

Bangladesh Tiger Action Plan 2018-2027



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Bangladesh Tiger Action Plan

2018-2027





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D.O. No.

MESSAGE



Date.....

Anisul Islam Mahmud, MP
Minister

Ministry of Environment and Forests
Government of the People's Republic of Bangladesh

The majestic wild animal Bengal Tiger is our national pride. This animal attracts people around the world. For the conservation of this charismatic big cat, Bangladesh Forest Department has taken steps to conserve it. For Supporting the tiger conservation in the country, a policy document titled 'Bangladesh Tiger Action Plan (BTAP)' was prepared for the period 2009-2017. Huge number of activities were mentioned in that action plan. Among those, Bangladesh Forest Department has completed tiger population estimation by camera trapping. The result is published and highly appreciated by the scientists, academia and tiger range countries. However, new issues have been emerged. To address those new issues the Bangladesh Forest Department has updated the Bangladesh Tiger Action Plan for the period of 2018-2027.

It is highly appreciated that an updated policy document for tiger conservation has been prepared. I do believe that this document will create a new era of tiger conservation in the country. Ministry of Environment and Forests is highly committed to conserve our tiger through effective collaboration, capacity enhancement, research and monitoring. I firmly that we will be able to save our tiger for the generations to come.

Anisul Islam Mahmud, MP

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

Abdullah Al Islam Jakob, M.P
Deputy Minister
Ministry of Environment and Forests
Govt. of the People's Republic of Bangladesh



আবদুল্লাহ আল ইসলাম জ্যাকব; এম.পি
উপ-মন্ত্রী
পরিবেশ ও বন মন্ত্রণালয়
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার



MESSAGE

I appreciate the initiatives taken by the Bangladesh Forest Department that it updated the *Bangladesh Tiger Action Plan* for the period 2017-2027. With this pragmatic effort, the country will be able to step forward for the tiger conservation in the country. In fact, this publication would be meaningful when all of the activities of the plan are implemented with heartfelt sincerity and commitment. I congratulate all of the stakeholders including Bangladesh Forest Department for updating tiger action plan. I really feel proud for being a part of such pleasing policy document of tiger conservation in our beloved country.

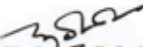
(Abdullah Al Islam Jakob, MP)

MESSAGE



Tiger is the magnificent wild animal in the world and plays a crucial role in balancing the ecosystem where they live. This keystone species is not only our national animal but also a symbol of power, strength and courage of our culture. Like all other tiger range countries of the world this iconic species is facing grave threats from poaching, prey depletion and habitat degradation. These threats are also posing an adverse impact on the entire ecosystem of the Sundarbans. Once tigers growled in many forests of the country but now this majestic species took their refuge only in the Sundarbans. However, for the conservation of tiger the Bangladesh Government prepared first Tiger Action Plan in 2009 which was valid up to 2017. In the meantime many new issues emerged. To address those new issues a new **Bangladesh Tiger Action Plan, 2018-2027** has been prepared by the Forest Department with the support from the Ministry of Environment and Forests. This action plan bagged actions for the effective conservation of the flagship species. The effective conservation of this big cat is highly dependent on the dedication, fortitude and alliance among all the stakeholders and development partners including local community.

Though Bangladesh is the most densely populated country in the world yet our government is committed to conserve tiger against all odds. I believe that this action plan will be meaningful when the tiger will growl freely in their habitat and will be able to live carefree. This action plan would certainly play a vibrant role in the conservation of tiger in our country. I would like to extend necessary support for the proper and timely implementation of the activities guided by this action plan.


Abdullah Al Mohsin Chowdhury
Secretary in Charge



Chief Conservator of Forests

Bangladesh Forest Department is entrusted with the biodiversity conservation of the country. This department is engaged with the inherent strength of biodiversity conservation of the country with its due diligence. The *Bangladesh Tiger Action Plan, 2018-2027* is a policy document which provides us a strategic vision of the tiger conservation in the country. My heartfelt thanks go to the stakeholders whose sincere effort made this document rich. I am really grateful to all of the participants who enriched this document by providing with valuable suggestions and comments.

The updated *Bangladesh Tiger Action Plan, 2018-2027* has captured a number of tasks and activities to address threats and challenges. Effective and timely implementation of those activities can only make our tiger live carefree in their wild habitat. This is only possible when there would be an effective collaboration, cooperation and support from key stakeholders.

A handwritten signature in black ink, appearing to read 'Shafiul Alam Chowdhury'.

Mohammed Shafiul Alam Chowdhury
Chief Conservator of Forests
Bangladesh Forest Department

Preface

Bangladesh once offered a number of habitats which harbored tiger. Today, however, the population of tiger has been squeezed to an alarming condition and only confined in the Sundarbans of the country. The anthropological dependency on the forests for their livelihood coupled with illegal tiger and prey consumption has created a heavy pressure on the tiger population. This species has been listed in CITES Appendix I and in Bangladesh it is critically endangered and also is enlisted in the Wildlife (Conservation and Security) Act, 2012 in Schedule I. The tiger in Bangladesh has been facing some serious threats and challenges which are needed to be addressed properly for the sake of its conservation. This updated action plan is mainly based on the previous action plan which was prepared for the period of 2009-2017. This action plan has three main Chapters. The Chapter one is about the importance of tiger conservation and status in the country, the Chapter two describes about the threats and challenges of the tiger and prey, and Chapter three describes the activities to fulfill the objectives. The updated action plan also emphasises on the collaboration among national and international stakeholders, research, capacity building and proper implementation of the activities.

This updated action plan is an outcome of the sub-project titled, **Implementation of National Tiger Recovery Programme (NTRP)** under the Strengthening Regional Cooperation for Wildlife Protection Project financed by the World Bank. The updated action plan is prepared through a series of field level and national level workshops and this document incorporated the suggestions and comments obtained from the stakeholders. However, I am really glad that finally this action plan is published and all of my thanks go to all the concerned.

Abdul Mabud

Project Director

Strengthening Regional Cooperation for Wildlife Protection Project

Acknowledgement

The authors of this policy document are highly grateful to the authors of previous **Tiger Action Plan 2009-2017**. The authors are also very much thankful to the Strengthening Regional Cooperation for Wildlife Protection Project of Bangladesh Forest Department, Ministry of Environment and Forests which was the mother project of the sub-project, 'Implementation of National Tiger Recovery Program'. The writers are also highly indebted to the World Bank for their wonderful support during the project tenure ship.

Our deepest gratitude go to Mr. Md. Yunus Ali, Chief Conservator of Forests of Bangladesh Forest Department who always play very important role in updating the action plan by giving very thoughtful suggestions and directives.

Our heartfelt thanks go to all of the participants of the field workshops, regional workshop and national level workshops who gave logical and effective comments and suggestions. We are also grateful to Mr. Zahir Uddin Ahmed, Conservator of Forests who were beside us in formulating and planning the workshops. He played such a wonderful role in implementing the sub-project.

Our sincere thanks go to Dr. Y.V. Jhala, the renowned big cat specialist of Wildlife Institute of India for his suggestion and comments which really enriched this document.

Finally our heartfelt and sincere gratitude goes to Dr. Tapan Kumar Dey, Md. Jahidul Kabir and Mr. Hoq Mahbub Morshed who conceived the idea of updating this action plan and helped in adopting this sub-project.

Authors

Acronyms

ACF	Assistant Conservator of Forests
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BFD	Bangladesh Forest Department
BNCS	Bangladesh National Conservation Strategy
BTAP	Bangladesh Tiger Action Plan
BWCMP	Bangladesh Wildlife Conservation Master Plan
CBD	Convention on Biological Diversity
CCF	Chief Conservator of Forests
CF	Conservator of Forests
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DFO	Divisional Forest Officer
ECA	Ecologically Critical Area
FTRT	Forest Tiger Response Team
GIS	Geographic Information System
GoB	Government of Bangladesh
GPS	Geographic Positioning System
MoEF	Ministry of Environment and Forests
NGO	Non-Governmental Organisation
NTFP	Non-timber Forest Product
PA	Protected Area
SDG	Sustainable Development Goal
SMART	Spatial Monitoring and Reporting Tool
TCCC	Tiger Conservation Coordination Committee
TCL	Tiger Conservation Landscape
THC	Tiger-Human Conflict
VRTT	Village Tiger Response Team
WC	Wildlife Centre
WCCU	Wildlife Crime Control Unit
WFL	Wildlife Forensic Laboratory
WNCC	Wildlife and Nature Conservation Circle

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Photo credit: Dr. Sandeep Sharma



Executive **Summary**

The tiger (*Panthera tigris*) is the iconic National Animal of Bangladesh. The association and interactions between the tiger and the human is almost as old as human civilisation in Asia. Sitting at the top of the food pyramid tigers require large areas of land to support viable populations, and so act as an umbrella species for securing the future of other species that share their habitat. Furthermore, tiger of the forests provide a range of ecological services vital to our own existence. Tigers are also a valuable part of human culture and a focal point of many tourist's visits to Asia. Equally important is the tiger's intrinsic right to survive irrespective of the needs of mankind.

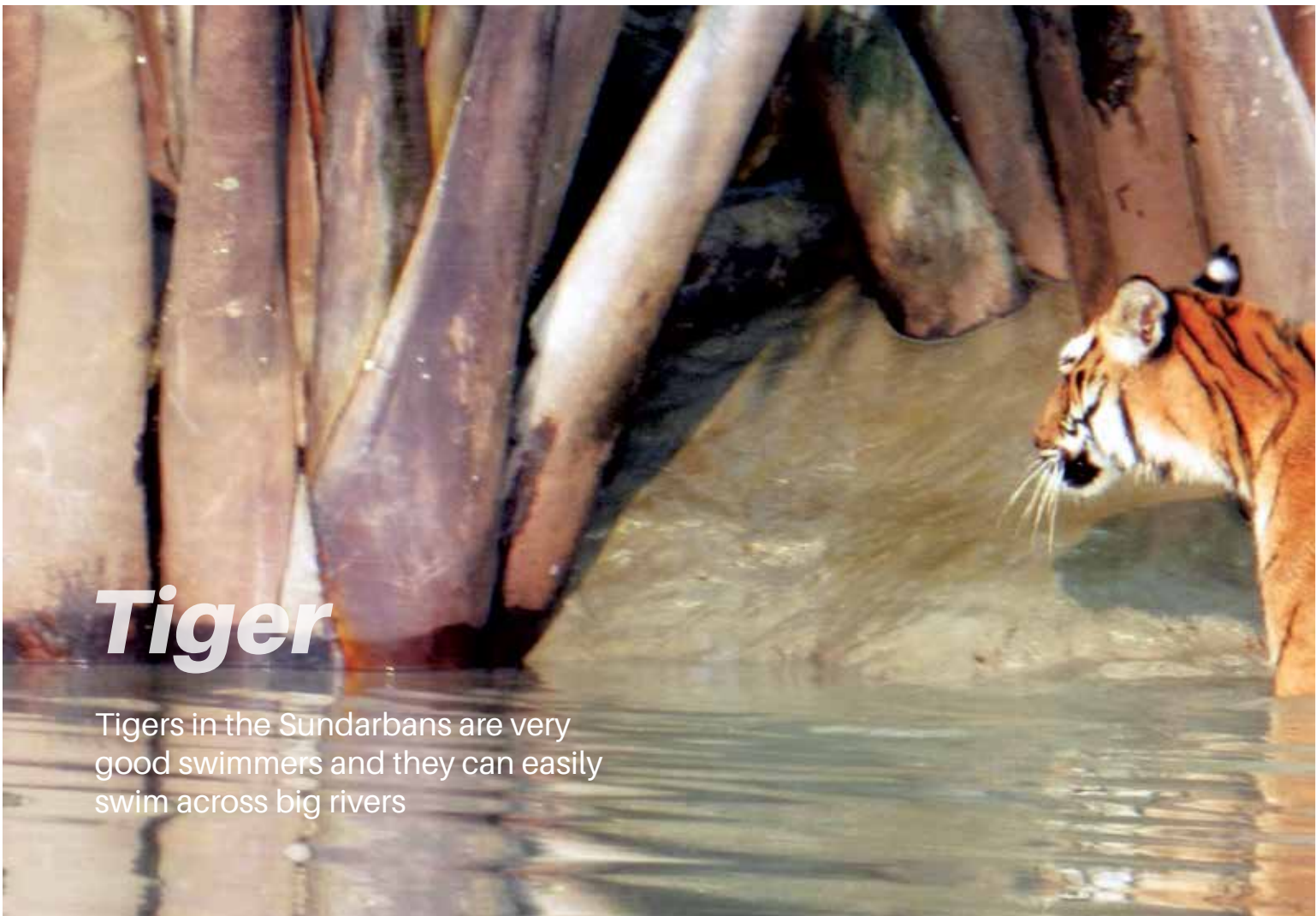
Protected tiger landscapes in Bangladesh. Where wild tigers thrive at optimum carrying capacities so as to perform their ecological role, and which continue to provide essential ecological services to mankind

With only about 3,900 individuals left in the wild, the tiger is severely threatened throughout its range. The mangrove forests of the Sundarbans support a relatively healthy and viable tiger population of about 106 individuals, or 2.7 individuals per 100 sq km of land area, and a few tigers in the Chittagong Hill Tracts bordering India, Myanmar and Bangladesh, therefore, has an opportunity to contribute significantly to the conservation of tigers and to benefit from their continued presence. Tigers, however, are threatened in Bangladesh by: i) direct loss, ii) prey depletion, and iii) habitat loss and degradation. Tigers are directly threatened by poaching to supply the increasing demand for tiger products. In addition, Bangladesh suffers high levels of tiger-human conflict, manifested in human-killing, livestock depredation and ultimately the retribution killing of tigers by affected local communities. Poaching of prey further reduces the capacity of the forest to support tigers, and unsustainable forest use and climate change, coupled with growing pollution and anthropogenic disturbance, threaten to reduce the area

The implementation of this BTAP will ensure that the nation attempts to sustain the current tiger occupancy in **6,017 sq km** and increase the density in the Sundarbans from the current **2.17** to **4.50** tigers per 100 sq km within the next ten years

in which tigers can live. There are also a range of challenges in successful tiger conservation that need to be dealt with, which are relating to: i) national policy, ii) institutional development, iii) forest protection and law enforcement, iv) education, awareness and community involvement, v) research and monitoring, and vi) collaboration.

The Bangladesh Tiger Action Plan (BTAP) is a policy-level document that offers a structured approach to achieving long-term conservation of tigers in Bangladesh. The first version of BTAP was for the period 2009-2017 and this updated version is for the period 2018-2027. It provides a vision, goals and objectives to guide an integrated and focused tiger conservation programme. The vision is to ensure 'protected tiger landscapes in Bangladesh, where



Tiger

Tigers in the Sundarbans are very good swimmers and they can easily swim across big rivers

wild tigers thrive at optimum carrying capacities so as to perform their ecological role, and which continue to provide essential ecological services to mankind'. The main goals to address threats are to increase the current tiger population, maintain sufficient prey and habitat, and ensure a suitable tiger population in the Chittagong Hill Tracts, and to address challenges are to improve conservation capacity, improve law enforcement, build capacity and proper mechanism for awareness and education programmes as well as community involvement, build capacity to conduct tiger conservation research and monitoring, and encourage collaboration. The implementation of this BTAP will ensure that the nation attempts to sustain the current tiger occupancy in over 6,017 sq. km. and increase the density in the Sundarbans from the current 2.17 to 4.50 tigers per 100 sq km within the next ten years, thereby contributing to the GTRP commitments by the country. Systematic monitoring and evaluation of progress against the BTAP goals will be done to enable the adaptation of conservation activities. The Bangladesh Forest Department, under the Ministry of Environment and Forests, is the primary custodian of the forest and its wildlife, but the immense task of tiger conservation necessitates support and expertise outside the normal regime of forest management. Therefore, the establishment of a Bangladesh Forest Department-led platform that facilitates collaboration for the implementation of conservation activities will be fundamental to its success.



Photo credit: Md. Modinul Ahsan



Photo credit: Md. Modinul Ansan



Chapter 1

Context

1.1 IMPORTANCE AND URGENCY OF TIGER CONSERVATION

The tiger (*Panthera tigris*) is the iconic National Animal and the key natural heritage of Bangladesh. This magnificent creature is admired, feared and respected by humans for its beauty, grace, strength, as well as various supernatural qualities that have been attributed to it (Tamang 1993). As the largest predator, the tiger has been revered as a cultural icon throughout much of its former and present range (Weber and Rabinowitz 1996). The association and interactions between the tiger and the human is almost as old as human civilisation in Asia. The tiger is an integral part of much of the remaining Asian forest ecosystems, which in turn supply the ecological services essential to human existence. As an umbrella species, the tiger can help secure the future of the biodiversity that make up the tiger's forest home (Ahmad *et al.* 2009). As the top predator, the tiger helps to regulate the prey population, which in turn impacts forest structure, composition and regeneration (Ale and Whelan 2008, Wegge *et al.* 2009). Hence the loss of tigers may reduce ecosystem's integrity and ability to adapt to changing environmental conditions. The sheer presence of tiger in a forest attracts a large number of tourists and helps to develop the local economy (Leslie 2001).

Irrespective of their use to mankind, as a product of millions of years of evolution, tigers should also be given the chance to exist in their own right. The disappearance of tigers from the wild as a result of human actions would be unforgivable and a sad reflection on our role as guardians of the natural world. If we cannot save the tiger, this will surely be a signal for the demise of thousands of other species and wild places.

Tigers are categorised as Endangered because there are only about 3,900 individuals left in the wild, and three of the eight subspecies are now extinct (IUCN 2015, WWF 2016). The remaining populations continue to be imperiled by poaching, depletion of their prey, and destruction of their habitat. A summary of tiger status worldwide suggests they are living in only seven percent of their former range (Dinerstein *et al.* 2007). The remaining tiger populations are spread across 13 Asian countries, and often in forests too small and isolated for their long-term persistence. The way forward is to identify landscapes that can support tigers, prioritise them in terms of their contribution to the species' survival, and then protect those areas (Sanderson *et al.* 2006, Carter *et al.* 2015).

In addition to protecting a unique array of biodiversity, saving the Sundarbans will secure essential ecological services such as: i) trapping of sediment and land formation, ii) protection of human lives and habitation from regular cyclones, iii) acting as a nursery for fish and other aquatic life, iv) oxygen production, v) waste recycling, vi) timber production, vii) supply of food and building materials, and viii) carbon cycling (Biswas *et al.* 2007, Islam and Peterson 2008, Haque and Aich 2014). Such services are of global, regional and national importance, and fundamental to the livelihoods of the local people living along the Sundarbans border. Notably, several million people directly depend upon the collection of timber, fuel wood, fibres, fish, shells, wax, honey, and other non-timber forest products (Haque and Aich 2014). This resource extraction feeds both local needs and industry, with the forest producing almost half of the total timber and fuel wood for Bangladesh (Canonizado and Hossain 1998).

According to the BFD records, more than 100,000 tourists visit the Sundarbans every year and the number is, in general, rising (Figure 5). A large proportion of it make day trips to Karamjal, a tourist spot in the northern part of the Sundarbans where tourists can take short walks in the forests and view captive animals such as spotted deer (*Axis axis*), rhesus macaque (*Macaca mulatta*), and estuarine crocodiles (*Crocodylus porosus*). A handful of tour operators also run trips lasting few nights that go deeper into the forests to visit key sites.

Recognising that Asia's most iconic animal faces imminent extinction in the wild, the leaders of the 13 tiger-range countries, together with conservation partners, had gathered in a summit at St. Petersburg, Russia, in 2010, which was the highest level of summit ever organised for tigers. The leaders agreed to strive to double the number of wild tigers across their range by 2022 by doing everything possible to effectively manage, preserve and enhance habitats; work collaboratively to eradicate poaching and illegal trade, engage with indigenous and local communities, explore and mobilise domestic as well as international funding, convene high-level meetings on a regular basis to review the progress, and build tiger conservation awareness by celebrating Global Tiger Day annually on 29 July. The leaders welcome the adoption of the Global Tiger Recovery Program (GTRP) and the National Tiger Recovery Programs (NTRPs). As a party to the GTRP, Bangladesh has produced its NTRP and gradually taking initiatives to strengthen the tiger conservation activities in the country

In 2014, Bangladesh hosted the 2nd Stocktaking Conference to review the implementation of the GTRP. The Conference ended up with Dhaka Recommendations (see annex) on Advancing

Implementation of the GTRP. Building on the pledges of the St. Petersburg Declaration (see annex), the Thimphu Affirmative Nine-Point Action Agenda, which emerged from the 2nd Asian Ministerial Conference on Tiger Conservation, held in Bhutan in 2012, outlines areas to be targeted for intensified efforts by the TRCs and partners. The conference participants agreed on some actions, viz. i) strengthen frontlines, ii) conserve habitat, iii) engage communities, iv) enhance collaboration, v) launch restoration, vi) increase the flow of funds, develop new partnerships with business and industry, vii) build comprehensive awareness and reduce illicit demand, viii) monitor tigers, prey and habitat, ix) monitor GTRP implementation. Adoption and issuance of the Dhaka Recommendations will move us significantly closer to achieving the goal of doubling the number of wild tigers globally by 2022, and ensuring the integrity of tiger conservation landscapes.

In Bangladesh the tiger was once found in all of the forests and even in some village groves. The population and distributional range have been drastically declined due to poaching, prey depletion and habitat loss, and this species has been identified as Critically Endangered (IUCN-Bangladesh 2015) in Bangladesh. At present the only stable population of the tiger is found in the Sundarbans (ca. 6,000 sq km; Figure 1), and the population is isolated from the nearest tiger populations by about 300 km of agricultural and urban land (Figures 2 and 3). According to the latest estimate based on camera-trap survey in the Sundarbans of Bangladesh, the tiger population is estimated at 106 (Dey *et al.* 2015) (Table 1). There are reports of tiger sightings by the hill people in the Chittagong Hill Tracts, but the status is still unknown (Khan 2011, Chakma 2015).

Table 1. Tiger population in the Sundarbans of Bangladesh estimated at different times following different methods. [N.B. Some methods were not scientifically valid.]

Tiger Population	Method	Authority
350	Interviewing	H. Hendrichs 1975
450	Pug-mark study	Bangladesh Forest Dept. and Dept. of Zoology, Univ. of Dhaka, 1982
359	Interviewing	Bangladesh Forest Dept. 1992
362	Pug-mark study	K.M. Tamang 1993
440	Pug-mark study	Bangladesh Forest Dept. 2004
200	Camera-trap survey and carrying capacity (prey density)	M.M.H. Khan 2007
335-500	Telemetry of two females	A.C.D. Barlow 2009
106	Camera-trap survey	Bangladesh Forest Dept. 2015

(Note: this table is given only for information, not to make comparison)





Tiger summit in St. Petersburg, Russia, 2010



Photo credit: Dr. Mahendra Shrestha

Second Global Tiger Stocktaking Conference in Dhaka, 2014



Photo credit: Forest Department

Unveiling joint tiger status report of Bangladesh and India in Delhi, April 2016



National workshop on updating Bangladesh Tiger Action Plan in Dhaka, November 2016



1.2 TIGER DISTRIBUTION AND STATUS IN BANGLADESH

It was mentioned earlier that the tigers were once widespread in Bangladesh and even up to the 1930s they were reportedly present in 11 out of 17 districts (Mitra 1957). However, widespread hunting and forest depletion have reduced the tiger's range and numbers. Now the largest remaining population of tigers is in the Sundarbans, although there are also reports of tigers in the Chittagong Hill Tracts (Khan 1986; Khan 2004, 2011; Reza *et al.* 2004) (Figures 1, 2 and 3). An area of forest near Teknaf was included as a survey landscape by Sanderson *et al.* (2006), but there have not been any reports of tiger presence there in recent decades (M.M.H. Khan pers. obs.).

The Sundarbans has been identified as a Class 3 TCL of Global Priority (Sanderson *et al.* 2006), and at approximately 10,000 km², the Sundarbans of Bangladesh and India is the largest mangrove forest in the world. This Bangladesh Tiger Action Plan (BTAP) addresses tiger conservation in about 6,000 km² of the Bangladesh Sundarbans, referred to hereafter as 'the Sundarbans'. Although some work has been published on tigers of the Sundarbans (e.g. Hendrichs 1975, Seidensticker and Hai 1983, Blower 1985, Khan 1987, Tamang 1993, Bangladesh Forest Department 2004; Khan 2004, 2011, 2012; Reza *et al.* 2004; Khan and Chivers 2007; Barlow *et al.* 2008; Barlow 2009), relatively little is known about their ecology and status compared to better studied populations in Nepal, India, and Russia (e.g. Smith and McDougal 1991, Carroll and Miquelle 2006, Karanthe *et al.* 2006). Tigers are known to be present through out the Sundarbans, with higher concentrations found in the south and west compared to the north and east (Barlow *et al.* 2008, Dey *et al.* 2015) (Figure 4). According to the latest estimate based on camera-trap survey covering 26.2% of the tiger occupied habitat in the Sundarbans of Bangladesh, the population is estimated to be 83-130, with a midpoint of 106, or 2.17 tigers per 100 sq km of land area (Dey *et al.* 2015).



Photo credit: Forest Department

Tiger

Tiger in its natural habitat in the Sundarbans of Bangladesh

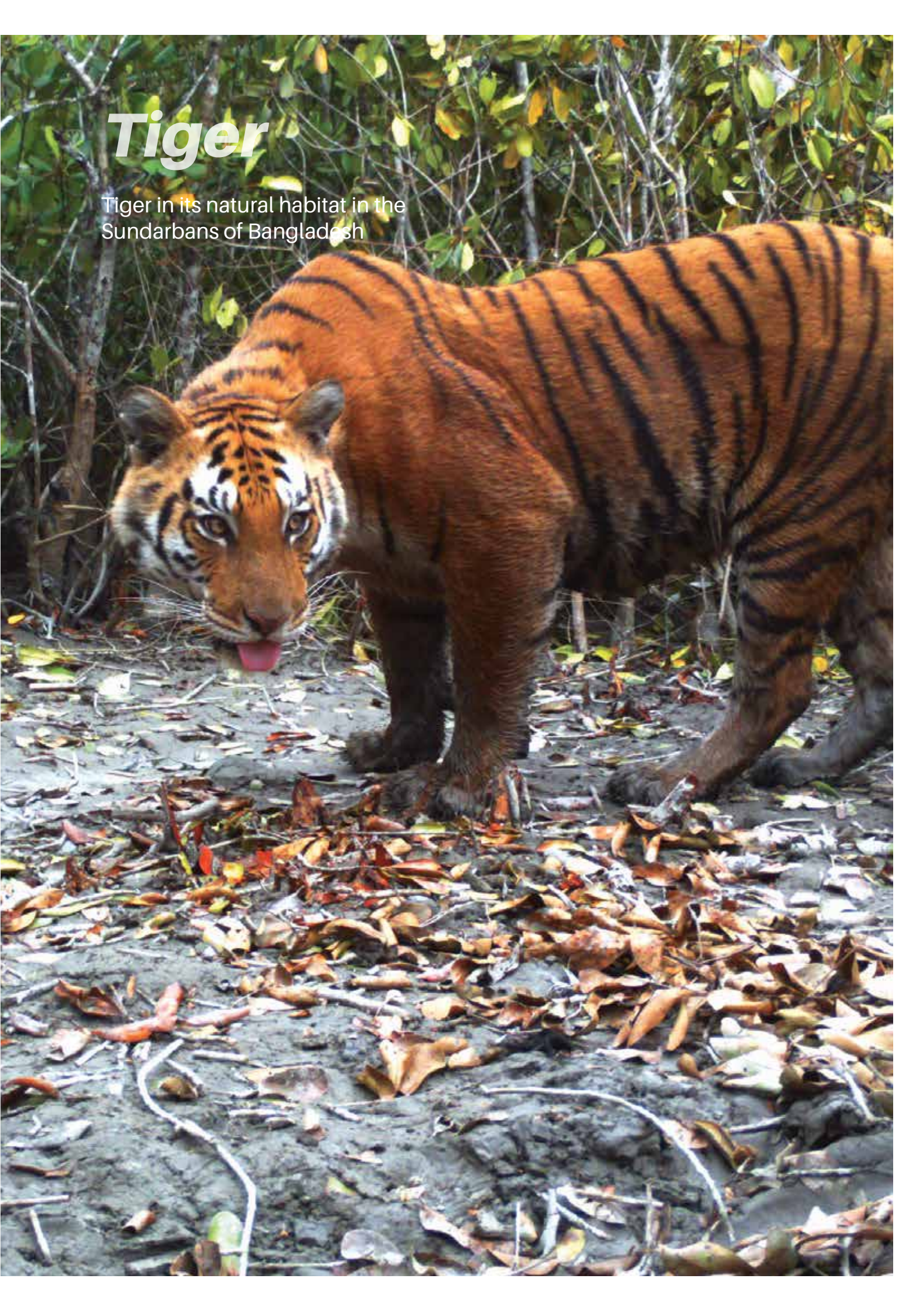
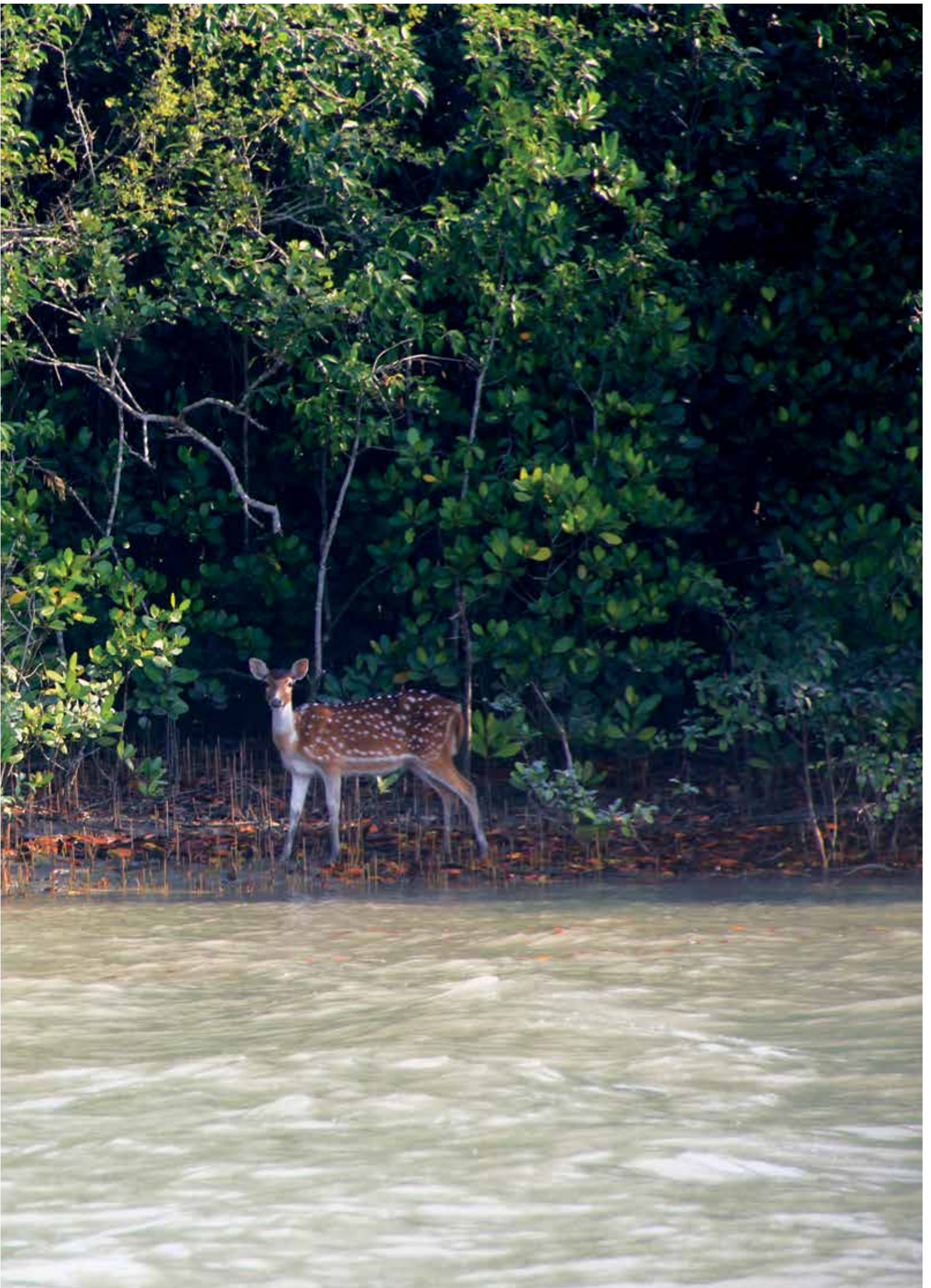


Photo credit: Md. Modinul Ahsan





In the Chittagong Hill Tracts there are reports of tigers in the mixed evergreen hill tract valleys of Kassalong-Sajek and Sangu-Matamuhuri, which are contiguous with forests in India and Myanmar respectively (Khan 2004, 2011; Chakma 2015, S.C. Rahman pers. comm.) (Figure 2). Both of these sites are within an area classified as a Tiger Restoration Landscape, contiguous with the Northern Forest Complex-Namdapha-Royal Manas Global Priority Tiger Conservation Landscape (TCL) (Sanderson *et al.* 2006) (Figure 1). But the status of tigers in the Chittagong Hill Tracts is still unknown and presumably there is a small population with frequent trans-boundary movements of tigers. Therefore, the main focus of this updated BTAP is on the tiger population in the Sundarbans.

Satellite image of the Bangladesh and Indian Sundarbans (dark area)



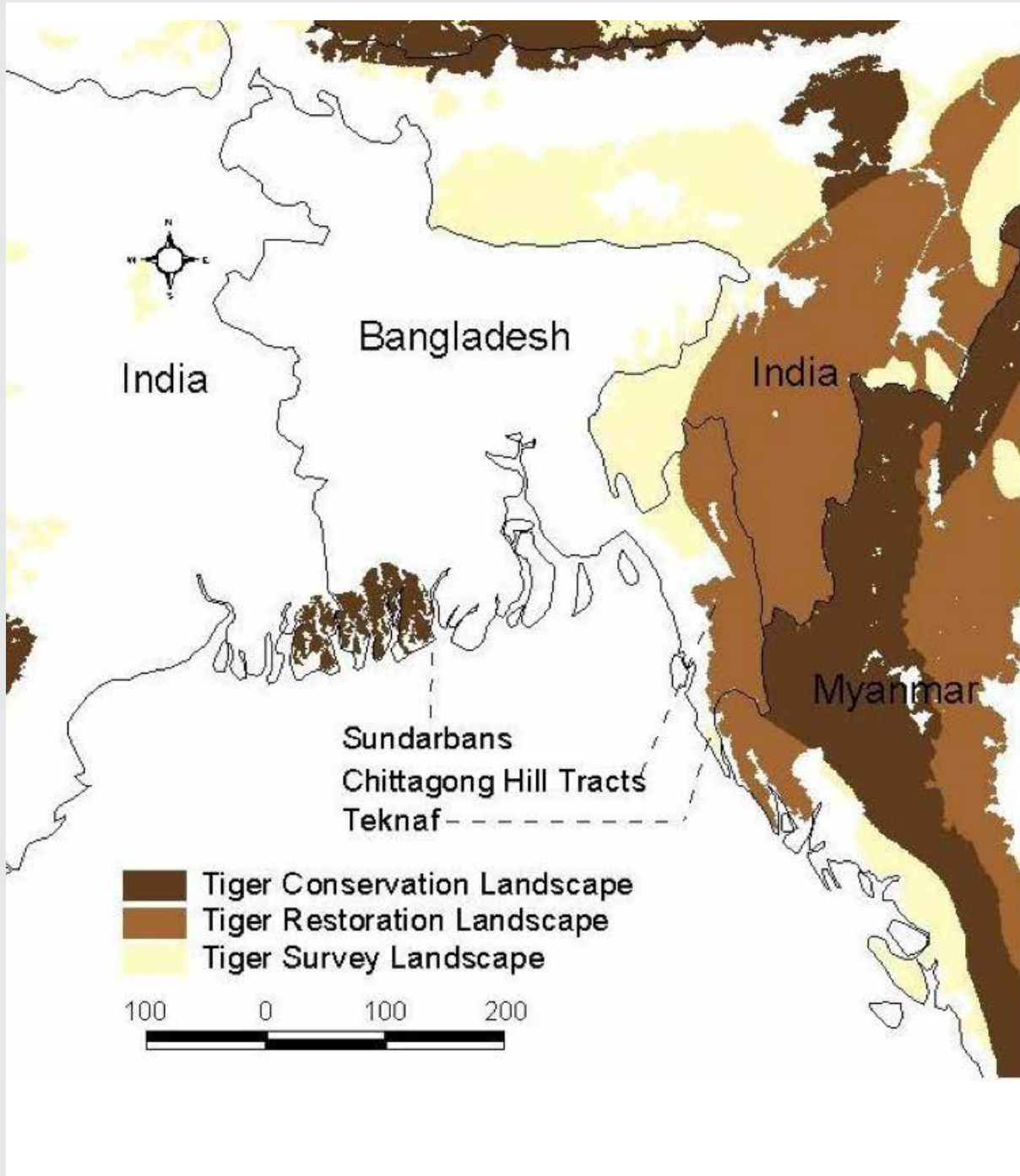


Figure 1. Tiger conservation areas in and around Bangladesh (Sanderson et al. 2006).

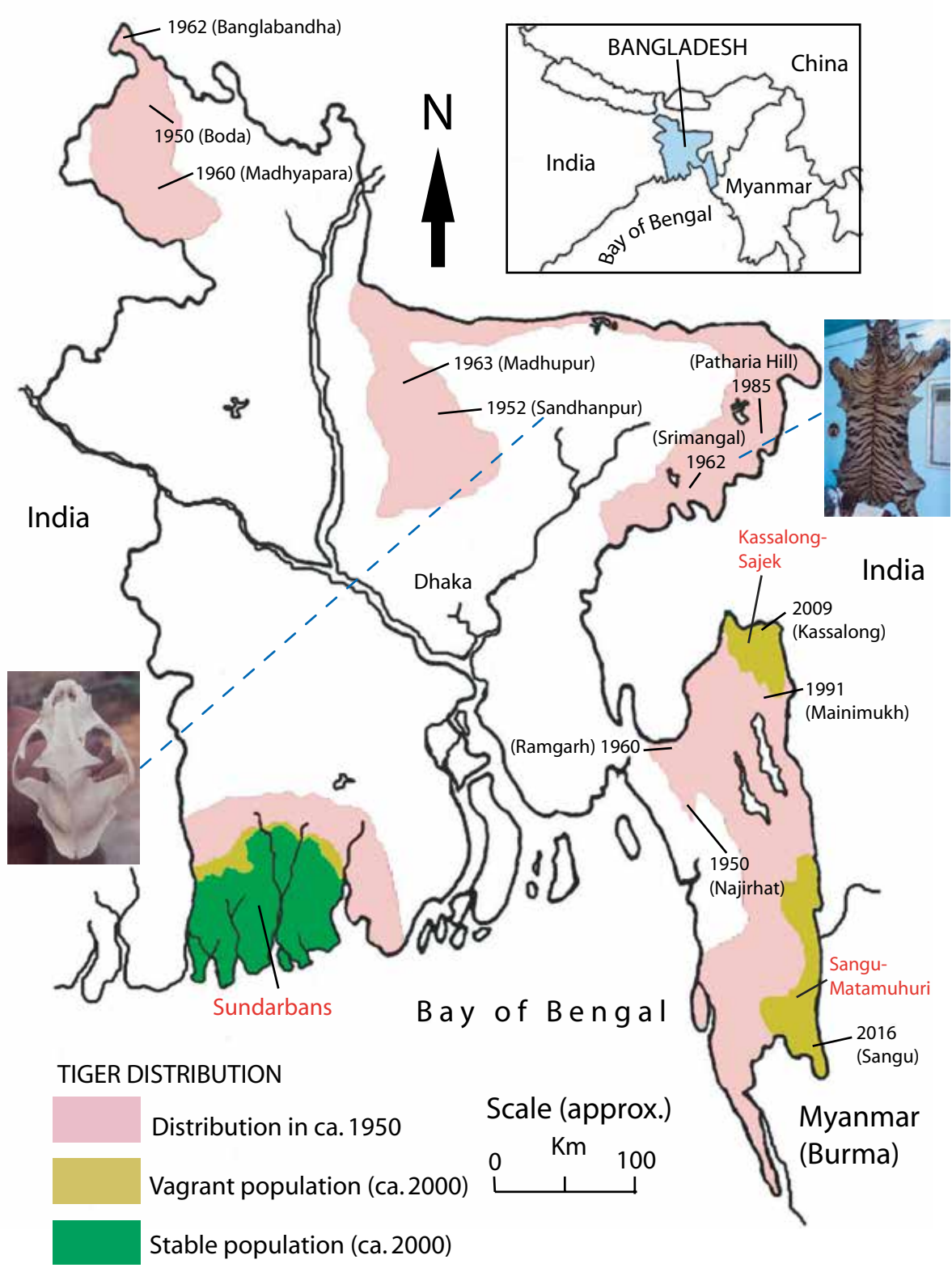
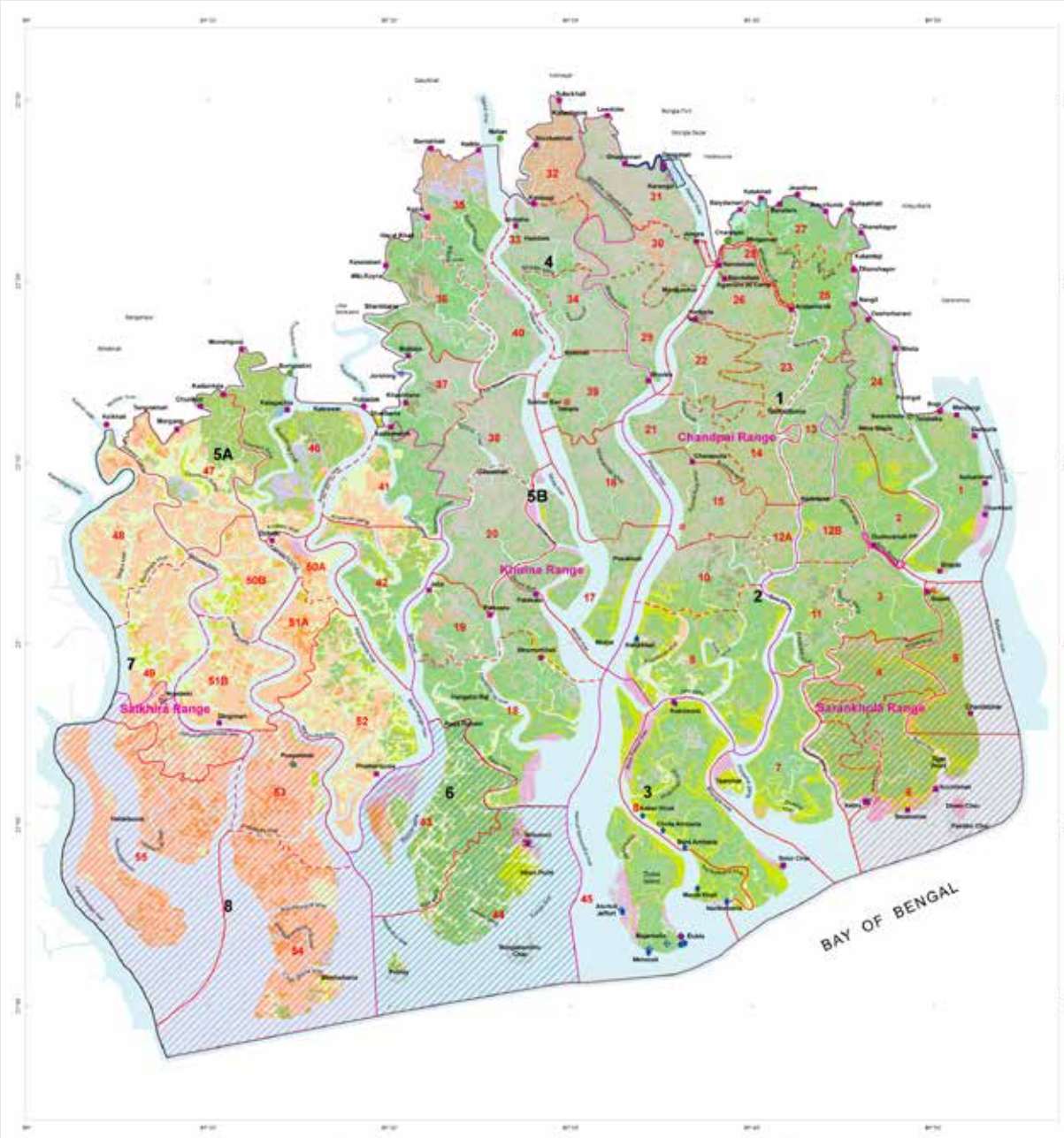


Figure 2. Tiger distribution in Bangladesh in ca. 1950 and ca. 2000 (Khan 2011).



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Government of Bangladesh

Scale 1:200,000

Prepared at RIMS-CIS Unit
Forest Information Generation and Mapping System Project
Bangladesh Forest Department

SHEET HISTORY

Detailed forest types database for the Sundarbans Protected Forest developed under the Forest Resource Management Project (FRMP) of Forest Department using aerial photo of 1985, was used as the base database to make the Sundarbans Protected Forest in 2012-13. Forest administration boundaries prepared under FAO/UNEP project "Integrated Resource Development of the Sundarbans Reserved Forests" were also used in this map. 1:50,000 imagery was used to update the land water boundary, river courses and special collection. These maps were prepared under Climate Change Trust Funded "Forest Information Generation and Mapping System" project of Forest Department, Bangladesh. The project has been implemented at the Resource Information Management System (RIMS) Unit, Forest Department with the technical assistance of Remote Sensing Division, Center for Environmental and Geographic Information Services (CEGIS), Dhaka. Mapping, image processing and mapping activities were supported by Mr. Caborn Ugal, Digital Cartographer of Forests of PNG and Mr. Muzamir Akhtar, Assistant Conservation of Forests of RIMS Unit.

Geographic Coordinate System:

datum: WGS 1984
 spheroid: Everest
 prime meridian: Greenwich
 datum shift: 498.114
 datum name: Everest
 datum year: 1956

The international and administrative boundaries have been prepared in accordance with the best information available. These boundaries have not been surveyed and are for reference only. The location of the boundaries of the Protected Forests has been taken from existing maps. These maps are confidential maps only and will not be shared with any authority for any legal purpose.

March 2013

CLASSIFICATION

Sundri	Sundri Grove	Sundri Forest	Sundri Park	Sundri Park Forest	Sundri	Sundri Grove	Sundri Forest	Sundri Park	Sundri Park Forest
Forest	Non-forest	Open	Open	Open	Open	Open	Open	Open	Open
Forest	Forest	Forest	Forest	Forest	Forest	Forest	Forest	Forest	Forest
Forest	Forest	Forest	Forest	Forest	Forest	Forest	Forest	Forest	Forest

TREE NAMES

Acacia	Acacia	Acacia	Acacia
Albizia	Albizia	Albizia	Albizia
Albizia	Albizia	Albizia	Albizia
Albizia	Albizia	Albizia	Albizia

OTHER MAP ELEMENTS

Range Office	Forest Station	Forest Post	Forest Depot
Water Boundary	Water Boundary	Water Boundary	Water Boundary
Water Boundary	Water Boundary	Water Boundary	Water Boundary
Water Boundary	Water Boundary	Water Boundary	Water Boundary

WIDTH BOUNDARIES

Sundarbans East	Sundarbans West	Sundarbans North	Sundarbans South
Sundarbans East	Sundarbans West	Sundarbans North	Sundarbans South
Sundarbans East	Sundarbans West	Sundarbans North	Sundarbans South
Sundarbans East	Sundarbans West	Sundarbans North	Sundarbans South



Courtesy: RIMS Unit, BFD

Figure 3. Sundarbans of Bangladesh showing the different vegetation types, Bangladesh Forest Department outposts and three main protected areas (together form the World Heritage Site).

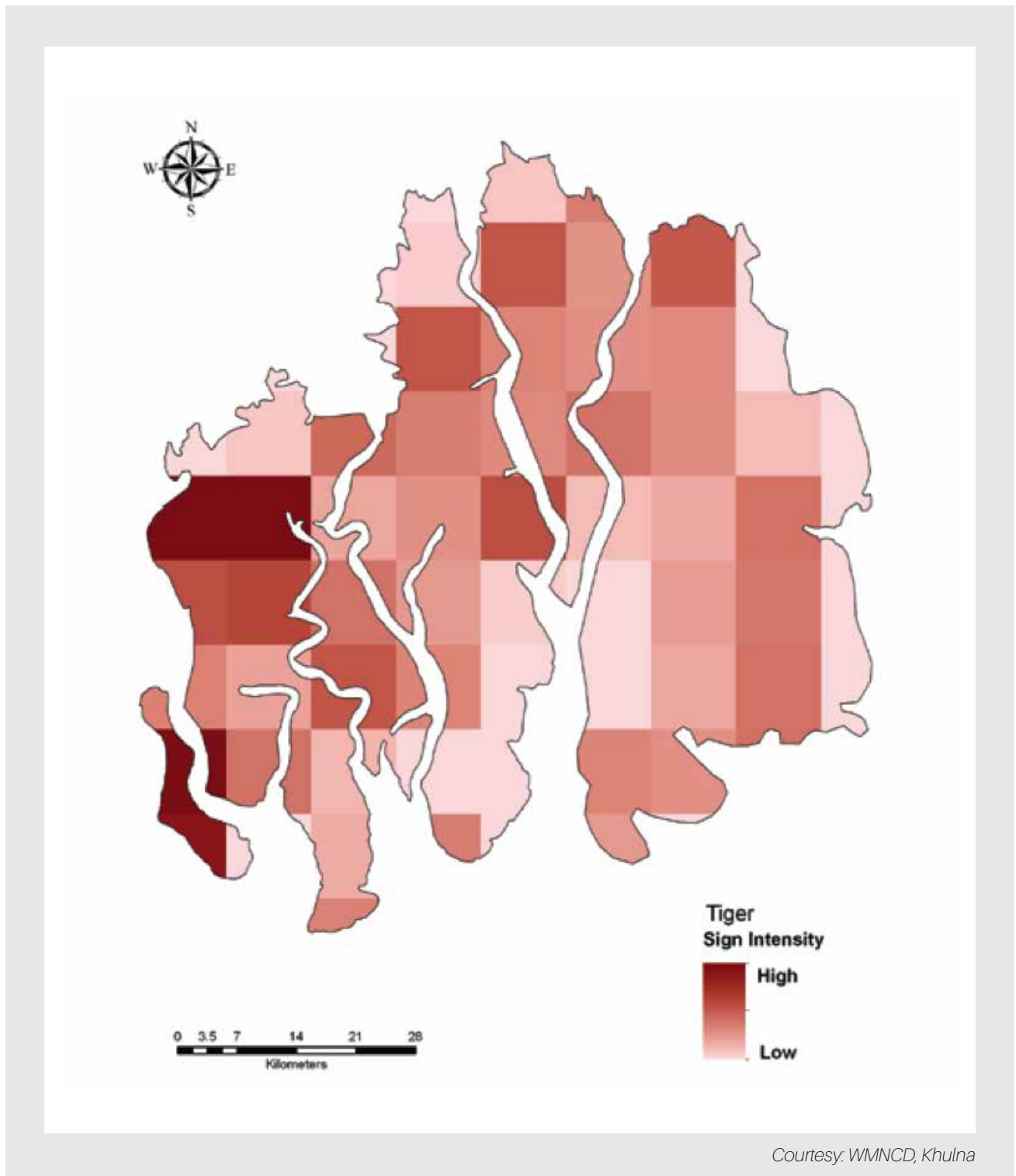


Figure 4. Encounter rate of tiger signs across the Sundarbans in 2014-2015 (Dey et al. 2015).

Wild boar



Photo credit: Dr. Sandeep Sharma

1.3 SUNDARBANS ECOSYSTEM AND ITS MANAGEMENT

Bangladesh lies in the vast fertile delta of three of the largest rivers in the world: the Ganges (Padma), the Brahmaputra (Jamuna), and the Meghna. The rate of water flow through Bangladesh's river system is second only to the Amazon river system in South America (IUCN-Bangladesh 2000). The Sundarbans mangrove forest is found at the lower end of the delta where it meets the Bay of Bengal. The Sundarbans continues to be shaped by huge amount of sediment deposited by the rivers and ocean currents, and changes in human land use (Allison *et al.* 2003). The Sundarbans represents nearly half of the remaining forests of Bangladesh and is dominated by halophytic tree species such as sundri (*Heritiera fomes*), gewa (*Excoecaria agallocha*), goran (*Ceriops decandra*), baen (*Avicennia officinalis*), and keora (*Sonneratia apetala*). It is inhabited by some 41 mammal, 339 bird, 58 reptile, 10 amphibian and 237 fish species (Hussain *et al.* 2014). The 15 globally threatened wildlife species occur in the Sundarbans are Ganges river dolphin (*Platanista gangetica*), Indo-Pacific finless porpoise (*Neophocaena phocaenoides*), tiger, fishing cat (*Prionailurus viverrinus*), Oriental small-clawed otter (*Amblonyx cinereus*), smooth-coated otter (*Lutrogale perspicillata*), lesser adjutant (*Leptoptilos javanicus*), greater spotted eagle (*Aquila clanga*), Pallas's fish eagle (*Haliaeetus leucoryphus*), white-rumped vulture (*Gyps bengalensis*), spoon-billed sand piper (*Eurynorhynchus pygmeus*), masked

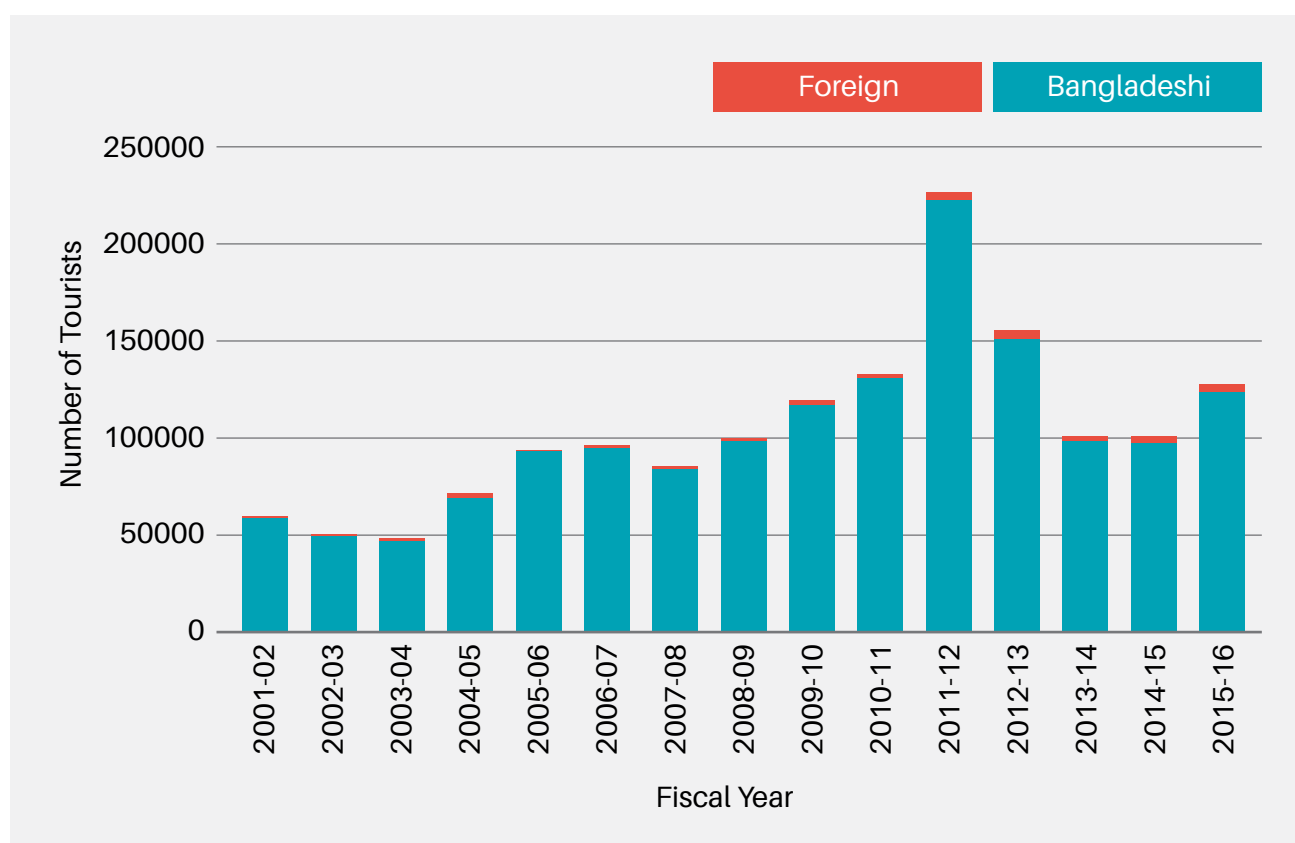


Figure 5. Growing number of Bangladeshi and foreign tourists in the Sundarbans.

finfoot (*Heliopais personata*), olive ridley turtle (*Lepidochelys olivacea*), river terrapin (*Batagur baska*) and king cobra (*Ophiophagush annah*) (M.M.H. Khan pers. obs., Hussain *et al.* 2014). However regulation of resource extraction, tourism, revenue collection and law enforcement is carried out by the Bangladesh Forest Department (BFD), under the Ministry of Environment and Forests. The Sundarbans used to provide 50% of the forestry sector's revenue (Tamang 1993), but following the ban on many natural resource harvest the annual revenue has gone down to BDT 50-70 million (Figure 6). For management purposes, the forest and its waterways have been delineated into four ranges and 55 compartments, guarded by over 90 BFD posts. The Sundarbans is classified as a Reserved Forest, in which some forms of resource extraction are allowed, but it is illegal for anyone to live, cultivate land, or graze livestock in the forest. In order to ensure additional protection for wildlife habitat and natural resources, three areas within the forest have been designated as Wildlife Sanctuaries: Sundarbans West (715 sq. km), Sundarbans South (370 sq. km), and Sundarbans East (312 km²). These Wildlife Sanctuaries are closed to any extraction of vegetation or wildlife and have been collectively declared a UNESCO World Heritage Site (Figure 7) (Iftekhar and Islam 2004). Moreover, three riverine Wildlife Sanctuaries (Chandpai 5.6 sq. km; Dudhmukhi 1.7 sq. km; and Dhangmari, 3.4 sq. km) have been designated, mainly for the conservation of the Ganges river dolphin (Khan 2014). The border between the Bangladesh and Indian sides of the forest is patrolled by the Border Guard Bangladesh (BGB) servicemen, and the Navy and Coast Guard patrol the coastal waters.

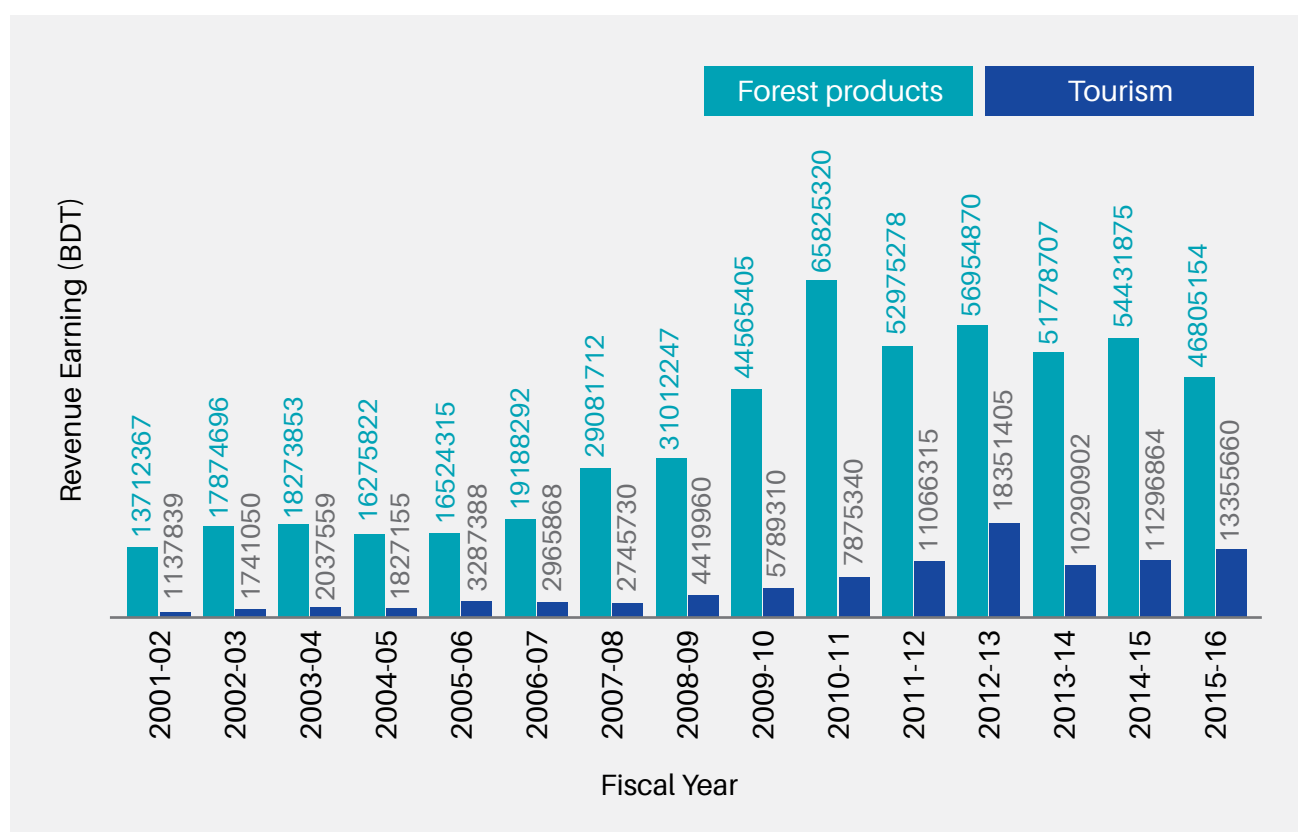
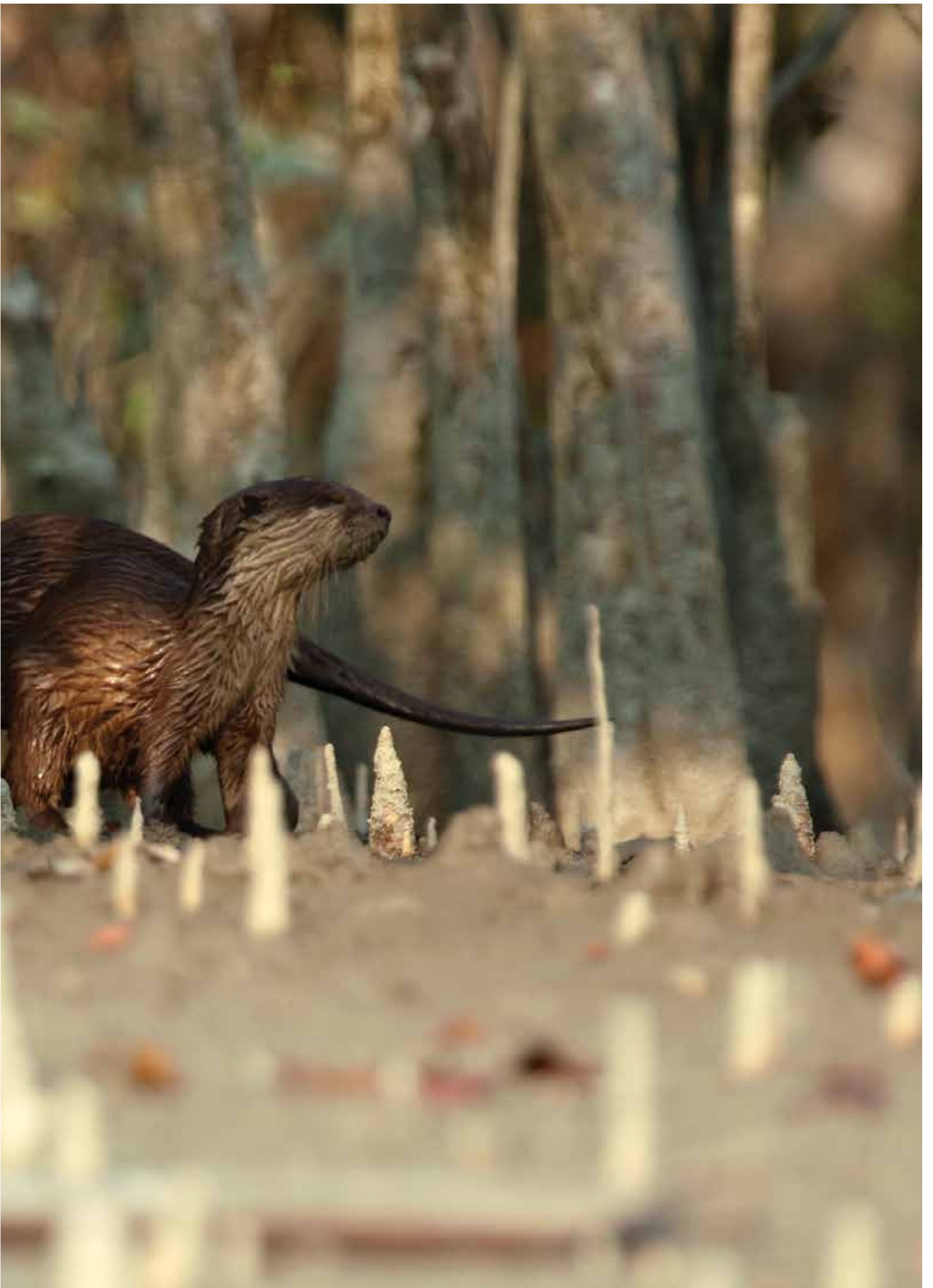


Figure 6. Revenue earning from the Sundarbans.



Photo credit: Dr. Sandeep Sharma

Otter



Chapter 2

Threats & Challenges

2.1 THREATS

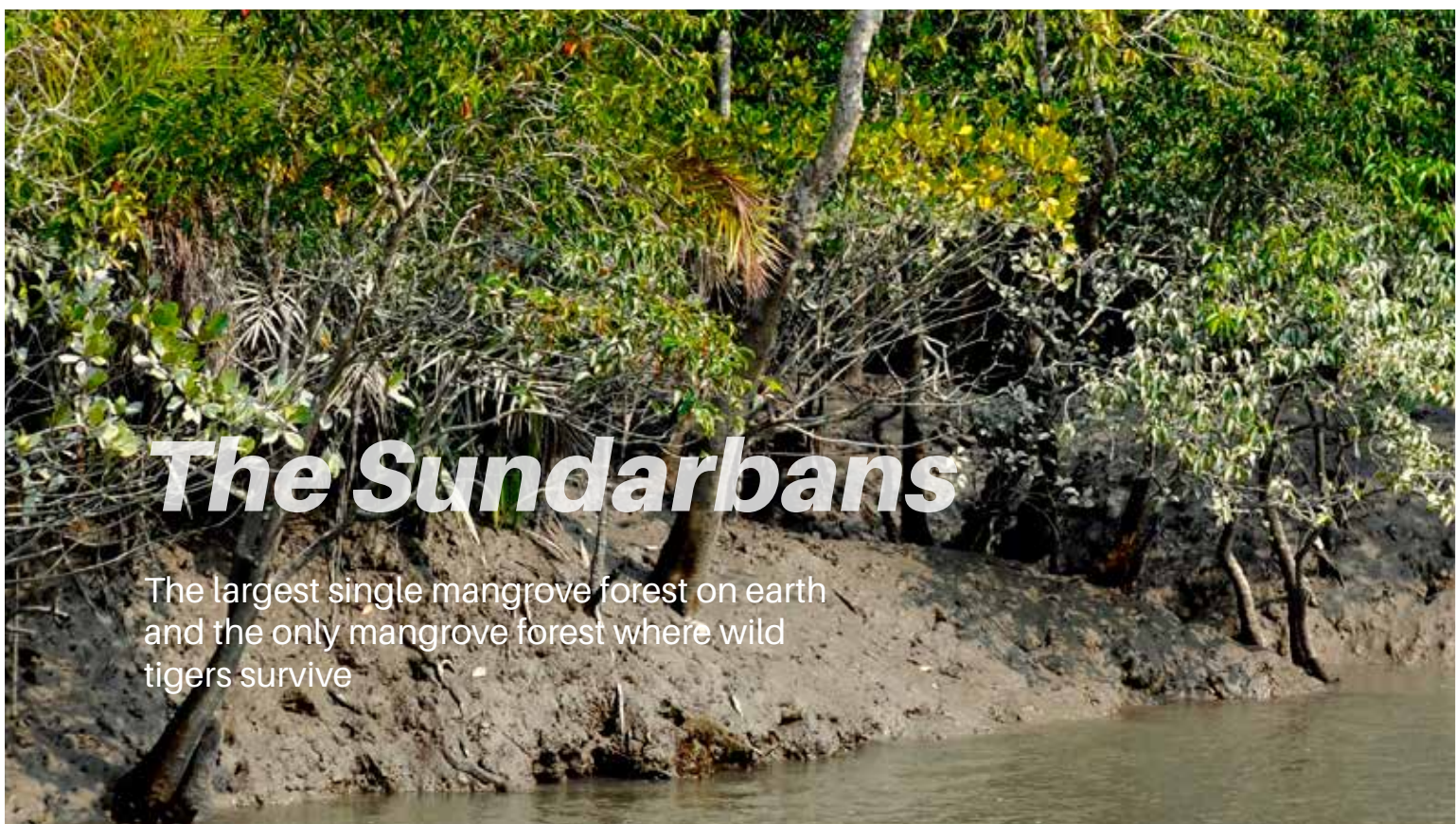
Tigers, their prey and their habitats are all threatened in Bangladesh. This section outlines the current understanding about the nature, scale, and cause of these threats. There is a dearth of information across all threats, so it is inevitable that some are poorly defined and others have yet to be identified. In addition, the inferences regarding causality may be weak because often they are not based on empirical research. Further research and subsequent monitoring of threats are urgently needed so that the threats can be controlled.

2.1.1 Direct Tiger Loss

Tiger poaching and associated trade have potential to decimate a population over a short period of time (Kenny *et al.* 1995, Chapron *et al.* 2008). Little is known about tiger poaching in Bangladesh (Saif 2016, Saif *et al.* 2016), with cases only being documented from opportunistic arrests or seizures by the authorities. According to the BFD records, at present there are low numbers of poaching incidents reported from the Sundarbans, with up to two incidents each year, but the majority of incidents are unlikely to be detected due to the covert and illegal nature of this activity. Moreover, little is known about the national demand for tiger parts, although a 1997 survey reported substantial trade in tiger skins, teeth, and claws (Nowell 2000). What is known is that there is a high regional demand for tiger products and an established international trade (Nowell 2000, Nowell and Xu 2007), so it is unlikely that Bangladesh will be overlooked as a source of tiger parts, particularly as other tiger populations dwindle. The geographical position of Bangladesh between India and Myanmar, countries that experience rampant poaching, may further increase the vulnerability of tigers in the Sundarbans (Nowell and Xu 2007). The shipping route through the Sundarbans, and the international port in Mongla in the immediate upstream of the Sundarbans, offer easy export of tiger parts to other countries.

According to the TRAFFIC report published in November 2016 (Stoner *et al.* 2016), there were reported 20 seizures of tiger from Bangladesh during 2000-2015, accounting for 2.4% of the total number of seizures in the tiger range countries. The majority of these were for just one commodity type (skin), with only four seizures involving more than one tiger. Overall, an estimated minimum of 41 tigers and a maximum of 55 tigers have been seized in Bangladesh, accounting for 2.2% of the global total. Bangladesh reported the highest number of seizures in 2015, consisting mainly of tiger skins. This is consistent with overall trends, as skin is the most commonly seized commodity in Bangladesh, making up 46% of the total of items seized. Skin was present in 12 of the 20 seizures that took place.

In the villages along the Sundarbans some tigers are killed through retribution killings associated with tiger-human conflict. Records show that up to three tigers are killed each year (Khan 2004, Barlow 2009). These retribution killings are a result of bad feelings towards tigers due to human- or livestock-killing incidents or simply because the tiger is perceived as a threat when it strays into a village (Khan 2004, 2011; Barlow 2009). Large carnivores are generally unpopular with the people that share their range as they are blamed for loss of lives and livestock (Schaller and Crawshaw 1980). Carnivores' protein-rich diet and large home ranges draw them into recurrent competition with humans, who have somewhat similar needs (Treves and Karanth 2003). Tiger-human conflict creates negative attitudes in local communities towards tigers, making achievement of long-term conservation objectives difficult (Madhusudan 2000, Nyhus and Tilson 2004, Sangay and Vernes 2008) (Box 1). There is always the potential for tigers to die from disease, but there has been no research in this area. Furthermore, it is



The Sundarbans

The largest single mangrove forest on earth
and the only mangrove forest where wild
tigers survive

likely that tigers that die from disease will do so undetected unless the population is subject to intensive study. Captive tigers have died from Avian Influenza, and captive and wild tigers have died from Canine Distemper (Appel and Summers 1995, Myers *et al.* 1997, Keawcharoen *et al.* 2004, Goodrich *et al.* 2005). Feline Immunodeficiency virus is also widespread amongst wild felids and has been found present in tigers (Olmsted *et al.* 1992). Other potential tiger diseases include Feline Chlamydia, Dirofilaria, Feline Calicivirus, Feline Coronavirus, Feline Leukaemia Virus, Feline Herpes Virus, Feline Parvovirus, Tuberculosis, Pseudo-rabies, Rabies, and Sarcoptic Mange (J. Lewis pers. comm.). Indiscriminate disposal of litter by visitors and release of domestic chicken and goats in the Sundarbans by the local people (in order to please the spirit of the Sundarbans) can serve as the bridge to spread the diseases (M.M.H. Khan pers. obs.). Another potential threat to the isolated Sundarbans population is inbreeding depression, but this may not be a high priority issue considering the relatively large size of the population.

Overall, an estimated minimum of **41** tigers and a maximum of **55** tigers have been seized in Bangladesh, accounting for **2.2%** of the global total. Bangladesh reported the highest number of seizures in 2015



Photo credit: Md. Modinul Ahsan



Tiger skins

Tiger skins seized from poachers
near the Sundarbans



Photo credit: A.N.M. Hossain

BOX 1

Box 1. Tiger-human conflict in the Sundarbans

The Sundarbans suffers the highest level of human-killing by tigers in the world (Khan 2004, 2011; Barlow 2009), and surveys suggest that livestock-killing and retaliatory killings of tigers are also acute problems (Rahman *et al.* 2009, Saif 2016, Saif *et al.* 2016). Based on the official records of 2008-2015, an average of 23 humans were killed by tigers every year (Figure 7), which is much less compared to the historical records (Curtis 1933, Hendrichs 1975). The total number of cases is probably higher than reported because some people who are injured but later succumb to their wounds are not recorded, and some non-permit holders killed might not be reported to the BFD (Jagrata Juba Shangha 2003; Khan 2004, Barlow 2009). It is essential to find solutions to minimise tiger-human conflict in order to reduce the misery inflicted on local communities and secure their support for tiger conservation.

According to the official records, an average of three tigers used to be killed several years ago (Khan 2004, 2011; Barlow 2009), but in recent years (2008-2015) the average number has declined to one per year (Table 2), which might correspond to the decline of tiger population. Moreover, straying of tigers into the villages is a common phenomenon around the Sundarbans (Table 2). If tigers are found in villages or neighbouring fields, they are often killed by the villagers who surround the tiger and beat it to death with sticks. Poisoning, shooting, or snaring may also be used in retribution killings, but the extent or effect of these practices is unknown. This additional source of tiger loss could have a sizeable impact on the long-term viability of the tiger population (Chapron *et al.* 2008; Goodrich *et al.* 2008).

Livestock depredation occurs in many villages along the forest boundary, particularly in the east. Results from surveys suggest that about 80 livestock are killed every year (Rahman *et al.* 2009), but the causes and potential solutions for livestock depredation have yet to be identified.

The first steps to reduce the conflict are being piloted by the BFD and partners in the forms of Village Tiger Response Teams (VTRTs) and Forest Tiger Response Teams (FTRTs). The village-based response teams are being formed in the bordering village areas to deal with stray tigers and monitor livestock killing. The teams are reached through a Tiger Hotline number publicised in BFD posts and villages (Greenwood 2009). Moreover, packs of domestic dogs controlled by leashes by their handlers, together with some additional people with sticks, were found effective in driving the stray tigers from the village to the forest (Khan 2008). The forest-based response teams are boat-based teams to tackle human-killing inside the forest by providing medical assistance, transporting victims, retrieving bodies, and patrolling areas where human-killers are active. Moreover, the compensation scheme for death and injury from tiger and crocodile attacks, launched in 2010, has started to contribute to reducing the conflict and changing hostile behaviour of the local people towards the tiger and other wildlife. Under this programme BDT 1,00,000 per victim is paid in case of death and BDT 50,000 per victim is paid in case of injury. During 2011-2016, the Sundarbans

East Forest Division has paid BDT 1,50,000 for two victims of tiger and BDT 4,00,000 for four victims of crocodile, whereas the Sundarbans West Forest Division has paid BDT 46,00,000 for 51 victims of tiger. Some good practices from the Indian side of the Sundarbans could also be tried, e.g. the use of fishing net fences along the village-forest interface, which have reduced the incidence to tiger straying into villages with fences by almost 90%.

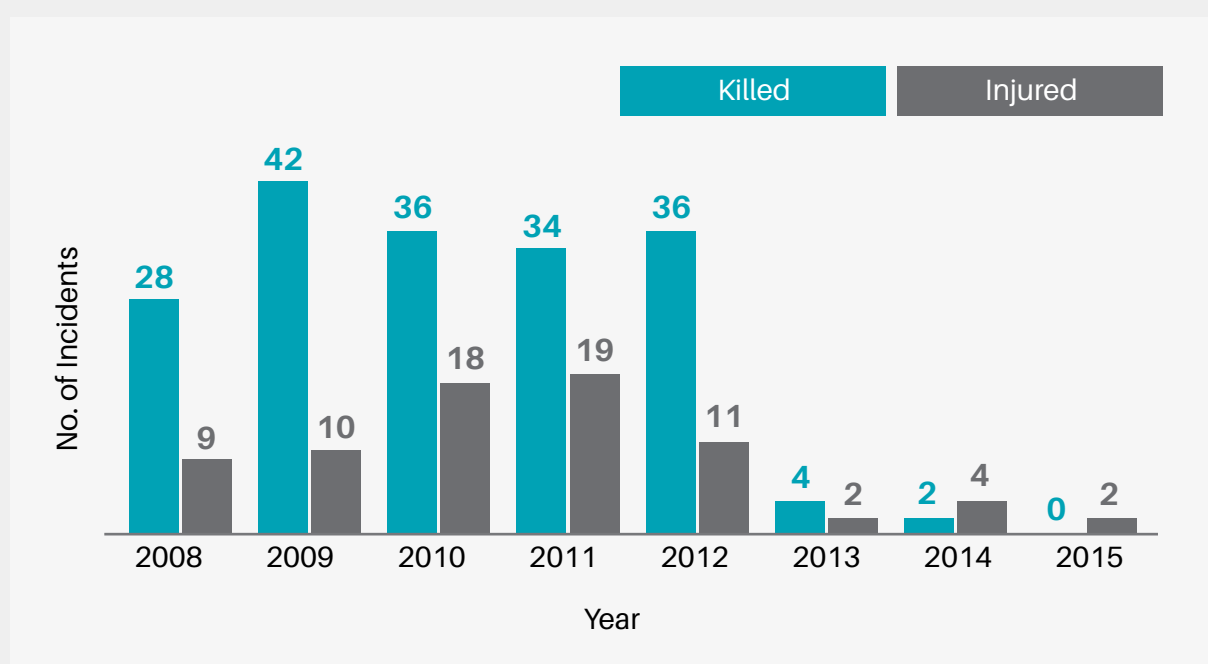


Figure 7. Official number of people killed and injured by tigers in and around the Sundarbans.

Table 2. Official number of tigers killed and injured by people in and around the Sundarbans, and tigers strayed into the villages around the Sundarbans

Year	Killed	Injured	Strayed
2008	1	0	0
2009	2	0	4
2010	2	0	14
2011	1	0	2
2012	2	0	73
2013	0	0	16
2014	0	1	5
2015	0	0	6

2.1.2 Prey depletion

The number of tigers that an area can support is largely dependent upon the number of suitable prey. Tiger and prey numbers show strong positive correlation in any undisturbed area and, as a thumb rule, the large prey density should be at least 500 times higher than the tiger density to sufficiently sustain the tiger population (Schaller 1967, Smith *et al.* 1987, Karanth *et al.* 2004, Khan 2011). The main prey for tigers in the Sundarbans is spotted deer (*Axis axis*) and to a lesser extent wild boar (*Sus scrofa*) (Reza *et al.* 2001, Khan 2004). Barking deer (*Muntiacus muntjak*) is also present in low numbers, and may fall prey to tiger (Khan 2004). Earlier studies reported a more diverse range of prey species including swamp deer (*Cervus duvauceli*), hog deer (*Axis porcinus*), and wild water buffalo (*Bubalus bubalis*), but these are no longer present in the Sundarbans (Curtis 1933, Seidensticker and Hai 1983, Blower 1985).

Prey depletion is a serious threat to any tiger population and there are signs that it is occurring in the Sundarbans, with snaring apparently the most common practice (Jagrata Juba Shangha 2003). This technique can also kill non-target species such as tigers. Preliminary investigations suggest that many forest users poach deer as a secondary activity to support their own food requirements while working in the forest, and to supply friends and family when they return to their communities (Mohsanin *et al.* 2012. data). The nature and scale of specialist poaching efforts are unknown, but the market for wild meat consumption is thought to be largely local (Khan 2004).

Prey could also be depleted through disease introduced by domestic animals; in some northern parts of the forest, deer share habitat with cows and goats which graze illegally inside the forest (Rahman *unpubl.* data). No research has been carried out to understand disease occurrence in the prey population. Disease can also spread through the domestic chicken and goats that are released in the Sundarbans for spiritual reason (i.e. to please Gazi) (M.M.H. Khan pers. comm.).

2.1.3 Habitat loss and degradation

Habitat loss and degradation imperil tigers by reducing, thinning, and fragmenting the area in which they can live and reproduce. The Sundarbans shares many threats to habitat in common with other tiger habitats, but also has a variety of factors unique to the socio-political landscape in which it is embedded and the particular dynamics of a mangrove ecosystem (Seidensticker and Hai 1983).

The Sundarbans is approximately half the size it was 200 years ago, because the colonial rulers had decided to clear a large portion of the mangroves in order to expand the agricultural lands (Curtis 1933; Biswas *et al.* 2008, Khan 2011). However, despite being situated in the most densely populated country in the world, the current boundaries of the forest have been maintained since the early 1900s (Curtis 1933, Iftekhar and Islam 2004, Biswas *et al.* 2008). Studies suggest that coverage and density of larger diameter trees, canopy closure, and diversity have declined over the last 100 years or so (Canonizado and Hossain 1998, Iftekhar and Islam 2004, Iftekhar and Saenger 2007). However, the amount and rate of change is unclear as the studies have been based on past forest inventories

which used a variety of methodologies, making comparisons to assess long term change over time problematic (Iftekhhar and Saenger 2007).

There are a number of potential threats to the Sundarbans, perhaps the most immediate of which is the illegal exploitation of natural resources (Hossain *et al.* 2016). The burgeoning population along the Sundarbans periphery have few alternative livelihood options and have little choice but to depend upon the forest for their survival; thousands of people enter the forest on a daily basis to harvest the natural resources of the Sundarbans. The most economically valuable wood species is Sundri, a hardwood generally used for building houses, making boats, anchor posts and fuelwood (Canonizado and Hossain 1998). The legal harvest of Sundri has been suspended since 1990 due to declining stock, but some illegal felling continues (Canonizado and Hossain 1998). Gewa is the second most valuable timber species. It was cut for paper production in government owned newspaper mill until their closure in the early 2000s when that became a losing concern. Gewa continues to be used for building materials, out rigging for boats, fishing materials, and fuelwood (Canonizado and Hossain 1998). Goran trees are cut extensively for fuelwood, used by local communities and industries such as brick manufacturing. Goran bark is rich in tannins which are used to preserve fishing nets and sails. Other tree species are Keora, Kankra (*Bruguiera* spp.), Baen, Dhundal (*Xylocarpus granatum*), passur (*Xylocarpus mekongensis*), and singra (*Cynometra ramiflora*), which are used as substitutes for sundry and gewa. Golpatta palm (*Nypa fructicans*) and sungrass (*Imperata* sp.) are also collected for thatching materials (Canonizado and Hossain 1998). Honey and wax are collected by specialist teams of honey hunters hired by businessmen who then sell the products in the market. Fishermen also enter the mangroves to gather fish, crabs, and other marine life. The BFD licenses fishing and maintains records of this activity, but there is no scientific monitoring or management of fish stocks (Canonizado and Hossain 1998).

The impact of current extraction levels on the overall ecosystem has not been quantified, but short term studies undertaken in the 1980s and 1990s suggest this may be the main cause of the mangrove's continued degradation (Iftekhhar and Islam 2004). The Integrated Forest Management Plan for the Sundarbans Reserved Forest compared the inventories carried out in 1959, 1983 and 1996, highlighted a rapid decline in Sundri and Gewa growing stock, and prescribed immediate regulatory measures and a strict 20 year felling schedule (1998-2018) to ensure sustainable extraction (Canonizado and Hossain 1998). However, the lack of resources for forest protection together with demand from expanding communities and industry undermine the regulation of harvesting levels. Sustainable resource extraction will, therefore, only be realised through improved forest protection, alternative livelihoods and alternative sources of essential forest products.

There is no human habitation permitted inside the forest other than BFD, coast guard, and navy camps. Infrastructure within the forest is generally limited to the buildings of these camps and some tourist facilities such as walkways and watch towers. However, there are some semi-permanent fishing communities operating at the southern edge of the forest. These fishermen use forest materials for fuelwood and in the constructions of their jetties, shelters, and fish drying beds (Canonizado

and Hossain 1998). The impact of these encampments on the forest, tigers, and prey has not yet been quantified. Some forest areas close to the villages in the north and north east appear to be degraded from local wood collection, and there is also illegal grazing of domestic livestock which could reduce the available food for prey (Rahman *et al.* 2009).

Other threats are more difficult to quantify or even identify because their effects are less visible and might only be measurable over the long-term, and they may originate outside the forest. For example, there is little information about the presence of disease and its potential impact on the forest. There are some studies on a condition known as 'Top Dying' in sundri trees, but its impact and causes are not clearly understood (Canonizado and Hossain 1998, Iftekhhar and Islam 2004). The type and distribution of invasive species has been investigated; 23 invasive plants were identified and the rate of invasion was notably higher near river banks and some areas close to human habitation (Biswas *et al.* 2007). This 2007 study concluded that, whilst control of invasive species is only successful if undertaken before the plants become well-established, invasive species in the Sundarbans were still at a manageable level due to the ecosystem constraints. However, monitoring and management intervention activities are not in place, and the impact on tiger and prey habitat is not fully understood.

Pollution of the rivers from industrial, shipping, tourism, urban, agricultural, and aquaculture sources may be damaging the Sundarbans. However, except for preliminary identification of some toxins, little work has been published on the extent and impact of pollution (Hussain 2014). The increase of ship and cargo vessel navigation through the Sundarbans pose accidental damage risk, particularly if those are loaded with toxic chemicals. The industrialisation along the northern boundary of the Sundarbans is causing the increase of pollution in the Sundarbans. Large-scale mineral and gas exploration and extraction has not been carried out so far in the Sundarbans, and its potential impact on the ecosystem, in terms of pollution and habitat destruction, has not been assessed.

Protect, restore
and promote
sustainable use
of terrestrial
ecosystems,
sustainably
manage
forests, combat
desertification,
and halt and
reverse land
degradation
and halt
biodiversity loss



Sea-level rise caused by climate change has been noted as a serious threat to habitats in the Sundarbans, with current predictions suggesting substantial land loss from increased inundation over the next 50 years (Agrawala *et al.* 2003). These predictions do not take into account the changes in compensatory factors such as sedimentation rate and mangrove adaptation (Stanley and Hait 2000, Allison *et al.* 2003); the coastal areas of Bangladesh are currently growing by about 20 km² per year (Inman 2009), and mangroves in other areas are known to have flourished despite sea-level rises of at least 3.8 mm a year (Hendry and Digerfeldt 1989). Although improved understanding of this issue is required, some current estimates of sea-level rise are over 1 m by 2100 (Hansen 2007, Rahmstorf 2007, Pfeffer *et al.* 2008), so it is prudent to go for mitigation solutions following the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2008.

Tropical cyclones are a regular occurrence in the region with approximately one cyclone per year hitting Bangladesh (Islam and Peterson 2008). Climate change is expected to increase cyclone frequency, which may be an additional source of stress to the forest. On the contrary, the forest may be one of the best methods of protecting the coastline of Bangladesh from the effects of climate change, and expansion of the coastal greenbelt through mangrove afforestation is a component of the BCCSAP of 2008. Freshwater flow into the Sundarbans may also be affected by climate change-induced alterations in rainfall and melting of Himalayan snows (Agrawala *et al.* 2003; BCCSAP, 2008). Dry season freshwater flows have fallen due to extraction of water from the upper reaches of the Ganges for irrigation, navigation and industry. The building of the Farakka barrage in 1975, for example, has been directly linked to the reduction of freshwater flow into Bangladesh and the Sundarbans (Iftekhar and Islam 2004). Embankments and diversion of water for irrigation within Bangladesh also reduce freshwater flows. The combined impact of increased inundation from the sea and decreased freshwater flow may increase salinity levels, particularly in the dry season, which could change vegetation patterns (Agrawala 2003), and thus effect the distribution of tigers and prey.

2.2 CHALLENGES

An effective tiger conservation effort is challenging and complex, requiring a holistic approach that can be swiftly adapted to changing conditions and the emergence of new information. Carrying out such an approach will require a substantial increase in capacity to develop and carry out conservation activities. Capacity requirements can be grouped into five areas: institutional development and policy, forest protection and law enforcement, education and awareness, research and monitoring, and collaboration. This section outlines the current state of each area with suggestions for improvements.

2.2.1 National policy

Whilst the importance of the Sundarbans and its tigers is recognised, their conservation needs to be integrated into the GoB development agenda to ensure complimentary policy and action. Implementation of BTAP will contribute to the implementation of the Bangladesh National Conservation Strategy (BNCS, 2016), National Biodiversity Strategy and Action Plan (NBSAP, 2016), and the Sustainable Development Goals (particularly the SDG 15) by the year 2030.

The SDG 15 is 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss', which is directly linked with the BNCS and BTAP. In Bangladesh the biodiversity is key to human lives and livelihoods, because a large proportion of the population depend on natural resources for their survival. The overall goal of the BNCS is to ensure the conservation of the country's resources of all sectors, and ensure the sustainable and equitable use of the resources in order to ensure the sustainable socio-economic development. As a party to the Convention on Biological Diversity (CBD), Bangladesh is committed to achieve the five strategic goals of Aichi Biodiversity Targets during 2011-2020, which can be achieved by implementing BNCS and BTAP. Notably, Article 13 of the CBD calls for each Contracting Party *'to promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity, as well as its propagation through media, and the inclusion of these topics in the education programmes'* Bangladesh has the obligation to address Article 13 and other relevant Articles of the CBD by producing the necessary strategy and policy documents, and implementing them. Therefore, Bangladesh produced the first version of the NBSAP in 2006, which was updated in 2016. Since the tiger and the Sundarbans are the key natural resources of Bangladesh of global renown, implementation of BTAP will ensure the implementation of a major part of the NBSAP.

The first-ever national master plan for wildlife conservation, i.e. Bangladesh Wildlife Conservation Master Plan (BWCMP) 2015-2035 has produced in 2015, which will guide the future conservation of wildlife, including the tiger, for the next 20 years. The vision and strategies of this plan are based on an analysis of the key values of the country's wildlife and its threats. It elaborates the broad, long-term strategies of the key plans and strategies prepared, such as the National Biodiversity Strategy and Action Plan and Bangladesh Tiger Action Plan. The overall goal of the BWMP is to ensure the

sustainable conservation of the wildlife of Bangladesh as an asset for the benefit of the current and future generations. The specific objective is to realise essential conditions for sustainable wildlife management in Bangladesh. The objectives are operationalised in 12 priority intervention areas matching the policy guidelines of the conservation policy, which are: i) species programmes, ii) habitat management, iii) ecological network, iv) land use planning, v) protected area management, vi) institutional development and capacity building, vii) policy and legal framework development, viii) international and regional cooperation, ix) supporting communities in wildlife zones, x) nature based tourism development, xi) communication, awareness and education, xii) wildlife research.

An economic assessment of the Sundarbans ecosystem services, together with identification of conservation-friendly revenue generation schemes, is also needed, which would help to mainstream Sundarbans and tiger conservation into development policy and action. Raising cross-ministry and national awareness of the importance of the Sundarbans and its tigers is needed to further garner the political support for development and integration of a tiger-friendly policy.

2.2.2 Institutional development

The BFD is the primary custodian of wildlife and forests for the entire country, and in recent years is strengthening its commitment to biodiversity conservation. The BFD was formed in 1864 during the colonial period and is responsible for the management of the Sundarbans and all other forests in Bangladesh. It has a number of territorial divisions that are responsible for the prevention of illegal activities, regulation of legal extraction, permit issuance and revenue collection. Within the BFD a Wildlife and Nature Conservation Circle (WNCC) was formed in 2001, which established dedicated posts to safeguard wildlife, primarily in the protected areas (Mitchell et al. 2004). The WNCC does not yet have sufficient institutional presence or resources to fully carry out its intended role. In the Sundarbans the territorial DFOs, rather than WNCC staff, currently administer both the reserved forest and the wildlife sanctuary areas. Furthermore, staff are regularly transferred between wildlife and territorial posts and also between forests, hampering the development of wildlife or ecosystem conservation specialists. Indeed, the majority of BFD staff have forestry-related backgrounds so additional biodiversity conservation skills across all staff could be developed. Retaining staff within the WNCC would enable those personnel with interest and experience on wildlife and conservation, and to receive specialised training. In addition to protected area management, responsibilities of the WNCC should extend to wildlife monitoring, wildlife crime investigation and human-wildlife conflict mitigation. A large number of wildlife is found outside the protected areas, and WNCC staff would therefore need appropriate resources and jurisdiction. For example, high densities of tigers, tiger-human conflict incidents and wildlife crimes are found outside the three wildlife sanctuaries of the Sundarbans. Specialists could also be retained in specific forests, for example, tiger and mangrove specialists in the Sundarbans.

BOX 2

Box 2. Legislation, conventions and national policies related to tiger conservation

a. National legislation

- The Bangladesh Government has given highest priority in the conservation of natural resources of Bangladesh including wildlife by the 15th Amendment (in 2012) of her constitution (<http://bdlaws.minlaw.gov.bd>) under the title "Protection and improvement of environment and biodiversity".

According to the Section 18 A of Bangladesh Constitution: *The State shall endeavour to protect and improve the environment and to preserve and safeguard the natural resources, bio-diversity, wetlands, forests and wild life for the present and future citizens.*

- **Forest Act, 1927 (Amended in 2000):** This Act makes provision for reserved forests; it prohibits the carrying of guns, grazing of cattle, felling of any tree, removal of any forest produce, and setting fire to and clearing of land for cultivation or any other purpose.
- **Bangladesh Wildlife (Preservation) (Amendment) Act, 1974, and Wildlife (Conservation and Security) Act, 2012 and Bangladesh Wildlife Order, 1973:** The tiger and the spotted deer are defined as 'protected animals' in Schedule 3 of the Order 1973. The Order was refined and enacted as Act in 1974. The three Sundarbans wildlife sanctuaries were set up under this Act. In 2012, the new Act replaced the previous one and retained tiger and spotted deer as protected species under Schedule, and also increased imprisonment and fine for killing tigers.
- **The Bangladesh Environment Conservation Act, 1995:** This deals with cases of environmental degradation. In 1999 under the 1995 Act, Bangladesh declared the 10 km of land adjoining the Sundarbans as an Ecologically Critical Area (ECA). The ECA rules prohibit a number of activities from damaging natural trees, animals and fish, and to establishing factories that pollute soil, water and air. However, this area was already converted to agriculture and aquaculture, and heavily populated before the ECA was declared. Moreover, there are instances of establishing factories within the ECA.

BOX 2

Box 2. Legislation, conventions and national policies related to tiger conservation

b. International conventions

- **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** The trade of tiger parts is prohibited under Appendix I of the CITES. Bangladesh acceded to CITES in 1982.
- **Convention on Biological Diversity (CBD):** Signed by Bangladesh in 1992, the objective of this treaty is the conservation of biodiversity which is identified as being essential to socio-economic development. This BTAP will contribute to meeting such obligations through its aim to secure the future of the Sundarbans and its tigers.
- **Ramsar Convention:** The Sundarbans has been designated as a Wetland of International Importance under this convention, which Bangladesh ratified in 1992. The Ramsar Convention provides a framework for the conservation and wise use of wetland resources.
- **United Nations Framework Convention on Climate Change (UNFCCC):** As a major climate change affected country, Bangladesh is a party to UNFCCC since it entered into force in 1994. The UNFCCC objective is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The framework sets no binding limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. Instead, the framework outlines how specific international treaties may be negotiated to set binding limits on greenhouse gases. Notably, the Sundarbans represents an important carbon sequestration site for the country.
- **UNESCO World Heritage Convention:** The three main wildlife sanctuaries of the Sundarbans were declared a UNESCO World Heritage Site in 1997, drawing national and international attention to this unique ecosystem.

BOX 2

Box 2. Legislation, conventions and national policies related to tiger conservation

c. National strategies and plans

- **Integrated Forest Management Plan for the Sundarbans Reserved Forest, 1998:** This plan provides a comprehensive report on current forest stocks and defines sustainable extraction levels for the next 20 years.
- **Integrated Resource Management Plan (IRMP):** This Integrated Resources Management Plans (IRMP), developed based on in-depth analyses of the current resources status and management situation, provides for ten-year ten strategic programs with specified goals and objectives, targeted outcomes/outputs with verifiable success criteria, framework activities, and appropriate guidelines for sustainably managing the Sundarbans Reserved Forests (SRF) and its interface landscape.
- **National Biodiversity Strategy and Action Plan, 2006 and 2016:** To fulfill the obligations of the Convention on Biological Diversity, the first NBSAP was prepared in 2006. Later on in 2016, the updated version was produced.
- **Bangladesh Capacity Development Action Plan for Sustainable Environmental Governance, 2007:** This document identifies obligations under conventions including the CBD and Kyoto, and outlines a national plan for capacity development for biodiversity conservation and climate change adaptation.
- **Bangladesh Climate Change Strategy and Action Plan, 2008:** This plan was developed by the Department of Environment, MoEF. Under this plan, activities directly relevant to the BTAP include: expansion of the coastal greenbelt through mangrove afforestation, development of monitoring systems to evaluate changes in ecosystem and biodiversity in all important and sensitive ecosystems and climate change scenario modeling.
- **Bangladesh Tiger Action Plan (BTAP), 2009-2017 and 2018-2027:** With the vision of 'Protected tiger landscape in Bangladesh, where wild tigers thrive at optimum carrying capacities and which continue to provide essential ecological services to mankind' the first BTAP (2009-2017) was launched in 2009. This BTAP (2018-2027) is the updated version of the previous one.
- **Bangladesh Wildlife Conservation Master Plan (BWCMP), 2015-2035:** The BWCMP was produced in 2015. The overall goal of the BWCMP is to ensure the sustainable conservation of the wildlife of Bangladesh as an asset for the benefit of the current and future generations. The specific objective is to realise essential conditions for sustainable wildlife management in Bangladesh.
- **Bangladesh National Conservation Strategy (BNCS), 2016-2031:** The NCS was launched in 2016. The overarching goal of the BNCS is to foster development in the country through the conservation, development and enhancement of natural resources in the country within the framework of sustainable development, particularly as envisioned under the Sustainable Development Goals (SDGs).

In 2013, the BFD established the Wildlife Centre (WC) that is expected to serve as the hub of wildlife related training, monitoring and research by the BFD staff and other partners. Although the WC is still at its infancy, it has great potential to contribute to human resource development and archiving information on wildlife. Moreover, general biodiversity conservation and protected area management training can also be provided to the territorial divisions to build on their production forestry skills. A staff review process that measures performance based on wildlife abundance and habitat condition as well as wildlife crime detection and control, would strengthen the impact of these organisational changes and foster a professional approach to the conservation and management. Furthermore, conservation of the Sundarbans requires development of fisheries and wetlands management skills.

There should be a focal person in the BFD to monitor and report the BTAP implementation progress to the Tiger Conservation Coordination Committee (TCCC) in the bi-annual meetings. Notably, in 2013 the Ministry of Environment and Forests (MoEF) formed the TCCC to strengthen coordination in tiger conservation efforts in Bangladesh. The detailed Terms of Reference of the TCCC should be made, so that it can effectively coordinate and monitor tiger conservation in Bangladesh. As an initial step and to progress BTAP implementation, WNCC staff could be assigned to coordinate BTAP activities. Duties would include the development of a BTAP implementation plan; design of a monitoring and evaluation approach; liaison with decision-makers in the BFD, MoEF and other ministries; and the creation of a platform to facilitate collaboration. Selected BFD staff of the Sundarbans can be trained to deal with tiger-human conflict incidents (particularly tranquilisation, handling and translocation of tiger and other wildlife), wildlife crime investigation, and tiger, prey and habitat monitoring activities. Associated incentives are needed that provide benefits for working on BTAP activities, such as the opportunity to undertake specialist training and further study.

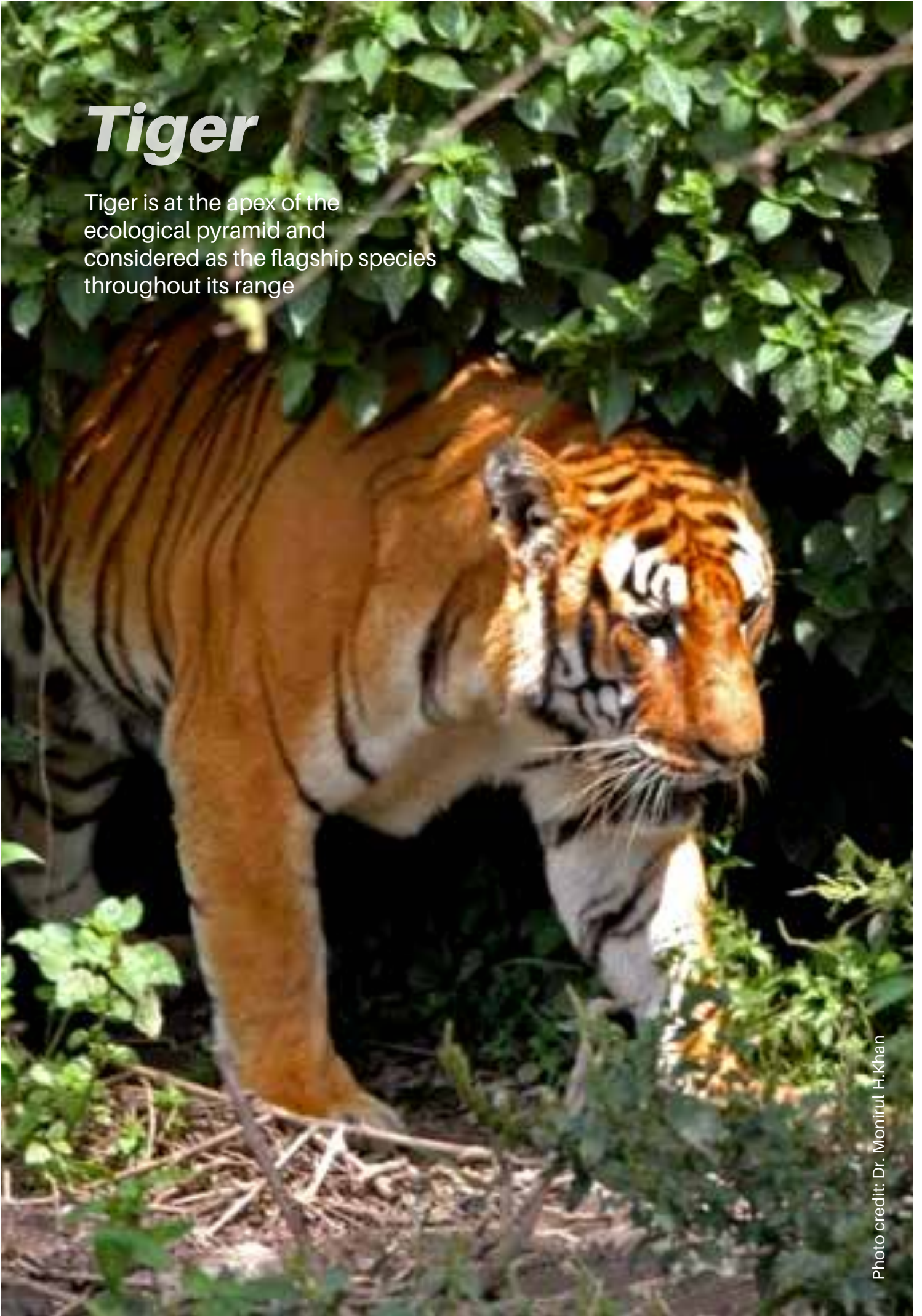
2.2.3 Forest protection and law enforcement

In addition to the development of institutional biodiversity conservation capacity, an effective BFD patrolling force is essential for the prevention of illegal and damaging activities such as poaching or unsustainable harvesting of natural resources. There is an urgent need to improve human resources, infrastructure and patrolling efforts. In 2015, the BFD initiated Spatial Monitoring and Reporting Tool (SMART) patrolling, side by side with the traditional patrolling, in the Sundarbans and the SMART patrolling was found significantly more effective than the traditional patrolling. However, the problem with SMART is that it requires more resources and trained manpower. The SMART patrolling is supported by some projects, but it should be continued and flourished, at least in the Sundarbans, in order to improve the forest and wildlife management.

Field observations suggest that BFD resources are insufficient for carrying out effective patrolling. Some patrol posts do not have boats, and many that do have slow wooden vessels and inadequate budget for maintenance or fuel. Accommodation conditions are basic and medical facilities are extremely limited. There are normally two or more guns assigned to each guard post, but some of these weapons and associated ammunition are very old. In any case, staff rarely use their arms as existing laws do not provide them enough protection if someone is killed or injured. There are also problems with drinking water and food supplies for some forest posts. In addition, there is no risk allowance to compensate for the unique dangers faced by BFD staff in the Sundarbans. Two BFD staff were killed by tigers in 2005 and one staff member was killed by a cyclone in 2007. In 2009, two more BFD staff were killed in confrontations with dacoits (local term for robbers and pirates). There is

Tiger

Tiger is at the apex of the ecological pyramid and considered as the flagship species throughout its range



also no budget set aside to cope with emergency situations such as periodic cyclones. Cyclone Sidr struck in November 2007 and destroyed many guard posts in the eastern side of the Sundarbans. A disaster recovery process is needed to ensure that patrolling levels are returned to normal as quickly as possible after these devastating storms.

Prior to 1973, tiger hunting in Bangladesh was legal, and bounties were offered as an incentive. The Bangladesh Wildlife (Preservation) (Amendment) Act of 1974 defines the tiger and the spotted deer as 'protected animals' and killing or capturing is a punishable offence. In case a tiger becomes a threat to human life, the animal can be officially notified by the Chief Conservator of Forests (CCF) for capturing or killing. The Act does not apply to any wildlife products in transit through Bangladesh as long as the products are accompanied by a transit customs document. This provision may be taken advantage of, because it is difficult for customs officials to confirm the source of wildlife products and authenticity of transit documentation. In 2012, a new Act, i.e. Wildlife (Conservation and Security) Act, replaced the previous act and increased the penalties for killing tigers: non-bailable and subject to imprisonment for minimum two years and maximum seven years as well as a fine of minimum BDT 100,000 and maximum 1,000,000. If the same person commits the crime again after releasing, the maximum level of imprisonment will be 12 years and the maximum fine will be BDT 1,500,000. The conversion rate of USD 1 was BDT 78.5 at the time of preparation of this document. Notably, there are provisions of imprisonment and/or fine for illegal killing or capturing of other wildlife as well, including the prey animals.

Three areas in the Sundarbans were declared as three Wildlife Sanctuaries (Sundarbans East, West and South) under the Wildlife Act, the first in 1960 and the second and third in 1996 (Figure 3). In these

Bangladesh Forest Department staff engaged in planning for setting camera-traps in the Sundarbans



Photo credit: Forest Department

areas the Act prohibits the entry of people, cultivation of land, damage or destruction of vegetation, hunting or capturing wild animals, introduction of exotic species, straying of domestic animals, causing of fires, and water pollution. The total area (1,397 sq km) of these three Wildlife Sanctuaries were also declared a UNESCO World Heritage Site in 1997. In 2012, three areas of rivers of the Sundarbans were declared Wildlife Sanctuaries, mainly for the conservation of dolphins. The entire Sundarbans (6,017 sq km) is a Reserved Forest and was declared a Ramsar Site in 1992. Moreover, a number of other national and international legislative initiatives have been established to offer some level of protection to the tiger, its habitat, and prey (Box 2).

In order to control the ecological degradation and pollution due to human activities, the 10 km periphery (area covering 292,926 ha) outside the boundary of the Sundarbans was declared as Ecologically Critical Area (ECA) in 1995 under the Bangladesh Environment Conservation Act of 1995. The Department of Environment, together with the local administration are responsible for implementation of the ECA. Since the entire region is low-lying, with frequent flood and tide, an impact zone of up to 20 km periphery outside the boundary of the Sundarbans should be maintained by the BFD (Sundarbans Divisions and Social Forestry Divisions), with proper legal instruments, so that it can serve as a buffer area for the Sundarbans. There should be a collaborative effort to make sure that there is no industrialisation and big infrastructure in the ECA or impact zone.

Setting of a camera-trap by Bangladesh Forest Department officials for monitoring tiger population in the Sundarbans



Photo credit: Forest Department

An assessment is required to investigate legislative gaps (e.g. lack of power of arresting wildlife offenders, problemmes in filing cases under the Wildlife Act of 2012), the sufficiency of existing penalties (particularly for prey poaching), the perceived risk of being punished, weak prosecution documentation and reporting, and barriers to prosecution. The Wildlife Crime Control Unit (WCCU) and Wildlife Forensic Laboratory (WFL) were established by the BFD in 2012 and 2016, respectively. These units can significantly strengthen the enforcement by creating improved capacity to investigate domestic crime and illegal international trade. A review can also be undertaken to ensure Sundarbans management strategies adhere to international conventions and protocols. A revision of forest zonation may also be needed to account for the current distribution of tigers and human use patterns across the landscape.

2.2.4 Education, awareness and community involvement

Without political support the BTAP and biodiversity conservation will continue to remain low on the government's agenda and separate from economic development plans and poverty reduction agendas. Support is also needed across a wide range of parties, from industry and private companies to public organisations and local communities. Without if the BFD is not supplied with the resources or legislative tools necessary to protect the forest, partners will not step forward to join in the tiger conservation challenge, and there will be little motivation to conserve and use natural resources sustainably.

Effective use of education and awareness raising programmes can support changes in knowledge, attitudes and behaviour to help achieve conservation objectives. A tiger conservation education and awareness strategy is needed to guide the development of carefully targeted and measurable campaigns that are integrated with other BTAP programmes. Successful campaigns need to be creative in their messages and use targeted methods to engage different audiences (Hesselink *et al.* 2007). Training is needed to develop conservation communication and social marketing specialists in Bangladesh, who will then be able to design, implement, and evaluate campaigns. The main target groups are the communities living around the Sundarbans. Tiger and Sundarbans conservation issues can be added in the school curricula. In many cases, however, education and awareness alone may not be enough to change the behaviour and must be used in conjunction with other conservation strategies. For example, forest users of the Sundarbans may know that they are using the forest unsustainably, but their immediate needs make it a matter of survival, in which case, education and awareness could be used to support other initiatives such as the development of alternative livelihoods.

The long-term survival of the tiger in the Sundarbans cannot be ensured without the active participation of the local communities. Bulk of the local people are directly or indirectly dependant on the natural resources of the Sundarbans and some have rather hostile relationships with the tiger. Therefore, involving the local people in tiger conservation will require some sort of mechanism so that the local people can get the direct benefits of conservation, such as sharing of revenue generated from tourism, development of cottage industry and marketing, and continuation of effective compensation mechanism for tiger victims. Moreover, alternative income generation scheme should be taken, especially for tiger victim families, so that more local people participate in tiger conservation activities.

2.2.5 Research and monitoring

Information is vital for policy formulation, development of adaptive strategies and monitoring of tiger, prey, and habitat levels as indicators of overall success. Without basic understanding of a species or the ecosystem in which it lives, it is not possible to assess the impact of various threats or predict and evaluate the outcome of management activities. Equally, without understanding the socio-economic context, which is often the underlying cause of many of the threats, little headway will be made in the development of long-lasting solutions. This information is lacking for most tiger landscapes, and the Sundarbans is no exception (Sanderson *et al.* 2006).

The information that could be obtained on Sundarbans tigers and the threats they face is infinite, but only some has the potential to guide conservation actions. A prioritised national BTAP research and monitoring agenda would help direct research activities in line with management needs. It is unrealistic for the BFD to collect all of the required information, so independent researchers and research organisations need to be engaged. It is also a good practice to involve independent bodies in monitoring activities to ensure transparency in interpretation of results. However, currently there are few biological, ecological and social studies being carried out that can directly inform conservation strategies and only a small number of people are involved in tiger conservation research.

The universities and research organisations generally do not have enough funds to give national students and young researchers the opportunity to undertake often costly fieldwork in the Sundarbans. Scholarships would increase the number of students able to undertake research on tiger and other biodiversity in the Sundarbans and build a new generation of tiger conservationists for the country. A research cum wildlife rescue centre could be established close to the Sundarbans by BFD where the universities and research organisations facilitate research activities on tigers and the Sundarbans. This would encourage collaborative efforts with BFD and innovative research by various bodies. There is also a need to improve the availability of national conservation biology undergraduate and graduate training, and the involvement of students and professionals with social science backgrounds.

The BFD has made major progress in standardising the monitoring protocols for tigers, other major fauna, human impacts and habitat for the Sundarbans. Simple yet effective formats for data collection were developed in collaboration with the Wildlife Institute of India. The BFD staff working in the Sundarbans were trained in their implementation and systematic data were collected across the Bangladesh and Indian Sundarbans to infer statistically robust estimates of occupancy of major fauna as well as tigers (Jhala *et al.* 2016). The camera-trapping protocols too have been standardised and implemented across the Bangladesh and Indian Sundarbans (Das *et al.* 2012, Dey *et al.* 2015, Roy *et al.* 2016, Jhala *et al.* 2016). These protocols need to be implemented on a regular basis to assess the success of conservation investments in terms of species occupancy and abundance response to management actions.

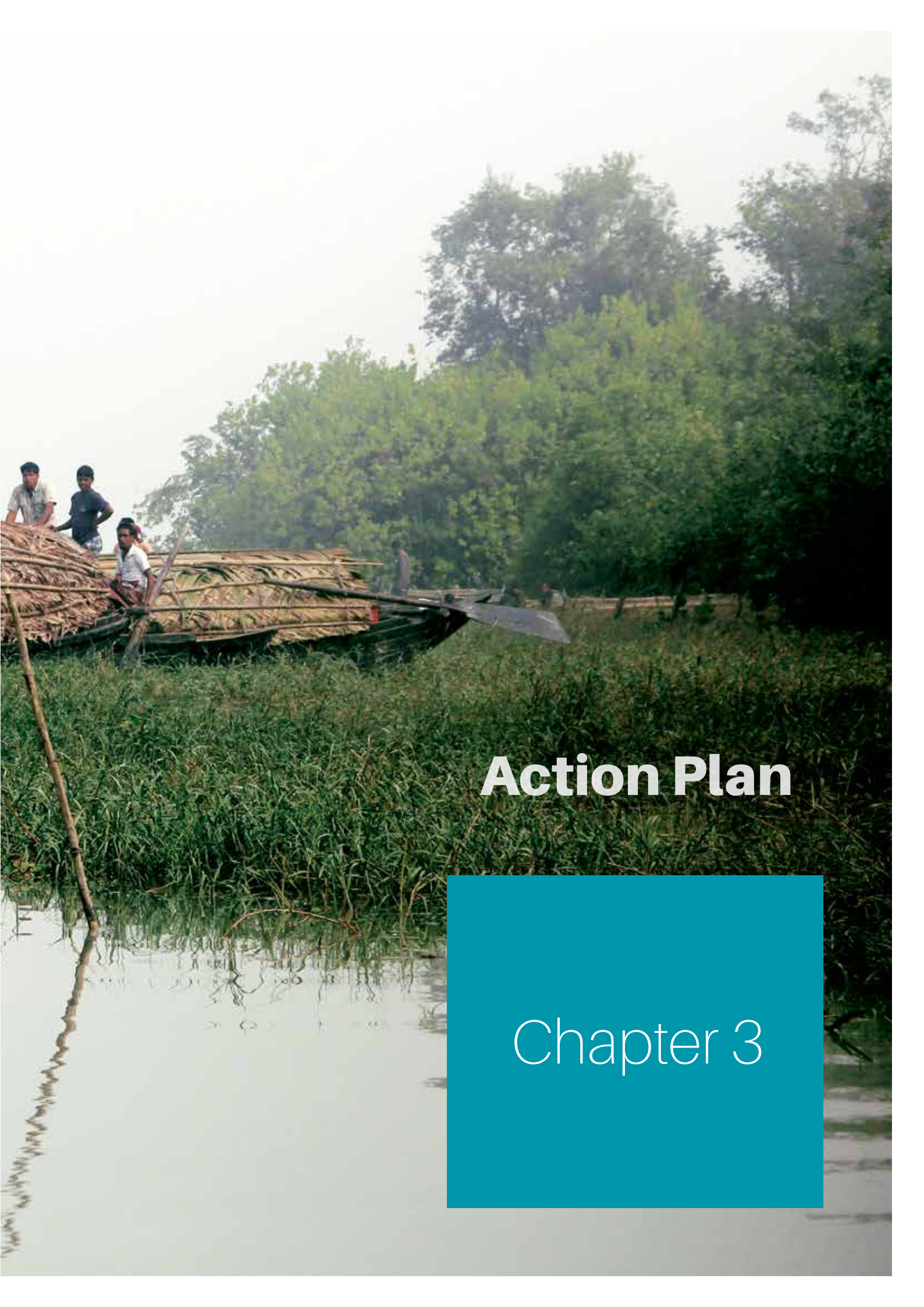
2.2.6 Collaboration

The immense scale and multifaceted nature of tiger conservation requires a wide array of skills and resources. Although the primary responsibility of tiger conservation lies to the BFD, collaboration with other government departments, academic institutions, national and international NGOs, private sector and local communities is needed to develop a successful tiger conservation effort. A platform should be formed to engage the relevant organisations and coordinate an integrated tiger conservation programme. An BFD-led alliance could facilitate this, which can be guided by the TCCC. This would also provide a platform for the BFD and collaborators to support one another in securing funding to carry out BTAP activities.

It is also essential to engage with the people who directly rely upon the resources of the Sundarbans for their economic wellbeing and those whose lives are directly affected by THC. Integration of these communities into forest management will shift the overall paradigm from top-down policing to a more inclusive and mutually beneficial approach. This would build on previous and ongoing BFD activities such as the social forestry initiatives, alternative income generation and co-management (Mitchell *et al.* 2004). The co-management framework specific to the Sundarbans would facilitate the development of conservation activities, including alternative livelihood options and solutions to deal with THC. There may also be opportunities to involve other GoB bodies in initiatives for tiger and Sundarbans conservation.

Furthermore, conserving the Sundarbans tiger population will require the creation of a trans-boundary approach with neighbouring India. In 2011 the Governments of Bangladesh and India have signed a memorandum of understanding (MoU) on conservation of the Sundarbans, and a protocol on conservation of the tiger in the Sundarbans. Both countries have agreed that the biodiversity, particularly the tiger, of the Sundarbans must be conserved by joint actions and none of the two countries will do anything that might threaten the Sundarbans. Under these two mutual agreements a number of strategic actions have been proposed to be done in collaboration such as joint research and monitoring (on tiger, prey and other biodiversity), adoption of joint management, sharing of relevant information and technical knowledge (e.g. on THC) between the concerned officials of the two countries, execution of patrolling along the respective borders of the two countries to prevent poaching and illegal trade, and capacity building by exchanging personnel for training and promotion of education. The collaboration between Bangladesh and India needs to be strengthened in terms of joint monitoring, patrolling, and sharing information on poaching and illegal trade. Notably, the Sundarbans tiger population between Bangladesh and India forms a single population and its viability in the long-term is enhanced only if it is managed as a single large population. Therefore, active collaboration for joint strategies to maintain ecological integrity, population assessment and monitoring are essential. For the Chittagong Hill Tracts the continued habitat connectivity with the populations in neighbouring India and Myanmar is vital for tiger occupancy and presence in the region. Moreover, Bangladesh can open dialogues with other countries to help combat the illegal trade in tiger parts.





Action Plan

Chapter 3

Chapter 3

Action Plan

3.1 OVERVIEW

This action plan for tiger conservation in Bangladesh will be followed over the next ten years (January 2018 to December 2027). The ten year term is chosen because the main constraint of tiger conservation in Bangladesh is not to have updated strategy document, but poor implementation of it, as evident during the tenure of the first BTAP (Box 3). Programmes and projects to implement the BTAP, however, need to be taken urgently. It is essential to first know the status of tigers and subsequently monitor the change in status to assess the success of conservation investments. During the tenure of the first BTAP the baseline essential to monitor success was not available, now with the use of modern scientific tools we know with reasonable certainty the status of tigers in Bangladesh. The goals of the current BTAP can now be assessed against a standard benchmark.

The plan provides a vision for the future of tigers in Bangladesh and a set of goals to guide all conservation efforts. For each goal there are a set of objectives and a range of strategic actions to combat the threats and challenges. As a strategy document, the BTAP does not contain a detailed implementation plan including activities, responsibilities, and budgets. Subsequent planning and mobilisation sessions should follow the contents of the BTAP, turning these into prioritised project concepts, and developing the necessary collaboration needed to ensure their implementation.

This action plan will be reviewed in the middle of the tenure of the plan (e.g. 2022). This is to track the activities mentioned in the plan and to evaluate the real progress.

Road to Updating BTAP 2018-2027

The Bangladesh Tiger Action Plan (BTAP) is a policy-level document that offers a structured approach to achieving long-term conservation of tigers in Bangladesh. The first version of BTAP was for the period July 2009 to June 2017 (Ahmad *et al.* 2009) and this updated version is for the period January 2018 to December 2027. It provides a vision, goals and objectives to guide an integrated and focused tiger conservation programme. The updating process involved extensive consultation and debate in workshops at three levels: four range level workshops Chandpai, Satkhira, Khulna and Sarankhola Ranges in September 2016; one regional workshop in Khulna in October 2016, and two national workshops in Dhaka in November 2016.



3.2 VISION AND GOALS

Vision

Protected tiger landscapes in Bangladesh, where wild tigers thrive at optimum carrying capacities* so as to perform their ecological role, and which continue to provide essential ecological services to mankind

Goals

Goals to address threats

- Increase the current tiger density in the Sundarbans from 2.17 to 4.50 per 100 sq km
- Maintain sufficient prey base (i.e. large prey density at least 500 times higher than tiger density) to support the tiger population in the Sundarbans
- Maintain sufficient habitat and habitat diversity to support the tiger and prey populations in the Sundarbans
- Ensure a suitable tiger population in the Chittagong Hill Tracts

Goals to address challenges

- Mainstream tiger conservation into the GoB's development agenda
- Improve conservation capacity in the BFD and its partners
- Improve law enforcement to ensure protection of tiger, prey and habitat
- Build national capacity to implement education and awareness programmes, and community involvement
- Build capacity to conduct tiger conservation research and monitoring
- Encourage collaboration to support the BFD in implementation of the BTAP

*Carrying capacity is defined as the maximum population size that the environment can sustain over the long-term, considering the available resources. Currently there is insufficient information to determine the optimum carrying capacity of tigers in the Sundarbans, and therefore no way to know if we are currently at, near, or below that level. Furthermore, when determining the desired future states of tiger, prey, and habitat, it must be taken into account that the Sundarbans supports both tiger and human needs.]

BOX 3

Box 3. Experience of Bangladesh Tiger Action Plan 2009-2017 implementation

During eight years (2009-2017) of the first phase of Bangladesh Tiger Action Plan (BTAP) implementation, majority of the objectives could not be achieved due to lack of programmes and projects focusing on the implementation of BTAP, although there were sporadic programmes and projects with some success. The lack of constant flow of funding, especially from the Government's revenue budget, was a major obstacle in BTAP implementation. As a consequence, the rise of poaching was evident, causing the decline of tiger number in the Sundarbans.

There are, however, some success stories that partially achieved BTAP objectives. The BFD had no record of translocating strayed tigers, but in 2011 a tiger was successfully tranquilised in the forest-village boundary of Satkhira Range, which was transported and released to the deeper part of the forest named Dobeki. This was an apparently healthy tiger that started to visit the villages to hunt cattle. In 2012, a stray tiger, with one leg missing, was tranquilised in the forest-village boundary of Khulna Range and was sent to Bangabandhu Sheikh Mujib Safari Park in Gazipur where it is living in captivity. In a similar case a tiger with snare injury in one leg was captured alive by a box-trap from forest-village boundary of Chandpai Range and was sent to the Safari Park, but soon after it died in captivity.

In 2015, the BFD published its first-ever estimate of tiger population (total 106 tigers in the Bangladesh Sundarbans), which was based on rigorous scientific study using the camera-traps. None of the previous population estimates by the BFD had followed any scientifically valid method, so this result was taken as the baseline for future monitoring. During this study the relative densities of tigers and prey were also studied and mapped.

Raising awareness among the mass people is a key requirement to ensure successful conservation of the tiger following broad-based approach where the people can participate in tiger conservation activities. Following the St. Petersburg Declaration, Bangladesh nationally celebrates the Global Tiger Day annually on 29 July, organised by the BFD. This was started in 2010 and has significantly contributed to awareness raising at the national and local levels. Moreover, the Tiger Caravan (a caravan mimicking the tiger with a team of young people performing awareness programmes in different areas) of USAID-funded Bagh Project of the Wild Team was very successful in awareness raising for tiger conservation.

Tiger Caravan's awareness raising programme for tiger conservation



Translocation of a strayed tiger from forest-village boundary of Khulna Range to Bangabandhu Sheikh Mujib Safari Park at Gazipur





Brown-winged Kingfisher

3.3 OBJECTIVES AND STRATEGIC ACTIONS

The current knowledge on threats and status of tigers makes it possible, at least at the basic level, to develop and implement SMART strategies to mitigate threats

This section outlines a set of objectives and strategic actions to achieve the threats and challenges goals (Table 3 and 4), which are based on the information presented in Part B. The current knowledge on threats and status of tigers makes it possible, at least at the basic level, to develop and implement SMART (specific, measurable, achievable, relevant and time bound) strategies to mitigate threats. However, an increase in baseline information is needed to improve definition of the threat objectives. Achievement of the challenge objectives, on the other hand, is more straightforward because, in most cases, success can be measured by the completion of the strategic actions (Table 3 and 4).



3.4 PRIORITISATION

The threats need to be prioritised in terms of their potential impact, and the current and desired states of tiger, prey and habitat (Saif 2016, Hossain *et al.* 2016). Based on the existing knowledge and information it is obvious that poaching is the biggest threat to tigers of the Sundarbans. Therefore, tiger conservation activities need to address this on priority basis. Retribution killing of tigers due to THC is common in the villages around the Sundarbans, which also need to be addressed urgently. Systematic exercise to identify priorities will be carried out in the first two years of this BTAP. In the meantime, tiger conservation activities will continue following the threat priorities based on existing knowledge. Moreover, a second process will be carried out to prioritise strategic actions under each objective. A balance must be struck between resources spent on more research versus the need for immediate mitigation activities (Wilhere 2002). Actions can be ranked based on criteria such as their potential benefit, cost, feasibility and leverage. This threat prioritisation and activity selection process will result in the formation of an overall BTAP implementation plan containing milestones and strategic actions grouped into project concepts. Collaboration will be needed for both the development of this prioritisation process and the subsequent implementation plan.

3.5 MONITORING AND EVALUATION

There was no systematic monitoring and evaluation of progress of the previous version of the BTAP (2009-2017), but considering the work that was done against the goals and targets the implementation was not satisfactory. Therefore, the main thrust is to focus on implementation of this version of the BTAP (2018-2027), which will require collaborative effort, particularly inter-ministerial, between the Government and NGOs as well as with other Governments and international conservation partners, and constant flow of funding. Systematic monitoring and evaluation of progress against the BTAP goals will be done, which will provide a way of measuring the success of the tiger conservation efforts and enable the adaptation of conservation activities based on lessons learnt, new information and changing conditions. The implementation of this BTAP will ensure that the nation attempts to sustain the current tiger occupancy in over 4,000 sq km and increase the density in the Sundarbans from the current 2.17 to 4.50 tigers per 100 sq km within the next ten years, thereby contributing to the GTRP commitments by the country. The target of increasing the tiger density is at 4.50 per 100 sq km, because this is the known density in the high density areas of the Sundarbans (Khan 2012, Das et al. 2012, Naha et al. 2016).

Monitoring of tiger, prey and habitat levels will be carried out every two years to assess the achievement of progress against the goals to address threats (Box 4). Likewise, a two yearly monitoring approach will be devised to evaluate progress against the goals to address challenges. A process will also be developed for the evaluation of progress of strategic actions and achievement of their associated objectives. In the light of completed activities and changing conditions at the end of its ten year term the BTAP will be updated for its next term.

Best practices

Several practices are being adopted and considered BEST in many tiger range countries of the world. Those practices are being prescribed by the tiger expert and scientists. The Best Practices are:

- Efficient Protection by SMART Patrolling
- Community based tiger-human conflict mitigation
- Camera Trapping for tiger monitoring and genetic barcoding
- Khal Survey for measuring tiger relative tiger abundance
- Ecotourism
- Forensic lab establishment
- Collaboration and coordination national and international organizations
- Coordination with law enforcement agencies
- Research, monitoring and evaluation

BOX 4

Box 4. Monitoring changes in the status of tigers, prey and habitat

It is difficult to monitor changes in the status of tiger's prey and habitat in the Sundarbans due to inaccessibility and dense vegetation, but there are scientifically valid methods that are applied and proved to be effective. There have been a number of unsuccessful attempts to count absolute numbers of Sundarbans tigers based on short field visits, interviews with forest workers, and the pugmark method (Seidensticker 1987; Tamang 1993; Jalil 1998; Bangladesh Forest Department 2004). The pugmark method is based on identifying individual tigers from their pugmarks, but this is no longer considered scientifically sound by authorities in India and international scientists (Karanth et al. 2003; Project Tiger 2005). Camera-trapping has become a popular way of estimating tiger abundance, although the sheer size of the Sundarbans and the lack of identifiable tiger travel routes make this technique a bit challenging for tracking changes in the whole population. Camera-trapping has been carried out in the Sundarbans to investigate tiger and prey density with success (Khan 2007, 2012; Dey et al. 2015). A tiger monitoring system has been locally developed to measure changes in relative tiger abundance (rather than absolute numbers) in the Sundarbans (Khan 2007, 2012; Barlow et al. 2008, Hossain 2011). This survey works by counting the number of tiger tracks along khal (small river) banks in a systematic way across the forest. It is based on the assumption that in areas with more tracks, there are more tigers. If track numbers decrease in an area of the forest, then it will be assumed that tiger numbers have fallen, and management action will be taken. It does not try to identify unique tigers from their tracks, rather it counts the total number of tiger tracks per kilometre of khal to produce a map showing the densities of tiger tracks across the whole forest.

Monitoring systems need to be developed to track the changes in the prey population and also in habitat cover and composition. A system of prey monitoring using pellet counts to determine absolute abundance was experimented with some success (Dey 2007, Ahmed et al. unpubl. data). However, the method that was proven effective and convenient in the Sundarbans context is counting prey animals, recording habitat features and human disturbance to habitat (Dey et al. 2015, Hossain et al. 2016). With regards to habitat monitoring, previous studies to assess habitat change were based mainly on one-off forest inventories devised using different methodologies, which made comparisons to work out change over time problematic (Iftekhar and Saenger 2008). Therefore, a standardised long-term habitat monitoring programme needs to be developed, which can be remote sensing supported by ground truthing.

3.6 HOW TO GET INVOLVED

Tiger conservation is a big challenge that cannot be achieved by the BFD alone. The BFD welcomes collaboration at all levels to support implementation of the BTAP. Those interested in becoming involved can get in touch with the BFD to get further information on current tiger conservation work in Bangladesh and opportunities for collaboration. Website of the BFD (www.bforest.gov.bd) can be browsed to get the basic information, conservation programmes and projects and the contact address.

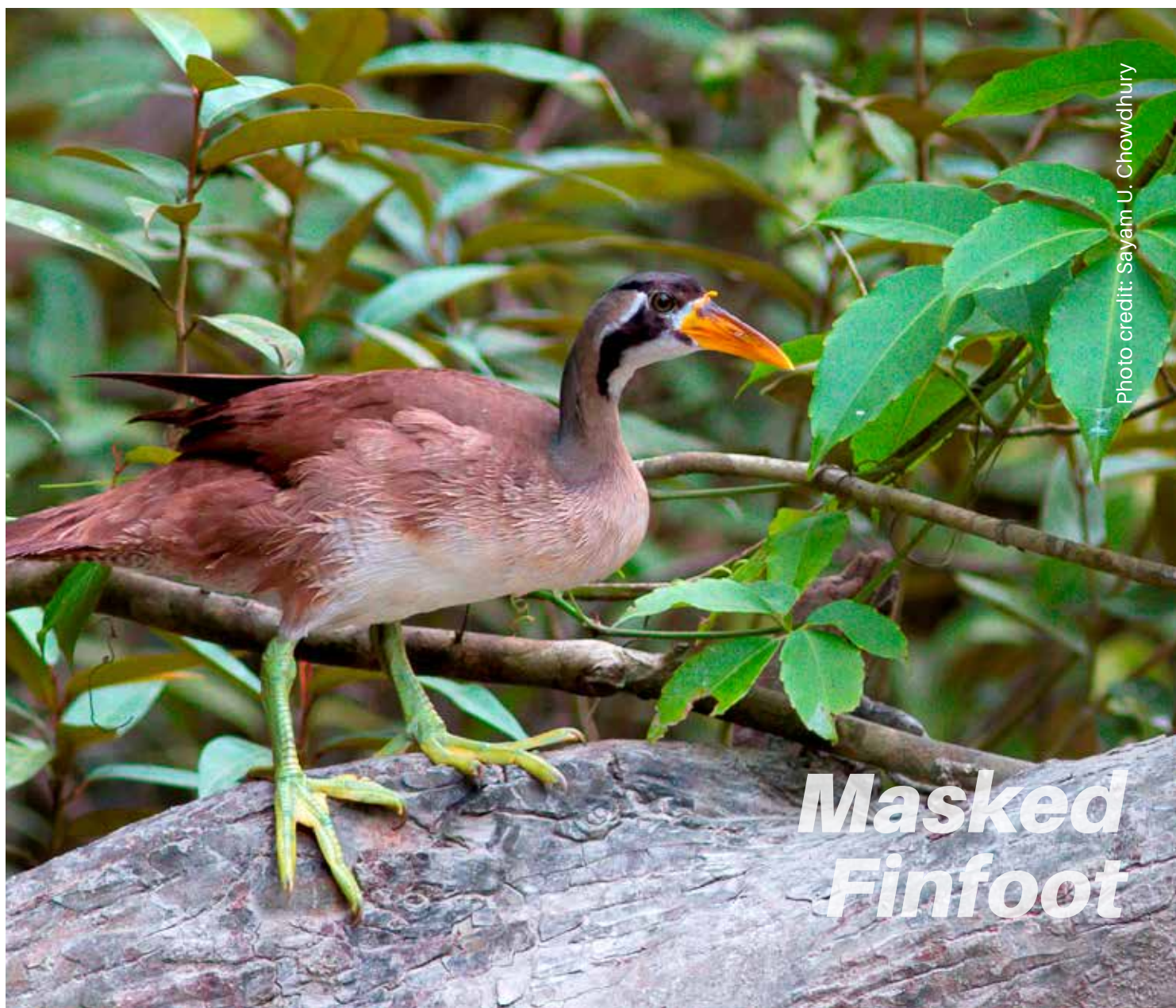


Photo credit: Sayam U. Chowdhury

BTAP objectives, strategic actions, outcomes and performance indicators

Table 3. Threat objectives and strategic actions of the BTAP

BTAP Goals, objectives, actions and possible source of funding	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
3.3.1 DIRECT TIGER LOSS								
THREAT GOAL: Increase tiger density in the SRF								
Threat objectives	Strategic action							
Continue to evaluate tiger population status, connectivity and occupancy	X	X	X	200.00	BFD/donor supported organization's manpower	Fund from the Government (development fund) /	Tiger population, status and occupancy known	Periodic report on tiger population and occupancy of tiger
		X	X				Develop methods for assessing connectivity	Connectivity report
			X			Fund from Development Partner	Model trends in tiger occupancy, connectivity and population size under various threat and management scenarios	Occupancy survey report
Medium Priority								



Photo credit: Md. Modinul Ahsan

BTAP Goals, objectives, actions and possible source of funding	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
Minimize tiger poaching	X	X	X	100.00	BFD/donor supported organization's manpower	Fund from Development Partner	Nature and scale of tiger poaching and trade in tiger parts determined	Periodic report on tiger poaching
High Priority							Improve intelligence relating to tiger poaching incidents; establish an intelligence cell in BFD.	Government order/g-zette notification
							Improve effectiveness of law enforcement; conduct combined anti-poaching operations (headed by the BFD when it is inside the Sundarbans).	Post operation report
							Ensure penalties are sufficient to deter poachers, consumers and traders.	Verdiction of court
							Raise awareness in target groups about legal protection and importance of tigers and their prey.	Survey report
							Improve prosecution rate of poaching and trade in tiger parts; ensure frequent Mobile Court to ensure rapid trial of poachers; consider tiger poaching cases in Speedy Tribunal; provide rewards and promotions to people for successful prosecution.	Verdiction of court
							Understand and reduce domestic socio-economic dependencies on tiger poaching.	Intelligence report
							Develop measures to contribute to the battle against the international trade in tiger parts; improve collaboration with neighboring countries.	Electronic and print media
							Monitor levels of tiger poaching and trade in Bangladesh, and spatial distribution of tiger poaching.	Temporal and spatial report of tiger poaching

BTAP Goals, objectives, actions and possible source of funding		Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
Minimize tiger-human conflict	Develop THC mitigation activities and supporting protocol to reduce tiger human and livestock killings and injury; maintain effective compensation.		X	X	35.00	BFD/donor supported organization's manpower	Fund from Development Partner	THC mitigation protocol developed; effective compensation to the victims maintained	THC protocol
	Monitor numbers of human, livestock and tiger killings and injury, and spatial distribution of THC.	X	X	X				Numbers of human, livestock and tiger killings and injury, and spatial distribution of THC documented	THC report
Assess other potential threats	Complete risk assessment; prioritize mitigation activities for tiger diseases (particularly Canine Distemper); investigate inbreeding and sex ratio of tigers.		X	X	25.00	Conservation partners' manpower/BFD	Fund from Development Partner	Risk assessment of Canine Distemper done	Exhaustive list of threat factors
THREAT GOAL: Ensure a viable tiger population in the Chittagong Hill Tracts									
Threat objectives									
Ensure a suitable tiger population in the Chittagong Hill Tracts	Carry out occupancy and abundance survey of tiger and prey.	X	X	X	100.00	Conservation partners' manpower/BFD	Fund from Development Partner	Tiger occupancy and abundance survey of tiger and prey done	Tiger occupancy and abundance survey report of tiger and prey
	Minimize poaching of tigers and prey, minimize habitat destruction, initiate habitat restoration and establish connectivity between the fragmented habitats.	X	X	X				Poaching of tigers and prey minimized; habitat destruction minimized; habitat restoration done	Number of poached tiger and prey; amount of acreage taken under restoration programs
Low Priority									



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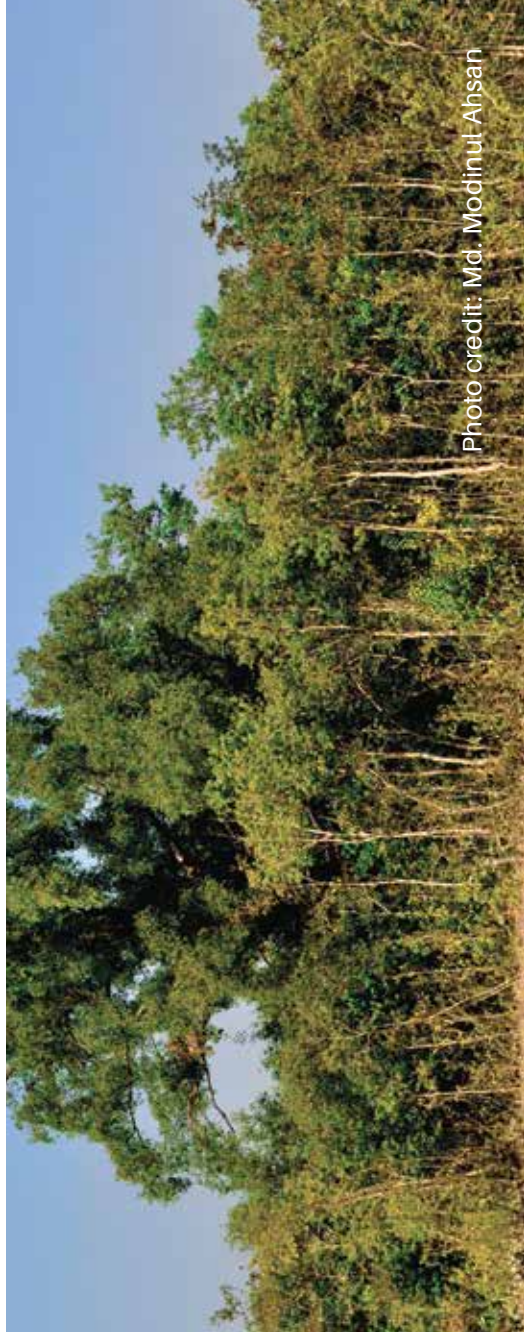


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BTAP Goals, objectives, actions and possible source of funding	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
3.3.2. PREY DEPLETION								
THREAT GOAL: Maintain sufficient prey base (i.e. large prey density at least 500 times higher than tiger density) to support the tiger population in the Sundarbans								
Threat objectives								
Evaluate current and desired state of occupancy, connectivity and size of prey populations Medium Priority	X X	X X	X X	50.00	BFD/donor supported organization's manpower	Fund from Development Partner	Develop methods for assessing prey occupancy, connectivity and population size.	Report on current and desired state of prey occupancy, connectivity and size of prey populations
							Define target state prey occupancy, connectivity and population size with respect to optimum carrying capacity.	Prey occupancy, connectivity and population size with respect to optimum carrying capacity determined
							Model trends in prey occupancy, connectivity and population size under various threat and management scenarios.	Trends in prey occupancy, connectivity and population size under various threat and management scenarios assessed
Monitor changes in occupancy, connectivity and size of prey populations.		X	X				Changes in occupancy, connectivity and size of prey populations identified	Occupancy survey report

BTAP Goals, objectives, actions and possible source of funding	Strategic action	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
Threat objectives									
Minimize prey poaching	Determine nature and scale of prey poaching and trade in prey parts.		X	X	60.00	BFD/donor supported organization's manpower	Fund from Development Partner	Nature and scale of prey poaching and trade in prey parts determined	Number of prey poaching; number of prey related cases
High Priority	Improve intelligence relating to prey poaching incidents; establish; intelligence cell in the BFD.		X	X				Intelligence relating to prey poaching incidents is ensured; intelligence cell in the BFD established	Government notification
	Improve effectiveness of law enforcement; conduct combined anti-poaching operation (headed by the BFD when it is inside the Sundarbans).		X	X				Effectiveness of law enforcement resulted; combined anti-poaching operation conducted	Post operation report
	Ensure penalties are sufficient to deter poachers, consumers and traders.		X	X				Penalties ensured to deter poachers, consumers and traders	Court verdiction
	Raise awareness in target groups about legal protection and importance of tigers and their prey; conduct school-based awareness programmes and incorporate tiger and Sundarbans conservation in school curricula.	X	X	X				Target groups made aware about legal protection of tiger	Awareness survey report
	Increase prosecution rate of poaching, consumption and trade in prey parts; ensure frequent Mobile Court to ensure rapid trial of poachers; provide rewards and promotions to people for successful anti-poaching operation and trade	X	X	X				Prosecution rate of poaching, consumption and trade in prey parts increased; Mobile Court ensures rapid trial for poachers;	Periodic report of cases
	Understand and reduce socio-economic dependencies on prey poaching.	X	X	X				Socio-economic dependencies on prey poaching is understood; and dependencies on prey poaching reduced	Survey report
	Monitor levels of prey poaching, consumption and trade in Bangladesh, and spatial distribution of prey poaching and consumption.		X	X				Level of prey poaching; consumption, trade, spatial distribution of prey poaching and consumption understood	Survey report

Lesser Adjutant

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BTAP Goals, objectives, actions and possible source of funding		Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
Threat objectives									
Assess other potential threats	Strategic action								
Medium Priority	Complete risk assessment; prioritize mitigation activities for prey disease threats			X	10.00	Donor supported organizations manpower	Fund from Development Partner	Risk assessment is done, mitigation activities for prey disease identified	Risk assessment report, mitigation technique report
3.3.3 HABITAT LOSS AND DEGRADATION									
THREAT GOAL: Maintain sufficient habitat to support the Sundarbans tiger and prey populations									
Threat objectives									
Evaluate current and desired state of tiger and prey habitat	Strategic action								
Medium Priority	Investigate tiger and prey habitat requirements (area, cover and composition). Monitor change in area, cover and composition of tiger and prey habitat	X	X	X	50.00	BFD/donor supported organization's manpower	Fund from Development Partner	Elements of tiger and prey habitat is identified Change in area, cover and composition of tiger and prey habitat monitored regularly	Habitat survey report Habitat survey report

BTAP Goals, objectives, actions and possible source of funding	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
Threat objectives								
Strategic action								
Reduce unsustainable forest resource use	X			60.00	BFD/donor supported organization's manpower	Fund from Development Partner	Nature and scale of unsustainable resource use determined	Amount of resource harvested
High Priority Understand socio-economic dependencies of forest users on the Sundarbans and develop alternative income opportunities	X						Socio-economic dependencies of forest users on the Sundarbans understood; alternative income opportunities for the resource users ensured	Number of people getting BLC
Excavate and re-excavate waterhole to facilitate fresh water for the wildlife	X	X	X				Waterhole available to the wildlife	Number of waterholes
Improve effectiveness of law enforcement in the forest	X						Effectiveness of law enforcement in the forest improved	Number of cases
Improve prosecution rate of illegal activities; provide rewards and promotions to people for successful prosecution	X						Prosecution rate of illegal activities increased; rewards and promotions to people for successful prosecution rewarded	Number of cases; number of people rewarded for successful prosecution
Monitor human impact on forest resources and level of illegal activities, and spatial distribution of illegal activities		X					Human impact on forest resources and level of illegal activities, and spatial distribution of illegal activities monitored	Number of human foot print per unit area
THREAT OBJECTIVES								
Assess other potential threats	X			50.00	BFD/donor supported organization's manpower	Fund from Development Partner	Risk assessment done, control tourism controlled, mitigation techniques for pollution prioritized from invasive species and future mineral and gas exploration/extraction developed	Reports on risk assessment; number of mitigation techniques applied
Medium to Low Priority								

Table 4. Challenge objectives and strategic actions of BTAP

BTAP Goals, objectives, actions and possible source of funding		Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
3.3.4 NATIONAL POLICY									
CHALLENGE GOAL: Mainstream tiger conservation into the GoB's development agenda									
Threat objectives	Strategic action								
Incorporate tiger conservation into development plans	Develop an approach to integrate tiger and biodiversity conservation into wider development policies and actions through SDGs, BNCS, NBSAP and BW-CAC	X	X	X	50.00	MoEF/BFD	Fund from the Government (development fund)	Integrated approach for tiger and biodiversity conservation adopted	Development plan
Medium to Low Priority	Control industrialisation and associated infrastructure in and around (i.e. impact zone) the Sundarbans, e.g. increase of boat traffic in major channels that will disrupt movement and gene flow resulting in habitat and population fragmentation of the tiger and prey.	X	X	X				Industrialisation and associated infrastructure in and around (i.e. impact zone) the Sundarbans controlled	Number of industries and infrastructure
	Conduct economic assessment of the benefits of Sundarbans ecosystem services	X						Economic assessment of the benefits of Sundarbans ecosystem services conducted	Published report on ecosystem service valuation
	Develop revenue generation approaches based on conservation friendly activities	X						Revenue generation approaches based on conservation friendly activities developed	Type and number of revenue generation approaches linked with biodiversity conservation
	Raise awareness in high and mid-level officials of all ministries about tiger and Sundarbans conservation, and its relationship with development policy	X	X					Awareness in high and mid-level officials of all ministries of the Government raised about tiger and Sundarbans conservation	Number of approved and adopted policy related to tiger and biodiversity conservation
	Raise public awareness across the country by mainstreaming tiger and Sundarbans conservation issues into the media	X	X	X				Mass people of the country became aware about tiger conservation and mass media working actively on the issue	Number of media and number of days casting awareness program by electronic media and popular articles by print media

BTAP Goals, objectives, actions and possible source of funding	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
3.3.5 INSTITUTIONAL DEVELOPMENT								
CHALLENGE GOAL: Improve conservation capacity in the BFD and its conservation partners								
Threat objectives								
Strategic action								
Build management capacity to plan, implement and monitor BTAP activities	X			10.00	BFD/donor supported organization's manpower	Fund from Development Partner	Focal point appointed	Government order
High Priority	X						BTAP threats and challenges prioritized and activities of BTAP implementation strategies developed	List of threats and challenges; implementation strategy report
	X						Develop a scientific monitoring and adaptive management process.	Scientific monitoring and adaptive management process report
	X						Develop a management and stakeholder reporting process.	Management and stakeholder reporting process
Build field-level capacity to deal with immediate tiger conservation needs	X			10.00	BFD	Fund from the Government (development fund)	THC protocol to improve management decision-making for different conflict scenarios developed	Published THC protocol
High Priority	X						Develop THC alleviation strategies including VTRTs (to reduce tiger and livestock killing), FTRTs (to reduce human killing incidents) and specialist teams (to deal with situations requiring tiger capture).	THC alleviation strategies report and special team formation order
	X						Sustain and strengthen the WCCU and WFL to tackle tiger and prey poaching, and poaching detection.	Number operations by WCCU and WFL
	X						Establish a research team to undertake tiger, prey and habitat monitoring programmes.	Number of monitoring report on tiger, prey and habitat

BTAP Goals, objectives, actions and possible source of funding	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
<p>Build capacity for long-term tiger conservation (to last beyond the ten years of BTAP)</p> <p>Medium Priority</p>	X			80.00	BFD/donor supported organization's manpower	Fund from Development Partner	BFD officers studying in conservation related-disciplines	Number of BFD officers studying conservation related discipline
	X						Sustainable financing mechanism for tiger conservation; initiate 'Tiger Conservation Fund'.	Fund details
	X						Conduct an organisational review to understand opportunities for retention of wildlife staff within WNCC and also for BFD staff within the Sundarbans	Wildlife staff within WNCC and also for BFD staff within the Sundarbans retained
		X					Sustain and strengthen the WC for wildlife conservation training programmes for wildlife and forestry staff.	Wildlife conservation training programmes for wildlife and forestry staff sustained
		X					Link Sundarbans staff reviews and promotions to tiger and Sundarbans conservation goals and objectives.	Staff reviews and promotions linked to tiger and Sundarbans conservation goals and objectives
3.3.6 FOREST PROTECTION AND LAW ENFORCEMENT								
CHALLENGE GOAL: Improve law enforcement to ensure protection of tiger, prey and habitat								
Threat objectives	Strategic action							
<p>Improve law enforcement capacity in the Sundarbans</p> <p>High Priority</p>	X			50.00	BFD/RAB/COAST/GUARD/NAVY/CPG/CMC/VRTT	Fund from Development Partner	Forest protection strategy developed; staff living condition improved	SMART patrolling report, new building
	X						Train BFD staff on legislation and enforcement as well as on prosecution and wildlife crime documentation.	BFD staff trained on legislation and enforcement as well as on prosecution and wildlife crime documentation.

BTAP Goals, objectives, actions and possible source of funding	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
3.3.7 EDUCATION, AWARENESS AND COMMUNITY INVOLVEMENT								
CHALLENGE GOAL: Build national capacity to implement education and awareness programmes, and community involvement								
Threat objectives								
Strategic action								
Ensure awareness and education is targeted at priority audiences Medium Priority	X			10.00	BFD/donor supported organization's manpower	Fund from Development Partner	National tiger conservation education and awareness strategy prepared	National tiger conservation education and awareness strategy document
Build capacity to implement awareness and education programmes Medium Priority		X		10.00	BFD/donor supported organization's manpower	Fund from Development Partner	Training to build national skills in conservation communication and social marketing organized	Number of training undertaken
Increase involvement and stake of local communities in tiger conservation Low Priority	X	X	X	50.00	BFD/donor supported organization's manpower	Fund from Development Partner	Alternative livelihood options (especially focusing on tiger victim families) facilitated	Number of AIG; number of family involved
3.3.8 RESEARCH AND MONITORING								
CHALLENGE GOAL: Increase capacity to conduct tiger conservation research and monitoring								
THREAT OBJECTIVES								
Action								
Ensure research is prioritised by management needs Medium Priority	X			5.00	BFD/donor supported organization's manpower	Fund from Development Partner	Tiger research agenda prioritized and documented	Research agenda document

BTAP Goals, objectives, actions and possible source of funding	Short Term (1-3 yrs) (2018-2020)	Mid Term (3-6 Yrs) (2021-2023)	Long term (7-10 yrs) (2024-2027)	Indicative Resource Requirement in million BDT	Manpower/ Human Resources	Possible source of funding	Outcomes	Performance Indicator
Work with local communities to build joint solutions for tiger conservation Medium Priority	X			25.00	BFD/donor supported organization's manpower	Government Development Fund/ Conservation partners	Community collaboration approach for forest and tiger conservation developed	Notification
	X						Develop capacity of local community members in mangrove forest and tiger conservation	Capacity Assessment Report
Engage other government bodies to increase BTAP implementation capacity High Priority	X	X		5.00	BFD	Government Development Fund	Joint initiatives with Ministry of Education and other Government undertaken	Course curriculum
	X	X	X				Raise awareness in high and mid-level officials of other Government agencies in tiger and Sundarbans conservation issues	Awareness survey report
Engage neighbouring countries to implement trans boundary conservation initiatives Medium Priority	X	X	X	50.00	MoEF/BFD	Government Development Fund	Open communication channels to develop joint activities with government and non-government organisations in neighbouring countries.	Government Notification
		X	X				Develop a platform to enable government collaboration on cross-border	Government Notification
Develop links and networks for sharing research results and conducting collaborative trans boundary research. Medium Priority		X	X				Develop links and networks for sharing research results and conducting collaborative trans boundary research established	Government Notification
		X	X	5.00	MoEF/BFD	Government development fund	Platform established to curb cross boundary illegal trade on tiger and tiger parts	Government Notification

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Annex I

THE ST. PETERSBURG DECLARATION ON TIGER CONSERVATION

(Saint Petersburg, Russia, November 23, 2010)

We, the heads of the Governments of the People's Republic of Bangladesh, the Kingdom of Bhutan, the Kingdom of Cambodia, the People's Republic of China, the Republic of India, the Republic of Indonesia, the Lao People's Democratic Republic, Malaysia, the Union of Myanmar, the Federal Democratic Republic of Nepal, the Russian Federation, the Kingdom of Thailand, and the Socialist Republic of Vietnam, being custodians of the last remaining tigers in the wild, have gathered at an unprecedented Global Tiger Summit in St. Petersburg, Russian Federation, from 21 – 24 November 2010, with the common goal of tiger conservation.

We:

RECOGNIZE that Asia's most iconic animal faces imminent extinction in the wild. In the past century, tiger numbers have plummeted from 100,000 to below 3,500, and continue to fall. Tiger numbers and habitat have declined by 40 percent in the last decade alone, lost largely to habitat loss, poaching, the illegal wildlife trade, and human-tiger conflict. Three subspecies have already disappeared, and none of the other six are secure.

ACKNOWLEDGE that the tiger is one of the important indicators of healthy ecosystems and a failure to reverse these trends will result in not only the loss of tigers but also a loss of biological diversity throughout the entire Asiatic region, together with the tangible and intangible benefits provided by these magnificent predators and the ecosystems they inhabit.

NOTE that whilst the conservation of the tiger is primarily a national responsibility and that increased cooperation and coordination of efforts among the tiger range countries is essential, the reversal of this crisis is additionally dependent upon financial and technical support from the international community, bearing in mind

that most TRCs are developing countries. The crisis facing the tiger has yet to receive the international attention it deserves and saving this species is a common responsibility.

UNDERSTAND the role of international agreements on the conservation of biological diversity and protection of rare and endangered species, including the tiger, such as the Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Flora and Fauna (CITES), and the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

ACKNOWLEDGE the work to date of the Global Tiger Forum and encourage its revitalisation and more active role.

RECALL AND ENDORSE The Manifesto on Combating Wildlife Crime in Asia, adopted in Pattaya, Thailand, in April 2009; The Recommendations of the Global Tiger Workshop in Kathmandu, Nepal, October 2009; The Hua Hin Declaration on Tiger Conservation at the First Asian Ministerial Conference on Tiger Conservation (1st AMC) in Hua Hin, Thailand, January 2010; and the Work Plan of the Pre Tiger Summit in Bali, Indonesia, July 2010.

WELCOME the adoption of National Tiger Recovery Programs (NTRPs) and the Global Tiger Recovery Program (GTRP).

ACKNOWLEDGE and appreciate the presence and support of other governments, international organisations, non-governmental organisations, and other supporters of tigers.



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THE THIMPHU AFFIRMATIVE NINE-POINT ACTION AGENDA ON TIGER CONSERVATION

Thimphu, Bhutan, October 23, 2012

The leaders of the governments of the 13 Tiger Range Countries¹ (TRCs) met in November, 2010, at the International Tiger Forum in St. Petersburg, Russia, and declared their collective political will to take all action necessary to prevent the extinction of wild tigers. They set the goal of doubling the numbers of wild tigers globally by 2022 in the St. Petersburg Declaration on Tiger Conservation, and endorsed the Global Tiger Recovery Program (GTRP) as a road map to reach that goal, supported by international partners to mobilise needed external resources.

The TRC Ministers or their representatives who are charged with implementing the GTRP and its constituent National Tiger Recovery Priorities, met on October 22- 23, 2012, at the Second Asian Ministerial Conference on Tiger Conservation in Thimphu, Bhutan, to reflect on advances thus far, enhance the action agenda through 2014, and re-emphasise their political will for tiger conservation demonstrated at the International Tiger Forum.

Progress in reversing the wild tigers' decline toward extinction has been significant based on actions undertaken by TRCs. Nonetheless, the threats to wild tigers and their natural habitats are seen to be increasing. Tiger landscapes are economically and politically undervalued and their importance to human well-being poorly recognised.

Building on the pledges of the St. Petersburg Declaration, the Ministers or the Heads of Delegations of the TRCs have identified an affirmative nine-point action agenda up to 2014 and ask partners to intensify their support to:

- 1. Actively strengthen front lines:** Urgently enhance rewards, recognition, and resources for frontline staff (in the form of numbers, institutional capacity, skills, tools, technology, infrastructure, operating costs, and insurance against loss of life and injury) in all TRCs over the next three years.
- 2. Diligently conserve tiger habitat, inside and outside protected areas, against current and future threats:** Strengthen and continue programmes to extend protected areas, remove current encroachments in core breeding areas and ensure full public disclosure through land-use plans, mapping current and future threats, application of the principles of Smart Green Infrastructure, better science to maintain quality habitats, smart patrolling to increase management effectiveness, and improved monitoring, with necessary programmes and disclosure completed over the next two years.
- 3. Significantly enhance engaging and sharing the benefits of conservation with communities,** making them partners in tiger and habitat conservation and expanding sharing of benefits from conservation, expanding alternative livelihood programmes, and promptly and adequately compensating villagers for losses due to/caused by tigers in all TRCs in two years.

4. **Enhance and mainstream collaboration among TRCs** in management of By issuance of the **Thimphu Affirmative Nine-** transboundary landscapes and corridors, combatting illegal trade, and eliminating illicit demand through bilateral/multilateral mechanisms and with the support of organisations such as ASEAN-WEN, SA WEN, INTERPOL, and others.
5. **Support TRCs with low tiger densities to launch tiger restoration programmes:** Build on lessons of success, create the conditions essential for successful restoration, and find suitable sources of tigers in at least two different national programmes over three years.
6. **Significantly accelerate the flow of national and external funds to support actions on the ground:** Focus new support on gaps and accelerate projects to implement National Tiger Recovery Priorities (NTRPs) and fully fund the Global Tiger Recovery Programme by 2014.
7. **Develop a new partnership with business and industry:** Engage business and industry in habitat conservation, valuation of ecosystems, sustainable finance, and outreach to consumers and other stakeholders, with five pilots that minimise and compensate for impacts to be launched across the TRCs in the next two years.
8. **Develop and implement comprehensive national awareness strategies and initiatives** to instill pride and bring people closer to nature to counteract the negative impacts on tigers from urbanisation, disengagement of youth, development, and loss of cultural heritage, and to widely disseminate the value of tiger conservation landscapes.
9. **Develop national action plans for a period of two years for each TRC with criteria and indicators to monitor NTRP/GTRP implementation.**
10. **Point Action Agenda on Tiger Conservation,** the TRC Ministers or the Heads of Delegations re-confirm their commitment to collective action and political leadership, together with the continued support of international partners to reach the goal of doubling the number of wild tigers globally by



DHAKA RECOMMENDATIONS ON ADVANCING IMPLEMENTATION OF THE GLOBAL TIGER RECOVERY PROGRAM

Dhaka, Bangladesh. September 16, 2014

Senior Officials and Experts of the 13 Tiger Range Countries (TRCs) and partner organisations, development partners, and donors met from September 14 to 16, 2014, in Dhaka, Bangladesh, at the 2nd Stocktaking Conference to Review Implementation of the Global Tiger Recovery Program (GTRP). The GTRP is the road map endorsed by TRC leaders in 2010 at the International Tiger Forum in St. Petersburg, Russian Federation, to achieve the goal of the St. Petersburg Declaration on Tiger Conservation: double the number of wild tigers globally by 2022.

Building on the pledges of the St. Petersburg Declaration, the Thimphu Affirmative Nine-Point Action Agenda, which emerged from the 2nd Asian Ministerial Conference on Tiger Conservation, held in Bhutan in November 2012, outlines areas to be targeted for intensified efforts by the TRCs and partners.

In taking stock of the GTRP Implementation Plan 2013-14 based on the Thimphu Agenda, conference participants agreed that significant progress has been achieved in meeting the goals of the Thimphu Agenda and in addressing the wild tiger's decline toward extinction. Notable achievements include adopting new legislation and policies, creating new protected areas, growing transboundary collaboration, building capacity of frontline staff, and reaching out for the participation of the private sector; however, some areas of continued concern remain. Participants therefore recommend the following actions to advance implementation within the timelines of the Thimphu Agenda:

- 1. To strengthen FRONTLINES:** Continue to increase investment in frontline staff remuneration, benefits (inter alia, risk allowances, rations, and improved quality of life), recognition, skills development, and field equipment and tools, including communications and transportation. Continue to professionalise their service through increased use of technology-based patrolling in protected areas and other tiger habitats. Maintain robust patrolling databases and improve intelligence-led enforcement.
- 2. To conserve HABITAT:** Map and secure tiger habitat (protected areas, buffer zones, corridors, and other units) and land uses in tiger landscapes, employing new tools and technology for mapping and monitoring habitat. Assess and maintain functionality of corridors. Regularly assess management effectiveness in tiger protected areas. Convene national- or provincial-level meetings and working groups with relevant development sectors to develop Smart Green Infrastructure (SGI) applications in tiger landscapes threatened by infrastructure.

3. **To engage COMMUNITIES:** Expand capacity to deal with human-tiger conflict, which may increase with tiger or prey recovery, through national and local conflict-relief funds and publicise these efforts among affected communities. Make communities partners in conservation.
4. **To enhance COLLABORATION:** Actively engage with neighboring TRCs in transboundary landscape management. Actively improve international intelligence sharing, through existing channels, leading to enforcement operations including those in hot spots of illegal tiger trade. Actively promote multi-agency and multi-country collaborations through organisations such as SAWEN and ASEAN WEN. Make use of the valuable ICCWC Wildlife and Forest Crime Analytic Toolkit, which was successfully piloted in two TRCs.
5. **To launch RESTORATION:** TRCs and partners with the expertise commit to support ongoing plans of Kazakhstan, Cambodia, and China and encourage other countries and sites with low tiger densities to advance feasibility planning for restoration.
6. **To increase the FLOW OF FUNDS:** Continue to seek increasing governmental budgets for tiger conservation. Request development partners and donors to devote attention to the TRCs and themes that are underfunded. Establish or enhance national systems for tracking utilisation of financial resources for tiger conservation. Identify points of entry to access funding sources related to climate change adaptation and to smart green infrastructure for the GTRP.
7. **To develop new partnerships with BUSINESS AND INDUSTRY:** Take advantage of the Confederation of Indian Industry's (CII) offer to support and facilitate TRCs interested in industry engagement and seek other opportunities to leverage private-sector support.
8. **To build comprehensive AWARENESS and reduce illicit demand:** Conduct targeted and well-researched and designed programmes to reduce illicit demand for tiger parts and for prey species. Urgently assist in development of the Global Support Program for demand reduction. To support campaigns to reduce illicit demand, review laws and policies to ensure they contribute to these efforts.
- 9.a. **To MONITOR tigers, prey, and habitat:** By 2016, complete science-based national tiger monitoring and assessment to determine tiger population, prey, and habitat status in all tiger habitat. Undertake reserve-specific tiger monitoring using camera traps, DNA analysis ensuring transparency, or other intelligent technologies) to build up national tiger databases.
- 9.b. **To MONITOR GTRP implementation:** Continue to improve programme implementation and coordination through refinement of Key Performance Indicators, increased capacity to gather and report data, and harmonising KPIs to the Thimphu Agenda. Develop a more systematic and periodic monitoring and reporting strategy.

These recommendations will form the basis for the GTRP Implementation Plan 2015-2016, which will be presented for endorsement at the 3rd Asian Ministerial Conference on Tiger Conservation.

The TRCs appreciate the commitment of the Government of Bangladesh under the dynamic leadership of the Honorable Prime Minister Sheikh Hasina in tiger conservation. TRCs invite the Honorable Prime Minister to continue her stewardship of the St. Petersburg Declaration.

TRCs acknowledge and appreciate the significant contribution of the World Bank through the GTI to convene the TRCs' Heads of Governments, Ministers, and Senior Officials and the TRCs' partner organisations. This led to the development and sustained implementation of the GTRP and National Action Plans to double wild tiger populations globally by 2022, and has greatly elevated the tiger conservation agenda at the national and global levels. TRCs call for clarifying the future role of the GTI within the World Bank and, recognising the critical importance of maintaining the continuity of high-level government engagement enabled by the World Bank, the TRCs will in a timely manner explore and make recommendations on options for going forward so decisions can be made at the 3rd Ministerial Conference.

By adoption and issuance of the Dhaka Recommendations on Advancing Implementation of the Global Tiger Recovery Programme, Senior Officials and Experts of the TRCs express their resolve and conviction that following these recommendations, coupled with continued collective action and political leadership, will move us significantly closer to achieving the goal of doubling the number of wild tigers globally by 2022, and ensuring the integrity of tiger conservation landscapes.



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Annex II

FINDINGS FROM THE WORKSHOP ON UPDATING NATIONAL TIGER RECOVERY PROGRAM (NTRP)

Venue: Chandpai Range, Bagerhat

- Establish intelligence unit in BFD for monitoring and controlling tiger and prey poaching.
- Establish collaboration of BFD with other law-enforcing agencies for intelligence sharing and joint patrolling.
- SMART patrolling should cover the monitoring of tiger, prey and habitat, and should be conducted on water and land areas.
- Form an elite force by the best staff of the BFD, which will be dedicated for the Sundarbans and its biodiversity.
- Increase BFD staff capacity on proper evidence documentation and prosecution report writing, and create prosecution database for future reference.
- Introduce risk allowance, rationing and medical facility for BFD staff.
- Raise the public awareness by celebrating the International Tiger Day from grass-root up to the national level.
- Provide modest salaries to CPG, VTRT and CMC members.
- Establish floating camps in the boundary areas; check unloading of boats.
- Establish a wildlife rescue centre and a research station near the Sundarbans.
- Engage the local communities to develop ecotourism and provide technical and marketing support for handicrafts.
- Introduce remote sensing technology to detect the vegetation change.
- Increase international cooperation for wildlife crime monitoring and control.

Venue: Satkhira Range, Satkhira

- Suspend all kinds of resource harvest for a specific period of time.
- Increase trained manpower and logistics (including necessary fuel) in the BFD.
- Train BFD staff on tranquilisation, handling and translocation of tiger, and develop a number of teams (e.g. four teams for four ranges).
- Introduce risk allowance, rationing and medical facility for BFD staff.
- Encourage research (e.g. by waiving entry fee and VAT/IT) and ensure wide dissemination of research findings.
- Include tiger conservation issue in monthly coordination meetings of the local government and administration.
- Raise public awareness by sensitising and involving the local political leaders, involving the local government, meetings with resource harvesters, religious leaders and women (particularly 'uthan boithok' or home-yard meetings).
- Include tiger and Sundarbans conservation as well as tiger-human conflict mitigation issues in the school curricula, especially focusing on 'mangrove children'.
- Build online app to popularise and monitor the tiger conservation activities.
- Encourage donations for tiger conservation, especially from the companies using the tiger as brand.

Venue: Khulna Range, Khulna

The third workshop for Khulna Range was held on 21 Sep 2016 in Dacope, Khulna. A total of 40 participants had attended, of which 25 were BFD staff and the remaining 15 were other stakeholders. The new or modified strategic actions against some threat objectives are given below --

- Make legal arrangements to shift tiger poaching cases to Speedy Tribunal.
- Suspend all resource harvest permits, at least for a certain period of time.
- Strengthen and expand the SMART patrolling.
- Develop wireless communication, especially in areas out of cell phone network.
- Provide high-speed vessels, with fuel supply, in the BFD posts.
- Train BFD staff as well as FTTRTs and VTRTs on wildlife conservation and management.
- Increase trained manpower and logistics in the BFD.
- Strengthen coordination between BFD and local administration and institutions.
- Introduce risk allowance for BFD staff.
- Share success stories and disseminate conservation messages through social media.
- Arrange awareness programmes in local schools and colleges.
- Advertise tiger and Sundarbans conservation through TV, radio and newspapers as well as through billboards and signboards.
- Motivate the poachers (to give up poaching) through local chairman, member, school teachers, religious leaders, etc.
- Establish a wildlife and mangrove forest research centre near the Sundarbans.
- Establish some interpretation centers in public/tourist places near the Sundarbans.



Venue: Sarankhola Range, Bagerhat

- Conduct strong anti-poaching operation by combined forces of BFD and all law-enforcing agencies (e.g., police, RAB, BGB, Coast Guard, etc.).
- Increase punishment for poaching and trade of tiger parts.
- Support and monitor legal procedures and pursue cases of tiger poaching to ensure punishment.
- Give reward for significant contribution to tiger and Sundarbans conservation.
- Arrange regular monitoring of tiger and prey through a combined team of all stakeholders.
- Ensure strong political commitment for tiger conservation.
- Provide essential logistics (e.g. sound-grenades, powerful torches, etc.) to BFD and community groups (e.g. VTRTs) to reduce tiger-human conflict.
- Provide basic skills development training to the community groups (VTRTs, FTTRTs, CMCs and CPGs) to reduce tiger-human conflict.
- Assist regeneration of degraded forest patches along the periphery through new projects/programmes.
- Raise awareness through public debates (especially in the local educational institutions), discussion in mosques and temples, and through billboards and posters.
- Support and expand traditional 'pata' songs and street drama to strengthen tiger conservation.
- Include tiger and Sundarbans conservation in the school curricula.



Venue: Khulna

- Develop conservation awareness and education strategy, and select the priority audience for conservation education and awareness through literature review and local consultancy.
- Develop an interactive exhibit and campaign programme (through local government, community based organisation, religious leaders and political leaders).
- Incorporate the conservation oriented curriculum in the school text books and implement educational institute based conservation awareness programmes.
- Implement community based conservation education and awareness for FRC and dependent communities.
- Develop locally appropriate educational materials to empower awareness raising activities through social media campaigning.
- Develop a functional platform for executing conservation education and awareness programmes.
- Develop a network of local communities, NGOs, local government and institutions in order to raise public awareness.
- Develop Training of Trainers, focussing particularly the school teachers) on conservation education.
- Appoint a focal point at BFD headquarter for BTAP and NTRP planning, implementation and monitoring.
- Clarify the roles and responsibilities of the DFO-WNCC in relation to the territorial divisions of the BFD.
- Increase the field level capacity of the CPGs (Community Patrol Groups) in order to reduce tiger-human conflict.
- Ensure coordinated conservation efforts involving BFD and other law enforcing agencies.
- Materialise the link between the Sundarbans staff reviews and promotions to tiger conservation goals and objectives.
- Ensure that performance incentives are given on the basis of wildlife-related offence detection and control; allocate various incentives (viz., hardship, risk and saline area allowances) to the BFD staff working in the Sundarbans.
- Improve BFD patrolling (e.g. full-fledged SMART patrolling) in the Sundarbans.
- Ensure sufficient community patrolling and watching in the villages around the Sundarbans.
- Establish a joint surveillance team of BFD, RAB, police, BGB, Coast Guards and Bangladesh Navy.
- Recruit sufficient number of Assistant Wildlife Wardens in the Sundarbans in order to strengthen the wildlife management.
- Maintain specific dress code, with modern arms, for all officers and staff of the BFD working in the Sundarbans.

- Revisit the Wildlife Act in relation to the prey base in the Sundarbans, particularly focusing on increasing the punishment and penalty for prey poaching.
- Declare the impact zone (i.e. ECA) up to 20 km outside the boundary of the Sundarbans.
- Develop a platform to build collaboration between the BFD and other parties to technical and funding support for BTAP activities including the academic and research institutions.
- Establish the 'Sundarbans Academy' in collaboration with the academic institutions.
- Develop a platform to enable Government collaboration on cross-border monitoring and control of illegal trade in tiger parts.
- Assure the abidance of conservation related international conventions to which Bangladesh is a signatory.
- Ensure collaboration with relevant international organisations (viz. CITES, UN bodies, Ramsar, IUCN, WWF, Interpol, etc.) to strengthen tiger conservation.



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The **Strengthening Regional Cooperation for Wildlife Protection (SRCWP)** project, the first World Bank supported regional project in South Asia, aims to build country capacity and incentives for tackling the illegal wildlife trade and other selected regional conservation threats to habitats in border areas. The project was launched in 2011 in Bangladesh and Nepal in the first phase and Bhutan joined in the second phase to bring regional collaboration in combating wildlife crime through strengthened legislative and regulatory frameworks and well-equipped specialized agencies and systems, as well as relevant training and awareness programs for staff responsible for enforcement of wildlife laws and regulations. The project is also supporting the institutional strengthening of the South Asia Wildlife Enforcement Network (SAWEN) which was established by SAARC countries in 2011 to combat wildlife crime in the South Asia Region.

The Bangladesh Forest Department (BFD) is implementing the project through a partnership with research institutes, universities and environmental NGOs. A total of 36 sub-projects have been supported to improve the management of protected areas and conservation of flagship species through a landscape approach. Some of the sub-projects are addressing human-wildlife conflict through engagement with the local communities and civil society to foster an enduring culture of wildlife stewardship and protection. The regional wildlife project has supported the establishment of a Wildlife Crime Control Unit (WCCU) within the Wildlife Circle, three Wildlife divisions in the Forest Department, and a Wildlife Centre to undertake training, research, education and awareness on the issues of wildlife conservation and protection. This publication has documented the outcome of the sub-project entitled "Implementation of National Tiger Recovery Programme (NTRP)"

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