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USAID/BANGLADESH FOREIGN ASSISTANCE ACT 118/119 TROPICAL FOREST AND BIODIVERSITY ANALYSIS

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CONTRACT INFORMATION

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Cover photo: Tourists enjoy exploring the Ratargul Swamp Forest in the Sylhet district of Bangladesh. Also known as the Sundarbans of Sylhet, it is the second largest swamp forest in Bangladesh.

Photograph by Aditya Sood, USAID/Bangladesh. Back cover photograph by Dr. Teri Allendorf.

ACRONYMS

BFD	Bangladesh Forest Department
CBD	Convention on Biological Diversity
CDCS	Country Development Cooperation Strategy
CHT	Chittagong Hill Tracts
CHTWCA	Chittagong Hill Tracts Watershed Co-Management Activity
CIP	Country Investment Plan
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMC	Co-Management Committees
CMS	Conservation of Migratory Species of Wild Animals
DoE	Department of Environment
DoF	Department of Fisheries
DRG	Democracy, human rights, and governance
ECA	Ecologically critical area
EPASIIAE	Expanding the Protected Area System to Incorporate Important Aquatic Ecosystems
FAA	Foreign Assistance Act
FCDO	United Kingdom Foreign, Commonwealth and Development Office
FtF	Feed the Future
FYP	Five-Year Plans
GBM	Ganges-Brahmaputra-Meghna
GDP	Gross domestic product
GIZ	Gesellschaft für Internationale Zusammenarbeit
HDI	Human Development Index
IDEAL	USAID Improving Design, Evidence, and Learning contract
IR	Intermediate result
IUCN	International Union for Conservation of Nature
JMP	Joint Monitoring Programme

KMGBF	Kunming-Montreal Global Biodiversity Framework
MoEF	Ministry of Environment and Forest
MoEFCC	Ministry of Environment, Forest, and Climate Change
MoFL	Ministry of Fisheries and Livestock
MoL	Ministry of Land
MPA	Marine Protected Area
NACOM	Nature Conservation Management
NAP	National Adaptation Plan of Bangladesh
NBSAP	National Biodiversity Strategy and Action Plans
NCS	National Conservation Strategy
PA	Protected areas
PAR	Promoting Advocacy and Rights
SEA	Strategic Environmental Assessment
SID	Statistics and Informatics Division
SMART	Spatial Monitoring and Reporting Tool
SME	Subject matter experts
SMP	Sundarbans Management Program
SRCWP	Strengthening Regional Cooperation for Wildlife Protection
SUFAL	Supported Sustainable Forests and Livelihoods
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	U.S. Agency for International Development
VCF	Village Common Forests
WCS	Wildlife Conservation Society

CONTENTS

Executive Summary	1
1. Introduction	7
1.1 Purpose	8
1.2 Brief Description of the USAID Program	9
1.3 Methodology	11
2. Country Context	13
2.1 Location and Country Development Context	14
2.2 Biophysical Setting	17
3. Status of Biodiversity and Tropical Forests	20
3.1 Major Ecosystem Types and Status	21
3.2 Status of Tropical Forests	29
3.3 Species Diversity and Status	34
3.4 Genetic Diversity	37
3.5 Status and Management of Protected Areas	39
3.6 Status And Management of Key Natural Resources (Outside Protected Areas)	44
3.7 Overview of Ecosystem Services	45
4. Legal Framework Affecting Conservation	47
4.1 National Laws, Policies, and Strategies	48
4.2 International Agreements	52
4.3 Government Agencies	54
4.4 Conservation Initiatives	56
4.5 Conservation Finance	61
5. Threats to Biodiversity and Tropical Forests	63
5.1 Direct Threats to Biodiversity	64
5.2 Drivers and Enablers of Threats	74
6. Actions Necessary to Conserve and Sustainably Manage Biodiversity and Tropical Forests	77
7. Extent to Which the Mission Meets Actions Necessary to Conserve and Sustainably Manage Biodiversity and Tropical Forests	85
7.1 Overview of Current USAID Programs in Bangladesh	86
7.2 Intersections Between USAID’s Non-Environment Programming and Biodiversity and Tropical Forests ..	86
7.3 Extent to Which USAID Meets Actions Needed to Conserve Biodiversity and Tropical Forests	88

8. Recommendations to Conserve and Sustainably Manage Biodiversity and Tropical Forests	91
8.1 Readily Actionable.....	92
8.2 Strategic Opportunities	93
Annex A. References	97
Annex B. List of Consultations	112
Annex C. Additional Maps, Graphics, and Tables	119
Annex D. Field Work Itinerary	126
Annex E. Stakeholder Consultation Protocols	127
Annex F. Site Visit Guide	129
Annex G. Scope of Work	130

LIST OF TABLES

Table 1. USAID/Bangladesh Environment Portfolio, as of May 2024	10
Table 2. Characteristic Species by Coastal Zone or Marine Area	24
Table 3. Characteristic Species by Forest Type.....	33
Table 4. Red List Status of Animal and Plant Species.....	37
Table 5. Conservation Research Institutes	37
Table 6. Key Laws, Policies, and Plans Related to Biodiversity, by Focus Area	49
Table 7. Institutions Responsible for Conservation and Their Mandates.....	55
Table 8. Major Conservation Initiatives Since 2016	57
Table 9. Actions Necessary Linked to Drivers and Direct Threats*.....	80
Table 10. Necessary Conservation Actions and Current IR Contributions to Sustainability	88
Table 11. Strategic Mission-Wide Opportunities for Integration of Biodiversity Into Activities	94
Table B-1. Individuals Consulted During Fieldwork.....	112
Table C-1. List of Protected Areas	120
Table C-2. List of ECAs	123
Table C-3. List of Eco-Parks, Safari Parks and Botanical Gardens	124
Table C-4. List of Bird Colonies in the Northern Part of the Country.....	124
Table C-5. List of Important Bird and Biodiversity Areas	125
Table D-1. Itinerary for Stakeholder Consultations and Site Visits	126
Table G-1. USAID/Bangladesh Environment Portfolio, as of May 2024.....	132
Table G-2. USAID/Bangladesh 118/119 Analysis Timeline and Deliverable Schedule	137
Table G-3. Core Assessment Team Members.....	138
Table G-4. Select Assessment Support Team Members	139

LIST OF FIGURES

Figure 1: Bangladesh 2020-2027 CDCS Results Framework.....	9
Figure 2: Location of Site Visits in Bangladesh.....	12
Figure 3: Urban-Rural Population and Land Area Estimates, 2010.....	14
Figure 4: Sector Share of GDP Contribution and Labor Force Employment.....	15
Figure 5: Distribution of Population Below the Upper Poverty Line, by Upazila, 2016.....	17
Figure 6: The Ganges-Brahmaputra-Meghna (GBM) Basins.....	18
Figure 7: Elevation Map of Bangladesh, with Administrative Divisions.....	19
Figure 8: Major Land-Use/Land Cover and Ecosystem Types of Bangladesh.....	22
Figure 9: Marine Protected Areas in Bangladesh.....	24
Figure 10: Wetland Distribution in Bangladesh.....	27
Figure 11: Tree Cover Loss in Bangladesh 2001-2023.....	30
Figure 12: Bangladesh Forest Area (a) and Forest Types and Zones (b).....	31
Figure 13: Tree Cover Change by Land Cover Type in Bangladesh, 2000-2015.....	32
Figure 14: Areas Recommended for Protection.....	35
Figure 15: Extirpated Species from Bangladesh.....	35
Figure 16: National Parks and Sanctuaries Fall Under the Wildlife (Conservation and Security) Act, 2012.....	39
Figure 17: Protected Areas of Bangladesh.....	41
Figure 18: Freshwater Fish Sanctuaries, Community-Based Fisheries Management Project.....	43
Figure 19: Change in Green Space in Dhaka due to Rapid Urbanization (1989-2020).....	68
Figure 20: Map Showing Key Bird Hunting Hotspots Based on Reported Hunting Events.....	93
Figure 21: Comparison of Conservation Landscapes.....	93
Figure C-1: World Map Showing the Origin of the Identified Invasive Alien Species in Bangladesh.....	119
Figure G-1: Bangladesh 2020-2027 CDCS Results Framework.....	132

EXECUTIVE SUMMARY

This assessment provides an analysis of the status of tropical forests and biodiversity across Bangladesh and aims to support USAID/Bangladesh in aligning its activities with the country's critical conservation needs inside and outside the current environment programming areas. The report adheres to requirements in Sections 118 and 119 of the Foreign Assistance Act (FAA) for USAID to base its periodic review and preparation of country strategies on available evidence regarding the extent to which its activities meet each country's needs to achieve conservation and sustainable management of biodiversity and tropical forests. Biodiversity and tropical forest conservation is a critical component of achieving development outcomes. The analysis therefore identifies opportunities to integrate tropical forest and biodiversity conservation into priority development sectors to support the Mission's country development strategy.

This analysis will inform USAID/Bangladesh in the implementation of its ongoing Country Development Cooperation Strategy (CDCS) (effective through 2027) and development of the subsequent CDCS. The Mission additionally intends to use the findings and recommendations from this analysis to inform a broader Environment Portfolio Strategy, to be developed separately once the analysis is complete. The analysis is also valuable for compliance documentation, such as Initial Environmental Examinations (IEEs).

This analysis relies on a desk-based literature and data review, stakeholder consultations, and in-country site visits. This analysis draws on 56 stakeholder consultations and 24 community consultations conducted in Dhaka and across 12 site visits to key locations throughout Bangladesh's northwest (Rangpur and Rajshahi), south central (Barisal), and southeast (Chattogram) from June 1- 17, 2024 (see [Annex B](#)).

COUNTRY CONTEXT

Bangladesh has a population of over 169 million people, making it one of the most population-dense countries in the world, with over 1,100 people per square kilometer.¹ Bangladesh is also quickly urbanizing, with 40 percent of people in 2023 living in urban areas compared to 24 percent in 2000.² Since 2000, the country has recorded remarkable progress in improving welfare and reducing poverty rates. Bangladesh reached lower-middle income status in 2015, and the country is on track to graduate from the United Nations' Least Developed Countries list in 2026.³

Despite increasing prosperity and urbanization in recent years, the pace of job creation and poverty reduction has slowed over the last decade, and urban poverty is falling slower than rural poverty with no decrease in extreme poverty.⁴ Notably, gender inequality is a major challenge. Although women are likely to live longer than men in Bangladesh, they lag behind in education and per capita income.⁵

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- 1 Statistical yearbook Bangladesh 2022 = Bāmlādeśa parisamkhyāna barshagrantha 2022 (42nd edition). (2023). Bangladesh Bureau of Statistics, Statistics & Informatics Division (SID), Ministry of Planning, Government of the People's Republic of Bangladesh. https://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b2db8758_8497_412c_a9ec_6bb299f8b3ab/2023-06-26-09-19-2edf60824b00a7114d8a51ef5d8ddbce.pdf
 - 2 Urban population growth (annual %). (n.d.). World Bank Open Data. Retrieved July 18, 2024, from https://data.worldbank.org/indicator/SP.URB.GROW?most_recent_value_desc=true
 - 3 World Bank. (n.d.). *Bangladesh Overview*. World Bank. Retrieved July 19, 2024, from <https://www.worldbank.org/en/country/bangladesh/overview>.
 - 4 World Bank. (2023). *Poverty and Equity Brief: South Asia—Bangladesh*. World Bank Group. https://databankfiles.worldbank.org/public/ddpext_download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/current/Global_POVEQ_BGD.pdf
 - 5 Liller, S. (2022, September 27). *Human development report 2021-22: Takeaways for Bangladesh*. UNDP. <https://www.undp.org/bangladesh/blog/human-development-report-2021-22-takeaways-bangladesh>

About two-thirds of Bangladesh is located in the Ganges-Brahmaputra-Meghna (GBM) river delta. There are 257 rivers in Bangladesh, of which 59 are transboundary rivers.⁶ Bangladesh's dependence on the upper GBM watershed located in India, Nepal, China, and Bhutan is multifaceted, encompassing water supply, energy, trade, biodiversity, and climate regulation.

STATUS OF BIODIVERSITY AND TROPICAL FORESTS IN BANGLADESH

Bangladesh's strategic location in the subtropical belt, at the confluence of the Indo-Himalayan and Indo-Chinese subregions, makes it an ecologically significant and biologically rich landscape, serving as a crucial corridor for diverse flora and fauna. Bangladesh has a variety of habitats ranging from lush forests to expansive wetlands. These ecosystems are crucial for maintaining the ecological balance and supporting the livelihoods of millions. However, habitats are deteriorating and, currently, only 4.6 percent of land (including inland waters) and 9.9 percent of marine areas in Bangladesh are protected.⁷

Forests in Bangladesh are categorized into three main types: mangrove forests (Sundarbans and coastal), tropical or mixed evergreen forests (hill), and deciduous forests (sal). Each type has unique characteristics and supports various species of flora and fauna. Overall, nearly 40 percent of forest land in Bangladesh was cleared from 1930 to 2014, decreasing from 15.7 percent of the total geographical area of Bangladesh to 9.5 percent.⁸ An estimated 92 percent of mangrove forests in Bangladesh are protected and their geographical area has expanded since 1975.⁹ Bangladesh has lost nearly all of its sal forest cover, while evergreen forests in the southeast have faced acute deforestation pressures in recent years.¹⁰

Bangladesh is home to 142 species of mammals (including 13 marine species), 690 bird species (337 residents, 208 winter visitors, 12 summer visitors, 14 passage visitors, and 119 vagrants), 171 reptile species (including 16 marine species), and 64 amphibian species.¹¹ The most recent International Union for Conservation of Nature (IUCN) Red List, conducted in 2015, estimated that about one in four of these species is vulnerable or worse, meaning that they are at high risk of unnatural extinction without human intervention.¹² The loss of habitat, as well as other factors, has led many species to decline dramatically, such as the tiger (*Panthera tigris*), hoolock gibbon (*Hoolock hoolock*), spoon-billed sandpiper (*Calidris pygmaea*), and the Ganges river dolphin (*Platanista gangetica*).¹³ Only five species are adequately conserved in the current protected area system of Bangladesh.¹⁴ It is estimated that 39 percent of Bangladesh would

6 Islam, S. N. (2016). Deltaic floodplains development and wetland ecosystems management in the Ganges–Brahmaputra–Meghna Rivers Delta in Bangladesh. *Sustainable Water Resources Management*, 2(3), 237–256. <https://doi.org/10.1007/s40899-016-0047-6>

7 UNEP-WCMC (2024). Protected Area Profile for Bangladesh from the World Database on Protected Areas, September 2024. Available at: <https://www.protectedplanet.net/en/country/BGD>

8 Reddy, C. S., Pasha, S. V., Jha, C. S., Diwakar, P. G., & Dadhwal, V. K. (2016). Development of national database on long-term deforestation (1930–2014) in Bangladesh. *Global and Planetary Change*, 139, 173–182. <https://doi.org/10.1016/j.gloplacha.2016.02.003>

9 Spalding, M. D., & Leal, M. (Eds.). (2021). *The State of the World's Mangroves 2021*. Global Mangrove Alliance. <https://www.mangrovealliance.org/wp-content/uploads/2021/07/The-State-of-the-Worlds-Mangroves-2021-FINAL.pdf>

10 Rahman, M. M., Rahman, Md. M., Guogang, Z., & Islam, K. S. (2010). A review of the present threats to tropical moist deciduous sal (*Shorea robusta*) forest ecosystem of central Bangladesh. *Tropical Conservation Science*, 3(1), 90–102. <https://doi.org/10.1177/194008291000300108>; Reddy, C. S., Pasha, S. V., Jha, C. S., Diwakar, P. G., & Dadhwal, V. K. (2016). Development of a national database on long-term deforestation (1930–2014) in Bangladesh. *Global and Planetary Change*, 139, 173–182. <https://doi.org/10.1016/j.gloplacha.2016.02.003>

11 Khan, M.M.H. (2018). *Photographic Guide to the Wildlife of Bangladesh*. Arannayk Foundation, Dhaka, Bangladesh.

12 IUCN Bangladesh. 2015. *Red List of Bangladesh Volume 1: Summary*. IUCN, International Union for Conservation of Nature, Bangladesh Country Office, Dhaka, Bangladesh. <https://portals.iucn.org/library/sites/library/files/documents/RL-549.3-003-v.1.pdf>

13 Chowdhury, S., Fuller, R.A., Rokonuzzaman, Md., Alam, S., Das, P., Siddika, A., Ahmed, S., Labi, M.M., Chowdhury, S.U., Mukul, S.A., Böhm, M., Hanson, J.O., 2023. Insights from citizen science reveal priority areas for conserving biodiversity in Bangladesh. *One Earth* 6, 1315–1325. <https://doi.org/10.1016/j.oneear.2023.08.025>

14 Chowdhury et al. 2023a

need to be protected to ensure adequate representation of species, highlighting the importance of protecting species outside of existing protected areas.¹⁵

LEGAL FRAMEWORK AFFECTING BIODIVERSITY CONSERVATION

Bangladesh's legal instruments adequately cover a representative set of needs related to conserving tropical forests and biodiversity. Some of these are translated into detailed and updated strategies, master plans, and action plans. Biodiversity, along with environmental sustainability, has also been mainstreamed in the country's medium- and short-term development plans, including the eighth Five-Year Plan (FYP). However, implementation of these plans is inadequate to reach the envisaged goals and targets due to low political commitment and limited funding, and implementation progress is not monitored.

While financing is available for large-scale, coordinated climate initiatives in Bangladesh—for example, through the Bangladesh Climate Trust Fund and Bangladesh Climate Change Resilience Fund—conservation mostly depends on project-dependent finance from development partners, such as USAID. Donor-funded conservation initiatives have historically focused on Bangladesh's southwest (Sundarbans), northeast (Greater Sylhet's haor wetlands and forests), and southeast (Cox's Bazar) regions. Attention to the northwest has been limited.

THREATS AND DRIVERS OF BIODIVERSITY AND TROPICAL FOREST LOSS

The direct threats to biodiversity in Bangladesh, in order of priority, include:

1. Habitat degradation and loss caused by agriculture and aquaculture, transportation and service corridors, and residential and commercial development.
2. Unsustainable use and illegal exploitation of terrestrial and aquatic resources, including from habitats like forests, grasslands, and wetlands that are important for critical species including tigers, fish, sharks, rays, and birds.
3. Pollution of water and soil from industrial effluents, agricultural runoff (pesticides, fertilizers), domestic sewage, and solid waste disposal.
4. Natural systems modifications (e.g., from dams, sand mining, and dredging).
5. Invasive species such as water hyacinth and tilapia.

The primary drivers of these threats are economic development and livelihood insecurity. As Bangladesh's population and per capita income grow, the demand for food, water, and land intensifies. This leads to the conversion of natural habitats for agriculture, infrastructure development, and settlements. Increased income among the middle- and upper-class drives many of the threats due to their increased consumption of agriculture, aquaculture, timber, and illegal wildlife products. Meanwhile, for many low-income rural communities, natural resources are a vital source of income and subsistence. This dependence can lead to overexploitation, particularly when their participation in governance and management of natural resources is limited, leaving them few alternatives to unsustainable practices.

Stakeholders consulted for this analysis consistently asserted that shortcomings in the implementation of policy and enforcement of laws were important constraints to biodiversity conservation. While environmental policies exist for a representative set of important topics in Bangladesh, the conflicting laws and regulations constrain biodiversity conservation. For example, one challenge is the overlapping jurisdictions between the Forest Department and Department of the Environment within the Ministry of Environment, Forests, and Climate Change. Another challenge is that government staff are not sufficiently

15 Chowdhury et al. 2023a

aware of the policies and regulations, which contributes to inadequate implementation and enforcement. Corruption among government officials also hinders effective management and conservation efforts. Corruption undermines environmental initiatives by diverting funds, favoring illegal activities, and creating obstacles for those trying to protect the environment. Stakeholders consulted for the analysis also believe that available funding for conservation is not channeled and used effectively.

In many of the consultations, stakeholders asserted that public awareness of and participation in conservation in Bangladesh was lacking. However, they also felt it was growing, especially among young people. This analysis suggests that the issue is not a lack of public awareness per se, but a lack of a national collective awareness or consciousness around conservation and biodiversity. Also lacking are opportunities for communities and groups to participate in conservation of ecosystems and habitats, like wetlands and grasslands in the northwest.

Finally, there is a shortage of wildlife biologists, ecologists, and conservation specialists with the training and experience to effectively manage the country's diverse ecosystems. From the Forest Department, which has very few trained wildlife biologists or conservation biologists, to the non-governmental organizations (NGO), which are more focused on forest and livelihood issues, there is a need for more trained personnel focused on wildlife and non-forest habitats.

ACTIONS NECESSARY TO CONSERVE BIODIVERSITY AND TROPICAL FORESTS

Bangladesh can achieve significant strides in biodiversity conservation through a three-pronged, synergistic approach. Stakeholders consulted for this analysis directly and consistently advocated for actions associated with the first two themes described below. The third theme ties together a number of other points expressed during consultations and corroborated by available literature, including the government's lack of ownership of conservation projects, the concentration of relatively small scale and site-specific conservation activities where forests are located and a handful of well-known wetlands, and the dependence of those forests and wetlands on upstream river systems where little conservation effort is targeted. These three major themes support and reinforce each other.

- 1. Strengthen Policy and Law Implementation:** While Bangladesh has sound environmental policies and laws, knowledge gaps and inadequate enforcement hinder their effectiveness. Targeted training programs for government staff can improve their understanding and application of these regulations. Bangladesh must also expand organized financing options available for conservation initiatives beyond the scope of donor-funded projects.
- 2. Enhance Public Awareness and Active Engagement:** Fostering a strong civil society and building public support for and participation in conservation can create a better enabling environment for stricter enforcement. While a collective consciousness and ethic may be necessary, it is not sufficient without increasing people's opportunities to participate in conservation, such as through community management across different types of ecosystems. These actions will foster public ownership of conservation efforts and generate broader support for necessary actions.
- 3. Expand Conservation Efforts through Landscape-Level Conservation and Sustainable Practices:** While Bangladesh boasts commendable conservation efforts in some key biodiversity hotspots, a crucial step forward lies in adopting a landscape-scale ecosystem approach. This strategy would transcend the currently recognized biodiversity hotspots where activities are concentrated and recognize the interconnectedness of different ecosystems and habitats across broader landscapes. The mitigation of the impact of human activities, such as fishing and agriculture, through sustainable practices is vital across the broader landscape.

[Table 9](#) in the report body displays a detailed, prioritized set of actions necessary for conservation of biodiversity and tropical forests in Bangladesh underlying each of these themes.

EXTENT TO WHICH USAID MEETS THE ACTIONS NECESSARY FOR CONSERVATION

USAID/Bangladesh's current CDCS is structured around four development objectives (DOs): strengthened democracy for an inclusive society (DO 1), sustainable economic growth (DO 2), advanced human capital development (DO 3), and strengthened resilience to climate change and other shocks (DO 4). Within this framework, biodiversity and tropical forest conservation fit most squarely within intermediate result (IR) 2.3, "natural ecosystems improved," which seeks to improve natural ecosystem management as part of a strategy to foster sustainable economic growth. The Mission pursues IR 2.3 through improved sustainable ecosystem governance, strengthened conservation safeguards, and enhanced sustainable business practices, trade, and investment of natural resources.

USAID addresses many of the actions necessary for conservation of biodiversity and tropical forests in its current IR 2.3 programming. However, these activities are not always commensurate with the landscape-scale conservation needs in the country. They also do not always coordinate to maximize the potential effectiveness of conservation efforts. The most substantial gap between USAID's current actions and the actions needed for conservation of biodiversity and tropical forests in Bangladesh is the lack of attention to the interconnectedness between different ecosystems and habitats across broader landscapes, which are broader than the set of biodiversity hotspots where the Mission currently focuses its programming.

While USAID's other DOs and IRs do not explicitly include or consider biodiversity and tropical forests in their activities, some activities do overlap with actions needed to conserve biodiversity and tropical forests. This provides opportunities for programs to integrate conservation into health, education, economic growth, governance, or other sectors.

RECOMMENDATIONS

Many of the actions necessary to conserve biodiversity are readily actionable because they would require only some adaptation of current or planned USAID programming. For example, many of the actions necessary could be incorporated into Bangladesh's upcoming multispecies wildlife conservation activity design. Mitigating threats to species will require strengthening policy and law implementation, filling gaps in conservation research, facilitating effective coordination across government, civil society, and academia, as well as increasing public awareness and participation. A landscape-scale approach will ensure the activity comprehensively works where the suite of selected species occur and addresses threats to their conservation.

The Mission should think ambitiously about the size of the landscape and incorporate activities to strengthen policy implementation and conservation awareness and participation across as large an area as possible. This does not mean spreading the activities too thin, but rather strategically choosing activities and sites that can be models or pilots for scaling up across larger landscapes. A landscape that includes a large portion of the country would be feasible and would also contribute to developing a collective consciousness around conservation. USAID stakeholders acknowledge the value that taking on a landscape approach could provide but assert that doing so may be difficult where conservation initiatives are only at a formative stage. Good candidates to adopt a landscape approach in the near term include areas like the Sundarbans and southern portions of the Chittagong Hill Tracts (CHT), where conservation efforts are more established and actively addressing threats to biodiversity.

While most actions necessary for USAID to contribute to biodiversity conservation are readily actionable, one strategic opportunity is to consider explicitly integrating environmental conservation across each DO in the next CDCS. Consultations with Mission staff made clear there are viable, pragmatic ways to integrate biodiversity and tropical forest considerations into all programming areas. In some programs, they already have activities that could address the actions necessary to conserve biodiversity, but these links are not explicitly recognized or described. Some examples include the potential for Feed the Future activities pursuing sustainable agriculture to ensure they do not cause land use changes with adverse impacts on biodiversity, or for public health activities to recognize and account for the links between healthy people and a healthy environment and wildlife. If links such as these were explicit, they could be made more strategic and strengthened across programs.

Integration of biodiversity conservation across the USAID/Bangladesh portfolio could also occur at sites where USAID activities overlap geographically, such as in the southwest or northeast, or across themes that all teams and DOs touch upon and are impacted by, like corruption or water resource management. Teams could share lessons learned across the issues they have in common or design activities together to address issues with cross-sectoral impact.



Photo by Sirajul Hossain/USAID

1.

Introduction

1.1 PURPOSE

By mandating Foreign Assistance Act (FAA) 118/119 analyses, the U.S. Congress recognizes the fundamental role of tropical forests and biodiversity in supporting development. The primary purpose of this report is to provide an analysis of tropical forests and biodiversity in compliance with Sections 118 and 119 of the FAA, as amended, ADS Program Cycle Operational Policy, and USAID policy on 118/119 analyses. The analysis examines the country-level tropical forest and biodiversity conservation needs and the extent to which the Mission is currently addressing the actions necessary to conserve and sustainably manage tropical forests and biodiversity. The report recommendations are intended to help the Mission identify ways to strengthen host country commitment and capacity for biodiversity conservation.

Specifically, FAA Sections 118 (Tropical Forest) and 119 (Biodiversity), as amended, require that country development strategies, statements, or other country plans prepared by USAID include an analysis with the following characteristics:

(1) FAA Section 118 (e) Country Analysis Requirements. Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of:

- (a) The actions necessary in that country to achieve conservation and sustainable management of tropical forests, and
- (b) The extent to which the actions proposed for support by the Agency meet the needs thus identified.

(2) FAA Section 119 (d) Country Analysis Requirements. Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of:

- (a) The actions necessary in that country to conserve biological diversity, and
- (b) The extent to which the actions proposed for support by the Agency meet the needs thus identified.

This analysis will inform USAID/Bangladesh in the implementation of its ongoing Country Development Cooperation Strategy (CDCS) (effective through December 31, 2027) and in the development of the following CDCS. Biodiversity conservation is a critical component in achieving development outcomes and should be considered in the Mission's development objectives (DOs). The analysis therefore identifies opportunities to integrate tropical forest and biodiversity conservation into priority development sectors to support the Mission's country development strategy.

The Mission additionally intends to use the findings and recommendations from this assessment to inform a broader Environment Portfolio Strategy, to be developed separately once the assessment is completed. This strategy will establish how current and future projects and activities within the Mission's Environment Portfolio work together in service of relevant DOs from the CDCS. This includes the intersection of programmatic objectives related to tropical forests, biodiversity, and sustainable economic growth. The analysis is also valuable for compliance documentation, such as Initial Environmental Examinations (IEEs).

1.2 BRIEF DESCRIPTION OF THE USAID PROGRAM

USAID/Bangladesh’s CDCS, effective through December 31, 2027, hypothesizes that strengthened democracy for an inclusive society (DO 1), sustainable economic growth (DO 2), advanced human capital development (DO 3), and strengthened resilience to climate change and other shocks (DO 4) will enable Bangladesh to be more inclusive, democratic, prosperous, and resilient.¹⁶ [Figure 1](#) depicts these four DOs in an articulated results framework with their underlying intermediate results (IRs).

Figure 1: Bangladesh 2020-2027 CDCS Results Framework



Within this framework, biodiversity and tropical forest conservation fit most squarely within IR 2.3, seeking to improve natural ecosystem management as part of a strategy to foster sustainable economic growth. The Mission pursues this IR through improved sustainable ecosystem governance, strengthened conservation safeguards, and enhanced sustainable business practices, trade, and investment of natural resources.

[Table 1](#) enumerates the different activities within the Mission’s environment portfolio that contribute to biodiversity and tropical forest conservation. Over the course of the 118/119 analysis, IDEAL relied on program documents and consultations with the Mission Program Office and relevant technical teams to expand its understanding of the activities outside the environment portfolio and the potential intended and unintended intersections between these activities and the environment. [Section 7](#) presents an analysis of the intersections between USAID’s non-environment activities and the environment.

¹⁶ See [USAID | Bangladesh Country Development Cooperation Strategy](#).

TABLE 1. USAID/BANGLADESH ENVIRONMENT PORTFOLIO, AS OF MAY 2024

ACTIVITY NAME, PERIOD OF PERFORMANCE	INTERSECTION WITH TROPICAL FORESTS AND BIODIVERSITY	GEOGRAPHIC FOCUS
Community Partnerships to Strengthen Sustainable Development (COMPASS) , 2019-2024	Evidence-based scientific exchange to enhance the capacity of institutions and communities to manage natural resources and improve livelihoods, including through forest landscape restoration.	Bandarban and Cox's Bazar (southeastern region), Dhaka district (northeastern region)
Enhanced Coastal Fisheries in Bangladesh (ECOFISH) II , 2019-2024	Applies ecosystem-based approach to fisheries management to increase fish abundance and biomass in coastal waters and build community resilience in areas dependent on fisheries. Also includes activities to promote the economic well-being of fishers.	Lower Meghna River, Naf River, and coastal marine waters of the Bay of Bengal in Cox's Bazar District
USAID-DOJ Wildlife Protection Activity/ Bonnoprani Rokkha (WPA) , 2019-2025	Aims to reduce illegal killing and gathering of wildlife through capacity building for improved investigation and law enforcement together with education and civil society mobilization campaigns.	Nationwide, with focus on wildlife trafficking hotspots including airports
Ecosystem Conservation through Livelihood Improvement and Forest Enhancement (ECO LIFE) , 2020-2025	Capacity building to enhance resource mobilization capacity for conservation actions and sustainability. Promotes alternative income-generating activities for 4,300 natural resource-dependent households surrounding forest protected areas and ecologically critical areas (ECAs).	Himchari National Park, Medhakachhapia National Park, Fasiakhali Wildlife Sanctuary, Cox's Bazar-Teknaf Peninsula, and Sonadia Island
Greening Environment through Livelihood Improvement and Forest Enrichment (GREEN LIFE) , 2020-2025	Strengthened co-management organizations and livelihood development support to 1,800 households to promote sustainable agriculture and energy use surrounding Inani National Park.	Inani National Park, Cox's Bazar
Nature Conservation through Livelihoods Improvements (Nature and Life) , 2020-2025	Support to 2,000 households surrounding Teknaf Wildlife Sanctuary for sustainable livelihoods and reduced use of biomass fuels. Also includes capacity building for community-based organizations to enhance local conservation initiatives.	Teknaf Wildlife Sanctuary, Cox's Bazar
BANGLADESH ECOTOURISM AND CONSERVATION ALLIANCE (BECA) , 2021-2024	Supports a private sector-led tourism development alliance, including through efforts to conserve the Sundarbans as an ecotourism destination and promote livelihood opportunities for local populations in the tourism value chain.	Sundarbans
USAID Ecosystems/ Protibesh Activity , 2021-2026	Advancement of community-based, nature-based solutions to conserve key biodiversity areas.	Sundarbans (southwestern region) and the Sylhet region of northeastern Bangladesh
USAID Chittagong Hill Tracts Watershed Co-Management Activity - Phase II (CHTWCA II) , 2024-2029	Targets integrated forest watershed and ecosystem co-management, climate change adaptation and mitigation, habitat conservation, and improved ecosystem governance.	Chittagong Hill Tracts

1.3 METHODOLOGY

This analysis follows USAID's Best Practices Guide 2.0 for the FAA Sections 118/119 Tropical Forest and Biodiversity Analysis.¹⁷ The analysis relies on a desk-based literature and data review, stakeholder consultations, and in-country site visits. The work to complete the assessment comprised five phases:

Phase 1: Kickoff and Work Planning

Phase 2: Pre-Consultation Research and Report Writing

Phase 3: Stakeholder Consultations and Site Visits

Phase 4: Post-Consultation and Report Writing

Phase 5: Report Finalization

Desk Research

The analysis team reviewed multiple types of documents and resources as part of its desk research:

1. Academic literature (e.g., journal articles, books subject to peer review)
2. Gray literature (e.g., research reports commissioned by USAID or other donors)
3. USAID background documents (e.g., relevant policy and strategy documents, activity progress reports)
4. Geospatial data (e.g., deforestation data from Global Forest Watch)

Stakeholder Consultations

Although the analysis relies on existing data and documents to provide the bulk of evidence underlying the final analysis report, the team also conducted 80 total consultations (see [Annex B](#)). Of these, 56 were with stakeholders affiliated with the government, civil society, USAID, USAID implementing partners, academic institutions, and other international donors. The remainder were with community members in areas surrounding key biodiversity hotspots. These consultations aimed to gather perspectives of informed stakeholders regarding current issues in forest and biodiversity management and the extent to which USAID is meeting biodiversity and tropical forest conservation needs in Bangladesh. The stakeholder consultations supplemented in-person site visits and desk review to provide the biodiversity and forest status for the whole country. The team also conducted remote consultations when stakeholder schedules and office locations did not permit in-person meetings. Consultations followed a semi-structured interview guide attached to this report in [Annex E](#).

17 See [Foreign Assistance Act Sections 118/119 Tropical Forest and Biodiversity Analysis Best Practices Guide — USAID BiodiversityLinks](#).

Site Visits

The team conducted a total of 12 site visits for this assessment, as depicted with pink triangles in [Figure 2](#), across four administrative divisions of Bangladesh. The purpose of site visits was to understand opportunities for potential USAID programming and identify possible links between biodiversity and tropical forest conservation with other key sectors. The analysis team visited sites that are biodiversity hotspots representing a range of donor and USAID investments, including:

1. Rangpur and Rajshahi (northwest), to assess the potential to promote conservation in areas with little historical investment despite significant biodiversity and forest cover;
2. Barisal (south central), to assess how existing interventions in the region fit into a broader environment portfolio and link with development goals in other sectors; and
3. Chattogram (southeast), to assess how existing interventions in the region fit as part of a broader environment portfolio and linked with development goals in other sectors.

Figure 2: Location of Site Visits in Bangladesh¹⁸



Site visits included consultations with locally based stakeholders following the protocols in [Annex E](#). The team implemented in-person consultations and site visits in Bangladesh from June 1 through June 17, 2024. To maximize the number of sites and stakeholders visited and consulted during this period, the team split into pairs and traveled to different regions of the country. [Table D-1](#) summarizes the itinerary for this period.

¹⁸ Administrative Basemap. (n.d.). National Spatial Data Infrastructure, Survey of Bangladesh, Ministry of Defense, Government of Bangladesh. <https://nsdi.gov.bd/iportal/apps/dataviz/view.html?id=1684180584>.



USAID
বাড়ির আঙিনায় সবজি চাষ
Homestead Vegetable Gardening
স্থান: রাজবেপাড়া, খুলনা-১১, সন্দর, কক্সবাজার।
অর্থায়ন: ইউ-এস এজার্সি
স্বায়ত্বশাসন: ওয়ার্ল্ডফিশ ও মসগো অসিলিটর
ক্রমসংখ্যা: কেটেগোরি ডিস্ট্রিবিউশন বাংলাদেশ (ইকোফিশ-২)

Photo by Muhammad Arifur/USAID

2.

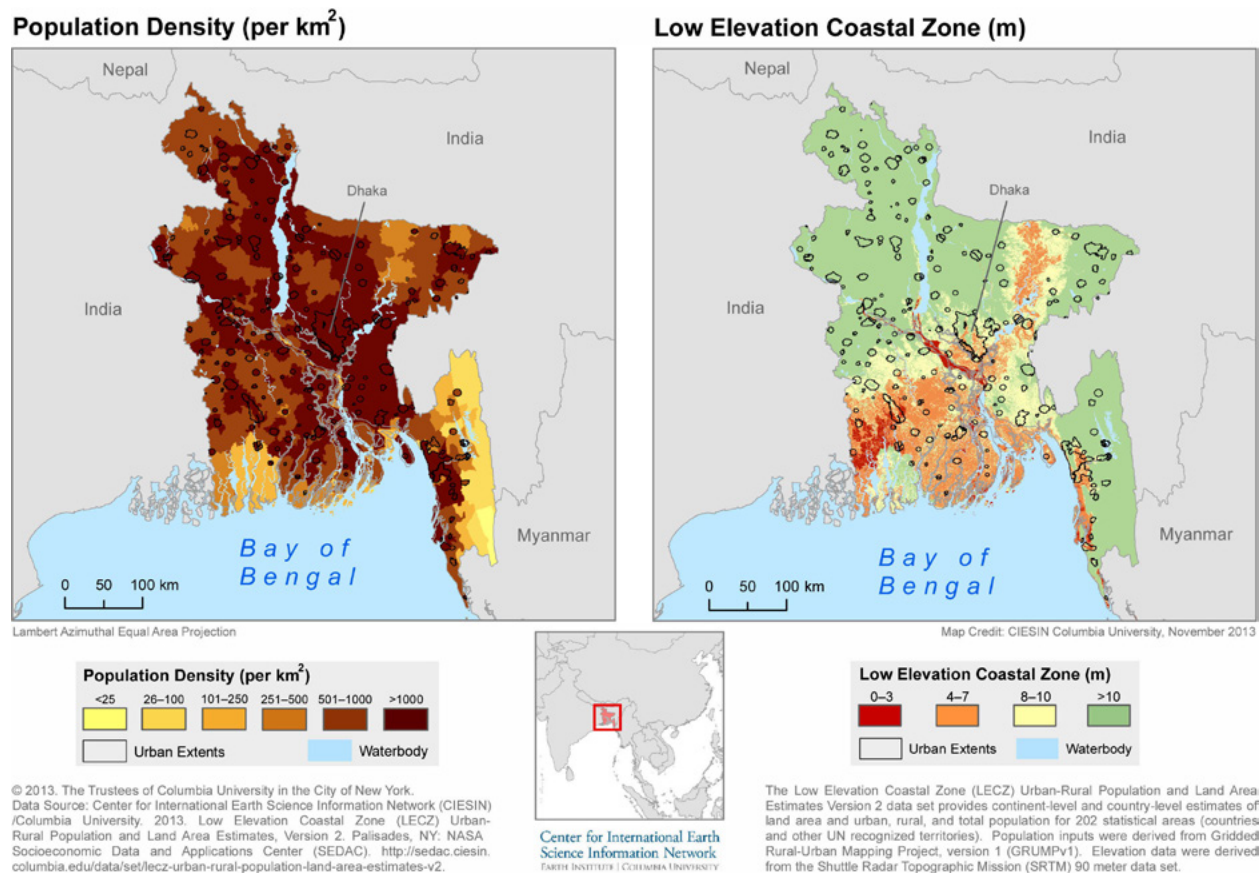
Country Context

2.1 LOCATION AND COUNTRY DEVELOPMENT CONTEXT

Bangladesh, located in the southeastern-most part of South Asia, shares political boundaries with India to the east, west, and the north, and with Myanmar to the southeast. It is about 440 kilometers wide and 760 kilometers long and has a population of over 169 million people, making it one of the most population-dense countries in the world, with over 1,100 people per square kilometer (Figure 3).¹⁹ For comparison, Bangladesh has a population around half the size of the U.S. population in an area about the size of New York State.

Bangladesh is quickly urbanizing, with 40 percent of people in 2023 living in urban areas compared to 24 percent in 2000.²⁰ By 2030, it is predicted that half of the population will live in cities.²¹ Despite its population density, it harbors the larger part of the world's largest mangrove forest, the Sundarbans, in the southwest and a substantial portion of the Indo-Burma biodiversity hotspot in the Chittagong Hill Tracts (CHT) in the southeast.

Figure 3: Urban-Rural Population and Land Area Estimates, 2010²²



19 Statistical yearbook Bangladesh 2022 (42nd edition). (2023). Bangladesh Bureau of Statistics, Statistics & Informatics Division (SID), Ministry of Planning, Government of the People's Republic of Bangladesh. https://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b2db8758_8497_412c_a9ec_6bb299f8b3ab/2023-06-26-09-19-2edf60824b00a7114d8a51ef5d8ddbce.pdf.

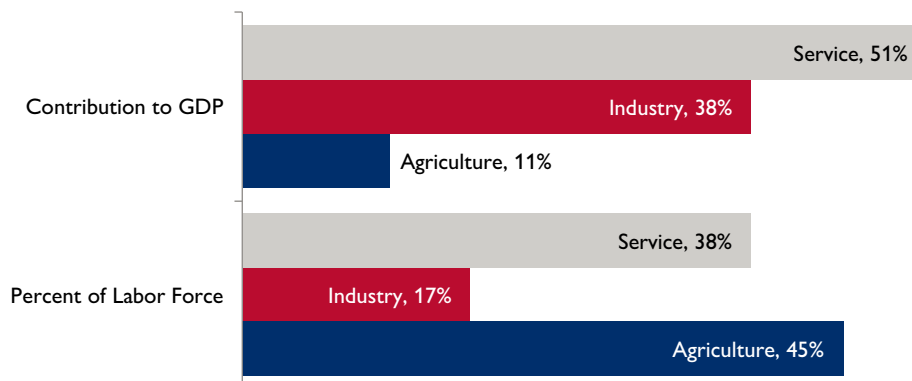
20 Urban population growth (annual %). (n.d.). World Bank Open Data. Retrieved July 18, 2024, from https://data.worldbank.org/indicator/SP.URB.GROW?most_recent_value_desc=true.

21 The future of Bangladesh's new frontier cities. (n.d.). UNDP. Retrieved July 19, 2024, from <https://www.undp.org/bangladesh/blog/future-bangladeshs-new-frontier-cities>.

22 SEDACMaps. (2013). Urban-rural population and land area estimates, v2, 2010: Bangladesh [Photo]. <https://www.flickr.com/photos/54545503@N04/13873798283/>.

Bangladesh's economy is dominated by the services sector, with lesser contributions from the agricultural and industrial sectors. In fiscal year 2022-2023, the Government of Bangladesh estimated that 41 percent of the labor force was employed in service industries, compared to 37 percent in agricultural sectors and 22 percent in industrial sectors. The agricultural sector contributed only 11 percent of the gross domestic product (GDP), whereas the service sector's contribution was over 50 percent, as summarized in [Figure 4](#), below.²³ In the same time period, forest and related services contributed 1.7 percent and fishing contributed 2.4 percent to GDP.²⁴ Aside from its economic impact, it is important to note that 62.2 percent of land in Bangladesh is agricultural.²⁵

Figure 4: Sector Share of GDP Contribution and Labor Force Employment



Bangladesh has recorded remarkable progress in improving welfare and reducing poverty rates since 2000. Between 2010 and 2022, poverty declined from 11.8 percent to 5 percent, while moderate poverty declined from 49.6 percent to 30.0 percent.²⁶ The World Bank estimates current per capita income to be \$2,860, more than doubling since the last assessment in 2016 when it was estimated to be \$1,220.²⁷ Bangladesh reached lower-middle income status in 2015, and the country is on track to graduate from the United Nations Least Developed Countries list in 2026.²⁸

Further, Bangladesh has been one of the best performers in the Asia-Pacific region in terms of Human Development Index (HDI) progress, going from an HDI of 0.397 in 1990 to 0.661 in 2021. In those 30 years, the life expectancy at birth rose from 56 to 72 years old; expected years of schooling more than doubled from 5.8 to 12.4 years; the Gross National Income more than tripled; and maternal mortality fell 70 percent.²⁹

23 Finance Division, Ministry of Finance Government of the People's Republic of Bangladesh. (2024). Chapter ii: Domestic production, storage and supply. In *Bangladesh Economic Review 2024*. https://mof.portal.gov.bd/sites/default/files/files/mof.portal.gov.bd/page/f2d8fab_29c1_423a_9d37_cdb500260002/Chapter-2%20%28Bangla-2024%29Updated-666.pdf.

24 Finance Division, Ministry of Finance Government of the People's Republic of Bangladesh, 2024.

25 Reddy, C. S., Pasha, S. V., Jha, C. S., Diwakar, P. G., & Dadhwal, V. K. (2016). Development of national database on long-term deforestation (1930–2014) in Bangladesh. *Global and Planetary Change*, 139, 173–182. <https://doi.org/10.1016/j.gloplacha.2016.02.003>.

26 World Bank. (n.d.). *Bangladesh Overview*. World Bank. Retrieved July 19, 2024, from <https://www.worldbank.org/en/country/bangladesh/overview>. Poverty based on the international poverty line of \$2.15 a day using 2017 Purchasing Power Parity and a comparable welfare series. Moderate poverty based on the international poverty line of \$3.65 a day using 2017 PPP.

27 World Bank, World Development Indicators. (2023). *GDP per capita (current US\$)* [Data file]. Retrieved July 19, 2024 from <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>.

28 World Bank. (n.d.). *Bangladesh Overview*.

29 Liller, S. (2023). New directions for human development in Bangladesh. United Nations | Bangladesh. <https://bangladesh.un.org/en/256074-new-directions-human-development-bangladesh>.

Access to electricity has greatly increased in the last 10 years, rising from 55 percent of the population with access in 2010 to 99 percent in 2022 (99.3 percent of rural population and 100 percent of urban population).^{30, 31, 32} Bangladesh has seen similarly substantial improvements in sanitation over the same time period. Specifically, the share of population with access to basic hand washing facilities rose from 25 percent in 2010 to 62 percent in 2022,³³ while use of improved sanitation facilities (facilities designed to hygienically separate excreta from human contact) has also increased from 60 percent to 85 percent in the same time period.³⁴

Despite increasing prosperity and urbanization in recent years, challenges remain in Bangladesh. The pace of job creation and poverty reduction has slowed over the last decade, and urban poverty is falling slower than rural with no decrease in extreme poverty (see [Figure 5](#)).³⁵ Around 40 million people still live in multidimensional poverty, and, according to the global Multidimensional Poverty Index, the biggest deprivations among the poor are inadequate housing, cooking fuel, and years of schooling.³⁶ Access to safely managed drinking water sources has improved from 42 percent to 54 percent from 2010 to 2022 in urban areas, but has remained constant between 61 and 62 percent in rural areas over the same time period.³⁷ Despite increases in access to improved sanitation, 40 percent of the population still do not have access to at least basic sanitation facilities, meaning their facilities are not reliably designed to separate human excreta from human contact or are shared with other households.³⁸

Notably, gender inequality is a major challenge: Bangladesh's above mentioned HDI of 0.661 falls to 0.503 when adjusted for gender inequality. Although women are likely to live longer than men in Bangladesh, they lag behind in education and per capita income. Generally, women receive at least one and a half fewer years of education than men, and their average income is 66 percent less than men's, earning \$2,811 compared to \$8,176 for men. Furthermore, Bangladesh ranks 131 out of 204 on the Gender Inequality Index, which measures inequality among genders for reproductive health, empowerment, and access to the labor market.³⁹

30 World Bank, World Development Indicators. (2022a). *Access to electricity (% of population)* [Data file]. Retrieved July 19, 2024 from <https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS>.

31 World Bank, World Development Indicators. (2022b). *Access to electricity, rural (% of rural population)* [Data file]. Retrieved July 19, 2024 from <https://data.worldbank.org/indicator/EG.ELC.ACCS.RU.ZS>.

32 World Bank, World Development Indicators. (2022c). *Access to electricity, urban (% of urban population)* [Data file]. Retrieved July 19, 2024 from <https://data.worldbank.org/indicator/EG.ELC.ACCS.UR.ZS>.

33 WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation – processed by Our World in Data. (2022a). *Access to basic handwashing facilities* [Dataset]. WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation [Original Data]. Retrieved July 19, 2024 from <https://ourworldindata.org/explorers/water-and-sanitation>.

34 WHO/UNICEF JMP for Water Supply and Sanitation – processed by Our World in Data. (2022b). “Usage of improved sanitation facilities” [Dataset]. WHO/UNICEF JMP for Water Supply and Sanitation [original data]. Retrieved July 19, 2024 from <https://ourworldindata.org/explorers/water-and-sanitation>.

35 World Bank. (2023). *Poverty and Equity Brief: South Asia—Bangladesh*. World Bank Group. https://databankfiles.worldbank.org/public/ddpext_download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/current/Global_POVEQ_BGD.pdf.

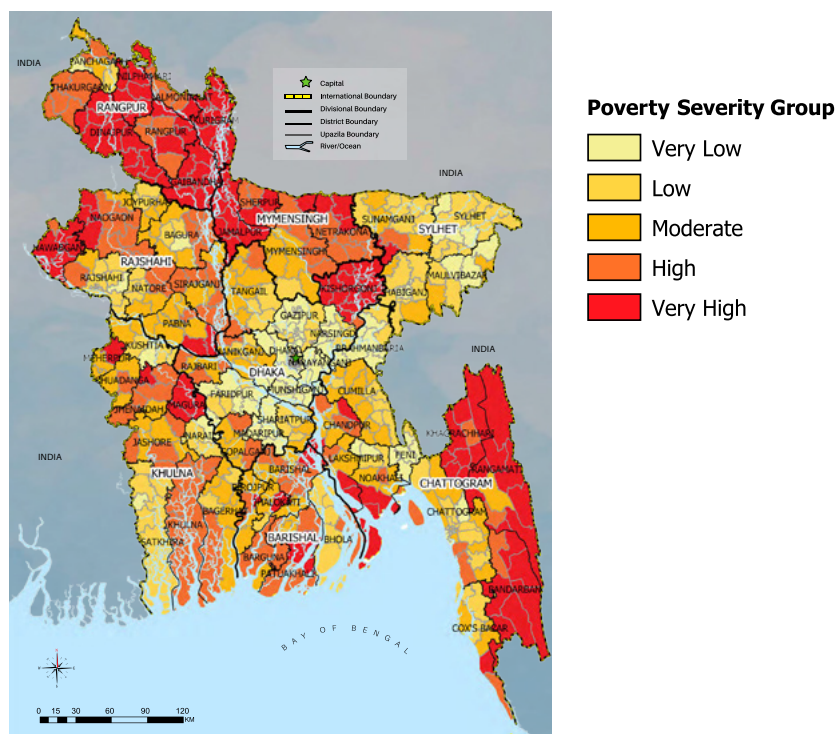
36 Liller, S. (2023). *New directions for human development in Bangladesh*. United Nations | Bangladesh. <https://bangladesh.un.org/en/256074-new-directions-human-development-bangladesh>.

37 World Bank, World Development Indicators. (2022d). *People using safely managed drinking water services (% of population)* [Data file]. Retrieved July 19, 2024 from <https://data.worldbank.org/indicator/SH.H2O.SMDW.ZS>.

38 World Bank, World Development Indicators. (2022e). *People using at least basic sanitation services (% of population)* [Data file]. Retrieved July 19, 2024 from <https://data.worldbank.org/indicator/SH.STA.BASS.ZS>.

39 Liller, S. (2022, September 27). *Human development report 2021-22: Takeaways for Bangladesh*. UNDP. <https://www.undp.org/bangladesh/blog/human-development-report-2021-22-takeaways-bangladesh>.

Figure 5: Distribution of Population Below the Upper Poverty Line, by Upazila, 2016⁴⁰



2.2 BIOPHYSICAL SETTING

About two-thirds of Bangladesh is located in the Ganges-Brahmaputra-Meghna (GBM) delta (Figure 6). This delta is the largest in the world, formed by the alluvial soil brought down by the GBM river system. The GBM river system, which includes two of the largest rivers originating in the Himalayan Mountain Chain, has a combined peak discharge of 180,000 m³/second, which is the second highest in the world after the Amazon. There are 257 rivers in Bangladesh, of which 59 rivers are transboundary rivers.⁴¹ Because Bangladesh encompasses the deltaic region of the watershed, the topography of the country is mostly low and flat, with around 66 percent of Bangladesh below five meters in elevation. Ensuring the sustainable management of the entire watershed—much of which lies outside of Bangladesh’s control in India, Nepal, China, and Bhutan—is crucial for Bangladesh’s development. Bangladesh’s dependence on the upper watershed is multifaceted, encompassing water supply, energy, trade, biodiversity, and climate regulation.

40 World Food Programme and Bangladesh Bureau of Statistics. (2020). *Poverty Maps of Bangladesh 2016: Key Findings*. https://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/5695ab85_1403_483a_afb4_26dfd767df18/2021-02-22-16-57-c64fb3d272175e7efea0b02de6a23eaa.pdf.

41 Islam, S. N. (2016). Deltaic floodplains development and wetland ecosystems management in the Ganges–Brahmaputra–Meghna Rivers Delta in Bangladesh. *Sustainable Water Resources Management*, 2(3), 237–256. <https://doi.org/10.1007/s40899-016-0047-6>.

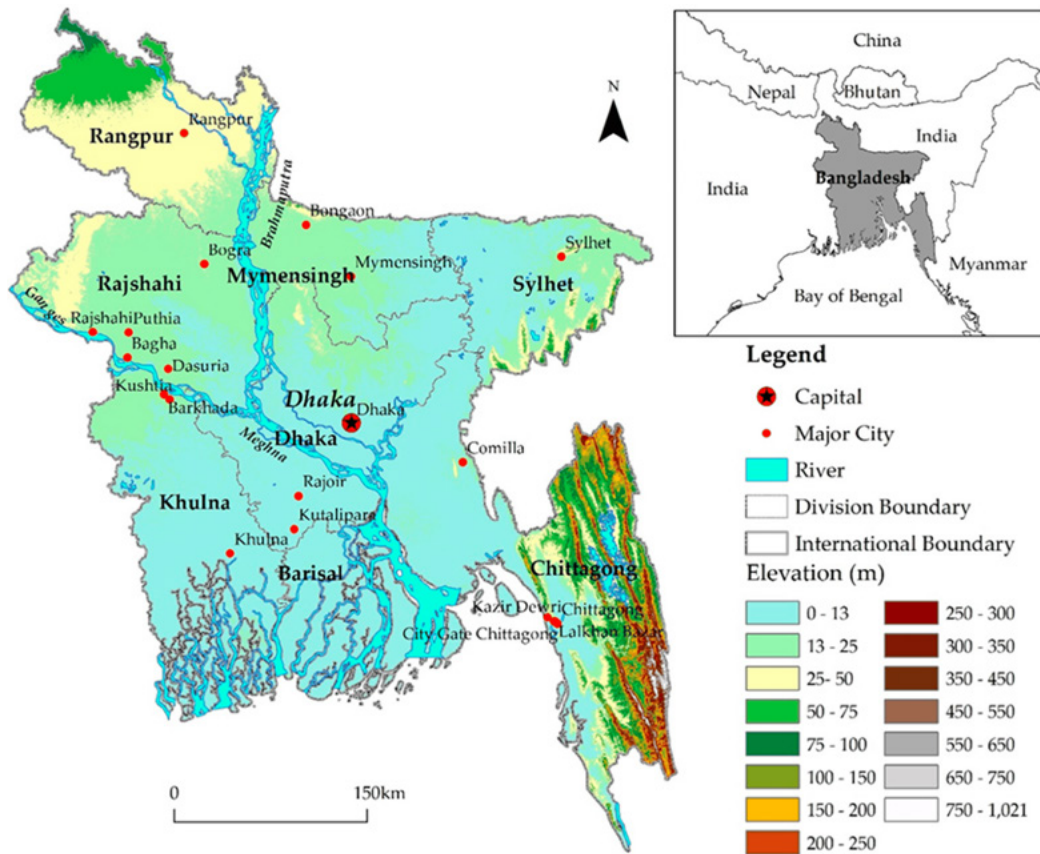
Figure 6: The Ganges-Brahmaputra-Meghna (GBM) Basins⁴²



Most of Bangladesh is fertile alluvial lowland, or floodplain, with the exceptions of the Chittagong Hills in the southeast, the Low Hills of Sylhet in the northeast, and highlands in the north and northwest (see [Figure 7](#)). The climate of Bangladesh is mostly subtropical monsoon, which is characterized by high temperature, heavy rainfall, and excess humidity with pronounced seasonal variations. Mean annual temperature is about 25° C and may vary between 4° C to 45° C due to cold and heat waves.

42 Baten, M. A., & Titumir, R. A. M. (2016). Environmental challenges of trans-boundary water resources management: The case of Bangladesh. *Sustainable Water Resources Management*, 2(1), 13–27. <https://doi.org/10.1007/s40899-015-0037-0>.

Figure 7: Elevation Map of Bangladesh, with Administrative Divisions⁴³



Forty percent of the country's crops are rainfed, and the rest depend on groundwater irrigation.⁴⁴ Hence, crop production largely depends on rain during the monsoon. Even a moderate decline in rainfall can affect the country's crop production. Variation in rainfall can significantly impact the lives and livelihoods of millions. For instance, heavier rainfall in the riverine area can accelerate river erosion while, on the other hand, less rainfall can increase the salinity in the wetlands and rivers of southwestern Bangladesh, which can already be highly saline due to no freshwater flow from the Ganges River.

43 Rai, R., Zhang, Y., Paudel, B., Li, S., & Khanal, N. (2017). A synthesis of studies on land use and land cover dynamics during 1930–2015 in Bangladesh. *Sustainability*, 9(10), 1866. <https://doi.org/10.3390/su9101866>.

44 Dewan, A., Shahid, S., Bhuiyan, Md. H., Hossain, S. M. J., Nashwan, M. S., Chung, E.-S., Hassan, Q. K., & Asaduzzaman, M. (2022). Developing a high-resolution gridded rainfall product for Bangladesh during 1901–2018. *Scientific Data*, 9(1), 471. <https://doi.org/10.1038/s41597-022-01568-z>.

3.

Status of Biodiversity and Tropical Forests

Bangladesh's strategic location in the subtropical belt, at the confluence of the Indo-Himalayan and Indo-Chinese subregions, makes it an ecologically significant and biologically rich landscape, serving as a crucial corridor for diverse flora and fauna. Bangladesh makes an outsized contribution to global biodiversity despite being a relatively small and densely populated country. Despite occupying only 4.5 percent of the surface area that India occupies, as of 2015 Bangladesh had 27 percent of the number of mammal, bird, reptile, amphibian, freshwater fish, crustacean, and butterfly species. The percent of these species classified as vulnerable or worse on IUCN's Red List increased from about 19 percent in 2000 to about 25 percent in 2015, indicating a trend of increasing vulnerability that is likely to have persisted in the years since.⁴⁵ Conservation of diverse flora and fauna in Bangladesh is tied intimately to the conservation of the diverse coastal, marine, inland water, and terrestrial ecosystems that provide their habitats. However, most habitats are in decline, as evidenced by reduced coverage of most ecosystem types except mangrove forests since 2000 and declining species populations across terrestrial and marine ecosystems.⁴⁶

3.1 MAJOR ECOSYSTEM TYPES AND STATUS

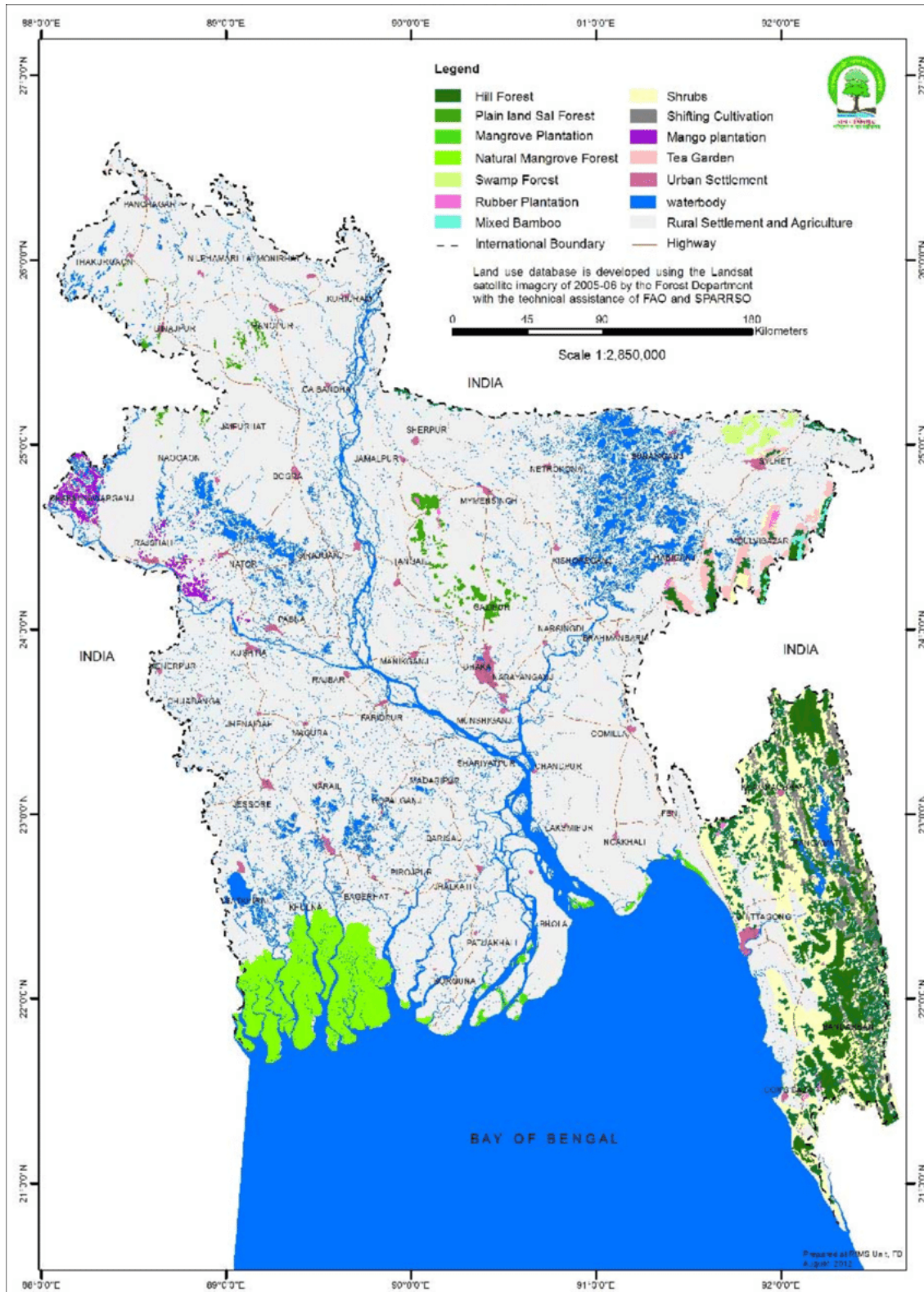
Bangladesh has a variety of habitats ranging from lush forests to expansive wetlands. These ecosystems are crucial for maintaining the ecological balance and supporting the livelihoods of millions. [Figure 8](#) depicts the various land-use and land cover types and ecosystems in Bangladesh.⁴⁷ This section groups these various ecosystems into four broad categories: 1) coastal and marine ecosystems, 2) inland freshwater ecosystems, 3) terrestrial ecosystems, and 4) man-made ecosystems.

45 IUCN Bangladesh. (2015). Red List of Bangladesh Volume 1: Summary. IUCN, International Union for Conservation of Nature, Bangladesh Country Office, Dhaka, Bangladesh. <https://portals.iucn.org/library/sites/library/files/documents/RL-549.3-003-v.1.pdf>.

46 Government of Bangladesh. (2020). Tree and Forest Resources of Bangladesh: Report on the Bangladesh Forest Inventory. Forest Department, Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh. http://bfis.bforest.gov.bd/bfi/wp-content/uploads/2021/02/BFI-Report_final_08_02_2021.pdf; IUCN Bangladesh 2015.

47 Department of Environment (DoE). (2019). The Sixth National Report to the Convention on Biological Diversity: Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh. <https://www.cbd.int/doc/nr/nr-06/bd-nr-06-en.pdf>.

Figure 8: Major Land-Use/Land Cover and Ecosystem Types of Bangladesh⁴⁸



48 Bangladesh Forest Department 2016 in Mukul, S. A., Mohammed Abu Sayed Arfin, K., & Uddin, M. B. (2020). Invasive alien species of Bangladesh. <https://doi.org/10.20944/preprints202002.0357.v1>.

Coastal and Marine Ecosystems

The coastal and marine ecosystems of Bangladesh extend along the Bay of Bengal and include “near-shore” ecosystems such as estuarine habitats, mangroves, beaches, and grass meadows, as well as “off-shore” ecosystems like coral reefs and open coastal and ocean waters. The near-shore ecosystems serve a nursery function for many species of marine fish and shellfish, thus serving a critical role in supporting biodiversity and the productive capacity of marine fisheries. Meanwhile, key portions of the off-shore ecosystems are protected due to their status as a hotspot for globally endangered cetaceans and marine turtles.⁴⁹ The entire coast of Bangladesh is part of the Bay of Bengal large marine ecosystem, one of the world’s 64 large marine ecosystems. The 710-kilometer coastline, across eight countries, encompasses 106,613 square kilometers of marine area, including a 12-nautical-mile Territorial Sea and an Exclusive Economic Zone extending up to 200 nautical miles.⁵⁰

The Bangladeshi coastline offers a diverse landscape and is rich in biodiversity, with cetaceans, sharks, rays, pelagic birds, marine turtles, sea snakes, economically valuable fish, and crustaceans. The western coast, bordering India, features vast mudflats and the Sundarbans, the world’s largest mangrove forest, teeming with wildlife. It also has nesting grounds for Batagur terrapin, masked finfoot, saltwater crocodile, king cobra, white-bellied sea eagle, Ganges River dolphin, and many other threatened species (Department of Environment [DoE] 2015).⁵¹ The central coastline, shaped by the Ganges and Meghna rivers, boasts fertile plains and busy ports and is the wintering grounds of more than 100 species of migratory shorebirds belonging to East Asia-Australasian and Central Asian flyways.⁵² The eastern coastline, bordering Myanmar, is known for its sandy beaches, coral reefs, and the scenic CHT, and for its important breeding ground for four species of marine turtles and the only coral community in Bangladesh. An ongoing effort to document the full biological diversity of Bangladesh’s coastal and marine areas has so far documented 477 species of plankton, 8 species of sponges, 199 species of cnidarians, 186 species of marine worms, 137 species of crustaceans, 639 species of mollusks, 49 species of echinoderms, 770 species of fishes, 21 species of reptiles, 47 species of marine birds, 17 species of marine mammals, 214 species of seaweeds, and 7 species of seagrasses.⁵³ Estuaries alone are home to 830 different floral and faunal species in Bangladesh, including 208 species of fishes, 165 species of seaweeds, 154 species of plankton, 121 species of birds, 52 species of crustaceans, 44 species of benthic organisms, and 5 species of seagrasses.⁵⁴

The government has designated a total of five marine protected areas (MPAs): Marine Reserve region (Middle Ground and South Patches of Bay of Bengal), Naf Peninsula MPA, Nijhum Dwip MPA, Swatch of

49 Rashid, S. M. A. (2019). Coastal Biodiversity – A Review. Report prepared for Long Term Monitoring Research and Analysis of Bangladesh Coastal Zone. Pp. 30. https://www.researchgate.net/publication/338855465_Coastal_Biodiversity_of_Bangladesh_-_A_Review.

50 Khan, M.M.H. (2018). Photographic Guide to the Wildlife of Bangladesh. Arannayk Foundation, Dhaka, Bangladesh; DoE (Department of Environment). (2019). The Sixth National Report to the Convention on Biological Diversity: Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People’s Republic of Bangladesh. <https://www.cbd.int/doc/nr/nr-06/bd-nr-06-en.pdf>.

51 Khan 2018.

52 Yong DL, Heim W, Chowdhury SU, Choi C-Y, Kitorov P, Kulikova O, Kondratyev A, Round PD, Allen D, Trainor CR, Gibson L and Szabo JK (2021) The State of Migratory Landbirds in the East Asian Flyway: Distributions, Threats, and Conservation Needs. *Front. Ecol. Evol.* 9:613172. doi: 10.3389/fevo.2021.613172.

53 Habib, K. A., Sakib, Md. N., Islam, Md. J., Omor, Md. I. A., Nur-A-Zannat, Mst., Parvin, Mst. M., Habib, F. B., Kamal, S. A., Khadiza, U., & Adhikary, N. R. (2024, January). Marine Biodiversity Portal of Bangladesh (marinebiodiversity.org.bd): A smart online encyclopedia of marine fauna and flora of the country. International Conference on Oceanography. https://www.researchgate.net/publication/377965492_Marine_Biodiversity_Portal_of_Bangladesh_marinebiodiversityorgbd_A_smart_online_encyclopedia_of_marine_fauna_and_flora_of_the_country.

54 Refat Jahan, Rakib Md. Et al. (2022). Ecohydrological features and biodiversity status of estuaries in Bengal delta, Bangladesh: A comprehensive review. *Frontiers in Environmental Science*. 10. <https://www.frontiersin.org/journals/environmental-science/articles/10.3389/fenvs.2022.990099>.

No Ground MPA, and St. Martin's island MPA.⁵⁵ Figure 9 maps where each of these fall along Bangladesh's coastline, while Table 2 highlights key species present in the different areas of Bangladesh's coastline, many of which the MPAs are designed to protect.

Figure 9: Marine Protected Areas in Bangladesh⁵⁶

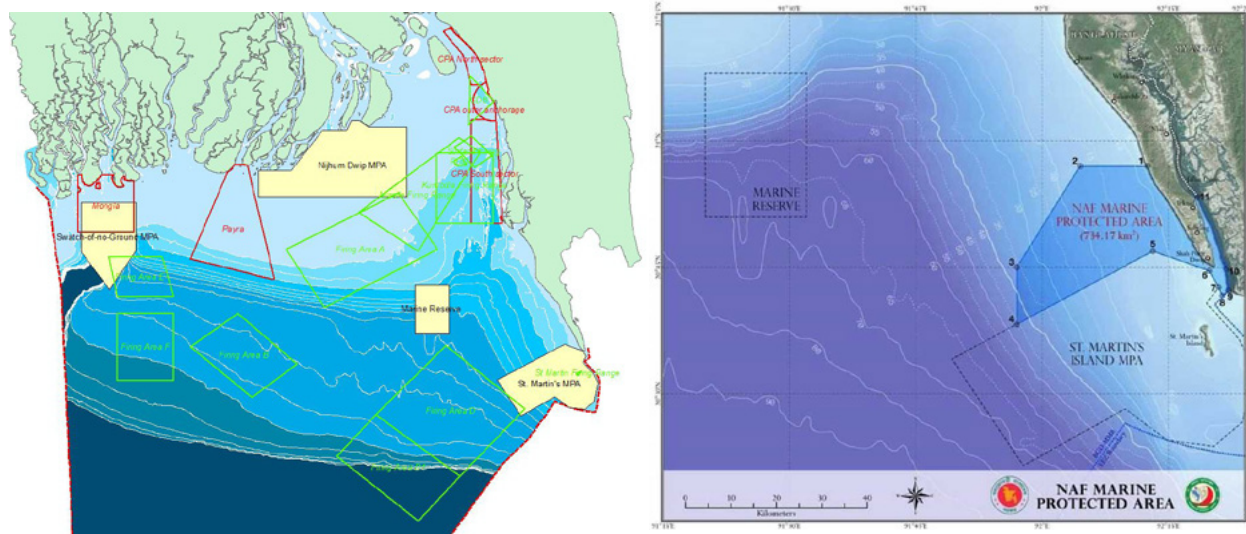


TABLE 2. CHARACTERISTIC SPECIES BY COASTAL ZONE OR MARINE AREA

MPA	COASTAL ZONE/ MARINE AREA	CHARACTERISTIC SPECIES
Swatch of No Ground	Ganges Tidal Plain West	<ul style="list-style-type: none"> • Estuarine/marine fish species, including: <i>Pangasius pangasius</i>, <i>Anguilla bengalensis</i>, <i>Plotosus canius</i>, <i>Carcharhinus limbatus</i>, and <i>C. melanopterus</i> • Marine turtle species, including: hawksbill turtle (<i>Eretmochelys imbricata</i>), green turtle (<i>Chelonia mydas</i>), leatherback turtle (<i>Dermochelys coriacea</i>), loggerhead turtle (<i>Caretta caretta</i>), and olive ridley turtle (<i>Lepidochelys olivacea</i>) • Marine mammal species, including: Irrawaddy dolphin (<i>Orcaella brevirostris</i>), Bryde's whale (<i>Balaenoptera edeni</i>), sperm whale (<i>Physeter macrocephalus</i>), and finless porpoise (<i>Neophocaena phocaenoides</i>)
Nijhum Dwip	Ganges Tidal Plain East	<ul style="list-style-type: none"> • Irrawaddy dolphin (<i>Orcaella brevirostris</i>), humpback dolphin (<i>Sousa chinensis</i>), and finless porpoise (<i>Neophocaena phocaenoides</i>) • Olive ridley turtle (<i>Lepidochelys olivacea</i>) • Estuarine/marine fish: Hilsa shad (<i>Tenualosa ilisha</i>), giant freshwater whipray (<i>Urogyrnus polylepis</i>), scalloped hammerhead shark (<i>Sphyrna lewini</i>), • Shorebirds, including spoon-billed sandpiper (<i>Calidris pygmaea</i>) and Indian skimmer (<i>Rynchops albicollis</i>)

55 Islam, F. (2024, July 1). Bangladesh's fifth marine protected area (Mpa) is the Naf Peninsula MPA. Seafood Network BD. <https://seafoodnetworkbd.com/bangladeshs-fifth-marine-protected-area-mpa-is-the-naf-peninsula-mpa>.

56 Chowdhury, M. H. (2024, June 9). Bangladesh declares Naf Estuary a protected area. Will it preserve endangered marine life? Bdnews24.Com; bdnews24.com. <https://bdnews24.com/environment/d09cd00bafd4>; Islam, F. (2024, July 1). Bangladesh's fifth marine protected area (MPA) is the Naf Peninsula MPA. Seafood Network BD. <https://seafoodnetworkbd.com/bangladeshs-fifth-marine-protected-area-mpa-is-the-naf-peninsula-mpa>.

TABLE 2. CHARACTERISTIC SPECIES BY COASTAL ZONE OR MARINE AREA

MPA	COASTAL ZONE/ MARINE AREA	CHARACTERISTIC SPECIES
Naf Peninsula	Chittagong Coastal Plain	<ul style="list-style-type: none"> • Estuary fish species, including eel catfish (<i>Plotosus canius</i>), giant sea-perch (<i>Lates calcarifer</i>), and spotted butterflyfish (<i>Scatophagus argus</i>) • Coastal fish species, including bigeye shad (<i>Ilisha filigera</i>), croakers (<i>Scianidae</i>), and terapon perch (<i>Terapon jarbua</i>) • Several species of shrimp, prawns, crab, and lobster, including Indian horseshoe crab (<i>Carcinoscorpinus rotundicauda</i>) • Whale shark (<i>Rhincondon typus</i>) • Mollusk species including bivalves, clams, mussels and oysters • Gastropods including <i>Trochus radiatus</i> and <i>Turbo</i> sp.
Marine Reserve for South Patches and Middle Ground	Middle Ground and South Patches of Bay of Bengal	<ul style="list-style-type: none"> • Fin fishes, hilsa shad (<i>Tenualosa ilisha</i>), and endangered oceanic species
St. Martin's Island	Chittagong Coastal Plain	<ul style="list-style-type: none"> • Algae, seaweeds and seagrass, including <i>Halodule uninervis</i>, <i>Halophila beccarii</i>, <i>Halophila decipiens</i>, <i>Halophila pinifolia</i>, and <i>Ruppia maritima</i> • Coral-associated fish species including damsel fish (<i>Pomacwenridae</i>), parrot fish (<i>Scaridae</i>), and surgeon fish (<i>Acanthuridae</i>) • Coral or reef-associated predators including groupers (<i>Serranidae</i>), snappers (<i>Lutjanidae</i>), and emperors (<i>Lethrinidae</i>) • Living coral, including <i>Porites</i>, <i>Favites</i>, <i>Goniopora</i>, <i>Cyphastrea</i>, and <i>Goniastrea</i> genera • Soft corals, including: <i>Sinularia</i> sp., <i>Lobophyton</i> sp., <i>Anthelia Dendronephthya</i>, <i>Palythoa</i>, <i>Nemanthus</i>, <i>Telemectius</i>, and <i>Discosorna</i> sp. • Mollusks and gastropods, including <i>Conus striatus</i>, <i>Conus textile</i>, <i>Conus geogrphes</i>, <i>Trochus niloticus</i>, and <i>Turbo marmoratus</i> • Sea urchin, sea star, brittle star, and sea cucumber

The condition of the coastal and marine environment of Bangladesh is generally worsening. Even as the total production of marine fisheries is increasing, the catch per unit fishing effort is falling, indicating that fisheries are overexploited, and several species of marine shrimp and fish stocks are in decline.⁵⁷ However, there is insufficient information on the standing stock and maximum sustainable yield values of coastal and marine fisheries to fully understand the state of marine and coastal resources.⁵⁸ Climate change is nearly certain to threaten Bangladesh’s marine and coastal biodiversity through changes in temperature and rainfall patterns, sea level rise, change in frequency and intensity of cyclones, storm surge, and changes in river and soil salinity. This last change is perhaps the most consequential, as increased salinity will move upstream through marine areas to inland waters, decreasing the nursery function of near-shore ecosystems (and thus fishery productivity) while also likely changing the composition of mangrove

57 Ministry of Environment, Forest and Climate Change (MoEFCC). (2021). Bangladesh National Conservation Strategy (2021–2036). Ministry of Environment, Forest and Climate Change, Government of the People’s Republic of Bangladesh, Dhaka, Bangladesh. +143 pp. https://moef.portal.gov.bd/sites/default/files/files/moef.portal.gov.bd/page/ac0ce881_4b1d_4844_a426_1b6ee36d2453/IUCN_NCS%20BOOK%20ENGLISH_5_07_2023%20Latest%20File.pdf.

58 MoEFCC. (2021). Bangladesh National Conservation Strategy (2021–2036). Ministry of Environment, Forest and Climate Change, Government of the People’s Republic of Bangladesh, Dhaka, Bangladesh. +143 pp. https://moef.portal.gov.bd/sites/default/files/files/moef.portal.gov.bd/page/ac0ce881_4b1d_4844_a426_1b6ee36d2453/IUCN_NCS%20BOOK%20ENGLISH_5_07_2023%20Latest%20File.pdf.

tree species.⁵⁹ However, increasing water temperatures and frequency and intensity of storm surge also pose threats to Bangladesh's coral reefs.⁶⁰ A review of estuarine systems in Bangladesh found that there is insufficient data to adequately characterize the health of Bangladesh's estuaries based on physical and chemical parameters. There is, however, some evidence that human impacts could constrain biodiversity in these areas—for example, by industrial and domestic runoff affecting siltation and nutrient availability and from metals and microplastics contaminating the water.⁶¹

Inland Freshwater Ecosystems

Half of Bangladesh's natural ecosystems are wetlands, including rivers, estuaries, mangrove swamps, marsh, oxbow lakes, depressed land, water storage reservoirs, fish ponds, and other lands with seasonal inundation.⁶² As of 2021, researchers estimated that inland open waters (e.g., rivers, estuaries, beels, lakes, and floodplains) covered 3.9 million hectares and inland closed waters (e.g., ponds; seasonal cultured water bodies; Baor; shrimp, prawn, or crab farms; pens, and cage cultures) covered 800,000 hectares, close to one-third of Bangladesh's total area. Lands with seasonal inundation become seasonal wetlands during monsoon (July to October) because of slow drainage of huge transboundary flow and local rainfall excess.⁶³ In the non-monsoon season, these floodplains are characterized by dense, tall grasses that support distinctive bird communities and other wildlife.⁶⁴

Bangladesh's inland freshwater ecosystems are home to at least 260 species of freshwater fish (including 104 riverine species, 36 migratory species, and 113 floodplain resident species), 20 species of freshwater prawns, 4 species of freshwater crabs, and 26 species of freshwater mollusks. Of the freshwater fish, nine species are critically endangered, 30 species are endangered, and 25 species are vulnerable as of the IUCN's most recent Red List.⁶⁵

Bangladesh's wetlands are crucial for agriculture, fisheries, and wildlife, hosting a variety of aquatic plants, waterfowl, fish species, and migratory birds.⁶⁶ Although more recent estimates are not available, it was estimated in 2010 that almost 50 percent of Bangladesh's population was directly dependent on wetlands, whether for nourishment or for their livelihood.⁶⁷

59 Rashid, S. M. A. (2019). Coastal Biodiversity – A Review. Report prepared for Long Term Monitoring Research and Analysis of Bangladesh Coastal Zone. Pp. 30. https://www.researchgate.net/publication/338855465_Coastal_Biodiversity_of_Bangladesh_-_A_Review.

60 Rahman, M. M. (2023). Impact of climate change on Saint Martin's Island of Bangladesh. SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.4397578>.

61 Refat Jahan, Rakib Md. et al., (2022). Ecohydrological features and biodiversity status of estuaries in Bengal delta, Bangladesh: A comprehensive review. *Frontiers in Environmental Science*. 10. <https://www.frontiersin.org/journals/environmental-science/articles/10.3389/fenvs.2022.990099>.

62 Islam, S. N. (2016). Deltaic floodplains development and wetland ecosystems management in the Ganges–Brahmaputra–Meghna Rivers Delta in Bangladesh. *Sustainable Water Resources Management*, 2(3), 237–256. <https://doi.org/10.1007/s40899-016-0047-6>.

63 MoEFCC. (2021). Bangladesh National Conservation Strategy (2021–2036). Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh. +143 pp. https://moef.portal.gov.bd/sites/default/files/files/moef.portal.gov.bd/page/ac0ce881_4b1d_4844_a426_1b6ee36d2453/IUCN_NCS%20BOOK%20ENGLISH_5_07_2023%20Latest%20File.pdf.

64 Jahan, I., Savini, T., Thompson, P.M., Round, P.D. & Gale, G.A. (2022). Microhabitat variables influencing the presence and abundance of birds in floodplain grassland of the lower Ganges and Brahmaputra rivers, Bangladesh. *Global Ecology and Conservation*, 38, ISSN 2351–9894. <https://doi.org/10.1016/j.gecco.2022.e02201>.

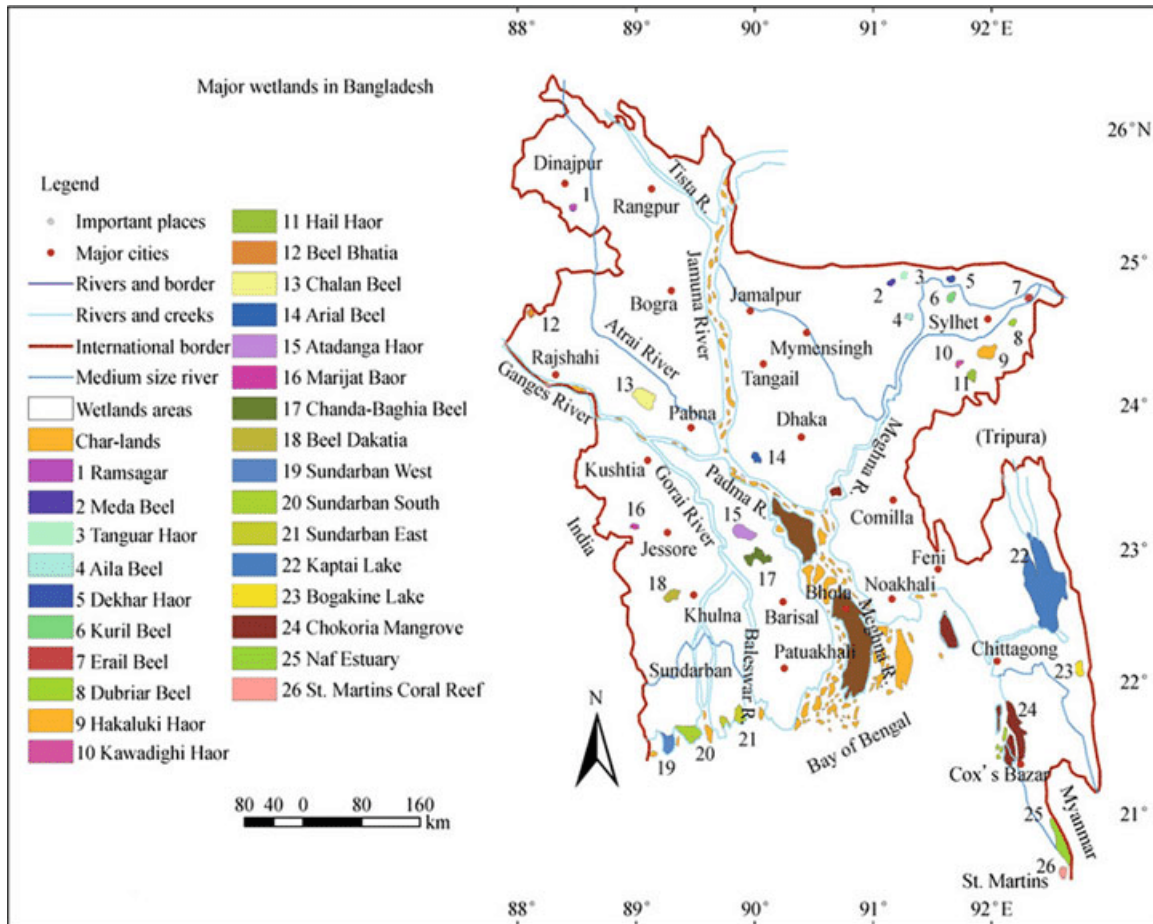
65 IUCN Bangladesh. (2015). Red List of Bangladesh Volume 5: Freshwater fish. International Union for Conservation of Nature, Bangladesh Country Office. <https://portals.iucn.org/library/sites/library/files/documents/RL-549.3-003-v.5.pdf>.

66 Khan, M.M.H. (2018). Photographic Guide to the Wildlife of Bangladesh. Arannayk Foundation, Dhaka, Bangladesh.

67 Islam, S. N. (2010). Threatened wetlands and ecologically sensitive ecosystems management in Bangladesh. *Frontiers of Earth Science in China*, 4(4), 438–448. doi:10.1007/s11707-010-0127-0.

The condition of inland freshwater ecosystems is declining. The ever-expanding water needs of a growing economy and population, massive river sedimentation and riverbank erosion, depletion of wetlands, and pollution contribute to the worsening situation.⁶⁸ Wetlands are especially hard hit and are disappearing as they are converted into agricultural lands, settlements, roads, and highways. For example, the Chalan Beel once covered an area of approximately 651,230 acres in 1967. Currently, the permanently flooded area of the Chalan Beel has been reduced to about 18,120 acres. Tanguar Haor, a Ramsar Site and an ecologically critical area (ECA), has lost 40 percent of its original basin area due to the agricultural expansion (see [Figure 10](#)).⁶⁹

Figure 10: Wetland Distribution in Bangladesh⁷⁰



68 MoEFCC. (2021). Bangladesh National Conservation Strategy (2021–2036). Ministry of Environment, Forest and Climate Change, Government of the People’s Republic of Bangladesh, Dhaka, Bangladesh. +143 pp. https://moef.portal.gov.bd/sites/default/files/files/moef.portal.gov.bd/page/ac0ce881_4b1d_4844_a426_1b6ee36d2453/IUCN_NCS%20BOOK%20ENGLISH_5_07_2023%20Latest%20File.pdf.

69 Haque, M. I., and Basak, R. (2017). Land cover change detection using GIS and remote sensing techniques: A spatio-temporal study on Tanguar Haor, Sunamganj, Bangladesh. *The Egyptian Journal of Remote Sensing and Space Science*. 20, 251-263. <https://doi.org/10.1016/j.ejrs.2016.12.003>.

70 Islam, Md. N., & Kitazawa, D. (2013). Modeling of freshwater wetland management strategies for building the public awareness at local level in Bangladesh. *Mitigation and Adaptation Strategies for Global Change*, 18(6), 869–888. <https://doi.org/10.1007/s11027-012-9396-0>.

Inland open waters have seen reduced biodiversity, especially of native carp species, due to increased fishing pressures alongside habitat loss, pollution, and indiscriminate use of pesticides for crop production without adequate ecological protections. With inland open water and marine fisheries under pressure, Bangladesh's population is increasingly reliant on inland closed waters and pen or cage farming technology to meet its demand for fish.⁷¹ Meanwhile, threatened freshwater fish species in Bangladesh are expected to experience a significant reduction in climatically suitable habitats within the existing inland freshwater areas of the country in the near future due to the effects of climate change.⁷² Particular threats include the unregulated and unmonitored harvest of these species from floodwaters and the lack of attention to habitat connectivity between freshwater ecosystems.⁷³

Terrestrial Ecosystems

Only 20 percent of Bangladesh's land area is considered terrestrial, with a portion of this consisting of alluvial and coastal areas that have been reclaimed for agriculture and human habitation.⁷⁴ It also includes sal forests in the north and central areas. The majority of the terrestrial ecosystems are the forested hill areas in the north, northeast, and southeast regions covering around 12 percent of the country's land area (see [Figure 11](#)). These forest areas, and the status of biodiversity within them, are discussed more in the following section.

Man-Made Ecosystems

The largest man-made ecosystems in Bangladesh are homesteads, which cover about 1.93 percent of the country's forest area.⁷⁵ Homesteads are a traditional land-use system that is maintained by more than 20 million households and cover about seven percent of the country's cultivable land.⁷⁶ Most of the homestead ecosystems in the floodplains consist of a small pond, backyard jungles, bushes, and kitchen gardens. Homesteads in the hilly terrain are usually tiny hillocks with valleys and hilly streams. Homesteads in the coastal zones have backyard mangroves with inter-tidal canals and ditches. Despite the conversion of natural habitat into homesteads, a wide range of wild flora and fauna are still occurring in the homesteads with remarkable abundance.⁷⁷ Although homesteads expand the range of possible habitat for native flora and fauna, they also provide a key mechanism through which non-native plant species are introduced to Bangladesh.⁷⁸ Homestead areas can also bring humans and wildlife in close proximity, especially as critical

71 Chakraborty, Binay. (2021). "Status of Fish Diversity and Production in Bangladesh." Conference Paper for the National Conference on Integrating Biological Resources for Prosperity. https://www.researchgate.net/publication/352539057_Status_of_Fish_Diversity_and_Production_in_Bangladesh.

72 Dutta, J., Haidar, I. K. A., Noman, M., & Chowdhury, M. A. W. (2024). Conservation priorities for threatened fish to withstand climate crisis: Sustainable capture and protection of inland hydrographic ecosystems. *Ecologies*, 5(2), 155–169. <https://doi.org/10.3390/ecologies5020010>.

73 Dutta et al. 2024.

74 Uddin, K., Shrestha, K., & Thapa, R. B. (2021, May 3). Natural coastal land expansion offers hope to low-lying Bangladesh. *SERVIR Hindu Kush Himalaya*. <https://servir.icimod.org/news/natural-coastal-land-expansion-offers-hope-to-low-lying-bangladesh/>.

75 Department of Environment (DoE). (2019). The Sixth National Report to the Convention on Biological Diversity: Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh. <https://www.cbd.int/doc/nr/nr-06/bd-nr-06-en.pdf>.

76 Roy, B., Rahman, Md. H., & Fardusi, Most. J. (2013). Status, diversity, and traditional uses of homestead gardens in northern Bangladesh: A means of sustainable biodiversity conservation. *ISRN Biodiversity*, 2013, 1-11. <https://doi.org/10.1155/2013/124103>.

77 Islam, S.A., Miah, M.A.Q., Habib, M.A. and Moula, M.G. (2015). Enrichment of homestead vegetation through agroforestry practices in the remote coastal areas of Bangladesh. *Bangladesh Research Publications Journal*, 11(4):276-283; Nath, T.K., Aziz, N. and Makoto Inoue. 2015. Contribution of Homestead Forests to Rural Economy and Climate Change Mitigation: A Study from the Ecologically Critical Area of Cox's Bazar—Teknaf Peninsula, Bangladesh. *Small Scale Forestry*, 14:1-18. <https://doi.org/10.1007/s11842-014-9270-x>.

78 Government of Bangladesh. (2020). Tree and Forest Resources of Bangladesh: Report on the Bangladesh Forest Inventory. Forest Department, Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh. http://bfis.bforest.gov.bd/bfi/wp-content/uploads/2021/02/BFI-Report_final_08_02_2021.pdf.

natural forest habitat decreases, increasing the chance of disease spillover from animals to humans and vice versa.

Unlike most natural ecosystems in Bangladesh, homestead ecosystems are likely increasing in coverage over time. In technical literature, and for the purposes of international comparison, homestead ecosystems qualify as “trees outside forests,” alongside man-made ecosystems like tree plantations.⁷⁹ A longitudinal analysis found that trees outside forests increased their canopy area by 219,300 hectares in Bangladesh between 2000-2014. While the change in overall tree cover over this period was negligible, the increase in trees outside forests masks a significant loss in trees inside natural forests.⁸⁰ This has important implications for biodiversity, given the tradeoffs previously mentioned with homestead ecosystems as habitats for wildlife relative to natural forest ecosystems.

3.2 STATUS OF TROPICAL FORESTS

Bangladesh, located in the subtropical belt, is home to diverse tropical forests that play a critical role in maintaining the country’s biodiversity and ecological balance. Overall, nearly 40 percent of forest land in Bangladesh was cleared from 1930 to 2014, decreasing from 15.7 percent to 9.5 percent of the total geographical area of Bangladesh in one study’s estimate.⁸¹ For its part, Bangladesh’s National Forest Inventory estimated forest area to cover 12.8 percent of the total geographic area of Bangladesh in 2015.⁸²

According to Global Forest Watch, Bangladesh lost 839,000 hectares of primary forest between 2002 to 2023, which comprises 3.5 percent of the country’s total tree cover loss. In the same time period Bangladesh lost 232,000 hectares of humid primary forest in Key Biodiversity Areas and 138,000 hectares of primary forest in protected areas (see [Figure 11](#)).⁸³ The natural forests are the most important habitats for wildlife, since most of the flagship and threatened species are found there.⁸⁴

79 Yeasmin, Suriya et al. (2021). Ecosystem services valuation of homestead forests: A case study from Fatikchari, Bangladesh. *Environmental Challenges*, Volume 5. <https://doi.org/10.1016/j.envc.2021.100300>.

80 Potapov, P., et al. (2017). Comprehensive monitoring of Bangladesh tree cover inside and outside of forests, 2000–2014. *Environmental Research Letters*, 12(10), 104015.

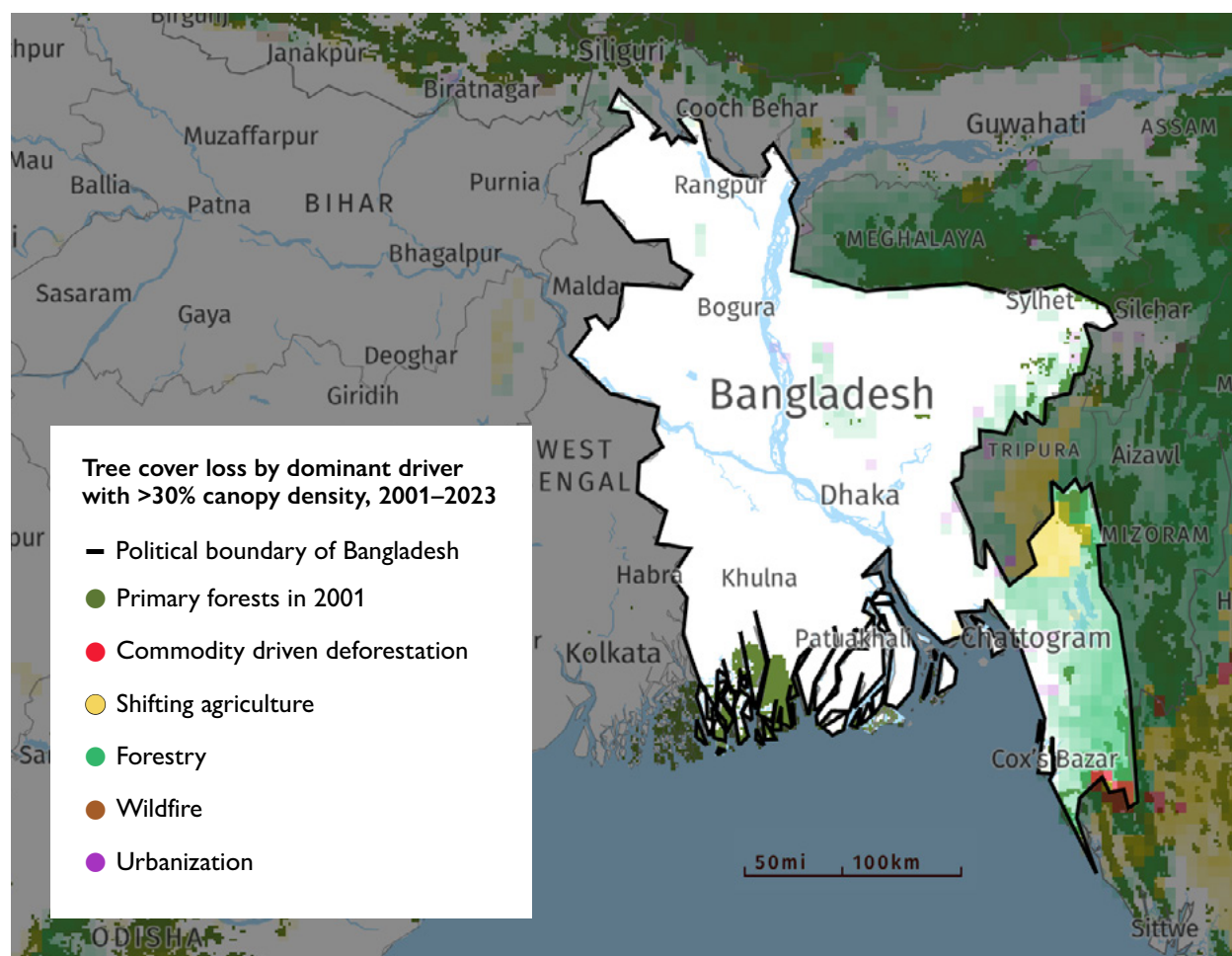
81 Reddy, C. S., Pasha, S. V., Jha, C. S., Diwakar, P. G., & Dadhwal, V. K. (2016). Development of national database on long-term deforestation (1930–2014) in Bangladesh. *Global and Planetary Change*, 139, 173–182. <https://doi.org/10.1016/j.gloplacha.2016.02.003>.

82 Henry, M., Iqbal, Z., Johnson, K. et al. (2021). A multi-purpose National Forest Inventory in Bangladesh: design, operationalisation and key results. *Forest Ecosystems* 8 (12). <https://doi.org/10.1186/s40663-021-00284-1>.

83 Global Forest Watch. (n.d.). Bangladesh deforestation rates & statistics. Retrieved July 19, 2024, from <https://www.globalforestwatch.org/dashboards/country/BGD/?category=forest-change>.

84 Khan, M.M.H. (2018). Photographic Guide to the Wildlife of Bangladesh. Arannayk Foundation, Dhaka, Bangladesh.

Figure 11: Tree Cover Loss in Bangladesh 2001-2023⁸⁵



Note: “Tree cover” is defined as all vegetation greater than five meters in height and may take the form of natural forests or plantations across a range of canopy densities. “Loss” indicates the removal or mortality of tree cover and can be due to a variety of factors, including mechanical harvesting, fire, disease, or storm damage. As such, “loss” does not equate to deforestation.

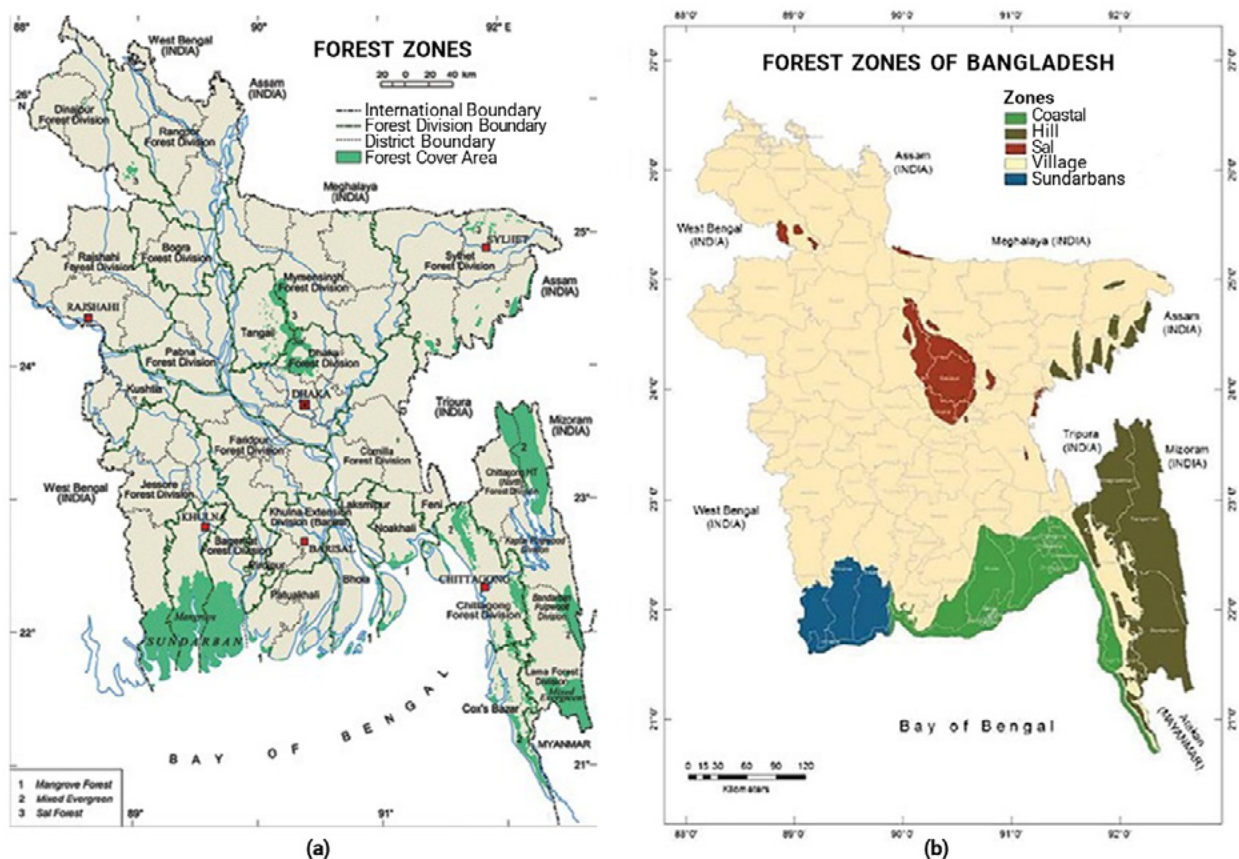
Forests in Bangladesh are categorized into three main types: mangrove forests (Sundarbans and coastal), mixed evergreen forests (hill), and deciduous forests (sal).⁸⁶ Each type has unique characteristics and supports various species of flora and fauna (Figure 12). The National Forest Inventory estimates that in 2015, mixed evergreen forest area was 4.6 percent of the country’s area, mangrove was 2.7 percent, and deciduous was 0.13 percent.⁸⁷

85 Curtis, P. G., C. M. Slay, N. L. Harris, A. Tyukavina, and M. C. Hansen. 2018. “Classifying Drivers of Global Forest Loss.” Science. Accessed through Global Forest Watch on 30/09/2024. www.globalforestwatch.org.

86 Swamp forest is sometimes also classified as a separate type, for example in the National Forest Inventory, but accounts for only 0.01 percent of all forest land in Bangladesh.

87 Government of Bangladesh. (2020). Tree and Forest Resources of Bangladesh: Report on the Bangladesh Forest Inventory. Forest Department, Ministry of Environment, Forest and Climate Change, Government of the People’s Republic of Bangladesh, Dhaka, Bangladesh. http://bfis.bforest.gov.bd/bfi/wp-content/uploads/2021/02/BFI-Report_final_08_02_2021.pdf.

Figure 12: Bangladesh Forest Area (a) and Forest Types and Zones (b)⁸⁸

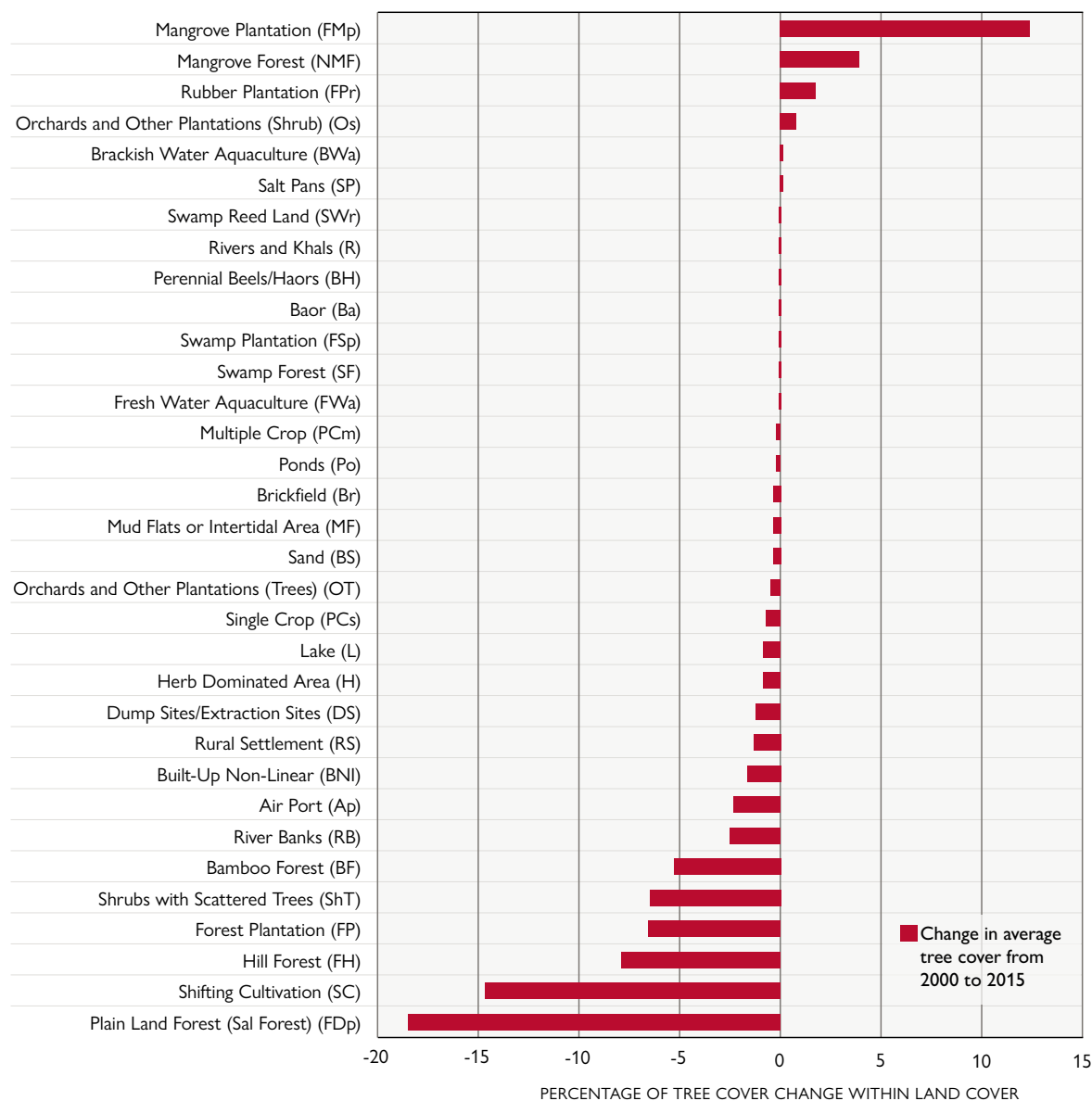


Source: Modified from FAO (2015).

An estimated 92 percent of mangrove forests in Bangladesh are protected, and their geographical area has expanded since 1975.⁸⁹ Bangladesh has lost nearly all of its deciduous forest cover, while evergreen forests, especially in the southeast, have faced acute deforestation pressures in recent years.⁹⁰ Bangladesh's National Forest Inventory illustrates this differential trend in the rate of tree cover loss from 2000 to 2015 depending on the type of forest (Figure 13).

- 88 Masiero, M., Pettenella, D., Boscolo, M., Barua, S. K., Animon, I., & Matta, J. R. (2019). Valuing forest ecosystem services: A training manual for planners and project developers. FAO. <https://openknowledge.fao.org/server/api/core/bitstreams/5da83649-b2b8-465f-9896-f8edbc004415/content>.
- 89 Reddy, C. S., Pasha, S. V., Jha, C. S., Diwakar, P. G., & Dadhwal, V. K. (2016). Development of national database on long-term deforestation (1930–2014) in Bangladesh. *Global and Planetary Change*, 139, 173–182. <https://doi.org/10.1016/j.gloplacha.2016.02.003>; Spalding, M. D., & Leal, M. (Eds.). (2021). *The State of the World's Mangroves 2021*. Global Mangrove Alliance. <https://www.mangrovealliance.org/wp-content/uploads/2021/07/The-State-of-the-Worlds-Mangroves-2021-FINAL.pdf>.
- 90 Rahman, M. M., Rahman, Md. M., Guogang, Z., & Islam, K. S. (2010). A review of the present threats to tropical moist deciduous sal (*Shorea robusta*) forest ecosystem of central Bangladesh. *Tropical Conservation Science*, 3(1), 90–102. <https://doi.org/10.1177/194008291000300108>; Reddy et al. 2016.

Figure 13: Tree Cover Change by Land Cover Type in Bangladesh, 2000-2015⁹¹



Biodiversity in Each of Bangladesh’s Forest Types

Mangrove forests are characterized by unique plants that grow below the high tide level, using various types of aerial roots like pneumatophores as unique adaptations to survive in their specific environmental conditions. The Sundarbans, a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site, accounts for the majority of mangrove forest in Bangladesh. The Sundarbans is renowned for its rich biodiversity, including 299 species of birds.⁹² Together with the Indian Sundarbans,

91 Government of Bangladesh. (2020). Tree and Forest Resources of Bangladesh: Report on the Bangladesh Forest Inventory. Forest Department, Ministry of Environment, Forest and Climate Change, Government of the People’s Republic of Bangladesh, Dhaka, Bangladesh. http://bfis.bforest.gov.bd/bfi/wp-content/uploads/2021/02/BFI-Report_final_08_02_2021.pdf.

92 Barlow, A. (2009). The Sundarbans tiger: adaptation, population status and conflict management. [Doctoral dissertation, University of Minnesota]. ResearchGate. https://www.researchgate.net/publication/242522089_The_Sundarbans_tiger_adaptation_population_status_and_conflict_management; Chowdhury, S. (2020). Birds of the Bangladesh Sundarbans: status, threats and conservation recommendations. Forktail. 36. 35-46.

it constitutes the largest single mangrove forest in the world, comprising six percent of all mangroves on earth.⁹³ Bangladesh’s mangroves, in addition to providing critical habitat for diverse species, are critical for protecting the coastline from erosion and extreme weather events like cyclones.

The mixed evergreen forests of Bangladesh are dominated by evergreen trees but also have some deciduous species. They are primarily located in the northeastern and southeastern regions, specifically in the Sylhet and CHT and are part of the Indo-Burma hotspot. They are rich in biodiversity with dense canopies and numerous endemic species. However, these forests are heavily fragmented and degraded. Significant patches remain in places like the Kassalong Reserve Forest, Sangu-Matamuhuri Reserve Forest, and Kaptai National Park in the CHT, as well as Rema-Kalenga Wildlife Sanctuary, Lawachara National Park, and Rajkandi Hill Reserve Forest in Greater Sylhet.

The deciduous forests are distributed in the central, northern, and northwestern regions of the country. The most dominant tree species of this forest is *Shorea robusta* (sal), which forms 80 percent of the trees, but mature sal trees in the forest are now extremely rare. Rubber monoculture, commercial fuel-wood plantations, grazing, urbanization, expanding agriculture, and other forms of overexploitation caused Bangladesh to lose 90 percent of its historic sal forest cover by 1990, leading to near total eradication of primary sal forest by 2001 (see [Figure 13](#)).⁹⁴ The deciduous forests have other species that form the vegetation, in addition to sal, including many large grassland pockets, dominated by *Imperata* grasses. These forests are less dense compared to mangrove and hill forests and are interspersed with agricultural lands, having lost 90 percent of their historic forest cover by 1990.⁹⁵

For additional details on the flora and fauna in each of these forest types, see [Table 3](#). Aside from Bangladesh’s main forest types, there is also a small amount of swamp forest (comprising 0.01 percent of all forest land in Bangladesh) that provides freshwater habitat for threatened flora such as koroch (*Pongamia pinnata*), hijal (*Barringtonia acutangula*), murta (*Schumannianthus dichotoma*), and kadam (*Neolamarckia cadamba*), and fauna such as pabda (*Ompok pabda*), dhela (*Osteobrama cotio*), chital (*Chitala chitala*), masked finfoot (*Heliopais personatus*), and Pallas’s fish eagle (*Haliaeetus leucoryphus*).

TABLE 3. CHARACTERISTIC SPECIES BY FOREST TYPE

FOREST TYPE	CHARACTERISTIC SPECIES
Mangrove Forests	<p>Flora:</p> <ul style="list-style-type: none"> • Mangrove trees (e.g., Sundri [<i>Heritiera fomes</i>], Gewa [<i>Excoecaria agallocha</i>], Keora [<i>Sonneratia apetala</i>], Choila/Ora [<i>Sonneratia caseolaris</i>], and Baen [<i>Avicennia species</i>]) • Smaller plants (e.g., Goran [<i>Ceriops species</i>] and Golpata [<i>Nypa fruticans</i>]) <p>Fauna:</p> <ul style="list-style-type: none"> • Tiger (<i>Panthera tigris</i>) • Saltwater crocodile (<i>Crocodylus porosus</i>) • Spotted deer (<i>Axis axis</i>) • Masked finfoot (<i>Heliopais personatus</i>) • Lesser adjutant stork (<i>Leptoptilos javanicus</i>)

93 Barlow 2009; Chowdhury 2020.

94 Rahman, M. M., Rahman, Md. M., Guogang, Z., & Islam, K. S. (2010). A review of the present threats to tropical moist deciduous sal (*shorea robusta*) forest ecosystem of central bangladesh. *Tropical Conservation Science*, 3(1), 90–102. <https://doi.org/10.1177/194008291000300108>.

95 Rahman et al. 2010.

TABLE 3. CHARACTERISTIC SPECIES BY FOREST TYPE

FOREST TYPE	CHARACTERISTIC SPECIES
Mixed Evergreen Forests	<p>Flora:</p> <ul style="list-style-type: none"> • Tree species: Chapalish (<i>Artocarpus chaplasha</i>), Civit (<i>Swintonia floribunda</i>), Shimul (<i>Bombax</i> spp.), Champa (<i>Magnolia champaca</i>), Jaam (<i>Syzygium</i> spp.), Garjan (<i>Dipterocarpus</i> spp.), Ury-aam/Buno-aam (<i>Mangifera</i> spp.), Koroï (<i>Albizia</i> spp.), Hargaza/Azuli (<i>Dillenia pentagyna</i>), Jarul (<i>Lagerstroemia</i> spp.), Teak (<i>Tectona grandis</i>), and Bot (<i>Ficus</i> spp.) • Bamboo (e.g., <i>Bambusa</i> spp., <i>Melocanna</i> spp.) • Epiphytes (e.g., <i>Vanda</i> spp., <i>Dendrobium</i> spp.) • Climbers and ferns (e.g., <i>Cyathea</i> spp.) <p>Fauna:</p> <ul style="list-style-type: none"> • Asian elephant (<i>Elephas maximus</i>) • Western hoolock gibbon (<i>Hoolock hoolock</i>) • Various bird species, including Pale-capped Pigeon (<i>Columba punicea</i>), Oriental Dwarf Kingfisher (<i>Ceyx erithaca</i>), Buff-breasted Babbler (<i>Trichastoma tickelli</i>), and White-hooded Babbler (<i>Gampsorhynchus rufulus</i>) • Asiatic black bear (<i>Ursus thibetanus</i>) • Black giant squirrel (<i>Ratufa bicolor</i>) • Fishing cat (<i>Prionailurus viverrinus</i>) • Chinese pangolin (<i>Manis pentadactyla</i>)
Deciduous Forests	<p>Flora:</p> <ul style="list-style-type: none"> • Trees (e.g., Hargaza/Azuli [<i>Dillenia pentagyna</i>], Kaikka [<i>Adina cordifolia</i>], Bon-amra [<i>Spondias mangifera</i>], Bot [<i>Ficus</i> spp.], Koroï [<i>Albizia</i> spp.], and Jaam [<i>Syzygium</i> spp.] • Plants (e.g., Bon-boroï [<i>Zizyphus</i> spp.], Amloki [<i>Phyllanthus embelica</i>], Shoti [<i>Curcuma</i> spp.], Bansh [<i>Bambusa</i> spp.], and Common Lantana [<i>Lantana camara</i>]) • Paddy (<i>Oryza rufipogon</i>) <p>Fauna:</p> <ul style="list-style-type: none"> • Jungle cat (<i>Felis chaus</i>) • Bengal fox (<i>Vulpes bengalensis</i>) • Bengal slow loris (<i>Nycticebus bengalensis</i>) • Capped langur (<i>Trachypithecus pileatus</i>) • Barking deer (<i>Muntiacas muntjak</i>) • Black francolin (<i>Francolinus francolinus</i>)

3.3 SPECIES DIVERSITY AND STATUS

Bangladesh is home to 142 species of mammals (including 13 marine species), 690 bird species (337 residents, 208 winter visitors, 12 summer visitors, 14 passage visitors, and 119 vagrants), 171 reptile species (including 16 marine species), and 64 amphibian species.⁹⁶

Only five species are adequately represented by the current protected area system of Bangladesh: the northern river terrapin (*Batagur baska*), Asian small-clawed otter (*Aonyx cinerea*), buffy fish owl (*Ketupa ketupu*), masked finfoot (*Heliopais personata*), and spotted black crow butterfly (*Euploea crameri*). It is estimated that 39 percent of Bangladesh would need to be protected to ensure adequate representation of species, highlighting the importance of protecting species outside of existing protected areas ([Figure](#)

96 Khan, M. M. H. (2018). Photographic Guide to the Wildlife of Bangladesh. Arannayk Foundation, Dhaka, Bangladesh

14).⁹⁷ Even within urban areas, there is evidence to suggest increased green space would contribute to conserving biodiversity—for example, by preserving corridors to permit wildlife to move through cities and by reducing human-wildlife conflict. Within the city of Dhaka alone, over 209 species belonging to 79 families of wildlife have been recorded.⁹⁸

Figure 14: Areas Recommended for Protection⁹⁹

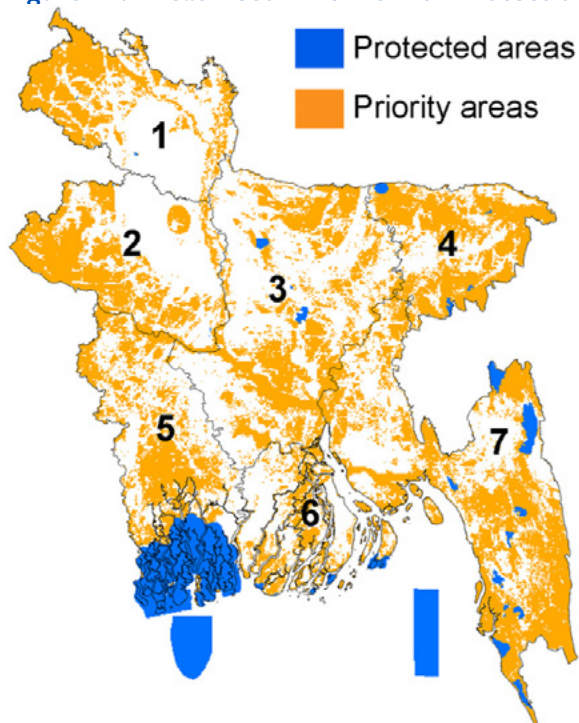


Figure 15: Extirpated Species from Bangladesh¹⁰⁰

- Striped Hyena (*Hyaena hyaena*)
- Grey Wolf (*Canis lupus*)
- Sloth Bear (*Melursus ursinus*)
- Swamp Deer (*Cervus duvaucelii*)
- Blackbuck (*Antilope cervicapra*)
- Nilgai (*Boselaphus tragocamelus*)
- Banteng (*Bos javanicus*)
- Wild Water Buffalo (*Bubalus arnee*)
- Sumatran Rhinoceros (*Dicerorhinus sumatrensis*)
- Javan Rhinoceros (*Rhinoceros sondaicus*)
- Indian Rhinoceros (*Rhinoceros unicornis*)
- Pink-headed Duck (*Rhodonessa caryophyllacea*)
- Indian Peafowl (*Pavo cristatus*)
- Bengal Florican (*Houbaropsis bengalensis*)
- Marsh Crocodile (*Crocodylus palustris*)

In addition, the IUCN and other research has documented at least 253 species of fish (inland freshwater), 141 crustaceans, 305 species of butterflies, 305 species of shrimp or prawn, 2,493 species of insects, 362 species of mollusks, 66 species of corals, 15 species of crabs, 19 species of mites, 164 species of algae, and four species of echinoderms in Bangladesh.¹⁰¹

97 Chowdhury, S., Fuller, R. A., Rokonzaman, Md., Alam, S., Das, P., Siddika, A., Ahmed, S., Labi, M. M., Chowdhury, S. U., Mukul, S. A., Böhm, M., & Hanson, J. O. (2023). Insights from citizen science reveal priority areas for conserving biodiversity in Bangladesh. *One Earth*, 6(10), 1315–1325. <https://doi.org/10.1016/j.oneear.2023.08.025>.

98 Firoj Jaman, M., Razzaque Sarker, A., Alam, M., Rahman, M., Rabbe, F., Rana, A. S., Shome, A. R., & Hossain, S. (2021). Species diversity, distribution and habitat utilization of urban wildlife in a megacity of Bangladesh. *Biodiversity Journal*, 12(3), 635–653. <https://doi.org/10.31396/Biodiv.Jour.2021.12.3.635.653>.

99 Chowdhury et al. 2023.

100 IUCN Bangladesh. (2015). Red List of Bangladesh Volume 1: Summary. International Union for Conservation of Nature, Bangladesh Country Office. <https://portals.iucn.org/library/sites/library/files/documents/RL-549.3-003-v.1.pdf>.

101 IUCN Bangladesh. (2015). Red List of Bangladesh Volume 1: Summary. International Union for Conservation of Nature, Bangladesh Country Office. <https://portals.iucn.org/library/sites/library/files/documents/RL-549.3-003-v.1.pdf>.

Recent enumerations estimate approximately 5,700 species of angiosperms in Bangladesh, including 68 woody legumes, 130 fiber-yielding plants, 500 medicinal plants, 29 orchids, 3 gymnosperms, and 1,700 pteridophytes.¹⁰² The CHT alone supports 2,260 plant species, situated between two major floristic regions of Asia.¹⁰³

Except for some frog species, there are no other wildlife species known to occur only in Bangladesh (endemic) because the country has never been isolated from Mainland Asia. Habitat types found in Bangladesh are also in neighboring countries. However, seven species of frogs (*Microhyla mukhlesuri*, *M. mymensinghensis*, *M. nilphamariensis*, *Euphlyctis kalasgramensis*, *Fejervarya asmata*, *F. dhaka*, and *Hoplobatrachus litoralis*) reported as new to science are not yet known to occur outside Bangladesh.¹⁰⁴

Habitat destruction and widespread killing of wildlife, among other threats, have severely impacted biodiversity. In 2015, the International Union for the Conservation of Nature (IUCN) Bangladesh and the Bangladesh Forest Department updated the National Red List, revealing that 25 percent of the species are nationally threatened.¹⁰⁵ Bangladesh has already lost several iconic species (see [Figure 15](#)). While many species show declines in their populations, there are some bright spots. In 2024, Bangladesh saw its highest number of olive ridley turtle eggs.¹⁰⁶

Information on invasive alien animal species in Bangladesh is limited. A recent study identified 69 invasive alien species, including 46 plants, 16 fish, and five insects. These species, introduced primarily from South America, Asia, Africa, and Australia for food and timber, now threaten native flora, fauna, and ecosystems (see [Figure C-1](#)).¹⁰⁷

Wildlife crime puts pressure on native species in Bangladesh while also introducing non-native species to the country. From June 2020 to June 2023, Bangladesh's Wildlife Crime Control Unit seized more than 16,000 wild animals and 264 trophies in 1,726 operations.¹⁰⁸ Bangladesh was recently suspended from the Convention on International Trade in Endangered Species of Wild Fauna and Flora for failing to control the illegal import of endangered birds for sale as pets.¹⁰⁹

The number of animal and plant threatened species in Bangladesh under each IUCN Red List category is summarized in [Table 4](#).

102 Firoz, R., Mobasher, S. M., Waliuzzaman, M., & Alam, M. K., (2004). Proceedings of the Regional Workshops on National Biodiversity Strategy and Action Plan. IUCN Bangladesh Country Office, Dhaka; Mukul, S.A., Biswas, S.R., and Rashid, A.M. (2018). Biodiversity in Bangladesh. In *Global Biodiversity, Volume 1, Selected Countries in Asia*, Apple Academic Press, pp. 93–103. <https://portals.iucn.org/library/node/8489>.

103 MoEF. (1993). Forestry Master Plan-Main Report. ADB (TA No. 1355-BAN), UNDP/FAO BGD 88/025. Ministry of Environment and Forest (MoEF). Dhaka. <https://pubdocs.worldbank.org/en/848671521827530395/FMP-Full-report-final.pdf>

104 Khan, M. M. H. (2018). *Photographic Guide to the Wildlife of Bangladesh*. Arannayk Foundation, Dhaka, Bangladesh.

105 IUCN Bangladesh. (2015). Red List of Bangladesh Volume 1: Summary. International Union for Conservation of Nature, Bangladesh Country Office. <https://portals.iucn.org/library/sites/library/files/documents/RL-549.3-003-v.1.pdf>.

106 Parvin, F. (2024, April 30). In Bangladesh, olive ridley turtles break 4-year record with 53% increase in eggs. *Mongabay Environmental News*. <https://news.mongabay.com/2024/04/in-bangladesh-olive-ridley-turtle-breaks-4-year-record-with-53-increase-in-eggs/>.

107 Mukul, S. A., Arfin Khan, M. A. S., & Uddin, M. B. (2020). Identifying threats from invasive alien species in Bangladesh. *Global Ecology and Conservation*, 23, e01196. <https://doi.org/10.1016/j.gecco.2020.e01196>.

108 Hasnat, M. A. (2023, August 21). When it rains, it pours: Bangladesh wildlife trade booms during monsoon. *Mongabay Environmental News*. <https://news.mongabay.com/2023/08/when-it-rains-it-pours-bangladesh-wildlife-trade-booms-during-monsoon/>.

109 Siddique, A. (2024, August 27). CITES suspends Bangladesh as illegal wild bird trade continues. *Mongabay Environmental News*. <https://news.mongabay.com/2024/08/cites-suspends-bangladesh-as-illegal-wild-bird-trade-continues/>.

TABLE 4. RED LIST STATUS OF ANIMAL AND PLANT SPECIES¹¹⁰

IUCN RED LIST CATEGORY	NUMBER OF ANIMAL SPECIES	NUMBER OF PLANT SPECIES
Extinct (EX)	0	0
Extinct in the Wild (EW)	0	0
Critically Endangered (CR)	41	9
Endangered (EN)	70	13
Vulnerable (VU)	83	27
Lower Risk/Conservation Dependent (LR/CD)	0	0
Near Threatened (NT) or LR/NT	84	14
Least Concern (LC) or LR/LC	1,779	842
Data Deficient (DD)	111	54
Total	2,168	959

3.4 GENETIC DIVERSITY

Bangladesh is a country rich in genetic diversity, encompassing a wide variety of genetic resources in both its wild and domesticated species. The nation’s genetic diversity is critical for agriculture, food security, medicine, and overall ecological balance. For example, rice—the primary staple food—shows substantial genetic variation with numerous indigenous varieties adapted to different agro-ecological zones.¹¹¹ However, habitat loss due to urbanization and deforestation, fragmentation, climate change affecting species distribution and survival, and limited financial and technical resources continue to threaten genetic diversity in Bangladesh.

To conserve genetic diversity, the government has initiated in-situ and ex-situ conservation of cultivated plants, Indigenous livestock, poultry, underutilized crops, and wild crop relatives through a number of research institutes. See [Table 5](#) for a list of institutes and their activities.

TABLE 5. CONSERVATION RESEARCH INSTITUTES

INSTITUTE	HOLDINGS
Bangladesh Rice Research Institute (BRRI)	Preserves and develops rice varieties resistant to pests, diseases, and environmental stresses Maintains a gene bank of 8,578 germplasm accessions of rice
Bangladesh Jute Research Institute (BJRI)	Conserves and improves crops through breeding programs and germplasm banks Maintains 6,031 accessions of jute and fiber crops
Bangladesh Agricultural Research Institute (BARI)	Conserves and improves crops through breeding programs and germplasm banks Preserves 11,686 accessions of different agri-horticultural crops

110 The IUCN red list of threatened species: Version 2024-1. (2024). IUCN Red List of Threatened Species. <https://www.iucnredlist.org/en>.

111 Nayak, S., Habib, M. A., Das, K., Islam, S., Hossain, S. M., Karmakar, B., Fritsche Neto, R., Bhosale, S., Bhardwaj, H., Singh, S., Islam, M. R., Singh, V. K., Kohli, A., Singh, U. S., & Hassan, L. (2022). Adoption trend of climate-resilient rice varieties in bangladesh. *Sustainability*, 14(9), 5156. <https://doi.org/10.3390/su14095156>; Rahaman, M. A., Rahman, M. M., Hossain, M. S. (2019). Climate-Resilient Agricultural Practices in Different Agro-ecological Zones of Bangladesh. In: Leal Filho, W. (eds) *Handbook of Climate Change Resilience*. Springer, Cham. https://doi.org/10.1007/978-3-319-71025-9_42-1.

TABLE 5. CONSERVATION RESEARCH INSTITUTES

INSTITUTE	HOLDINGS
Bangladesh Forest Research Institute, Chittagong	Conserves and maintains medicinal plant germplasm Has centralized germplasm of 221 species ranging from herbs to trees
Bangladesh Agricultural University Germplasm Center (BAU-GPC)	Has conserved about 11,528 germplasm of fruit and medicinal plants within the last three decades
Bangladesh Resource Center for Indigenous Knowledge (BARCIK) (NGO)	Works with farmers and preserves crop germplasm in farmers' fields. Has preserved 820 local germplasm consisting of 653 rice varieties, 18 local beans, 10 chilies, nine bananas, and 14 brinjal

In the Chittagong Hill areas, Indigenous communities practice a traditional form of shifting cultivation known as *jhum*. This involves shifting fields between harvests and leaving the land uncultivated for about a year to restore soil nutrients. This process clears the field of weeds and pests while also helping the soil regain nutrients, such as potash. In addition, it enhances the growth of natural vegetation, which is essential for soil health. Traditionally, this system was ecologically sound with low population densities and moderate expectations. However, due to population pressure and a shift toward permanent cash crop cultivation, fallow cycles have shortened, leading to increased soil erosion and decreased fertility, which has negative ecological consequences for the diversity of plants and wildlife. Local people are aware of the adverse effect of extensive *jhum* cultivation in the current context, but finding sustainable alternatives is difficult. Livestock genetic diversity in Bangladesh includes cattle, goats, sheep, poultry, and buffalo. The Bangladesh Livestock Research Institute is the primary institution for conserving farm animal genetic resources, focusing on the research, development, and conservation of 53 indigenous and exotic livestock breeds, and maintaining a Fodder Germplasm Bank with 54 fodder varieties. The Department of Livestock Services also plays a significant role in managing and conserving farm animal genetic resources through various programs and initiatives. Indigenous cattle breeds like the Red Chittagong, Pabna, and North Bengal Grey are well adapted to local conditions and contribute to the livelihoods of many rural families. Some wild relatives of common farm animal genetic resources in Bangladesh include the wild pig (*Sus scrofa scrofa*), found in the forests of the southeast and northeast; the Goyal (*Bos frontalis*) in the forests of Bandarban District; the Red Jungle Fowl (*Gallus domesticus*) in the northeast forests, southeast hill forests, and the Sundarbans; and the wild quail (*Coturnix coromandelica*) in the hill forests of the southeast and northeast. However, the genetic diversity of livestock is under threat due to crossbreeding with exotic breeds, overexploitation, and changes in farming practices. Efforts are being made to conserve native breeds through in-situ and ex-situ conservation methods, including the establishment of breed conservation farms and the collection of genetic material for cryopreservation. Additionally, traditional rearing practices by small-scale farmers in the plains and hills sustain the genetic diversity of local breeds including chickens, ducks, black Bengal goats, and Red Chittagong cows. These practices are essential for ensuring the long-term sustainability and adaptability of these breeds.

Bangladesh's vast network of rivers, wetlands, and coastal areas supports a rich diversity of aquatic species. The country's fisheries sector is vital for food and nutritional security and employment, with a wide range of fish species, including indigenous varieties like Hilsa (*Tenualosa ilisha*) and Rui (*Labeo rohita*). The Bangladesh Forest Research Institute is actively involved in conserving aquatic genetic resources by conducting research on fish breeding, disease control, and habitat conservation. However, overfishing, habitat destruction, and pollution pose significant threats to aquatic biodiversity. Also, invasive alien fish species hybridizing with native species is threatening native fish.

While the Bangladesh Forest Department (BFD) and IUCN Bangladesh play significant roles in wildlife conservation, there have been no efforts thus far to establish a gene bank for preserving the genetic resources of wildlife in Bangladesh.

3.5 STATUS AND MANAGEMENT OF PROTECTED AREAS

Bangladesh implements major in-situ conservation activities through protected areas, which include national parks, wildlife sanctuaries, marine protected areas (MPAs) and ecologically critical areas (ECAs), to conserve its natural heritage and maintain ecological balance. The first protected area was declared under the Forest Act of 1927 with Madhupur National Park established in 1962. The legal framework for protected areas improved significantly after Bangladesh's independence with the Bangladesh Wildlife Act of 1974. This was replaced by the new and up to date Wildlife (Conservation and Security) Act 2012 (see [Figure 16](#)).

Bangladesh declared several new protected areas after the signing of the Rio Convention in 1992. [Table C-1](#) lists summary details for each protected area in Bangladesh, including 19 national parks, 24 wildlife sanctuaries, 5 MPAs, and 13 ECAs.

Figure 16: National Parks and Sanctuaries Fall Under the Wildlife (Conservation and Security) Act, 2012

National Parks: “National Park” constitutes a comparatively large area of outstanding scenic and natural beauty with the primary object of providing education, research and recreation to the public which is managed to conserve the natural environment of plants and wild animals and outstanding charming scenery and declared as such by notification in the official gazette under section 17 of this Act.

Sanctuaries (including wildlife and marine protected areas): “Sanctuary” constitutes an area where capturing, killing, shooting or trapping of wildlife is prohibited and managed for the conservation of all natural resources such as vegetation, soil and water mainly for undisturbed breeding of wildlife and which is declared as such by notification in the official Gazette under section 13 of this Act.

Environmental Conservation Act, 1995 & Environmental Conservation Rules, 1997

Ecologically Critical Areas (ECAs) fall under the Environmental Conservation Act, 1995 & Environmental Conservation Rules, 1997. ECAs are designated areas that are considered ecologically important due to their unique biodiversity or ecological services. They do not have the same level of protection as national parks or wildlife sanctuaries, but they are still subject to conservation measures.

Currently, only 4.6 percent of land (including inland waters) and 9.9 percent of marine areas in Bangladesh are protected.¹¹² Protected areas in Bangladesh are home to many globally significant species, though they protect only a portion of the territory needed for these species' effective conservation.¹¹³ Terrestrial protected areas in the southeast, particularly in the Chittagong Hill Tract, are part of the Indo-Burma

112 Protected planet | Bangladesh. (n.d.). Protected Planet. Retrieved September 9, 2024, from <https://www.protectedplanet.net/country/BGD>.

113 Chowdhury, S., Fuller, R. A., Rokonuzzaman, Md., Alam, S., Das, P., Siddika, A., Ahmed, S., Labi, M. M., Chowdhury, S. U., Mukul, S. A., Böhm, M., & Hanson, J. O. (2023). Insights from citizen science reveal priority areas for conserving biodiversity in Bangladesh. *One Earth*, 6(10), 1315–1325. <https://doi.org/10.1016/j.oneear.2023.08.025>.

biological hotspot and contain significant biodiversity.¹¹⁴ These areas still support many globally threatened species, such as the Asian elephant, Asiatic black bear, Malayan sun bear, leopard, clouded leopard, marbled cat, hoolock gibbon, slow loris, Chinese pangolin, and greater hornbill. The Sundarbans is notable for housing the only viable population of Bengal tiger in the country and other threatened species like the saltwater crocodile, Irrawaddy dolphin, white-bellied sea eagle, masked finfoot, lesser adjutant stork, rock python, and king cobra. Deciduous forests, particularly Madhupur National Park, also support a sizable population of capped langur.

While the protected areas in Bangladesh are legally protected, complete protection on the ground is yet to be achieved. A 2016 assessment co-authored by the Bangladesh Forest Department and the IUCN found that protected areas are only partially successful in protecting the wildlife and wildlife habitats due to shortcomings in management planning, work planning, and financial resources that, in turn, led to an insufficient number and capabilities of staff and equipment and poor performance in protection and resource management.¹¹⁵ Many of the protected area boundaries are not well-demarcated and management is very limited. One study shows that between 2001 and 2018, Bangladesh lost 6,388 hectares of forest in four protected areas in Chattogram Division, Chunati Wildlife Sanctuary, Baroiyadhala National Park, Hazarikhil Wildlife Sanctuary, and Dudpukuria-Dhopachari Wildlife Sanctuary, and their surroundings.¹¹⁶ Even in protected areas that demonstrated partial success in reducing deforestation within their boundaries, the study found increased deforestation in buffer zones, suggesting the net effect on deforestation may be neutral.¹¹⁷

National Parks and Wildlife Sanctuaries

Currently, Bangladesh has 19 national parks and 25 wildlife sanctuaries declared under the Bangladesh Wildlife (Conservation and Security) Act 2012. These protected areas cover a total of 469,454 hectares (4,694.54 square kilometers), which is approximately 3 percent of the country's total area (see [Figure 17](#)). Among these, three river wildlife sanctuaries in northern Bangladesh (Nagarbari-Mohanganj, Shilanda-Nagdemra, and Nazirganj) are primarily established for the conservation of Ganges river dolphins. The recently declared Padma Setu Wildlife Sanctuary, located in the Padma River and its adjacent floodplain areas, aims to protect Ganges dolphins as well as other wildlife in the floodplain regions. Three wildlife sanctuaries of the Sundarbans (East, West, and South), along with surrounding areas of about 1,400 square kilometers, have been designated as UNESCO World Heritage Sites and Ramsar Wetlands of International Importance ([Table C-1](#)).

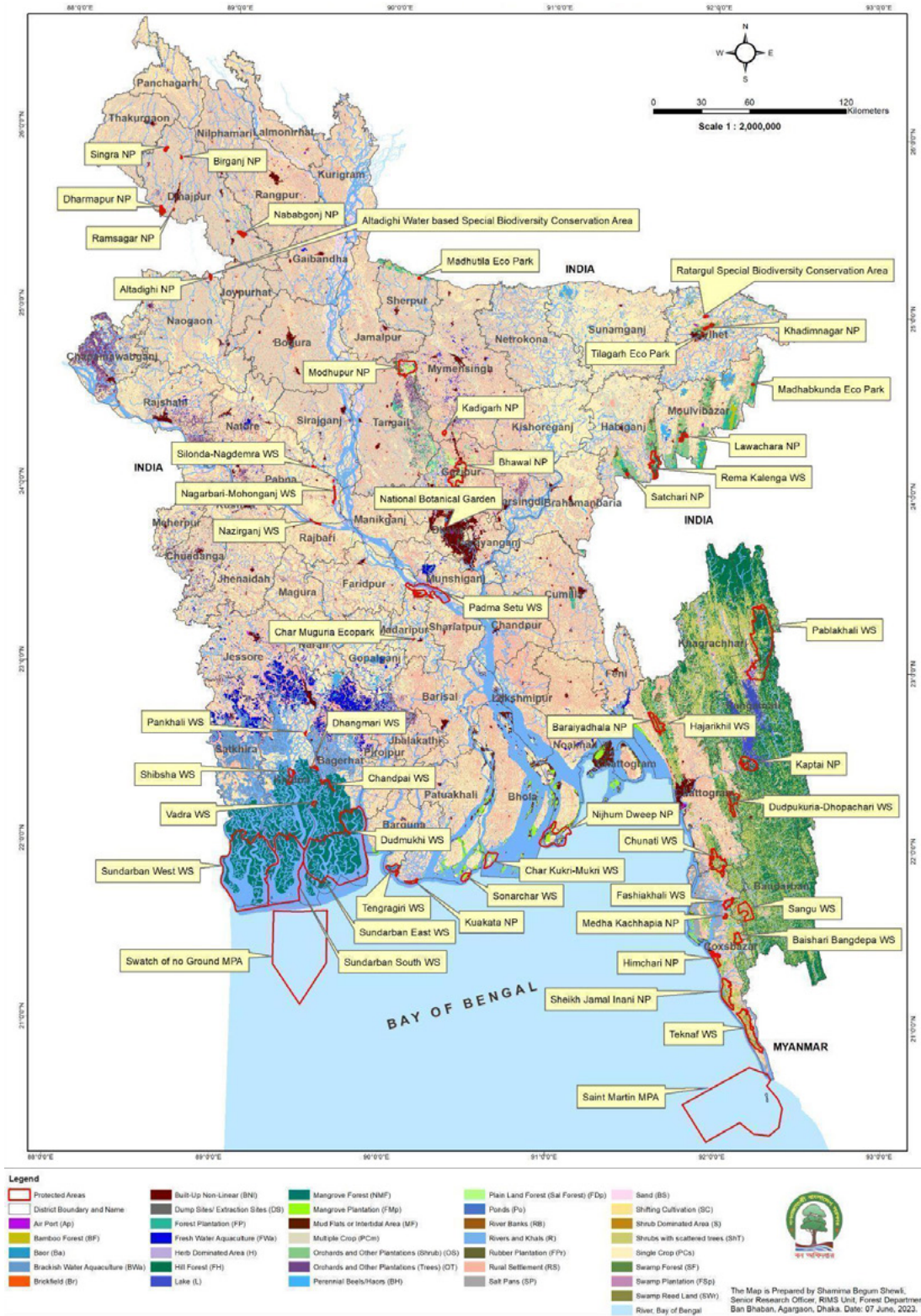
114 *Indo-Burma Biodiversity Hotspot*. (n.d.). Critical Ecosystem Partnership Fund. Retrieved September 19, 2024, from <https://www.cepf.net/our-work/biodiversity-hotspots/indo-burma>; Mittermeier, R. A., Gil, P. R., Hoffman, M., Pilgrim, J., Brooks, T., Mittermeier, C. G., Lamoreux, J., & da Fonseca, G. A. B. (2004). *Hotspots Revisited* (First English Edition). Cemex.

115 Ahsan, Md. M., Aziz, N., & Morshed, H. M. (2016). Assessment of Management Effectiveness of Protected Areas of Bangladesh. Bangladesh Forest Department. https://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/page/bb40dcf3_5140_49c8_9b54_9b43993607ac/Management%20Effectiveness%20Assessment%20of%20PAs%20of%20Bangladesh.pdf.

116 Rahman, M. F., & Islam, K. (2021). Effectiveness of protected areas in reducing deforestation and forest fragmentation in Bangladesh. *Journal of Environmental Management*, 280, 111711. doi:10.1016/j.jenvman.2020.111711.

117 Rahman & Islam 2021.

Figure 17: Protected Areas of Bangladesh¹¹⁸



118 Forest Department of the Government of the People's Republic of Bangladesh. (2023, August 22). Protected Areas: Introduction and List. Forest Department of the Government of the People's Republic of Bangladesh. <https://bforest.gov.bd/site/page/5430ce33-561e-44f6-9827-ea1ebaa2c00d/->.

The government has designated a total of five MPAs: Marine Reserve region (Middle Ground and South Patches of Bay of Bengal), Naf Peninsula MPA, Nijhum Dwip MPA, Swatch of No Ground MPA, and St. Martin's Island MPA.¹¹⁹ These areas are designated for the conservation of marine dolphins, whales, sharks, rays, and other marine species (see [Table C-1](#)). A 2022 qualitative review of MPA management and governance in Bangladesh found that, though the country is advancing toward meeting its sustainable development goal commitments for the proportion of marine territory that it protects, an absence of designated administrative authority and comprehensive legislation and state of art policies have led to substandard performance in MPA management and governance.¹²⁰

Fish Sanctuaries

Under the Marine Fisheries Ordinance of 1983, the Department of Fisheries has declared one marine reserve in 2000 covering 698 square kilometers, and six hilsa fish sanctuaries. As described above, it also recently declared the Nijhum Dwip Marine Protected Area, covering 3,188 square kilometers of estuarine waters at the mouth of the world's third largest river system (the Padma-Jamuna-Meghna), to protect hilsa breeding and nursery grounds as well as habitats for marine fish, crustaceans, megafauna, and migratory birds. There are also a number of community-based freshwater fish sanctuaries (see [Figure 18](#)), with the latest such sanctuary established in the Ratargul Swamp Forest.¹²¹ Studies of these community-based freshwater fish sanctuaries have found that they are effective in increasing species diversity and volume of fish stock in inland freshwater ecosystems.¹²²

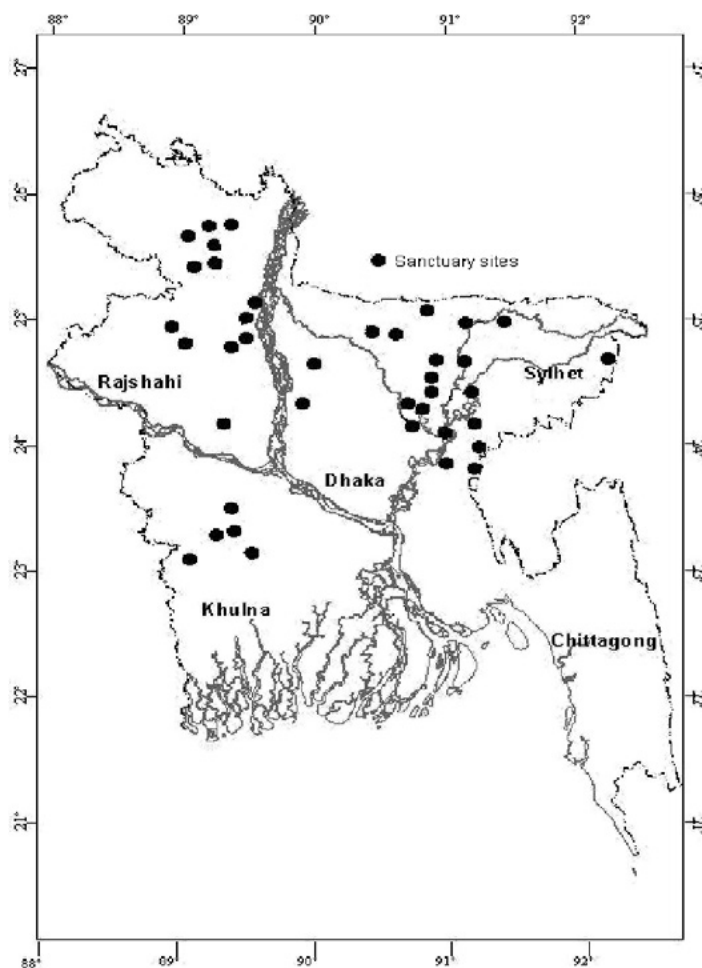
119 Islam, F. (2024, July 1). Bangladesh's fifth marine protected area (MPA) is the Naf Peninsula MPA. Seafood Network BD. <https://seafoodnetworkbd.com/bangladeshs-fifth-marine-protected-area-mpa-is-the-naf-peninsula-mpa>.

120 Hassan, M Nazmul. (2022). A Probe into Governance Status of Marine Protected Areas: Bangladesh and Beyond. 4. 76-88. https://www.researchgate.net/publication/367008190_A_Probe_into_Governance_Status_of_Marine_Protected_Areas_Bangladesh_and_Beyond.

121 Mustafa, G., Ilyas, M., & Mahalder, B. (2012). Community based fish sanctuaries: Improving fish biodiversity and protects inland fisheries of Bangladesh. Proc. of 5th Fisheries Conference & Research Fair, Dhaka, Bangladesh. https://www.researchgate.net/publication/318393295_Community_based_fish_sanctuaries_improving_fish_biodiversity_and_protects_inland_fisheries_of_Bangladesh; Kunda, M., Ray, D., Pandit, D., & Harun-Al-Rashid, A. (2022). Establishment of a fish sanctuary for conserving indigenous fishes in the largest freshwater swamp forest of Bangladesh: A community-based management approach. *Heliyon*, 8(5), e09498. <https://doi.org/10.1016/j.heliyon.2022.e09498>.

122 Mustafa et al. (2012) and Kunda et al. (2022).

Figure 18: Freshwater Fish Sanctuaries, Community-Based Fisheries Management Project¹²³



Ecologically Critical Areas (ECAs)

Under the Bangladesh Environment Conservation Act of 1997, the government has declared 13 wetlands and coastal marine areas as ECAs due to ecological degradation from human activities.¹²⁴ The government has prohibited the following activities in all ECAs: 1) cutting and harvesting of natural forest and trees, 2) hunting and poaching of wild animals, 3) collection or trapping of shell, corals, turtles, and other animals, 4) activities inducing the destruction of animal or plant habitat, 5) installations of soil, water, air, and noise polluting industries, and 6) activities affecting fish and other aquatic life forms. Although these activities have not been fully eliminated, and management of the ECAs is insufficient, the initiative has been effective in the sense of providing a legal ground to recover areas which uncontrolled and unplanned human

123 Mustafa, G., Ilyas, M., & Mahalder, B. (2012). Community based fish sanctuaries: Improving fish biodiversity and protects inland fisheries of Bangladesh. Proc. of 5th Fisheries Conference & Research Fair, Dhaka, Bangladesh. https://www.researchgate.net/publication/318393295_Community_based_fish_sanctuaries_improving_fish_biodiversity_and_protects_inland_fisheries_of_Bangladesh.

124 Khan, M.M.H. (2018). Photographic Guide to the Wildlife of Bangladesh. Arannayk Foundation, Dhaka, Bangladesh; DoE. (2019). The Sixth National Report to the Convention on Biological Diversity: Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh. <https://www.cbd.int/doc/nr/nr-06/bd-nr-06-en.pdf>.

activities—particularly the indiscriminate disposal of pollutants—had degraded.¹²⁵ Among ECAs, Tanguar Haor in the northeast has also been designated as a Ramsar Wetland site. ECAs along the southeast coast are crucial for marine turtle nesting (see [Table C-2](#)).

Mechanisms exist to promote local community participation in ECA management—for example, through District Committees, Upazila Committees, and Village Conservation Groups. However, assessments of ECA management performance have found multiple reasons why these mechanisms have not yet fulfilled their promise. Among these, the Department of Environment lacks an independent office for ECA management and only has offices in 22 of Bangladesh’s 64 districts, and no Upazilas. This complicates local committees’ ability to resolve conflicts related to land tenure and livelihoods, as is their designated role. Further, ECA Rules only give local committees advisory responsibilities, and sometimes responsibilities overlap between district and Upazila committees. This lack of authority and coherent roles challenges local groups’ ability to participate effectively in conservation and resource management.¹²⁶

Other Areas

The BFD declared two Special Biodiversity Conservation Areas to protect freshwater biodiversity, one in Sylhet and one in Naogaon, and two Vulture Safe Zones to protect globally threatened vulture species (see [Table C-1](#)).

In addition to in-situ conservation efforts, ex-situ conservation is maintained through the establishment of eco-parks, safari parks, botanical gardens, zoos, aviary parks, and community conservation areas (see [Table C-3](#)). These facilities play a crucial role in preserving biodiversity by providing safe habitats for species outside their natural environments, supporting breeding programs, educating the public about conservation, and serving as genetic reservoirs for future reintroduction or restoration projects.

3.6 STATUS AND MANAGEMENT OF KEY NATURAL RESOURCES (OUTSIDE PROTECTED AREAS)

Forest Outside Protected Areas

In Bangladesh, the term “unclassed state forest” refers to a category of forest land that is not formally classified under specific legal or administrative protection regimes. These forests are typically not designated as reserved forests, protected forests, or any other formally managed forest areas. Unclassed state forests are owned by the government but are not managed with the same intensity or legal framework as reserved or protected forests. These forests, though lacking the management intensity of reserved or protected areas, still harbor significant biodiversity. However, many of these lands are under the direct control of the Deputy Commissioner concerning land utilization, which leads to jurisdictional issues for effective management among technical agencies such as the Bangladesh Forest Department. The report section on the legal framework affecting conservation discusses this dynamic in greater detail.

Forest management in these unclassed forests consists of social forestry and collaborative forest management. Social forestry involves local poor people as beneficiaries for management and conservation of forests and is a partnership between government agencies and local communities, with the aim of

125 Siddique, A. (2022, December 16). In Bangladesh, Ecologically Critical Areas Exist Only on Paper. Mongabay Environmental News. <https://news.mongabay.com/2022/12/in-bangladesh-ecologically-critical-areas-exist-only-on-paper/>; Sikder, P. K. (2022, July 3). Revisiting the management of the ecologically critical areas of bangladesh. *Dhaka Law Review*. <https://www.dhakalawreview.org/blog/2022/07/revisiting-the-management-of-the-ecologically-critical-areas-of-bangladesh-6022>.

126 Sajal, Imtiaz Ahmed. (2018). Managing Ecologically Critical Areas in Bangladesh. *IUCN E-journal*. https://www.researchgate.net/profile/Imtiaz-Sajal/publication/325471666_Managing_Ecologically_Critical_Areas_in_Bangladesh/links/5b0feb17a6fdcc80995c6d32/Managing-Ecologically-Critical-Areas-in-Bangladesh.pdf.

promoting sustainable forest use and improving livelihoods. However, most of the activities occur on land that was completely degraded or along roads or other unused areas. Local people participate in planning and implementing plantation activities. The main goal of social forestry is to ensure social and economic benefits to landless, poor, widowed, and oppressed rural people. Currently, under the World Bank-supported Sustainable Forests and Livelihoods (SUFAL) project, the BFD is implementing collaborative forest management to conserve forests and biodiversity outside protected areas as well as improve the livelihoods of forest-dependent communities.

In the CHTs, tribal communities have a long-standing tradition of conserving and managing natural resources as common property, known as Village Common Forests (VCFs). VCFs are also referred to as *khas* lands (public lands) by District Commissioners and Ministry of Land, and Unclassed State Forest or Community Conserved Area by the Bangladesh Forest Department. This dual administrative process has created long-standing conflict across different government entities and Indigenous people and requires multi-agency coordination. These forests, identified by the USAID Chittagong Hill Tracts Watershed Co-Management Activity (CHTWCA) project, cover 12,530 hectares and are maintained by community rules. Indigenous practices ensure the sustainable use of resources, allowing for timber and bamboo extraction only for community needs, while maintaining vegetation at catchment areas to support water flow and prevent erosion. This communal approach plays a crucial role in biodiversity conservation.¹²⁷

Non-Forest Areas Outside Protected Areas

Outside of protected areas and forests, people are also actively engaged in biodiversity conservation in different ways. For example, communities are protecting bird colonies independently. The efforts of many nature enthusiasts and voluntary organizations have made this possible (see [Table C-4](#)).

BirdLife International identifies and protects Important Bird and Biodiversity Areas that support significant numbers of globally threatened species, restricted-range species, or large numbers of migratory species. Bangladesh currently has 20 recognized Important Bird and Biodiversity Areas, with 12 also designated as protected areas or ECAs (see [Table C-5](#)).

3.7 OVERVIEW OF ECOSYSTEM SERVICES

Diverse biological communities and functioning ecosystems are critical to maintaining ecosystem services that support human well-being. Ecosystem services are categorized into four main groups: 1) provisioning services, 2) regulating services, 3) supporting services, and 4) cultural services. The biodiversity of Bangladesh holds aesthetic, cultural, biological, and economic values (described below), deeply linked with the lives and livelihoods of its people.

Agriculture

Despite a gradual shift towards industrialization and services, agriculture remains a vital sector contributing significantly to the nation's GDP, employment, and food security. Approximately 26.4 percent of the world's population was employed in agriculture as of 2022. This figure is higher in Bangladesh, however, at 36.9 percent.¹²⁸ The agricultural sector of Bangladesh constituted around 21 percent of the national GDP

127 DoE. (2019). The Sixth National Report to the Convention on Biological Diversity: Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh. <https://www.cbd.int/doc/nr/nr-06/bd-nr-06-en.pdf>.

128 World Bank, World Development Indicators. (2022f). *Employment in agriculture (% of total employment) (modeled ILO estimate)* [Data file]. Retrieved July 31, 2024 from <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS>.

until 2015.¹²⁹ However, agriculture's contribution to the national GDP decreased to only 11.0 percent as of 2023.

Fisheries

The Bangladesh Ministry of Finance estimated the fishery sector to contribute 2.38 percent of the total GDP in 2022-2023. Despite their relatively small economic contribution, fishery services provide full-time livelihood to around 1.2 million fishers each year and account for 63 percent of protein intake by the Bangladeshi population.¹³⁰

Forest

Overall, the forestry sector contributes 1.7 percent to GDP. However, it is estimated that 64 percent of people in Bangladesh are dependent on forests in some way. The total estimated value of primary tree and forest products collected is 3.07 percent of the 2017-2018 GDP.¹³¹ The Sundarbans, the largest forested patch in Bangladesh, has been estimated to contribute around \$273 million to \$714 million per year to the Bangladesh economy across a wide range of ecosystem services including provisioning (i.e., fish, honey, Nipa palm [*golpata*]), regulating (i.e., regulating water cycle, carbon storage, soil formation), supporting (i.e., primary production, habitat), and cultural (i.e., tourism) services.¹³² Altogether, the Sundarbans provide 29 different ecosystem services.¹³³ The importance of provisioning services in the context of non-timber forest products and livelihoods has also been documented around other protected areas in Bangladesh, such as Satchari National Park and Khadimnagar National Park.¹³⁴

129 Clarke, D., Lázár, A. N., Saleh, A. F. M., & Jahiruddin, M. (2018). Prospects for agriculture under climate change and soil salinisation. In R. J. Nicholls, C. W. Hutton, W. N. Adger, S. E. Hanson, Md. M. Rahman, & M. Salehin (Eds.), *Ecosystem Services for Well-Being in Deltas* (pp. 447–467). Springer International Publishing. https://doi.org/10.1007/978-3-319-71093-8_24.

130 DoE. (2016). National Biodiversity Strategy and Action Plan of Bangladesh 2016-2021. Dhaka. 119 pages. DoE 2016. https://bangladeshbiosafety.org/wp-content/uploads/2021/03/National-Biodiversity-Strategy-and-Action-Plan-of-Bangladesh_2016-2021.pdf.

131 Government of Bangladesh. (2020). Tree and Forest Resources of Bangladesh: Report on the Bangladesh Forest Inventory. Forest Department, Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh. http://bfis.bforest.gov.bd/bfi/wp-content/uploads/2021/02/BFI-Report_final_08_02_2021.pdf.

132 Haque AKE, Aich D. (2014). Economic valuation of ecosystem services. In: Hussain MZ (Edt.), Bangladesh Sundarban delta vision 2050: A first step in its formulation—document 2: A compilation of background information. IUCN-International Union for Conservation of Nature, Bangladesh Country office, Dhaka, p. 55-63. <https://portals.iucn.org/library/sites/library/files/documents/2014-065-doc.2.pdf>.

133 Haque and Aich 2014.

134 Mukul, S., Rashid, A.Z.M.M., Uddin, M., Khan, N., 2016. Role of non-timber forest products in sustaining forest-based livelihoods and rural households' resilience capacity in and around protected area: a Bangladesh study. *Journal of Environmental Planning and Management* 59, 628–642. <https://doi.org/10.1080/09640568.2015.1035774>; Rahman, Md.H., Roy, B., Islam, Md.S., 2021. Contribution of non-timber forest products to the livelihoods of the forest-dependent communities around the Khadimnagar National Park in northeastern Bangladesh. *Regional Sustainability* 2, 280–295. <https://doi.org/10.1016/j.regsus.2021.11.001>.



Photo by Sirajul Hossain/USAID

4.

Legal Framework Affecting Conservation

Bangladesh's legal instruments adequately cover a representative set of needs related to conserving tropical forests and biodiversity. Some of these are translated into very detailed and updated strategies, master plans, and action plans. Biodiversity, along with environmental sustainability, has also been mainstreamed in the country's medium- and short-term development plans. However, implementation of these plans is inadequate against the envisaged goals and targets due to low political commitment and limited funding, and their progress is not being monitored. For example, the government has always produced the National Biodiversity Strategy and Action Plans (NBSAPs) as a part of its global commitment, but their implementation has not been a priority over the last two decades. An additional issue is that the legal instruments and plans are not guided by national policies. For example, there is no biodiversity policy, and the Forest Policy has not been updated since 1994.

Other challenges include jurisdictional issues and conservation finance. In terms of jurisdictional issues, several agencies—including the BFD, Department of Environment, Department of Fisheries, and Ministry of Land—are working on biodiversity conservation in a wide range of ecosystems (see [Section 4.3 Government Agencies](#)). In terms of conservation financing, despite the fact that several funds have been provisioned in the legal instruments since 2016, none have materialized. This means that conservation is very much project dependent.

Additionally, a lack of knowledge and professionalization in and across many agencies, such as port authorities and customs, are also an impediment to effective wildlife conservation. Poor coordination mechanisms across government agencies are a barrier to conservation efforts. While human resource and financial capacity within institutions continue to be drivers, corruption within enforcement agencies remains a significant barrier to effective conservation.

Bangladesh, however, has demonstrated the opportunities to integrate climate and conservation actions, in the policy space and to some extent at the ground level.

This section primarily focuses on the developments that have occurred since the last 118/119 Analysis for Bangladesh, published in 2016.

4.1 NATIONAL LAWS, POLICIES, AND STRATEGIES

[Table 6](#) summarizes the key laws, policies, and plans related to biodiversity and tropical forest conservation in Bangladesh. The table also includes brief notes regarding gaps in the legal and policy framework that constrain effective conservation. Section 4.1 discusses each of these in further detail.

TABLE 6. KEY LAWS, POLICIES, AND PLANS RELATED TO BIODIVERSITY, BY FOCUS AREA

LAWS AND RULES	POLICIES AND PLANS	KEY GAPS
Biodiversity and Conservation		
<ul style="list-style-type: none"> • Bangladesh Biodiversity Act 2017 (Biodiversity Act) • Bangladesh Environment Conservation Act, 1995 (amendment in 2010) <ul style="list-style-type: none"> ◦ Ecologically Critical Area Management Rules 2016 (ECA Rules) 	<ul style="list-style-type: none"> • National Conservation Strategy (NCS, 2021-2036) • National Biodiversity Strategy and Action Plan (NBSAP) 	<ul style="list-style-type: none"> • Visible progress in implementation of the Biodiversity Act or ECA Rules is yet to be seen. • Subsequent operational plans do not reference the NCS as a guiding document, suggesting slow progress in implementation. • Bangladesh has never had a National Biodiversity Policy.
Wildlife Management		
<ul style="list-style-type: none"> • The Wildlife (Preservation and Security) Act 2012 (Wildlife Act) <ul style="list-style-type: none"> ◦ Protected Area Management Rules 2017 (PA Rules) ◦ Deer and Elephant Rearing Rules 2017; Crocodile Rearing Rules 2019; Pet Bird Management Rules 2020 ◦ Rules for compensation of losses from wildlife attacks 2021 	<ul style="list-style-type: none"> • Bangladesh Wildlife Conservation Master Plan (2015-2035) • Action plans for vultures (2016-2025), gharials (2016-2025), and elephants (2018-2027) • Animal Red List (2015) • Tiger action plan (2018-2027) 	<ul style="list-style-type: none"> • Implementation of the PA Rules are project-driven and not yet mainstreamed. • There is a lack of synergies between the Wildlife Conservation Master Plan and species-specific plans, as the Master Plan is rarely referenced. • Wildlife and biodiversity planning processes are incoherent.
Marine and Freshwater Resources		
<ul style="list-style-type: none"> • National Fisheries Policy 1998 • Marine Fisheries Act 2020 	<ul style="list-style-type: none"> • Action plan for Ganges River Dolphins and Irrawaddy Dolphins (2021-2031) • Under WB SUFAL project: • Draft plan to protect sharks and rays (2023-2033) 	<ul style="list-style-type: none"> • Neither the Dolphin action plan nor draft Sharks and Rays plan refer to the Bangladesh Wildlife Conservation Master Plan.
Forestry		
<ul style="list-style-type: none"> • The Forest Act, 1927 (amendments in 1990 and 2000) <ul style="list-style-type: none"> ◦ Social Forestry Rule, 2004 (revisions in 2010 and 2011) ◦ Forest Product Transit Rule, 2011 	<ul style="list-style-type: none"> • National Forest Policy 1994 • Draft National Forest Policy 2024 • Draft Forestry Master Plan (2017-2036) 	<ul style="list-style-type: none"> • Adoption of the revised Forest Policy has long been pending. The outcome of a recent meeting to finalize the document is not yet clear. • The Draft Forestry Master Plan has yet to be finalized.

4.1.1 Laws and Rules

The *Wildlife (Preservation and Security) Act 2012 (Wildlife Act)* remains the core legal instrument as far as biodiversity conservation is concerned. The Act outlines the overall governance of wildlife conservation; actions to be taken to protect and manage wildlife and plants; provisions around different protected areas; licensing for captive animals, wild animals, and plants; rules around import, export, and re-export of wild animals and plants; and investigation, seizure, offense, and penalty related to wildlife. The Schedule in the Act was updated in 2021 by including eight genera and 23 shark and ray species to ensure strict protection. This updating also facilitates sustainable exploitation, consumption, and trade of one genus and 29 species provided that their catch is found to be non-detrimental to wild populations.¹³⁵

135 Nadim. (2022, July 21). Bangladesh Takes Major Step to Protect Threatened Sharks and Rays. WCS Bangladesh. <https://bangladesh.wcs.org/About-Us/News/article/ArticleView/articleId/17836>.

After a long wait, the *Bangladesh Biodiversity Act 2017* (Biodiversity Act) was enacted, a process led by the Department of Environment (DoE). This Act focuses on sustainable use of biological resources and equitable sharing of benefits arising from the use of related knowledge. However, any visible or tangible implementation of the Act is yet to be seen in the public domain.

The *Bangladesh Environment Conservation Act 1995* (Environment Act) is the instrument used to identify and declare ECAs in the country. Many development projects were implemented in those ECAs over the past couple of decades, such as Coastal and Wetland Biodiversity Management Project (CWBMP), several projects exclusively on St. Martin's Island, and Community-Based Adaptation in the ECAs through Biodiversity Conservation and Social Protection Project (CBA-ECA). The *Ecologically Critical Area Management Rules 2016* (ECA Rules) adopted under the Environment Act are intended to strengthen the ECA management in an inclusive manner. However, the Government of Bangladesh has not made much visible progress in implementing the rules. Nevertheless, the DoE has led some related project-driven interventions.

Formulated under the Wildlife Act, the *Protected Area Management Rules 2017* (PA Rules) capture Bangladesh's almost two decades of experience in community-based, participatory natural resource management, community-based adaptation, or ecosystem-based adaptation. Like the ECA Rules, implementation of the PA Rules are also project-driven and not yet mainstreamed. Certain fundamental issues remained unresolved for a long time, such as whether the Divisional Forest Officers or Co-Management Committees (CMCs) are accountable for spending government funds allocated to the CMCs. However, this issue was resolved in 2023 when the Auditor General directed the Bangladesh Forest Department that they will be audited against the compliance of PA Rules, and the fund management audit will take place in the case of the CMCs. This resolution led to the development of standard operating procedures (SOPs) for the Bangladesh Forest Department to disburse funds and for CMCs to receive and manage funds. The USAID Protibesh Activity is currently working with the Bangladesh Forest Department and holding consultations with the CMCs to ensure that the SOPs are developed in an inclusive manner.

A number of wildlife-related rules have recently been adopted under the Wildlife Act. These include *Deer and Elephant Rearing Rules 2017*, *Crocodile Rearing Rules 2019*, *Pet Bird Management Rules 2020*, and rules that offer compensation against the loss of lives and assets from wildlife attacks enacted in 2021. These rules reflect increasing interactions between humans and wildlife, in captivity and through commercial use, but also a need for responding to the long-standing human-wildlife conflict in and around the natural range of important megafauna.

Outside the Ministry of Environment, Forest, and Climate Change (MoEFCC), the Ministry of Fisheries and Livestock (MoFL) facilitated the enactment of the *Marine Fisheries Act 2020*, which has a specific provision to declare and manage MPAs in Chapter 7. The Wildlife Act also has a similar provision for MPAs, but MPAs are only mentioned briefly under Chapter 4, Article 13 and Chapter 10, Article 52. The *National Fisheries Policy 1998* is an important policy directly contributing to conserving the country's natural fish diversity by declaring fish sanctuaries. At the same time, the *Jalmahal Management Policy 2009* (amended in 2012) guides government-owned wetlands leasing activity, which impedes effective conservation of fisheries by promoting commercial extractive activities.

4.1.2. Policies and Strategies

Bangladesh first adopted a Forest Policy in 1979 and revised it in 1994.¹³⁶ The adoption of the most recent

136 National Forest Policy. (1994). Nishorgo Network. <https://nishorgo.org/wp-content/uploads/2017/02/1-1-32-National-Forest-Policy-1994.pdf>.

revisions, drafted in 2016, has long been pending. Recently, it has been updated further as the Draft National Forest Policy 2024. The Government of Bangladesh scheduled an inter-ministerial meeting on June 25, 2024 to finalize this document, though the outcome of this meeting is not yet clear.

Bangladesh has never had a National Biodiversity Policy. The National Biodiversity Strategy and Action Plan (NBSAP) in 2004 included an outline for such a policy. However, it has not been mentioned in subsequent policy documents, including the second edition of NBSAP (2015), and the fourth (2010) and fifth (2015) National Reports to the Convention on Biological Diversity (CBD).

As a signatory to the CBD, Bangladesh regularly prepares NBSAPs. Bangladesh formulated the first edition in 2004 and the second edition for the 2016-2021 period. Bangladesh submitted progress reports to the CBD Secretariat on NBSAP implementation in the fourth (2010), fifth (2015), and sixth (2019)¹³⁷ National Reports. Currently, the MoEFCC and DoE are updating the NBSAP based on the Kunming-Montreal Global Biodiversity Framework (or Biodiversity Plan). Section 4.1.3 further discusses this plan and its implications.

While Bangladesh initially conceptualized its National Conservation Strategy (NCS) in the 1980s, they did not finalize it for almost 30 years.¹³⁸ The Bangladesh Forest Department, with the help of IUCN Bangladesh and financial support from Bangladesh Climate Change Trust Fund, finally revised the draft NCS in 2016 by aligning it with the then new SDGs. In 2023, the MoEFCC made the NCS (2021-2036) public. Although this strategy exists, Bangladesh has not yet made progress in its implementation, as evidenced by the absence of references to the NCS in subsequent operational plans. The next opportunity for such a reference is the updated NBSAP, where it will be important to observe if Bangladesh acknowledges the NCS as one of the NBSAP's guiding documents.

4.1.3. Plans

Between 2016 and 2023, the Government of Bangladesh approved a number of animal species conservation plans. The Strengthening Regional Cooperation for Wildlife Protection (SRCWP) project (2011-2016) facilitated the formulation of action plans for vultures (2016-2025), gharials (2016-2025), and elephants (2018-2027), along with the animal Red List (2015), which assessed 1,619 species of mammals, birds, amphibians, reptiles, fishes, butterflies, and crustaceans. The government also formulated the second edition of the tiger action plan (2018-2027) under the SRCWP, at the end of the first plan's strategic period (2009-2017), which coincided with the USAID Bagh/Tiger Activity.

The Global Environment Facility and United Nations Development Programme (UNDP) Expanding the Protected Area System to Incorporate Important Aquatic Ecosystems Project formulated a conservation action plan for both Ganges river dolphins and Irrawaddy dolphins for a 10-year period starting from 2021. Recently, the World Bank SUFAL project, with technical support from the Wildlife Conservation Society (WCS), drafted a plan to protect sharks and rays (2023-2033)¹³⁹ of Bangladesh.

Bangladesh drafted its Forestry Master Plan (2017-2036)¹⁴⁰ in 2016 under the World Bank-supported

137 DoE. (2019). The Sixth National Report to the Convention on Biological Diversity: Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh. <https://www.cbd.int/doc/nr/nr-06/bd-nr-06-en.pdf>.

138 Irfanullah, H. M. (2024, February 7). Forest Department's leadership crucial for conservation. *The Daily Star*. <https://www.thedailystar.net/opinion/views/news/forest-departments-leadership-crucial-conservation-3538171>.

139 Govt approves action plan on shark, ray conservation. (2023, February 8). *The Business Standard*. <https://www.tbsnews.net/bangladesh/environment/govt-approves-action-plan-shark-ray-conservation-581934>.

140 Agriconsulting Europe S.A. & Sodev Consult International Ltd. (2016, December). Bangladesh Forest Department: Climate Resilient Participatory Afforestation and Reforestation Project—Updating Forestry Master Plan for Bangladesh. Bangladesh Forest Department. <https://pubdocs.worldbank.org/en/848671521827530395/FMP-Full-report-final.pdf>.

Climate Resilient Participatory Afforestation and Reforestation Project but has not yet finalized the plan. This is another example of how large, project-driven plans can become obsolete.

The SRCWP project also facilitated the formulation of the [Bangladesh Wildlife Conservation Master Plan](#) (2015-2035).¹⁴¹ However, nine years on, there is abundant evidence that Bangladesh does not use the Master Plan as the guiding document for comprehensive wildlife conservation. Although the Master Plan cites species-specific conservation programs (for tigers, deer, elephants, and cetaceans), management strategies (for marine turtles and crocodiles), and reintroduction plans, there are a lack of synergies between the content of the species-specific plans and the Master Plan. In the updated tiger action plan, for example, the Master Plan is briefly acknowledged under the national policy analysis. But, prepared in 2021, the dolphin conservation action plan does not refer to the Master Plan. The same is also true for the draft sharks and rays conservation strategy of 2023. Furthermore, the sixth National Report to the CBD mentioned many master plans in a wide range of ecosystems and sectors, but not the Bangladesh Wildlife Conservation Master Plan. This shows the deeply embedded incoherence among wildlife and biodiversity planning processes in Bangladesh.

A number of major non-biodiversity development plans, however, appreciate biodiversity and ecosystem conservation. The country's development is guided by the Five-Year Plan (FYP). Currently, the country is passing through the eighth FYP (2020-2025) period. The Government of Bangladesh is currently preparing the ninth FYP. As with the last few FYPs, it is expected that environmental sustainability will remain an important part of Bangladesh's future FYPs.

The Mujib Climate Prosperity Plan (2022-2041) is a revolutionary investment plan since it envisions a fundamental shift in Bangladesh's development trajectory—from vulnerability to resilience to prosperity. It is the first national plan adopted by the Government of Bangladesh which embraced the term 'nature-based solutions' and mainstreamed it throughout the document.¹⁴²

Under climate action, Bangladesh prepared and adopted the National Adaptation Plan of Bangladesh (NAP, 2023-2050) in an inclusive manner, despite the COVID-19 pandemic. Prioritization of NAP's 113 interventions and overall implementation plan are still due. Nevertheless, nature-based solutions constitute one of the six goals of NAP 2050. Specifically, goal four reads, "Promote nature-based solutions for the conservation of forestry, biodiversity and the well-being of communities."¹⁴³ This plan identified 21 interventions related to nature-based solutions, which would require \$5.9 billion to implement through 2050. Most of these interventions are related to ecosystem management or the blue economy. About half of these focus on conservation and restoration of different ecosystems. In the same vein, the Updated Nationally Determined Contributions (2021) adopted forest and ecosystem protection and restoration as a means of mitigation. The third edition of the Nationally Determined Contributions is due in February 2025.

4.2 INTERNATIONAL AGREEMENTS

Bangladesh adopted the Kunming-Montreal Global Biodiversity Framework (or Biodiversity Plan) in the 15th Conference of the Parties to the CBD in December 2022. It has two main parts: 1) four Global Goals to

141 SRCWP. (2015). Bangladesh Wildlife Conservation Master Plan 2015-2035. Ministry of Environment and Forests (MoEF), Bangladesh Forest Department (BFD), The World Bank. <https://bfs.bforest.gov.bd/library/bangladesh-wildlife-conservation-master-plan-2015-2035/>.

142 Irfanullah, H. M. (2021, December 17). How crucial is nature for our prosperity? *The Daily Star*. <https://www.thedailystar.net/views/opinion/news/how-crucial-nature-our-prosperity-2919221>.

143 Irfanullah, H. M. (2022, November 16). How does our new National Adaptation Plan consider nature? *The Daily Star*. <https://www.thedailystar.net/opinion/views/news/how-does-our-new-national-adaptation-plan-consider-nature-3171111>.

be achieved by 2050, and 2) 23 Global Targets to be achieved by 2030. The Government of Bangladesh is currently updating the NBSAP based on the guidelines provided by the CBD Secretariat. Bangladesh needs to contextualize the Biodiversity Plan, for example, by: 1) aligning with the country's recently adopted Green and Climate Resilient Development Policy, 2) capitalizing on 30 years of experience with co-management, 3) adopting the ECA and PA Rules, and 4) blending its climate actions and conservation actions, as done in the NAP by adopting nature-based solutions.¹⁴⁴

In November 2023, Bangladesh was elected to UNESCO's International Coordinating Council of the Man and Biosphere Programme for 2023-2027.¹⁴⁵ In addition to participating in the council sessions over the next few years, it opens up new opportunities to submit nominations for inscriptions of UNESCO Biosphere Reserves in Bangladesh.

The Bangladesh Forest Department is the national focal point of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Ramsar Convention's Programme on communication, capacity building, education, participation and awareness, and the Convention on the Conservation of Migratory Species of Wild Animals (CMS). On behalf of Bangladesh, the department regularly submits national reports to these conventions' secretariats.¹⁴⁶

Bangladesh, however, shows weak internal mechanisms and inadequate capacity in implementing certain conventions. For example, following the violation of CITES rules, the Standing Committee of CITES at its 77th meeting in November 2023 agreed that all parties to the Convention will suspend trade in specimens of CITES-listed birds for commercial purposes with Bangladesh until the country adequately regulates and monitors trade in CITES-listed birds and complies with the recommendations suggested to it.¹⁴⁷ The recommendations include actions in the areas of 1) management of trade in specimens of CITES-listed birds, 2) legislation and law enforcement, 3) handling of live animals and disposal of seized live specimens, and 4) scientific authorities and surveys. This embargo is a blow to Bangladesh's reputation in the international forum. Bangladesh is now expected to submit a progress report on implementing the recommendations 90 days before the 78th meeting of the Standing Committee.

Finally, Bangladesh is one of eight member countries in the South Asian Wildlife Enforcement Network. The member countries established the Network in 2011 as a regional inter-governmental body that promotes regional cooperation to combat wildlife crime in South Asia. It focuses on policy harmonization; institutional capacity strengthening through knowledge and intelligence sharing; and collaboration with regional and international partners to enhance wildlife law enforcement in the member countries.¹⁴⁸

144 Irfanullah, H. M. (2024, July 8). Bangladesh's way forward to biodiversity conservation. *The Daily Star*. <https://www.thedailystar.net/opinion/views/news/bangladeshs-way-forward-biodiversity-conservation-3651096>.

145 Giffoni, M. (2023, November). Composition of the International Co-ordinating Council of the Man and the Biosphere Programme. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000388021>.

146 Irfanullah, H. M. (2024, February 7). Forest Department's leadership crucial for conservation. *The Daily Star*. <https://www.thedailystar.net/opinion/views/news/forest-departments-leadership-crucial-conservation-3538171>.

147 Notification to the Parties 2023, No. 2023/129. (2023, November 23). Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). <https://cites.org/sites/default/files/notifications/E-Notif-2023-129.pdf>.

148 Establishment of SAWEN. (n.d.). South Asia Wildlife Enforcement Network. Retrieved September 20, 2024, from <https://www.sawen.org/>.

4.3 GOVERNMENT AGENCIES

[Table 7](#) summarizes the various government agencies with institutional mandates for conserving biodiversity and tropical forests in Bangladesh. The Ministry of Environment, Forest and Climate Change (MoEFCC) holds chief responsibility, divided between the BFD and the DoE, though the Ministry of Agriculture and Ministry of Fisheries and Livestock (MoFL) also have complementary roles in conservation.

In addition to these ministries that are directly related to natural resource management, a few others are also involved in conservation efforts. For example, the National River Conservation Commission established in 2014 is responsible for protecting river land from encroachment, preserving the river water from pollution, ensuring multidimensional use of rivers, and restoring their natural flows. Relatively softer mandates could be seen in the case of law enforcement agencies, such as Border Guard Bangladesh and Bangladesh Coast Guard.

TABLE 7. INSTITUTIONS RESPONSIBLE FOR CONSERVATION AND THEIR MANDATES

MINISTRY	DEPARTMENT OR INSTITUTE	MANDATES
MoEFCC	Bangladesh Forest Department	<ul style="list-style-type: none"> • Manages the reserved forest and all the protected areas (PAs) • Implements the Wildlife Act and PA Rules by engaging pertinent government and non-government entities • Uses the Wildlife Crime Control Unit to address wildlife-related offenses along with law enforcement agencies (e.g., Bangladesh Police) • Implements projects exclusively on wildlife conservation (e.g., SRCWP [2011-2016]), projects with biodiversity components (e.g., SUFAL [2018-2024]), and ecosystem-specific projects (e.g., Protection of Sundarbans Mangrove Forest Project) <ul style="list-style-type: none"> ◦ Examples of implemented projects: assessed 1000 plant species to prepare the plant Red List;¹⁴⁹ identified transboundary wildlife corridors in the southeast region of Bangladesh;¹⁵⁰ assessed invasive species in PAs;¹⁵¹ developed a conservation strategy for sharks and rays • Facilitates projects by development partners and their contractors related to biodiversity conservation and forest (e.g., Bagh Activity, CREL, and Protibesh Activity of USAID, and Sundarbans Management Program [SMP] of Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH [GIZ]) • Facilitates co-management within PAs along with a wide range of local stakeholders as outlined in the PA Rules, and promotes collaborative management outside PAs, e.g., through SUFAL • Acts as focal point for conservation-related international agreements
	Department of Environment	<ul style="list-style-type: none"> • Contributes to biodiversity conservation of critical ecosystems as a custodian of ECAs through the Environment Act and ECA Rules • Responsible for implementing the Biodiversity Act to ensure sustainable use of and equitable sharing of benefits from biological resources • Collaborates with a wide range of funders and local stakeholders in implementing projects within ECAs • Leads the preparation of the NBSAPs as the focal point of the CBD by engaging relevant ministries, government agencies, academic institutions, and private entities (e.g., CSOs, NGOs)
	Bangladesh National Herbarium (BNH)	<ul style="list-style-type: none"> • Conducts research on plant species of Bangladesh • Publishes volumes of the plant Red List (2001, 2013, 2023 [draft])
Ministry of Agriculture (MoA)	Department of Agricultural Extension	<ul style="list-style-type: none"> • Promotes agroforestry, conservation agriculture, IPM, and indigenous crop variety conservation by implementing donor-funded and Government of Bangladesh projects <ul style="list-style-type: none"> ◦ Contributes to soil biodiversity and agro-biodiversity by mainstreaming these practices in all large agricultural projects
	Bangladesh Agricultural Research Council	
	National Agricultural Research System institutes	

149 Govt prepares list of 1,000 endangered plant species. (2023, May 15). *The Financial Express*. <https://today.thefinancialexpress.com.bd/metro-news/govt-prepares-list-of-1000-endangered-plant-species-1684086429>.

150 Haque, A. (2023, August 26). Whatever happened to the CHT tiger reintroduction plan? *The Business Standard*. <https://www.tbsnews.net/environment/nature/whatever-happened-cht-tiger-reintroduction-plan-689158>.

151 17 invasive plant species identified in 5 protected areas: Environment Minister. (2023, February 22). *The Business Standard*. <https://www.tbsnews.net/bangladesh/environment/17-invasive-plant-species-identified-5-protected-areas-environment-minister>.

TABLE 7. INSTITUTIONS RESPONSIBLE FOR CONSERVATION AND THEIR MANDATES

MINISTRY	DEPARTMENT OR INSTITUTE	MANDATES
Ministry of Fisheries and Livestock	Department of Fisheries	• Contributes to fisheries resource management in freshwater and marine ecosystems with local fishers and other stakeholders
	Department of Livestock Services	• Conserves the genetic diversity in livestock
	Bangladesh Forest Research Institute and Bangladesh Livestock Research Institute research centers	• Indirectly contributes to biodiversity conservation in modified ecosystems by improving knowledge on natural resource management

One challenge for conservation in Bangladesh is the overlapping jurisdictions among MoEFCC’s DoE and BFD, MoFL’s Department of Fisheries (DoF), and the Ministry of Land (MoL).¹⁵² The land of Nijhum Dwip is a national park declared by the MoEFCC; 3,188 square kilometers of seascape in the south and southwest of this island is an MPA and marine reserve declared by the MoFL. St. Martin’s Island has been an ECA since 1999, and its surrounding waters were declared an MPA in 2022, both by the MoEFCC. However, in May 2024, MoFL declared Naf Marine Protected Area under the *Marine Fisheries Act 2020*. This is the ultimate demonstration of jurisdictional challenge between the MoEFCC and the MoFL, since these two MPAs have common boundaries.¹⁵³ Using the articles of the National Fisheries Policy, 1998, the MoL declared more than 200 water bodies as permanent sanctuaries and placed their management with the DoF. Tanguar Haor was declared an ECA by MoEFCC when it was under the jurisdiction of the MoL. In 2001, the MoL handed over its management to the MoEFCC, which consequently stopped leasing out of the wetland and implemented community-based sustainable management of this Ramsar Site for 12 years (2006-2018). Similar jurisdictional challenges prevail in the hilly region as well. For example, the forest land and VCFs are under dual administration in the CHT. These forest lands are important for biodiversity, but do not fall under the BFD. These are managed by the Hill District Councils, the Ministry of Land, and Indigenous leaders.

4.4 CONSERVATION INITIATIVES

[Table 8](#) summarizes the major conservation initiatives in Bangladesh since 2016. This table, presented in chronological order of project end date, illustrates the following trends:

1. Since the Strengthening Regional Protection for Wildlife Protection project, which expired in 2016, major conservation initiatives have demonstrated a targeted focus on specific species or ecosystems.
2. Conservation initiatives have largely focused on the coastal areas in southern Bangladesh, together with the hill forest in Bangladesh’s eastern regions. Few initiatives have focused on the country’s sal forest or the northwestern divisions.
3. USAID is the predominant donor for conservation initiatives in Bangladesh, though the World Bank, IUCN, and Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) also play

152 Irfanullah, H. M. (2024, March 20). Creating a community for conservation. *The Daily Star*. <https://www.thedailystar.net/opinion/views/news/creating-community-conservation-3570861>.

153 Moinul Hoque, C. (2024, June 9). Bangladesh declares Naf estuary a protected area. Will it preserve endangered marine life? *Bangladesh News 24*. <https://bdnews24.com/environment/d09cd00bafd4>.

important roles. Throughout all initiatives, the Bangladesh Forest Department is the main national counterpart.

4. Recent conservation initiatives have expanded the focus on marine ecosystems and responding to unprecedented conservation challenges, like the Rohingya refugee crisis.

Table 8 presents these and more recent trends in conservation.

TABLE 8. MAJOR CONSERVATION INITIATIVES SINCE 2016				
PROJECT ¹⁵⁴	YEAR	FUND SIZE (MILLION \$)	DONOR/IMPLEMENTERS	ECOSYSTEMS ¹⁵⁵
Strengthening Regional Cooperation for Wildlife Protection (SRCWP) ¹⁵⁶	2011-2016	29.2	World Bank/BFD, many research institutes, universities, NGOs, and firms	Whole Bangladesh (including Sundarbans and NE)
Climate Resilient Ecosystem and Livelihood (CREL) ¹⁵⁷	2013-2018	36.9	USAID, BFD/Winrock, CNRS, Community Development Center (CODEC), BCAS, Nature Conservation Management (NACOM), WorldFish, Tetra Tech, MoEFCC (BFD, DoE), and MoFL (DoF)	PAs and Sundarbans, Hakaluki Haor, Cox's Bazar, Teknaf
Bengal Tiger Conservation Activity (Bagh Project) ¹⁵⁸	2014-2018	10.5	USAID, BFD/WildTeam, Smithsonian Institute, BCAS	Sundarbans
Community Based Sustainable Management of Tanguar Haor Project	(2006-2016)	Unknown	SDC/IUCN, CNRS, IC, ERA, CFSD, Bangladesh Environmental Lawyers Association, GAU	Tanguar Haor (ECA)
	2016-2018		Government of Bangladesh/ IUCN, CNRS, ERA	
Enhanced Coastal Fisheries in Bangladesh (ECOFISH)	2014-2019	15.0	USAID/WorldFish, DoF	Coastal Bangladesh
Management of the Sundarbans Mangrove Forests for Biodiversity Conservation and Increased Adaptation to Climate Change (SMP) ¹⁵⁹	2015-2019	Unknown	German Federal Ministry for Economic Cooperation and Development/GIZ, BFD, GOPA, WCS, Bangladesh Forest Research Institute	Sundarbans

154 Unless otherwise mentioned, information in this table is from: DoE (Department of Environment). (2015). Community Based Ecosystem Conservation and Adaptation in Ecologically Critical Areas of Bangladesh: Responding to Nature and Changing Climate. Department of Environment (DoE), Ministry of Environment and Forests, Dhaka, Bangladesh, pp x+122. <https://portals.iucn.org/library/sites/library/files/documents/2015-053.pdf>.

155 ECA = Ecologically Critical Area; N = North; NE- North-east; SE = South-east; SW = South-west

156 17 SRCWP project documents, conservation plans, study reports on wildlife and protected areas can be found here: <http://bfris.bforest.gov.bd/library/tag/srcwp/>.

157 17 CREL Reports on Protected Areas and other issues: <http://bfris.bforest.gov.bd/library/tag/crel/>.

158 Bagh Project: https://pdf.usaid.gov/pdf_docs/PA00MTXS.pdf.

159 SMP: <https://www.giz.de/en/worldwide/37949.html>.

TABLE 8. MAJOR CONSERVATION INITIATIVES SINCE 2016

PROJECT ¹⁵⁴	YEAR	FUND SIZE (MILLION \$)	DONOR/IMPLEMENTERS	ECOSYSTEMS ¹⁵⁵
Expanding the Protected Area System to Incorporate Important Aquatic Ecosystems (EPASIAE) Project ¹⁶⁰	2015-2019	Unknown	UNDP, BFD/IUCN, CODEC	Sundarbans
SMART Patrolling in the Sundarbans Reserve Forest ¹⁶¹	2017-2019	Unknown	BFD	Sundarbans
Chittagong Hill Tracts Watershed Co-Management Activity (CHTWCA) ¹⁶²	2018-2020	0.47	USAID, ADB, UNDP	Chittagong Hill Tracts
Strategic Environmental Assessment (SEA) of South West Region of Bangladesh for Conserving Outstanding Universal Value of the Sundarbans ¹⁶³	2020-2021	Unknown	BFD/MoEFCC, CEGIS, Integra Consulting	Sundarbans, SW region
Support to the Management of the Sundarbans Mangrove Forests in Bangladesh (SMP-II) ¹⁶⁴	2019-2022	Unknown	GIZ, BFD	Sundarbans
Sustainable Forest and Livelihoods (SUFAL) ¹⁶⁵	2018-2024	178.9	World Bank/BFD	National coverage
Enhanced Coastal Fisheries in Bangladesh (ECOFISH) I ¹⁶⁶	2019-2024	5.7	USAID/WorldFish, DoF	Coastal Bangladesh
USAID Local Works Activity	2020-2025	12.0	USAID/ Arannayk Foundation (GREEN LIFE), CODEC (Nature and Life), NACOM (ECO LIFE Activity)	Southeast and North-Central
Protection of Sundarbans Mangrove Forest ¹⁶⁷	2021-2024	13.5	BFD/MoEFCC	Sundarbans
Humanitarian-conservation Actions for Biodiversity Protection Around Rohingya Refugee Camps, Cox's Bazar Project	2018 - present	Unknown	IUCN-UNHCR Collaboration	Cox's Bazar

160 EPASIAE: <https://www.undp.org/bangladesh/projects/expanding-protected-area-system-incorporate-important-aquatic-ecosystems>.

161 EPASIAE: <https://www.undp.org/bangladesh/projects/expanding-protected-area-system-incorporate-important-aquatic-ecosystems>.

162 CHTWCA: <https://www.undp.org/bangladesh/projects/chittagong-hill-tracts-watershed-co-management-activity-chtwca>.

163 SEA: https://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/page/c5450f84_c5d6_4cfc_913a_bd68662b19fe/2020-03-01-13-38-6bdba4f12c9b24e16a21c90a7b41fee3.pdf.

164 SMP II: <https://www.giz.de/en/worldwide/37949.html#:~:text=Built%20on%20best%20practices%20and,resource%20users%20including%20landless%20people>.

165 SUFAL: <https://projects.worldbank.org/en/projects-operations/project-detail/P161996>.

166 ECOFISH II: <https://www.usaid.gov/sites/default/files/2022-05/Bangladesh-ECOFISH-II-Fact-Sheet.pdf>.

167 Terms of Reference (TOR) for Selection of Consulting Firm for Updating Integrated Resource Management Plan (IRMP) of the Sundarbans. Protection of Sundarban Mangrove Forests Project. (2023). Bangladesh Public Procurement Authority. https://file-khulna.portal.gov.bd/files/www.forestwest.khulna.gov.bd/notices/7f17a6fa_6adb_432b_bdd2_de3de9c2882e/3cea2ecb6e22f435aa64e56ebf9cf401.docx.

TABLE 8. MAJOR CONSERVATION INITIATIVES SINCE 2016

PROJECT ¹⁵⁴	YEAR	FUND SIZE (MILLION \$)	DONOR/IMPLEMENTERS	ECOSYSTEMS ¹⁵⁵
USAID Protibesh/Ecosystems Activity	2021-2026	20.5	USAID, Chemonics International, CNRS, Arannayk Foundation, ICCCAD	Sundarbans, NE haor region
USAID Chittagong Hill Tracts Watershed Co-Management Activity – Phase II (CHTWCA II) ¹⁶⁸	2024-2029	6.4	USAID, UNDP, Government of Bangladesh, Chittagong Hill Tracts local government and local communities	Chittagong Hill Tracts

The SRCWP project created momentum for wildlife conservation during its implementation (2011-2016) by updating the knowledge base on species, producing many action plans, including one Master Plan, and updating the animal Red List with 1,619 species. However, Bangladesh did not take up any large-scale, comprehensive wildlife conservation projects after that. Dolphin conservation projects started, but UNDP applied to the the Global Environment Facility before the SRCWP was in full operation. IUCN continued doing small-scale vulture conservation projects as a follow up to its vulture conservation project under the SRCWP. The same is true for tiger conservation: no substantial donor-funded project was formulated after the USAID Bagh Activity ended in 2018. Nevertheless, the Bangladesh Forest Department has prioritized tiger conservation, and since 2018, has been allocating a budget for tiger conservation and research, although not always to an extent commensurate to the need. Some organizations have identified themselves as specialists of specific species over the course of historic species conservation projects (e.g., WCS focus their efforts on dolphins, sharks, and rays conservation; WildTeam work specifically on human-wildlife conflict reduction for tiger conservation).

Elephant conservation has received more attention after the conclusion of SRCWP due to the focus on reducing human-elephant conflict as part of the response to the Rohingya refugee crisis. Reducing human-elephant conflict was the main focus of an IUCN-UNHCR collaboration, which subsequently created space for other biodiversity-related activities, like biodiversity assessments and environmental awareness campaigns. The IUCN-UNHCR collaboration also catalyzes different nature-based solutions, including greening of heavily degraded refugee camps and surrounding areas.¹⁶⁹ Nevertheless, detailed, updated data on many of these activities are not readily or publicly available.¹⁷⁰

Though elephant conservation efforts have received attention primarily in Rohingya-impacted areas, this represents only a portion of the broader human-elephant conflict issue. Retaliation and other forms of elephant crimes have been increasing due to habitat fragmentation and settlements. For example, between 2017 and 2021, at least 50 elephants were killed due to human-elephant conflict and electrification in different parts of the country. Thirty-four of these fatalities occurred only in 2021.¹⁷¹ The extent of elephant conservation is much wider than conflict in Rohingya refugee settlements and has not been addressed on a larger scale by donors or the Government of Bangladesh.

168 CHTWCA II: <https://www.undp.org/bangladesh/press-releases/usaids-and-undp-unveil-second-phase-chittagong-hill-tracts-conservation-project>.

169 Irfanullah, H. M. (2023, May 5). Combatting the Rohingya refugee crisis with nature-based solutions. *The Daily Star*. <https://www.thedailystar.net/opinion/views/news/combating-the-rohingya-refugee-crisis-nature-based-solutions-3311031>.

170 Energy & Environment Factsheet. (2023, March 31). UNHCR/Bangladesh. <https://data.unhcr.org/en/documents/details/102114>.

171 Islam, R. (2022, August 9). Bangladesh struggles to protect the last of its last wild elephants. *Mongabay Environmental News*. <https://news.mongabay.com/2022/08/bangladesh-struggles-to-protect-the-last-of-its-last-wild-elephants/>.

Outside the scope of internationally funded conservation projects, Bangladesh has a history of professional and enthusiast individuals or small groups leading sporadic, smaller species conservation projects. Examples of such projects include those focused on small mammals,¹⁷² sharks and rays,¹⁷³ migratory and endangered bird species,¹⁷⁴ reptiles,¹⁷⁵ and insect groups.

Geographically speaking, the southwest (Sundarbans region) and northeast (Greater Sylhet's haor wetlands and forests) of Bangladesh have received significant attention from USAID, the biggest donor in Bangladesh's conservation space. These areas have also received investment from other donors. For example, the United Kingdom Foreign, Commonwealth and Development Office (FCDO) started the NABAPALLAB project from late 2023, where USAID Protibesh has already been operating since mid 2021. USAID stakeholders mentioned in consultations that the FCDO plans on building on USAID's co-management approach and discussing coordination mechanisms between Protibesh and NABAPALLAB for effective project impacts. Some specific ecosystems have received long-term follow-up interventions, such as the Sundarbans mangrove forest, Hakaluki Haor, Tanguar Haor, and Baikka Beel wetlands. Again, in this case, USAID stakeholders suggest that coordination mechanisms are beginning to emerge between UNDP and USAID Protibesh for Tanguar Haor. Southeast of Bangladesh or the Cox's Bazar region has also seen conservation interventions (e.g., USAID Local Works). Attention to the northwest region, on the other hand, is limited, despite evidence that this part of the country requires greater protection to adequately address threatened species.¹⁷⁶ A significant project which led to the establishment of three dolphin sanctuaries there is the Wetland Biodiversity Rehabilitation Project supported by GIZ. Besides the Sundarbans, the coast and its fisheries resources have also recently received attention through, for example, ECOFISH (Worldfish, DoF, USAID) and Sustainable Coastal and Marine Fisheries project (DoF, SDF, World Bank).

Over recent years, there are projects that have managed to establish a specific approach or tool as a best practice. For example, Spatial Monitoring and Reporting Tool (SMART) patrolling was included in the SRCWP¹⁷⁷ and the USAID Bagh Activity.¹⁷⁸ In 2017, the Bangladesh Forest Department, GIZ, and WCS collaborated and prepared the handbook on SMART patrolling in the Sundarbans.¹⁷⁹ The SMP supported by GIZ started supporting this surveillance activity on the ground. The ongoing Protection of Sundarbans

172 Akash, M., Feldman, M. J., Ghose, A., & Zakir, T. (2024). Assessing habitat selection of the vulnerable Asian small-clawed otters in an anthropized riparian forest of eastern Bangladesh. *Mammal Research*, 69(1), 101–114. <https://doi.org/10.1007/s13364-023-00721-2>.

173 Wight, A. (2021, April 25). Meet The Scientist Saving Sawfish From 'Cancer Cure' Myth. *Forbes*. <https://www.forbes.com/sites/andrewwight/2021/04/25/this-scientist-helps-save-the-cancer-curing-sawfish-in-bangladesh>.

174 Alam, A. B. M., Ahmed, S., Azmiri, K., Amin, R., Van Toor, M., Datta, A., Waldenström, J., Haque, E., & Chowdhury, S. (2023). Population trends and effects of local environmental factors on waterbirds at Tanguar Haor freshwater wetland complex in northeast Bangladesh. *Avian Conservation and Ecology*, 18(1), art18. <https://doi.org/10.5751/ACE-02405-180118>.

175 Creative conservation alliance | community conservation | bangladesh. (n.d.). Conservation. Retrieved August 1, 2024, from <https://www.conservationalliance.org>.

176 Chowdhury, S., Fuller, R. A., Rokonuzzaman, Md., Alam, S., Das, P., Siddika, A., Ahmed, S., Labi, M. M., Chowdhury, S. U., Mukul, S. A., Böhm, M., & Hanson, J. O. (2023). Insights from citizen science reveal priority areas for conserving biodiversity in Bangladesh. *One Earth*, 6(10), 1315–1325. <https://doi.org/10.1016/j.oneear.2023.08.025>.

177 Bangladesh Rolls out SMART Patrolling Across the Sundarbans. (2016, June 28). WCS Newsroom. <https://newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/9074/Bangladesh-Rolls-out-SMART-Patrolling-Across-the-Sundarbans.aspx>.

178 Uddin, N. (2019, April 11). Protecting the Bengal Tiger in the Bangladesh Sundarbans: Are SMART Patrol and Public Information Measures Effective? *The Oxford Martin Programme on Wildlife Trade*. <https://www.illegalwildlifetrade.net/2019/04/11/protecting-the-bengal-tiger-in-the-bangladesh-sundarbans-are-smart-patrol-and-public-information-measures-effective/>.

179 Bangladesh Forest Department, Ministry of Environment and Forests, Bangladesh/Wildlife Conservation Society, Bangladesh/Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. (2017, October). Handbook for SMART Patrols in the Sundarbans Mangrove Forest of Bangladesh. Wildlife Conservation Society. https://www.giz.de/de/downloads/2017_12_11_SMART%20Handbook_FINAL.pdf.

Mangrove Forest Project also included SMART patrolling in its list of activities,¹⁸⁰ as did the Protibesh Activity. Similarly, many projects have followed the PA Rules, which are a legal manifestation of community participation in conservation. Similarly, building on the community-based Elephant Response Team concept which a sub-project of the SRCWP trialed, IUCN-UNHCR's Human-Elephant Conflict project was designed with Rohingya refugees as members of Elephant Response Teams. USAID's Local Works Activity further scaled up the Elephant Response Team concept in the southeast region, as did the SUFAL project in the central-north region. Various projects also adapted this concept for application to other species. Examples include WildTeam/Bangladesh Forest Department's applications to tigers (Forest Tiger Response Team, Village Tiger Response Teams), IUCN/BFD's applications to dolphins (Dolphin Conservation Teams), and IUCN/BFD's application to vultures (Village Vulture Conservation Teams).

Another trend includes the declaration of MPAs, occasionally also called marine reserves. The MoFL declared the first marine reserve in 2000. The first MPA was Swatch of No Ground, which the MoEFCC declared in 2014 under the auspices of the *Wildlife Act 2012*. The MoFL, with facilitation from USAID ECOFISH, declared the third MPA, Nijhum Dwip MPA/Marine Reserve, in 2019. The MoEFCC then declared the St. Martin's Island MPA in 2022. Most recently, the MoFL declared the Naf MPA as Bangladesh's fifth MPA. However, stakeholders consulted for this analysis assess that no adequate resources have been put into managing any of these MPAs. Additionally, a 2015 review of MPA governance and management in Bangladesh suggested that improved environmental and social safeguarding was an area for policy improvement in the establishment of MPAs, implying that these safeguards had not been adequately considered in MPAs established prior.¹⁸¹ On land, the most significant addition to PAs since 2016 is the expansion of three existing Sundarbans PAs in 2017, which now cover 317,950.08 hectares, or 50 percent of the Bangladesh Sundarbans.¹⁸² Since 2016, 13 new PAs have been declared: one Special Biodiversity Conservation Area, one national botanical garden, one MPA, two national parks, three eco-parks, three dolphin sanctuaries, and two wildlife sanctuaries.

Review of available documentation from historic conservation projects in Bangladesh suggests that retention and management of knowledge generated from these is lacking. The sub-projects IUCN implemented under the SRCWP are well documented and all reports are publicly accessible through IUCN Portal, although the SRCWP and Red List websites became inactive a couple of years after the project closure.¹⁸³ Bangladesh Forest Information System is supposed to be the central hub for conservation knowledge management, but has limitations as it is not regularly updated. Even the launching of the recent shark-ray conservation strategy is not publicly available.

4.5 CONSERVATION FINANCE

In the wider environment sector, Bangladesh has found it increasingly crucial to secure improved financing to implement actions and sustain impacts. While comprehensive planning for biodiversity conservation (the first NBSAP in 2004) and climate change adaptation (National Adaptation Programme of Action in 2005) started around the same time in Bangladesh, climate action has come a long way compared with conservation in terms of organized financing. In Bangladesh, climate finance has gained immense traction,

180 Alam, S. D. A. (2024, May 18). New patrol outposts to enhance safety for Sundarbans forest guards. United News of Bangladesh. <https://www.unb.com.bd/category/Special/new-patrol-outposts-to-enhance-safety-for-sundarbans-forest-guards/135774>.

181 Taimur, F. M. (2015). Marine Protect Areas in Bangladesh: A Perspective on Governance and Management. Division for Ocean Affairs and the Law of the Sea (DOALOS), Office of Legal Affairs, United Nations. https://www.un.org/oceancapacity/sites/www.un.org.oceancapacity/files/unf-fellowship-thesis_faiz-taimur.pdf.

182 Protected Area: Introduction and List. (2023, August 22). Forest Department, Government of the People's Republic of Bangladesh. <https://bforest.gov.bd/site/page/5430ce33-561e-44f6-9827-ea1ebaa2c00d/->.

183 See <https://open.iucn.org/>, filtering search results for Bangladesh.

especially through formulating the *Bangladesh Climate Change Strategy and Action Plan 2009*, enacting *Bangladesh Climate Change Trust 2010*, and establishing the Bangladesh Climate Change Trust Fund (with domestic resources) and Bangladesh Climate Change Resilience Fund (as a multi-donor fund). From 2009 to 2023, the Bangladesh Climate Change Trust Fund allocated about \$321.2 million (BDT 37.77 billion) to 18 different government ministries to implement 908 projects. The Bangladesh Climate Change Resilience Fund, on the other hand, operated from 2010 to 2016 and spent \$188 million on 10 projects.¹⁸⁴

Conservation, in comparison, has largely depended on project-dependent finance from development partners, such as USAID, GIZ, World Bank, EU, FCDO, and Global Environment Facility and UNDP. In 2017, the Bangladesh Country Investment Plan (CIP) for Environment, Forestry and Climate Change (2016-2021) called for \$2.46 billion (BDT 289.12 billion) to implement necessary investments in the biodiversity and natural resources management sectors. Of this total, the CIP was estimated to only have secured \$0.642 billion, indicating a large funding gap of about 74 percent. For its part, the sixth National Report to the CBD reported that Bangladesh invested \$60 million (BDT 6.99 billion) during four consecutive fiscal years (from fiscal year 2015-2016 to fiscal year 2018-2019) in biodiversity conservation alone through the MoEFCC and its departments.¹⁸⁵ This investment pales in comparison to the sum invested in climate change through the Bangladesh Climate Change Trust Fund and the Bangladesh Climate Change Resilience Fund, and indicates a significant gap in funding conservation actions despite CIP's ambitious aspirations. Since 2016, the species conservation plans, such as vultures (2016-2025; \$1.02 billion [BDT 120 million]), tigers (2018-2027; \$10.89 million [BDT 1.28 billion]), elephants (2018-2027; \$21.19 million [BDT 2.49 billion]), and dolphins (2020-2030; \$13.36 million [BDT 1.57 billion]) also anticipated falling short of funding requirements. However, no data is publicly available on the progress of financing these plans, including NBSAPs.

Recently, provisions in various Bangladeshi laws and regulations have created opportunities to make conservation finance more organized. The ECA Rule (Article 23: 'Ecosystem Management Fund'), the PA Rule (Article 29), and the Biodiversity Act (Article 36: 'Biodiversity Conservation Fund') have provisions for creating new funds. This is particularly pertinent since the GBF/Biodiversity Plan expects that 85 percent of annual conservation funding requirements should be met from domestic sources in each country.

184 Finance Division, Ministry of Finance Government of the People's Republic of Bangladesh. (2024). Climate Financing for Sustainable Development, Budget Report 2024-2025. Ministry of Finance, Government of People's Republic of Bangladesh. https://mof.portal.gov.bd/sites/default/files/files/mof.portal.gov.bd/page/6e496a5b_f5c1_447b_bbb4_257a2d8a97a1/Climate%20English.pdf.

185 Irfanullah, H. M. (2023, January 31). Conservation finance and Bangladesh. *The Financial Express*. <https://today.thefinancialexpress.com.bd/views-opinion/conservation-finance-and-bangladesh-1675088674>.



Photo by Muhammad Arifur Rahman/USAID

5.

Threats to Biodiversity and Tropical Forests

This analysis identified the direct threats to Bangladesh’s biodiversity through consultations with local and international experts, a review of documentation, and site visits that included consultations with local communities. In general, the threats have not changed significantly from the previous analysis of biodiversity and tropical forests conducted in 2016.¹⁸⁶

In order of priority, habitat degradation and loss, unsustainable use and illegal exploitation, and pollution are the primary threats to biodiversity and tropical forests in Bangladesh. The primary drivers of these threats are economic development and livelihood security. The factors enabling threats include a lack of enforcement and awareness of policies, overlapping policies and jurisdictions, a lack of public awareness and advocacy for biodiversity, and weak institutional expertise.

5.1 DIRECT THREATS TO BIODIVERSITY

This analysis uses the [Conservation Measures Partnership 2.0 taxonomy](#) to categorize the direct threats to biodiversity in Bangladesh. In order of priority based on consultations and a review of literature, the threats are: 1) habitat degradation and loss caused by agriculture and aquaculture, transportation and service corridors, residential and commercial development, 2) unsustainable use and illegal exploitation, 3) pollution, 4) natural systems modifications (primarily dams), and 5) invasive species.

5.1.1 Habitat Degradation and Loss

Natural habitat loss, degradation, fragmentation, and encroachment are common, both in non-rich and rich biodiversity areas of Bangladesh. Wetlands are rapidly being converted for agriculture, commercial fisheries, and development. Natural tropical hill forests have been or are being converted in many places for various purposes such as newly introduced commercial plantations, new human settlements, commercial activities, road and infrastructure networks, and Rohingya refugee settlement.

Habitat loss and degradation are primarily due to the following threats detailed below.

5.1.1.1 Agriculture and Aquaculture

5.1.1.1.1 Annual and Perennial Non-Timber Crops

Forest: According to BFD, 30,431 hectares of reserved forests are subject to illegal agricultural practices across the country, including annual and perennial non-timber crops. Among all the districts, Cox’s Bazar has the largest amount of reserved forest land under illegal agricultural practice.¹⁸⁷ A joint survey by the Bangladesh Environmental Lawyers Association and the Youth Environment Society found that nearly 18 percent of the total 105,236 hectares of forested land in Cox’s Bazar had been claimed by 696 organizations and 43,568 individuals.¹⁸⁸ Furthermore, an additional 23,648 hectares of other kinds of forest lands are under such practices across the country.¹⁸⁹

The Chittagong Hill Tracts region has experienced a steady population increase in the last few decades. The majority of the ethnic communities living in the Chittagong Hill Tracts are involved in cultivation practices known as *jhum*. The surge in population growth, mostly due to influx of Bengali settlers to the area, but also to foreign settlers driven by political instability and water insecurity, has caused

186 Foster-Turley, P., Das, R., Hasan, Md. K., & Hossain, P. R. (2016). Bangladesh Tropical Forests and Biodiversity Assessment. USAID/ Bangladesh. <https://www.usaid.gov/sites/default/files/2022-05/Bangladesh-Tropical-Forests-and-Biodiversity-Assessment-2016.pdf>.

187 Encroachment on Reserved Forest Land. (2021, March 9). Bangladesh National Information Broadcasting; Forest Department, Government of the People’s Republic of Bangladesh. <https://bforest.gov.bd/site/page/2af62db3-0583-4f49-93bd-bc8bdbacabb9/>.

188 Hasnat, M. A. (2023, January 17). How much of Bangladesh’s protected forests are really protected? *Mongabay Environmental News*. <https://news.mongabay.com/2023/01/how-much-of-bangladeshs-protected-forests-are-really-protected/>.

189 Encroachment on Reserved Forest Land. (2021, March 9). Bangladesh National Information Broadcasting; Forest Department, Government of the People’s Republic of Bangladesh. <https://bforest.gov.bd/site/page/2af62db3-0583-4f49-93bd-bc8bdbacabb9/>.

ethnic groups to move to new areas and convert forest in search of suitable lands for *jhum* cultivation. An additional issue is that *jhum* is now being coupled with permanent agriculture practices such as tobacco, cassava, and other cash crops.¹⁹⁰ These crops are causing a loss of forest directly, but also indirectly—drying tobacco, for example, requires charcoal which is supplied from nearby reserved and unclassed forests. All these activities have resulted in the loss of 104,000 hectares of tropical forest in Bandarban—one of the three districts in the Chittagong Hill Tracts—between 2001 and 2023.¹⁹¹ The other two districts of the Chittagong Hill Tracts, Khagrachhari and Rangamati, lost 31,700 and 72,200 hectares of forests respectively during the same period due to similar causes. In Khagrachhari, 485 hectares of forest land were cleared last year for cassava plantation in one sub-district, and the PRAN corporation is planning to scale up this production over 4,000 hectares across Chittagong Hill Tracts by 2026.¹⁹²

The loss of forest in the Chittagong Hill Tracts also means the loss of crucial habitat for globally endangered tigers and elephants. Tigers are now locally extinct in the Chittagong Hill Tracts and neighboring landscape of India and Myanmar. While poaching contributes to the problem, habitat loss is also a factor.

Wetlands: In terms of wetlands, the Chalan Beel once covered an area of approximately 651,230 acres in 1967. Currently, the permanently flooded area of the Chalan Beel has been reduced to about 18,120 acres. Tanguar Haor, a Ramsar Site and an ECA, has lost 40 percent of its original basin area.¹⁹³ Much of the loss of both areas is due to agricultural expansion but also other emerging threats, such as tourism, commercial fisheries, and industrial waste.

5.1.1.1.2 Wood and Pulp Plantations

Though the demand for total wood in the country may start to decline from 2030, the demand for industrial wood or timber is likely to continue to rise in future.¹⁹⁴ Natural tropical hill forests have been converted or are being converted in many places for commercial plantations. Planting of fast-growing exotic tree species (*Acacia spp*) by the Bangladesh Forest Department in barren or degraded hills and other areas has also created threats to the remaining native species; similar threats occurred due to the planting of Teak trees (*Tectona grandis*) in the hill forest areas. Throughout the country, demand for sal trees (*Shorea robusta*), which are illegally collected from the deciduous forests, continues. In 1973 the total extent of the sal forest was 10,000 hectares in Madhupur National Park, whereas in 2015 it was reduced to around 2500 hectares. Most of the National Park is now covered by rubber and acacia plantations under the social forestry initiative taken by the Forest Department.

5.1.1.1.3 Livestock Farming

Stakeholders consulted for this analysis reported that the expansion of livestock farming into wetlands poses a threat to wetland habitats. There is little data available to reflect the scale or extent of this

190 Golam Rasul. (2015). A Strategic Framework for Sustainable Development in the Chittagong Hill Tracts of Bangladesh. Unpublished. <https://doi.org/10.13140/RG.2.1.1196.2963>.

191 Global Forest Watch. (n.d.). Bangladesh deforestation rates & statistics. Retrieved July 19, 2024, from <https://www.globalforestwatch.org/dashboards/country/BGD/?category=forest-change>.

192 Illius, S. (2024, April 20). CHT forests being razed for cassava farming, harming biodiversity. The Business Standard. <https://www.globalforestwatch.org/dashboards/country/BGD/>.

193 Haque, M. I., and Basak, R. (2017). Land cover change detection using GIS and remote sensing techniques: A spatio-temporal study on Tanguar Haor, Sunamganj, Bangladesh. *The Egyptian Journal of Remote Sensing and Space Science*. 20, 251-263. <https://doi.org/10.1016/j.ejrs.2016.12.003>.

194 Hossain, M. K. (2016). Bangladesh National Conservation Strategy—Biodiversity: Flora. IUCN, Forest Department, Government of the People's Republic of Bangladesh. https://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/notes/c3379d22_ee62_4dec_9e29_75171074d885/5.%20Biodiversity%20Flora_NCS.pdf.

issue. Recent literature suggests that increased droughts and variability in rainfall associated with climate change can reduce available drinking water and grass for livestock, perhaps serving as a motivating factor for increased incursions into wetlands.¹⁹⁵

5.1.1.1.4 Marine and Freshwater Aquaculture

Chakaria Sundarbans, a mangrove forest in Cox's Bazar district, lost around 7,600 hectares of mangrove plants due to introduction of marine aquaculture funded by UNDP and the World Bank in 1986.

Donors invested \$26 million (BDT 3.05 billion), which yielded 500 new shrimp farms, occupying four hectares each.¹⁹⁶ Shrimp farms in the vicinity of the Sundarbans in the Khulna-Bagerhat and Satkhira districts also deteriorated local biodiversity by increasing salinity in local waters.

5.1.1.2 Transportation and Service Corridors

5.1.1.2.1 Roads and Railroads

Recent expansion of the railroads in eastern Bangladesh has encroached on habitats in several national parks and wildlife sanctuaries, such as Chunati Wildlife Sanctuary, Medhakhachapia National Park, and Dudhpukuria-Dhopacharia Wildlife Sanctuary. One railroad crosses the elephant corridor. An environmental media report showed that there are 1,618 kilometers of road in 38 restricted forests in Bangladesh; some of the roads are as wide as 15 meters.¹⁹⁷ Furthermore, such roads often further contribute to animal mortality due to roadkill. Studies in Lawachara and Satchari National Park recorded significant numbers of roadkill affecting several globally threatened species.¹⁹⁸

5.1.1.2.2 Utility and Service Lines

With the increasing electrification of Bangladesh, power lines are an issue for the integrity of wetlands and grasslands. In addition to cutting through habitats, power lines can also be a problem for wildlife. For example, one wildlife expert expressed during consultations that birds in wetlands are often killed when hitting the power lines.

5.1.1.2.3 Shipping Lanes

Shipping lanes also have a negative impact on biodiversity. For example, a lane in the river Passur in the Sundarbans bifurcated the tiger population. Recent surveys recorded only one male tiger on the western part of the Passur River, whereas there are several males in the eastern part including sub-adults.¹⁹⁹ This bifurcation is further hindering gene flow of the tigers in the Sundarbans and practically dividing tigers into two sub-populations.

Furthermore, some anecdotal reports suggest that the shipping lane between Bangladesh and India via

195 Moller, K., Eeswaran, R., Nejadhashemi, A. P., & Hernandez-Suarez, J. S. (2023). Livestock and aquaculture farming in Bangladesh: Current and future challenges and opportunities. *Cogent Food & Agriculture*, 9(1), 2241274. <https://doi.org/10.1080/23311932.2023.2241274>.

196 Saha, P. S. (2024, March 21). Three projects in which forests have been destroyed. *Prothomalo*. <https://www.prothomalo.com/opinion/column/q1m1s8t2ee>.

197 Aziz, M. (2022, December 21). Wildlife at risk in Bangladesh as roads run rampant through protected forests. *Mongabay Environmental News*. <https://news.mongabay.com/2022/12/wildlife-at-risk-in-bangladesh-as-roads-run-rampant-through-protected-forests/>.

198 Aziz, M. 2022.

199 Aziz, M.A., Smith, O., Barlow, A., Tollington, S., Islam, M.A. and Groombridge, J. J., (2018). Do rivers influence fine-scale population genetic structure of tigers in the Sundarbans?. *Conservation Genetics*, 19, pp.1137-1151. <https://doi.org/10.1007/s10592-018-1084-5>; Aziz, M. A., Kabir, M. J., Shamsuddoha, M., Ahsan, M. M., Sharma, S., Chakma, S., Jahid, M., Chowdhury M. M. R., and Rahman, S. M. (2019). Second Phase Status of Tigers in Bangladesh Sundarbans 2018. Department of Zoology, Jahangirnagar University; WildTeam, Bangladesh; Forest Department. 38 pages. https://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/page/bb40dcf3_5140_49c8_9b54_9b43993607ac/Tiger%20Report%202019.pdf.

Sundarbans is heavily used for wildlife trafficking. For example, there are anecdotal reports that there is minimal scrutiny of ships passing to India through shipping lanes via the Sundarbans, which makes this a route for moving recently killed tigers out of Bangladesh.

5.1.1.3 Residential and Commercial Development

5.1.1.3.1 Housing and Urban Areas

The share of Bangladeshis living in urban areas increased from seven percent following independence in 1971 to 35 percent as of 2021.²⁰⁰ The World Bank estimates the ongoing annual rate of urbanization in Bangladesh is 2.9 percent.²⁰¹ During 1988 to 2022, the population of Dhaka swelled from 5.7 million people to more than 22 million. That tremendous rate of growth has made Bangladesh's capital among the most densely populated cities in the world.²⁰² Reports show that the average rate of urbanization to Dhaka alone was around eight percent from 1991 to 2019.²⁰³

Nawar et al. (2022) reported that there was a 56 percent decline in vegetation cover in Dhaka city over a similar timeframe.²⁰⁴ In discrete terms, the total green space in Dhaka city declined from 12,745 hectares in 1989 to 5,599 hectares in 2020 (Figure 19). According to urban tree inventory data from 2022-2023, collected as part of USAID's Compass program, there is less than 11 percent urban tree cover in both Dhaka North City Corporation and Dhaka South City Corporation.²⁰⁵ Another study showed that the diversity and size of butterfly populations in Dhaka declined abruptly between 2014 to 2016, mostly attributed to conversion of green space.²⁰⁶ The expansion of some major residential areas in Dhaka city (e.g., Purbachal) affected the greater floodplain surrounding Dhaka city, which destroyed habitat for species, such as globally threatened fishing cats. Moreover, other expansions (e.g., military cantonment) also destroyed habitat for flood plain-dependent carnivores and their prey.²⁰⁷

200 Lipi, A. I., & Hasan, N. (2021). URBANIZATION IN BANGLADESH: EMERGING CHALLENGES AND THE WAY FORWARD. *Bangladesh Journal of Multidisciplinary Scientific Research*, 3(1), 33–44. <https://doi.org/10.46281/bjmsr.v3i1.1112>.

201 Urban population growth (annual %). (n.d.). World Bank Open Data. Retrieved July 18, 2024, from https://data.worldbank.org/indicator/SP.URB.GROW?most_recent_value_desc=true.

202 Rising flood risks in Bangladesh. (2022, August 31). [Text.Article]. <https://earthobservatory.nasa.gov/images/150274/rising-flood-risks-in-bangladesh#:~:text=From%201988%20to%202022%2C%20the,in%20areas%20prone%20to%20flooding>.

203 Roy, S. (2021). URBANISATION IN BANGLADESH: CHALLENGES AND WAY FORWARD (23rd ASEF Summer University, p. 15) [Background Paper]. Asia-Europe Foundation. https://asef.org/wp-content/uploads/2021/11/ASEFSU23-Background-Paper_Sustainable-Urbanisation-in-Bangladesh-Dhaka.pdf.

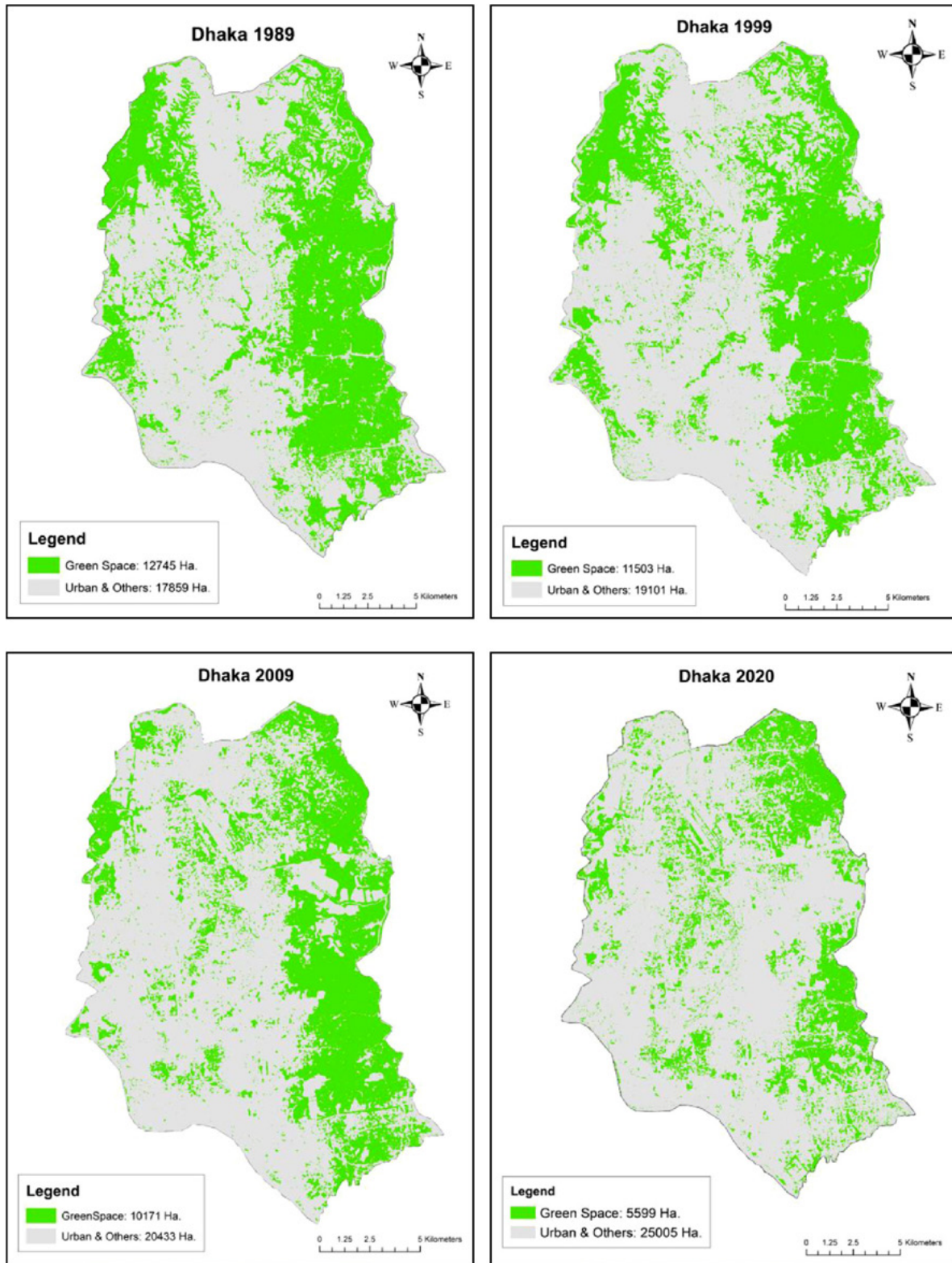
204 Nawar, N., Sorker, R., Chowdhury, F. J., & Mostafizur Rahman, Md. (2022). Present status and historical changes of urban green space in Dhaka city, Bangladesh: A remote sensing driven approach. *Environmental Challenges*, 6, 100425. <https://doi.org/10.1016/j.envc.2021.100425>.

205 USAID-USFS Compass Program. (nd). The value of Dhaka 's urban trees: Results from the city's first urban tree inventor. <https://usfsbd.org/ckeditor/uploads/Urban%20tree%20inventory%20Policy%20Brief.pdf>.

206 Chowdhury, M. K. A., (2012). Conservation and Sustainable Use of Plant Genetic Resources in Bangladesh. Bangladesh Agricultural Research Council, Dhaka. <http://apps.barc.gov.bd/pgafa/reports/bangladesh3.pdf>.

207 Rahman, H.A., (2017). Mammal biodiversity in the northeast forests, and the distribution of fishing cats in Bangladesh. University of Delaware. <http://udspace.udel.edu/handle/19716/23102>.

Figure 19: Change in Green Space in Dhaka due to Rapid Urbanization (1989-2020)²⁰⁸



208 Nawar, N., Sorker, R., Chowdhury, F. J., & Mostafizur Rahman, Md. (2022). Present status and historical changes of urban green space in Dhaka city, Bangladesh: A remote sensing driven approach. *Environmental Challenges*, 6, 100425. <https://doi.org/10.1016/j.envc.2021.100425>.

Other cities in Bangladesh have experienced similar growth and associated severe environmental degradation. The impact of urbanization can be categorized as destruction of green spaces and waterbodies, which provide critical island habitat for urban wildlife. For instance, Chittagong, the second largest city in Bangladesh, has lost 10 percent of its water bodies every year between 1989 to 2015. Such urban water bodies play a crucial role in providing habitats for amphibians, birds, and aquatic biodiversity.²⁰⁹

In the southeast, the influx of the Rohingya refugees from neighboring Myanmar caused the degradation of over 2,000 hectares of forest land in Cox's Bazar due to the building of settlements for the refugees and their need for wood and other resources.²¹⁰ There have been similar impacts from refugees in the Bandarban District. As discussed in previous sections, these settlements also increased the risk of human-wildlife conflict, especially with elephants.

5.1.1.3.2 Commercial and Industrial Areas

The industrial sector has seen vast expansion in the last 50 years. The number of factories has multiplied 150 times, and some of this expansion is into forests and other natural habitats.²¹¹ For example, factories and industries have occupied 665 hectares of forest land across the country.²¹² The recent surge in establishment of factories in the Sitakunda and Anwara sub-districts of Chattogram District changed the landscape and often destroyed wildlife corridors close to several protected areas in the region.

Economic land concessions pose a threat even to the better protected forest geographies in Bangladesh, such as the Sundarbans. For example, as of 2018, the Government of Bangladesh had approved more than 320 projects in the Sundarbans area, including a 1320-megawatt coal-fired power plant within 14 kilometers of the boundary of the reserved forest.²¹³

5.1.2 Unsustainable Use and Illegal Exploitation

5.1.2.1 Biological Resource Use

5.1.2.1.1 Hunting and Collecting Terrestrial Animals

Wildlife crime as specified by USAID (i.e., poaching, trade, and trafficking) is one of the key causes of declining wildlife biodiversity in Bangladesh and includes subsistence hunting as well as commercial poaching.²¹⁴ For instance, spotted deer are one of the most vulnerable against highly widespread snaring, mostly for consumption of meat and trade. Illegal snaring of spotted deer indirectly affects their main

209 Molla, M. H., Chowdhury, M. A. T., & Islam, A. Z. Md. Z. (2021). Spatiotemporal Change of Urban Water Bodies in Bangladesh: A Case Study of Chittagong Metropolitan City Using Remote Sensing (RS) and GIS Analytic Techniques, 1989–2015. *Journal of the Indian Society of Remote Sensing*, 49(4), 773–792. <https://doi.org/10.1007/s12524-020-01201-9>.

210 Sarkar, S. K., Saroar, M., & Chakraborty, T. (2023). Navigating nature's toll: Assessing the ecological impact of the refugee crisis in Cox's Bazar, Bangladesh. *Heliyon*, 9(7), e18255. <https://doi.org/10.1016/j.heliyon.2023.e18255>.

211 Shah, J. (2022, March 27). Industries see growth from 313 factories to 46,000. *Prothomalo English*. <https://en.prothomalo.com/business/industries-see-growth-from-313-factories-to-46000>.

212 Encroachment on Reserved Forest Land. (2021, March 9). Bangladesh National Information Broadcasting; Forest Department, Government of the People's Republic of Bangladesh. <https://bforest.gov.bd/site/page/2af62db3-0583-4f49-93bd-bc8bdbacabb9/>.

213 Bangladesh: World Heritage Site threatened by 'heedless industrialisation'—UN expert. (2018, July 31). *UN News*. <https://news.un.org/en/story/2018/07/1015992>.

214 Environmental Incentives, LLC, Foundations of Success, & ICF International. (2017). *Measuring Efforts to Combat Wildlife Crime: A Toolkit for Improving Action and Accountability*. USAID. https://pdf.usaid.gov/pdf_docs/PA00KQR6.pdf.

predator, tigers.²¹⁵ Poachers deploy different types of snares to kill spotted deer. In some cases, they later poison dead deer to kill tigers. A recent study found evidence that the eradication of organized bandit groups from the Sundarbans facilitated petty poachers to take over the empty ground.²¹⁶ These small groups are now responsible for most of the deer and tiger poaching in the Sundarbans.

Widespread snaring kills almost all types of species in Chittagong Hill Tracts, including mammals, tortoises, and reptiles. Surveys in different parts of Chittagong Hill Tracts reveal poachers deploy snares indiscriminately. In most cases, they target ungulates, such as sambar deer (*Rusa unicorn*), muntjac (*Muntiacus vaginalis*), and wild boar (*Sus scrofa*).²¹⁷ However, the snares also kill other large mammals, including predators such as dhole (*Cuon alpinus*), Asiatic black bear (*Ursus thibetanus*), Malayan sun bear (*Helarctos malayanus*), and smaller carnivores, like the greater hog badger (*Arctonyx collaris*). Many of these species are listed as globally threatened by the global IUCN Red List. Although Bangladesh's Wildlife Act 2012 punishes the illegal killing of wildlife with serious fines and jail time, enforcement of the law is lacking, and the most severe penalties are reserved for killing tigers and elephants. The penalties for other species are far less severe.²¹⁸

Snaring and targeted take for global trafficking have decimated the Chinese pangolin (*Manis pentadactyla*) population in Bangladesh.²¹⁹

Direct killing out of perceived fear also threatens many species, such as fishing cats. People perceive this globally threatened cat as a “lesser tiger” and kill them to protect their fish and livestock.²²⁰

Trafficking also affects several species—mainly tigers, birds, turtles, tortoises, spotted deer, small cats, and monkeys in the pet trade. Uddin et al. (2022b) argues that rich Bangladeshi diaspora in the Middle East and Europe are the main consumers of such traded animals.²²¹

5.1.2.1.2 Logging and Wood Harvesting

Wood and pulp plantations have placed immense pressure on forest habitats in Bangladesh; however, unsustainable use of wood for other purposes also threatens to destroy or degrade forest habitats. A study of Teknaf Wildlife Sanctuary in Cox's Bazar—a reserve forest since 1907—found that forest cover decreased by 64 percent between 1989 and 2015. During the same period of time forest cover in the

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- 215 Aziz, M. A., Tollington, S., Barlow, A., Goodrich, J., Shamsuddoha, M., Islam, M. A., & Groombridge, J. J. (2017). Investigating patterns of tiger and prey poaching in the Bangladesh Sundarbans: Implications for improved management. *Global Ecology and Conservation*, 9, 70–81. <https://doi.org/10.1016/j.gecco.2016.12.001>; Mohsanin, S., Barlow, A. C. D., Greenwood, C. J., Islam, M. A., Kabir, M. M., Rahman, M. M., & Howlader, A. (2013). Assessing the threat of human consumption of tiger prey in the Bangladesh Sundarbans. *Animal Conservation*, 16(1), 69–76. <https://doi.org/10.1111/j.1469-1795.2012.00571.x>.
- 216 Uddin, N., Enoch, S., Harihar, A., Pickles, R. S. A., Ara, T., & Hughes, A. C. (2023a). Learning from perpetrator replacement to remove crime opportunities and prevent poaching of the Sundarbans tiger. *Conservation Biology*, 37(2), e13997. <https://doi.org/10.1111/cobi.13997>.
- 217 Creative Conservation Alliance. (2016). A Preliminary Wildlife Survey in Sangu-Matamuhuri Reserve Forest, Chittagong Hill Tracts, Bangladesh (p. 24). Unpublished report submitted to Bangladesh Forest Department. http://www.rhinosourcecenter.com/pdf_files/156/1563611856.pdf.
- 218 Islam, Md. Z., & Zheng, X. (2023). Combating illegal wildlife trade and conserving biodiversity in Bangladesh through legal provisions. *Israel Journal of Ecology and Evolution*, 69(03–04), 127–138. <https://doi.org/10.1163/22244662-bja10055>.
- 219 Ghose, A., (2024) Conversation with Animesh Ghose, 5 July.
- 220 Chowdhury, S. U., Chowdhury, A., Ahmed, S., & Muzaffar, S. B. (2015). Human-fishing cat conflicts and conservation needs of fishing cats in Bangladesh. *CATnews*, 62(Spring 2015). https://www.researchgate.net/publication/343471962_Human-fishing_cat_conflicts_and_conservation_needs_of_fishing_cats_in_Bangladesh.
- 221 Uddin, N., Enoch, S., Harihar, A., Pickles, R. S. A., & Hughes, A. C. (2023b). Tigers at a crossroads: Shedding light on the role of Bangladesh in the illegal trade of this iconic big cat. *Conservation Science and Practice*, 5(7), e12952. <https://doi.org/10.1111/csp2.12952>.

wider Teknaf Peninsula declined by 46 percent.²²² A total of 1,735 hectares of forest cover was lost, and forest decreased from 18 percent to 10 percent of the total area. The study suggested that the main driver of deforestation was the local community and demand for firewood.

Wood harvesting from the other parts of the country especially Chittagong Hill Tracts and Northeast also caused severe decline of forest cover. Global Forest Watch estimated that the entire Chittagong Hill Tracts has lost over 200,000 hectares of primary forest cover during 2002-2023, which is the highest in the country. Although this loss is mostly attributed to expansion of agriculture, illegal logging has also contributed significantly, especially in reserve forests, e.g., Sangu-Matamuhuri, Rainkhong, Pablakhali, and Kasalong.

5.1.2.1.3 Fishing and Harvesting Aquatic Resources

Overfishing is most likely the biggest threat to the freshwater aquatic and marine ecosystem. The use of different kinds of illegal nets, such as current nets and monofilament gill nets, as well as the draining of water bodies, are destroying fish diversity. One of the key reasons for overfishing is that local varieties of fish are sold at a higher price in the market.²²³ Poison fishing also occurs in the Sundarbans and other parts of the country, which impacts both aquatic and water-dependent species, like birds and insects.²²⁴

Some particular types of fishing gear used in the Bay of Bengal are also problematic. For instance, unbaited long lines with thousands of J-hooks, locally known as *Hajari Birshi* and used for targeted ray fishing, often catch pregnant sharks and rays. Overfishing and targeted catch practices caused a severe decline in the population of critically endangered Largetooth sawfish (*Pristis pristis*).²²⁵

A countrywide assessment of sharks and rays conducted by Bangladesh Forest Department and WCS Bangladesh establish that medium mesh *hilsa* gillnets and set bag nets are most commonly responsible for catching sharks and rays across the country. The study reported that medium mesh gillnets caught almost half (49.5 percent) of sharks recorded in seven fishery landing sites across Bangladesh, whereas set bag nets caught 24 percent. The remaining sharks were caught in large-mesh gillnets (16.3 percent), baited mid-water longlines (7.3 percent), unbaited bottom longlines (1.4 percent), bottom trawl nets (0.6 percent), and longshore nets (0.6 percent).²²⁶ The same assessment also reported that medium mesh gillnets and set bag nets were responsible for 32 percent and 32.4 percent of the total ray catches, respectively. Longlines with baited hooks and large mesh gillnets accounted for 16.3 percent and 13.6 percent of total ray catches, respectively, with the remaining 5.7 percent of rays caught in bottom trawling and longshore nets and longlines with unbaited hooks.²²⁷

Although there is not a quantitative assessment of the scale of illegal, unregulated, and unreported fishing in Bangladesh or its effect on biodiversity, a recent qualitative study drawing on 93 in-depth

222 Ullah, S. M. A., Tani, M., Tsuchiya, J., Rahman, M. A., & Moriyama, M. (2022). Impact of protected areas and co-management on forest cover: A case study from Teknaf Wildlife Sanctuary, Bangladesh. *Land Use Policy*, 113, 105932. <https://doi.org/10.1016/j.landusepol.2021.105932>.

223 Islam, R. (2022, October 20). Habitat loss, climate change threaten Bangladesh's native freshwater fishes with extinction. *Mongabay Environmental News*. <https://news.mongabay.com/2022/10/habitat-destruction-climate-change-threaten-bangladeshs-native-freshwater-fishes-with-extinction/>.

224 Parvin, F. (2023, September 1). Court order fails to stop poison fishing in Bangladesh Sundarbans. <https://news.mongabay.com/2023/09/court-order-fails-to-stop-poison-fishing-in-bangladesh-sundarbans/>; Wildlife Conservation Society. (2021). Protecting tigers in the Bangladesh Sundarbans through strengthened SMART patrols and improved understanding of wildlife crimes. Final Report submitted to US Fish and Wildlife Service. <https://datastore.iatistandard.org/activity/US-GOV-9-F18AP00859-62020>.

225 Consultation with Alifa Bintha Haque.

226 Bangladesh Forest Department and Wildlife Conservation Society (WCS). (2021). Shark and Ray Assessment Report: Baseline information on the status, threats and governance in Bangladesh. Bangladesh Forest Department, Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh.

227 BFD & WCS Bangladesh 2021.

interviews with institutional stakeholders and fisherfolk across three coastal districts concludes that illegal, unregulated, and unreported fishing has led to the extinction of important fish species, biodiversity loss, and increased poverty among fishers.²²⁸

5.1.3 Pollution

Pollution of water and soil from industrial effluents, agricultural runoff (pesticides, fertilizers), domestic sewage, and solid waste disposal pose a threat to human health and biodiversity in Bangladesh.²²⁹ Industrial waste, domestic waste, and sewage have destroyed the biodiversity of four rivers (e.g., Balu, Lakkha, Turag, and Buriganga) which surround Dhaka city, compelling the DoE to declare those rivers as ECAs.²³⁰ Water testing from Waterkeepers Bangladesh implemented as part of the Blue Planet Initiative found evidence of possible industrial effluent in areas surrounding garment factories and tanneries based on elevated pH values, total dissolved solids, and electrical conductivity in nearby rivers.²³¹

Threats to soil- and water-dependent biodiversity also occur due to excessive use of pesticide, herbicide, and fertilizer in agro-lands—all of which contaminate the soil and impact the native flora and fauna as well as their ecosystems. For example, agriculture contributes to high concentrations of groundwater nitrate pollution.²³² According to the Department of Agricultural Extension, about 37,422 metric tons of pesticide were used in agriculture in 2020, threatening freshwater fishes.²³³ In most cases, farmers do not know which pesticide, herbicide, or fertilizer is banned or considered harmful as per country laws. This lack of awareness combined with poor enforcement enables them to use environmentally harmful agricultural inputs without consequence. One study estimated a loss of 38 percent of timber and 42 percent of medicinal plants in six villages in a sub-district of Puthia in Rajshahi due to chemical fertilizers used for agriculture.²³⁴

Other examples of pollution include oil spills from vessels and boats. Sinking of vessels that carry coal, chemicals, oil, cement, and other products are a source of pollution. In 2014, an oil spill occurred from vessels sunk in the Shela River of Sundarbans. In 2018, coal-carrying vessels sank in the Passur River inside the Sundarbans. In both cases, the spills degraded the habitat and caused the loss of biodiversity. In 2024, contamination in the Karnaphuli River of Chittagong occurred due to burnt sugar that came from nearby refined sugar mills.

228 Mozumder, M. M. H., Uddin, M. M., Schneider, P., Deb, D., Hasan, M., Saif, S. B., & Nur, A.-A. U. (2023). Governance of illegal, unreported, and unregulated (IUU) fishing in Bangladesh: Status, challenges, and potentials. *Frontiers in Marine Science*, 10, 1150213. <https://doi.org/10.3389/fmars.2023.1150213>.

229 Faroque, S., & South, N. (2022). Water pollution and environmental injustices in Bangladesh. *International Journal for Crime, Justice and Social Democracy*, 11(1), [1]-13. <https://search.informit.org/doi/10.3316/informit.379361627253270>.

230 Alam, S. M. K., Li, P., & Fida, M. (2024). Groundwater nitrate pollution due to excessive use of n-fertilizers in rural areas of Bangladesh: Pollution status, health risk, source contribution, and future impacts. *Exposure and Health*, 16(1), 159–182. <https://doi.org/10.1007/s12403-023-00545-0>.

231 2019. Inception Analysis and Mapping of Action Research on Water Impacts Survey- Dhaka, Bangladesh. <https://waterkeepersbangladesh.org/inception-analysis-and-mapping-of-action-research-on-water-impacts-iamarwi-survey-%e2%80%90dhaka-bangladesh/>.

232 Alam et al. 2024.

233 Islam, R. (2022, October 20). Habitat loss, climate change threaten Bangladesh's native freshwater fishes with extinction. *Mongabay Environmental News*. <https://news.mongabay.com/2022/10/habitat-destruction-climate-change-threaten-bangladeshs-native-freshwater-fishes-with-extinction/>.

234 Rahman, A., Rahman, R., Ali, Y., Ara, I., Javed, A., Rahman, A., & Das, S. (2018). Effects of Agricultural Practices on Biodiversity in Bangladesh. *American Journal of Environmental Protection*, 6(3), 54–58. https://www.researchgate.net/publication/350459226_Effects_of_Agricultural_Practices_on_Biodiversity_in_Bangladesh.

Polythene and other plastics are also accumulating in the waterways and land ecosystems, which disrupts food chains and poses a threat to biodiversity.²³⁵

The severity of air pollution in Bangladesh is also a major public health concern. Just as air pollution severely impacts the health of humans, it also has implications for the health of wildlife. Impacts include decreased reproduction and respiratory issues, especially in birds.²³⁶

5.1.4 Natural System Modifications

5.1.4.1 Dams and Water Management and Use

Dams, primarily ones located in India, negatively impact habitat and wildlife—as well as people’s livelihoods—in Bangladesh.²³⁷ Dams alter natural flow patterns, affecting sediment transport, nutrient distribution, and breeding grounds for fish species. Changes in river flows and water quality harm fish reproduction and survival, impacting both commercially important species and those crucial to the ecosystem. Reduced water flow downstream of dams leads to saltwater intrusion, affecting coastal ecosystems and reducing the productivity of inundated lands.

The Farakka and Teesta barrages in India, on the Ganges and Teesta rivers respectively, impact water availability in northwest Bangladesh. The Farakka barrage also harms the Sundarbans by decreasing natural sedimentation, which buffers against rising sea level.²³⁸ Due to this barrage there is no freshwater flow in the western part of the Sundarbans. This lack of freshwater flow directly impacts the vegetation diversity, which is much lower compared to the eastern part, where freshwater flows all through the year.²³⁹

Sand extraction—much of it illegal—and dredging are also modifications of river systems with negative consequences for biodiversity.²⁴⁰

5.1.5 Invasive and Problematic Species, Pathogens, and Genes

Threats to biodiversity are gradually increasing due to the spread of invasive species throughout the country. Although information on invasive alien animal species in Bangladesh is limited, a recent study identified 69 invasive alien species, including 46 plants, 16 fish, five insects, one avian, and one mollusk. These species, introduced primarily from South America, Asia, Africa, and Australia for food and timber,

235 Chowdhury, M. A. H., Hossain, M. A., Islam, M. S., & Rahman, M. M. (2021). Plastic pollution in aquatic systems in Bangladesh: A review of current knowledge. https://www.researchgate.net/publication/346453987_Plastic_pollution_in_aquatic_systems_in_Bangladesh_A_review_of_current_knowledge.

236 Eusebi, E. (2023, June 15). Clean air day: Exploring the effects of air pollution on wildlife. Scottish Wildlife Trust. <https://scottishwildlifetrust.org.uk/2023/06/clean-air-day-exploring-the-effects-of-air-pollution-on-wildlife/>; Aulsebrook, L. C., Bertram, M. G., Martin, J. M., Aulsebrook, A. E., Brodin, T., Evans, J. P., Hall, M. D., O’Byrne, M. K., Pask, A. J., Tyler, C. R., & Wong, B. B. M. (2020). Reproduction in a polluted world: Implications for wildlife. *Reproduction*, 160(2), R13–R23. <https://doi.org/10.1530/REP-20-0154>.

237 Rahman, S. (2019, October 2). Farakka now boomerangs on India. *The Business Standard*. <https://www.tbsnews.net/environment/farakka-now-boomerangs-india>.

238 Raff, J. L., Goodbred, S. L., Pickering, J. L., Sincavage, R. S., Ayers, J. C., Hossain, Md. S., Wilson, C. A., Paola, C., Steckler, M. S., Mondal, D. R., Grimaud, J.-L., Grall, C. J., Rogers, K. G., Ahmed, K. M., Akhter, S. H., Carlson, B. N., Chamberlain, E. L., Dejtter, M., Gilligan, J. M., ... Williams, L. A. (2023). Sediment delivery to sustain the Ganges-Brahmaputra delta under climate change and anthropogenic impacts. *Nature Communications*, 14(1), 2429. <https://doi.org/10.1038/s41467-023-38057-9>.

239 Sarker, S. K., Reeve, R., Paul, N. K., & Matthiopoulos, J. (2019). Modelling spatial biodiversity in the world’s largest mangrove ecosystem—The Bangladesh Sundarbans: A baseline for conservation. *Diversity and Distributions*, 25(5), 729–742. <https://doi.org/10.1111/ddi.12887>.

240 Rentier, E. S., & Cammeraat, L. H. (2022). The environmental impacts of river sand mining. *Science of The Total Environment*, 838(1), 155877. doi:10.1016/j.scitotenv.2022.155877;

now threaten native flora, fauna, and ecosystems (see [Figure C-1](#)).^{241, 242} The common invasive floral species (e.g., Water hyacinth [*Eichhornia crassipes*], Lantana [*Lantana camara*], and *Acacia spp.* and *Eucalyptus spp.*) in villages and forest lands are creating problems for aquatic and terrestrial bio-habitats throughout the country. Invasive fish species, like the armored catfish (*Pterygoplichthys multiradiatus*) and tilapia (*Oreochromis spp.*), have spread in aquatic habitats. Two species of tilapia, *Oreochromis mosambicus* and *O. niloticus*, are of greatest concern because these species have invaded all available river habitats, including estuaries.²⁴³

5.2 DRIVERS AND ENABLERS OF THREATS

5.2.1 Drivers

Drivers are commonly referred to as indirect threats, factors, or forces that cause the direct threats. The primary drivers of biodiversity change in Bangladesh are economic development and livelihood security.

5.2.1.1 Economic Development

As Bangladesh's population and per capita income grow, the demand for food, water, and land intensifies. This leads to the conversion of natural habitats for agriculture, infrastructure development, and settlements. Increased incomes among the middle and upper class drive many of the threats due to their increased consumption of agriculture, aquaculture, timber, and illegal wildlife products. Rising incomes drive many of the urban development, agricultural, and pollution threats.

5.2.1.2 Livelihood Security

For many rural communities, natural resources are a vital source of income and subsistence. This dependence can lead to overexploitation, particularly when their participation in governance and management of natural resources is limited, leaving them few to no opportunities other than unsustainable practices.

5.2.2 Constraints

A constraint is a factor that does not drive or cause the threats but can enable or allow them to occur. Constraints are often factors that are lacking or insufficient. Constraints are often an opportunity and can serve as entry points for conservation. Stakeholders consulted for this analysis consistently asserted that shortcomings in the implementation of policy and enforcement of laws were important constraints to biodiversity conservation. Stakeholders further commonly asserted that a lack of public awareness and a lack of wildlife expertise across the government and civil society were constraints. In the text below, we summarize the perspectives of consulted stakeholders with respect to the way these constraints impede biodiversity conservation efforts in Bangladesh.

5.2.2.1 Weak Governance and Policy Implementation

While environmental policies exist in Bangladesh, the conflicting laws and regulations constrain biodiversity conservation by creating confusion and hindering effective biodiversity protection. In addition, poor coordination mechanisms across government agencies are a barrier to conservation efforts. The inconsistencies lead to loopholes, inefficiencies, and difficulties in enforcement. In addition, government staff are not sufficiently aware of the policies and regulations, which contributes to lack of adequate implementation and enforcement. A lack of knowledge among government officials about environmental regulations results in ineffective enforcement, allowing environmental violations to go unpunished.

241 Mukul, S. A., Arfin Khan, M. A. S., & Uddin, M. B. (2020). Identifying threats from invasive alien species in Bangladesh. *Global Ecology and Conservation*, 23, e01196. <https://doi.org/10.1016/j.gecco.2020.e01196>.

242 Mukul et al. 2021.

243 DoE. (2019). The Sixth National Report to the Convention on Biological Diversity: Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People's Republic of Bangladesh. <https://www.cbd.int/doc/nr/nr-06/bd-nr-06-en.pdf>.

Corruption among government officials also hinders effective management of conservation efforts. Corruption undermines environmental initiatives by diverting funds, favoring illegal activities, and creating obstacles for those trying to protect the environment. Examples of the role of corruption in direct threats can be found in the illegal wildlife trade, sand mining,²⁴⁴ and pollution.²⁴⁵ However, weak implementation of law is not just an issue for biodiversity. Bangladesh ranks 127 out of 142 countries worldwide in rule of law, with its score getting worse over the last few years.²⁴⁶ One survey found that 70.9 percent of households reported being victims of corruption, with 40.1 percent paying bribes to receive services.²⁴⁷

While lack of funding itself is not a constraint, stakeholders interviewed for the study believe that available funding is not channeled and used effectively, which is a constraint.

5.2.2.2 Limited Public Awareness and Participation

Many of the stakeholder consultations noted that public awareness of environmental issues was lacking overall in Bangladesh, but growing especially among young people. Consultations with local communities during site visits brought up examples of increasing awareness of laws around the killing of birds, for example. One indication of the growing awareness is the presence of youth groups like the Bangladesh Biodiversity Conservation Federation, which is an umbrella organization for 120 voluntary organizations throughout the country (although primarily in the northwest). Another indication of public awareness comes from a recent study that collated 45,000 species occurrence records from just seven Facebook groups in Bangladesh. Most of the records were for threatened species that lacked records through systematic surveys.

This analysis, however, sees the issue not as being public awareness per se, although this can be improved and increased. Instead, a national collective awareness or consciousness around conservation and biodiversity is missing, as well as opportunities for communities and groups to participate in conservation of other types of ecosystems and habitats, like wetlands and grasslands in the northwest.

5.2.2.3 Weak Institutional Expertise

There is a shortage of wildlife biologists, ecologists, and conservation specialists with the necessary training and experience to effectively manage the country's diverse ecosystems. From the Forest Department, which has very few trained wildlife biologists, to non-governmental organizations (NGOs), which are more focused on forest and livelihood issues, there is a need for more trained professionals focused on wildlife in government positions and civil society institutions, such as universities and NGOs.

5.2.2.4 Climate Change

Climate change may or may not be considered a direct driver of habitat loss, but it exacerbates existing threats by increasing the frequency and intensity of extreme weather events like floods and droughts. This disrupts ecosystems and makes them more vulnerable to other pressures.

Rising sea levels can threaten coastal ecosystems like mangroves and coastal forests, displacing people and wildlife and impacting fisheries and other aquatic bio-resources, although there are indications that the

244 Siddique, A. (2022, August 16). Sand mining a boon for illegal industry at expense of Bangladesh's environment. *Mongabay Environmental News*. <https://news.mongabay.com/2022/08/sand-mining-a-boon-for-illegal-industry-at-expense-of-bangladeshs-environment/>.

245 Faroque, S., & South, N. (2022). Water pollution and environmental injustices in Bangladesh. *International Journal for Crime, Justice and Social Democracy*, 11(1), [1]-13. <https://search.informit.org/doi/10.3316/informit.379361627253270>.

246 According to the 2023 World Justice Project Rule of Law Index. <https://worldjusticeproject.org/rule-of-law-index/country/2023/Bangladesh>.

247 Islam, M. (2023, November 4). How corruption gets in the way of happiness in bangladesh. *The Diplomat*; Diplomat Media Inc. <https://thediplomat.com/2023/11/how-corruption-gets-in-the-way-of-happiness-in-bangladesh/>.

impact may not be as severe as predicted.²⁴⁸ Changes in rainfall patterns cause droughts and floods, which can disrupt ecosystems and harm species dependent on specific water regimes. Increased cyclones and storms damage habitats and disrupt ecological processes in coastal areas.

248 Shalant, J. (2018, September 13). Bangladesh: A Country Underwater, a Culture on the Move. Natural Resources Defense Council. <https://www.nrdc.org/stories/bangladesh-country-underwater-culture-move>; Raff et al. 2023.



Photo by Sirajul Hossain/USAID

6.

Actions Necessary to Conserve and Sustainably Manage Biodiversity and Tropical Forests

Bangladesh can achieve significant strides in biodiversity conservation through a three-pronged, synergistic national approach.

1. **Strengthen Policy and Law Implementation:** While Bangladesh has sound environmental policies and laws, knowledge gaps and inadequate enforcement hinder their effectiveness. Targeted training programs for government staff can improve their understanding and application of these regulations. Bangladesh must also expand organized financing options available for conservation initiatives beyond the scope of donor-funded projects.
2. **Enhance Public Awareness and Engagement:** Fostering a strong civil society and building public support for conservation can create an enabling environment for stricter enforcement. For example, one stakeholder said Bangladesh is “ruled by slogans,” and the stakeholder suggested that to raise people’s collective awareness and conservation ethic, Bangladesh needs a slogan that highlights the importance of waterways, similar to Nepal’s “Hariyo ban, Nepalko dhan” (Green forests are Nepal’s wealth). Equally important is the need to provide opportunities for active public engagement and participation in biodiversity conservation across different types of ecosystems, such as wetlands and grasslands. These actions will foster public ownership of conservation efforts and generate broader support for necessary actions to conserve biodiversity.²⁴⁹
3. **Expand Conservation Efforts through Landscape-Level Conservation and Sustainable Practices:** While Bangladesh boasts commendable conservation efforts in some key biodiversity hotspots, a crucial step forward lies in adopting a landscape-scale ecosystem approach. This strategy would transcend the currently recognized biodiversity hotspots where activities are concentrated and recognize the interconnectedness of different ecosystems and habitats across broader landscapes. The mitigation of the impact of human activities, such as fishing and agriculture, through sustainable practices is vital across the broader landscape in this holistic approach. Ecosystem gaps include:
 - a. Freshwater systems: While the Sundarbans receive significant focus, the unique biodiversity of freshwater ecosystems like haors, beels, and rivers suffers from inadequate conservation attention. Overfishing, pollution, and habitat degradation threaten these ecosystems and the species they support.
 - b. Degradation of grasslands: The unique ecological role of grasslands is often overlooked. Conversion of these areas to agriculture reduces habitat for specialized grassland birds and mammals.
 - c. Fragmented forests: Deforestation and infrastructure development lead to habitat fragmentation, isolating populations and hindering movement of animals between different forest patches.
 - d. Coastal and marine ecosystems: While the Sundarbans receive attention, the broader coastal and marine ecosystems remain under-supported. This includes coral reefs, seagrass meadows, and the diverse marine life they support. Even in geographies subject to greater USAID biodiversity funding, like Cox’s Bazaar, there is an opportunity to engage more on coastal and marine biodiversity alongside terrestrial issues.

249 The analysis notes that Bangladesh has made rapid progress in other sectors with raising public awareness using low-cost and affordable solutions and that social attitudes and behavioral norms have changed much more rapidly than was predicted due to strong NGO involvement, the density of settlements, and the lack of remoteness. Examples include child immunization, contraceptives, and female child enrollment in schools; Mahmud, W., Ahmed, S., & Mahajan, S. (2008). Economic reforms, growth, and governance: The political economy aspects of Bangladesh’s development surprise (Working Paper 57722; Commission on Growth and Development Working Paper; No. 22). World Bank Group. <http://documents.worldbank.org/curated/en/763541468013237841/Economic-reforms-growth-and-governance-the-political-economy-aspects-of-Bangladeshs-development-surprise>.

Stakeholders consulted for this analysis directly and consistently advocated for actions associated with the first two themes described above. The third theme ties together a number of other points expressed during consultations and corroborated by available literature, including the lack of government ownership of projects; the concentration of relatively small-scale and site-specific conservation activities where forests are located and a handful of well-known wetlands; and the dependence of those forests and wetlands on the river systems where little conservation effort is targeted. These three major themes support and reinforce each other. Detailed actions necessary to achieve them are listed in [Table 9](#). The actions listed in the table represent a range of actions the analysis team heard in consultations or found in the literature review. This analysis does not prescribe the actions to any particular actor, but these actions directly inform the “extent to which” analysis conducted in Section 7. These outputs in turn inform the guiding principles and programming recommendations for USAID Bangladesh in Section 8.

The table reflects recommendations that were prioritized in the consultations conducted in the field, supplemented by a literature review. In considering actions necessary to conserve biodiversity and tropical forests in Bangladesh, USAID should also consider a number of documents that provide in-depth recommendations based on their own objectives and methodologies that supplement this table.²⁵⁰ Often, these documents are based on a deeper analysis of a specific topic, ecosystem, or species.

250 For example, recommendations for biodiversity conservation in general can be found in [Bangladesh National Conservation Strategy 2021-2036](#) and in the [National Biodiversity Strategy and Action Plan of Bangladesh 2016-21](#); freshwater conservation recommendations can be found in the [Bangladesh National Conservation Strategy: Water Resource](#); wildlife recommendations can be found in the [Bangladesh Wildlife Conservation Master Plan 2015-35](#); marine protected area recommendations can be found in the [National Framework for Establishing and Managing Marine Protected Areas in Bangladesh](#); shark conservation recommendations can be found in “Identifying Priorities for Shark Conservation in the Bay of Bengal, Bangladesh” and the “Shark and Ray Assessment Report: Baseline information on the status, threats and governance in Bangladesh”; there are also a number of species-specific action plans (e.g. [dolphins](#), [vultures](#)).

TABLE 9. ACTIONS NECESSARY LINKED TO DRIVERS AND DIRECT THREATS*

ACTIONS NECESSARY (IN PRIORITIZED ORDER FOR EACH THEME)	DRIVERS/ CONSTRAINTS ADDRESSED	LINKS TO DIRECT THREATS
THEME 1: STRENGTHEN POLICY AND LAW IMPLEMENTATION		
1.1 ENABLING CONDITIONS ACTIONS**		
<p>Education and training</p> <ul style="list-style-type: none"> • Strengthen capacity for monitoring, compliance, and enforcement of biodiversity-related laws and policies <ul style="list-style-type: none"> ◦ Train Government of Bangladesh officials (down to the local level) on biodiversity-related laws and policies ◦ Train officials on wildlife laws, prosecution procedures, and identification of trafficked species (expert) ◦ Enhance the capacity of customs officials to identify and prevent the illegal trade of species, including marine 	<p>Weak Governance and Policy Implementation</p>	<p>Habitat Loss, Degradation, and Fragmentation Overexploitation of Resources Invasive Species</p>
<p>Institutional development</p> <ul style="list-style-type: none"> • Encourage ownership of projects by the government (“deprojectization”) • Support BFD to be the lead organization for biodiversity conservation • Build the government’s wildlife conservation expertise and capacity, e.g.: <ul style="list-style-type: none"> ◦ Establish a dedicated wildlife department to address the lack of focus and technical expertise within the BFD; ensure the department employs qualified wildlife biologists, ecologists, and conservation specialists ◦ Staff and fund the Wildlife Crime Control Unit • Explore conservation finance mechanisms <ul style="list-style-type: none"> ◦ Raise awareness and encourage the government, private sector, and financial institutions to utilize existing policies and funding mechanisms like the Biodiversity Conservation Fund and corporate social responsibility initiatives for biodiversity conservation 		
<p>Legal and policy frameworks</p> <ul style="list-style-type: none"> • Clarify ambiguity of institutional mandates and responsibilities pertaining to natural resources management, like wetlands and fisheries • Consider stricter policies around fishing 		
<p>Conservation designation and planning</p> <ul style="list-style-type: none"> • Develop and implement comprehensive landscape-level conservation plans with safeguards, e.g., basin, riverine, or watershed-level conservation plans along with associated terrestrial habitats²⁵¹ 		

251 What is landscape conservation? Network for landscape conservation. (2017, December 5). *Network for Landscape Conservation*. <https://landscapeconservation.org/about/what-is-landscape-conservation/>. Landscape-level conservation, also known as large landscape conservation or ecosystem approach, is a collaborative approach to managing and protecting large landscapes.

TABLE 9. ACTIONS NECESSARY LINKED TO DRIVERS AND DIRECT THREATS*

ACTIONS NECESSARY (IN PRIORITIZED ORDER FOR EACH THEME)	DRIVERS/ CONSTRAINTS ADDRESSED	LINKS TO DIRECT THREATS
1.2 BEHAVIORAL CHANGE (THREAT REDUCTION ACTIONS)		
<p>Law enforcement and prosecution</p> <ul style="list-style-type: none"> • Support implementation of environmental laws, regulations, and national plans • Strengthen commitment to transparent governance including enforcement at national and local levels, i.e., address corruption and lack of political will to enforce existing laws • Address political influence and counteract the influence of individuals who disregard conservation efforts • Address inconsistencies in applying regulations and policy and governance gaps • Enforce stricter penalties for offenders, especially those involved in illegal logging and fishing • Strengthen law enforcement efforts relating to wildlife trade 	<p>Weak Governance and Policy Implementation</p>	<p>Habitat Loss, Degradation, and Fragmentation Overexploitation of Resources Pollution Transportation and Service Corridors Habitat Modification (e.g., dams) Invasive Species</p>
THEME 2: ENHANCE PUBLIC AWARENESS AND ENGAGEMENT		
2.1 BEHAVIORAL CHANGE (THREAT REDUCTION ACTIONS)		
<p>Awareness raising (and advocacy)</p> <ul style="list-style-type: none"> • Educate civil society about the importance of biodiversity, conservation laws, and sustainable practices, including communities, youth, the media, universities, NGOs, government officials, and judiciary • Strengthen civil society to support policy and regulation enforcement and anti-corruption advocacy • Improve capacity of media and journalists to cover environmental and biodiversity conservation issues • Involve local universities and NGOs in awareness campaigns and conservation efforts to leverage their expertise • Support youth groups involved in conservation 	<p>Economic Development Livelihood Security Weak Governance and Policy Implementation Limited Public Awareness and Participation</p>	<p>Habitat Loss, Degradation, and Fragmentation Overexploitation of Resources Pollution Transportation and Service Corridors Habitat Modification (e.g., dams) Invasive Species</p>

TABLE 9. ACTIONS NECESSARY LINKED TO DRIVERS AND DIRECT THREATS*

ACTIONS NECESSARY (IN PRIORITIZED ORDER FOR EACH THEME)	DRIVERS/ CONSTRAINTS ADDRESSED	LINKS TO DIRECT THREATS
2.2 TARGET RESTORATION (STRESS REDUCTION ACTIONS)		
<p>Land/water management</p> <p><i>Improved management:</i></p> <ul style="list-style-type: none"> • Institutionalize implementation of co-management • Strengthen governance by communities and increase their participation in decision making <ul style="list-style-type: none"> ◦ Incorporate the explicit participation of women and vulnerable groups in natural resource management in general and co-management in particular ◦ Support inclusive implementation of ECA Rules ◦ Address the issue of elites dominating conservation and co-management <p><i>New areas:</i></p> <ul style="list-style-type: none"> • Involve local communities in establishing protected areas, including community conserved areas • Integrate and expand on models of community conservation <ul style="list-style-type: none"> ◦ Learn from and expand on fisheries, wetland, and forest co-management experiences (fish sanctuaries, wetlands, PA co-management, CHT forest management, hilsa co-management) <p>Species management</p> <ul style="list-style-type: none"> • Support community to purchase, utilize, and maintain regulation fishing gear • Promote sustainable fishing methods • Expand successful models for community-based wetland sanctuary management to protect species while increasing fisheries production 	<p>Economic Development</p> <p>Livelihood Security</p> <p>Weak Governance and Policy Implementation</p> <p>Limited Public Awareness and Participation</p>	<p>Habitat Loss, Degradation, and Fragmentation</p> <p>Overexploitation of Resources</p> <p>Pollution</p> <p>Transportation and Service Corridors</p> <p>Habitat Modification (e.g., dams)</p> <p>Invasive Species</p>

TABLE 9. ACTIONS NECESSARY LINKED TO DRIVERS AND DIRECT THREATS*

ACTIONS NECESSARY (IN PRIORITIZED ORDER FOR EACH THEME)	DRIVERS/ CONSTRAINTS ADDRESSED	LINKS TO DIRECT THREATS
THEME 3: EXPAND CONSERVATION EFFORTS THROUGH LANDSCAPE-LEVEL CONSERVATION AND SUSTAINABLE PRACTICES		
3.1 TARGET RESTORATION (STRESS REDUCTION ACTIONS)		
<p>Land/water management compliant with Protected Area Social Safeguards</p> <p><i>Protected areas:</i></p> <ul style="list-style-type: none"> • Support implementation of MPAs • Support implementation of ECA Rules • Establish and effectively manage protected areas like fish sanctuaries and national parks • Support demarcation of ECAs and forest PAs such as in the Chittagong Hill Tracts <p><i>Agriculture and livestock:</i></p> <ul style="list-style-type: none"> • Promote regenerative and climate-smart agriculture practices • Stop or limit conversion of remaining wetlands into agriculture, tourism, etc. • Remove cattle from wetlands with alternate options for farmers • Reduce dependency of agriculture and drinking water supply sector on groundwater sources and ensure conservation of groundwater • Increase use of organic and balanced fertilizer for reducing use of chemical fertilizer and other chemicals <p><i>Water management:</i></p> <ul style="list-style-type: none"> • Restore degraded ecosystems like wetlands by improving water holding capacity and natural flow • Harmonize fishing ban periods with India with safeguards for impacted communities • Control pollution in rivers and oceans, including enforcing laws to prevent industrial pollution and raising awareness about responsible waste disposal • Address water pollution from agricultural runoff (pesticides and herbicides) <p><i>Forest:</i></p> <ul style="list-style-type: none"> • Increase forest cover by planting native species • Prioritize restoration of degraded habitats, like mangrove forests • Manage and mitigate the impact of invasive plants and animals <p><i>Pollution:</i></p> <ul style="list-style-type: none"> • Reduce pollution from pesticides, fertilizers, and industrial waste • Establish effective waste management systems <p><i>Development:</i></p> <ul style="list-style-type: none"> • Support sustainable tourism development • Mitigate impacts of linear infrastructure: implement safeguards for new roads and powerlines • Protect existing ecosystems from threats like: <ul style="list-style-type: none"> ◦ Siltation ◦ Poorly planned development projects ◦ Sand dredging • Conduct environmental assessments before development projects occur <p><i>Climate change:</i></p> <ul style="list-style-type: none"> • Incorporate climate change considerations into biodiversity conservation plans and strategies, focusing on adaptation measures for vulnerable ecosystems and species <p>Species management</p> <ul style="list-style-type: none"> • Align wildlife and biodiversity planning processes, e.g., link species conservation plans with the Bangladesh Wildlife Conservation Master Plan (2015-2035) • Support work on landscape connectivity mapping (e.g., wildlife corridors) and efforts to improve dispersal of wildlife species across national boundaries • Improve support for effective management of established dolphin sanctuaries • Find solutions to mitigate human-wildlife conflicts <p>New areas to consider for land, water, and species</p> <ul style="list-style-type: none"> • Promote conservation of rivers and wetlands as biodiversity-rich ecosystems at larger scales • Explore payment for ecosystem services activities • Create new protected areas (or new types of community-managed areas, see above) to address the problem of ecological islands and lack of representation of key habitats <ul style="list-style-type: none"> ◦ E.g., Kassalong Reserved Forest (southeast), Rajkandi Hill Reserved Forest (northeast), Gazni forest (north), Haor Basin (northeast), Kaptai Lake (southeast), Chalan Beel (northwest), Meghna Estuary (south), and Padma-Jamuna-Meghna River floodplain • Create and maintain wildlife corridors to connect fragmented forest patches, facilitating wildlife movement • Incorporate flyways into conservation planning 	<p>Economic Development</p> <p>Livelihood Security</p> <p>Weak Governance and Policy Implementation</p> <p>Limited Public Awareness and Participation</p> <p>Weak Institutional Expertise</p> <p>Climate Change</p>	<p>Habitat Loss, Degradation, and Fragmentation</p> <p>Overexploitation of Resources</p> <p>Pollution</p> <p>Transportation and Service Corridors</p> <p>Habitat Modification (e.g., dams)</p> <p>Invasive Species</p>

TABLE 9. ACTIONS NECESSARY LINKED TO DRIVERS AND DIRECT THREATS*

ACTIONS NECESSARY (IN PRIORITIZED ORDER FOR EACH THEME)	DRIVERS/ CONSTRAINTS ADDRESSED	LINKS TO DIRECT THREATS
3.2 ENABLING CONDITION ACTIONS		
<p>Education and training</p> <ul style="list-style-type: none"> • Build biodiversity and wildlife conservation expertise • Train extension service providers and direct technical assistance to communities on the use of agricultural best practices (including livestock and aquaculture); includes climate-smart and climate resilient practices • Increase investment in training for terrestrial and aquatic biologists and taxonomists to enhance ability for academia and/or civil society to conduct inventories of fish and wildlife resources, in turn enhancing ability to design spatial plans that properly account for biodiversity protection and management • Equip NGOs and government agencies with skills and resources for effective management • Integrate the perspectives of local communities, government agencies, and NGOs • Foster collaboration between NGOs and government agencies, ensuring transparency and accountability within NGO initiatives 	<p>Weak Governance and Policy Implementation Limited Public Awareness and Participation Weak Institutional Expertise</p>	<p>Habitat Loss, Degradation, and Fragmentation Overexploitation of Resources Pollution Transportation and Service Corridors Habitat Modification (e.g., dams) Invasive Species</p>
<p>Research and monitoring</p> <ul style="list-style-type: none"> • Establish a national baseline on biodiversity and ecosystems • Strengthen knowledge management, central repository for project documents, species conservation strategies, and other relevant documents and research • Conduct a nationwide biodiversity survey: through IUCN's ongoing efforts to update its Red List and complementary efforts, update outdated data to gain a comprehensive understanding of the status and trends of various species and ecosystems • Prioritize monitoring and assessment of threats: regularly assess the effectiveness of conservation efforts, identify emerging threats like linear infrastructure and climate change, and develop targeted mitigation measures • Invest in research: in addition to ongoing research on terrestrial ecosystems, research understudied areas like marine and coastal ecosystems, grassland biodiversity, and the impacts of climate change on species distribution and behavior 		

* Primary action themes work together to conserve biodiversity but are listed in order of priority based on consultations.

** Terms in red rows and sub-categorizations are using the [Conservation Measures Partnership Conservation Actions Classification v 2.0](#).

দেশি পাঙ্গাস রান

- দেশি পাঙ্গাস পুষ্টিগুণ সমৃদ্ধ মূল্যবান মাছ
- নির্বিচারে পোনা আহরণ করায় এ মাছের উৎপাদন ব্যাহত হচ্ছে



মৎস্য আইন অনুসারে ১২ ইঞ্চি (৩০ সেমি) এর ছোট পাঙ্গাস ধরা নিষিদ্ধ

- তেঁতুলিয়া, বিশ্বখালী, আন্ধারমানিক, মেঘনা ও পদ্মা-মেঘনার সংযোগস্থল দেশি পাঙ্গাস পোনার অন্যতম বিচরণ ক্ষেত্র
- 'চাঁই' অথবা অন্য যে কোন অবৈধ জাল দিয়ে পাঙ্গাস পোনা ধরা অন্যায
- পাঙ্গাস পোনা 'চাঁই' এর ব্যবহার বন্ধ রাখুন



পাঙ্গাস-সহ নদ-নদীর জীব বৈচিত্র্য রক্ষা করুন



দেশি পাঙ্গাস পোনার বিচরণ ক্ষেত্র
কিশোরিজ ইন বাংলাদেশ (ইকোফিশ-২) অ্যাক্টিভিটি
শিশু বাংলাদেশ

World

7.

Extent to Which the Mission Meets Actions Necessary to Conserve and Sustainably Manage Biodiversity and Tropical Forests

The second requirement under FAA Sections 118 and 119 is to include an analysis of “the extent to which the actions proposed for support by the Agency meet the needs thus identified.” This section of the report describes some opportunities for USAID/Bangladesh to either directly or indirectly address the conservation actions necessary as identified in the previous section. It is often possible, and encouraged, for programs to either take advantage of opportunities that emerge or to actively look for ways to integrate conservation into health, education, economic growth, governance, or other sectoral programs.

7.1 OVERVIEW OF CURRENT USAID PROGRAMS IN BANGLADESH

As described in the introduction and depicted in [Figure 1](#), USAID/Bangladesh’s current CDCS is structured around four development objectives (DO): strengthened democracy for an inclusive society (DO 1), sustainable economic growth (DO 2), advanced human capital development (DO 3), and strengthened resilience to climate change and other shocks (DO 4). Within this framework, biodiversity and tropical forest conservation fit most squarely within intermediate result (IR) 2.3, which seeks to improve natural ecosystem management as part of a strategy to foster sustainable economic growth.

The Mission pursues IR 2.3 through improved sustainable ecosystem governance, strengthened conservation safeguards, and enhanced sustainable business practices, trade, and investment of natural resources. [Table 1](#), in the Introduction and also in Annex G, describes the Mission’s current activities focused directly on biodiversity and tropical forest conservation. The Mission is also designing a new activity, the Bangladesh Multispecies Wildlife Conservation Activity, which could potentially address many of the actions necessary to conserve biodiversity in Bangladesh in a more integrated fashion in contrast to current activities. For example, five of the current activities are being implemented in Cox’s Bazar with overlapping objectives ([Table 1](#)). Depending on its implementation, the new Bangladesh Multispecies Wildlife Conservation Activity could be an opportunity for a more integrated and broader scale approach to biodiversity conservation compared to USAID’s current activities.

7.2 INTERSECTIONS BETWEEN USAID’S NON-ENVIRONMENT PROGRAMMING AND BIODIVERSITY AND TROPICAL FORESTS

While USAID’s other DOs and IRs do not explicitly include or consider biodiversity and tropical forests in their related activities, some activities do overlap with actions needed to conserve biodiversity and tropical forests. This analysis describes activities with potential intersections with conservation needs below and further references these in the extent to which USAID meets actions needed to conserve biodiversity and tropical forests in [Table 9](#).

Democracy, Human Rights and Governance (DO 1)

Good governance and accountability are critical for all sectors, including the environment. USAID/Bangladesh’s democracy and governance activities that focus on enhancing citizen confidence in government by strengthening democratic processes and civil society, increasing access to justice, protecting human rights, supporting a culture of tolerance, and providing development opportunities for women, youth, and the marginalized are all necessary building blocks for biodiversity and forest conservation. The activities supported by democracy, human rights, and governance (DRG)—such as integrating participation, inclusion, transparency, and accountability to support citizen-responsive governance—are vital for biodiversity conservation.

Agriculture and Food Security (DO 2)

USAID/Bangladesh's agriculture and food security activities depend on healthy, functioning, and non-polluted ecosystems to achieve their goals, which include increased availability and access to diversified nutritious foods; improved sustainable productivity of targeted value chains through climate-smart agriculture; and good corporate practices, which include environmentally-friendly practices that are good for the consumer and producer. Opportunities exist to ensure that agriculture and food security activities avoid land use and land conversion that adversely impact natural resources and biodiversity, including through measures to ensure private sector partners incorporate these considerations in their partnership with USAID. These measures ideally would factor into activity results frameworks as co-benefits, but at minimum should be environmental impacts mitigated through safeguarding measures.

Health (DO 3)

People's health is closely tied to their natural environment. Nutritious food and clean air and water are all basic requirements for a healthy population. Loss of tropical forest leads to habitat loss of wild animals and increases the chance of human exposure to wildlife. Potential spillover of wildlife might trigger an epidemic or pandemic. Any reverse zoonoses may potentially compromise conservation efforts. The OneHealth approach can create links across the sectors and reduce the threat of epidemic, pandemic, or disease outbreak in wildlife.

Education (DO 3)

As all sectors depend on healthy, functioning ecosystems to achieve their objectives, educating the population about the environment is key to its conservation. Youth are particularly active in conservation in Bangladesh and are closely tied to education institutions. USAID's integrated youth programming empowers Bangladesh's youth to advance their own economic, civic, and social development, which enhances their resilience to shocks and stressors, including environmental factors.

Disaster Response and Community Resilience (DO 4)

Disaster-resilient communities are based on healthy ecosystems and diverse livelihoods. Healthy and diverse ecosystems are more resilient to extreme weather events and provide natural defenses, whereas degraded ecosystems reduce community resilience. Intact forests and wetlands provide natural buffers to hazard events and reduce the impacts of climate change. They contribute to flood abatement, slope stabilization, coastal protection, and avalanche protection. Ecosystem degradation reduces the ability of natural systems to sequester carbon, exacerbating climate change-impacted disasters.²⁵²

USAID/Bangladesh supports disaster risk reduction activities by strengthening institutional capacity and coordination and infrastructure required to prepare, respond, and reduce risks related to natural disasters like cyclones, floods, and other environmental shocks. The programs help poor communities improve water, sanitation, and hygiene while equipping them with new jobs and livelihood skills to help them withstand economic hardship. All of these activities are closely related to the natural environment. However, as currently structured, disaster response activities in affected communities do not consider potential opportunities for conservation of ecosystems that promote resilience. There is an opportunity to promote integration between disaster response and community resilience activities and environment activities that incentivize communities to conserve ecosystems that promote resilience.

252 UNEP. (2009). The Role of Ecosystem Management in Climate Change Adaptation and Disaster Risk Reduction. *Issue Paper prepared for the Global Platform for Disaster Risk Reduction*. <https://www.preventionweb.net/publication/role-ecosystem-management-climate-change-adaptation-and-disaster-risk-reduction>.

Rohingya Emergency Response (DO 4)

The United States is the leading contributor of humanitarian assistance in response to the Rohingya crisis. USAID provides life-saving humanitarian assistance to meet the critical needs of refugees in camps, such as food and nutrition needs, while also supporting efforts to reduce disaster risks in camps which remain vulnerable to natural hazards. These camps have contributed to biodiversity and forest loss in a key biodiverse area of Bangladesh, Cox’s Bazar, increasing the risk of disasters and human-wildlife conflict, specifically involving Asian elephants. USAID programs to support the refugee and host communities should include promoting biodiversity and forest conservation to mitigate this risk.

7.3 EXTENT TO WHICH USAID MEETS ACTIONS NEEDED TO CONSERVE BIODIVERSITY AND TROPICAL FORESTS

[Table 10](#) presents an analysis of the extent to which the Mission’s current programs within and outside the environment portfolio respond to the actions needed to conserve biodiversity and tropical forests in Bangladesh. For brevity, this analysis restricts the description of “actions necessary” in this table to the prioritized set of topics within each theme raised in [Table 9](#). Readers may reference [Table 9](#), as needed, for the full set of actions necessary in each theme.

USAID addresses many of the actions necessary for conservation of biodiversity and tropical forests in its current IR 2.3 programming. For example, several of the activities in USAID’s environment portfolio include components focused on strengthened policy and law implementation alongside community awareness raising. However, consistent with the analysis findings regarding the project- and site-specific nature of conservation efforts in Bangladesh, these activities are not always commensurate to the landscape-scale conservation needs in the country. They further do not always coordinate to maximize the potential effectiveness of conservation efforts—for example, with several different projects working on different aspects of conservation in Cox’s Bazar. The most substantial gap between USAID’s current actions and the actions needed for conservation of biodiversity and tropical forests in Bangladesh is the lack of attention to the interconnectedness between different ecosystems and habitats across broader landscapes, which are broader than the set of biodiversity hotspots where the Mission currently focuses its programming.

TABLE 10. NECESSARY CONSERVATION ACTIONS AND CURRENT IR CONTRIBUTIONS TO SUSTAINABILITY

ACTIONS NECESSARY TO ACHIEVE CONSERVATION OF TROPICAL FOREST AND BIODIVERSITY	EXTENT TO WHICH THE CURRENT DO OR IR CONTRIBUTES TO SUSTAINABLE MANAGEMENT AND CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY
THEME 1: STRENGTHEN POLICY AND LAW IMPLEMENTATION	
1.1 ENABLING CONDITIONS ACTIONS	
Education and Training Institutional Development Legal and Policy Frameworks Conservation Designation and Planning	Mission activities under DO 2, IR 2.3 are addressing the actions needed for Institutional Development. Actions under Education and Training and Legal and Policy Frameworks are partially addressed through the illegal wildlife trafficking activities and wetland conservation activities. Actions under Conservation Designation and Planning are not addressed.

TABLE 10. NECESSARY CONSERVATION ACTIONS AND CURRENT IR CONTRIBUTIONS TO SUSTAINABILITY

ACTIONS NECESSARY TO ACHIEVE CONSERVATION OF TROPICAL FOREST AND BIODIVERSITY

EXTENT TO WHICH THE CURRENT DO OR IR CONTRIBUTES TO SUSTAINABLE MANAGEMENT AND CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY

1.2 BEHAVIORAL CHANGE (THREAT REDUCTION ACTIONS)

Law Enforcement and Prosecution

These actions are addressed through DO 2, IR 2.3 with limited scope by the wildlife trafficking activity. The proposed DO 2, IR 2.3 multispecies activity could address this.

DRG has activities relating to this, including Promoting Advocacy and Rights (PAR) Activity with support for Dhaka river conservation and their advocacy toolbox (<https://advocacytoolbox.org/>), which has some water-related resources and other resources that are relevant for civil society organizations advocating across different sectors, including environment and biodiversity.

THEME 2: ENHANCE PUBLIC AWARENESS AND ENGAGEMENT

2.1 BEHAVIORAL CHANGE (THREAT REDUCTION ACTIONS)

Awareness Raising and Advocacy

Mission activities under DO 2, IR 2.3 may be addressing these actions at the site level but national level is not addressed. The proposed new multispecies activity could address this.

DRG has activities relating to this, including the PAR Activity with support for Dhaka river conservation and their advocacy toolbox (<https://advocacytoolbox.org/>), which has some water-related resources and other resources that are relevant for civil society organizations advocating across different sectors, including environment and biodiversity.

2.2 TARGET RESTORATION (STRESS REDUCTION ACTIONS)

Land/Water Management

Improved Management
New Community Conserved Areas

DO 2, IR 2.3 is addressing these to varying degrees within their current activities and at specific sites. For example, institutionalizing co-management in PAs is a major activity. Current activities are not addressing the creation of new community conserved areas other than the traditional Village Common Forests in the CHT.

Species Management

Under DO 2, IR 2.3 the EcoFish Activity addresses many of these actions.

TABLE 10. NECESSARY CONSERVATION ACTIONS AND CURRENT IR CONTRIBUTIONS TO SUSTAINABILITY

ACTIONS NECESSARY TO ACHIEVE CONSERVATION OF TROPICAL FOREST AND BIODIVERSITY

EXTENT TO WHICH THE CURRENT DO OR IR CONTRIBUTES TO SUSTAINABLE MANAGEMENT AND CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY

THEME 3: EXPAND CONSERVATION EFFORTS THROUGH LANDSCAPE-LEVEL CONSERVATION AND SUSTAINABLE PRACTICES

3.1 TARGET RESTORATION (STRESS REDUCTION ACTIONS)

Land/Water Management

- Protected Areas
- Landscapes
- Agriculture and Livestock
- Water Management
- Forest
- Development
- Climate Change

DO 2, IR 2.1 and 2.2 (Feed the Future [FtF]) may positively impact biodiversity through practices such as the judicious use of fertilizer and pesticides, soil health management, integrated pest management, and water conservation. FtF also works on livestock improvement for better productivity, which may or may not positively impact biodiversity, and climate-resistant rice. They promote biopesticides and fruit bags, which decrease the need for pesticides.

On the other hand, there are some potentially harmful impacts of FtF activities on biodiversity and tropical forests such as contributing to conversion of existing or potential forests (old swidden) into cash crops in the CHT, such as cashew and coffee, increased livestock in wetland areas in the northeast, and road construction to increase market access.

Species Management

DO 4, through the Humanitarian Assistance Office, replants trees five times over when they are cut down for construction in Cox’s Bazar. They also plant trees for soil, erosion, and slope protection.

Current activities under DO 2, IR 2.3 address some of the actions, such as those under protected areas, forest, and water management, and the multispecies activity will address species management.

3.2 ENABLING CONDITIONS ACTIONS

Education and Training

DO 2 addresses the first action to some extent through FtF activities (see above). The other actions are not addressed.

Research and Monitoring

DO 3 One Health has components that overlap with biodiversity, such as disease surveillance and environmental health, which involves monitoring wildlife populations and their habitats.



Photo by Md. Asaduzzaman/USAID

8.

Recommendations to Conserve and Sustainably Manage Biodiversity and Tropical Forests

Recommendations in this section emerge from the analysis of the actions necessary to conserve and sustainably manage biodiversity and the extent to which the Mission’s current or planned strategy and activities are meeting the actions necessary.

Most of the actions necessary are readily actionable in that they could be addressed within current and planned biodiversity and forest programming to improve the extent to which USAID is addressing forestry and biodiversity conservation. In that context, most if not all of the actions necessary could be strengthened in current activities or integrated into new activities that are designed prior to the new CDCS.

In the strategic opportunities section, this analysis focuses on ways to integrate biodiversity conservation into health, food security, economic growth, and governance into future programming or the next CDCS.

8.1 READILY ACTIONABLE

The “readily actionable” recommendations are largely directed to the Environment team, as many of the actions necessary to conserve biodiversity would require only some adaptation of current USAID environment programming or minor programmatic scope modifications. For example, many of the actions necessary could be incorporated into the new multispecies activity. Mitigating threats to species will require strengthening policy and law implementation as well as increasing public awareness and participation. Depending on the suite of species chosen, a landscape-scale approach will be necessary to accommodate where the species occur and to address threats to them in an integrated fashion. If birds were a target, for example, then an approach that accounts for their occurrence across a broad landscape would be appropriate (see [Figure 20](#)).²⁵³ This analysis encourages the Mission to think ambitiously about the size of the landscape and to incorporate activities to strengthen policy implementation and conservation awareness and participation across as large an area as possible, noting that this does not mean spreading the activities too thin, but rather strategically choosing activities and sites that can be models or pilots for scaling up across larger landscapes. A landscape that includes a large portion of the country would not be unreasonable (see [Figure 21](#)). USAID stakeholders acknowledge the value that taking on a landscape approach could provide but assert that doing so may be difficult where conservation initiatives are only at a formative stage. Good candidates to adopt a landscape approach in the near term include areas like the Sundarbans and southern portions of the Chittagong Hill Tracts, where conservation efforts are more established and actively addressing threats to biodiversity.

253 Datta, A. K. (2022). Status of illegal bird hunting in Bangladesh: Online news portal as the source. *Human Dimensions of Wildlife*, 27(2), 183–192. <https://doi.org/10.1080/10871209.2021.1895380>.

Figure 20: Map Showing Key Bird Hunting Hotspots Based on Reported Hunting Events²⁵⁴

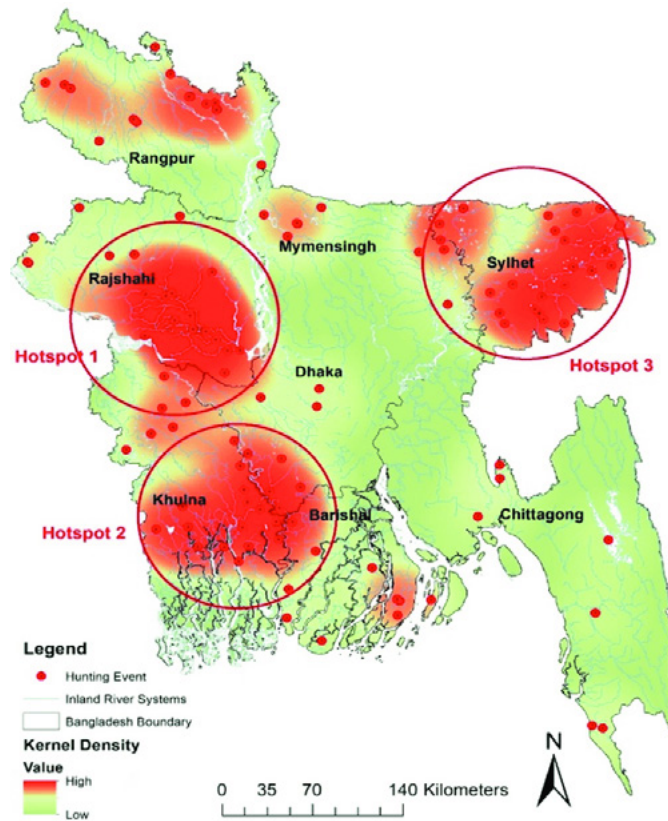
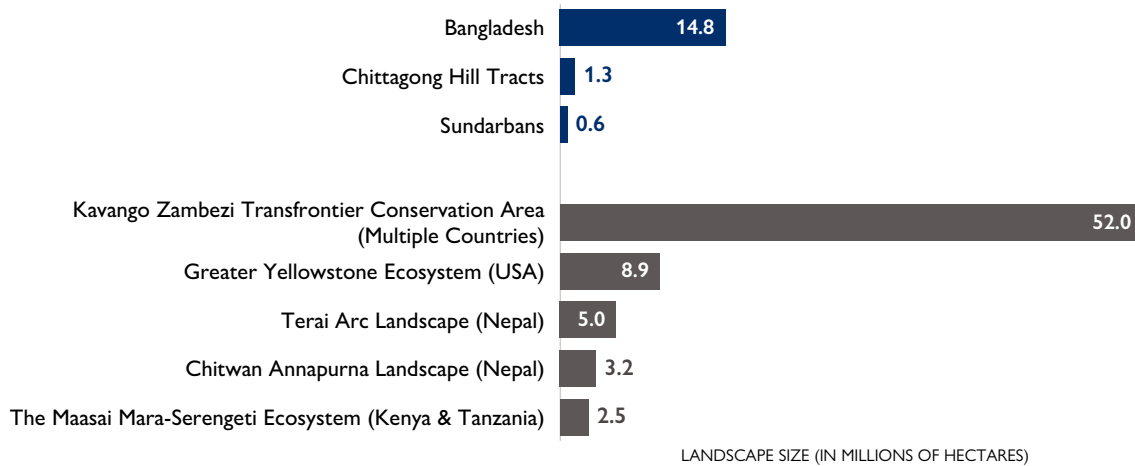


Figure 21: Comparison of Conservation Landscapes



8.2 STRATEGIC OPPORTUNITIES

While readily actionable recommendations to conserve biodiversity and tropical forests fall mostly within the purview of the Environment team, the Mission’s strategic opportunities to pursue this purpose will

²⁵⁴ Three divisions (Rajshahi, Sylhet, Khulna) were major hunting hotspots with more than 70 percent of all hunting incidents occurring in these locations during 2010-2020; Datta, A. K. (2022). Status of illegal bird hunting in Bangladesh: Online news portal as the source. Human Dimensions of Wildlife, 27(2), 183–192. <https://doi.org/10.1080/10871209.2021.1895380>.

require Mission-wide coordination and integration. USAID/Bangladesh is the largest USAID Mission in Asia. This both provides opportunities for integration, but also creates barriers in that it can increase the silo effect across teams, DOs, and IRs. [Table 11](#) below enumerates specific strategic opportunities and accompanying examples where technical offices could better align their actions with those which are needed to improve biodiversity conservation in Bangladesh.

TABLE 11. STRATEGIC MISSION-WIDE OPPORTUNITIES FOR INTEGRATION OF BIODIVERSITY INTO ACTIVITIES

OPPORTUNITIES	EXAMPLES
Integrate biodiversity and environment across all DOs	<p>Within a broader DO for transparent, accountable, and effective governance, include a specific IR for environmental democracy, environmental corruption, and/or environmental justice.</p> <p>DRG team could explicitly support civil society organizations in the environmental sector to address the needs of biodiversity conservation in an activity like PAR.</p> <p>FtF team could explicitly link its biopesticide activities to biodiversity and the Biodiversity team could support those activities across sites outside of FtF.</p> <p>HAO could link their support for tree planting in areas where the environment is being severely degraded to biodiversity conservation.</p> <p>Health team could explicitly recognize the health of the environment and wildlife as critical to the health of humans, such as in the OneHealth activities.</p>
Integrate biodiversity conservation at site-level across sectors (i.e., link activities at sites where many USAID projects are taking place)	In the south central and southeast areas, USAID program activities could complement each other in different ways, but currently they are not linked or explicitly integrated.
Create multi-sector activities across themes that all teams and DOs touch upon and are impacted by	<p>Consider an anti-corruption activity that addresses corruption systematically across sectors in Bangladesh, including environmental corruption alongside corruption already targeted by health and DRG programming.</p> <p>Consider a water resource management activity that considers potential impacts on the environment co-equally with provisioning services for domestic, industrial, agricultural, and other water uses.</p>

One strategic opportunity is to consider explicitly integrating environmental conservation across each DO in the next CDCS. Consultations with Mission staff made clear there are viable, pragmatic ways to integrate biodiversity and tropical forest considerations into all programming areas. In some programs, they already have activities that could address the actions necessary to conserve biodiversity, but these links are not explicitly recognized or described. If these were explicit, they could be made more strategic and strengthened across programs. For example, in the current set of activities, the DRG team could explicitly support civil society organizations in the environmental sector to address the needs of biodiversity conservation in an activity like PAR. The FtF team could explicitly link its biopesticide activities to biodiversity, and the biodiversity team could support those activities across sites outside of FtF. HAO supports tree planting in areas where the environment is being severely degraded, and they could link this specifically to biodiversity conservation.

Integration of biodiversity conservation across the USAID/Bangladesh portfolio could also occur at sites where USAID activities overlap geographically, such as in the southwest or northeast. As site visits to the south central and southeast areas revealed, USAID program activities may complement each other in different ways, but they are not currently linked or explicitly integrated.

Another way to integrate biodiversity and tropical forest conservation across the Mission is to explore specific themes that all teams and DOs touch upon and are impacted by, like anti-corruption activities or water issues. Teams could share lessons learned across the issues they have in common or design activities together to address the issues that impact across sectors.

Corruption is an issue across all the sectors in Bangladesh, and USAID recognizes the centrality of addressing corruption to achieving sustainable development outcomes and humanitarian assistance objectives.²⁵⁵ USAID/Bangladesh's governance and health activities already explicitly address corruption. This provides ground for cross-pollination with biodiversity activities—by, for example, including considerations for environmental democracy, environmental corruption, or environmental justice as an intermediate result in a broader development objective related to transparent, accountable, and effective governance in a future CDCS.

There are examples which could be built upon in USAID/Bangladesh's current DRG portfolio for strategic integration of biodiversity considerations in DRG programming. For example, the PAR Activity has developed and launched an [advocacy toolbox](#) to provide an easily-accessible digital resource for Bangladeshi civil society to build on their advocacy skills and to share lessons learned. They have also supported many civil society organizations through the activity, including the Bangladesh Water Keepers, which promotes river conservation in the Dhaka area, and is an example of the types of environmental groups DRG could consider supporting. Other activities that DRG has supported that promote better governance—which could be extended to intentionally help promote better environmental governance—include the production of a civil society organization Legal Manual and organized legal seminars for civil society actors and workshops on the Right to Information for civil society organization participants, journalists, and government officials. DRG has also promoted activities that directly support better environmental management. For example, they supported civil society-government dialogues, which helped include 15 recommendations in the 2021 Solid Waste Management Rules; they also supported the State of Dhaka Environment Report, a flagship study on air and noise pollution in Dhaka city. They have also supported the participation of marginalized communities in governance processes.

USAID's [health strategy](#) also has linkages to improved governance, which could either complement or provide lessons for improved biodiversity management. Their activities promote: 1) transparent and well-regulated procurement processes that promote resource optimization, reduce opportunities for corruption, and ensure the procurement of quality, affordable commodities, and 2) strong regulatory systems with effective and transparent enforcement mechanisms to ensure that medicines and other commodities are safe and effective, including those available in the private sector.

Water is another common issue across USAID activities. Water is key to agriculture, human health, and biodiversity. It is an issue particularly relevant in Bangladesh given that the majority of the country is contained within one delta region, and 80 percent of its land is seasonal wetlands. Water issues range from control of water by dams in India to the overuse and corresponding decrease in groundwater to industrial and agricultural water pollution. Water pollution impacts the health of all living organisms, including humans, through bioaccumulation of toxic substances in the food chain. Contaminated water also causes major water-borne diseases like diarrhea, cholera, jaundice, and typhoid.

All the DOs address water issues to some extent; their impact could be strengthened by addressing them in an integrated manner. In doing so, it is critical to coordinate on national and transboundary water

255 USAID Guide to Countering Corruption Across Sectors. (2023, January 5). U.S. Agency for International Development. <https://www.usaid.gov/documents/usaid-guide-countering-corruption-across-sectors>.

resource management to ensure considerations for water resources' role in supporting biodiversity is considered co-equally with considerations for agricultural, industrial, domestic, and other uses. As noted above, DRG's PAR Activity is working with one water-focused civil society organization, The Bangladesh Waterkeepers, and is supporting activities that involve waste management. FtF has activities focused on biopesticides and irrigation and their Nutrition Project includes a partnership with the Bangladesh Standards and Testing Institution to certify water treatment plants and provide safe drinking water to 6,000 water-scarce households in rural, peri-urban, and urban Khulna.

ANNEX A. REFERENCES

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ANNEX B. LIST OF CONSULTATIONS

TABLE B-1. INDIVIDUALS CONSULTED DURING FIELDWORK

NAME	POSITION	ORGANIZATION	TYPE OF ORGANIZATION
IMPLEMENTED DURING SITE VISITS IN THE NORTHWEST			
Mohammad Anwan Hossain	Additional Deputy Director	Department of Agricultural Extension, Rangpur	Govt. Office
Md. Badruzzaman Manik	District Fisheries Officer	Rangpur	Govt. Office
Nobodiganj Village Community Consultation (Two community members: one woman, one man)	N/A	Taluk Upashu Bird Colony, Rangpur	Local Hindu Community
Ms. Nurunnahar	Assistant Conservator of Forests	Social Forest Division, Dinajpur	Govt. Office
Md. Akramul Hoque	Field Facilitator	Eco-Social Development Organization (ESDO)	Private Organization/NGO
Gaya Prasad Paul	Forest Beat Officer	Singra Forest Beat, Phakargaon Range	Govt. Office
Niranjan Rai	Forester	Birganj Upazilla, Dinajpur	Govt. Office
Singra Village Community Consultation (One community member)	N/A	Ethnic/Santal Community	Local Community
Nandogaon Village / Hindu Community Consultation	N/A		Local Community
Community Consultation	Fisherman	Niz Kakra Beel Wetland	Hindu Community
Kali Pada Roy	District Fisheries Officer, Office of the District Fisheries Officer, Bogura	Ministry of Fisheries and Livestock	Govt. Office
Mr. Fazley Rabbi	N/A	Bangladesh Biodiversity Conservation Federation, Halti Beel	Federation/Conservation Club
Kholabariya Gram Community Consultation (Six community members: three women, three men)	N/A		Local Community
Md. Jahangir Kabir	Wildlife Inspector	Wildlife Management and Nature Conservation, Rajshahi	Govt. Office
Md. Amrul Kayes	General Secretary	Rajshahi Bird Club	Youth Community/Club
Umma Kadija	Nature Conservation Activist		
Nasimuzzaman Anik	Wildlife Tour Guide		

TABLE B-1. INDIVIDUALS CONSULTED DURING FIELDWORK

NAME	POSITION	ORGANIZATION	TYPE OF ORGANIZATION
Char Majhardia Village Community Consultation (4 community members: 2 women, 2 men)	N/A	Muslim Community	Local Community
Fishermen and local community	N/A	Hindu and Muslim Community	Local Community
Molla Mohammad Mizanur Rahman	Deputy Conservator of Forests, Division Forest Officer	Social Forestry Division, Rangpur	Govt. Office
Beel Community	N/A	Niz Kakra Beel, Gabtoli, Bogura	Local Community
Cholan Beel Kholabariya Gram Community Consultation (6 community members: 3 women and 3 men)	N/A	Naldanga Thana	Local Community
Md. Mizanur Rahman	Chairman	Save the Nature and Life	Private Organization/NGO
Soumya Chirantan Khan	Foundation Member	Deep Ecology and Snake Conservation Foundation, Kusthia District	Youth Community/Club
Samit Bin Rahman	Snake Rescuer		
Fariha Iqbal	Club Member		
Shrirampur (Islampur) Village, Ward 7 Consultation (7-8 community members: 2-3 women, 5 men)	Fishers and others	Mixed Hindu and Muslim Community	Local Community
IMPLEMENTED DURING SITE VISITS IN THE SOUTH CENTRAL			
Md. Tajul Islam	Deputy Director, Regional Project Officer	Department of Agricultural Extension SACP-RAINS, Barishal District	Govt. Office
Mr. Md. Uzzal Hossain	Chairman, Department of Botany	Barishal University	Academic/University
Dr. Subroto Kumar Das	Dean, Faculty of Biological Sciences		
Dr. Mahin Afroz	Faculty of the Department of Botany		
Sonia Khan Sony			
Tania Sultana			
Mohammad Abul Kalam Azad	Fisheries Co-management Expert, Component 3, Sustainable Coastal and Marine Fisheries Project of DoF	Social Development Foundation (SDF), Ministry of Finance, Barishal District	Govt. Office

TABLE B-1. INDIVIDUALS CONSULTED DURING FIELDWORK

NAME	POSITION	ORGANIZATION	TYPE OF ORGANIZATION
Sagorika Smrity	Research Associate, ECOFISH Project	WorldFish	NGO
Bokthier Rahman	Research Assistant, ECOFISH Project		
Rakaet Ahsan	Journalist, Team Lead	Animal Lovers of Patuakhali Club	Local Community
Abdul Jalil	Fishermen's Representative	Masers Moni Fish, Alipur Bandar, Kuakata, Patuakhali District	Local Community
Ruman Imtiaz Tushar	Journalist and Managing Director	Kuakata Ilish Park, Kuakata, Patuakhali District	Local Community
Md. Mahfujur Rahman (25 unnamed, additional community members)	Senior Upzilla Fishers Officer	Department of Fisheries, Patuakhali Sadar, Patuakhali District	Govt. Office
Kazi Saifuddin	Assistant Director	Department of Environment, Patuakhali District Office, Patuakhali	Govt. Office
Md. Tariqul Islam	Assistant Conservator of Forest	Bangladesh Forest Department, Coastal Forest Division, Patuakhali	Govt. Office
Professor Dr. Md. Nurul Amin	Dean, Faculty of Environmental Science and Disaster Management	Patuakhali Science and Technology University, Dumki, Patuakhali	Academic/University
Md. Moniruzzaman	ACF	Coastal Forest Division, Bhola Sadar, Bhola District	Govt. Office
Md. Ershad	Fisherman President	Nasir Majir Fishery Ghat, Bhola Sadar, Bhola District	Local Community
Maruf Hossain Minar	Unknown	Department of Fisheries, CharFasson, Bhola District	Govt. Office
Shahidul Kazal	Research Assistant	ECOFISH, Charfasson, Bhola District	Private Organization/NGO
Md. Alauddin Patwary	President	Samraz Ghat Fisheries Co-Management Committee	Local community
Abdul Karim	N/A		
Selim Mia	N/A		
Md. Kamal	N/A		
Abdul Jalil	N/A		
Dr. Mohammad Abdus Salam	Team Lead - Livestock Productivity, Feed the Future Bangladesh Livestock and Nutrition Activity	ACDI/VOCA, Barishal District	NGO

TABLE B-1. INDIVIDUALS CONSULTED DURING FIELDWORK

NAME	POSITION	ORGANIZATION	TYPE OF ORGANIZATION
IMPLEMENTED DURING SITE VISITS IN THE SOUTHEAST			
Dr. Md. Safiqur Rahman	Deputy Project Director	USAID ECO LIFE Activity project, NACOM, Cox's Bazar	Private Organization/NGO
Nuru Maji	N/A	Marine fisheries community, Bohor Chora, Cox's Bazar	Local community
Shah Alam	N/A		
Nurul Islam	N/A		
Nazma Begum	N/A	Forest-dependent community near Himchari National Park, Darianagar, Bohor Chora, Cox's Bazar	Local Community
Hasina Begum	N/A		
Nilufer	N/A		
Md. Syed Alam	Vice President, Co-Management Committee	Himchari National Park, Cox's Bazar	Forest Co-management Community
Ukhiya Community Consultation (6 community members)	N/A	Ukhiya community, Kutu Palong, Paschim (west) Para, Ukhiya Upzila, Cox's Bazar	Local Community
Teknaf Community Consultation (6 community members)	N/A	Teknaf fishermen community, Shapuree Island and Saint Martin's Island of Teknaf Upzila, Coxsbazar	Local Community
Hill Forest Community Consultation (8 community members) Delowar Hossain	N/A	Hill forest community, Mithapanir Chara, Ward 01, Teknaf Sadar, Teknaf, Coxsbazar	Local Community
Khondker Neaz Rahman	Urban & Regional Planner and Deputy Team Leader	Master Plan Preparation for Coxs Bazar District Project	Private Organization/NGO
Village Community Consultation (2 community members) Mohammad Nasir	N/A	Village community consultation near Chunati Wildlife Sanctuary, Chunti Nolbia, Lohagara, Chittagong	Local Community
Fishermen Community Consultation (2 community members)	N/A	Fishermen community, Halda River, East Mohora, Word 5, Chittagong City Corporation, Chittagong	Local Community
Village Community Consultation (4 community members)	Local farmer	Village community consultation near Medakacchapia National Park, Chakaria Upazila, Cox's Bazar District	Local Community

TABLE B-1. INDIVIDUALS CONSULTED DURING FIELDWORK

NAME	POSITION	ORGANIZATION	TYPE OF ORGANIZATION
Mohammed Mizanur Rahman	Conservator of Forest (CF)	Forest Department, Rangamati	Govt. Office
Dr. Md Zahidur Rahman Miah	Divisional Forest Officer	CHT South Forest Division, Rangamati	Govt. Office
Mr. Md. Rezaul Karim Chowdhury	Divisional Forest Officer	CHT North Forest Division, Rangamati	Govt. Office
Dr. Suprio Chakma	Assistant Professor	Department of Forestry and Environmental Sciences Rangamati Science and Technology University, Jhagrabil, Rangamati-4500, Bangladesh	Academic/University
Fisherman Community Consultation (4 community members) Md. Abdur Sukkur	Fishermen	Fishermen Community (Hilly River and Lake), Silchori, Kaptai, Kaptai Upazila/Sub-District, Rangamati District (Chittagong Hill Tracts)	Local Community
Mohammad Faruk Mia	Forest Dependent	Kaptai Forest dependent community, Sitar Ghat, Kaptai, Kaptai Upazilla, Rangamati District (Chittagong Hill Tracts)	Local Community
Bathui Marma	N/A	Marma ethnic community, Silchori, Kaptai, Kaptai Upazila, Rangamati District (Chittagong Hill Tracts)	Local Community
Tanchangya Ethnic Community Consultation (6 community members) Mr. Suchi Ranjan Tanchangya	N/A	Tanchangya ethnic community, Sapcharipara, Kaptai, Kaptai Upazila, Rangamati District (Chittagong Hill Tracts)	Local Community
Chakma Ethnic Community Consultation (3 community members)	N/A	Chakma ethnic community, Boradam, Deppacharipara, Rangamati Sadar Upazila, Rangamati District (Chittagong Hill Tracts)	Local Community
IMPLEMENTED IN DHAKA AND VIRTUALLY			
Dr. K. M. Azam Chowdhury	Chairman and Assistant Professor, Department of Oceanography, Faculty of Earth and Environmental Sciences	University of Dhaka	Academic/University
Muntasir Akash	Assistant Professor in Zoology	University of Dhaka	Academic/University

TABLE B-1. INDIVIDUALS CONSULTED DURING FIELDWORK

NAME	POSITION	ORGANIZATION	TYPE OF ORGANIZATION
Professor Md. Nazmus Sadath	Forestry and Wood Technology	Khulna University	Academic/University
Dr. Alifa Bintha Haque	Professor, Zoology Department, Sharks and Rays	University of Dhaka	Academic/University
A. S. M. Marjan Nur	Climate Change Policy Advisor	British High Commission	Donor
Md. Istiak Sobhan	Senior Environmental Specialist, Environment and NR Global Practice	World Bank	Donor
Imran Ahmed	Conservator of Forests, Wildlife, and Nature Conservation Circle	Bangladesh Forest Department	Govt. Office
Syeda Masuma Khanam	Director (Joint Secretary), Natural Resource Management, Department of Environment	Ministry of Environment	Govt. Office
Ishtiaq Uddin Ahmad	Retired Chief Conservator of Forests, former IUCN Country Representative	Bangladesh Forest Department	Govt. Office
Rakibul Hasan	Executive Director	Arannyak Foundation	Private Organization/NGO
Enam Ul Haque	Founder	Bangladesh Bird Club	Private Organization/NGO
Dr. M. Mokhlesur Rahman	Executive Director	CNRS	Private Organization/NGO
Dr. Shital Kumar Nath	Project Director	CODEC, Foy's Lake, Khulshi, Chittagong District	Private Organization/NGO
Mr. A.B.M. Sarowar Alam	Programme Manager	IUCN Bangladesh	Private Organization/NGO
Raja Devasish Roy	Chief	Chakma Circle	N/A
Professor Md. Anwarul Islam	Chief Executive	WildTeam	Private Organization/NGO
Mary Rowen	Deputy Director, Center for Natural Environment Biodiversity Division Chief Center for Natural Environment Bureau for Resilience, Environment and Food Security (REFS)	USAID	USAID
Todd Johnson	Senior Environment Officer and Regional Climate Integration Lead Asia Bureau, Office of Technical Services	USAID	USAID

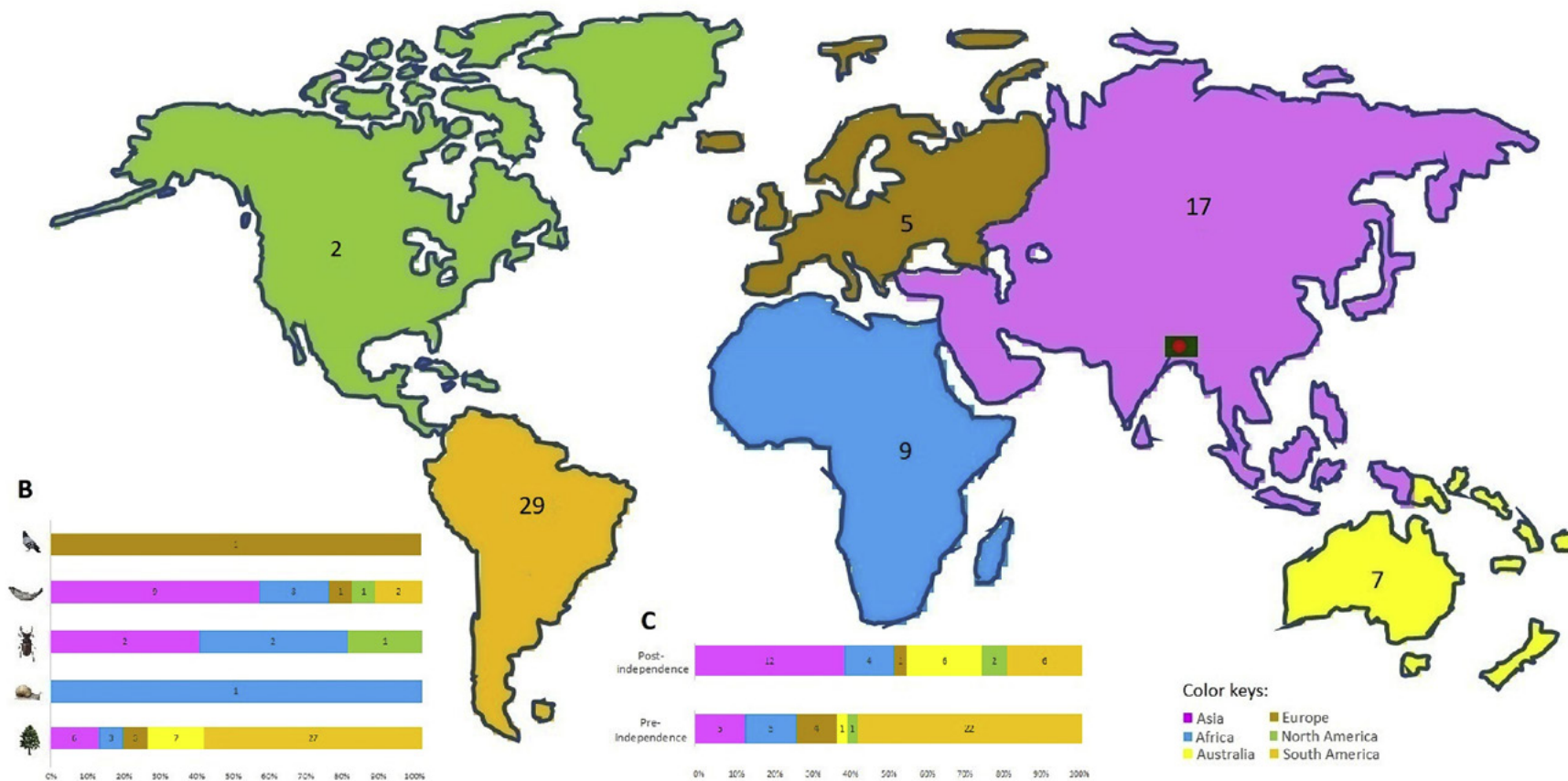
TABLE B-1. INDIVIDUALS CONSULTED DURING FIELDWORK

NAME	POSITION	ORGANIZATION	TYPE OF ORGANIZATION
Anup Kumar Roy	Senior Partnership Director, FtF Horticulture	Chemonics	USAID Implementing Partner
Md. Nazmul Huda Sarker	Partnership Coordinator (Local Partnerships), FtF Horticulture		
Felix Gaschick	Chief of Party, Protibesh Activity		
Dr. Azharul Mozumder			
MD. Modinal Ahsan	Biodiversity and Wildlife Lead, Protibesh Activity		
Arif Ahmed	Livelihood and Market System Lead, Protibesh Activity		
Dr. Samia Saif	Program Coordinator, Wildlife Protection Activity	ICITAP	USAID Implementing Partner
Dr. Nasire Uddin	Program Coordinator, Wildlife Protection Activity		
Professor MD. Abdur Rob Mollah	Chairman	NACOM	Private Organization/NGO
Ram Sharma	Chief Technical Specialist, Forest and Watershed Management, Strengthening Inclusive Developing in CHT Project	UNDP CHTWCA	International Community
Prasenjit Chakma	Assistant Resident Representative, Resilience, and Inclusive Growth Cluster		
Andrew Miller	MEL and Communications		
Joseph Lessard	Deputy Director, Economic Growth	USAID/Bangladesh Mission	International Community
Md. Mehedi Hassan	Project Management Specialist (Policy, Research, and Food Safety)		
Farhad Hossain	Feed the Future		
Shahnaz Zakaria	Senior Advisor, FDHA		
Mahabub Zaman	Mission Engineer	USAID/Bangladesh Mission	International Community
Tofayel Alam	Project Management Specialist		
Md. Abul Kalam	Global Health Security Specialist		
Motasim Billah	Acting Team Lead, MELA, Analytics	PHN, USAID	International Community
Farin Islam	Integration Lead and Project Management Specialist		
Amy Cass	ESTH	State Department	International Community

ANNEX C. ADDITIONAL MAPS, GRAPHICS, AND TABLES

Figure C-1: World Map Showing the Origin of the Identified Invasive Alien Species in Bangladesh²⁵⁶

A



256 This map also shows organism type by continents (B) and period of their suspected introduction into the country (C); Mukul, S. A., Arfin Khan, M. A. S., & Uddin, M. B. (2020). Identifying threats from invasive alien species in Bangladesh. *Global Ecology and Conservation*, 23, e01196. <https://doi.org/10.1016/j.gecco.2020.e01196>

TABLE C-1. LIST OF PROTECTED AREAS²⁵⁷

SI.	NAME	LOCATION	AREA (HA)	TYPE	YEAR OF DECLARATION
NATIONAL PARK					
1	Bhawal National Park	Gazipur	5022.29	Deciduous forest in highlands	1982
2	Madhupur National Park	Tangail and Mymensingh	8436.13	Deciduous forest in highlands	1982
3	Ramsagar National Park	Dinajpur	27.75	Man-made lake surrounded by plantation	2001
4	Himchari National Park	Cox's Bazar	1729	Bush, bamboo and plantation in hills	1980
5	Lawachara National Park	Moulavibazar	1250	Mixed evergreen forest in low hills	1996
6	Kaptai National Park	Chittagong Hill Tracts	5464.78	Mixed evergreen forest and teak plantation in hills	1999
7	Nijhum Dweep National Park	Noakhali	16352.23	Planted Mangrove on coastal Island	2001
8	Medhakachhapia National Park	Cox's Bazar	395.92	Dipterocarp forest in hillocks	2004
9	Satchari National Park	Habigonj	242.91	Mixed evergreen forest in hillocks	2005
10	Khadimnagar National Park	Sylhet	678.8	Plantation in hillocks	2006
11	Baroiyadhala National Park	Chittagong	2933.61	Plantation and bush in hills	2010
12	Kadigarh National Park	Mymensingh	344.13	Deciduous forest in highlands	2010
13	Kuakata National Park	Patuakhali	1613	Sandy beach with mangrove remnants	2010
14	Nababgonj National Park	Dinajpur	517.61	Deciduous forest in highlands	2010
15	Singra National Park	Dinajpur	305.69	Deciduous forest in highlands	2010
16	Altadighi National Park	Naogaon	264.12	Deciduous forest in highlands	2011
17	Birgonj National Park	Dinajpur	168.56	Deciduous forest in highlands	2011

257 Forest Department of the Government of the People's Republic of Bangladesh. (2023, August 22). *Protected Areas: Introduction and List*. Forest Department of the Government of the People's Republic of Bangladesh. <https://bforest.gov.bd/site/page/5430ce33-561e-44f6-9827-ea1ebaa2c00d/>; Bangladesh Forest Department; Protected planet | Bangladesh. (n.d.). Protected Planet. Retrieved September 9, 2024, from <https://www.protectedplanet.net/country/BGD>; Islam, F. (2024, July 1). *Bangladesh's fifth marine protected area (MPA) is the Naf Peninsula MPA*. Seafood Network BD. <https://seafoodnetworkbd.com/bangladeshs-fifth-marine-protected-area-mpa-is-the-naf-peninsula-mpa>

TABLE C-1. LIST OF PROTECTED AREAS²⁵⁷

SI.	NAME	LOCATION	AREA (HA)	TYPE	YEAR OF DECLARATION
18	Sheikh Jamal Inani National Park	Cox's Bazar	7085.16	Mixed evergreen and semi-evergreen forest	2019
19	Dharmapur National Park	Dinajpur	704.4	Deciduous forest in highlands	2021
WILDLIFE SANCTUARY					
20	Char Kukri-Mukri Wildlife Sanctuary	Bhola	40	Planted Mangrove on coastal Island	1981
21	Pablakhali Wildlife Sanctuary	Chittagong Hill Tracts	42069.37	Mixed evergreen forest and bush in hills	1983
22	Chunati Wildlife Sanctuary	Chittagong	7763.97	Bamboo, bush and dipterocarp forest in hills	1986
23	Rema-Kalenga Wildlife Sanctuary	Hobigonj	1795.54	Mixed evergreen forest in hillocks	1996
24	Fashiakhali Wildlife Sanctuary	Cox's Bazar	1302.42	Plantation in hillocks	2007
25	Dudpukuria-Dhopachari Wildlife	Chittagong	4716.57	Mixed evergreen forest in hillocks	2010
26	Hajarikhil Wildlife Sanctuary	Chittagong	1177.53	Plantation, bamboo and bush in hills	2010
27	Sangu Wildlife Sanctuary	Bandarban	2331.98	Mixed evergreen forest in hills	2010
28	Tengragiri Wildlife Sanctuary	Barguna	4048.58	Planted Mangrove on coast	2010
29	Sonarchar Wildlife Sanctuary	Patuakhali	2026.48	Planted Mangrove on coastal Island	2011
30	Dhangmari Wildlife Sanctuary	Bagerhat	340	River inside mangrove forest	2012
31	Chadpai Wildlife Sanctuary	Bagerhat	560	River inside mangrove forest	2012
32	Dudhmukhi Wildlife Sanctuary	Bagerhat	170	River inside mangrove forest	2012
33	Teknaf Wildlife Sanctuary	Cox's Bazar	11614.57	Plantation, bamboo and bush in hills	2009
34	Nagarbari-Mohanganj Dolphin Sanctuary	Pabna	408.11	Freshwater river	2013
35	Shilanda-Nagdemra Wildlife (Dolphin) Sanctuary	Pabna	24.17	Freshwater river	2013
36	Nazirganj Wildlife (Dolphin) Sanctuary	Pabna	146	Freshwater river	2013

TABLE C-1. LIST OF PROTECTED AREAS²⁵⁷

SI.	NAME	LOCATION	AREA (HA)	TYPE	YEAR OF DECLARATION
37	Sundarban (East) Wildlife Sanctuary	Bagerhat	122920.9	Mangrove forest on coast	1996 & 2017
38	Sundarban (West) Wildlife Sanctuary	Satkhira	119718.88	Mangrove forest on coast	1996 & 2017
39	Sundarban (South) Wildlife Sanctuary	Khulna	75310.3	Mangrove forest on coast	1996 & 2017
40	Pankhali Wildlife (Dolphin) Sanctuary	Khulna	404	River inside mangrove forest	2020
41	Shibsha Wildlife (Dolphin) Sanctuary	Khulna	2155	River inside mangrove forest	2020
42	Vadra Wildlife (Dolphin) Sanctuary	Khulna	868	River inside mangrove forest	2020
43	Padma Setu Wildlife Sanctuary	Madaripur, Shariotpur, Munshiganj, Faridpur	11772.608	Padma River and its adjacent floodplain areas	2020
44	Baishari Bangdepa Wildlife Sanctuary	Cox's Bazar	2233.055		2023
MARINE PROTECTED AREA					
45	Marine Reserve	Bay of Bengal	69,800	Marine	2000
46	Swatch of No-Ground Marine Protected Area	West Bay of Bengal	173,800	Marine	2014
47	Saint Martin's Marine Protected Areas	Southeast Bay of Bengal	174,300	Marine	2022
48	Nijum Dwip Marine Reserve/ Marine Protected Area	North Bay of Bengal	318,800	Marine	2019
49	Naf Marine Protected Area	Southeast Bay of Bengal	73,417	Marine	2024
SPECIAL BIODIVERSITY CONSERVATION AREA					
50	Ratargul Special Biodiversity Conservation Area	Sylhet	204.25	Freshwater swamp forest in lowland	2015
51	Altadighi Water-Based Special Biodiversity Conservation Area	Naogaon	17.34	Freshwater wetland	2016
VULTURE SAFE ZONE					
52	Vulture Safe Zone -1	Sylhet, Habiganj, Sunamganj, Moulvibazar, Netrokona, Kishoreganj, Gazipur, Mymensingh, Brahmanbaria, Narsingdi, Comilla and Khagrachari	1966318	Habitat for reproduction and resting place of vulture	2014

TABLE C-1. LIST OF PROTECTED AREAS²⁵⁷

SI.	NAME	LOCATION	AREA (HA)	TYPE	YEAR OF DECLARATION
53	Vulture Safe Zone -2	Faridpur, Magura, Jhenaidah, Madaripur, Jessore, Gopalganj (except Tungipara), Narail, Shariatpur, Barisal, Bagerhat, Khulna, Satkhira, Pirojpur (excluding Bhandaria), Jhalokati, Patuakhali and Barguna	2771726	Habitat for reproduction and resting place of vulture	2014

Note: The Nishorgo project, funded by USAID from 2003-2007, approved management plans for 22 PAs. Since then, no specific management plans have been approved for newly declared PAs, which are currently managed by the Forest Department without any formal plans.

TABLE C-2. LIST OF ECAS²⁵⁸

SI.	NAME OF ECA	LOCATION	AREA (HA)	ECOSYSTEM TYPE	YEAR OF DECLARATION
1	Sundarbans periphery buffer (strip of ten kilometers around the forest)	Satkhira, Khulna, Bagerhat, Pirojpur and Barguna	292926	Coastal Marine	1995
2	Teknaf Peninsula (Sea shore of Cox's Bazar and Teknaf)	Cox's Bazar	10465	Coastal Marine	1995
3	Saint Martin's Island	Cox's Bazar	590	Marine Island with coral reefs	1995
4	Sonadia Island	Cox's Bazar	4916	Marine Island	1995
5	Tanguar Haor	Sunamganj	9727	Inland Freshwater Wetland	1995
6	Hakaluki Haor	Mouluvibazar	18383	Inland Freshwater Wetland	1995
7	Gulshan Baridhara Lake	Dhaka	101	Urban Freshwater Wetland	1995
8	Marjat Baor	Jhenaidah	200	Freshwater wetland (oxbow lake)	1995
9	Buriganga River (including shores)	Dhaka	1335.5	Freshwater river (bordering Dhaka city)	2009
10	Turag River (including shores)	Dhaka	1183.82	Freshwater river (bordering Dhaka city)	2009
11	Shitalaksha River (including shores)	Dhaka	3770.93	Freshwater river (bordering Dhaka city)	2009
12	Balu River (including shores)	Dhaka	995.4	Freshwater river (bordering Dhaka city)	2009
13	Jaflong-Dauki River (including shores)	Sylhet	1493	Freshwater river (coming from Meghalaya hills)	2015

258 Department of Environment (DoE)

TABLE C-3. LIST OF ECO-PARKS, SAFARI PARKS AND BOTANICAL GARDENS²⁵⁹

SI.	NAME	LOCATION	AREA (HA)	YEAR OF DECLARATION
1	Sitakunda Botanical Garden and Eco-Park	Chittagong	808	1998
2	Madhutila Eco-Park	Sherpur	131.138	1999
3	Madhabkundu Eco-Park	Moulavibazar	202.35	2001
4	Banshkhali Eco-Park	Chittagong	1200	2003
5	Borshijora Eco-Park	Moulavibazar	326.07	2006
6	Tilagar Eco-Park	Sylhet	45.34	2006
7	Jamuna Bridge Eco-Park	Jamuna River Bank, Pabna	50.02	2008
8	Pirojpur Riverview Eco-Park	Pirojpur	2.54	2010
9	Char-muguria Eco-Park	Madaripur	4.2	2015
10	Bangabandhu Sheikh Mujib Safari Park	Gazipur	1493.93	2013
11	Bangabandhu Sheikh Mujib Safari Park	Cox's Bazar	600	1999
12	National Botanical Garden	Dhaka	84.21	1961
13	Baldha Garden (Botanical Garden)	Dhaka	1.37	1909

TABLE C-4. LIST OF BIRD COLONIES IN THE NORTHERN PART OF THE COUNTRY²⁶⁰

NO.	BIRD COLONY	NO.	BIRD COLONY
1	Bhalukgachi Shamukkhoh Colony, Chawkpara, Puthia, Rajshahi	26	Joanpur Pakhi Colony, Mohadebpur, Naogaon
2	Alidewna Pakhi Gram, Khajur, Mohadebpur, Naogaon	27	Bagbari Pakhi Colony, Naogaon
3	Shomoshkholshi Pakhi Colony, Naldnagha, Natore	28	Chanpur Mission Pakhi Colony, Mallickpur, Patnitala, Naogaon
4	Panchamaria Pakhi Colony, Puthia, Rajshahi	29	Gobindapur Pakhi Colony, Manda, Naogaon
5	Dakhin Moinom Pakhigram and Community Nature Palli, Manda, Naogaon	30	Jholmolia Pakhi Colony, Puthia, Rajshahi
6	Jhikrapara Pakhi Colony, Godagari, Rajshahi	31	Hatipota Khagorkuri Pakhi Colony, Boalia, Naogaon
7	Arani Piyadapara Pakhi Colony, Bagha, Rajshahi	32	Rajshahi Govt, Girls' College Pakhi Colony, Kadirganj, Rajshahi
8	Aagpara Sherkool Pakhi Colony, Singra, Natore	33	Jaypurhat Pakhi Colony, Jaypurhat
9	Bhatina Pakhi Colony, Dinajpur Sadar, Dinajpur	34	Kadamkuri Pakhi Colony, Madhainagar, Patnitala, Naogaon
10	Kazisharifpur Pakhi Colony, Bera, Pabna	35	Raigaon Pakhi Colony, Matajihhat, Naogaon

259 Bangladesh Forest Department

260 Bangladesh Forest Department

TABLE C-4. LIST OF BIRD COLONIES IN THE NORTHERN PART OF THE COUNTRY²⁶⁰

NO.	BIRD COLONY	NO.	BIRD COLONY
11	Madhabdangha Pakhi Colony, Dhunat, Bogra	36	Binodpur (North and East Para) Pakhi Colony, Manda and Mohadebpur, Naogaon
12	Hassanpur Pakhigram, Amohadebpur, Naogaon	37	Gaherpur Pakhi Colony, Intitala, Naogaon
13	Jogvoga Pakhi Colony, Gabtali, Bogra	38	UtralManikbeel Pakhi Colony, Daluabari, MManda, Naogaon
14	Taluk Kanupur Uttarpara, Pakhi Colony, Gobindaganj, Gaibandha	39	Kandia Bazar Pakhi Colony, Gobindaganj, Gaibanda
15	Kunjaban Pakhigram, Mohadebpur, Naogaon	40	Singhari Pakhi Colony, Birganjhat, Haripur, Thakurgaon
16	Shomnagar Pakhi Colony, Borogram, Porsha, Naogaon	41	Goona Pakhi Colony, Goona, Raninagar, Naogaon
17	TalukUpashu Pakhi Colony, Mahimganj, Rangpur	42	Bandaikhara Pakhi Colony, Dhanpara, Atrai, Naogaon
18	Kanipukur Pakhi Colony, Khetlal, Jaypurhat	43	Jamalganj Pakhi Colony, Akkelpur, Jaypurhat
19	Alhaj Textile Mills Pakhi Colony, Ishwardhi, Pabna	44	Mahabbatpur Pakhi Colony, Khetlal, Jaypurhat
20	Rajshahi University Campus Pakhi Colony, Binodpur, Rajshahi	45	Baludanga Bus stand Pakhi Colony, Naogaon
21	Shorshonipara Pakhi Colony, Kakonhat, Godagari, Rajshahi	46	BaliharPakhi Colony, Naogaon
22	Akubari Pakhi Colony, Mohanpur, Rajshahi	47	Perindipakhi Colony, Gobindaganj, Gaibanda
23	Rajshahi Central Jail Pakhi Colony, Rajshahi	48	Mareya Forest, Debiganj, Panchagar
24	Biharhat Pakhi Colony, Shibganj, Bogra	49	Srinagar, Manda and Mohadebpur, Naogaon
25	Kismat Koodandi Pakhi Colony, Budhpara, Matihar, Rajshahi	50	Gopinathpur, Badurtala, Khetlal, Jaypurhat

TABLE C-5. LIST OF IMPORTANT BIRD AND BIODIVERSITY AREAS

NO.	AREA	NO.	AREA
1	Aila Beel	11	Pablakhali Wildlife Sanctuary
2	Ganges-Brahmaputra-Meghna Delta	12	Patenga Beach
3	Hail Haor	13	Rajkandi Reserved Forest
4	Hakaluki Haor	14	Kaptai National Park
5	Hazarikhil Wildlife Sanctuary	15	Rema-Kalenga Wildlife Sanctuary
6	Himchari National Park	16	Sangu Matamuhari Reserved Forest
7	Jamuna-Brahmaputra River	17	Sonadia Island
8	Lawachara/West Bhanugach Reserved Forest	18	Sundarbans (East, South and West Wildlife Sanctuaries)
9	Madhupur National Park	19	Tanguar Haor and Panabeel
10	Muhuri Dam	20	Teknaf Wildlife Sanctuary

ANNEX D. FIELD WORK ITINERARY

TABLE D-1. ITINERARY FOR STAKEHOLDER CONSULTATIONS AND SITE VISITS

DATE(S)	(SUB-) TEAM ACTIVITIES	LOCATION
June 1st	All team members arrive in Dhaka	Dhaka
June 2nd	In-briefing with USAID/Bangladesh Front Office and other personnel managing analysis (morning), Dhaka-based consultations (evening)	Dhaka
June 3rd - 8th	<p>Sub-team 1: Site visits to northwestern Bangladesh, focused on areas of ecological importance where USAID has not historically invested.</p> <p>Sub-team 2: Site visits to central southern Bangladesh, focused on areas with substantial current USAID investments.</p>	<p>Northwestern sub-team: Sites included remnants of sal forest and expanded village forests, areas for fish, gharial, and waterbird conservation along Jamuna River; wetland sites in Chalan Beel area, and sites for urban ecosystem conservation in Rajshahi city</p> <p>South central sub-team: Sites included FtF activity locations, Patuakhali, and USAID/ ECOFISH sites (e.g., lower Meghna River).</p>
June 9th	Full team meeting and debrief from initial site visits/ consultations	Dhaka
June 10th - 15th	<p>Sub-team 1: Site visits to Southeast Bangladesh, focused on areas with substantial current USAID investments.</p> <p>Sub-team 2: Stakeholder consultations with USAID technical teams and other stakeholders in Dhaka</p>	<p>Southeast sub-team: Sites include Cox's Bazar, Teknaf, Rangamati, and Chittagong Hill Tracts.</p> <p>Sub-team 2: Dhaka</p>
June 16th	Full team meeting and debrief from site visit and consultations	Dhaka
June 17th	Team members depart	Dhaka

ANNEX E. STAKEHOLDER CONSULTATION PROTOCOLS

SEMI-STRUCTURED INTERVIEW GUIDE FOR USAID STAKEHOLDERS BASED IN WASHINGTON, DC

1. In what capacity did/do you work on conservation in Bangladesh? For how long? On what topics?
2. Based on your knowledge and expertise, and thinking particularly about trends since 2016 when the last 118/119 was completed:
 - a. What are the actions necessary to conserve biodiversity and tropical forests in Bangladesh?
 - b. What are the major gaps in efforts by USAID, the government of Bangladesh, and other donors to conserve biodiversity and tropical forests?
 - c. To what extent is USAID currently meeting biodiversity and forest conservation needs? *Probe: how well do the specific geographies and/or types of interventions USAID is pursuing meet these needs?*
 - d. How well placed is USAID to meet these needs in the future? *Probe: are there specific geographies and/or types of interventions USAID could pursue to better meet these needs, from your point of view?*
2. Are there any documents or reports that you suggest the Analysis Team review to improve our understanding of threats to biodiversity and tropical forests in Bangladesh, and opportunities for conservation?
3. Are there any specific people you recommend we speak with here or in Bangladesh on these topics?

SEMI-STRUCTURED INTERVIEW GUIDE FOR USAID STAKEHOLDERS BASED IN BANGLADESH

A. USAID Bangladesh Program Information

1. Please describe your current role and responsibilities at the Mission.
2. Which of the Mission's **current** programs, partners, and program objectives do you support?
3. Are there any **future** and/or **planned** activities at the Mission that you will support? What are their objectives? *Probe: Do these fit neatly into the existing CDCS, or do they represent shifts compared to the current CDCS?*
4. Are there any reports or analyses you think we should review to help us understand the activities you support?

B. USAID Program Linkages with Biodiversity and Natural Resources

Note: Phrasing of the questions below were adjusted depending on the specific activity/activities the stakeholder supports. The phrasing below assumed the stakeholder supports activities not directly related to biodiversity and forests. If the stakeholder supports activities directly related to these topics, the questions would instead ask about linkages to other DOs in the CDCS.

1. What linkages do you see between forests and biodiversity and your programs?
2. How would or does degradation of biodiversity and natural resources affect your activities and objectives?

3. How would improvements in natural resources management and conservation support your activities and objectives? If so, please provide specific observations and ideas on relevant linkages.
4. Based on your observations and experience, how might your programs and activities more effectively promote biodiversity conservation and incorporate efforts to improve management of natural resources?
5. Based on your observations and experience, how might your programs and activities be achieved more effectively by the promotion of biodiversity conservation and efforts to improve management of natural resources?

SEMI-STRUCTURED INTERVIEW GUIDE FOR NON-USAID STAKEHOLDERS

Note: The interview questions below will be modified slightly for each stakeholder to be specific for their area of expertise (geographical, sectoral, etc.). Alternatively, if it is a site-specific interview, the questions will be modified to be about the site.

Current Status

1. What are the current threats to biodiversity and forests?
2. Can you prioritize the threats from greatest to least?
3. What are the greatest needs for biodiversity and forest conservation in Bangladesh?
4. What are the greatest opportunities for biodiversity and forest conservation?
5. What solutions do you think should be prioritized in Bangladesh?

Probes

1. Are there missing geographical areas or missing ecosystems (wetlands, hills, marine) from existing conservation efforts?
2. Do you have success stories and experiences inside or outside your organization on cross-cutting benefits of biodiversity/forest conservation that you'd like to share with us?

Change Over Time

1. Have threats (direct and indirect) changed over time? How?
2. Do you see new or arising threats?
3. Has progress been made in Bangladesh's environmental "development"? If so, describe.

Other

1. Do you have suggestions for people to meet during our site visits?
2. What documents/reports do you think are important for an analysis like ours that we might not be aware of?

ANNEX F. SITE VISIT GUIDE

To be completed separately for each site visited to capture the purpose and outcome of each site visit.

Date & Time	
Purpose of visit	
Site Location	
Site Description & Condition	
People Interviewed/Organizations/POC	
Documents & Records Received/Reviewed	
Key Findings & Conclusions	
Any follow up required?	
Notes (including any photos taken which may be helpful to reference in final report)	

ANNEX G. SCOPE OF WORK

BANGLADESH TROPICAL FOREST AND BIODIVERSITY (118/119) ANALYSIS—PRODUCT SCOPE

MAY 2024

PRODUCT DETAILS	
Product Name: Bangladesh 118/119 Analysis	IDEAL Billing Code: 1023.BNG.SA2.01
Deliverable #: N/A	COR Approval Required: Yes
508 Required: Yes	Post to DEC: Yes
Product POC: Samantha Levine-Finley	USAID POC: Aditya Sood (Bangladesh)/Nirmal Bhagabati (REFS/CNE)
IDEAL Comms POC: Katie Horan	

PRODUCT TITLE: FOREIGN ASSISTANCE ACT (FAA) 118/119 TROPICAL FOREST AND BIODIVERSITY ANALYSIS

SUMMARY OF CONCEPT

IDEAL will implement an analysis of tropical forests and biodiversity in Bangladesh, in fulfillment of requirements under sections 118 and 119 of the Foreign Assistance Act (FAA).

Background

By mandating FAA 118/119 analyses, the U.S. Congress recognizes the fundamental role of tropical forests and biodiversity in supporting development. The analysis will examine the country-level tropical forest and biodiversity conservation needs and the extent to which the Mission is currently addressing the actions necessary to conserve and sustainably manage tropical forests and biodiversity. The report recommendations will help the Mission identify ways to strengthen host country commitment and capacity to biodiversity conservation.

Summary of Relevant Parts of FAA Sections 118 and 119

The Mission is required by Sections 118/119 of the FAA to prepare an analysis of the state of biodiversity and tropical forests in Bangladesh ('the Assessment'). Specifically, FAA Sections 118 (Tropical Forest) and 119 (Biodiversity), as amended, require that country development strategies, statements, or other country plans prepared by USAID include an analysis with the following characteristics:

- (1) **FAA Section 118 (e) Country Analysis Requirements.** Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of:
 - (a) The actions necessary in that country to achieve conservation and sustainable management of tropical forests, and
 - (b) The extent to which the actions proposed for support by the Agency meet the needs thus identified.

- (2) **FAA Section 119 (d) Country Analysis Requirements.** Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of:
- (a) The actions necessary in that country to conserve biological diversity, and
 - (b) The extent to which the actions proposed for support by the Agency meet the needs thus identified.

The FAA 118/119 analysis for USAID/Bangladesh must adequately respond to these two questions for country strategies, also known as “actions necessary” and “extent to which” questions.

Purpose or Goals

The primary purpose of this task is to conduct an analysis of tropical forests and biodiversity in compliance with Sections 118 and 119 of the FAA, as amended, ADS Program Cycle Operational Policy and USAID policy on 118/119 analyses. The analysis will inform USAID/Bangladesh in the implementation of its ongoing CDCS (effective through December 31, 2027), and development of the following CDCS. USAID’s approach to development requires that the Agency examine cross-sector linkages and opportunities to ensure a robust development hypothesis. Biodiversity conservation is a critical component in achieving development outcomes and should be considered in the Mission’s development objectives. The analysis therefore can define opportunities to integrate tropical forest and biodiversity conservation into priority development sectors to support the Mission’s country development strategy.

IDEAL understands that the Mission additionally intends to use the findings and recommendations from the Assessment to inform a broader Environment Portfolio Strategy, to be developed separately once the Assessment is completed. This strategy will establish how current and future projects and activities within the Mission’s Environment Portfolio work together in service of relevant development objectives (DO) from the CDCS. This includes the intersection of programmatic objectives related to tropical forests, biodiversity, and sustainable economic growth. IDEAL will ensure the final analysis report is useful for this purpose, in addition to meeting the standard legal requirements for 118/119 analyses described above.

Mission Program

USAID/Bangladesh’s CDCS, effective through December 31, 2027, hypothesizes that strengthened democracy for an inclusive society (DO 1), sustainable economic growth (DO 2), advanced human capital development (DO 3), and strengthened resilience to climate change and other shocks (DO 4) will enable Bangladesh to be more inclusive, democratic, prosperous, and resilient.²⁶¹ [Figure G-1](#) depicts these four DOs in an articulated results framework with their underlying intermediate results (IR).

Within this framework, biodiversity and tropical forest conservation fit most squarely within IR 2.3, seeking to improve natural ecosystem management as part of a strategy to foster sustainable economic growth. The Mission pursues this IR through improved sustainable ecosystem governance, strengthened conservation safeguards, and enhanced sustainable business practices, trade, and investment of natural resources.

²⁶¹ See https://www.usaid.gov/sites/default/files/2023-06/Bangladesh-CDCS-2020-2027-FINAL_1.pdf.

Figure G-1: Bangladesh 2020-2027 CDCS Results Framework

RESULTS FRAMEWORK

Goal Statement: Bangladesh is a More Inclusive, Democratic, Prosperous, and Resilient Indo-Pacific Partner			
Democracy Strengthened for an Inclusive Society	Sustainable Economic Growth Fostered	Human Capital Development Advanced	Strengthened Resilience to Climate Change and Other Shocks
IR 1.1 Fundamental Freedoms and Rights Improved IR 1.2 Political Processes Strengthened IR 1.3 Responsive Governance Improved	IR 2.1 Food Security and Systems Improved IR 2.2 Business Enabling Environment Improved IR 2.3 Natural Ecosystems Improved	IR 3.1 Inclusive Health and Education Systems Strengthened IR 3.2 Utilization of Quality Essential Health Services Expanded IR 3.3 Access to Quality Essential Education Services	IR 4.1 Actions to Confront the Climate Change Crisis Catalyzed IR 4.2 Disaster Risk Management Strengthened IR 4.3 Opportunities for Rohingya and Host Community Enhanced

Table A-1 enumerates the different activities within the Mission’s environment portfolio that contribute to biodiversity and tropical forest conservation. Over the course of the 118/119 analysis, IDEAL will rely on program documents and consultations with the Mission program office and relevant technical teams to expand its understanding of the activities outside the environment portfolio and the potential intended and unintended intersections between these activities and the environment.

TABLE G-1. USAID/BANGLADESH ENVIRONMENT PORTFOLIO, AS OF MAY 2024²⁶²

ACTIVITY NAME, POP	INTERSECTION WITH TROPICAL FORESTS AND BIODIVERSITY	GEOGRAPHIC FOCUS
USAID Ecosystems/Protibesh Activity, 2021-2026	Advancement of community-based, nature-based solutions to conserve key biodiversity areas.	Sundarbans (southwestern region) and the Sylhet region of northeastern Bangladesh
Community Partnerships to Strengthen Sustainable Development (COMPASS), 2019-2024	Evidence-based scientific exchange to enhance the capacity of institutions and communities to manage natural resources and improve livelihoods, including through forest landscape restoration.	Chittagong Hill Tracts and Cox’s Bazar (southeastern region), Bandarban and Dhaka districts (northeastern region)
Ecosystem Conservation through Livelihood Improvement and Forest Enhancement (ECO LIFE), 2020-2025	Capacity building to enhance resource mobilization capacity for conservation actions and sustainability. Promotes alternative income-generating activities for 4,300 natural resource-dependent households surrounding forest protected areas and ECAs.	Himchari National Park, Medhakachhapia National Park, Fasiakhali Wildlife Sanctuary, Cox’s Bazar-Teknaf Peninsula, and Sonadia Island
Greening Environment through Livelihood Improvement and Forest Enrichment (GREEN LIFE), 2020-2025	Strengthened co-management organizations and livelihood development support to 1,800 households to promote sustainable agriculture and energy use surrounding Inani National Park.	Inani National Park

262 USAID/Bangladesh’s environment portfolio includes other activities that target environmental outcomes not directly related to biodiversity and tropical forest conservation, such as improved energy security and community resilience to climate change.

TABLE G-1. USAID/BANGLADESH ENVIRONMENT PORTFOLIO, AS OF MAY 2024²⁶²

ACTIVITY NAME, POP	INTERSECTION WITH TROPICAL FORESTS AND BIODIVERSITY	GEOGRAPHIC FOCUS
Nature Conservation through Livelihoods Improvements (Nature and Life) , 2020-2025	Support to 2,000 households surrounding Teknaf Wildlife Sanctuary for sustainable livelihoods and reduced use of biomass fuels. Also includes capacity building for community-based organizations to enhance local conservation initiatives.	Teknaf Wildlife Sanctuary
Enhanced Coastal Fisheries in Bangladesh (ECOFISH) II , 2019-2024	Applies ecosystem-based approach to fisheries management to increase fish abundance and biomass in coastal waters and build community resilience in areas dependent on fisheries. Also includes activities to promote the economic well-being of fishers.	Lower Meghna River, Naf River, and coastal marine waters of the Bay of Bengal in Cox's Bazar District
USAID-DOJ Wildlife Protection Activity/Bonnoprani Rokkha (WPA) , 2019-2025	Aims to reduce illegal killing and gathering of wildlife through capacity building for improved investigation and law enforcement together with education and civil society mobilization campaigns.	Nationwide, with focus on wildlife trafficking hotspots (land, sea, and airports)
Bangladesh Ecotourism and Conservation Alliance (BECA) , 2021-2024	Supports a private sector-led tourism development alliance, including through efforts to conserve the Sundarbans as an ecotourism destination and promote livelihood opportunities for local populations in the tourism value chain.	Sundarbans

AUDIENCES AND INTENDED USES

The primary audience for the Assessment is the USAID/Bangladesh Mission, including the specific audiences below:

1. The **Program Office** will rely on the 118/119 to adaptively manage the portfolio of activities underlying the current Mission CDCS and design the upcoming Mission CDCS in 2028 to ensure the Mission’s programming includes the actions necessary to conserve conservation of tropical forests and biological diversity.
2. The **Environment Team** seeks actionable and well-evidenced recommendations to inform a broader Environment strategy and link their various environment activities to the strategy outlined in their CDCS. They will similarly rely on the analysis to inform their participation in the design of the new CDCS in 2028.
3. **Non-environment technical teams** at the Mission (e.g. Agriculture and Food Security, Democracy Rights and Governance, Education, etc.) stand to benefit from clear linkages between biodiversity and tropical forest conservation activities with development objectives relevant to their current programming portfolio. These teams will also use the analysis to inform their participation in the new CDCS design.

Secondary audiences for the analysis may also include the Biodiversity and Natural Climate Solutions Divisions in the Center for the Natural Environment within the Bureau for Resilience, Environment, and Food Security (USAID/REFS/CNE/BD and USAID/REFS/CNE/NCS), and other USAID Washington teams, Missions, or Regional Programs. For these audiences, the analysis may broaden the global evidence basis regarding the status of threats to and opportunities for biodiversity and tropical forest conservation.

OUTPUTS, TIMELINE AND DELIVERABLES

To achieve the above-stated purpose for the stated audiences, the analysis team, under the direction of a Team Lead, will proceed as described in this section. The analysis is based on synthesis and analysis of existing information, coupled with in-country consultations (virtual and/or in-person), and site-based visits. The analysis will not generate original primary data.

Expectations for Key Analysis outputs

The following are the key outputs/deliverables for this task:

- **Deliverable 1.** Draft work plan and schedule submitted within 15 working days of the finalized Technical and Cost Response.
- **Deliverable 2.** Exit briefing or workshop, and associated media such as PowerPoint, hand-outs, etc., prior to the analysis team's departure from the country.
- **Deliverable 3.** Draft FAA 118/119 analysis report, submitted within 20 working days after the conclusion of in-country work.
- **Deliverable 4.** Final report incorporating all comments, submitted within 20 working days of the receipt of all USAID review comments on the draft analysis.

The sections below provide additional detail on expected team activities contributing to each of these outputs, along with expectations for final deliverable characteristics.

Desk-Based Data Collection and Analysis

- Gather and begin to analyze existing information to identify tropical forest and biodiversity status, key biodiversity issues, stakeholders, policy and institutional frameworks, and gaps in the available information. Reports and other documentation to be reviewed include previous 118/119 analyses, current CDCS and Mission project documents (e.g. project reports and evaluations), recent peer reviewed literature, information available online (e.g. websites of government ministries) on biodiversity conservation, publicly available secondary and geospatial data relevant to biodiversity conservation the National Biodiversity Strategy and Action Plan, and the National State of the Environment Report.

Work Plan and Logistical Preparations

- Organize weekly planning meetings between the Mission activity manager and the analysis team to discuss the work plan and logistics for in-country consultations and site-based visits. Weekly meetings will include support for planning and logistics, such as lodging and in-country schedules, key informant contacts, meetings, and interview protocols, and political or other sensitivities.
- In coordination with the Mission, the team should begin planning in-country consultations and site-based visits commensurate with the Mission's recommendations and the team's preliminary review of key topics and information gaps. Site-based visits should include areas where less is known about the biodiversity threats and drivers. Consultations should include intensive time in cities/urban areas collaborating with the Mission and conducting key informant interviews or focus groups. Site-based visit locations should be proposed at least two weeks prior to arrival in-country to allow the team to complete necessary logistical preparations.
- Identify the protocol for approaching USAID partners, host country government, and other organizations for consultations and other requests related to the assignment.
- In coordination with the Mission, the team should initiate U.S.-based consultations to key U.S.-based

stakeholders, including within USAID, other parts of the U.S. Government, and non-governmental and private sector actors.

- Develop and submit a draft work plan 15 working days after the start of the period of performance (**Deliverable 1**). The draft work plan will include a schedule of tasks and milestones, assessment methods, and a brief discussion of information gaps. The draft work plan will also include a preliminary:
 - List of the type of information to be obtained through further desk research and through consultations.
 - Description of biodiversity hotspots and areas of ecological importance to help inform the analysis and potential site-based visits.
 - Mapping of key people to engage throughout the analysis process. This may include U.S.-based (predominantly Washington) stakeholders; Mission staff, including the program office, all sector technical staff, and the Deputy and Mission Director; implementing partners; and other key in-country stakeholders (e.g., organizations, government bodies, the private sector, and individuals knowledgeable about and/or implementing projects on environment, biodiversity and tropical forest conservation, and other sectors relevant to tropical forest and biodiversity conservation, such as agriculture, economic growth, health, climate change, and governance).
 - Itinerary for in-country consultations and site-based visits, based upon information made available by the Mission regarding existing programming, areas of known concern and areas being considered for future programming.
 - Key informant interview guides to be used for stakeholder consultations.
 - Report outline based on the outline included in Annex C in the FAA 118/119 Best Practices Guide, with differences noted and explained.
 - Schedule for written progress reports to, or calls with, the activity manager starting on May 31st and weekly thereafter during the in-country work. If calls are chosen, they will be documented with written call notes provided to the USAID activity manager.
- Finalize the work plan following receipt of Mission comments and suggestions on the draft work plan. The final work plan should be submitted two days before arriving in-country.

Mission and In-Country Consultations and Site-Based Visits

After arrival in-country, in coordination with the USAID activity manager, the analysis team will:

- Meet with the key Mission technical staff engaged in Mission coordination and management of the analysis and program office to:
 - Orient the attendees to the overarching objective of the 118/119 analysis, the methodology to be used, and the agreed upon itinerary per the approved work plan. Ideally this will have already been circulated within the Mission prior to the team's arrival in country.
 - Review the approach to the assignment with the Mission and learn specific Mission areas of interest or concerns regarding the planned itinerary and consultations.
 - Identify any additional organizations to be contacted.
 - Learn of any sensitivities related to the exercise (e.g., political constraints, Mission challenges in working with the host country government, or other generalized in-country implementation challenges) that could refine the analysis team's consultations and strategic or programming

recommendations (i.e., the potential for raising expectations and the need to be clear about the purpose of the analysis).

- Understand the Mission’s planned timeline for new CDCS development.
- Gain an understanding of the status of the new CDCS development/results framework and anticipated changes to overarching strategic goals and/or development objectives, to the extent they are known at that time.
- Meet with the USAID front office to:
 - Review the purpose and importance of the analysis, emphasize the role of the entire Mission and help set expectations for the analysis process and use of the report.
- Meet separately with all relevant Mission technical teams to:
 - Understand current programming (geographic areas of focus, earmarks and related mandates or constraints) across development sectors, including the ways in which non-environment activities support the actions necessary to conserve and sustainably manage biodiversity.
 - Learn about planned or potential future programming or strategic orientation, including potential opportunities for future cross-sector collaboration or integrated work.
- Conduct in-country consultations with stakeholders and undertake the site-based visits identified in the work plan.
- Conduct an exit briefing prior to departure with the Mission, including Mission management, program office and all technical teams, to provide them with an overview of the analysis and preliminary report findings (**Deliverable 2**). The format for the exit briefing will be a 90-minute meeting with key Mission staff to present and discuss analysis findings. Additional follow up with technical teams may be required to collaboratively generate analysis recommendations.

Preparation of the FAA 118/119 Analysis

- Prepare and submit a draft report (**Deliverable 3**) in accordance with the outline included in Annex C in the FAA 118/119 Best Practices Guide and responsive to the legislative requirements listed in the Purpose section. The report will:
 - Follow the outline and include the information recommended in the FAA 118/119 Best Practices Guide (see Annex 1).
 - Be between 50-90 pages.
 - Be copy edited, formatted, and comply with USAID branding requirements.
- Submit the final report (**Deliverable 4**). The Mission review period for draft reports will be 15 working days. The Mission should send the analysis report to the relevant Regional Bureau and Pillar Bureau staff in Washington for their review and collate comments before submitting the draft with consolidated comments to the team.
- Following receipt of USAID comments on the draft report, the analysis team will prepare and submit a final analysis within 15 working days that incorporates USAID comments.

Schedule and Logistics

Table A-2 outlines the timeline for key milestones and deliverables in the Assessment, beginning from

the Assessment kickoff in early May and proceeding to the final report, anticipated in September. The assignment is expected to last 5 months from the finalization of the buy-in Technical and Cost Response to publication of the final deliverable. This includes about 4 weeks of preparations, approximately 2 weeks of in-country consultations and site-based visits, 4 weeks to produce the draft report following in-country work, 3 weeks for USAID review of the draft report, and 3 weeks to produce the final report.

TABLE G-2. USAID/BANGLADESH 118/119 ANALYSIS TIMELINE AND DELIVERABLE SCHEDULE

MILESTONE/DELIVERABLE	DESCRIPTION/NOTES	ANTICIPATED DUE DATE
PHASE 1: KICKOFF AND WORK PLANNING		
Task 1.1 Assessment Kickoff	Initial meeting between USAID/Bangladesh and Core Assessment team to establish shared understanding of Assessment objectives and answer critical questions for work planning.	May 10th
Task 1.2 Draft Work Plan (Deliverable 1)	Proposes a schedule of tasks and milestones, Assessment methods, and a brief discussion of information gaps.	May 21st, 2024
Task 1.2a USAID consolidated feedback on Draft Work Plan	Including feedback from USAID/Bangladesh and USAID/REFS/CNE.	May 28th, 2024
Task 1.3 Final Work Plan (Deliverable 2)	Finalizes schedule of tasks and milestones and Assessment methods.	May 31st, 2024
PHASE 2: PRE-CONSULTATION RESEARCH AND REPORT WRITING		
Task 2.1 Written bi-weekly progress reports	Following template in Annex E, team will keep USAID/Bangladesh apprised of activities over prior two weeks and plans for next two weeks.	Beginning May 31st, 2024
PHASE 3: STAKEHOLDER CONSULTATIONS AND SITE VISITS		
Task 3.1 In-briefing	Including dedicated meetings with Mission program office and front office, plus available technical teams.	June 2nd, 2024
Task 3.2 Stakeholder consultations and site visits	See proposed itinerary in the ensuing section of this report.	June 2nd - June 15th, 2024
Task 3.3 Exit briefing (Deliverable 3)	Provides an overview of the analysis and preliminary findings to date and discusses the schedule and expectations for completing the analysis report, including any proposed coordination with Mission personnel to craft recommendations responding to analysis objectives.	June 16th, 2024
PHASE 4: POST-CONSULTATION AND REPORT WRITING		
Task 4.1 Draft 118/119 Analysis Report (Deliverable 4)	Following outline established in Annex D, draft analytical report aligned with USAID best practice guidance and responding to Assessment objectives.	July 12th, 2024
Task 4.1a USAID consolidated feedback on 118/119 Analysis Report	Including feedback from USAID/Bangladesh and USAID/REFS/CNE.	August 2nd, 2024
PHASE 5: REPORT FINALIZATION		
Task 5.1 Final 118/119 Analysis Report (Deliverable 5)	Final report, addressing consolidated USAID feedback.	August 23rd, 2024

TABLE G-2. USAID/BANGLADESH 118/119 ANALYSIS TIMELINE AND DELIVERABLE SCHEDULE

MILESTONE/DELIVERABLE	DESCRIPTION/NOTES	ANTICIPATED DUE DATE
Task 5.1a USAID approval of Final 118/119 Analysis Report	Authorization to verify 508 compliance and post report publicly.	September 6th, 2024
Task 5.2 Publication of Final 118/119 Analysis Report	Following verification of 508 compliance, report posted on BiodiversityLinks and DEC.	September 13th, 2024

TEAM COMPOSITION AND RESPONSIBILITIES

Assessment Team

A core team consisting of a Team Leader and four subject matter experts (SME) will implement the Assessment. This team will participate in stakeholder consultations and site visits in Bangladesh and be the primary authors of the assessment report. The core team will rely on technical and administrative support from select IDEAL consortium personnel, as described below.

Core Assessment Team

TABLE G-3. CORE ASSESSMENT TEAM MEMBERS

PERSONNEL	ROLE	RESPONSIBILITIES
Dr. Terilynn Allendorf	Team Leader	Primary point of contact for the Assessment team, responsible for coordinating and ensuring quality of work plan, site visits and consultations, and final Assessment report. Lends expertise related to USAID policies and processes for biodiversity and tropical forest conservation to final Assessment products, coordinating inputs from subject matter experts and supporting the research team.
Dr. Haseeb Md. Irfanullah	Subject matter expert	Lends expertise on biodiversity and forest conservation topics in Bangladesh to selection of documents, data sources, institutions, personnel, and sites for inclusion in the study. Participates directly in stakeholder consultations and site visits and contributes writing to the final Assessment report under Team Leader's direction. Expertise is especially related to institutions, governance, and climate change.
Dr. Mohammad Mohsinuzzaman Chowdhury	Subject matter expert	Lends expertise on biodiversity and forest conservation topics in Bangladesh to selection of documents, data sources, institutions, personnel, and sites for inclusion in the study. Participates directly in stakeholder consultations and site visits and contributes writing to the final Assessment report under Team Leader's direction. Expertise is especially related to marine and coastal conservation, environmental and social safeguarding, and livelihoods.
Dr. Israt Jahan	Subject matter expert	Lends expertise on biodiversity and forest conservation topics in Bangladesh to selection of documents, data sources, institutions, personnel, and sites for inclusion in the study. Participates directly in stakeholder consultations and site visits and contributes writing to the final Assessment report under Team Leader's direction. Expertise is especially related to wildlife conservation.
Hasan Arif Rahman	Subject matter expert	Lends expertise on biodiversity and forest conservation topics in Bangladesh to selection of documents, data sources, institutions, personnel, and sites for inclusion in the study. Participates remotely in some stakeholder consultations and contributes writing to the final Assessment report under Team Leader's direction. Expertise is especially related to wildlife conservation and protected areas.

Assessment Support Team

IDEAL consortium member personnel will provide technical, administrative, and quality assurance support to the core Assessment team over the course of implementation. Table A-4 presents a select list of IDEAL personnel with whom USAID can expect to interact over the course of the Assessment. Other personnel will also provide support in the background, for example to assist with literature review, geospatial and secondary data analysis, and formatting/copyediting of final Assessment deliverables.

TABLE G-4. SELECT ASSESSMENT SUPPORT TEAM MEMBERS

PERSONNEL	ROLE	RESPONSIBILITIES
Miguel Albornoz	IDEAL Activity Manager	Primary liaison for core Assessment team with IDEAL, responsible for day-to-day management and quality assurance of Assessment implementation. Coordinates regularly with Team Leader to ensure Assessment proceeds in alignment with expectations set out in Work Plan and USAID best practice guidance. Connects core Assessment team with technical support available from IDEAL consortium members for literature review, secondary and geospatial data analysis, and report writing.
Lauren Persha	IDEAL Evidence-based Programming Lead	Ensures quality of all evidence-based programming outputs across IDEAL, including this 118/119 Assessment. Responsible for final review of key deliverables.
Samantha Levine-Finley	Bangladesh Buy-in Lead	Primary liaison for USAID/Bangladesh with IDEAL across the broader buy-in, including for integration of 118/119 findings into subsequent program cycle support.
Maria Abragan	Administrative Assistant	Coordinates administrative arrangements for team travel to implement in-person site visits and stakeholder consultations.

ANTICIPATED USAID INVOLVEMENT

The Assessment Team requests that Mission personnel, and particularly the USAID activity manager, support the Assessment with the following inputs over the course of implementation:

1. Pre-fieldwork
 - a. Provide a list of key documents for the Team to review (in process, remaining: work plans and annual reports for relevant activities; threats prioritization documents)
 - b. Provide a list of key stakeholders that the Assessment Team should meet with and assist the Team in making initial contact to arrange interviews, if necessary
 - c. Provide input on the sufficiency of the proposed list of sites to visit
 - d. Provide a list of relevant projects from other donors that the Assessment Team should be aware of for purposes of the Assessment
 - e. Review the draft work plan and provide feedback, especially related to the points above and filling any gaps in proposed stakeholder consultations and site visits
 - f. Schedule the in-briefing and exit briefing and assist with scheduling technical team meetings
2. During and post-fieldwork
 - a. Provide as much information as possible about expectations for planning biodiversity activities in the short-term and long-term so that the Assessment Team can respond to the “extent to which” requirements of FAA 118/119

- b. Review the draft Assessment report, and encourage technical teams to review findings specific to “extent to which” requirements relevant to their team
- c. At least one representative of each Mission technical team should participate in the initial meeting with the Assessment Team and the exit briefing
- d. Advise the analysis team about the availability of any Mission staff (environment and/or non-environment) to participate in site visits, and coordinate with the team on their participation
- e. Be available to the Assessment Team after the Team departs to discuss “extent to which” requirements and ensure reasonable, actionable recommendations

STORAGE AND DISSEMINATION

Upon USAID approval, the final 118/119 analysis report will be posted to the DEC and BiodiversityLinks, and retained on USAID’s intranet according to USAID preferences. According to USAID’s preference, this report may include the final approved work plan as an annex. Final outputs related to the exit briefing will be stored on the joint IDEAL-USAID Google Workspace and made accessible to key points of contact at USAID/Bangladesh and USAID/REFS/CN.



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