NATIONAL TIGER RECOVERY PROGRAM
BANGLADESH

Forest Department
Ministry of Environment & Forests
People's Republic of Bangladesh

Global Tiger Initiative

WORLD BANK

Map Showing Tiger Landscape and Protected Areas in Bangladesh

Protected Areas in Bangladesh

Map Showing Tiger Habitat and Vegetation Types in Bangladesh
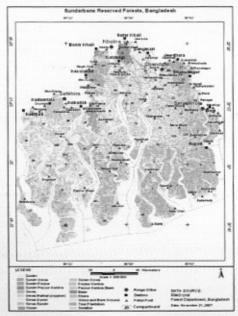

Sundarbans Reserved Forests, Bangladesh

Introduction :

National Tiger Recovery Program (NTRP) aims to present the incremental effort that Bangladesh needs to make in order to accelerate the implementation of its Tiger Action Plan with a focus on actions of the highest priority. These efforts are over and above major ongoing or planned projects (below), many supported by donors, which form a vital base for the scaling up envisaged in the NTRP.

• The EC-funded Sundarbans Environmental and Livelihoods Security (SEALS) project will support sustainable development of the Sundarbans Reserved Forest (SRF), including: sustainable resource use by the local communities; restoring and cyclone-proofing the SRF; an Information Management Information System to guide SRF protection and management. The SEALS project will also complement the Bangladesh Tiger Action Plan, on which the NTRP is based. The total cost of this project is Euro 10,444,444, of which the EC component is Euro 10 million.

• The World Bank funded Regional IDA Project (Bangladesh, Bhutan, India & Nepal) "Strengthening Regional Co-operation for Wildlife Protection (SRCWP) project will support the PA-management, capacity building, Wildlife crime control activities, human- wildlife conflict mitigation, tiger and prey poaching. The total cost of IDA Project is US$ 36 million.

• The USAID's Integrated Protected Area Co-management (IPAC) project will support FD in developing a protected area strategy for all ecologically and economically significant areas, and a SRF co-management plan. The IPAC will also complete a detailed economic analysis of the resource dependence dynamics around the Sundarbans Impact Zone (SIZ), including an analysis of SRF fisheries resources. The overall cost of this project including SRF components will be US$ 15.5 million (2008-2013).

• The Multi Donor Trust Fund for Climate Change will fund climate change-related activities, including restoration of mangrove habitats. The Trust fund is capitalized at US$ 100 million.

Summary of National Tiger Recovery Program (NTRP)

Long Term Strategic Goals

Tigers were present in the major districts of Bangladesh in 1930's. However, due to habitat degradation, fragmentation, encroachment, hunting and poaching, The tiger reduce to a minimum state. Now, it is only the Sundarbans mangrove forest covering an area of 6017 sq. km. where the tiger are still thriving in Bangladesh. The last population census in 2004 by Forest Department and UNDP indicates tiger population in Bangladesh Sundarbans around 440 (Approx.) where 121 male, 298 female and 21 calf. The track survey and relative abundance surveys conducted by Wildlife Trust of Bangladesh confirm that tigers are currently distributed across the whole of the Bangladesh Sundarbans, and data from two radio-collared females. The estimate and relative abundances suggest that it is unlikely that tiger numbers can be doubled; thus the national goal is **to stabilize or marginally increase the current tiger population by reducing some key threats to tigers, prey and habitat.**

However, this goal should be periodically reviewed in the context of impending impacts of climate change on the Sundarbans. Because of its highly dynamic nature and the manifold environmental variables (e.g., sea-level rise, monsoon rainfall and river runoff, cyclones, ocean surges, silt deposition) and their synergistic interactions that will contribute to climate-related impacts, projecting the impacts on tigers and tiger habitat in the Sundarbans is difficult at best, and constant monitoring and appropriate conservation management interventions will be necessary as well as actions to target the root causes of climate change.

Tiger Conservation Goal: By 2022, a demographically stable tiger population closes to 'carrying capacity' under conservation management in the Bangladesh Sundarbans ecosystem.

Baseline Status:

The current tiger population estimates may not be accurate, but are the best available. Because of the unique challenges of accurately determining tiger populations in the Sundarbans, methods used in other tiger habitats (e.g., camera trapping, occupancy surveys, transect surveys, sign-based surveys) are not easily transferable to this ecosystem. Therefore, obtaining reliable estimates for the Sundarbans will require tailored methods. A peer-reviewed relative abundance survey designed specifically for the mangroves is being run every two years, with the first two surveys from 2007 and 2009 showing a slight increase in relative abundance. This is allowing management to track change in the Bangladesh Sundarbans population for the first time. However, absolute numbers and behavioral data are harder to come by, and other methods need to be developed, (e.g., genetic analysis, and radio-tracking a large number of tigers to obtain more reliable data on habitat use, territory size, response to tidal fluctuations, and other ecological and behavioral variables.)

Threats:

The available information suggests that the major threats to tigers in the Bangladesh Sundarbans are: a) poaching; b) human-tiger conflict when tigers stray into villages or villagers venture into forests to collect forest produce; c) depletion of prey due to poaching; and c) habitat-related threats stemming from unsustainable wood and aquatic resource harvesting, upstream water extraction/divergence and pollution, and the various effects of climate change.

Thus, interventions to minimize these threats are necessary to achieve the tiger conservation goal.

Ecological Services of Sundarbans:

It is important to note here that the tiger habitat in the Sundarbans also provides essential ecological services of local, national, and global significance, such as: trapping of sediment and land formation; protection of human lives and habitation from cyclones; serving as a nursery for fish and other aquatic life that support a significant fishery; oxygen production; waste recycling; supply of food and building materials; and carbon cycling and sequestration.

Cyclonic activity is expected to increase in intensity and frequency with global warming, making conservation of the mangroves an even greater imperative to save economies (local and national), livelihoods, and lives. There is clear evidence to show that the impacts of the 2009 cyclone **Aila** and 2007 cyclone **Sidor** were mitigated by the mangrove islands. Unfortunately the economic value of these ecological services has not been quantified; thus, an economic valuation of the mangroves is necessary to facilitate willingness of the Government and communities to invest in protection of this valuable ecosystem from further degradation.

Priority Actions to achieve Long Term Strategic Goals:

1. Building Institutional capacity: The Bangladesh Forest Department (FD) is the sole government department responsible for nature conservation in Bangladesh. However, they are still expected by the government to produce short-term revenue from the national forests. As a result, the FD does not receive the required funds to perform conservation duties or develop conservation specialists. A paradigm shift is required to bring both the FD and the government from production forestry to conservation, and to mainstream conservation into the development agenda, (especially since the ecological services provided by the Sundarbans are important to support and sustain economic development). An economic valuation of the Sundarbans, plus reinforcement via policy level communications will support this change. Within the FD, the Wildlife and Nature Conservation Circle (WNCC) formed in 2001 is responsible for wildlife conservation across the country but does not yet have sufficient institutional presence to fully carry out its intended role. Many posts lie vacant, and staff regularly transferred between wildlife and territorial (forest) posts, hampering the development of wildlife or ecosystem conservation specialists. Retaining and motivating staff to work in remote areas with poor services and in risky environments poses an additional challenge. Therefore, a dedicated institution for wildlife conservation and management is necessary, with appropriate training and logistical support. In discussions with the Secretary to the Ministry of Environment, he proposed forming a wildlife department within the Ministry as a possible solution. The territorial arm of the FD will also require organizational changeto effect change from production forestry to conservation. In addition, collaborations with other sectors and stakeholders in wildlife conservation remain weak, yet are needed to bring in the multitude of skills needed to conserve tigers. Therefore, mechanisms to expand overall biodiversity conservation governance across Government Organizations (GOs), Non Government Organizations (NGOs), civil society, communities are required.

Capacity of Protected Area managers is very important for to stoop tiger and prey poaching and recovery of tiger. The staff should have to be equipped with up-to-date technology. A MIST-bases smart patrol program is to be established in the Sundarbans mangrove forest.

2. Engaging local communities: Patrolling and protecting the vast Sundarbans ecosystem by a small cadre of government staff is inefficient and ineffective. A more practical solution is to engage the local communities as conservation stewards. Currently, local people venture into the mangroves to collect forest products and frequently come into conflict situations with tigers; the Bangladesh Sundarbans suffers the highest level of human killing by tigers in the world. Heavy extraction of forest products—especially timber, fuel wood, fish and other aquatic resources—is also resulting in forest degradation, which can potentially destabilize the mangrove islands, leaving the coastal areas vulnerable to cyclones and ocean surges. Given their poverty, local communities can also succumb to offers from organized poachers. Therefore, creating alternative livelihoods linked to wildlife and healthy habitats will make them willing stakeholders and conservation stewards.

3. Protecting the habitat: The FD lacks trained and adequate staff, field infrastructure, mobility, equipment and operational resources to adequately protect the >6,000 sq km of mangroves with the winding, convoluted waterways and islands. Many areas lack guard posts, and many guard posts do not have boats or fuel to operate boats when available. Accommodation conditions are basic, there are problems of drinking water, and medical facilities are extremely limited. Existing laws do not provide guards with enough protection in case of death or injury during duty, and there is no risk allowance to compensate for dangers faced by FD staff. Thus, adequate field staffs have to be recruited, trained, and posted with adequate logistical support and appropriate incentives.

4. Trans-boundary collaboration with India on illegal trade: While hard data on the extent of illegal trade and cross-border poaching of tigers is difficult to come by, anecdotal evidence and the volume of other wildlife smuggled across the open, porous border with India suggests that it could be significant. Currently no protocol or system exists for effective cross-border collaboration in the area of wildlife preservation. Thus trans-boundary and regional collaboration is necessary to curb cross-border poaching, smuggling and trade.

Program Indicators (interim) to achieve country's Long Term Strategic Goals.

Indicators will be selected from the suite below:

Tigers: relative tiger abundance; ratio of adult to cubs; ratio of male and female tigers; tigers poached; tigers killed in surrounding villages.

Prey: absolute prey abundance; number of prey poached.

Habitat: terrestrial habitat monitoring (include satellite imaging + ground survey). Aquatic habitat monitoring (freshwater inflow, salinity levels). Key threats (sea level rise, wood collection; monitoring through biodiversity indicators to be fixed).

Program Indicators (2022) to achieve country's Long Term Strategic Goals.

Indicators will be selected from the suite below:

Tigers: relative tiger abundance; ratio of adult to cubs; ratio of male and female tigers (number of active female is a determinant of survival of tiger population); tigers poached; tigers killed in surrounding villages.

Prey: absolute prey abundance; number of prey poached ;

Habitat: terrestrial habitat monitoring (include satellite imaging + ground truthing); aquatic habitat monitoring (freshwater inflow, salinity levels); key threats (sea level rise, wood collection); monitoring through biodiversity indicators to be fixed.

NTRP Component linked to the Priority Actions

1. Mapping of Action against Goals

Long Term Strategic Goal: By 2022, a demographically stable tiger population at or near 'carrying capacity' under conservation management in the Bangladesh Sundarbans ecosystem.

• Without effective patrolling and control of wildlife crime, tiger and prey poaching and habitat degradation will continue unchecked, making even the stabilization of the tiger population quite difficult to achieve. Addressing these threats will require improved infrastructure, new technology for monitoring and research, and training to enhance skills of FD staff.

• The logistical difficulties that hamper effective and efficient patrolling and protection of the Sundarbans by the FD, and the role of the mangrove tiger habitat in sustaining local livelihoods and economies by buffering against natural catastrophes and contributing to climate change mitigation and adaptation, demands a conservation strategy that engages local communities in conservation. Thus, the overall goal should include community stewardship in conservation, with appropriate strategies and activities.

• The potential for international trade-driven organized poaching to penetrate and decimate the Sundarbans tiger population (like it has done in many other parts of the range) calls for regional/trans-border cooperation to preempt such threats, and is a priority component.

• The underlying data lacunae about the ecology, behavior, and population status of tigers requires more research to establish a baseline for monitoring the status of tigers in the Sundarbans and to track progress towards the long-term strategic goal.

2. Description of Program Components

The program has four priority components: 1) institutional capacity development for conservation; 2) eliciting community stewardship for effective conservation; 3) protection of tiger habitat; and 4) transboundary collaboration with India on illegal trade.

Building institutional capacity

Objective 1. To develop capacity in the Forest Department for effective wildlife and habitat conservation in the Sundarbans.

Recruitment, training, and logistical support for staff, and reorganization of the Forest Department (FD) to create a dedicated wildlife wing or separate department under Ministry of Environment and Forests (MoEF) for conservation and management of wildlife and wildlife habitat in the Sundarbans. Current arrangements result in staff trained in wildlife conservation being transferred to forestry postings as regular staff rotations.

Activities include: facilitating a political transition from production forestry to conservation in the FD and relevant ministries by removing the existing relationship between revenue earnings and budget allocation (i.e., currently budget allocations are based on revenue earnings); transition to a budget allocation for Sundarbans based on the ecological services provided by the ecosystem; expand overall biodiversity conservation governance through inter-sectoral collaboration, including ideas for joint projects, and mechanisms to improve the relationships between (and within) the FD and the Department of Environment (DoE) and MoEF, judiciary, NGOs, civil society, local government, and communities; FD organizational and cultural change, including a clear vision and objectives for the FD taken up across all layers of staff, devolving field level decision-making to field level managers, and creating the necessary units for addressing wildlife crime, monitoring, compensations for wildlife conflict and depredations, and inter-sectoral conservation planning; training and capacity building of staff.

Expected outcomes: Improved conservation the Sundarbans and its wildlife measured in terms of tiger, prey and habitat

The design and implementation of this component will take approximately 2 years

Engaging local communities

Objective 2. To reduce community dependency on forest resources

Provide alternative income generation (AIG) to reduce the dependency of local people on forest products and minimize the presence of people in forests, thus reducing the potential for tiger-human conflict and habitat degradation.

AIGs can include: community based ecotourism (boat hire, home stays, and guides); apiculture; handicrafts; cage and pond fish culture; social forestry and nursery; alternative energy (instead of fuel wood); poultry rearing.

Expected outcomes:
- Improved habitat condition because of reduced extraction of forest resources
- Socio-economic development of local communities from income generation opportunities

Objective 3. To involve local communities and administrations in forest management

Forest co-management committee formation and strengthening to build forest management partnerships between local communities and the FD to promote a sense of ownership and conservation stewardship among the local communities.

Activities will include: formation of forest co-management committees/councils; benefit sharing from forest management.

Expected outcomes:
- Socio-economic empowerment of local communities
- Community stewardship for conservation
- Positive attitude towards wildlife

Objective 4. To reduce tiger-human conflict

Conflict Tiger Response Teams formed to: respond to tiger related conflicts; monitor conflict patterns; monitor problem tiger presence; encourage safer behavior inside the forest to minimize conflict.

Activities will include: strengthening and forming tiger response teams; conflict incidents and stray tiger presence monitoring; compensation for victims/family; compensation for livestock depredations; insurance support.

Expected outcomes:
- Improved relationships between FD and local communities.
- Reduction of retaliatory killing of tigers
- Reduction of human and livestock killing

Objective 5. To reduce tiger and prey species poaching and consumption

Community-led anti poaching/consumption teams formed or developed upon existing conflict tiger response teams to: gather intelligence on poaching and consumption activities; and to support the FD, police, Bangladesh Rifles (BDR) and Rapid Action Battalion (RAB) in the arrest of offenders.

Activities will include: forming community-led anti-poaching/consumption teams; joint training with community-led teams, FD, BDR, police, RAB; developing a mechanism for the general public to report crime; poaching and consumption monitoring programs.

Awareness campaigns to: make people (especially local communities, GO, NGO) aware of the need for tiger, prey and habitat conservation; stigmatize poaching and consumption; link socio-economic advantages of Alternative Income Generation (AIG) to conservation.

Expected outcomes:
- Better protection of tiger and prey populations from poaching
- Community stewardship of tiger conservation

The AIG component will take 8 years, while the other components will comprise of 3-5 year programs.

Habitat protection

Objective 6. To deploy an effective and efficient cadre of wildlife conservation field staff to conserve tigers and tiger habitat

Create an adequate, trained wildlife conservation cadre with logistical support for effective and efficient patrolling and monitoring of tigers and tiger habitat. Currently, staff trained in wildlife conservation can be transferred to forestry-related posts. The lack of adequate boats, fuel allowances, and guard posts hamper patrolling.

Activities include: retention of staff within WNCC; addition of about 10% technical staff; providing logistical support including fast boats with fuel allowances, communication devices, guard posts and housing with essential facilities; providing improved technology-based monitoring and protection (Management Information System Technology (MIST), radio-tracking, effective patrolling); providing incentives and risk insurance for hardship and high risk posts; and coordination with police, coastguard, local administration, local communities, and media.

Expected outcomes:
- Better protective measures for conservation of tiger habitat in the Sundarbans
- Better protection of tiger and prey populations from poaching and other killing
- Better monitoring of tiger and prey populations
- Better understanding of tiger ecology, behavior and population demographics
- Improved collaboration and coordination with police, coast guard, other stakeholders, including with India

The program will take 3 years after it is launched to reach full maturity.
Trans-boundary collaboration with India on illegal trade;
Objective 7. To establish an institutionalized system to curb cross-border trade and poaching of tigers and other wildlife
Create a mechanism for trans-boundary collaboration to curb cross-border poaching, smuggling and trade of tigers/parts and other wildlife.
Expected outcomes:
• Cross border trade and smuggling of tigers/parts and other wildlife reduced significantly
• Poaching threats to tigers in the Sundarbans reduced
The program will take 2 years after it is launched to reach full maturity.

3. Policy Framework needed to achieve objectives
• Inter-Ministerial Policy decisions are needed to strengthen collaboration with the police, coast guard and local administrations.
• Inclusion of wildlife crime in the current cross border law enforcement Memorandum of Understanding (MOU) between Bangladesh and India is needed.
• Ministry of Forest and Environment decision to retain expertise and skills within a dedicated wildlife conservation unit.
• Update co-management guidelines, policy, and rules.
• Revised Wildlife Conservation Act 2010 to be enacted and with associated Rules.
• Protocol to address and mitigate tiger-human conflict.

4. Capacity constraints
• Lack of technical skills in MIST and remote sensing and research.
• Inadequate technical staff in WNCC; add only 10% to numbers to effectively cover the area (in Territory Forest Divisions).
• Lack of skills for community engagement and wildlife crime enforcement.
• Little support for new model of community conservation management committees, councils, community-based anti-poaching and patrolling teams, additional Tiger Response teams.
• Cultural change and other skills within FD, especially related to proposed reorganization.

5. Stakeholders
Key stakeholders are: policy makers, GOs (local, regional, central), bank/financial institutions/funders (national and international), local people/communities/forest users, law enforcement agencies (police, coast guard, BDR, NGOs, judiciary, media.

6. Performance Indicators
Key measurable indicators will be chosen from the following suite based on (further) project development:
Institutional capacity building:
Indicators for this component can be developed for each activity and be defined in terms of: a) whether the activity has been completed, or b) the numbers of meetings/staff trained and so on; e.g., decision-making power devolved to mid-tier management (e.g. Assistant Conservator of Forest (ACF)), numbers of sanctioned posts filled properly and on time, enforcement of existing government rule that no officer can be kept on current charge for more than 6 months, no cadre/non-cadre conflict (within power of government to solve it), training matrix developed, number of relevant staff sent on training.
Community engagement and habitat protection:
number of people engaged in AIG, number of people who enter the forest, household use of forest resources (especially fuel wood), timber extraction, number of community members in co-management committees, number of local government/admin involved in management, amount of benefits arising from shared management, number of offenses/offenders (detected through MIST), number of Tiger Response Team (TRT) and anti-poaching teams, number of tigers/prey poached, or poaching incidents, local people's attitudes towards wildlife, numbers of tigers and people killed in conflict.
Research on tiger ecology and monitoring:
• Tiger and prey population – relative abundance, distribution, adult/juvenile demographic trends.
• Habitat Condition – using degradation indicators to be developed.

7. Indicative Costs in US$ for 5 year program

Activity	Total estimated budget (million US $)	Gov t. contribution	Donor contribution
Infrastructure	3.0	1.0	2.0
Protection, controlling tiger & prey poaching including logistic support (Smart Patrolling through MIST)	4.6	1.0	3.6
Staffing, incentives and risk insurance	2.0	1.0	1.0
Alternative income generation projects	6.0	0.6	5.4
Community stewardship and forest management	1.0	0.1	0.9
Tiger and prey species poaching control with special programme	2.0	0.2	1.8
Tiger -human conflict mitigation	7.5	1.0	6.5
Habitat management	2.5	1.0	1.5
Scientific monitoring, survey & research	2.0	0	2.0
Trans bound ary management	1.0	0	1.0
Sustainable financing	1.0	1.0	0
Institutional strengthening & capacity building	8.0	0	8.0
Total	41.0	6.9 0	34.1 0

8. Financing Options

There are several funding options. They largely depend upon the architecture and design of the project to meet the set criteria of the funding sources annotated below:

- Government budget to pay for ecological services once these are properly quantified.
- Increased revenue from well-managed tourism
- Global Environment Facility (GEF): Use of GEF 5 funding to fund priorities components
- IDA: A regional IDA project for controlling illegal trade and trafficking has already been conceived and approved in principle by the government
- Technical Assistance (TA): The current World Bank Sundarbans Non Lending Technical Assistance (NLTA) project (Climate Change Adaptation, Biodiversity Conservation & Sustainable Socio-Economic Development of the Sundarbans Area) could be used as an advantage or expanded to fund some of the complimentary activities identified in the NTRP.
- IDA: A potential trans-boundary project among India and Bangladesh for habitat protection and preservation of the biological integrity of the Sundarbans as a holistic ecosystem.

Support needed from the GTI (million US dollars)

Activity	Costs
Pilot projects : Implementing MIST pilot	3.00
Technical assistance : 1. Develop Overall Monitoring System 2. Design of trans border wildlife law enforcement operating model, plus supporting processes and procedures 3. Design of national wildlife crime unit operating model, plus supporting processes and procedures 4. Design of Human Resource Management approach for the FD to support the organizational and cultural changes (includes training needs development, revised performance monitoring criteria)	2.00
Training and capacity building : • CITES/Wildlife law enforcement training across FD and other related services (police, customs, BDR, RAB) • Capacity building for forest staffs	3.00
Workshops : 1. Law Enforcement Collaboration with Police/Coast Guard etc. 2. Trans border Collaboration with wild life law enforcement with India/Nepal /Myanmar.	2.00
Studies: • Valuation of ecological services of Sundarbans • Development of habitat monitoring approach for Sundarbans (both terrestrial and aquatic areas) and including definition of 'sustainable levels' for terrestrial and aquatic resource harvesting • Ecological studies of tigers in the Sundarbans to establish baseline of population status behavior (including conflict), home range (radio collar / GPS collar) and responses to habitat changes/dynamics. • Prey population estimation • Tiger census through improved and adaptable technology	5.00
TOTAL	15.00

Support needed from the GTI (in thousands US dollars)

Activity	Costs
Pilot projects: Implementing MIST pilot	100
Technical assistance: 1. Develop Overall Monitoring System 2. Design of trans border wildlife law enforcement operating model, plus supporting processes and procedures 3. Design of national wildlife crime unit operating model, plus supporting processes and procedures 4. Design of Human Resource Management approach for the FD to support the organizational and cultural changes (includes training needs development, revised performance monitoring criteria)	100
Training and capacity building: • CITES/Wildlife law enforcement training across FD and other related services (police, customs, BDR, RAB)	50
Workshops: 1. Law Enforcement Collaboration with Police/Coast Guard etc. 2. Trans border Collaboration with wild life law enforcement with India/Nepal/Myanmar.	50
Studies: • Valuation of ecological services of Sundarbans • Development of habitat monitoring approach for Sundarbans (both terrestrial and aquatic areas) and including definition of 'sustainable levels' for terrestrial and aquatic resource harvesting • Ecological studies of tigers in the Sundarbans to establish baseline of population status, behavior (including conflict), and responses to habitat changes/dynamics.	300
TOTAL	600