiger conservation and monitoring activities are insufficient. The Bangladesh Government should prioritize tiger conservation activities and allocate funds commensurate with Bangladesh's commitment to saving wild tigers.

### *4. Wildlife Crime Control Unit*

There is an urgent need to develop a fully functioning Wildlife Crime Control Unit (WCCU)

responsible for gathering and processing intelligence, plus mobilizing relevant law enforcement agencies to act upon the WCCU intelligence. The WCCU is urgently needed to reduce tiger and deer poaching and the associated trade network, which are the most pressing threats to the survival of Bangladesh's tigers.

### *5. ICCWC Toolkit*

International Consortium on Combating Wildlife Crime (ICCWC) is jointly formed by CITES Secretariat, the International Criminal Police Organization (INTERPOL), the United Nations Office on Drugs and Crime (UNODC), the World Bank, and the World Customs Organization (WCO). ICCWC has developed an analytic toolkit that provides comprehensive guidance in analyzing administrative, preventive, and criminal justice responses to wildlife and forest crime and other related offences. The toolkit also aids in identifying the different actors in the wildlife and forest crime chain and enhances knowledge of the factors that drive their activities. UNODC, the lead on ICCWC toolkit, has already agreed to pilot the toolkit in Bangladesh and the Forest Department is in communication with them. Considering the poaching and trade threat to tigers and other wildlife in Bangladesh, this process should be accelerated and the piloting must start soon.

### *6. Bring VTRTs and FTTR under CMCs*

Village Tiger Response Teams (VTRTs) and Forest Tiger Response Team (FTTR) are informal entities and not yet part of the Co-management Committees (CMCs). Though VTRTs and FTTR are directly involved in tiger conservation through dealing with tiger-human conflict mitigation, they have limited scope of involvement in community-based forest management, support and benefit sharing. For better management and sustainability of VTRTs, a mechanism needs to be developed soon to include VTRT and FTTR in CMCs through gazette notification.

## **PROJECT RECOMMENDATIONS**

### *1. Capacity Building*

There is an urgent need to increase the individual, institutional, and community capacity for managing and conserving the wildlife of Bangladesh. Establishing the Wildlife Center (WC) as envisaged under the Strengthening Regional Co-operation for Wildlife Protection (SRCWP) project will help achieve the Forest Department's goal of building institutional capacity among governmental and civil society organizations, and increasing competency in wildlife and ecosystem management as well as wildlife law enforcement. As a national training hub, the WC will target a range of professionals from front line staff, senior level managers, and communities, covering topics including human-wildlife conflict, community engagement, wildlife monitoring and assessment, law enforcement, illegal trade and trafficking, protected area management effectiveness, conservation leadership, etc. Courses will be conducted at the Wildlife Center as well as in selected protected areas and field sites, as appropriate.

Key initial steps: Appoint WC leadership and management team; plan and construct WC infrastructure; secure partnership with international knowledge institution for implementation; establish expert advisory committee; develop initial core curriculum, including piloting and

evaluating courses; undertake ‘train the trainers’ program and intensive instructor mentoring; and establish the Communities of Practice (CoP). To complete these steps by the end of year 3, the project must be launched within the next 6 months. Full program development and complete management and operation of all instructional responsibilities to the Forest Department core instructor team will be accomplished by the end of year 5. The advisory committee, CoP, and international network of collaborators will be sustained indefinitely.

## *2. Wildlife Crime Control*

Tiger and deer poaching are two of the biggest and most immediate threats to Bangladesh’s tigers. Bangladesh’s wildlife crime response needs to take place both inside (patrolling) and outside of the forest (intelligence-led enforcement) to fully achieve the Forest Department’s goal of reducing tiger and prey poaching. Systematic GIS-based patrolling is needed, with the objective of increasing detection and arrest of wildlife criminals inside the forest. There is an urgent need to select and protect core populations of tigers and prey within the wider Sundarbans landscape. Within these sites, the mobilization of highly trained and equipped patrol units with intelligence information will increase crime detection and arrest rates and act as a deterrent to criminals. In addition, the implementation of a supporting GIS-based patrol monitoring system (e.g. SMART/MIST) will provide valuable inputs into regular patrol planning sessions that will ensure a more strategic, dynamic and effective patrolling effort.

As poachers and traders live, trade, and network outside of the Sundarbans, there is an urgent need to complement in-forest patrols by increasing detection and arrest of these criminals outside the forest. This can be achieved by setting up community intelligence networks and a hotline to access information from the Sundarbans communities and informers along trade routes and at borders, and by mobilizing intelligence-led enforcement units and/or a multi-agency taskforce (bringing the strengths of other law enforcement agencies) to process and to act upon this intelligence, in the short-term. In the longer term, the Strengthening Regional Co-operation for Wildlife Protection (SRCWP) project will establish a Wildlife Crime Control Unit (WCCU) with forensic lab facilities to gather and process intelligence, plus mobilize relevant law enforcement agencies to act upon the WCCU intelligence.

Key initial steps: Determine whether GIS-based patrolling will be fully based within the Forest Department or whether a partner organization will be appointed to assist in managing project implementation; Forest Department or partner assess outputs and gaps of the ongoing SEALS patrol monitoring project; Forest Department or partner create project activity schedule, identify staffing needs, create budget, and secure funds. Recommend starting with one sanctuary in year 1 and expanding to all three sanctuaries by the end of year 2.

Tiger Coordination Committee to meet within the next 3 months to develop (or to appoint a sub-committee to develop) an action plan for both short-term (2013-2015) and long-term (2015+) intelligence-led community-based enforcement. The short-term plan will include activities to determine what skills, staff, funds, equipment, posts and processes are needed in the short term; which agencies have those in place now to enable response in the near -term; and how to mobilize

this response. The long-term plan will likely reference the ongoing SRCWP project and the formation of the WCCU.

### *3. Tiger-Human Conflict Resolution*

The Forest Department has formulated the Bangladesh Tiger Action Plan (BTAP), which outlines conservation goals, objectives, and activities for 2009-2017. One of the BTAP objectives is ‘to minimize tiger-human conflict’, with an associated strategic action ‘to develop tiger-human conflict mitigation activities and supporting guidelines to reduce tiger, human, and livestock killings’. There is an opportunity to dramatically improve the quality and speed of response to real time tiger-human conflict incidents by producing Government-approved tiger-human conflict guidelines that provide clear direction for Forest Department staff and other stakeholders reacting to tiger-human conflict incidents. A technical workshop on ‘Assessing conflict tiger management options to develop a tiger-human conflict decision making support tool’ was held in 2011 and a working committee was formed to draft the tiger-human conflict guidelines based on the workshop outputs. To support the implementation of the guidelines, a number of trained and equipped expert tiger response teams operating under a clear set of operating guidelines are required. Emergency Tiger Response Teams (ETRTs) are needed to deal with incidents of tigers straying into villages that require specialist immobilisation and/or tiger handling skills. To provide support with forest-based incidents, assistance from Forest Tiger Response Teams (FTRTs) are required in all four forest ranges.

*Key initial steps:* Activate the tiger-human conflict guidelines working committee for its first meeting; committee draft the guidelines (including conflict measures and roles and responsibilities) building on existing draft guidelines and incorporate international inputs; complete expert peer-review on conflict measures and update the guidelines; convene a stakeholder workshop to finalize and guidelines; submit the final tiger-human conflict guidelines to the ministry for approval; obtain ministry approval by the end of year 1; complete Emergency Tiger Response Teams (ETRTs) and Forest Tiger Response Teams (FTRTs) operating guidelines; form ETRTs and FTRTs; provide ETRT and FTRT training and logistics; and start the operations of ETRTs and FTRTs by the end of year 2.

### *4. Research and Monitoring*

Scientific monitoring of tiger and prey population trends is a high priority need for implementing effective management systems to mitigate threats to tigers in the Sundarbans. The last official tiger census was conducted using pugmark method in 2004, although relative abundance has been monitored since 2007. Developing systematic scientific monitoring guidelines is an urgent need. The guidelines will guide tiger and prey monitoring activities, define the roles and responsibilities of different stakeholders, and ensure the deployment of a permanent and temporally replicable system of monitoring. Camera-trap surveys for tiger and prey populations, ‘khal’ (creek) survey for relative abundance of tigers and prey, and genetic analysis of tiger scat and hair samples are available scientific methods that can be deployed in the Sundarbans. Since poaching is a major threat to tigers and their prey, identifying the scale of poaching, poaching-prone areas and poaching routes in the Sundarbans is the second-highest priority for research. Extensive direct and indirect surveys, including undercover surveys, will be used to assess poaching threats. This information will enhance the success of efficiency of anti-poaching efforts.

*Key initial steps:* Team formation for preparing the monitoring guidelines; preparation and Government approval of the monitoring guidelines; identifying the national and international partners to conduct the monitoring; and securing funds, equipment and laboratory support. The preparatory process is estimated to take about 6 months and should start immediately; the fieldwork will take one year or more.



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# CHAPTER 1

# INTRODUCTION





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## 1. INTRODUCTION

The Sundarbans of Bangladesh supports a healthy population of tigers. The mangrove habitat of the Sundarbans is unfragmented and naturally inaccessible to people, which offers excellent potential for long-term preservation of tigers. In addition, it is the only tidal mangrove forest to contain tigers. Therefore, the Sundarbans has been identified as a high-priority area for tiger conservation.

Poaching, prey depletion and tiger-human conflict, however, threaten this globally and nationally important tiger population. Therefore, it is urgently required to develop national program for tiger conservation in Bangladesh. Keeping that in mind, a two-day workshop, jointly sponsored by the Bangladesh Forest Department, IUCN and Smithsonian Conservation Biology Institute was convened in Dhaka on 18-19 March 2013 to develop a 3-5 year Pilot National Program (PNP) that defines specific goals, strategies and action steps to facilitate achieving the objectives set forth in the Bangladesh National Tiger Recovery Program.



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The results of this workshop discussion were used to create a shortlist of policies and projects to be considered for adoption and implementation by the Tiger Coordination Committee (TCC) as the first steps in implementing the PNP. The TCC will be chaired by the Secretary of Ministry of Environment and Forests, with the Chief Conservator of Forest acting as the Member Secretary. Additional members will include the following:



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Conservator of Forests, Wildlife Circle (coordinator); Police Department representative with jurisdiction to Greater Khulna; Coast Guard representative with jurisdiction to Greater Khulna; Rapid Action Battalion representative with jurisdiction to Greater Khulna; Representative from Customs Department; Country Representative, IUCN; CEO, WildTeam; and a Scientific-Academic Institution representative. The TCC will meet four times a year to review and evaluate the performance indicators of activities of the PNP – at least one meeting a year at Khulna or inside the Sundarbans. The TCC mandate will be to (1) support field staff and promote institutional development of organizations working to professionalize tiger conservation, including in the policy, institutional and financial sectors; (2) assist in building a strong cadre of professional conservation practitioners; (3) review tiger

conservation related research proposals to be applied to funding agencies and facilitate their approval by the Forest Department/Government of Bangladesh; and (4) additional functions as deemed necessary by the TCC to facilitate tiger conservation efforts.



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A total of 100 participants from the Forest Department, universities and NGOs worked in four thematic breakout areas: (1) Capacity Building; (2) Wildlife Crime Control; (3) Tiger-Human Conflict Resolution; and (4)

Research and Monitoring. Each group identified objectives, challenges, current status of activities; prioritized policies and projects for action; articulated specific short- (0-3 years) and long-term (3-5 years) action steps; identified responsible agencies/partners; estimated tentative budgets; and proposed sources of funding. The workshop outcomes under four different thematic areas are given in following chapters.



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## CHAPTER 2

# THEMATIC AREAS





Field training on MIST

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# THEMATIC AREA 1

## 2.1 Capacity Building

There is an urgent need to increase the individual, institutional, and community capacity for managing and conserving the wildlife of Bangladesh. Therefore, it was strongly suggested that a Wildlife Center (WC) as envisaged under the Strengthening Regional Co-operation for Wildlife Protection (SRCWP) project should be established, which will help achieve the Forest Department's goal of building institutional capacity among governmental and civil society organizations, and increasing competency in wildlife and ecosystem management as well as wildlife law enforcement. As a national training hub, the WC will target a range of professionals from front line staff, senior level managers, and communities, covering topics including human-wildlife conflict, community engagement, wildlife monitoring and assessment, habitat management, law enforcement, illegal trade and trafficking, protected area management effectiveness, conflict resolution, conservation leadership, and other related issues. Courses will be conducted at the WC as well as in selected protected areas and field sites, as appropriate.

Implementation of the WC requires a two-pronged approach that includes the following steps: (1) site selection and infrastructure development, establishment of governance and administrative structures, and (2) instructional staff recruitment, training needs assessment and prioritization, curriculum development and piloting of new courses. WC development will be greatly facilitated and accelerated by engaging an experienced international training implementer and knowledge institution, who would be responsible for advising the Forest Department on all aspects of program development, convening and connecting national and international technical experts (IUCN, Smithsonian Institution, WII, WVI, ZSL, Interpol, USFWS, universities, WildTeam, etc.) that will assist with creating and/or adapting course content, and for coordinating instruction and intensive mentoring of WC-based Forest Department instructors (i.e. ‘train the trainers’ program). The implementing partner would form an advisory committee consisting of government, civil society organizations and international experts to assist with strategic planning and training program development. While the principal means of building conservation leadership is inextricably linked to the establishment and maintenance of first-person relationships and mentoring, WC will establish and maintain national and international Communities of Practice (CoP) that will employ both virtual and physical platforms to reach and connect their members with the resources they require for success.

Key initial steps: Appoint WC leadership and management team; plan and construct WC infrastructure; secure partnership with international implementing organization; establish expert advisory committee; develop initial core curriculum, including piloting and evaluating courses; undertake ‘train the trainers’ program and intensive instructor mentoring; and establish the CoP. To complete these steps by the end of year 3, the project must be launched within the next 6 months. Full program development and completely enabling all instructional responsibilities to the Forest Department core instructor team will be accomplished by the end of year 5. The advisory committee, CoP and international network of collaborators will be sustained indefinitely.

Budget: The approximate total budget for capacity building (Thematic Area 1) is BDT 156,94,75,000, which is equivalent to USD 20,006,055.

## **2.1.1 Component 1.1: Institutional Mechanism**

### **2.1.1.1 Objective**

1. Forest Department-led institutional capacity building and taking policy decisions to strengthen tiger conservation.

### **2.1.1.2 Challenges**

1. Lack of wildlife training institution and lack of coordination between and within different departments/divisions/institutions.
2. Insufficient manpower and logistics of the Wildlife Circle of the Forest Department.
3. Transfer of skilled manpower from Tiger Conservation Landscape (TCL) to other areas.

4. Inadequate capacity of Co-management Committees (CMCs) in terms of manpower and skills to deal with tiger related issues.
5. Village Tiger Response Teams (VTRTs) and Forest Tiger Response Team (FTRT) are informal entities that are not part of CMCs.

#### 2.1.1.3 Status

1. Relevant training institutions (e.g. Bangladesh Forest Research Institute - BFRI) exist, but are not focused on wildlife management.
2. Limited manpower and logistics in the Wildlife Circle for wildlife management.
3. Limited training, infrastructure, logistics and equipment are being provided by different projects.
4. Training offered for Forest Department staff by institutions outside Bangladesh like GTI/ Smithsonian Institution, SAWEN, GTF and CITES.

#### 2.1.1.4 What needs to be done

1. Establishment of fully functional Wildlife Centre (WC) and active collaboration between the organizations/institutions related to tiger conservation, research, and training.
2. Forest Department's proposed organogram should be approved immediately, which includes upgrading of the Wildlife Circle to Wildlife Wing.
3. The staff transfer policy of the Forest Department should be aligned with the institutional needs.
4. Mandate of the wildlife division and territorial divisions of the Sundarbans should be revised and reframed [suggestion: wildlife division should be under Khulna Circle (Proposed Sundarbans Circle)]
5. Provision of 70% remote and risk allowance (reference: Rapid Action Battalion - RAB) for the Forest Department staff working in the Sundarbans.
6. Budget allocation and special financial allocation for development of accommodation, logistics and equipment.

#### 2.1.1.5 Action steps

##### **Short-term (0-3 years)**

1. Initiate the process of establishing the Wildlife Centre by creating implementation committee, developing collaborations, developing proposals, obtaining funds and developing training curricula.
2. Pursue approval of the Forest Department's proposed organogram, and in three months initiate the development of the Wildlife Wing by the Forest Department.
3. Transfer policy should be revised in the next three months with a provision of at least 10 years for field staff, and 5 years for Assistant Conservator of Forests and above in TCL.
4. Tiger Coordination Committee with their mandate and responsibilities should be formulated at national level in one month and at Forest Circle and Forest Divisional level in three months.
5. The mandate of the Wildlife Division and Territorial Divisions of Khulna Forest Circle should be revised and reframed in three months by CF (Conservator of

- Forests) Administration, CF Wildlife and CF Khulna Forest Circle (proposed Sundarbans Forest Circle)
6. Special budget allocation to be sought for tiger conservation in next budget by 30 June 2013.
  7. Proposal for remote and risk allowance to be submitted to the Government by the Forest Department within two months.

**Long-term (0-5 years)**

1. Make the Wildlife Centre fully functional through permanent staff recruitment, getting revenue budget from the Government for running the Centre, infrastructural development, and acquiring sufficient equipment.
2. Budget allocation for development of accommodation, logistics and equipment to be sought through national budgetary system, and more special allocation for tiger conservation to be sought through national budgetary system.

2.1.1.6 Indicator of success

**For short-term actions (0-3 years)**

1. Implementation committee for Wildlife Centre established, proposal submitted to the funding agency and funds obtained, and training curricula developed.
2. Proposed organogram accepted by the Government and the Wildlife Wing officially established.
3. Transfer policy is revised according to the Forest Department's needs.
4. Tiger Coordination Committees formed and functioning.
5. The mandate of the Wildlife Division and Territorial Divisions of the Sundarbans is revised, reframed and functioning.
6. Special allocation secured in the next budget for tiger conservation.
7. Remote and risk allowance available for the Forest Department staff working in the Sundarbans.

**For long-term actions (0-5 years)**

1. Fully functional and self-sustained Wildlife Centre.
2. Regular budget allocated for physical capacity building and special allocation secured for tiger conservation from the national budgetary system.

2.1.1.7 Responsible agency

Forest Department (CCF, DCCF Development Planning, CF Administration, CF Wildlife, CF Khulna Forest Circle, ACCF Establishment, and PD SRCWP), Ministry of Environment and Forests, Ministry of Finance and Ministry of Public Administration.

2.1.1.8 Source of funds

SRCWP, Government budget, Biodiversity Project.

## 2.1.2 Component 1.2: Capacity Building

### 2.1.2.1 Objective

1. Forest Department and other relevant institutional staff trained and motivated for tiger conservation.

### 2.1.2.2 Challenges

1. Lack of appropriate training institution.
2. Inadequate resource persons and trainers to conduct the training.
3. Insufficient and irregular funding for training of staff.

### 2.1.2.3 Status

1. Provision for establishment of a training institute (Wildlife Centre) exists in SRCWP.
2. A total of 10-12 personnel of the Forest Department have completed diploma and certificate courses from Wildlife Institute of India (WII).
3. Limited provision for training under different development projects available for Forest Department staff.

### 2.1.2.4 What needs to be done

1. Regular professional training (for both new recruits and refresher) and motivation for Forest Department and other relevant institutional staff who will be involved in tiger and prey management.
2. Seek special and budgetary allocation from the Government, and pursue other national and international sources for funding for regular training programs.
3. Develop the required personnel and train the trainers to run the Wildlife Centre and conduct training programs.
4. Collaborate with international training institutes for capacity building of staff for the establishment of Wildlife Centre in Bangladesh, knowledge exchange and necessary support.

### 2.1.2.5 Action steps

#### Short-term (0-3 years)

1. Provide training and motivation to Forest Department and other relevant institutional staff by establishing the Wildlife Centre using existing resources and send the trainers to training institutes abroad until the functioning of the Wildlife Centre.
2. Select participants for training of trainers and arrange training in six months.
3. Special allocation to be sought for capacity building in next budget by 30 June 2013.

#### Long-term (0-5 years)

1. Ensure funding and training collaboration with national and international entities like IUCN, Smithsonian Institution, WWF, ZSL, WVI, US Fish and Wildlife Service, GTI, Panthera, GTF, SAARC, Multi Donor Trust Fund for Climate Change, GEF-UNDP, universities and WildTeam.

#### 2.1.2.6 Indicator of success

##### **For short-term actions (0-3 years)**

1. A total of 150 staff trained and motivated in three years.
2. A total of 30 participants are selected and went through 'training of trainers' in six months.
3. Special allocation for capacity building secured in the next budget.

##### **For long-term actions (0-5 years)**

1. Funding for capacity building sustained and training collaboration with national and international entities ensured.

#### 2.1.2.7 Responsible agency

Forest Department (CCF, CF Wildlife, PD SRCWP, PD SEALS, PD BCEDPB), Ministry of Environment and Forests, Ministry of Finance, Ministry of Public Administration and NICAR.

#### 2.1.2.8 Source of funds

SRCWP, Government budget, Biodiversity Project, international organizations.



Tiger skin seized by Forest Department from poachers

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## THEMATIC AREA 2

### 2.2 Wildlife Crime Control

Tiger and deer poaching are two of the largest and most immediate threats to Bangladesh's tigers. These are threats that can decimate tiger populations at speed over a short period of time and therefore need an urgent and significant response. Bangladesh's wildlife crime response needs to take place both inside (patrolling) and outside of the forest (intelligence-led enforcement to breakdown the illegal trade network) to fully achieve the Forest Department's goal of reducing tiger and prey poaching.

It was suggested that systematic GIS-based and intelligence led patrolling is needed, with the objective of increasing detection and arrest of wildlife criminals inside the forest. There is an urgent need to select and protect core populations of tigers and prey within the wider Sundarbans landscape to assist tiger and prey recovery across the entire landscape. The three wildlife sanctuaries are natural selections for core sites; they already have a greater degree of legal protection compared to the wider Sundarbans Reserved Forest area, and are largely located relatively far from human habitation. Within these sites, the mobilization of highly trained and equipped patrol units staffed

from the Forest Department's wildlife division - and with back up from Coast Guard, Border Guard Bangladesh (BGB), and Rapid Action Battalion (RAB) - will increase crime detection and arrest rates and act as a deterrent to criminals. Training will include tiger and deer poaching techniques used by poachers, formation of intelligence network and handling intelligence information, identification and tracking of wildlife criminals, crime scene investigation and evidence collection, firearms handling, criminal arrest and transportation, wildlife crime law and the accurate charging of an arrested suspect. Training can be provided by organisations including CITES, Interpol, Smithsonian Institution, WildTeam, and WPSI. In addition, the implementation of a supporting GIS-based patrol monitoring system (e.g. SMART/MIST) will input into regular patrol planning sessions that will ensure a more strategic, dynamic and effective patrolling effort. Initial effort must focus on staffing and training of wildlife division patrol units, procurement of fast patrol boats (e.g. twin engine trawlers) and other vital equipment and the setup of software and supporting procedures.

As poachers and traders live, trade and network outside of the Sundarbans forest, there is an urgent



Seized tiger skulls

need to complement in-forest patrols by community intelligence and arrest of these criminals outside the forest. This can be achieved by setting up informant networks and a hotline to access intelligence from the Sundarbans communities and informers along trade routes and at borders, and by mobilizing intelligence-led enforcement units and/or a multi-agency taskforce to process and to act upon this intelligence. Initial effort must focus on the creation of an action plan to identify short and long-term steps for intelligence led enforcement.

This will include agreement on which law enforcement agency has capacity (skills, staff, funds, community trust) to design, setup and manage a nationwide informant network, a Sundarbans community wildlife crime hotline, and to analyze the resulting intelligence in the short-term and in advance of the Wildlife Crime Control Unit (WCCU) setup; and agreement on which law enforcement agency(ies) has capacity to and will act upon this intelligence in the short-term. In the longer term, the SRCWP project will establish WCCU to gather and process intelligence, plus mobilize relevant law enforcement agencies to act upon the WCCU intelligence. However, given this will take more than one year, there is an urgent need to develop an interim solution given the speed at which poaching can destroy a population.

Key initial steps: Determine whether systematic GIS-based patrolling will be a fully Forest Department based project or whether a partner organization will be appointed to assist in managing project implementation; Forest Department or partner assess outputs and gaps of the ongoing SEALS patrol monitoring project; Forest Department or partner create project activity schedule,

identify staffing needs (e.g. project manager, law enforcement specialist, software/database specialist and field logistical assistant plus the required Forest Department's Wildlife Division staff), create budget, and secure funds. Recommend starting with one sanctuary in year 1 and expanding to all three sanctuaries by the end of year 2.

Tiger Coordination Committee to meet to develop (or to appoint a subcommittee to develop) an action plan for both short-term (2013-2015) and long-term (2015+) community intelligence-led enforcement. The long-term plan will likely refer to the ongoing SRCWP project and the formation of the WCCU and creation/appointment of a body to act upon WCCU intelligence. The short-term plan will include activities to determine what skills, staff, funds, equipment, posts and processes are needed in the short-term; which agencies have those in place now to enable short-term response; and how to mobilize this response. The action plan will be written and approved by relevant ministries within 0-3 months due to the urgency of this threat.

Budget: The approximate total budget for wildlife crime control (Thematic Area 2) is BDT 253,35,00,000, which is equivalent to USD 32,294,455.

## 2.2.1 Component 2.1: Law Enforcement

### 2.2.1.1 Objectives

1. Reduce tiger and prey poaching and consumption.
2. Strengthen the operational effectiveness of the wildlife crime control activities.
3. Establish a functional Wildlife Crime Control Unit (WCCU).

### 2.2.1.2 Challenges

1. Loophole in usage of pass and permit (issued by the Forest Department) in resource harvest.
2. Absence of rules regarding implementation of the Wildlife Act and lack of awareness about this Act.
3. Shortage of budget, resources and skilled manpower for proper enforcement of law.
4. Lack of database and lack of intelligence network for information on wildlife crime.
5. Lengthy procedure in prosecution trial and lack of legal safeguard for prosecutors.
6. Lack of coordination and collaboration among different organisations and stakeholders, particularly among different law-enforcement agencies.
7. Pirate activities inside the Sundarbans who often work as opportunistic/professional poachers.
8. Socio-political influences and mistrust among the stakeholders.
9. Lack of forensic laboratory and trained personnel to help and support wildlife crime cases.
10. Lack of Wildlife Rescue Centre for rescued tiger, deer or other wildlife of the Sundarbans.
11. Legalization of deer farming and marketing that can be misused to legally market the poached deer.

#### 2.2.1.3 Status

1. Enactment of new law for wildlife, i.e. Wildlife (Conservation and Security) Act 2012.
2. Wildlife Act is mainly implemented by the Forest Department with the help of other law-enforcement agencies like police, RAB, BGB and Coast Guard.
3. The Divisional Forest Officers and their staff cannot file charges in wildlife cases except those work under the Wildlife Division.
4. Deer and tiger poaching exist in the Sundarbans, which are mainly traded locally, but some are known to be traded outside the country.

#### 2.2.1.4 What needs to be done

1. Establishment of sufficiently staffed and equipped Wildlife Crime Control Unit (WCCU).
2. Establishment of forensic laboratory with trained staff in WCCU.
3. Introduction of advanced patrolling and monitoring system (e.g. SMART/MIST).
4. Introduction of community-based safeguard mechanism for wildlife.
5. Formulation of wildlife rules in order to implement the Wildlife Act.
6. Establishment of special court for wildlife cases.
7. Strengthening the Wildlife Division with sufficient skilled and motivated staff, and with proper authority.
8. Remove pirate groups in the Sundarbans through effective law enforcement.
9. Ensure adequate financial, logistic and manpower support.
10. Strengthening coordination and collaboration among different law-enforcement agencies and stakeholders.
11. Ban on issuing licence on deer farming and establish effective mechanism to monitor the existing farms.
12. Continuous research and monitoring of wildlife crime, and sharing of findings.
13. Ban on carrying/cargo/mechanized trawler entering the Sundarbans.

#### 2.2.1.5 Action steps

##### **Short-term (0-3 years)**

1. Establish Wildlife Crime Control Unit (WCCU) involving Forest Department, customs, RAB, Coast Guard, police and BGB. This can be done by establishing central and local units (including IT units), deploying officers and staffs from different agencies (partly), establishing forensic lab with forensic experts; providing training on wildlife crime and forensic, and arms and ammunition use of 300 staffs; and buying equipment (e.g. camera, GPS, arms, computer, laser gun, vehicle, ambulance, etc.) by the end of year 2.
2. Strengthen GIS/GPS based patrolling and advanced monitoring by the Forest Department. This can be done by organizing patrol groups (with non-transferable staff), providing training of frontline staff, IT staff, trainers and officers, establishing range level and divisional level CPU (data networking) system (involving 300 staffs), pilot GIS/GPS based patrolling and advance monitoring, evaluate and adopt learning, and expand operation in new areas by the end of year 3.
3. Establish community-based safeguard for wildlife by Forest Department, WildTeam

and Co-management Councils (CMCs). This can be done by facilitating consultation with community, forming and establishing ToR for Community Patrol Groups (CPGs), develop informant network involving CMCs, Village Tiger Response Teams (VTRTs) and other Community-based Organizations (CBOs), establishing wildlife crime hotline and its mechanism, and arranging community training and awareness by the end of year 2.

4. Adopt International Consortium on Combating Wildlife Crime (ICWC) toolkit by the Forest Department. This will be done by piloting ICCWC toolkit in Bangladesh by United Nations Office on Drugs and Crime (UNODC) by the end of year 1 and the findings incorporated into management action plans in year 2.

#### **Long-term (0-5 years)**

1. Further strengthen Wildlife Crime Control Unit by Forest Department, customs, RAB, Coast Guard, police and BGB. This can be done by deploying more officers and staff from different agencies and established coordinating mechanism; continuing training on wildlife crime and forensic, arms and ammunition, and buying more equipment (e.g. camera, GPS, arms, computer, laser gun, vehicle, ambulance, etc.) by the end of year 5.

#### **2.2.1.6 Indicator of success**

##### **For short-term actions (0-3 years)**

1. In case of Wildlife Crime Control Unit: number of offence detected, animals seized, offenders punished; number of training and skilled manpower; establishment of forensic lab, participation of members of other agencies into Wildlife Crime Control Unit, and up to date criminal database.
2. In case of strengthening GIS/GPS based patrolling and advanced monitoring: number of training and trained staff, number of patrol group, and monthly/quarterly reports.
3. In case of community-based safeguard for wildlife: number of CMCs/CPGs, number of meetings and minutes, hotline established, and crime information flow increased.
4. In case of ICCWC toolkit adoption: MoU between Forest Department and UNODC, and number of training on ICCWC toolkit implementation.

##### **For long-term actions (0-5 years)**

1. Fully functional Wildlife Crime Control Unit with all the necessary equipment, laboratory set-up and manpower.

#### **2.2.1.7 Responsible agency**

Forest Department, Ministry of Environment and Forests, CMCs, CBOs, CEGIS and WildTeam.

#### **2.2.1.8 Source of funds**

Government, SRCWP, SEALS, Biodiversity Project and Panthera.

## 2.2.2 Component 2.2: Habitat Protection

### 2.2.2.1 Objectives

1. Make Sundarbans a fully protected habitat for tigers and their prey.
2. Strengthen the monitoring of resource harvest.
3. Control illegal extraction of forest resources.
4. Improve habitat through proper implementation of management plan.

### 2.2.2.2 Challenges

1. Loophole in usage of pass and permit (issued by the Forest Department) in resource harvest.
2. Shortage of budget, resources and skilled manpower for proper enforcement of law.
3. Lack of database and lack of intelligence network for information on forest crime.
4. Lengthy procedure in prosecution trial and lack of legal safeguard for prosecutors.
5. Lack of coordination and collaboration among different organizations and stakeholders, particularly among different law-enforcing agencies.
6. Pirate activities inside the Sundarbans who are often involved in illegal logging.
7. Socio-political influences and mistrust among the stakeholders.
8. Impacts of climate change (sea-level rise, increase of salinity, rapid erosion of land, frequent cyclones, etc.).

### 2.2.2.3 Status

1. Forest Act is mainly implemented by the Forest Department with the help of other law-enforcing agencies like police, RAB, BGB and Coast Guard.
2. Illegal felling of hard-wood trees ('sundri' and 'passur') and over-harvesting of non-timber forest products take place in the Sundarbans.
3. Navigation route for cargo ships through eastern Sundarbans opened 1.5 years ago.
4. Floral diseases (e.g. top-dying of 'sundri') are observed.
5. Water pollution and sound pollution due to Mongla Port, tourism and other human activities.
6. Climate change is adversely impacting the Sundarbans.

### 2.2.2.4 What needs to be done

1. Forest Department and Bangladesh Inland Water Transport Corporation (BIWTC) stop shipping navigation routes through the Sundarbans.
2. Establish monitoring by Forest Department and CMCs for forest resource harvesting.
3. Introduction of advanced patrolling and monitoring system.
4. Introduction of community-based safeguard mechanism for wildlife crime.
5. Capacity building of officers and staff (Forest Department, universities, WildTeam, etc.), and CMCs
6. Remove pirate groups in the Sundarbans through effective law enforcement.
7. Ensure adequate financial, logistic and manpower support.

8. Strengthening coordination and collaboration among different law-enforcing agencies and stakeholders.
9. Continuous research and monitoring of illegal activities, and sharing of findings.
10. Exemplary punishment for corrupt officials.
11. Using bamboo instead of forest saplings in fixing fishing nets by fishermen.

#### 2.2.2.5 Action steps

##### **Short-term (0-3 years)**

1. Establish effective monitoring system of resource harvesting, which will be done by Forest Department and CMCs.
2. Close ship navigation route through the Sundarbans, which will be done by Forest Department and BIWTC.
3. Develop and implement research and assessment module, which will be done by Forest Department, universities, WildTeam and IUCN.
4. Conduct awareness programs in the villages around the Sundarbans, which will be done by Forest Department and NGOs such as WildTeam and Prodipan.
5. Stop entry of people, other than genuine pilgrims, and carrying firearms in the Sundarbans during the annual Rash Mela (Hindu religious programme) at Dubla Island.

##### **Long-term (0-5 years)**

1. Provide adequate incentives for officers and staffs of the Forest Department working in the Sundarbans.
2. Ban on engine-driven watercrafts inside the Sundarbans to collect natural resources.

#### 2.2.2.6 Indicator of success

##### **For short-term actions (0-3 years)**

1. For effective monitoring system of resource harvesting: reduced illegal harvesting, number of illegal resource collectors punished, and amount of penalty charged to pass and permit holders who violated the terms and conditions of pass and permit.
2. In case of closing ship navigation route through the Sundarbans: existing navigation route closed and new navigation route established outside the Sundarbans.
3. In case of development and implementation of research and assessment module: module developed and implementation started.
4. In case of awareness programs: number of awareness programs conducted, awareness material developed and circulated, and people's perception and cooperation in wildlife conservation increased.
5. In case of controlling unwanted people and firearms during Rash Mela: no person other than pilgrims entered the Sundarbans, and none other than law-enforcement agencies carried firearms.

##### **For long-term actions (0-5 years)**

1. In case of providing adequate incentives for officers and staffs working in the

Sundarbans: budget allocated for risk allowance, insurance premium, crime detection, arrest, transport, and prosecution.

2. In case of ban on engine-driven watercrafts inside the Sundarbans to collect natural resources: absence of engine-driven watercrafts inside the Sundarbans.

2.2.2.7 Responsible agency

Forest Department, BIWTC, CMCs, universities, IUCN, WildTeam, Prodipan, and other interested NGOs.

2.2.2.8 Source of funds

SEALS, Government, and Biodiversity Project.



Boy painted tiger with people and camera trap

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## THEMATIC AREA 3

### 2.3 Tiger-human Conflict Resolution

The Forest Department has formulated the Bangladesh Tiger Action Plan (BTAP), which outlines conservation goals, objectives, and activities for 2009-2017. One of the BTAP objectives is ‘to minimize tiger-human conflict’, with an associated strategic action ‘to develop tiger-human conflict mitigation activities and supporting guidelines to reduce tiger, human, and livestock killings’. This will benefit those local communities affected by tiger-human conflict by alleviating the misery caused by human and livestock loss, which in turn will increase local support for conservation efforts, and therefore improve the long-term conservation prospects of the Sundarbans tiger population.

There is an opportunity to dramatically improve the quality and speed of response to real time tiger-human conflict incidents. The current response is hampered by lack of manpower with the technical skills needed to handle a conflict tiger, slow response time associated with centralized decision-making authority, and little or no coordination amongst actors due to ill-defined roles

and responsibilities. Resolving these issues will improve the speed and quality of response and significantly reduce tiger-human conflict in and around the Sundarbans. A real time response mechanism to deal with immediate conflict tiger incidents will also help the Forest Department to build better relations with the local communities, which is fundamental for the effective implementation of all community-based conservation actions. In response to these needs, there were suggestions of two things: (1) Government-approved guidelines that provide clear direction for Forest Department staff and other stakeholders reacting timely to tiger-human conflict incidents, and (2) establishment of expert tiger-human conflict response teams.

Systematic tiger-human conflict guidelines will clarify roles, responsibilities, and authority to improve decision-making, and facilitate coordination and efficient real time responsiveness to tiger-human conflict incidents. The guidelines will provide clear decision-making trees that lay out the various options available to conflict managers and stakeholders, including the Forest Department, village people, tiger response teams, NGO staff, local government, and law enforcement agencies.

The Forest Department and WildTeam convened a technical workshop on 'Assessing conflict tiger management options to develop a tiger-human conflict decision making support tool' in 2011 and a working committee (including Forest Department and WildTeam officers) was formed to draft the tiger-human conflict guidelines based on the workshop outputs. The working committee must now accelerate the drafting process utilizing inputs from local stakeholders as well as from the international community. For example, the Smithsonian Conservation Biology Institution has recently developed tiger-human conflict guidelines that can be used to further develop Bangladesh's guidelines. Draft guidelines will be reviewed by both national stakeholders and international conflict experts, and updated accordingly. Ultimately, the guidelines must be approved by the Government of Bangladesh so that the Forest Department and its partners can start field level operations soon.

To support the tiger-human conflict guidelines, a number of trained and equipped teams are required. Clear operating guidelines are required for each of these teams. Emergency Tiger Response Teams (ETRTs) are needed (e.g. four teams based on each of the four forest ranges initially) to deal with incidents of tigers straying into villages that require specialist immobilization and/or tiger handling skills. Such training has previously been provided by WildTeam to Forest Department staff. Note that training efforts will be undermined/rendered valueless if trained staff are transferred and if no dedicated Forest Department ETRT posts are created, as has been the prior experience.

To support the ETRTs in dealing with village tiger issues, a total of 49 volunteer Village Tiger Response Teams (VTRTs) have been established by WildTeam, the Forest Department, and local communities. This initiative is ongoing, with regular VTRT training and coordination meetings taking place. To support with forest-based incidents, one Forest Tiger Response Team (FTRT) has already been established in Satkhira Range and has been operating there for 5 years. A needs assessment is required to determine how many additional FTRTs are required to service the other three forest ranges.

Key initial steps: Activate the tiger-human conflict guidelines working committee for first meeting;

committee draft the guidelines (including conflict measures and roles and responsibilities) building on existing draft guidelines and incorporate international inputs; complete expert peer-review on conflict measures and update the guidelines; convene a stakeholder workshop to finalize the guidelines; submit the final tiger-human conflict guidelines to the ministry for approval; obtain ministry approval by the end of year 1; complete ETRT and FTRT operating guidelines; form ETRTs and additional FTRTs; provide ETRT and FTRT training and logistics; start the operations of ETRTs and FTRTs by the end of year 2.

Budget: The approximate total budget for tiger-human conflict resolution (Thematic Area 3) is BDT 25,75,95,000, which is equivalent to USD 3,283,556.

### 2.3.1 Component 3.1: Community Engagement

#### 2.3.1.1 Objective

1. Involve the community in the protection of tiger and tiger habitat.

#### 2.3.1.2 Challenges

1. Dependence of the communities on the resources of the Sundarbans Reserved Forest.
2. Limited source of alternative livelihoods or source of income.
3. Lack of awareness and information about tiger conservation.
4. Lack of coordination between and within the Forest Department, community-based organizations, NGOs and local community.
5. Limited scope of involvement of the community in management and benefit sharing.
6. Village Tiger Response Teams (VTRTs) and Forest Tiger Response Team (FTRT) are not in Co-management Committees (CMCs) for sustenance and necessary support.
7. CMCs are designated only for protected areas (excluding the areas of major forest activities, which are in Reserved Forests).

#### 2.3.1.3 Status

1. A total of four CMCs were formed under four forest ranges (Sarankhola, Chandpai, Khulna and Satkhira).
2. A total of 49 Village Tiger Response Teams (VTRTs) (in four forest ranges) and one Forest Tiger Response Team (FTRT) (in Satkhira range) were formed.



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3. Legal support sufficiently exist (Wildlife Act, Forest Act, Bangladesh Environment Protection Act).
4. Limited on-going awareness programme in the villages around the Sundarbans.

#### 2.3.1.4 What needs to be done

1. Providing innovative and need-based Alternative Income Generation (AIG) opportunities to Sundarbans Reserved Forest (SRF) dependent communities with linkage to the market for deriving tangible benefits.
2. Improving the coordination between AIG providing organizations (Government/NGOs/others).
3. Further awareness raising among the local communities through the community outreach programs.
4. Strengthening coordination between and within the Forest Department, community-based organizations, NGOs and local community.
5. Bringing VTRTs and FTRT under the CMC structure.
6. Further enhancing the benefit sharing between the Forest Department and the local communities.
7. Further engagement of the CMCs with wildlife conservation and management roles and responsibility
8. Enhancing the organizational structure and capacity of the CMCs to make it inclusive and representative of the local community for a wider participation and benefit sharing.



Tiger nursing

© Abu Naser Mohsin Hossain

### 2.3.1.5 Action steps

#### Short-term (0-3 years)

1. Bringing the VTRTs and FTTRT under the CMC structure as a functional group. This can be done by arranging a coordination meeting, sending a proposal to the Government through CMC, and getting the approval from the Government by the end year 1.
2. Further awareness raising among the local communities through the community outreach programs. This can be done by conducting two consultation meetings (to target the integration among CBOs and NGOs in each sub-district with Government organizations, NGOs, and sub-district administration every year; 8 sub-districts x 2 consultation meeting/year x 3 years = 48 meetings), and dialogue among Forest Department/CMCs/communities ( 4 range x 3 meetings x 3 years = 36 dialogues). Moreover, union/village level community-based awareness programmes like film shows, forum discussion, school events, Tiger Day and Sundarbans Day celebration, folk song and drama will be conducted (76 villages x 7 events x 3 years = 984 events).

#### Long-term (0-5 years)

1. Providing innovative and need-based Alternative Income Generation (AIG) opportunities to Sundarbans Reserved Forest (SRF) dependent communities and working on the value chain of their products with the necessary marketing linkages for prompt benefits. This can be done through development of CMC-based cooperative system on need-based small groups (2,000 households from vicinities of each of the four forest ranges; to get funds through project support, income from SRF, and after getting funds CMCs will take decision to use the funds under the guidelines specified in the gazette), and following the IPAC database to provide AIG to SRF-dependent community.
2. Evaluation of the awareness programs after the first three years and improvement of awareness programs by incorporating the evaluation findings in the follow-up programs.

### 2.3.1.6 Indicator of success

#### For short-term actions (0-3 years)

1. VTRTs officially included in the CMCs as functional group through gazette notification.
2. A total of 48 meetings, 36 dialogues and 984 events are conducted, and change of public perception detected.
3. Grass root structures to make the CMCs representative of the local population and their capacity building initiated.
4. Realistic income generation activities trainings provided
5. Livelihood support program for tiger widow initiated

#### For long-term actions (0-5 years)

1. A total of 2,000 local households are benefitted through AIG activities.

2. Improved awareness programs developed based on quality, number of participants and area coverage.
3. The CMCs is well organized with its sub structures, units, and functional groups, and necessary capacity
4. Local community is engaged in alternative livelihood and income generation activities connected to the value chain and the market
5. Tiger widow livelihood support program functional

#### 2.3.1.7 Responsible agency

Forest Department, NGOs, CMCs and other CBOs.

#### 2.3.1.8 Source of funds

SEALS, CREL, SRCWP, Biodiversity Project, Multi Donor Trust Fund for Climate Change.

### 2.3.2 Component 3.2: Tiger-human Conflict Resolution

#### 2.3.2.1 Objective

1. Minimize the tiger-human conflict.

#### 2.3.2.2 Challenges

1. Uncontrolled entrance and lack of safety measures of forest users when harvesting resource from SRF.
2. Crowd control and tiger immobilization management during stray tiger situation, and lack of support from law enforcement agencies.
3. Grazing of livestock inside and along the periphery of SRF, especially in Chandpai and Shyamnagar areas.



Tiger watch post Bouddamari, Bagerhat, Bangladesh

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4. Insufficient prey along the periphery of SRF due to excessive prey poaching.
5. Inadequate capacities and logistics of the Forest Department to deal with tiger-human conflict.
6. Absence of tiger-human conflict guidelines.

#### 2.3.2.3 Status

1. A total of four CMCs were formed under four forest ranges (Sarankhola, Chandpai, Khulna and Satkhira), but CMCs' role in tiger-human conflict mitigation has not yet been specified.
2. A total of 49 Village Tiger Response Teams (VTRTs) (in four forest ranges), one Forest Tiger Response Team (FTRT) (in Satkhira range) and one Emergency Tiger Response Team (ETRT) were formed.
3. Compensation support for tiger victims (BDT 1,00,000 for death, BDT 50,000 for injury and BDT 25,000 for loss of livestock in tiger attack) has been initiated by the Government.

#### 2.3.2.4 What needs to be done

1. Effective monitoring and control of illegal and legal entrance of forest users in SRF.
2. Improve livestock management
3. Development of tiger-human conflict guidelines and its approval by the Government.
4. Development of an early warning system, identification of conflict hot spots and a prompt response from trained personnel in the community to save life and property and the tiger, e.g. VTRT.
5. Raising awareness and conducting training on working safety and avoiding encounter with tigers in SRF for communities, especially the vulnerable forest users.
6. Building capacities and logistics of the Forest Department and local communities to deal with tiger-human conflict.
7. Establish three more FTRTs for three forest ranges (one already exists for Satkhira Range) under the umbrella of CMCs.
8. Establish Wildlife Rescue Centre in the periphery of the Sundarbans where mangrove vegetation exists or can be generated.

#### 2.3.2.5 Action steps

##### **Short-term (0-3 years)**

1. Development of tiger-human conflict guidelines through formation of working group, update and finalize the guideline recommendations, get approval from the Government, and implementation by the end of year 1.
2. Development of four emergency response teams for four ranges, ensure the logistic support, and training for the emergency response team by the end of year 2.
3. Strengthen the early warning system through identification of most tiger-attack-prone zones and major livestock-conflict-prone villages, and strengthen the existing early warning practices by the end of year 1.
4. Ensure the capacity and logistic support for the Forest Department for tiger-human conflict management through the selection of 100 staff dedicated for conflict

mitigation (partially done by SRCWP), logistic arrangement/support (available in SRCWP), and training [short-term, within 3 months (available in SRCWP); and long-term, within two years], and deploy trained staff in the field.

5. Conduct need assessment for additional FTTRTs and establish, if needed, three more FTTRTs for three forest ranges (one already exists for Satkhira Range) through proposal development and approval, logistic arrangement, recruitment, and fully functional FTTRTs.

#### **Long-term (0-5 years)**

1. Raising awareness and conducting training on working safety in SRF for communities, especially the vulnerable forest users, through development of training and awareness modules, selection of vulnerable resource user groups, conduct training (1 training for each group per year per range, 12 training per year = 36 training), and strengthening the existing awareness programmes in collaboration with CMCs. Active participation from law enforcing agencies, local administration and local government by the end of year 3 through consultation session (2 sessions per year x 4 range x 3 years = 24 sessions).
2. Establishment of Wildlife Rescue Centre by the end of year 2 through proposal development, budget allocation (budget available in SRCWP), construction of rescue centre, staff recruitment and training, fully functional wildlife rescue centre.

#### **2.3.2.6 Indicator of success**

##### **For short-term actions (0-3 years)**

1. Guidelines developed and approved.
2. Four Emergency Tiger Response Teams (ETRTs) operational in four forest ranges.
3. Major conflict areas identified and early warning systems developed.
4. A total of 100 Forest Department staff trained and adequately equipped to manage tiger-human conflict incidents.
5. FTTRT needs assessment and new FTTRTs are developed and fully functional as per need.

##### **For long-term actions (0-5 years)**

1. Training and awareness modules developed and adopted in training and awareness programmes; 36 training programmes and 24 consultation sessions completed.
2. One Wildlife Rescue Centre at the periphery of the Sundarbans established and fully functional.

#### **2.3.2.7 Responsible agency**

Forest Department, CMCs and WildTeam.

#### **2.3.2.8 Source of funds**

SRCWP, USFWS, Biodiversity Project.



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## THEMATIC AREA 4

### 2.4 Research and Monitoring

Scientific monitoring of tiger and prey population trends is a high priority need for determining effective management systems to mitigate threats to tigers and ensure their long-term survival. The last official tiger census was conducted using pugmark method in 2004, although relative abundance has been monitored since 2007. Developing a systematic scientific monitoring guideline is an urgent need. The guideline will facilitate tiger and prey monitoring activities regularly, define the roles and responsibilities of different stakeholders, and ensure the deployment of a permanent and temporally replicable system of monitoring.

Several scientifically valid methods of monitoring tiger and prey populations are being practiced in other tiger landscapes, but the dense mangroves and frequent tides make the Sundarbans a unique and especially challenging habitat for monitoring tiger and prey populations. Camera-trap surveys for tiger and prey populations, 'khal' (creek) survey for relative abundance of tigers and prey, and genetic analysis of tiger scat and hair samples are available scientific methods that can be deployed

in the Sundarbans. Khal surveys have been conducted regularly since 2007 and camera trapping was conducted in 2006. Results suggest that both methods are applicable for this habitat, and can be used for tiger relative abundance monitoring and population estimates, respectively. Sufficient expertise for conducting these monitoring systems are available in Bangladesh, but substantial logistic and financial support will be required to implement these. Genetic analysis of tiger scat and hair samples (shed hairs to be collected opportunistically) also have great potential for establishing the spatial genetic structure of the Sundarbans tiger meta-population. Field experience suggests that it is feasible to collect tiger scats and shed hairs (the muddy ground of tiger resting areas act as a natural trap for hair), and the availability of new laboratory techniques (e.g. QIAmp DNA Stool Mini Kit, Quagen Inc., Valencia, California) adds incentive for pursuing this approach in parallel with existing methods. However, this will require additional funding, expertise and laboratory support from abroad. An additional advantage of scat analysis is that samples can be assessed to better understand the food habits of tigers. For effective tiger conservation management, a monitoring system needs to be developed that will give us yearly/trend of tiger population/abundance so that the Forest Department can take necessary and timely conservation actions. It is also important to have transboundary (Bangladesh-India) collaborative monitoring of tiger and prey as Sundarbans is one ecosystem. With this vision, a workshop on scientific monitoring of tigers was attended by both Bangladesh and India in March 2012 and recommended tiger monitoring to be done using a combination of khal survey and camera trapping simultaneously to bring the population estimate for the entire ecosystem.



Bushnell Camera Name 82F27C 12-14-2012 14:23:11  
Deer survey piloting

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Camera trapping

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Since poaching is a major threat to tigers and their prey, identifying the scale of poaching, poaching-prone areas and poaching routes in the Sundarbans is the second-highest priority for research. Extensive direct and indirect surveys, including undercover surveys, will be used to assess poaching threats. This information will enhance the success of efficiency of anti-poaching efforts and help the recovery of tiger population.

Key initial steps: Team formation for drafting the monitoring guideline; preparation and Government approval of the

monitoring guideline; identifying the national and international partners to conduct the monitoring; and securing funds, equipment and laboratory support. The preparatory process is estimated to take about 6 months and the fieldwork will take one year or more.

**Budget:** The approximate total budget for research and monitoring (Thematic Area 4) is BDT 12,63,04,500, which is equivalent to USD 1,610,000, of which BDT 5,96,22,000 (USD 760,000) will be required in short-term (0-3 years) and BDT 6,66,82,500 (USD 850,000) will be required in long-term (0-5 years).

## **2.4.1 Component 4.1: Research and Monitoring of Tiger and Prey**

### **2.4.1.1 Objectives**

1. Monitoring of tiger and prey populations.
2. Further investigation of threats to tigers and prey (poaching, tiger-human conflict, disease, etc.)
3. Further research on tiger ecology and behaviour (e.g. food habit study, habitat use, territory and home range, etc.).

### **2.4.1.2 Challenges**

1. Sustainability of funding for research and monitoring.
2. Lack of trained and motivated manpower.
3. Stakeholder agreement on research and monitoring methods.
4. Lack of specialist laboratories and equipment.
5. Lack of security of researchers and workers in the Sundarbans mainly due to pirates, isolation, and sudden natural calamities.
6. Insufficient willingness and coordination of institutions and people working in the Sundarbans.
7. Poor community support for tiger conservation.

### **2.4.1.3 Status**

1. Tiger monitoring: last official tiger census was conducted in 2004 by using pugmark method, tiger population estimated in 2006/2009 by camera trapping/radio-collaring; tiger relative abundance survey conducted in 2007, 2009, 2010, 2011 and 2012.
2. Workshop on scientific monitoring of tigers were attended by both Bangladesh and India in March 2012 and recommended tiger monitoring to be done by relative abundance ('khal' or creek survey) and camera trapping.
3. Tiger ecology: telemetry studies on tiger movement and home range size in 2007; studies on tiger morphology and taxonomy completed in 2009 and 2012; feeding and relative habitat use completed in 2004; tiger occupancy in Sundarbans monitored via khal survey.
4. Prey monitoring: last official crude estimate in 1993; transect survey on prey in 2004 and 2006; pilot studies using pellet count of deer in 2007 and 2012.
5. Threat identification and prioritization of tiger, prey and the Sundarbans: according to Bangladesh Tiger Action Plan (BTAP) Threat Assessment, high priority threats to tigers include poaching, prey poaching and consumption, and tiger-human conflict. There are several studies completed or ongoing regarding the nature and

scale of tiger poaching, prey poaching and consumption. Tiger-human conflict incidents are monitored regularly. Anecdotal evidence of increasing risk of disease as well.

6. Some training programs on research and monitoring capacity building were conducted on ad-hoc basis.
7. Effective collaboration exists between Forest Department with NGOs and academic institutions.

#### 2.4.1.4 What needs to be done

1. Tiger monitoring: updated population survey for tiger and prey using scientifically valid methods; annual tiger relative abundance survey.
2. Tiger ecology: further study of ecology and behaviour of tiger.
3. Prey monitoring: monitoring of large mammalian prey.
4. Tiger threats: further investigation of threats to key threats to tigers, e.g. poaching, tiger-human conflict and diseases; monitoring of key tiger threats, e.g. poaching of tiger and prey, and tiger-human conflict.
5. Strengthening collaboration between Forest Department, NGOs and local communities.
6. Strengthening capacity of Forest Department, NGOs and universities.

#### 2.4.1.5 Action steps

##### **Short-term (0-3 years)**

1. Preparation of monitoring guidelines and approval from the Government within 6 months.
2. Conduct camera trapping and khal survey (tiger and prey), and genetic analysis (tiger) by the end of year 1 with fieldwork continuing as needed as per monitoring guidelines.
3. Identify scale of poaching, poaching-prone areas and routes by the end of year 1.
4. Guideline development and sampling for disease risk assessment (tiger and prey) by the end of year 2.
5. Training on advanced research techniques in 6 months.

##### **Long-term (0-5 years)**

1. Laboratory establishment for disease risk assessment by the end of year 5.
2. Food habit (scat analysis), habitat preferences (sign survey, camera trapping), of tiger and deer by the end of year 4.

#### 2.4.1.6 Indicator of success

##### **For short-term actions (0-3 years)**

1. Tiger and prey monitoring guidelines prepared and approved.
2. Tiger and prey densities determined using a robust scientific method.
3. Poaching findings incorporated into anti-poaching actions.
4. Level of disease threat to tigers and prey is known.
5. Skilled manpower available for research and monitoring.

### For long-term actions (0-5 years)

1. Fully functional laboratory established for disease risk assessment.
2. Ecological data available for scientific management of tigers and prey.

#### 2.4.1.7 Responsible agency

Forest Department, IUCN, NGOs (e.g. WildTeam, BCAS, etc.), universities (e.g. Jahangirnagar University, University of Dhaka, University of Khulna, etc.) and research institutions (e.g. BFRI).

#### 2.4.1.8 Source of funds

SRCWP, SEALS and Biodiversity Project.

### 2.4.2 Component 4.2: Research and Monitoring of Habitat, Flora and Fauna

#### 2.4.2.1 Objectives

1. Assess the habitat quality of the Sundarbans.
2. Detect the vegetation changes with time.
3. Investigate the inter-species and intra-species relationships.
4. Know the effect of salinity and sea level rise on habitats.
5. Monitor illegal logging, poison fishing, shrimp fry collection and pollution.
6. Assess the value of the ecosystem services of the Sundarbans.
7. Know the status and impact of invasive species.

#### 2.4.2.2 Challenges

1. Impact of climate change obvious in the Sundarbans.
2. Sustainability of fund for research and monitoring.
3. Lack of trained and motivated manpower.
4. Lack of security of researchers and workers in the Sundarbans mainly due to pirates, isolation and sudden natural calamities.
5. Lack of willingness and coordination of institutions and people in research and monitoring.
6. Lack of alternative livelihood/facilities for local people, which is the root cause of overexploitation of natural resources.

#### 2.4.2.3 Status

1. Baseline information about some aspects of the habitat is available.
2. Baseline information on commercially important species is available.
3. Action research on climate change is going on by the Department of Environment, Government of Bangladesh.
4. Protocol for monitoring the climate change variables has been developed by IUCN and BCAS.
5. Alternative income generation programs for local communities are ongoing by the Government and NGOs.

6. BTAP Threat Assessment includes information on status of many threats to habitat and prioritizes them for conservation actions.

#### 2.4.2.4 What needs to be done

1. Remote sensing or GIS-based habitat monitoring.
2. Research on predator-prey relationships.
3. Training and motivation for target groups of people.
4. Research on mitigation of impact of salinity and climate change.
5. Continuous monitoring of illegal activities and pollution.
6. Valuation of ecosystem services.

#### 2.4.2.5 Action steps

##### **Short-term (0-3 years)**

1. Identify level and areas of illegal logging and poison fishing in 1 year.
2. Remote sensing for vegetation change for 5 years.
3. Identify the impact of invasive species in 2 years.

##### **Long-term (0-5 years)**

1. Investigate the impact of salinity intrusion and sea level rise for 5 years.
2. Scientifically value the ecosystem services in 3 years.

#### 2.4.2.6 Indicator of success

##### **For short-term actions (0-3 years)**

1. Logging data available and used in management actions.
2. Pattern of vegetation change known.
3. Information used to control the invasive species.

##### **For long-term actions (0-5 years)**

1. Information on salinity intrusion and sea level rise used in adaptation actions.
2. Data on ecosystem services available for policy making.

#### 2.4.2.7 Responsible agency

Forest Department, IUCN, NGOs (e.g. WildTeam, BCAS, etc.), universities (e.g. Jahangirnagar University, University of Dhaka, University of Khulna, etc.), National Herbarium, and research institutions (e.g. BFRI).

#### 2.4.2.8 Source of funds

SEALS, USFWS, Biodiversity Project.

## Annex – 1: List of Workshop Participants

List of participants for the national workshop- 18 & 19 March 2013 (Inaugural & Technical session)

The list is not prepared in accordance of seniority

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