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INTEGRATED PROTECTED AREA CO-MANAGEMENT (IPAC)

STATE OF BANGLADESH'S FOREST PROTECTED AREAS, 2010

February 28, 2012
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Cover Photo:
Bangladesh's forests and wetlands provide a foundation for sustainable development and resilience to climate change. The Nishorgo Network is an expanding group of forest and wetland Protected Areas representing a diversity of habitats and ecosystems across the country conserved through co-management. This report focuses on the current state of Bangladesh's forest Protected Areas.

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TABLE OF CONTENTS

ACRONYMS

ACF	Assistant Conservator of Forests
ADP	Annual Development Plan
AIG	Alternative Income Generation
CDM	Clean Development Mechanism
CHT	Chittagong Hill Tracts
CMC	Co-Management Committees
CMO	Co-Management Organization
COP	Chief of Party
DC	Deputy Commissioner
DCOP	Deputy Chief of Party
DFO	Divisional Forest Officer
DoE	Department of Environment
DoF	Department of Fisheries
ECA	Ecologically Critical Area
ECNEC	Executive Committee for National Economic Council
EWC	East-West Center
FD	Forest Department
FRUG	Federation of Resource User Groups
FUG	Forest User's Groups
GIS	Geographic Information Systems
GoB	Government of Bangladesh
IPAC	Integrated Protected Area Co-management
IQC	Indefinite Quantity Contract
LOI	Leaders of Influence
M&E	Monitoring and Evaluation
MACH	Management of Aquatic Ecosystems through Community Husbandry
MoEF	Ministry of Environment and Forests
MoFL	Ministry of Fisheries and Livestock
MoL	Ministry of Land
NGOs	Non-Governmental Organizations
NRM	Natural Resources Management
NS	Nishorgo Shahayak
NSP	Nishorgo Support Project

PA	Protected Area
PMARA	Performance Monitoring and Applied Research Associate
PMP	Performance Monitoring Plan
PPP	Public Private Partnerships
REDD	Reducing Emissions from Deforestation and Forest Degradation
RIMS	Resource Information and Management System
RMO	Resource Management Organization
RUG	Resource User Group
SEALS	Sundarbans Environment and Livelihood Support Project
SMEs	Small and Medium Enterprises
SOW	Statement of Work
USAID	U.S. Agency for International Development
VC	Value Chain

FOREWORD

Bangladesh is endowed with a lush and diverse tropical landscape which extends from lily-filled wetlands to forests that house the majestic Asian elephant and the Royal Bengal tiger. Millions of Bangladeshis depend on the forest resources, be it for daily subsistence needs or for commercial opportunities. Despite hosting generations of diverse flora and fauna, the country's the forests and wetlands are undergoing progressive environmental degradation in the form of land encroachment and over exploitation, resulting in ecological degradation.

Bangladesh now finds itself in the complex position of working to secure jobs and economic growth while fending for the rights of lawfully protected ecological areas or Protected Areas (PA), and those of the communities who depend on them. To strike the balance for the future of the Bangladeshi people and their ecosystems the Government of Bangladesh in partnership with USAID evolved Nishorgo Network, realizing the need to conserve ecologically and economically valuable ecosystems of the country.

Environmental initiatives, however, have a variety of challenges, important amongst them is the need for stringent enforcement of relevant environmental laws – this is true for Bangladesh where the Forest Act and the Wildlife Act have been in place since 1927 and 1973 respectively. Due to intensive floods, evacuations, and overpopulation many new people have moved into the Protected Areas, since their inception. This is a trend acculturating particularly after the 1950's. There has fortunately been considerable success in incorporating these migrant populations into programs for the Nishorgo Network, which promotes environmental governance, co-management of natural resources and community stewardship of forestry.

At present the Nishorgo Network is working to catalyze and empower the community-based co-management through partnerships between relevant government authorities and forest and wetland dependent surrounding village communities, in order to ensure sustainable protected areas system comprising forests and wetlands.

Main threats to Protected Area conservation emanate from the degradation of forests and wetlands. Drivers to these threats are combined anthropogenic and biotic pressures resulting in increased dependency on land based natural resources. Anthropogenic pressures include population pressure from a large, growing and impoverished population, and are indicated by non-sustainable extraction of timber for construction, over harvesting of fish, water pollution, land encroachment, firewood for cooking fuel, as well as a broad range of non-timber forest products (NTFPs). The adverse impact of non-sustainable extraction of forest resources is exacerbated by week law enforcement. Biotic pressures are exacerbated by climate change and include sea level rise, increased salinity of soils, and increased incidence and severity of cyclones (for low-lying and coastal Pas), and change in rainfall patterns and temperatures, disturbing the regular seasonality of fruit and flower blooms. This impacts regeneration of important flora and fauna species and disrupts food chain.

The main response to mitigate threats is through the establishment of co-management for PA conservation. At the national level, this is through the Nishorgo Network, an association of forest and wetland PAs managed through co-management between the government and community groups. At the

PA-level, this includes the establishment of a co-management platform that includes co-management councils and committees, Peoples Forums, Village Conservation Forums, Resource User Groups and their Federations, Village Conservation Committees, Village Conservation Groups, Community Patrol Groups, etc.. PA-level co-management activities include, but are not limited to, development and implementation of PA co-management plans; environmentally-friendly alternative income generation and value chain development activities with PA-dependent poor to reduce pressure on the PAs; conservation advocacy and outreach; social forestry activities in the landscapes adjacent to PAs; joint patrols between FD and Community Patrol Groups; eco-tourism development; climate change vulnerability assessments and action planning; and longterm conservation financing through entrance fee revenue sharing, leveraging of donor assistance, and forest-carbon conservation financing.

In response to these threats, communities, NGOs, the private sector and the Government have undertaken efforts to find ways to conserve the very nature from which food, fish, livelihoods and culture have been provided. Cultural norms of the past have been combined with management models from today to find new ways to conserve nature. Indeed, Bangladesh has become a global leader for embracing co-management, bringing together a diversity of stakeholders and perspectives to ensure sustainable development is built on a foundation of ecological conservation.

This state of Bangladesh's Protected Areas has been prepared with the Forest Department and Department of Environment of the Ministry of Environment and Forests, and with the Department of Fisheries of the Ministry of Fisheries and Animal Resources, to support their efforts to strengthen, scale-up and institutionalize a national and collaboratively managed network of economically ecologically significant wetlands and forests. The document has been further strengthened based on the inputs of a wide range of interested stakeholders, forming an informal network of conservation partners committed to benefitting people through the conservation of biodiversity, environmental protection and sustainable use of natural resources in Bangladesh.

The protection, conservation and different management of ecologically and locally significant landscapes is of vital importance to different stakeholders across Bangladesh, including local communities and natural resource user groups dependent on wetland and forest resources. Local government officials and technical services are mandated to serve the needs of people, alleviate rural poverty and conserve the environment. Relevant government officials and aid agencies are providing leadership to address climate change, biodiversity conservation, food security and poverty reduction. University faculty and researchers, NGOs and business leaders, students and the general public also have a stake in raising awareness about the consequences of continued degradation and loss of natural forests and wetlands, and in fostering effective interventions to maintain ecosystem services, support sustainable economic development and secure a better future for the people of Bangladesh.

As this report was going to publication, the Government of Bangladesh announced the establishment of 10 new Protected Areas. These include, Singra National Park, Kuakata National Park, Nawabganj National Park, Tengragiri Wildlife Sanctuary, Birgonj National Park, Altadighi National Park, Sonar Char Wildlife Sanctuary and three Wildlife (Dolphins) Sanctuaries in Sundarbans. This brings to a total of 31 Forest Protected Areas covering nearly 3 lac hectares across Bangladesh. A summary of these PAs is provided in this report. They will be treated more fully in the next 'State of Bangladesh's Forest Protected Area' (SOPA) report.

1. INTRODUCTION

1.1 Forest Protected Area System

The People's Republic of Bangladesh is situated in the northeastern part of the South Asian subcontinent, lying between 20^0 25' and 26^0 38' north latitude and 88^0 01' and 92^0 40' east longitude. Total area of this country is about 14.4 million hectares with three broad physiographic regions, flood plains, terraces, and hills, occupying about 80%, 8% and about 12% of the land area respectively. Most parts of Bangladesh are less than 12 meters above the mean sea level, and the hilly regions on the northeast and southeast exist with an average elevation of 244m and 610m respectively. The highest point of the nation (1230m) is located at the southeastern extremity of the Chittagong Hill Tracts.

The country is bordered by India to the north, north-east and west, Myanmar to the south-east, and the Bay of Bengal to the south with a coastline of 580 km. The climate of Bangladesh is tropical, with maximum summer temperatures ranging between 32°C and 38°C, and in January the coldest month, the average temperature for the country is nearly 10°C. Annual rainfall ranges from 200 to 400 cm. The country has four main seasons, Winter (Dec-Feb), Summer (Mar-May), Monsoon (Jun-Sep) and Autumn (Oct-Nov).

Bio-geographically, Bangladesh lies at the junction of the Indian and Malayan sub-regions of the Indo-Malayan Realm and is located very near to the western side of Sino-Japanese region. Accordingly the country's biodiversity reflects this mixture. A large number of native flora, including 3,000-4,000 species of woody flora, have been recorded from Bangladesh. The country supports rich fauna comprising 125 species of mammals, 690 species of birds, 158 species of reptiles and 53 species of amphibians. Rich aquatic biodiversity includes 260 species of finfish belonging to 55 families, 42 species of freshwater and land Mollusks, 248 bryophytes species, 195 species of pteridophyets and 427 species of butterflies. A total of 201 species including fishes, amphibians, reptiles, birds and mammals are being noted as threatened according to Bangladesh National Criteria (IUCN, 2000). Two RAMSAR sites (Tanguar Haor and the three Wildlife Sanctuaries of the Sundarbans) have been declared in Bangladesh and the entire Sundarbans (world's largest mangrove tract) has been designated as a World Heritage Site.

The country soon after its independence promulgated the Bangladesh Wildlife (Preservations) Order, 1973 as Presidential Order No.23, which was formalized as Bangladesh Wildlife (Preservation) (Amendment) Act in 1974. It provided for the constitution of Bangladesh Wildlife Advisory Board, Wildlife Sanctuaries and National Parks. The National Forest Policy, 1994 emphasized equitable distribution of benefits among the people, especially to those whose livelihoods depend on trees and forests and provided room for people's participation, in forest management.

The National Parks are defined under the Wildlife Act as "comparatively large areas of outstanding scenic and natural beauty with the primary object of protection and preservation of scenery, flora and fauna in the natural state to which access for public recreation, education and research may be allowed". The Wildlife Sanctuaries are defined as "an area closed to hunting, shooting or trapping of wild animals and declared as such under Article 23 by the Government as undisturbed breeding ground primarily for the protection of wildlife inclusive of all natural resources, such as vegetation, soil and water".

So far 34 PAs have been gazetted and are divided into the four major forest typologies of Bangladesh, namely Tropical Evergreen and Semi Evergreen Forest (or Hill Forest), Moist Deciduous Forest, Mangrove Forest, and Coastal Forest.

Despite having specific acts and rules to protect, the forest PAs are threatened mainly due to lack of continued institutional and political support as well as increasing socio-economic pressures. The Forest Department created a new Wildlife Circle in 1976, for managing the gazetted PAs. In the mean time, the socio-economic dynamics surrounding the PAs were changing, i.e. demand for forest products and forest land for agriculture and settlement increased manifold, unemployment rose and poverty increased. As a result, the PAs degraded and with the loss of habitat, a good number of wildlife has already become extinct, the majority of wildlife is threatened, and the PA eco-systems are currently unable to maintain some ecological functions. In order to arrest forest PA degradation, the Forest Department has taken attempts to develop scientific management plans and tried implementation with the following milestones.

- Defining 'Preservation Working Circles' in place of 'Production Working Circles' in the Management Plans of Sylhet, Chittagong and Cox's Bazar Forest Divisions.
- Developing and implementing ap[proved Conservation Management Plans for the 3 Wildlife Sanctuaries in the Sundarbans.
- Guidelines for preparation of Conservation Management Plans
- Participatory Management Plans for Chunati Wildlife Sanctuary, Rema-Kalenga Wildlife Sanctuary, Teknaf Wildlife Sanctuary, Lawachara National Park and Satchari National Park under Nishorgo Support Project (NSP).
- Tiger Action Plan for the Sundarbans in Bangladesh.
- Integrated Resources Management Plans for the Sundarbans.

In order to have a better legal framework for PA management, the Forest Department, with help from the Integrated Protected Area Co-management (IPAC) Project and Nishorgo Support Project, recently proposed amendments to update the Wildlife Act of 1974, taking into account important modifications and improvement issues like an updated CITES species lists, clarification of authorities for seizing wildlife, particularly during transport, formal collaborative management approaches, and community conserved areas.

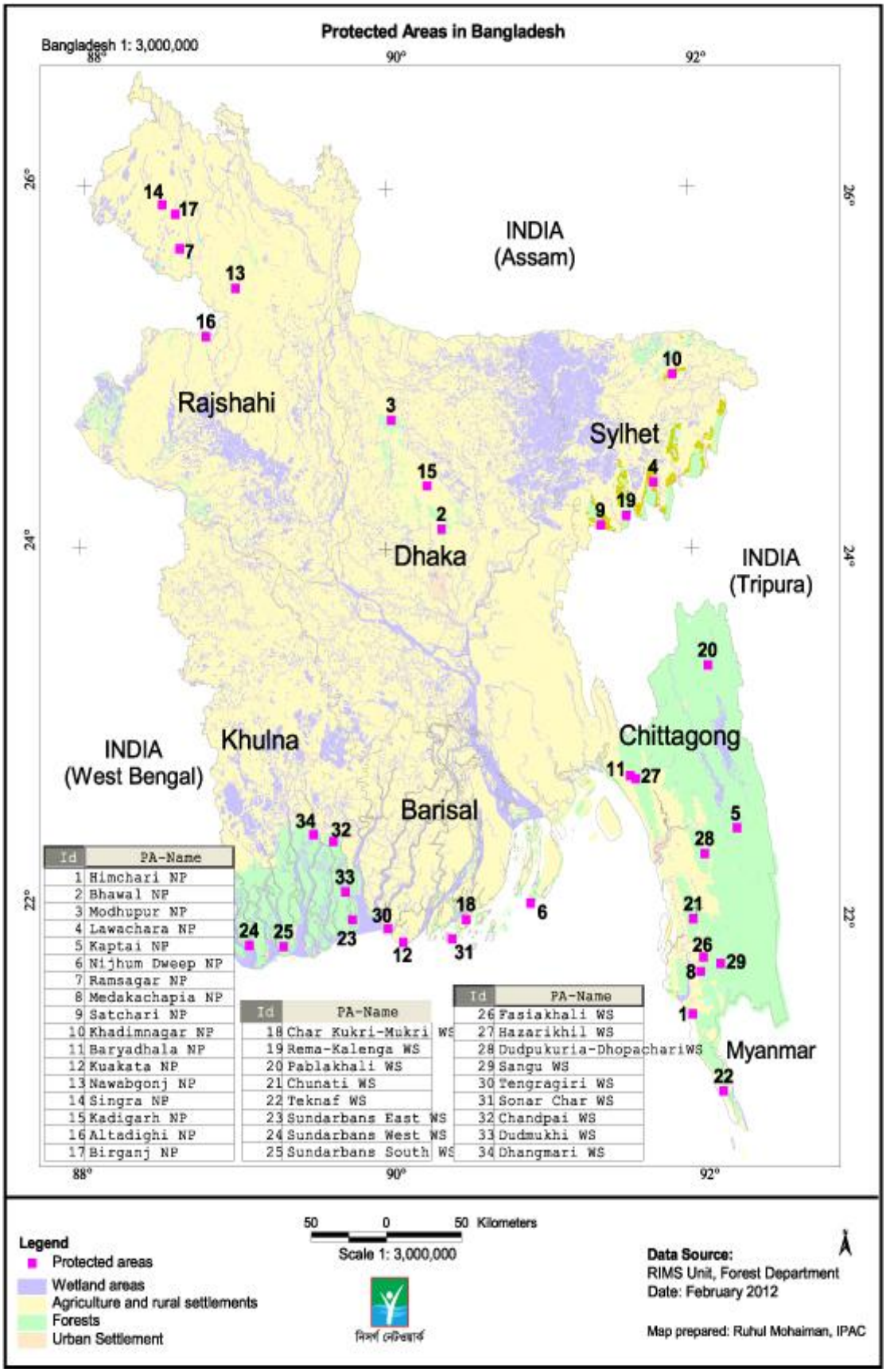

Figure 1.1: Forest protected Areas of Bangladesh

1.2 Challenges to Forest Protected Area Management

Main challenges of the country's `` Forest Protected Area Management extend beyond the boundaries of National Parks and Wildlife Sanctuaries and in most cases apply to overall forest management, population pressure, poverty, landlessness, unemployment and inadequate policy planning to increase land productivity leading to undervaluation (unproductive) of natural and diverse ecosystems. In order to conserve biodiversity for which the PAs have been established and to become an economically viable system providing economic benefits to surrounding communities, the following specific challenges related to PA management need to be satisfactorily addressed:

- **Policy framework**
  The policy instruments relevant to wildlife habitat loss have become outdated and in many cases inappropriate. The Forest Department has already taken initiatives and has proposed amendment to the Wildlife Act of 1974.

- **Institutional change**
  An institutional change is necessary within the Forest Department, from administrative roles to those of facilitators, given the more public oriented approaches taken in the past and present (e.g., social forestry and co-management). Changing the mindset of the staff will be a challenge in the creation of a co-management environment that is creative, flexible, pro-people and adaptive in socio-economic contexts. This new management orientation entity is manifesting in the Wildlife and Nature Conservation Circle and requires the continued support of the Forest Department with regards to budget, staffing infrastructure and a host of other logistical and administrative concerns.

- **Boundary demarcation**
  There are no signs or boundary pillars, either differentiating between Reserved Forests and Protected Areas or demarcating the boundaries of a PA. As a result, the surrounding population is not well aware of the existence of a "National Park" or "Wildlife Sanctuary" where the managerial rules are different with respect to resource usage. Similarly, field staffs often find it difficult to enforce some provisions of law as in some cases they are not fully aware of which parcels of forest lands are under their jurisdiction.

- **Public support for natural ecosystem conservation**
  Extensive public support is needed for developing conservation constituencies that can effectively advocate natural ecosystem conservation. Although sporadic protests have occurred as vast areas of natural habitat have been converted in past decades, such protests are small in scale and have generally not been effective, primarily because they are not broad-based.

- **Public and private partnerships**
  It is not possible for the government alone to meet the huge investment needs to protect, conserve, manage and restore the Protected Areas. Donor agency's funding is not sufficient to cover all the major aspects of conservation. With careful planning, transparent management and a focus on delivering services to people, it should be possible to establish public private partnerships for the sustainable management and conservation of the forest PAs.

Purpose of this 'State Of Protected Area' report is to structure and self-evaluate our efforts on a continuous basis for effective management of PAs in the country so that they may carry out their

ecological functions, maintain biodiversity in the face of climate change, and provide socio-economic benefits to the surrounding communities. The report is organized in three parts, first part being the context setter, which gives an overview of our PAs with the problems and challenges they face, programs and initiatives taken during 2007-2008, and management structure. Second part outlines methodologies and processes involved for assessing Protected Area management effectiveness and results. The third part provides information on all the Pas of Bangladesh.

2. PROTECTED AREA MANAGEMENT

In the absence of adequate revenue budget for PA management by the Governments of Bangladesh, most of the development activities including training programs (other than staff salary and day to day activities) have been implemented mainly under donor funded projects including NSP and IPAC as discussed below:

Habitat development and restoration works were done in five pilot Protected Areas under Nishorgo Support Project. Habitat interventions included buffer plantations, enrichment plantations, assisted natural regeneration, teak coppice management, fruit tree plantations and fodder plantations. PA facilities including eco-tourism infrastructures have been developed in some PAs. Land use/land cover mapping and GIS databases have been developed for some PAs. Targeted alternative income generation activities and broad based community support have been provided to forest dependent local community, including members of community patrolling groups and village conservation forum.

To support Co-Management Committee (CMC) in the conservation of PAs, the Ministry of Finance has given approval of entry fee collection from the co-managed PAs by the CMC with 50% of the revenue earmarked for the CMC for use in development of PAs as well as local communities. Co-management strategies and platforms have been developed both under NSP and IPAC. Capacity Building initiatives have been taken on large scale by covering local and relevant stake holders, government staffs and NGOs. Co-management plans have been prepared for all the PA's covered under IPAC. Additionally, climate change vulnerability and assessment plans have been prepared for all the village conservation forums. Forest carbon project proposal have been developed for conservation financing in the Sundarbans and 7 PAs.

Several methods exist and they have been implemented to evaluate the management system of PAs to achieve conservation goals. Organizations working with such simple and fast evaluation or assessment tools are – Conservation International, International Union for Conservation of Nature (IUCN), World Commission on Protected Areas (Hockings et al. 2000) and The Nature Conservancy (TNC), and the World Bank/World Wildlife Fund Alliance for Forest Conservation and Sustainable Use (Stolton et al. 2002). Some of the tools are - WWF Rapid Assessment and Prioritization of Protected Areas Management (RAPPAM) methodology (Ervin 2003), the Site Consolidation Scorecard by (TNC 2003), and World Band/WWF's method. These various tools have been introduced in countries like Russia (Tyrlyshkin et al. 2003), China (Li et al. 2003), Bhutan (Tshering 2003) and in South Africa (Goodman 2003). These methods are designed to understand the socio-economic, ecological, pressure and threat contexts of protected areas, to find strength and weakness in planning and management, to develop and prioritize policy and management intervention, and to follow up on management actions that result in better effectiveness and subsequently achieve desired results.

Methodology

The framework used for rapid assessment of PAs in Bangladesh is a shortened version of two methodologies, RAPPAM and Site Consolidation Scorecard. The first one tries to capture information on ecological and socio-economic importance of a PA, pressures and threats it is facing, and effectiveness of site design and legal contexts concerning the PA. Given the context, the second methodology tries to capture status with respect to basic management infrastructure, such as physical infrastructure, personnel development, securing budget and development of PA management plan. The contextual analysis is designed to help decision-makers to understand how important or venerable a PA is and accordingly allocate resources for physical and personal management plans and budget development.

	Context (WWF's RAPPAM methodology)						**Management (TNC's SCS methodology)**			
Priority	Ecological	Socio-economic	Threats and pressure	PA site design	Legal	**Inputs**	Physical	Personnel	Budget	Plan
Elements	*1*	*2*	*3*	*4*	*5*		*6*	*7*	*8*	*9*
Top	5					Adequate	5			
High	3					Progress made	3			
Medium	1					Work initiated	1			
Low	0					Not functional	0			
Score Range	0-30	0-20		0-15	0-15		0-25	0-15	0-20	0-40

TABLE 2.1: FRAMEWORK OF ASSESSMENT

Scoring: Scoring of all these contextual and management elements (except threat and pressure) are measured individually through a series of verifiers based on subjective judgment of PA managers on a predetermined scale, consisting "yes", "mostly yes", "mostly no", and "no", which represent numerical values 5, 3, 1, 0 respectively.

'y' - 5 = Adequate/Excellent – Protected Area is functional

'm/y' - 3 = Progress made – PA is becoming functional, but not fully

'm/n' - 1 = Work initiated – Little or initial progress has been achieved

'n' - 0 = Not functional – Protected Area completely non-functional

The higher the scores for a particular context (i.e., socio-economic), the higher the priority it will get to trigger management actions. Again, the lower the scores under management issues, the lower functional capacity of the PA to handle the context issues. Accordingly, the Protected Areas will be considered to be "improved" or "functional" or "consolidated" when they have developed physical infrastructure, institutional capacity (personnel), management plans and have a secure budget.

Extent	**Damage**	**Permanence**
Throughout = 4	Severe = 4	Permanent = 4
Widespread = 3	High = 3	Long term = 3
Scattered = 2	Moderate = 2	Medium term = 2

Localized = 1	Mild = 1	Short term = 1

Table 2.2: Pressures and Threats Scoring

The degree of each threat and pressure is the factor of all three elements as presented in Table 2.2. For example, a pressure (i.e., illegal felling) that is throughout (4), severely destroyed the system (4), and is permanent in nature (4), would have a degree of 64 (4 x 4 x 4). So total value for a single pressure (i.e., illegal felling) or threat ranges from 1-64. The more the pressure or threat issues, the more the score.

Analyzing the Findings

Adding the scores for elements except element 3, elements 1 - 9 give values ranging from 0 – 180. For element 3 (pressure and threat context), no range exists and value can range from 1-128. Thus each Protected Area receives a score from 2 – 303. Result is presented by simply plotting one variable on one axis and another variable on the other axis. Scores for different contexts and management capabilities are shown for individuals or among Protected Areas themselves by comparison.

Assumptions / Limitations

The methodology depends on a number of assumptions: (1) PA managers will actively participate in the scoring, (2) they will provide reliable information (trust), and (3) PA managers have adequate knowledge or information. The assessment process focuses more on collecting and interpreting qualitative data, with a lesser emphasis on quantitative data. It is sometimes difficult to arrive at any of the four choices to score (y; m/y; m/n; n).

Administering the Assessment Questionnaire

- The assessment questionnaire set was distributed to all ACFs in charge of PAs
- At each PA level, the ACF/Range Officer/Beat Officer consulted with other managers, including forest guards and discussed the objective of this scoring method, the questions and guidance note
- As per their collaborative discussion and agreement – a score for each question was given by the PA managers (ACFs).
- After completion, PA managers sent the scored sheet to Conservator of Forest, Wildlife Management and Nature Conservation Division, Dhaka.
- The findings were analyzed at Dhaka with the help from the project staff.

PA Management Context

Ecological Context

Due to lack of inventory of resources, most PA managers found it difficult to assign ecological importance accurately. However, based on available information and their professional judgment, all PAs may be regarded as having ecological importance. Old historical plantations or ecosystems for Lawachara National Park (NP) and Kaptai NP refer to plantations raised during 1920s. For Satchari NP it refers to the only mixed evergreen forest patch in the whole Raghunandan Hill Reserved Forest. For Teknaf Wildlife Sanctuary and Medhakachapia NP the existences of patches of Garjan forests unique to these zones are reflected, similarly the unique Sal forests are highlighted for Bhawal and Madhupur National Parks and the mangrove forests of the Wildlife Sanctuaries of the Sundarbans. A wide variety of wildlife is supported by these PAs, which unfortunately are threatened or endangered.

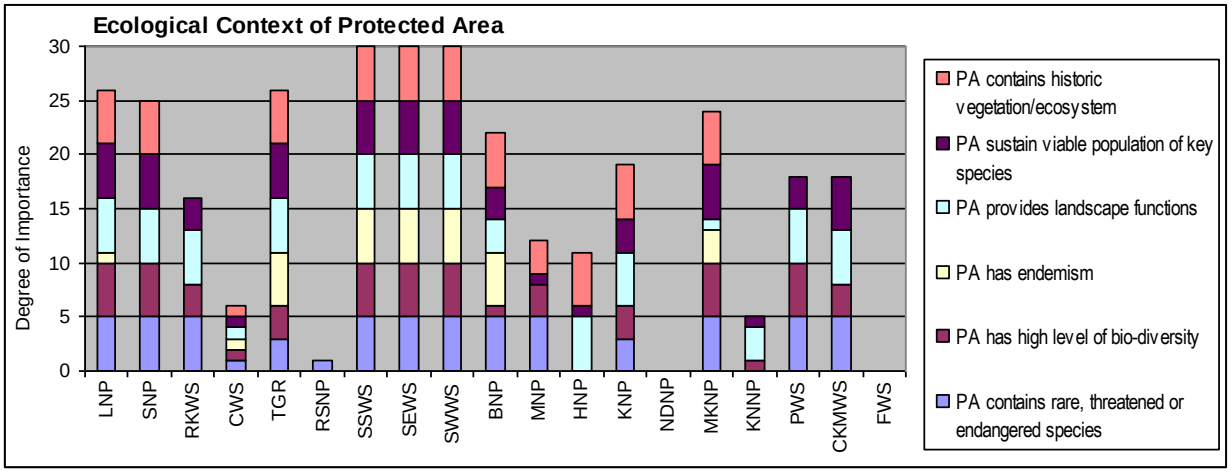

Figure 2.1: Ecological Context of Protected Areas

Socio-economic Context

Interestingly, although, the wildlife sanctuaries of Sundarbans have the highest ecological importance and recreational value but their socio-economic is less due to their remote locations. On the other hand, Ramsagar NP despite having less ecological significance (recreational park), has comparatively high socio-economic value since a lot of people are directly employed in recreational services and the same are applicable for Bhawal, Madhupur, Himchari and Kaptai NPs. Other PAs also support subsistence for local people in the forms of non-timber forest products like bamboo, fruits and medicinal plants.

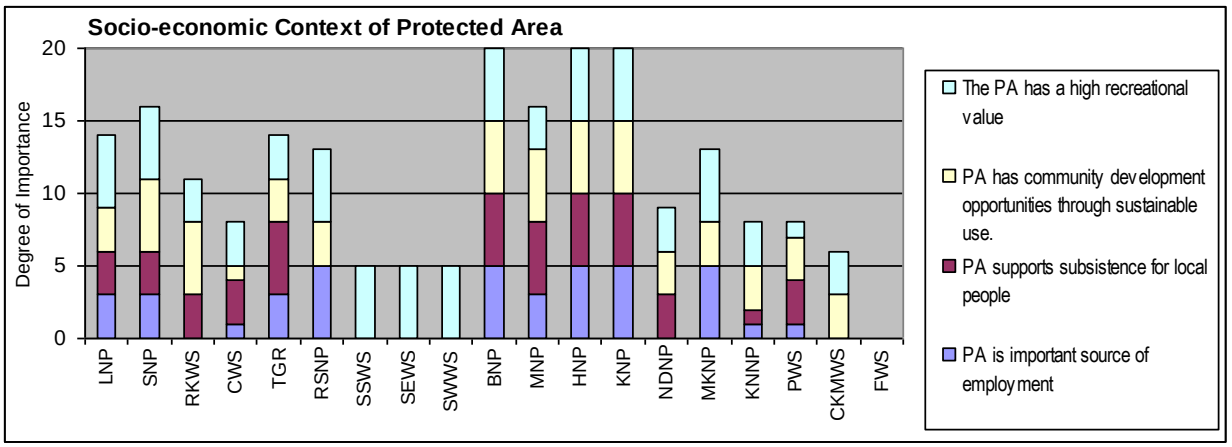

Figure 2.2: Socio-economic Context of Protected Areas

Legal Security and Dispute Context

Dispute regarding land tenure exists with regard to Bhawal, Madhupur, Himchari, Nijhum-Dweep NPs, Chunati WS and some other PAs. Madhupur is the most critical one as it involves long standing battle on land tenure between ethnic Garo community and the Forest Department. Use rights, which are contested more or less in all PAs, involve collection of various resources like fuel wood and non-timber forest products.

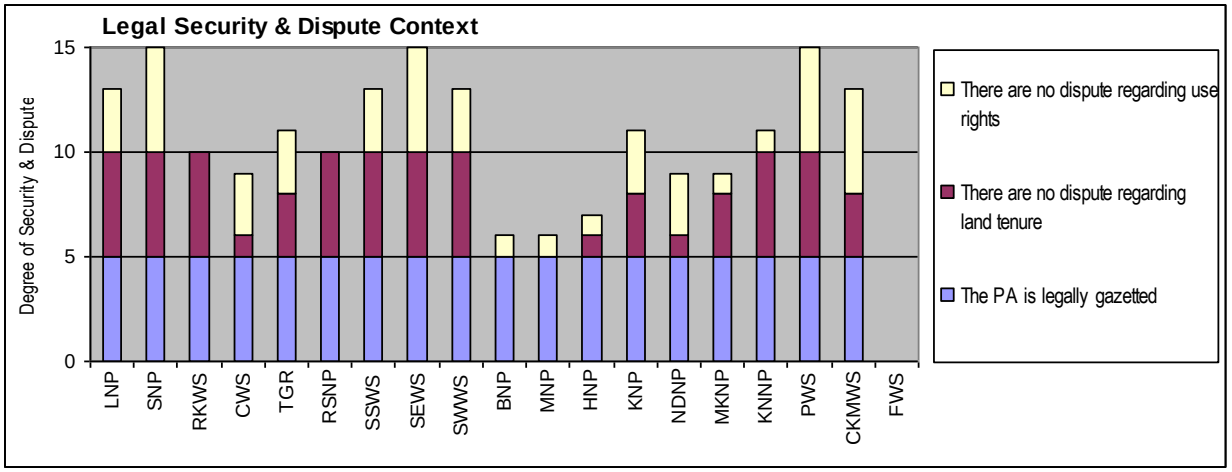

Figure 2.3: Legal Security and Dispute Context of Protected Areas

Site Design

Most of the PAs are small in area and so an effective zoning system is difficult to put in place. Despite limitation in land area, some PA managers feel that if zoning is done, PAs will be able to achieve the objective of conservation. In most cases, land use surrounding the PAs is either agriculture and/or settlement which according to some PA managers are not supportive land use practices. For some PA managers, even the adjacent reserved forests or tea gardens create problems (i.e., LNP, RKWS). For example, adjacent high value plantation (i.e., Teak) in reserved forest lures illegal fellers into the PAs where the protection is less stringent.

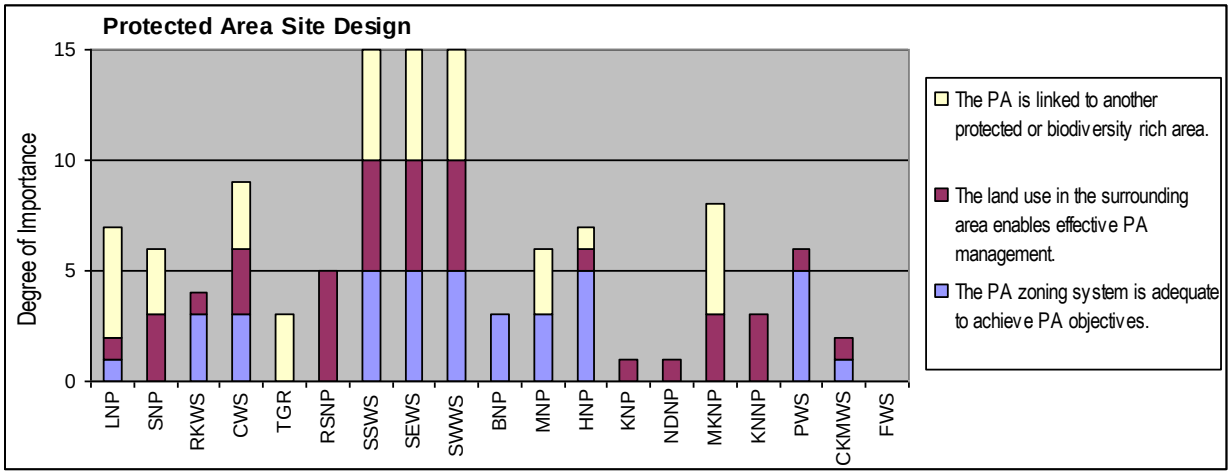

Figure 2.4: Protected Area Site Design

Physical Infrastructure

Quality and quantity of physical infrastructures in PAs are very poor. Only Satchari and Ram-sagar NPs are fully demarcated with boundary pillars. National Parks like Bhawal and Madhupur are partially marked. Boundary signages do not exist for most of the PAs. Staff facilities in almost all cases need renovations or new setup, especially for Beat Officers and Forest Guards. Similarly, visitor infrastructures exist for a few PAs only. Field equipments do not exist for individual PAs at the field level offices, and the only equipment they have are measuring tapes.

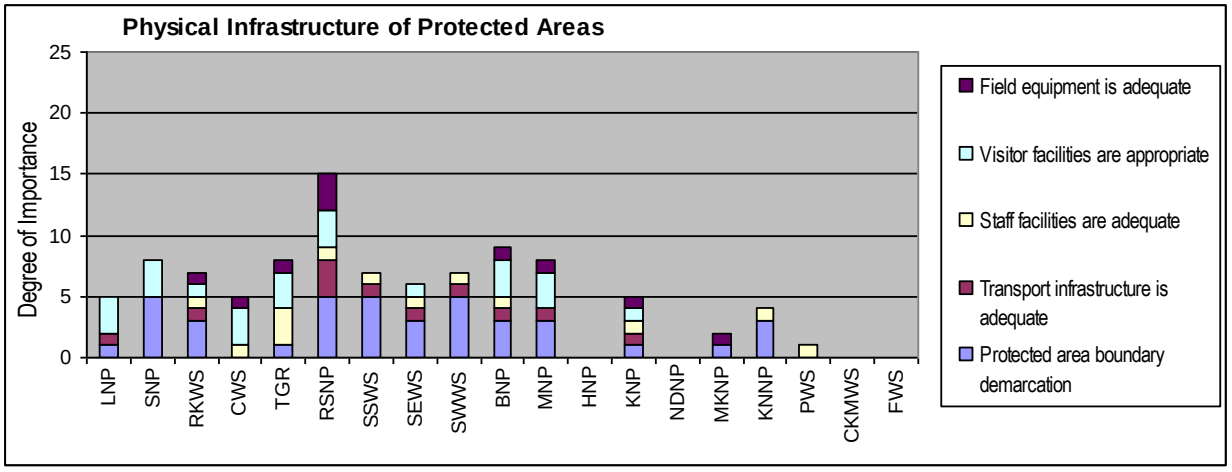

Figure 2.5: Physical Infrastructure of Protected Areas

On-site Personnel Capacity

The presence of sufficient PA staff (Forest Guards, Beat Officers, Ranger Officers, and ACFs) is essential to the effective management of a PA. But all protected areas lack sufficient personnel. Only few of the PA staffs have skills like management planning, wildlife and forest inventory and monitoring, report writing, and communication skills. No systematic long-term human resource development strategy and training opportunities exist to increase the capacity of PA managers.

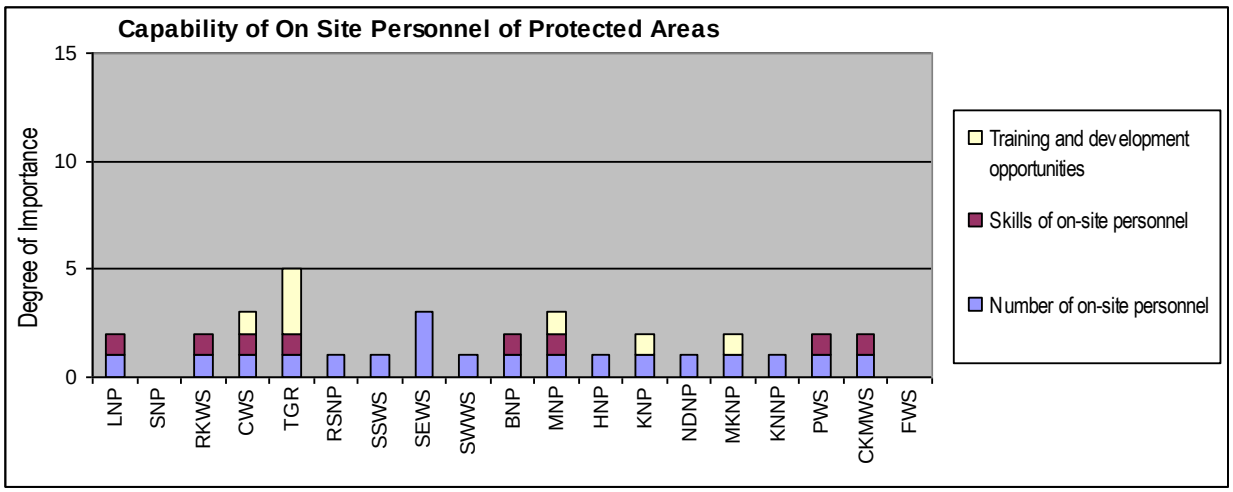

Figure 2.6: Capability of On Site Personnel of Protected Areas

Budget & Financial Plan

Funding has always been limited for the forest PAs. Protected Area managers reflected that current or previous funds (for the last 5 years) were insufficient to enable critical management activities to take place. The critical activities included but not limited to restoration activities such as enrichment plantation, assisted natural regeneration and fruit tree plantation for wildlife, protection, transportation and communication. Management budget and even the staff salaries are sometimes delayed.

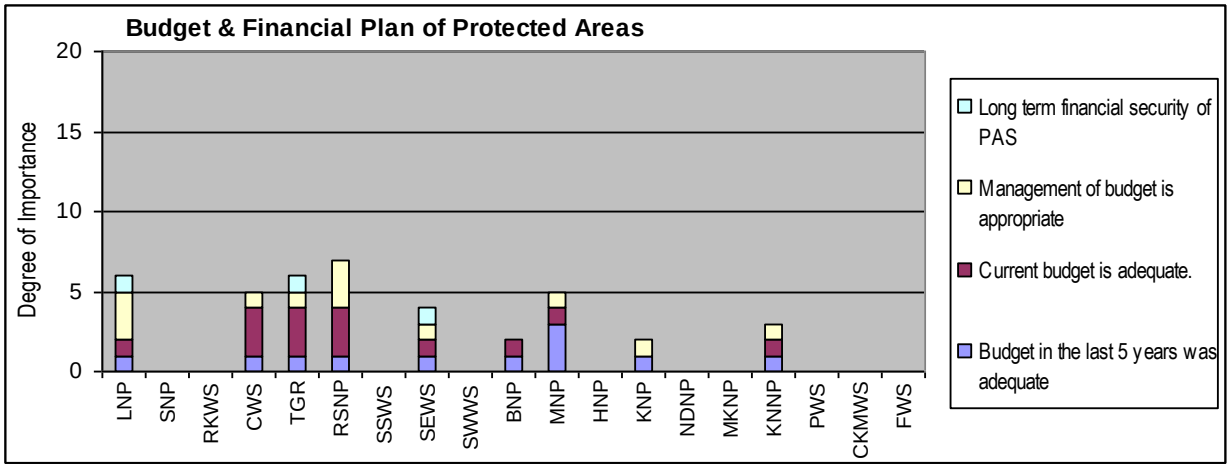

Figure 2.7: Budget and Financial Plan of Protected Areas

Management Planning

Most PAs lack well developed management plans and annual work plans. No recent inventory of natural resources exists for all the PAs, and as a result the PA managers do not know the status of the variety of flora and fauna fpr all the PAs.

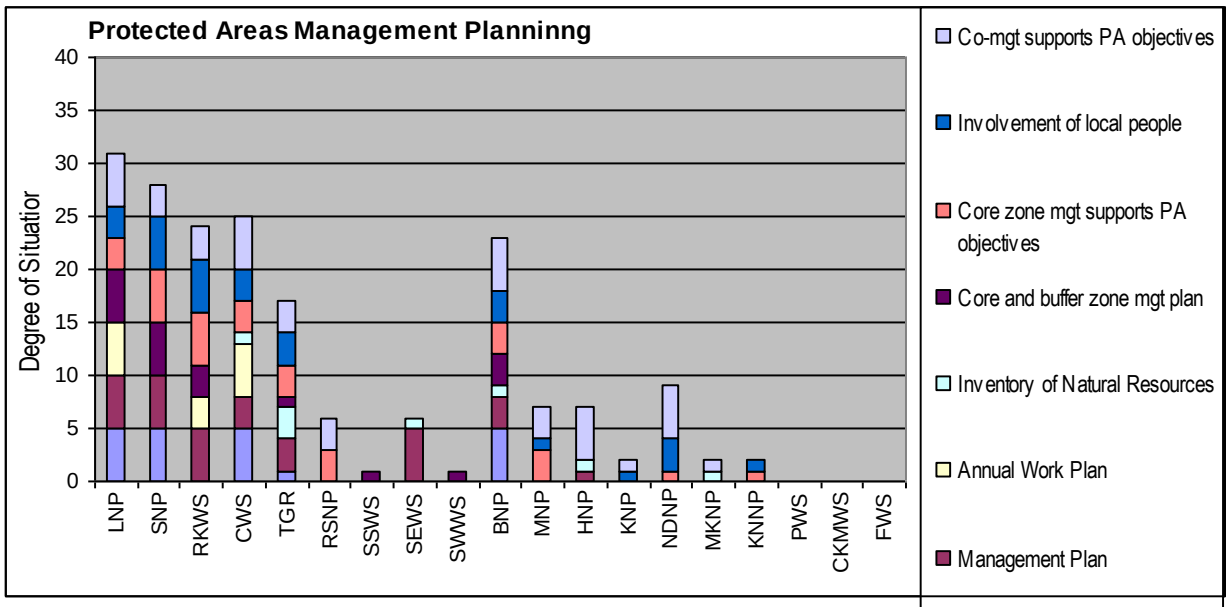

Figure 2.8: Protected Area Management Planning

Pressure and Threat Concerning PAs

The PAs have been enduring a wide variety of pressure and threats. Amongst all, illegal logging, land use change, fuel wood collection, hill burning, encroachment and non timber forest products collection are the most pressing issues. Protected Areas that are burdened with such pressures and threats are Himchari, Satchari, Bhawal and Madhupur NP, Chunoti WS and Teknaf WS.

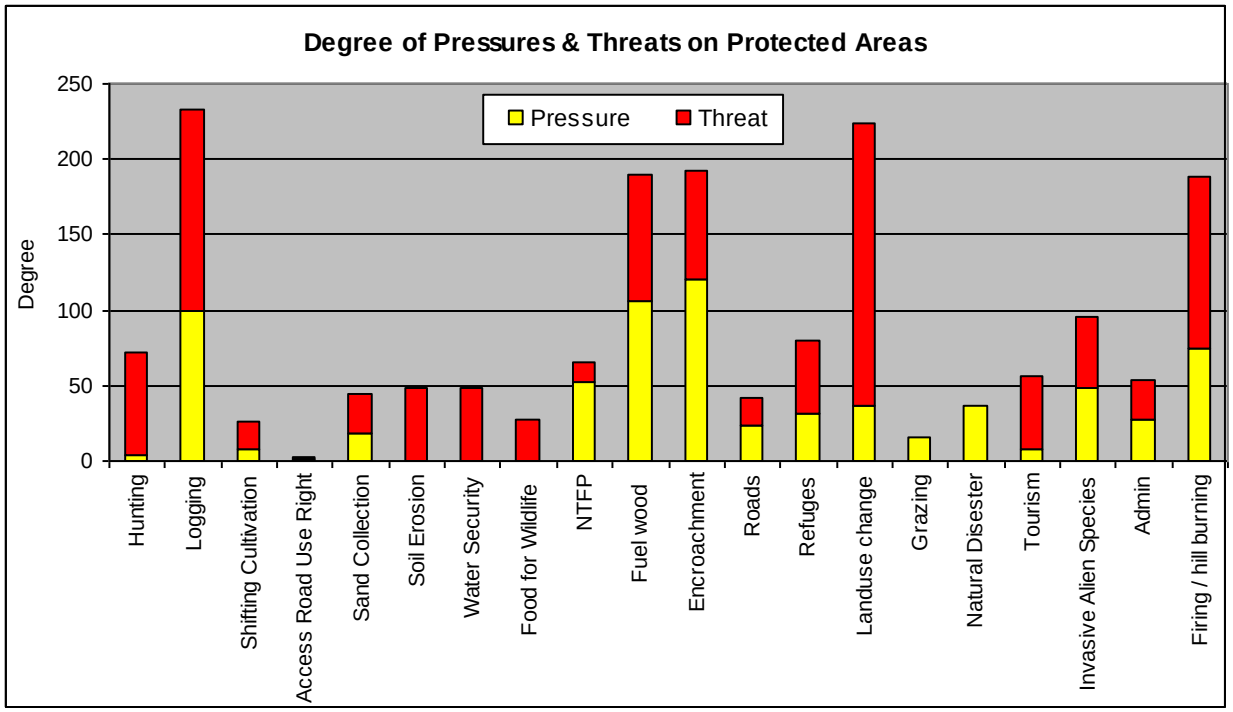

Figure 2.9: Degree of Pressures and Threats on Protected Areas

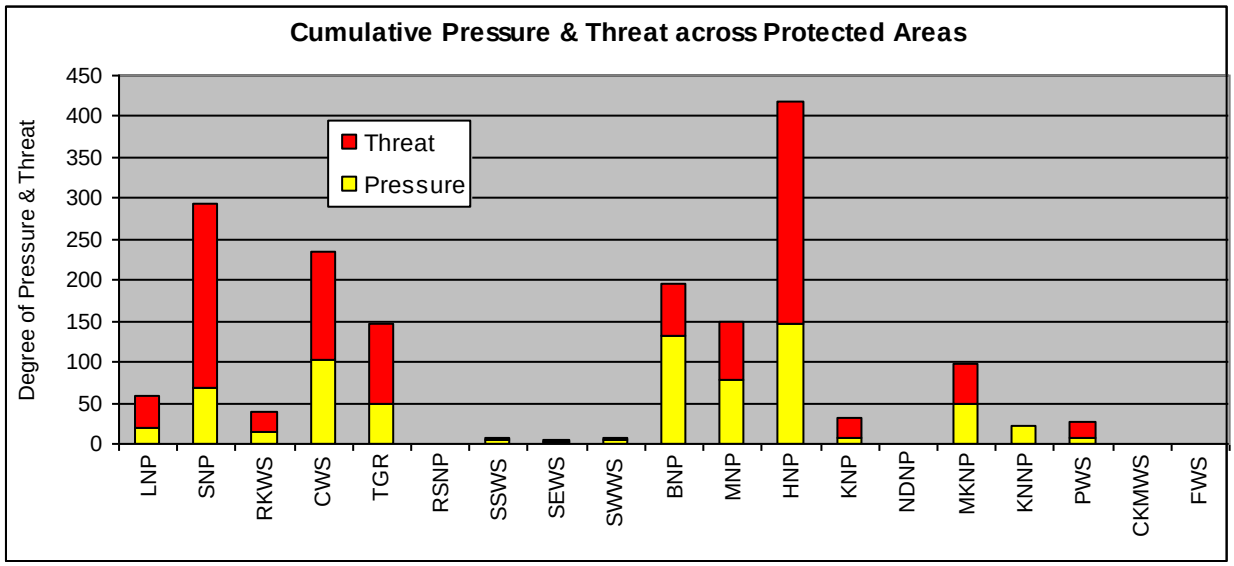

Figure 2.10: Cumulative Pressure and Threat across Protected Areas

Management Effectiveness of Protected Areas

The summary graph below is developed on the addition of scores from management planning, budget and financial plan, capacity of on-site personnel, physical infrastructures, protected area site design and legal security. It shows the current management capacity of 19 PAs, where majority of them fall well below the half way mark. The five PAs namely Lawachara National Park, Satchari NP, Rema-Kalenga WS, Chunoti WS and Teknaf WS are better equipped mainly due to the existence of management plan prepared under Nishorgo Support Project. However, execution of management plan requires secure budget, sustained finance, trained field staff, and infrastructure, all of which are lacking in most of the PAs.

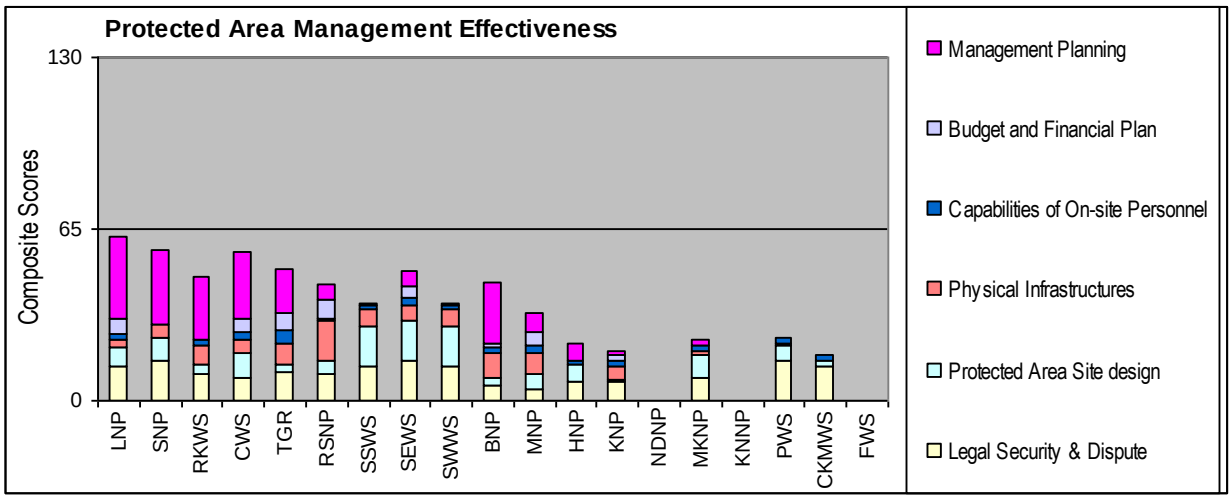

Figure 2.11: Protected Area Management Effectiveness of Bangladesh

Analysis and Implication for PA Management

Ecological and Socio-economic Importance of PAs

When ecological and socio-economic values are plotted against each other, four categories of PAs can be found – (1) PAs with high ecological value but less socio-economic importance i.e., three wildlife sanctuaries of the Sundarbans, due to their remoteness from locality and/or less dependency of local, people (2) PAs with less ecological values but high socio-economic importance i.e., Himchari NP, Ramsagar NP, Khadimnagar NP and Chunoti WS, (3) PAs with both comparatively higher ecological and socio-economic values like Lawachara, Satchari, Bhawal, Madhupur and Kaptai NPs, and Teknaf WS, and (4) PAs with comparatively lower ecological and socio-economic values i.e., Fashiakhali WS, Pablakhali WS, Char Kukri-Mukri WS, Nijhum Dweep NP, Rema-kalenga WS and Medhakachapia NP.

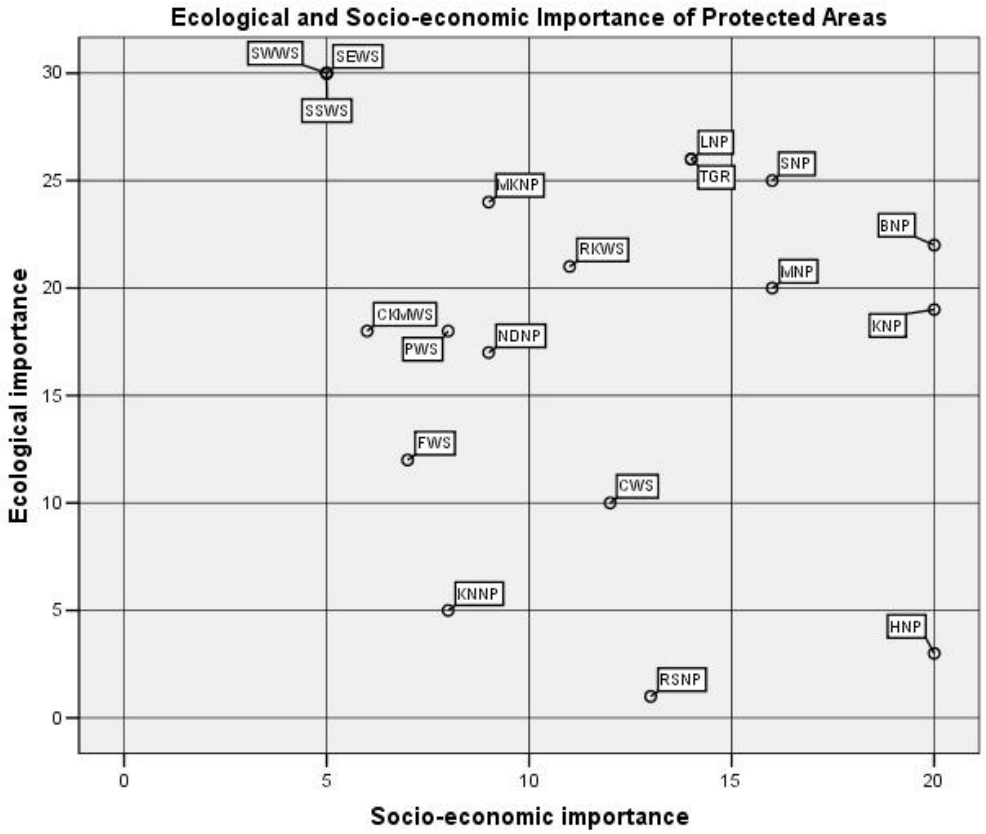

Figure 2.12: Ecological and Socio-economic importance of PAs

Management approaches for these four categories of PAs can be different – (1) for three PAs in the Sundarbans (high ecological value but low socio-economic importance) – managemenrt strategy should be to use the reserved forest areas as buffer areas (as has been) in a sustainable way as resource use zone to keep pressure as minimum as possible in the 3 Wildlife Sanctuaries. Second group of PAs where ecological value is low but high socio-economic importance, management strategy should be to restore ecological functions by involving local people (i.e. co-management) and continue to support community needs in a sustainable way. The third group of PAs where both ecological and socio-economic values are higher, management strategy should be to find a proper balance between ecological integrity and socio-economic demand so that ecological balance is not hampered. The fourth group of PAs where ecological and socio-economic values are comparatively lower, the strategy can be to increase both ecological and socio-economic functions and services.

Ecological Priority of Protected Areas

If we plot the degree of pressure against ecological importance of PAs, it becomes obvious that higher pressure leads to lower the ecological value. Immediate management focus and actions with regard to restoration and protection are thus required for Himchari NP, Bhawal NP, Chunoti WS, Madhupur NP, Satchari NP, Nijhum Dweep NP, Teknaf WS and Medhakachapia NP. The case for Ramsagar NP is different, as this small PA is mainly for recreation (ornamental and medicinal plants) purpose.

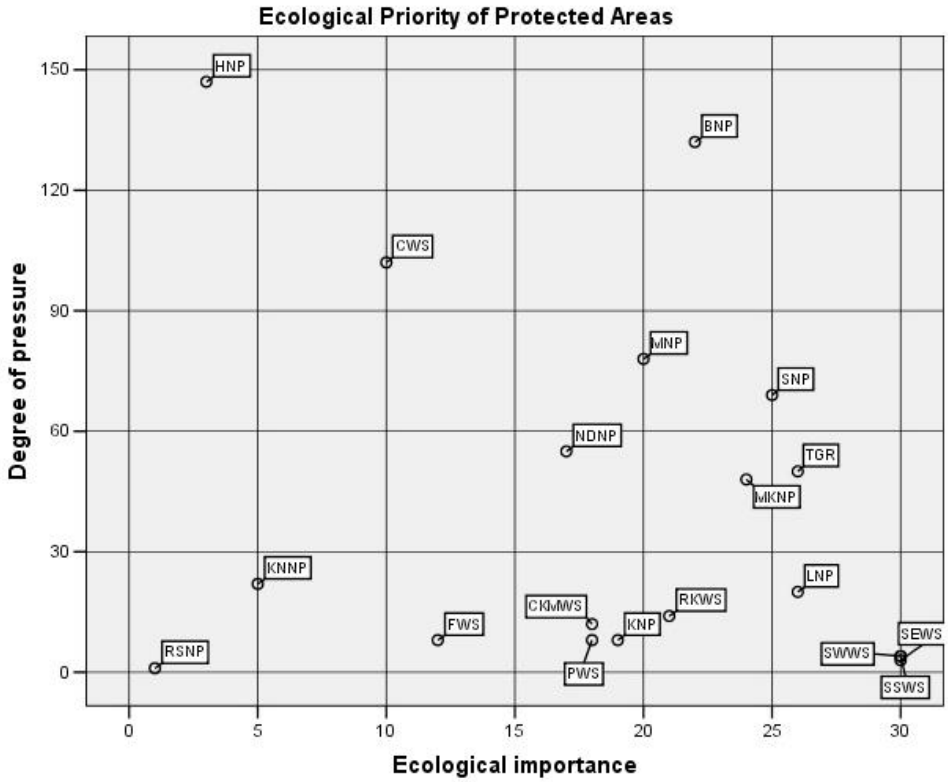

Figure 2.13: Ecological Priority of Protected Areas

Socio-economic Priority of Protected Areas

Protected Areas enduring high pressure and at the same time having high socio-economic values these are Himchari NP and Bhawal NP, Chunoti WS, Madhupur NP and Satchari NP. A general strategy for all these PAs can be to harness socio-economic opportunities therein to minimize biotic pressure. For example, Himchari NP provides employment opportunities for people engaged in eco-tourism support services due to its high recreational values. A lot of people also depend on resources for subsistence living. If eco-tourism opportunities are properly planned and systematically strengthened by involving dependent communities, biotic pressure will be reduced on forest resources.

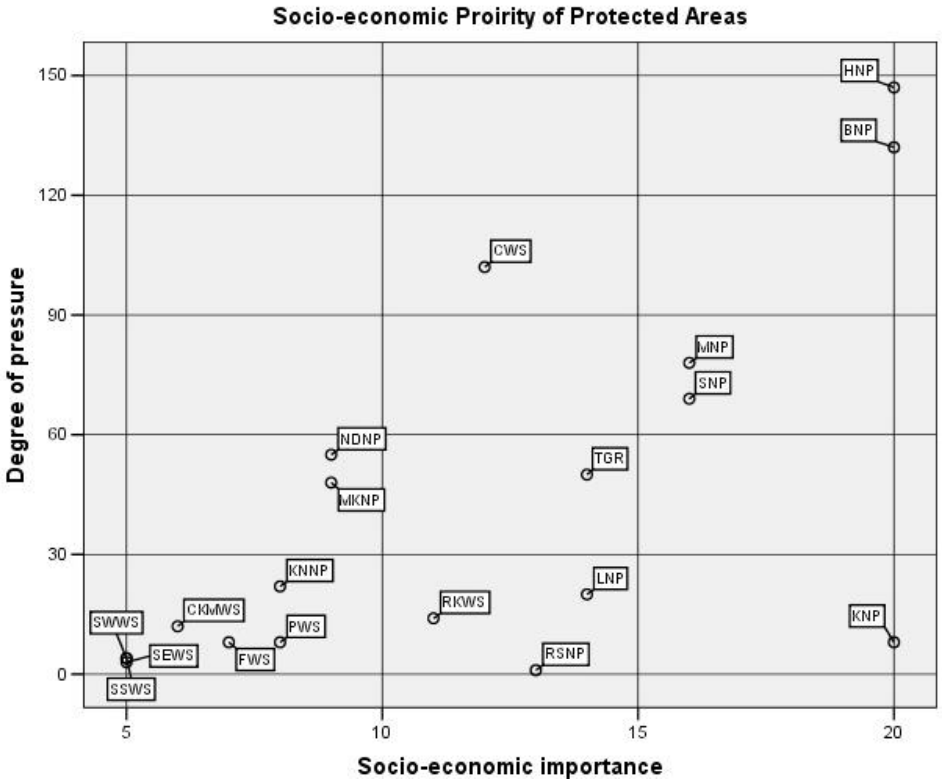

Figure 2.14: Socio-economic Priority of Protected Areas

Legal Priority of Protected Areas

Madhupur, Bhawal and Himchari National Parks are the three PAs that need special attention with regard to legal aspects. Each case is unique, for example – Madhupur NP has conflict over land tenureship as well as rights involving indigenous communities.

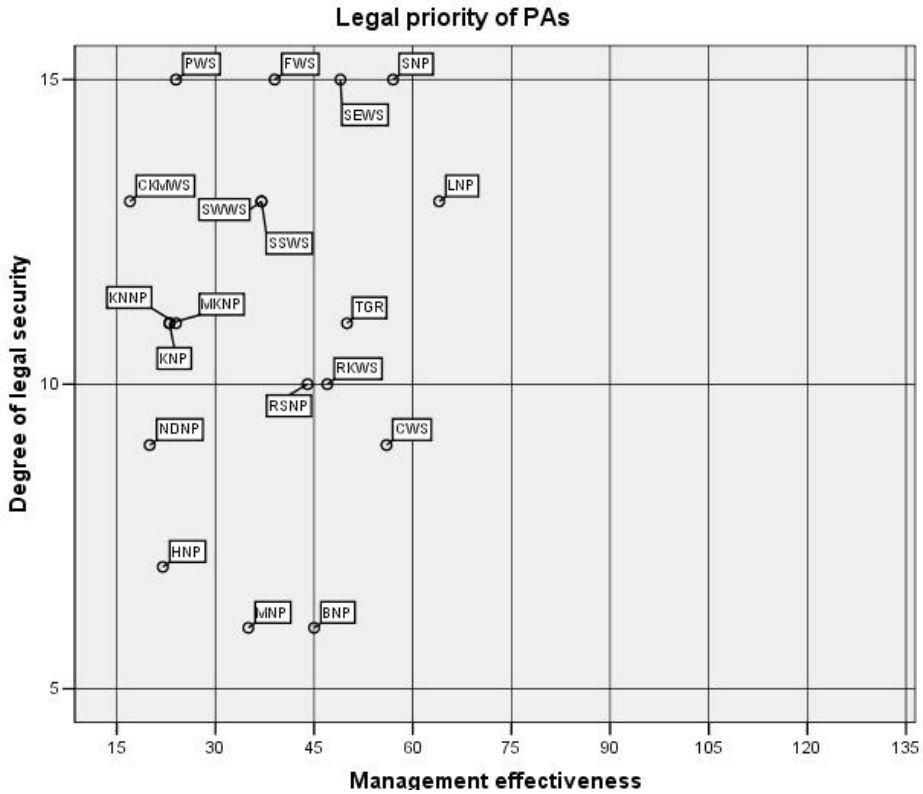

Figure 2.15: Legal Priority of Protected Areas

Bhawal NP on the other hand has fewer problems with regard to use rights, but more problems with regard to land ownership involving powerful elites wanting to establish industries. Local politicians and administration have evicted slum dwellers (approximately 2000 families) from Cox's Bazaar city and reallocated them to Himchari NP despite objection from the local Forest Department. This is the main reason behind degradation of Himchari NP and subsequent reduction of ecological values.

Illegal settlers on Nijhum Dweep have cleared land for rice cultivation and encroaching on the mangrove plantations. Same is applicable for Chunoti WS, where local people have cleared land for agriculture. Other PAs have conflict with issues regarding the rights of land use to varying degrees.

Pressure and Management Effectiveness

When pressure exerting on PAs is plotted against management effectiveness, it shows that Himchari NP is the most venerable, given its lower management capability to endure high degree of pressure. Protected Areas that are less equipped to endure different sort of pressure are – Bhawal, Chunoti, Satchari, Madhupur, Nijhum Dweep and Medhakachapia.

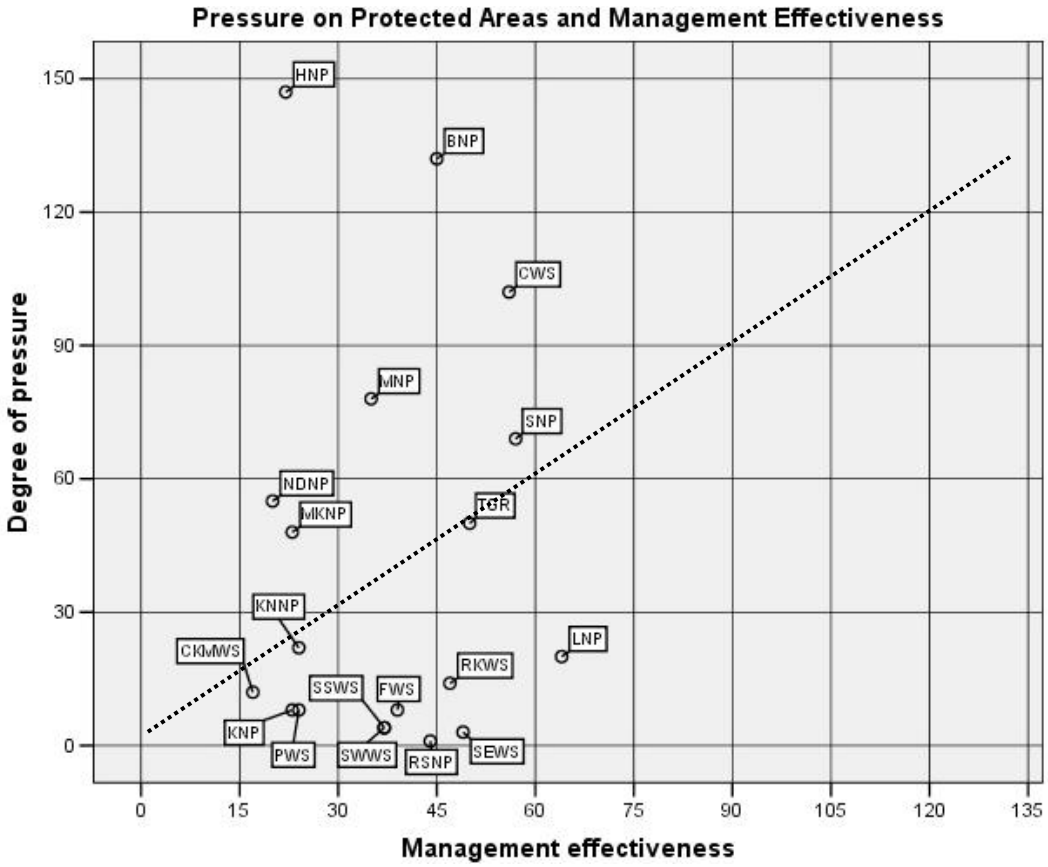

Figure 2.16: Pressure and Management Effectiveness

State of the Protected Areas of Bangladesh was prepared based on two methodologies, with adjustments to match local conditions and practical realities. The objective being to bring forth issues concerning the PAs and focus management actions.

3. INDIVIDUAL PROTECTED AREAS

Bhawal National Park

Basic Information

Category	: National Park
Area	: 5022 ha
Established	: 1982
Forest Type	: Tropical Moist Deciduous Forests (Sal Forests)
District	: Gazipur
Upazila	: Gazipur Sadar and Sreepur
Bio-ecological zone	: Modhupur Sal Tract
Physiography	: Modhupur Tract
Coordinate	: 24^{0} 01' N - 90^{0}20' 01"25E
Administration	: Wildlife Management & Nature Conservation Division, Dhaka.
Forest Range	: Bhawal National Park
Beats	: National Park; Bawpara; Bankhoria; Baraipara; Bhabanipur; Bishaya Kuribari; and Rajendrapur West

Infrastructures Facilities

Management: ACF – 02; Range Offices – 02; Beat Offices - 07
Visitor: Rest House – 06; Cottage – 13; Picnic Spot- 47
Others: Artificial Lake-02; Ponds – 02; Observation Tower – 02.
Staff Quarter: ACF Quarter – 01; BO Quarter – 01

Management

Boundary Demarcation: Boundary Wall on the roadside
Inventory: No recent inventory
Land use (ha): Sal Forest: 4,482 ha; Plantations: 540 ha

Legal Context

Land Tenure Disputes: About 475.0 ha of forest land are encroached.
Use Rights Disputes: Sometimes conflict arises regarding using the foot trails within the forest area and also agriculture by local people.

Socio-economic Context

Due to its proximity to the capital city, the park, during tourist season (Nov-Feb), experiences heavy visitors flow. Official record shows that 3,75,000 people visit the park every year. More than 5,000 people are dependent on the park for their livelihoods. Rapid industrialization and urbanization are currently threatening the existence of the park.

Ecological Context

It is a tropical moist deciduous forest, where Sal is the main tree species, due to its coppicing ability. The present Sal forest is a secondary forest mainly originated from coppice but at places with seeds. Approximately 10 species of mammals, 6 species of amphibians, 9 species of reptiles and 39 species of birds are found in the park. Civet, Mongoose, Fox, Jungle Cat, Wild Boar and Hare are the main mammals. Monitor lizard, Snake, Python and Tortoise are the main reptiles. Nearly 220 species of plants are being recognized in the PA area, among which are 24 species of climbers, 27 species of grasses, 105 species of herbs, 3 species of palms, 19 species of shrubs and 43 species of timber trees .

Threats Assessment

Biodiversity of Bhawal NP can often be successfully restored if the casual factors that lead to forest degradation are effectively controlled. In fact, Bhawal National Park's biodiversity can be successfully conserved by applying sustainable forest management procedures. Remarkably, people living in this area with the help of Nishorgo Network, are trying their best to regenerate Sal coppice forests. People living adjacent to the park are directly influencing the fate of forest biodiversity through their individual choices.

FD Intervention

Bhawal National park was established in 1982 to preserve the bio-diversity of this exclusive forestland. FD has been working with local stakeholders of Bhawal National Park for the conservation of its unique biodiversity and improvement of livelihoods of neighboring communities. A co-management platform has been formed including 37 VCFs and a Peoples' Forum. FD will continue the facilitation of the capacity building of the local stakeholders, development of climate change assessment and adaptation planning and responsible eco-tourism promotion and network links.

Char Kukri Mukri Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 40 ha
Forest Type	: Coastal Mangrove Plantations
District	: Bhola
Upazila	: Char Fasson
Bio-ecological zone	: Offshore Islands
Physiography	: Young Meghna Estuarine Floodplain
Coordinate	: Latitude- 22^{O} 30' N and Longitude- 90^{O}30' E
Administration	: Coastal Forest Division, Bhola.
Forest Range	: Char Kukri Mukri
Beats	: Char Kukri Mukri Sadar

Infrastructures Facilities

***Management*:** Range Office – 01; Beat Office – 01;
***Staff* Quarters**: Range Officer Quarter – 1; BO's Quarter – 1; Forest Guard Quarter -1

Management

Boundary Demarcation: North-Shabajpur Chanel, East-Patilar Don Khal, South-nursery Khal and 1774, 1975 Plantations of West-Shabajpur Chanel and Tetulia River.
Land Tenure Disputes: Declaration of reserve forests under section 6 of the Forest Act 1927 is in the process.

Socio-economic Context

Char Kukri Mukri is an offshore island of Char Fasson, which is separated from Bhola mainland by the river Meghna. Nearly 15,000 people live in this relatively old island which has around 5000 acres of silted land. The inhabitants of this island migrated from other parts of the country due to the erosion of the mighty river Meghna. The Sanctuary does not provide huge employment opportunities; though local people do collect fuel wood.

Ecological Context

Composition of coastal mangrove is different than that of the Sundarbans. Kewra (*Sonneretia apetala*) is widespread and Gewa (*Gumlina areborea*) is also present. Thick growths of the small thorny "Tamfulkanta" tree cover much of the sanctuary. Mammals include Fishing Cat and Oriental Small-clawed Otter. More than 8 species of Herons breed in the sanctuary. All three of the Monitor species dwelling in Bangladesh are being reported from this Sanctuary.

Threats Assessment

As the recent assessment reveals, the biodiversity of this WS is declining, and substantial efforts would be needed to arrest and reverse this state.

FD Intervention

In order to improve the biodiversity, FD is promoting awareness and convincing policy makers both at the local and national levels.

Chunati Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 7,761 Ha
Established	: 1986
Forest Type	: Tropical Semi-Evergreen
District	: Chittagong and Cox's Bazar
Upozila	: Banskhali, Lohagora, & Chokoria
Bio-Ecological Zone	: Chittagong Hills
Physiography	: Northern And Eastern Hills
Coordinate	: 21^0 50'-22^0 0' N and $91^0$57' - $92^0$4' E
Administration	: Wildlife Management & Nature Conservation Division, Chittagong.
Forest Ranges	: Chunati and Jaldi
Beats	: Chunati, Aziz Nagar, Harbang; Puichari, Napora, Jaldi, Chambal.

Infrastructures Facilities

Range Officer Quarter: 01
Double Guards Quarter: 02
Forest Guard quarters: all inhabitable
Student Dormitory: 1
Staff Dormitory: 02

Management

Range Offices: 02, Beat Offices: 07
Nature Interpretation Center: 01
ACF Quarter: 01
ACF Bungalow & Park Office: 01
Visitor: Nature Trails: 3
Management Plan: 2006
Annual Work Plan: Yes
Boundary Demarcation: Yes
Management Zoning: Yes
Inventory: No recent inventory.

Silviculture

Buffer Zone Plantations: 430 ha
Long Rotation Plantations: (rare & endangered species): 1130 ha
Fruits & Fodder Species: 244 ha
Medicinal Plantations: 88 ha
Enrichment Plantations: 80 ha
Miscellaneous: Foot trail- 3; Goalghar- 5; Observation Tower-2; Culvert-2 and Resthouse-2.

Legal Context

Land Tenure Disputes: Encroachment & Illegal Settlement: (Chunati and Jaldi)

Socio-economic and Ecological Context

Nearly 35 people (e.g., eco-cottage, eco-guides) are directly involved with PA related jobs. Approximately, 50,000 people (of 113 villages) depend on resources collection (e.g., fuel wood, medicinal plants) from this PA. Development opportunity through eco-tourism is high due to privileged recreational value. Majority of the Wildlife Sanctuary is under Banskhali and Lohagora Upazillas, with a total population of 6, 58,061. It also covers some parts of Chakaria Upazila. Asian Elephant (*Elephas maximus*) is the most important wildlife of this area. The other existing species are Wild Boar, Rhesus Macaque, Deer species, Jungle fowl and Python.

Threats Assessment

Main threat to the sanctuary conservation is forest dilapidation due to heavy biotic pressure and climate change. Being close to the Bay of Bengal, biodiversity of this WS is strongly affected by climate change so it is needed to make additional efforts to minimize the negative influence of factors such as over-exploitation and habitat loss and fragmentation. Nishorgo Network will attempt making sure of that the WS's ecosystem gradually becomes less vulnerable and more resilient to the increasing threat posed by climate change.

FD Interventions

Though Chunati Wildlife Sanctuary was established in 1986, only since 2004, collaborative management with a multi-stakeholders platform has been introduced under Nishorgo Support Project. In continuation, IPAC has been promoting co-management of natural resources of the sanctuary for biodiversity conservation and improving livelihoods of neighbouring population. In this context, IPAC is working with two CMCs formed under Nishorgo Support Project during 2005, which were reformed in 2010 under the framework of new Government Order. The two CMCs cover 60 Village Conservation Forums, 2 People's Forums, 12 Community Patrolling Groups with 259 patrollers who participate in joint forest patrolling with FD, 08 Forest Conservation Clubs, and 60 Nishorgo Shakayaks. IPAC is focusing on the visible impacts of sustaining the CMCs, facilitation of the capacity building of VCFs, PFs, NSs, CMOs, CPGs and other stakeholders.

Dudhpukuria- Dhopachari Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 4716.57 Ha
Established	: 2010
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Chittagong
Upozilla	: Rangunia, Chandanaish
Bio-Ecological Zone	: Chittagong Hills and The Chts
Physiography	: Northern And Eastern Hills
Coordinate	: 22^0 09' And22^0 22' N And 92^0 05' And $92^0$10' E
Administration	: Chittagong South Forest Division
***Forest Range*(S)**	: Khurusia and Dohazari
Beat:S	: Dudhpukuria, Kamlachari, Dhopachari.

Infrastructures Facilities

Range Offices: 02, Beat offices - 03,
Visitor : Nature Trails - 01, Picnic Sites-02,
Staff: Range Officer Quarter - 2, BO Quarter - 03, Forest Guard Quarters - 02

Management

Management Plan: Integrated Forest Management Plan for the Chittagong South Forest Division
Annual Work Plan: Yes
Boundary Demarcation: No
Management Zoning: Yes

Silviculture

Natural Forest (including brush land and scattered trees) - 3874 ha; Encroached Land-46 ha; Plantations 797 ha.

Legal Context

Land Tenure Disputes: Nil
Use Rights Disputes: Nil
Number of Cases on Illegal Timber Removal Settled This Year: 2
Forest Land Encroached: 46 ha.

Socio-economic and Ecological Contexts

Local people mostly depend on collecting forest resources such as harvesting firewood and bamboo for their subsistence**.** Approximately 8500 people live in the Wildlife Sanctuary which contains considerably high floral and faunal diversities. Garjan is the dominant tree species along with its associate plant species.

Threats Assessments

In DDWS, forest conversion is sometimes aimed at economic development priorities, such as establishment of new agricultural land, infrastructure development and reservoir construction. Included also in this category is private land conversion as, for example, conversion of forest to industrial establishments and settlements. In such cases the agents of conversion may be the private sector. But they are responding to explicit or implicit policy decisions or other incentives originating from Nishorgo Network and the FD.

FD Interventions

IPAC started its activities at DDWS since its establishment at 2010 with the PA community mobilization and awareness rising, initiated to establish co-management platforms. Two CMCs have been formed at Dudpukuria and Dhopachari. VCFs have been formed and their members are engaged in multidimensional AIGA/VC activities such as agriculture, pond fish culture, nursery development, vegetable cultivation, bamboo made products and social forestry plantations. Focusing the visible impact to sustaining the CMO's, FD supported by IPAC staff have started reinforcing facilitation of capacity building of VCF's, PF's, NS's, CMC's, CPG's, and other stakeholders by imparting different training programs. Habitat restoration initiative has already been undertaken by joint patrolling of CPG members with the FD field staffs. Initiative for eco-tourism facilities and network links has also been undertaken. FD field staffs are continuing efforts for development and implementation of alternative livelihood through AIG/VC framework and also effective implementation of LDF projects to reduce pressure on the forests.

Fashiakhali Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 1,302 Ha
Established	: 2007
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Cox's Bazar
Upozila	: Chakaria
Bio-Ecological Zone	: Chittagong Hills And The Chts
Physiography	: Northern and Eastern Hills
Coordinate	: $21^0$45' To $21^0$40' N and $92^0$4' To $92^0$8' E
Administration	: Cox's Bazar North Forest Division, Cox's Bazar.
Forest Range	: Fashiakhali Range
Beat	: Dulahazra , Fashiakhali

Infrastructures Facilities

Beat Office-01; Beat Officer Quarter-01

Management

Inventory: No recent inventory

Landuse: Degraded barren hills 324ha; Plantations -935.2.ha, Waterbodies -2 ha, Settlements -40.5 ha

Silviculture

Buffer plantations: 192.ha, Enrichment plantations: 545 ha, others: 565 ha

Legal Context

Use Rights Disputes: Over 290 ha

Ha. of Land Encroached: nil

Socio-economic Context

Two Forest villages consisting of 112 members were set up in the mid 1950s, by the Forest Department who leased small areas of land (2 acres) to a certain number of households within the reserve forest area. Immigrating victims affected by various climate change activities and the neighboring Arakanese community, the Rohingya make up most of the Sanctuary's populations. Approximately 20,000 people rely on the WS for resources like fuel wood, sungrass, bamboo and medicinal plants. The WS has the potential to become a major national tourist attraction since it is near to Dulahazra Safari Park and Medhakachapia NP. There are 5500 HHs in 16 villages situated inside this WS and the total population is around 33,000. Nearly 25,000 more people live in the adjacent 4000 HHs.

Ecological Context

Currently, a herd of Asian Elephant (*Elephas maximus*) with 28 members is tracked inside the sanctuary. Wild Boar, Clouded Leopard, Hog-badger and Deer are present also. The Wildlife Sanctuary has some rich vegetation including savanna, natural bamboo and thick undergrowth plantation, along with marshy lands and streams. The savanna supports the elephant population. The elephant herd used to roam around in Dulahazara, Ringvong and Fasiakhali Reserved Forest in the past. However, due to settlements

of refugee in the Fasiakhali and Yeancha mouzas, the vegetation in these areas diminished and the area became uninhabitable for elephants. The elephants are now restricted only in the above mentioned three blocks.

Threat Assessment

Human activities inside and around the sanctuary are resulting in ecosystem degradation. Illicit logging in this WS area is major in significant ecosystem degradation if conducted with inappropriate harvesting and/or extraction threat. In many cases, only the most valuable trees are harvested. This impacts regeneration of important tree species and disrupts food supply for various fauna. Nishorgo Network, with the help of FD staff and CMC, is working relentlessly to eradicate these threats.

FD Interventions

The Fakshiakhali Wildlife Sanctury was established in 2007 and FD has been promoting co-management of natural resources of the Sanctuary for biodiversity conservation and improving livelihoods of neighbouring population since. In this context, IPAC is working with the existing CMCs to build a platform of multi-stakeholders. This Wildlife Sanctuary has 30 Village Conservation Forums, 1 People's Forum, 2 Community Patrolling Groups with 42 patrollers who participate in joint forest patrolling with FD, 30 Nishorgo Shahayaks, and a Forest Conservation Club. To ehnance the capacity of the CMOs and other stakeholders, IPAC organized a number of trainings, orientations, exposure visits and specialized workshops focussing on participatory ADP preparation for the CMCs, trainings on co-management, financial and policy issues, networking with GOB agencies, etc. In the upcoming year, FD will focus on facilitating and capacity building of this PA's co-management component.

Hazarikhil Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 1172.53 Ha
Established	: 2010
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Chittagong
Upozila	: Fatickchari
***Bio-Ecological* Zone**	: Chittagong Hills And The Chts
Physiography	: Northern And Eastern Hills
Coordinate	: $22^0$40' To $22^0$46' N and $91^0$38' To $91^0$42' E
Administration	: Chittagong North Forest Division
Forest Range(S)	: Hazarikhil
Beats	: Hazarikhil, Fatickchari

Infrastructures Facilities:
Range Office-01; Beat Offices - 02;
Visitor: Nature Trails-01; Picnic Sites- 01
Staff: Range Officer Quarter-01, Beat Officer Quarter-02, Forest Guard Quarter-02.

Management
Management Plan: Integrated Forest Management Plan for the Chittagong Forest Division (2000-2009)
Land use: Degraded Forest - 493.0 ha

Legal Context
Use Rights Disputes: 01
Number of Offence Cases: 14
Volume of Resource Confiscated: 190cft
Number of Cases on illegal Timber Removal Settled This Year: 03
Number of Trees Felled: 205
Land Encroached: 65.42 ha
Surrounding Population: 8000

Socio-Economic Context
Due to its remoteness, this Wildlife Sanctuary doesn't receive many visitors year round. Only about 6 people are being employed as service providers to the tourist for the services ranging from transport, vendors, restaurants and gift shops.

Ecological Context
Due to severe forest degradation, this WS is not rich in both flora and faunal species. Notable economic plants are garjan and teak and animal species include Rhesus Macaque, Capped Langur, Dhole, Sloth Bear, Wild Boar, Indian Muntjac, Hoolock Gibbon, Leopard, Phayre's Leaf Monkey, Sambar and Indian Python.

Threats Assessment

Main threat to this PA is due to non-sustainable extraction of fuel wood and non-timber forest products. Although harvesting of NTFPs does not normally involve the removal of whole organisms, and so may not usually cause as dramatic physical changes as logging, intensive harvesting of local plant species results in ecological disruption of the biodiversity of this WS. Nishorgo Network is creating awareness among the WS dependent people regarding the abolishment of repeated cutting combined with inappropriate harvesting methods, which cause physical degradation to this WS.

FD Interventions

Due to paucity of funds, not many development activities are currently under construction in the sanctuary. However, under the ADB supported Forestry Sector Projecto a number of iterventionsa including the development of our Action Plan was taken up in this sanctuary.

Himchari National Park

Basic Information

Category	: National Park
Area	: 1,729 Ha
Established	: 1980
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Cox's Bazar
Upozila	: Cox's Bazar Sadar, Ramu
Bio-Ecological Zone	: Chittagong Hills and the CHTs
Physiography	: Northern and Eastern Hills
Coordinate	: 21.35` To 21.44`N and 91.98` To 92.05` E
Administration	: Cox's Bazar South Forest Division, Cox's Bazar
Forest Range	: Cox's Bazar Range
Beat	: Kolatoli, Jhilanja, Chainda, Himchari

Infrastructures Facilities:
Beat offices: 2
Range Officer Quarter: 1
BO Quarter: 2
Forest Guard Quarter: 1

Management
Management Plan: Integrated Forest Management Plan
Annual Work Plan: Yes
Boundary Demarcation: No, except natural boundaries
Management Zoning: No

Legal Context
Land Tenure Disputes: Exist.
Use Rights Disputes: *Exist.*
Number of Offence Cases: 6
Number of Tree Felled: *12* (151 cft confiscated)
Forest Land Encroached: 53 ha.

Socio-economic Context
With about 8427 households around the park area, the local communities impose a large degree of dependency upon the park resources and as a result forest land encroachment has expanded steadily. As the Rohingya migrants from the Arakan shifted to the park environs, land encroachment, a growing population, illiteracy, poverty and scarce drinking water are some of the problems these communities have been plagued with. The Forest Department has been maintaining this National Park as a conservation site and the surrounding communities have been regularly involved in this effort.

Ecological Context

The park has more than 50 species of trees, and some twenty types of important herbs, amongst which many have therapeutic qualities and are useful to the locals. *Swintonia floribunda, Curculigo recurvata*, and *Alpinia nigra* are some herbs worthy of mention. This wide variety of plant life provides suitable habitats for 55 species of mammals including the Capped Leaf Monkey and Binturong, 286 species of birds like the Hill myna and the Greater Painted-Snipe; 56 species of reptiles and 13 species of amphibians. A limited number of Asian elephants use the park as their migratory routes in the Teknaf-Inani-Himchari complex.

Threat Assessment

Once home to rich display of flora and fauna, the park has mammals, birds, reptiles and amphibian species which may still be found but their populations have decreased. Furthermore, an influx of migrants from Cox's Bazaar town relocated to the park for various reasons have resulted in the loss of habitat for many keystone species like the Asian Elephant.

FD Interventions

Himchari national Park was established in 1980. IPAC has been promoting co-management of natural resources of the park for biodiversity conservation and improving livelihoods of neighbouring population. In the context, IPAC is working with existing CMC, representing 35 VCFs and a Peoples' Forum. Five CPGs have been formed and are oriented for community patrolling along with the FD field staff by following the community patrolling guidelines as developed under IPAC. Nishorgo Shahayaks are trained for conducting VCF meetings and helping in the development of climate change plans in the upcoming years. IPAC facilitated capacity building of VCFs, PFs, CMCs and other stakeholders. Other important outcomes include development of drinking water facilities, habitat restoration and development of eco-tourism facilities. Communication and outreach services and extended for the promotion and institutionalization of co-management in Himchari National park.

Inani National Park

Basic Information

Category	: National Park
Area	: 2933.61 ha
Established	: (Proposed)
Forest Type	: Tropical Evergreen and Semi-evergreen
District	: Cox's Bazar
Upozila	: Ukhiya
Bio-ecological Zon	: Chittagong Hills and the CHTs
Physiography	: Northern and Eastern Hills
Coordinate	: 22^0 39' N to 22^0-47' N- $91^0$35' E to 91^0-41' E
Administration	: Cox's Bazar south Forest Division, Cox's Bazar
Forest Range	: Inani
Beat	: Inani, Chawankhali

Infrastructures Facilities

Management: Range Office-01; Beat Offices-02
Visitor: Nature Trails-01, Picnic Spot- 01
Staff: Range Officer Quarter-01; BO Quarter-02; Forest Guard Quarters-02

Management

Management Plan: Integrated Forest Management Plan for the Cox's Bazar Forest Division
Annual Work Plan: Yes
Boundary Demarcation: No
Management Zoning: No
Inventory: Carbon inventory done by IPAC
Landuse (ha): Degraded Forest -2214 ha; Plantations- 720 ha

Legal Context

Number of Offence Cases: 04
Number of Tree Felled: 23
Confiscated Timbers: 45.0 Cft
Number of Cases on Illegal Timber Removal Settled This Year: 04
Forest Land Encroached: 11.60 Ha

Ecological Context

The National Park, once covered with luxuriant evergreen forest, is now reduced to scattered forests with plantations of various species. The park is a part of large fauna habitat, comprising 15 Mammals, 65 Birds, 06 Amphibians and 15 Reptiles species. The park was created principally to promote ecotourism due to its unique combinations of natural features like forest, beautiful waterfall and natural beauty. The National Park area is also home to 200 different flora species.

Threats Assessment

Decimation of many endangered species, including primates has been accelerated due to poaching, habitat disturbance, lack of natural breeding grounds, scarcity of food and deforestation caused by anthropogenic and natural factors. Many tree species depend on seed dispersal by animals for their survival and these species would be unable to reproduce without their seed dispersers such as wild animals and birds. Moreover, habitat loss has resulted in increased human-wildlife conflicts.

FD Interventions

Inani National Park was proposed in 2010 to be gazetted. IPAC has been working in the Inani National Park since 2009 in coordination and coopeartion with Inani Protected Forest Area Co-management Project funded by the Arannyak Foundation. IPAC is focusing on the visible impacts to sustaining the CMCs, reinforcing facilitation of the capacity building of CMCs, CPGs and other stakeholders, climate change vulnerability assessment and adaptation planning, habitat restoration, eco-tourism facilities and network links and strengthening ICS. IPAC will also continue regular efforts for the development of alternative livelihoods through AIG/VC framework in this proposed National Park.

Kaptai National Park

Basic Information

Category	: National Park
Area	: 5464 ha
Established	: 1999
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Rangamati
Upozila	: Kaptai
Bio-ecological Zone	: Chittagong Hills and the CHTs
Physiography	: Northern and Eastern Hills
Coordinate	: 20-30-1.3 N and 22-29-53.5 E
Administration	: Chittagong Hill Tracts South Division.
Forest Range	: Kaptai , Karnaphuli
Beat s	: Kaptai Sadar, Bangchari, Kamillaachari, Sukhnachari, Rampahar, Karnaphuli Sadar, Kaptaimukh, Kalmichara & Fringkheong

Infrastructures Facilities

Range Offices-02, Beat Offices-09, Camps-03, Nursery-01
Visitor Facilities: Rest House-01, Picnic Area -03, Inspection Bungalow-01.
Staff Quarters: Range Officer Quarter – 01, BO Quarter – 01, Camps – 2
Forest Guard Quarters: 1

Management

Management Plan: Yes
Annual Work Plan: Yes
Boundary Demarcation: No
Management Zoning: No
Inventory: No recent inventory by FD.
Land use (ha): Natural Forest: 837 ha, LR Plantations: 4627 ha

Silviculture

Management: Buffer Plantations-58 ha
Enrichment: 10 ha.
Long-term and short-term Plantations: 4559 ha

Legal Context

Land Tenure Disputes: Villagers of Kamalchari claim some portions of land inside the National Park area.
Use Rights Disputes: Forest villagers of Bangchari want to practice Jhum cultivation inside the park and collect forest resources for daily usage.
Confiscated Timbers: 27,410 cft
Number of Cases on Illegal Timber Removal Settled This Year: 5
Forest Land Encroached: 14 ha

Socio-economic Context

The NP is situated inside the Kaptai City and since the natural scenery is very attractive and it receives lots of visitors year round. Nearly 60 local people are employed as service providers to the tourists and the services range from transport, vendors, restaurants and gift shop. The NP has high community development opportunities through eco-tourism if properly planned. The Park also provides subsistence to local people through NTFPs. Surrounding population of the National Park area is about 3000.

Ecological Context

Kaptai National Park is unique for its historic monumental Teak plantations of 1873, 1878 and 1879, the starting points of modern Forest Management in this sub-continent. These plantations have taken the look of natural forests and supports wildlife. The predominant animals living here are deer, elephant, jungle cat and monkey.

Threat Assessment

The main threats to this NP are illicit felling of commercially important teak, intensive collection of fuel wood and over grazing of livestock**.** Fuel wood collection takes many forms, from collection of dead wood to harvesting of branches and whole stem which if not sustainably done may damage the ecological balance of this NP. Continuous droughts and civil strife have resulted in a large increase in the number of people along the boundaries of the park in the last three decades. Most of these people own livestock and engage in subsistence agriculture. The presence of large numbers of livestock has increased pressure on the NP.

FD Interventions

Kaptai National Park was established in 1999 and IPAC started its activities with the PA since 2008 and a platform of co-management organizations has been formed that includes 39 VCFs, 02 Peoples' Forum, 02 FCC and two CMCs. Nearly 10 Community Patrol Groups were formed with 114 members and joint patrolling has continued along with FD field staffs. IPAC is focusing on the visible impacts to sustaining the CMOs, reinforcing facilitation of the capacity building of VCFs, PFs, NSs, CMCs, CPGs and other stakeholders, PA entry fee system and strengthening of ICS. IPAC will be continuing its regular efforts for development of alternative livelihoods through AIG/VC framework and LDF project design and implementation.

Khadimnagar National Park

Basic Information

Category	: National Park
Area	: 679 Ha
Established	: 2006
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Sylhet
Upozilla	: Sylhet Sadar
Bio-Ecological Zone	: Sylhet Hills
Physiography	: Northen and Eastern Hills
Coordinate	: 24° 56' 24°58' N and 91° 53' 91° 57'.E
Administration	: Sylhet Forest Division.
Forest Range	: North Sylhet Range-1
Beat	: Khadimnagar

Infrastructures Facilities

Range Office: 01, Beat Office-01, Nursery-01
Staff Quarter: BO's Quarter-1, Forest Guard Quarter-1

Management

Management Plan: Integrated Forest Management Plan
Annual Work Plan: Yes
Boundary Demarcation: No
Management Zoning: No
Inventory: No recent inventory was carried out
Landuse (ha): LR Plantations: 380 ha, SR Plantations: 10 ha. Bamboo: 150 ha, Cane: 258 ha (Planted under old plantations program); Agar Plantations: 40 ha

Legal Security and Dispute Context

Land Tenure Disputes: 1
Use Rights Disputes: No
Number of Offence Cases: 10
Number of Tree Felled 18
Confiscated Timbers: 104 cft

Socio-economic Context

No forest village is located within the Reserved Forest, although an ethnic (*Patra Samprodai*) community located adjacent to the forest near Faringura village. A total of 2261 households constituting to a population of about 12,500 inhabitants, with varying degrees of dependence upon the forest (e.g. fuel wood, medicinal plants, bamboo), have been identified. There are six tea estates bordering the forest and the unemployed labor of such estates are involved with fuel wood collection. Approximately, 3000 people depend on resources (e.g., fuel wood, medicinal plants, bamboo) collected from the PA. The National Park has community development opportunities through eco-tourism due to its proximity to the Sylhet city and shrines of Hazrat Shahjala (R) and Hazrat Shahparan (R). Nearly 9000 people visit the area monthly.

Ecological Context

The forest has a total of 217 species of plants, 20 amphibians, 9 reptiles like the Cobra and Python, 26 species of animals, including the Macaque, Capped languor, Fishing Cat and 28 species of birds such as the White Backed Vulture, Brahmini Kite, Hill Myna, Wildfowl and Oriental Pied Hornbill. The forest due to its native habitat is especially rich in bamboo and cane.

Threat Assessment

Traditionally, the local people have always been dependent on the park mainly for their daily requirement of fuel wood, construction materials, food, etc. They also collect some non-timber forest products for their household needs**.** The biodiversity of the park faces many threats as the locals are directly dependent on many forest resources and engage in the issues of clear felling and illegal timber felling. Some activities like livestock grazing and coal extraction also have dire effects upon the forest, while sporadic game hunting and unplanned tourism leave their respective marks on the overall preservation of KNP.

FD Interventions

In 2006 Khadimnagar National Park was established through a gazette notification. IPAC is working to promote and institutionalize co-management system for sustainable natural resource management and biodiversity conservation. The conservation-linked AIG/VC activities are continuing and an LDF grant is provided to the CMC for demonstrating exotic vegetables cultivation by gainfully involving forest depentdent households.Technical skill development training is being imparted by leveraging with local Horticulture Centers. With the view of developing eco-tourism facilities in this national park, IPAC has developed and promoted trail brochures, signboards and eco-tour guides which resulted in the national park's highest ever tourist rush in 2010.

Lawachara National Park

Basic Information

PA Category	: National Park
Area	: 1250 Ha
Established	: 1996
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Moulvibazaar
Upazila	: Kamalganj
Bio-Ecological Zone	: Sylhet Hills
Physiography	: Northern and Eastern Hills
Coordinate	: 24^0 17'-24^0 20' N and $91^0$47' - $91^0$49' E
Administration	: Wildlife Management & Nature Conservation Division, Moulvibazar.
Forest Range	: Moulvibazar Wildlife Range, Srimangal.
Forest Beats	: Lawachara, Chunati
Camps	: Baghmara, Jankichari

Infrastructures Facilities

Office: Park office-01, Range Office-01, Beat office-01, Camps-02, Nursery-01.
Visitor: Information Center / CMC Office-01, Nature Trails-03, Picnic Sites-02. Ticket Counter-02,
Staff: ACF Quarter-01, Range Officer's Quarter-01, BO's Quarter-1, Camp-02, Student Dormitory-1, Walking Trails-3

Management

Management Plan: Participatory Management Plan
Annual Work Plan: Yes
Boundary Demarcation: No
Management Zoning: Yes, Core Zone and Buffer Zone, not demarcated.
Inventory: No recent inventory.
Landuse (ha): Plantations: 1072 ha, Forest Villages: 130 ha, Agriculture: 19 ha
Others: 30 ha

Silviculture

Buffer Plantations -200 ha, Enrichment Plantations -130 ha, Special Plantations for Wildlife -50 ha, Coppice -20 ha.

Legal Context

Land Tenure Disputes: At Lawachara Beat, 34.5 ha and at Kalachara Beat, 150 ha of forestlands are encroached.
Confiscated Timbers: 1913 cft

Socio-economic Context

Two Forest villages (Lawachara and Magurchara) of Khasia community are located within the park and an ethnic Tipra community is located adjacent to the park boundary. A total of 2261 households constituting to a population of about 12,500 inhabitants, with varying degrees of dependence upon the forest (e.g. fuel wood, medicinal plants, bamboo) have been identified. There are six tea estates bordering the forest and the unemployed labor of such estates are involved with fuel wood collection. Since the inception of Nishorgo Network the Park has started to provide direct employment opportunities for 45 people providing services as eco-guide, eco-cottage owner and shop owner etc. However, the Park provides subsistence supports for 25,000 local people of 5000 households. It has elevated Community Development opportunities through Eco-tourism, as its recreational value is quite high. About 64,813 visitors including 773 foreigners have visited the PA last year.

Ecological Context

The forest has a total of 217 species of plants, 20 amphibians, 9 reptiles like the Cobra and Python, 26 species of animals, including the Macaque, Capped languor, Fishing Cat and 28 species of birds such as the White Backed Vulture, Brahmini Kite, Hill Myna, Wildfowl and Oriental Pied Hornbill. The forest due to its native habitat is especially rich in Hoolock population.

Threat Assessment

The biodiversity of the park faces many threats as the locals are directly dependent on many forest resources and engage in the issues of clear felling and illegal timber felling. Some activities like livestock grazing have dire effects upon the forest, while sporadic game hunting and unplanned tourism leave their respective marks on the overall preservation of LNP. Once home to rich display of flora and fauna, LNP has been under threat from over population and converting the habitat's land use to a more agricultural one. Therefore due to these varied encroachments, illegal logging and betel leaf cultivation amidst other agricultural activities, the wildlife habitat has reduced.

FD Interventions

IPAC has been working with Lawachara National Park stakeholders since 2008 to scale up NSP initiatives further to achieve the sustainability of co-management platform. With the support from NSP, Co Management Councils & Committees were formed in Lawachara and IPAC started reforming of co-management platform. Till date, 30 VCFs, a Peoples' Forum, 4 CPGs including one female group are functioning at LNP. IPAC trained some unemployed youths as Eco-guides for facilitating tourists, and supported entrepreneurs to build 03 eco cottages surrounding LNP. For students and their guardians a Dormitory has been recently established.

Modhupur National Park

Basic Information

Category	: National Park
Area	: 8432.71 ha
Established	: 1982
Forest Type	: Tropical Moist Deciduous Sal Forests
District	: Tangail
Upozilla	: Madhupur
Bio-ecological Zone	: Madhupur Sal Tracts
Physiography	: Modhupur Tract
Coordinate	: 24^0 30' to $2^0$450' N - 90^0 00' to $9^0$0 10' E
Administration	: Tangail Forest Division.
Forest Ranges	: National Park Sadar, Dokhola, and Aronkhola
Beats	: National Park Sadar, Rajbari, Beribaid, Gachabari, Lohoria, Dokhola and Aronkhola Sadar.

Infrastructures Facilities

ACF Office- 01; Range Offices-03; Beat offices -02; Nursery Center-01

Visitor Facilities: Cottage-03 (Mahuna, Chunia & Bokul); Picnic Sites-06; Rest House-03 (Joloi , Chunia & Dhokola), Watchtower-02; Deer Breeding Center-01; Youth Hostel-01.

Staff Quarter: ACF Quarter-01; Range Officer's Quarter-02; BO's Quarter-02

Quarters: Forest Guard Quarters-06; Barracks-09; Driver's Quarter-01

Management

Management Plan: No

Annual Work Plan: Yes

Boundary Demarcation: No

Management Zoning: Core Zone and Buffer Zone

Inventory: No.

Landuse (ha): Sal Forests: 2900 ha; Plantations: 200 ha.

Legal Context

A total of 80.0 ha forest land has been encroached at National Park Sadar, Dhokola and Aronkhola Ranges in 2008-09. In 2007, a total of 3600 acres of encroached land has been recovered with the help of FD.

Socio-economic Context

A total of 187 villages having varied degrees of stakes with the forest have been identified. The villages consist of 115 neighboring Moujas of 7 different Unions. The area of the Modhupur National Park is 8432.71 ha supporting 236368 people belonging to 71051 households. 21 different varieties of stakeholders have been identified within the project area, of which 15 are Primary Stakeholders and 7 are being identified as Secondary Stakeholders. During dry period a huge number of tourists visit this NP every year. 50,000 tourists including foreigners visited the park last year. Almost 50,000 families are being directly or indirectly dependent on MNP resources.

Ecological Context

Topographically the landscape currently comprises mainly of undulating lands with forest patches on challas and cultivation in baids, which was once a largely dense forest area. The Park is deciduous with a slight mixture of evergreen forest. The main plant species of the forest is Shal *(Shorea robusta*). In Modhupur National Park, the total number of identified plant species is 176. There are 4 rubber plantations surrounding the site, namely Pirgacha Rubber Garden, Chandpur Rubber Garden, Sontoshpur Rubber Garden and Kamalapur Rubber Garden. Collectively the 4 gardens contain a total of 7,314 acres of land with an estimated 14,62,800 Rubber trees. Identified fauna species include 4 amphibians, 7 reptiles, 11 mammals and 38 birds' species.

Threat Assessment

The major challenges for the project area include demarcation of boundary hence addressing the occupancy rights of the forest dwellers on land use / forest resources. Transparency and accountability of the concerned authorities regarding the empowerment of Forest Resource User Groups need to be delineated. Providing proper alternative livelihood options to reduce local poverty and levels of unemployment can help reduce dependency of the locals upon the forest resources or minimizing it to bring it to a sustainable level.

FD Interventions

Since the establishment of the National Park in 1982, FD is working to the betterment of this amazing natural ecosystem. A co-management platform has been recently developed for MNP, including 89 VCFs and 2 Peoples' Forum, who are represented in the recently formed two CMCs, with strong participation of relevant stakeholders equitably drawn from ethnic community, civil society and GoB. IPAC focuses on the visible impacts to sustaining the CMOs, reinforcing facilitation of the capacity building of NSs, CMOs, CPGs and other stakeholders, global climate change assessment and adaptation planning, strengthening ICS, development of alternative livelihoods through AIG/VC framework, LDF project, and strengthening communication and outreach services.

Medhakachapia National Park

Basic Information

Category	: National Park
Area	: 395.92 Ha
Established	: 2004
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Cox's Bazaar.
Thana	: Chakoria
Bio-Ecological Zone	: Chittagon Hills and The Chts
Physiography	: Northern And Eastern Hills
Coordinate	: 21.45` To 21.40` North, 92.4` To 92.8` East
Administration	: Cox's Bazaar North Forest Division, Cox's Bazaar.
Forest Range	: Fulchari
Beat	: Medhakachapia

Infrastructures Facilities

Management: Beat offices - 1
Staff: ACF's Quarter - 1

Management

Management Plan: Integrated Forestry Management Plan
Annual Work Plan: Yes
Boundary Demarcation: No
Management Zoning: No
Inventory: No recent inventory

Legal Security and Dispute Context

Land Tenure Disputes: Yes.
Use Rights Disputes: No
Number of Tree Felled: 36. (Confiscated - 604 cft)
Forest Land Encroached: 5 Ha (Recovered 2 ha)

Socio-economic Context

Around 3523 households with a population of roughly 18305 people live within 1-3 km around the Medhakachapia National Park. These local neighboring villages (*Paras*) are engaged primarily in agricultural activities, salt production and fishing. Out of all Paras, 60% are located closer to the forest while the rest are located on the outskirts. A gradual influx of population by these communities (some of which are the Rohingyas of the Arakan) has been a result of climate change in other parts of south-east Bangladesh where due to various events they were forced to migrate to other areas like.

Ecological Context

The main objective to establish this National Park was to conserve a vast, hundred year old, Garjan Forest. It is the biggest among the few remaining patches of Garjan Forest in the sub-continent. The main floral species of this NP is Garjan and associated species are Bhadi and Dhakijam. The park is gently

hilly with a tropical semi-evergreen forest type in the Garjan (*Dipterocarpus* spp) belt that extends from Chittagong to Cox's Bazar. Originally the entire park area was rich with Garjan forest with natural associates of Garjan in the area. Some other associated trees include Telsur (*Hopea odorata*) and Chapalish (*Artocarpus chaplasha*). Species of Laughing Thrush, White Throated Bulbul and Little Spiderhunter are some of the residents that attract avid bird enthusiasts.

Threat Assessment:

Approximately 20-25 plants are present, including around 12 species of wood plants and the rest as herbs; shrubs are dominantly present in this area. Encroachment leading to expansion of settlements and agriculture, tree poaching, hunting, shooting, collection of fuel wood, bamboo and cane and other forest products are the major causes for the exploitation of resources of the national park. On the other hand, functioning sawmills in the vicinity and unemployment are the major underlying factors for the marked dependency of the local communities upon the park. Less stringent monitoring and a negative influence of some locally powerful individuals have further exacerbated the sustainable maintenance of MKNP.

FD Interventions

In 2004, Medhakachapia National Park was established through a gazzette notification. Since 2009, IPAC is working on the betterment of this NP's ecology. IPAC formed a CMC here which has 13 Village Conservation Forums, 1 People's Forum, 1 Community Patrolling Group with 21 patrollers who participate in joint forest patrolling with FD and 13 Nishorgo Shakayaks. Enhanced focus in the upcoming years will be on Global Climate Change vulnerability assessment and adaptation planning, drinking water facilities, habitat restoration, tourism facilities and network links and strengthening ICS. Regular efforts will be taken for the development of alternative livelihoods through AIG/VC framework and LDF project development and implementation and strengthening of communication and outreach services.

Nijhum Dweep National Park

Basic Information

Category	: National Park
Area	: 16,352.23 Ha
Established	: 2001
Forest Type	: Mangrove Plantations
District	: Noakhali
Upozila	: Hatia
Bio-Ecological Zon	: Offshore Island
Physiography	: Young Meghna Esturine Flood Plains
Coordinat	: 22°02'-22°09'n- 90°97'-91°05'e
Administration	: Coastal Forest Division, Noakhali.
Forest Range	: Zahajmara
Beats	: Char Osman, Zahajmara Sadar, Char Kalam And Char Rowshan

Infrastructures Facilities

***Office*:** Beat Office04; Forest Camp-06

Staff: BO's quarter-02.

Management

Management Plan: None

Annual Work Plan: None

Boundary Demarcation: No

Management Zoning: Not demarcated

Inventory: No recent inventory. A survey on deer population in Nijhum Dweep was conducted in January 2006.

Landuse (ha): Mangrove plantations- 6900 ha; Pasture land for deer – 800 ha; Human habitat and agricultural land- 1620 ha. Water body, submerged chars and others- 7032 ha.

Legal Context

Use Rights Disputes: Happens for cattle grazing/Uri grass plantations.

Number of Offence Cases: 9

Volume of Resource Confiscated: Timber- 70.0 cft; fuel wood- 43 cft; pole- 441

Socio-economic Context

Nijhum Dweep is actually a cluster of 11 chars/islands, notably Char Osman, Char Bahauddin, Char Aftab, Char Muid, Char Rowshan, Char Kalam and Char Yunus. Population of this NP is around 20,000. Though fishing is the main occupation of the inhabitants, some are involved with agriculture and livestock farming.

Ecological Context

The man made coastal mangrove of Nijhum Dweep NP is unique and was planted by the Forest Department on newly accredited land based on several different Coastal Afforestation Programs implemented since 1972. The principal plant species of this NP are *Sonneratia apetala*, *Bruguiera gymnorhiza,*

Acanthus ilicifolius, *Aegiceras majus*, *Avicennia spp* and *Typha elephantina*. It is an important fish breeding ground and wildlife habitat. The NP is home to 25000 Spotted Deers, the key wildlife species in this area. Notable Monitor species include Varanus *bengalensis*, V. *flavescens*, and V. *salvator*, The most important significance of the NP is that, it is one of the key shorebird sites in the East-Asia- Australasian Flyways. Thousands of migratory shore birds visit the islands, such as Waders, Gulls, Terns, Egrets, Ducks and Geese. Some rare species like Spotted Green Shank, Spotted Red Shank, Spoon-billed Sandpiper, Indian Skimmer, Sandpiper, Wagtail, and Brown-headed Gull are also being seen.

Threat Assessment

Traditional systems of ecology and the associated biodiversity are rapidly eroding due to the large scale indiscriminate introduction of cash crops and plantations, high yielding varieties of crops and lack of incentives. The all pervading deteriorating trends in knowledge and conservation of traditional crops and domesticated livestock are seen throughout the NP. Indiscriminate usages of fertilizers and pesticides, crossing of exotic livestock with indigenous breeds, and introduction of invasive alien species, especially fish, have accelerated the erosion of this NP's conservation traditions.

FD Interventions

Forest Department has taken some development activities including deer survey and maintenance and protection of forests.

Pablakhali Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 42087 Ha
Established	: 1983 (1962)
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Rangamati
Upozila	: Longadu, Baghaichari
Bio-Ecological Zone	: Chittagong Hills and The CHTs
Physiography	: Northern and Eastern Hills
Administration	: Chittagong Hill Tracts North Forest Division.
Forest Range	: Wildlife Sanctuary Range

Infrastructures Facilities

Office: Range Office-1, Rest House-1.
Staff quarters: Range Officer's-01, Staff Quarter-02

Management

Management Plan: No recent management plan
Annual Work Plan: Nil
Boundary Demarcation: Not done
Management Zoning: Not done
Inventory: No recent inventory.
Landuse (ha): Natural forest in association with bamboo and cane plantations.

Legal Security and Dispute Context

Land Tenure Disputes: *Nil*
Number of Offence Cases: Nil
Number of Tree Felled: Nil
Volume of Resource Confiscated: Nil
Number of Cases on Illegal Timber Removal Settled This Year: Nil
Ha of Land Encroached: Not known

Socio-economic Context

The WS has promising community development opportunities as a large population of ethnic minorities live in and around it. Most of the surrounding populations depend on fishing, agriculture and Jhum cultivation. Since the inception of Nishorgo Network, the WS has started to provide direct employment opportunity for 20 people providing services as eco-guides, eco-cottage owners and shop owners etc. However, the WS provides subsistence support for 25,000 local people. About 28,500 people visited the PA in 2007.

Ecological Context

Although 183 Bird species, 76 Mammal species and many other species of Reptiles and Amphibians were recorded in the past, recent records are not yet available. Samber Deer, Barking Deer, Pig, Wild Dog, Jackal, Goat, Antelope, Monkey, Hare, Squirrel, Mongoose, Wild Cat, Porcupines, Civet Cat, Leopard and Tiger etc. are few of the remaining wild animals which are occasionally found in this area. In addition to these animals, a large variety of Snakes, Lizards and other Reptiles are also very common to this area. The list of wild birds is also quite long, notable species being Pigeons, Doves, Jungle Fowl, Partridge, Pheasants, Mayna, Woodpecker, Cuckoo, Owl, Adjutant, Thrush, Babbler, Drongo, Grackle, Chat Robin, Swallow, Bee-eater, Hoopee, Teals, Quails and Wild Ducks etc

Threat Assessment

PWS is mostly under threat from several factors which include encroachment by nearby settlements that practice slash-and-burn (*jhum*) agriculture practice, among other detrimental practices. Heavy dependency on forest products for livelihood purposes like fuel-wood and other forest products including construction materials and bamboo cane collection puts intensive pressure on the forest resources. Non-sustainable felling for commercial uses is another great threat as the locals living within and outside the PA try to look for alternate sources of income.

FD Interventions

Due to remoteness and local ethnic disturbances, not many development activities are currently implemented in this sanctuary.

Ramsagar National Park

Basic Information

Category	: National Park
Area	: 28 Ha
Established	: 2001
Forest Type	: Plantations
District	: Dinajpur
Upozila	: Dinajpur Sadar
Bio-Ecological Zone	: Himalayan Piedmont Plain
Physiography	: Old Himalayan Piedmont Plain
Coordinate	: 25^0 32' - 25^0 33' N & 88^0 37' E
Administration	: Dinajpur Forest Division

Infrastructures Facilities

Visitor facilities: Picnic Shed, Forest Rest House
Curator's Quarter: Inhabitable
Forester's Quarter: Inhabitable.
Forest Guard/ Mali Quarter: Inhabitable
Student Dormitory: Does not exist.

Management

Management Plan: No
Annual Work Plan: Yes
Boundary Demarcation: Yes and boundary wall is constructed.
Management Zoning: No.
Inventory: Not applicable.
Land use: Indigenous plantations – 18.22 ha, Exotic plantations – 2 ha
Roads and Bridges: Roads and foot trails have been developed.
Miscellaneous works: Provisions construct picnic sheds and cottages.

Legal Context

Use Rights Disputes: exists. One mosque and one temple are located inside the boundary wall of the NP. People use the NP road to get access, without paying the entry fee to the Park.
Number of Offence Cases: Not applicable
Number of Tree Felled: Not applicable
Land Encroached: Not applicable

Socio-economic Context

The NP provides part time employment opportunities for about 2000 people as vendor operators, shop keepers, tea stall owners, rickshaw pullers, auto rickshaw drivers, car rentals, photographers and laborers. However, local people are not yet dependent for subsistence. The NP has community development opportunities through Eco-tourism as it has very high recreational value. Approximately 4,00,000 people

visit this NP every year. The NP has a population of approximately 50000 people living adjacent to this Protected Area.

Ecological Context

Previously the NP was a barren land, later it was planted with local and exotic plant species including ornamental and rare plants. The Ramsagar Lake is not considered as a National Park, but the surrounding bank area is designated as an NP. The Lake is under jurisdiction of the District Commissioner.

Threat Assessment

The major challenges for the project area include demarcation of boundary hence addressing the occupancy rights of the forest dwellers on land use / forest resources. Transparency and accountability of the concerned authorities regarding the empowerment of Forest Resource User Groups need to be delineated. Providing proper alternative livelihood options to reduce local poverty and levels of unemployment can help reduce dependency of the locals upon the forest resources or minimizing it to bring it to a sustainable level.

FD Interventions

No major intervention by FD is currently under implementation.

Rema-Kalenga Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 1795.54 Ha
Established	: 1996
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Hobiganj
Thana	: Chunarughat
Bio-Ecological Zone	: Sylhet Hills
Physiography	: Northern and Eastern Hills; Northern and Eastern Piedmont Plains
Coordinate	: 24^0 5'-24^0 12' N and $91^0$36' - $91^0$41' E
Administration	: Sylhet Forest Division.
Forest Range	: Habiganj -2.
Beats	: Kalenga, Chanbari & Rema.

Infrastructures Facilities

Management: Range Office-01, Beat offices-3.
Visitor: Information Center cum CMC office-1, Nature Trails-03.
Staff: Beat Officers Quarter-03; Forest Guard quarter-01;

Management

Management Plan: Participatory Management Plans, 2006
Annual Work Plan: Yes
Boundary Demarcation: No
Management Zoning: Yes
Landuse (ha): Natural Forest-1405 ha, Long Rotation Plantations-98 ha, Agriculture-208 ha

Silviculture

Management: Buffer Plantations - 188.87 ha, Enrichment Plantations - 168 ha, Coppice - 73 ha.

Facilities

Park Office cum ACF quarter, staff dormitory, student dormitory, H.B.B road construction, barbed wire boundary, gate construction, ticket counter, foot trail and animal recovery shed.

Legal Security and Dispute Context

Land Tenure Disputes: Exist.
Disputes Regarding Use Rights: People want to do agricultural farming inside the WS
Volume of Resource Confiscated: Timber 364.74 cft; Bolli – 138.0 cft.

Socio-economic Context

Four different ethnic communities (Tripura, Shantal, Telugu and Urang) live in and around the forest. A village, inhabited by the Tipra tribe is located within the sanctuary. However, there are other villages on the boundary between the reserved forest and the wildlife sanctuary. Around 9,330 households have been identified nearby RKWS with an estimated population of 23,000. Adjacent land use includes long-

rotational reserved forest, tea estate, converted agricultural lands and Khas land. Human pressure on the sanctuary is in fact buffered by the adjacent reserved forest. However, fuel wood and building materials collection by the adjacent households pose a threat to the biodiversity.

Ecological Context

The forest is semi-evergreen. About 76% of the forest is still in natural condition. It is home to a magnificent assortment of plants, animals and birds and offers some of the best bird scenic viewing experiences in the country. Biodiversity of the PA consist 167 birds, 7 amphibians, 18 reptiles, and 37 species of mammals. Mom Khona (*Oroxylum indicum*), Horina (*Vitex peduncularis*), Kanak (*Schima wallichii*) and Tallya garjan (*Dipterocarpus turbinatis*) are among some of the tree species commonly found, while the Rhesus Macaques are common residents of RKWS. The Greater Yellownape, Asian Barred Owlet and Great Racket-Tailed Drongo are some of the bird species found in RKWS.

Threat Assessments

Some major issues that need to be addressed in order to continue sustainable management of the RKWS include, reduced forest regeneration mainly caused due to fuel wood collection, cattle grazing and forest fires; agricultural encroachment leading to habitat fragmentation and causing disturbances to wildlife; unsustainable resource exploitation, collection of fuel wood, bamboo, building materials etc pose threats to already dwindling resources. A lack of awareness among the local people regarding the importance and long term benefits of biodiversity conservation and need for sustainable management is still a major challenge for the conservation of RKWS.

FD Interventions

Rema-Kalenga Wildlife Sanctuary was established in 1982 as a part of the Tarap Hill Reserve Forest. Since 2008, IPAC is working with the view to demonstrate reliability for establishing a good governance system that will ensure sustainable co-management of this wildlife sanctuary. A co-management platform including a reformed CMC, 45 VCFs, 1 Peoples' Forum, 05 CPGs and 5 Youth Clubs are currently functioning for the betterment of Rema-Kalenga Wildlife Sanctuary. Training programs were conducted by IPAC to develop skills of the local community and awareness programs were organized on illicit felling, encroachment, climate change, global warming etc. IPAC supports training Eco-Guides, building eco-cottages for tourists and constructing tourist shops in order to develop eco-tourism in a significant level in this regal ecosystem.

Sangu Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 2332 Ha
Established	: 2010
Forest Type	: Tropical Evergreen & Semi-Evergreen
Physiography	: Northern and Eastern Hills
District	: Bandarban
Upazila	: Lama
Bio-Ecological Zone	: Chittagong Hills and The Chts
Administration	: Lama Forest Division, Bandarban
Forest Range	: Sangu
Beat	: 285 Sangu Mouza

Infrastructures Facilities

Management: Range Offices – 01;
Visitor: Nature Trails, Picnic Sites

Management

Management Plan: None
Annual Work Plan: None
Boundary Demarcation: None
Management Zoning: Not demarcated
Land use (ha): Natural forest: 2332 ha

Legal Context

Disputes regarding use rights: Nil
Number of Offence Cases: Nil.
Volume of Resource Confiscated: Nil
Number of Cases on Illegal Timber Removal Settled This Year: Nil
Ha of Land Encroached: Nil

Socio-economic Context

The WS does not provide any employment opportunity to the local people. However, 1200 people depend on the WS for resources like fuel wood, sun grass, bamboo, medicinal plant and others.

Ecological Context

The WS was once covered with luxuriant multi-storied evergreen forest. The Elephant herds used to roam in and around the sanctuary. However, due to settlement of refuge, the vegetation of these areas diminished and became uninhabitable for elephants, which now can be seen in Sangu Mouza only.

Threat Assessment

Severe encroachment leading to expansion of settlements and agriculture, tree poaching, hunting, shooting, collection of fuel wood, bamboo and cane and other forest products are the major causes for the exploitation of resources of the national park. On the other hand, functioning sawmills in the vicinity and unemployment are the major underlying factors for the marked dependency of the local communities upon the park. Less stringent monitoring and a negative influence of some locally powerful individuals have further exacerbated the sustainable maintenance of the sanctuary.

FD Interventions

No development intervention by FD is currently available.

Satchari National Park

Basic Information

Category	: National Park
Area	: 243 Ha
Established	: 2005
Forest Type	: Tropical Evergreen and Semi-Evergreen
District	: Hobiganj
Upozila	: Chunarughat
Bio-Ecological Zone	: Sylhet Hills
Physiography	: Northern and Eastern Hills; Northern and Eastern Piedmont Plains
Coordinate	: 24^0 6'-24^0 8' N and $91^0$26' - $91^0$27' E
Administration	: Wildlife Management & Nature Conservation Division, Sylhet.
Forest Range	: Satchari
Beat	: Satchari Sadar

Infrastructures Facilities

Management: Park office-01, Range offices – 01, Beat offices - 01, Nursery – 01.
Visitor: Information Center -01, CMC Office – 01, Nature Interpretation Centre-01; Student Dormitory-01, Nature Trails – 04, Picnic Sites – 02, Ticket Counter – 0i, Tourist Shop-01; Toilet – 02.
Staff: Range Officer Quarter – 01, Beat Officer Quarter – 01, Forest Guard Quarters – 01;

Management

Management Plan: Participatory Management Plans, 2006
Annual Work Plan: Yes
Boundary Demarcation: Yes
Management Zoning: Core Zone and Buffer Zone
Inventory: No recent inventory.
Landuse (ha): Natural forest-120 ha.

Silviculture

Management: Buffer plantations –170 ha, Enrichment – 47 ha, Special plantations for wildlife – 78 ha, Coppice– 5 ha.

Facilities

Work in progress: 3 tourist shops, trails, 4 foot bridges and 9 benches.

Legal Context

Land Tenure Disputes: Does not exist.
Use Rights Disputes: No dispute
Volume of Resource Confiscated: 1167.33 cft

Socio-economic Context

Since the inception of Nishorgo Network, the Park has started to provide direct employment opportunity for nearly 50 local people, mainly of indigenous community, providing services as eco-guides, eco-cottage owners, shop owners etc. However, the Park provides subsistence support for approximately 5,000 local people. It has great community development opportunities through eco-tourism, as its recreational value is high, due mainly evergreen forests and its proximity to Dhaka. Nearly 42,000 people including foreigners visited the PA last year. Approximately 17,000 people are living in the surrounding unions.

Ecological Context

SNP originally supported an indigenous vegetation of mixed tropical evergreen forest. However, almost all of the original forest has been removed or substantially altered, turning it into a secondary forest. About 200 ha of the reserved forest are in natural condition and the remnants were introduced to long and short term social plantations schemes. Bamboo and cane have been planted in many plantation areas after removing undergrowth vegetation. Amongst the wildlife found in SNP are 6 species of amphibians, 18 species of reptiles, 149 species of birds and 24 species of mammals. Hoolock Gibbon and Phayre's Langur are the keystone species of SNP with lesser known species like the Htun Win's Tree Frog. Among the bird species Oriental Pied Hornbill, Red Jungle Fowl and Red- headed Trogon are common. A number of wildlife species have gradually become extinct from the park, including the Tiger, Barking Deer, Leopard, Porcupine and Wild Cow to mention a few.

Threat Assessment

SNP faces a range of threats resulting in forest degradation and, to a lesser extent, deforestation. The presence of the ethnic community within the forest area means degradation occurs through non-sustainable extraction of a variety of forest resources including firewood, timber, bamboo and fodder, while lemon cultivation by some members also contributes to a certain amount of degradation. The threats of non-sustainable extraction along with the recent influx of tourists to the site pose a dual burden on the forest.

FD Interventions

Satchari National Park was established in 2006 as a part of the Raghunandan Hills Reserve Forest. IPAC is working since 2009 for scaling up NSP initiatives in order to attain sustainability of co-management platform which includes a reformed CMC, 38 VCFs, a Peoples' Forum and 1 CPG. The CMC is registered with the Department of Social Welfare of the GoB. In the upcoming years, IPAC's focus will be on achieving the sustainability of the CMOs. Satchari NP Team will reinforce the facilitation of the capacity building of CMOs, reforestation and habitat restoration, tourism facilities and network links and PA entry fee system. IPAC will be continuing its regular efforts for development of alternative livelihoods through AIG/VC framework, and LDF and leverage financing projects.

Sundarbans East, West and South Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 139700 Ha (East WLS 31227 Ha), South WLS 36971 Ha and West WLS 71503 Ha)
Established	: 1996
Forest Type	: Mangrove Forests
District	: Bagerhat (East WLS), Khulna (South WLS) & Shatkhira (West WLS)
Bio-Ecological Zone	: Sundarbans
Physiography	: Ganges Tidal Floodplain
Coordinate	: 21^0 50'-22^0 7' N and 89^0 40' - 90^0 00' E
Administration	: Sundarbans East Forest Division (East WLS), Sundarbans West Forest Division (South and West WLS)
Forest Ranges	: Chandpai & Sarankhola (SB East Forest Division), Khulna & Satkhira (West Forest Division)

Infrastructures Facilities

Management: Sanctuary Centre-03

Visitor: Resthouse-03, Foot trail-04, Watch tower-05

Staff: Forest Camp -3, Forest Guard Quarters- 03

Management

Management Plan: Integrated Resource Management Plan, 2010

Annual Work Plan: Yes

Boundary Demarcation: Natural boundary

Management Zoning: Yes

Inventory: Yes

Legal Context

Land Tenure Disputes: None.

Use Rights Disputes: A few cases of illegal entrance, mostly for fishing & deer hunting in the sanctuary or SRF area.

Number of Offence Cases: 01

Number of Tree Felled: None

Volume of Resource Confiscated: 144 Cft.

Number of Cases on Illegal Timber Removal Settled This Year: Nil

Land Encroached: Nil.

Socio-economic Context

The Sundarbans is the largest single block of tidal halophytic mangrove forest in the world. The forest lies at the feet of the Ganges and is spread across areas of Bangladesh and West Bengal, India, forming the seaward fringe of world's largest delta. The total area of Sundarbans Reserve Forest is 10,000 sq. km, of

which 6,017 sq. km (almost 60%) is in Bangladesh managed by the Forest Department (FD). The total number of households in the surrounding landscape zone neighboring Sundarbans is about 26,000 with population having approximately 1, 50000.

Sundarbans Reserve Forest is a vital source of livelihood for thousands of people living next to the SRF including those living in adjoining and distant places. From time immemorial, innumerable people are involved in harvesting /collecting various resources form the SRF for their livelihoods. Major resources that are officially allowed to collect/harvest include varieties of Non-Timber Forest Products (NTFP) and fishes. There are varieties of plant-based minor forest resources in the SRF collected by the adjoining people. Golpata is one of the most important plant resources on which livelihoods of the majority depend.

Goran is another important resource mostly used as fuel wood, making charcoal, building housing structures and making boundary fences.There are various other plant-based resources like Reeds, Catkin, Grass, Hental, Helipata or Mailla (mat making materials). Honey and Wax are other important SRF resources for which *Mouali* (honey/ wax collector) occupational community evolved in the area for centuries. Among fisheries resources, varieties of fin fishes, shrimps, crabs and shrimp PL (Post Larvae) are the major harvestable resources from within and adjacent to the SRF. Although Hilsha fishing grounds include the entire coastlines and major river systems in the country, the lower part of the SRF, further south in the Bay of Bengal is also being treated as suitable and lucrative Hilsha destination.

Ecological Context

There are three Wildlife Sanctuaries (WLS) within Sundarbans Reserve Forest. They are: 1) East WLS, 2) South WLS & 3) West WLS. The Bio-ecological zone and the Physiographic conditions of these WLS are almost same and they have been declared as 'World Heritage site' in 1997. The Sundarbans is the world's largest coastal wetland shared between Bangladesh and India. In the line with the bio-geographical zoning approach, five habitat typologies are identified namely: Shore, Low Mangrove Forest, High Mangrove Forest, Open Land / Grassland, and Estuarine River Base. The Shore habitat covers from the open sandy to muddy areas along the edges of the WS on the Bay of Bengal which generally serves as the main habitat of unique bird species in the Sundarbans. The shore is rich in tiny aquatic organisms including shells, crabs and shrimps.

Low Mangrove habitat is a tidal area and generally characterized by low vegetation, composed of small trees, shrubs, hentals and others. It harbors important mammals, e.g., the Royal Bengal tiger, spotted deer, wild boar, rhesus monkey, otter, Jackal, and others; reptiles, snakes, and others; birds; fishes, and amphibians. High Mangrove Forest is generally characterized by high vegetation consisting of medium to large trees such as Sundri, Gewa, Keora, Baen, Passur and others. This territory harbors arboreal mammals, e.g., the Royal Bengal Tiger, fishing cat, civet jackal, squirrel, reptiles, birds, fishes and amphibians.

Grassland habitat is partly flooded and characterized by grass vegetation consisting mainly of Sungrass/Ullu and some *Imperata cylindrical*. This habitat mainly harbors the spotted deer, the Royal Bengal tiger, wild boar and rats. The biodiversity includes 350 species of Vascular plants, 250 species of Fishes and 300 species of Birds. Besides numerous species of Phytoplankton, Fungi, Bacteria, Zooplankton, Benthic Invertebrates, Mollusks, Reptiles, Amphibians and Mammals can be seen here. Plant species composition and community structure vary from east coast to the west coast, along with the hydrological and salinity gradients. Besides Dolphins and Porpoises, the Sundarbans mangroves are habitats of many rare and endangered animals, especially the famous Royal Bengal tiger.

Threat Assessment

The natural ecological conditions of the mangrove forest face a number of challenges. The climate change situation is particularly alarming. The existing Sundarbans mangrove forest may in near future attract non-functioning of ecological preservation systems for the survival of the forest. The utmost concerns are unsuitable situation for human settlement in the landscape zone, indiscriminate poaching, deteriorating local law and order situation and weak law enforcement for forest protection, local poverty and unemployment, rapid growth of population, hunting of wildlife and disturbances to tigers.

FD Interventions

Being the world's largest mangrove forest, the Sundarbans include 3 inter-linked Wildlife Sanctuaries. The conservation of this forestland through a range of PA awareness and social mobilization activities has been functioning with the capacity building supports from IPAC. A range of alternative livelihoods improvement activities has been taken up for participatory conservation through co-management platform that includes 4 CMCs and more that 200 Village Conservation Forums (VCFs). Also, the cluster facilitated development of Pond Sands Filtering (PSF) opportunities to facilitate adjacent households with hygienic drinking water. IPAC will continue its regular efforts for development of alternative livelihoods through AIG/VC framework, and facilitating existing and new LDF projects by the CMCs and the strengthening of communication and outreach services.

Teknaf Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 11,615 Ha
Established	: 2010 (1983)
Forest Type	: Hill Forest
District	: Cox's Bazar
Bio-Ecological Zone	: Chittagong Hills & CHTs
Physiography	: Northern and Eastern Hills
Coordinate	: 20^0 52'-21^0 9' N and $92^0$8' - $92^0$18' E
Administration	: Cox's Bazar South Forest Division, Cox's Bazaar
Forest Beat(S)	: Whykheong, Shilkhali & Teknaf

Infrastructures Facilities

Management: Range Offices – 3, Beat offices - 9, Nursery – 1
Visitor : Information Center- 1; CMC Office – 1, Nature Trails – 6
Range Officer Quarter: 3
BO Quarter: 9
Forest Guard Quarter: 5
Student Dormitory: 1

Management

Management Plan: Participatory Management Plans, 2006
Annual Work Plan: Yes
Boundary Demarcation: No
Management Zoning: Yes, but not demarcated.
Inventory: No recent inventory.
Landuse: High Forest – 1420 ha, Low Forest – 3420 ha, Degraded Hill or Young Plantations – 3180 ha, Bush– 1270 ha, Water Bodies – 331 ha, Mangrove – 30 ha, Agriculture & Settlements – 1800 ha

Silviculture

Management : Buffer Plantations - 80 ha; Enrichment Plantations - 100 ha.

Facilities

Roads and bridges: 3 bridges have been constructed at Mochoni.
Buildings: Staff Quarter, Park Office, Visitor's Interpretation Center, Student's Dormitory

Legal Context

Land Tenure Disputes: Land encroachment by local people and forest villagers.
Use Rights Disputes: Yes, forest villagers and Rohingas extract fuel wood and timber

Socio-economic Context

Forest villages surrounding the forest were set up during the mid 1980s by Forest Department who allocated small areas of land to a certain number of households within the Reserve Forest area. In return, the villagers were expected to help the Forest Department in raising the plantations and undertake other duties like regular forest patrolling. The number of households is roughly 23,000 with a population of about 1, 50,000.

Most of the people living in the area are involved in agricultural farming and fisheries. Farming is the primary occupation of local people, which accounts for almost 80% of the total population. It is evident that more than 50% of the population, especially the young and inexperienced is unemployed and there are opportunities to introduce them to short term vocational trainings. Villagers are provided with hands-on training on constructing nursery, cow farming, fish culture, sewing, furniture building, rickshaw pulling and poultry farming. A number of local people are directly involved with PA related jobs / employments (e.g., shops, eco-guides). Approximately, 70,000 people (of 113 villages) depend on forest resources (e.g., fuel wood, medicinal plants) from PA.

Ecological Context

The sanctuary harbors a wide diversity of tropical semi-evergreen flora and fauna. TWS contains 55 mammals like the Slow Bengal Loris and the Masked Palm Civet; 286 birds including the White-Bellied Seagull, White-Browed Piculet along with some Kingfisher and Bittern species; 56 reptiles, 13 amphibians, and 290 species of plants. Currently, Asian Elephants, Wild Boars, Clouded Leopards, Hog-badgers and Deer are found in plenty. The Game Reserve used to contain 55 Mammals, 286 Birds, 56 Reptiles, 13 Amphibians and 290 species of Plants. Currently, among notable wildlife, Asian Elephant is the most important, but there are also Wild Boar, Clouded Leopard, Hog-badger and Deer. Recent survey found 159 Bird species of which 70 species are of forest birds.

Threat Assessment

Overall, the sanctuary is affected adversely from encroachment, illegal removal of forest produces, and conversion of the current land use in an unplanned way. Climate change refugees from the neighboring Arakan (the Rohingyas) have migrated to the area, imposing a greater threat to its sustainable maintenance. Lack of adequate employment and the ever increasing populations also have their added effect on the TWS. More stringent law enforcement is very much required as well as the continued efforts of the co-management committees with the departments and ministries, to collaboratively conserving the sanctuary by involving local stakeholders.

FD Interventions

Teknaf Wildlife Sanctuary was established in 1983 as Teknaf Game Reserve through a gazette notification. Since 2004, collaborative management with a multi-stakeholders platform has been introduced under Nishorgo Support Project. Since 2008, IPAC has been promoting co-management of natural resources of the sanctuary for biodiversity conservation and improving livelihoods of neighbouring population by involving 3 CMCs as platforms of multi-stakeholders including FD, civil society, local forest dependent population and administration. The three CMCs in this sanctuary have 114 Village Conservation Forums, 3 People's Forum and 11 Community Patrolling Groups with 419 patrollers who participate in joint forest patrolling with FD, 9 Forest Conservation Clubs and 114 Nishorgo Shakayaks. Entry fee is also being collected since Nov 2009 in this Wildlife Sanctuary. IPAC focuses on achieving visible impacts by sustaining the CMCs, reinforcing facilitation of the capacity building of VCFs, PFs, NSs, CMCs and other key stakeholders.

4. NEWLY ESTABLISHED PROTECTED AREA

Singra National Park

Basic Information

Category	: National Park
Area	: 306 Ha
Established	: 2010
Forest Type	: Deciduous Sal Forest
District	: Dinajpur
Bio-Ecological Zone	: Himalayan Piedmont Plain
Physiography	: Old Himalayan Piedmont Plain
Coordinate	: 25^0 90'-26^0 30' N and $88^0$20' - $88^0$50' E
Administration	: Thakurgaon Forest Range, Dinajpur Forest Division
Forest Beat(S)	: Singra

Ecological Context

As a representative of Sal bio-geographic zone, Singra National Park is famous for its Sal forests that are remnants of once extensive northern Sal zone. It has great community development opportunities through eco-tourism, as its recreational value is high and its easy accessibility. A large number of people from the neighboring regions visit this park for recreational activities. Sal, Segun and Gamar are the primary plant species of this park. Singra National Park is a major dwelling ground for several unique breeds of Fox, native to this region. The River Norto flows through the park and merges with the River Punorbhoba at its southernmost corner.

Kuakata National Park

Basic Information

Category	: National Park
Area	: 1613 Ha
Established	: 2010
Forest Type	: Coastal Mangrove Plantations
District	: Patuakhali
Bio-Ecological Zone	: Saline Tidal Floodplain
Physiography	: Ganges Tidal Flood Plain
Coordinate	: 21^0 48'-21^0 51' N and $90^0$6' - $90^0$13' E
Administration	: Mohipur Forest Range, Patuakhali Forest Division
Forest Beat(S)	: Gongamoti, Kuakata And Khajura

Ecological Context

Kuakata National Park, which was previously known as Kuakata Eco Park, is situated in Patuakhali. The park, located on the seashore, comprises coastal mangrove plantations. The park has an area of 1616 ha including Latachapni, Gangamati, Khajura, Tengragiri and Fatra forests. The national park, surrounded by mangroves, has an artificial lake streaming through it. Though Keora and Bain are the main plant species of Kuakata National Park, various plant-based resources, such as, Reeds, Catkin, Grass, Hental, Helipata and Mailla are found in plenty throughout the area. Formation of the depression in the sea and the appearance of the new moon make the sea turbulent and the large waves strike the park's seashore with force. If protective measures are not taken, the biodiversity of Kuakata National Park might be damaged.

Nawabgonj National Park

Basic Information

Category	: National Park
Area	: 518 Ha
Established	: 2010
Forest Type	: Deciduous Sal Forest
District	: Dinajpur
Bio-Ecological Zone	: Himalayan Piedmont Plain
Physiography	: Old Himalayan Piedmont Plain
Coordinate	: 21^0 48'-21^0 51' N and $90^0$6' - $90^0$13' E
Administration	: Chorkai Forest Range, Dinajpur Forest Division
Forest Beat(S)	: Nawabgonj

Ecological Context

Nawabgonj National Park, dominated by Sal plant species, has a thin lake running through it and is bordered with diverse deciduous forests. There is a rich collection and a good quantity of avian population in the national park, which includes Woodpecker, Mayna and Parakeet, and migratory birds too can be seen in this area. Human pressure on the sanctuary is in fact buffered by the adjacent reserved forest. However, fuel wood and building materials collection by the adjacent households pose a threat to the national park's biodiversity.

Tengragiri Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 4,050 Ha
Established	: 2010
Forest Type	: Coastal Mangrove Plantations
District	: Borguna
Bio-Ecological Zone	: Saline Tidal Floodplain
Physiography	: Ganges Tidal Flood Plain
Coordinate	: 21^0 51'-21^0 53' N and $90^0$0' - $90^0$7' E
Administration	: Amtoli Fotest Range, Patuakhali Forest Division
Forest Beat(S)	: Sokhina

Ecological Context

Tengragiri Wildlife Sanctuary is endowed with various species of mangrove and non-mangrove trees and shrubs that grow in saline coastal sediment habitats. The wildlife sanctuary is composed of trees and vegetation that are tolerant of salinity. The root system of these shrubs supplies food and shelter for small fish and is therefore very important to local fish stocks conservation. All these plants have nicely adapted to the muddy, shifting, saline conditions and they mainly produce stilt roots that project above the mud and water in order to absorb oxygen. The mangrove plants also form communities that help them to stabilize banks and coastlines and also to provide natural habitat to many types of animals.

Birgonj National Park

Basic Information

Category	: National Park
Area	: 169 Ha
Established	: 2011
Forest Type	: Deciduous Sal Forest
District	: Dinajpur
Bio-Ecological Zone	: Himalayan Piedmont Plain
Physiography	: Old Himalayan Piedmont Plain
Coordinate	: 25^0 30'-26^0 38' N and 88^0 10' - $92^0$41' E
Administration	: Thakurgaon Forest Range
Forest Beat(S)	: Birgonj

Ecological Context

14 species of climbers, 3 species of palms and 23 species of trees have been recorded at Birgonj National Park. Among notable tree species, *Shorea robusta, Dillenia pentagyna*, *Careya arborea*, *Terminalia belerica*, *Miliusa velutura*, etc. are commonly found in this area. The eminent undergrowth vegetations include *Melostoma*, *Lantala* and *Randia dumetorum*. This national park is inhabited by mammals such as *Vulpes bengalensis*, *Canis aureus*, *Viverricula indica*, and *Sus scrofa*, etc.

Altadighi National Park

Basic Information

Category	: National Park
Area	: 265 Ha
Established	: 2011
Forest Type	: Sal Deciduous Forest
District	: Naogaon
Bio-Ecological Zone	: Teesta Flood Plain
Physiography	: Teesta Flood Plain
Coordinate	: 23^0 55'-26^0 30' N and $88^0$03' - $89^0$35' E
Administration	: Paikbandha Forest Range
Forest Beat(S)	:Dhamuirhat

Ecological Context:

The wildlife at Altadighi National Park is well known for its jungle fowls, jackals, civets, jungle cats, monitor lizards, snakes and indigenous birds etc. A recent survey has identified a total of 34 animal species (4 amphibians, 5 reptiles, 19 birds and 6 mammals) living in the national park. Degradation at Altadighi National Park usually occurs through non-sustainable extraction of a variety of forest resources including firewood, timber, bamboo and fodder etc.

Sonar Char Wildlife Sanctuary

Basic Information

Category	: Wildlife Sanctuary
Area	: 2027 Ha
Established	: 2011
Forest Type	: Coastal Mangrove Plantations
District	: Patuakhali
Bio-Ecological Zone	: Saline Tidal Floodplain
Physiography	: Ganges Tidal Flood Plain
Coordinate	: 21^0 50'-26^0 30' N and $88^0$47' - $90^0$10' E
Administration	: Char Montaz Forest Range
Forest Beat(S)	: Sonarchar

Ecological Context:

At Sonar Char Wildlife Sanctuary, the soils are non-saline throughout the year over substantial amount of areas in the north, but grow to be saline to varying degrees in the dry season. In the north-east, there is moderately deep flooding during the wet season. A good number of weeds grow in this area and several types of palms and bamboo chumps grow throughout the wildlife sanctuary. Wild goose, wild duck, jungle fowls, cranes and spines are among the notable avian species found in this area.

Three Sundarbans Wildlife (dolphin) Sanctuaries

The Government of Bangladesh has implemented conservation policy as recommended under the Integrated Resources Management Plans for the Sundarbans as developed under USAID's IPAC Project: The Ministry of Environment & Forests of the Government of Bangladesh (GoB) has declared three new wildlife (dolphins) sanctuaries in the Sundarbans based on the recommendations as contained in the recently GoB approved Integrated Resources Management Plans (IRMP) that was developed under the USAID's IPAC Project. Infact, a proposal for an aquatic (with dolphins as umbrella species) network of conservation areas in the Sundarbans waters was developed in 2008 under the Bangladesh Cetacean Diversity project implanted by the World Conservation Society, USA.

In compliance with Bangladesh Wildlife (Preservation) (Amended) Act 1974, and to preserve the habitats of rare gangetic dolphin species (Platanista gagetica and Oracaella brevirostris), in February, 2012, 560 ha., 170 ha., and 340 ha. of forests and wetlands have been designated as the Chandpai Wildlife Sanctuary, Dudhmukhi Wildlife Sanctuary and Dhangmari Wildlife Sanctuary respectively.

A large number of Ganges River dolphins (or Shushuks), Irrawaddy dolphins and finless porpoises are found in this habitat. Ganges River dolphin (Platanista gangetica) is distributed farthest downstream in the northern waterways of this belt whereas Irrawaddy dolphin (Oracaella brevirostris) is distributed farthest upstream in a generally narrow geographic band occurring within the same habitat. Indo-pacific humpback dolphin (Sousa chinesis) and finless porpoise (Neophocaena phocaenoides) is distributed farther offshore but still occurring in habitat influenced by freshwater inputs. High diversity abundance is found in wide channels with more than two small confluences or at least one large confluence, resulting in the hydraulic refuge and increased biological productivity provided by counter-currents induced by confluences.

ANNEX – 1: QUESTIONNAIRE AND GUIDANCE NOTES

1. Ecological Context of PA

Ecological Importance of PA					
y	m/y	m/n	n	Verifiers	Notes/comments
□	□	□	□	a) PA contains rare, threatened or endangered species	
□	□	□	□	b) PA has high level of biodiversity	
□	□	□	□	c) PA has endemism	
□	□	□	□	d) PA provides landscape functions	
□	□	□	□	e) PA sustains viable population of key species	
□	□	□	□	f) PA contains historic vegetation/ecosystem	

a) The PA contains a relatively high number of rare, threatened, or endangered species

Rare species are any species with very low occurrences, either naturally or as a result of human actions. Threatened species are likely to become endangered within the foreseeable future. Endangered species are in danger of extinction throughout all or a significant portion of their range.

b) The PA has relatively high levels of biodiversity

Biological diversity, or biodiversity, refers to the full diversity of life, including genetic, species, community, and ecosystem variations. A response to this question should include an overall assessment of the level of biodiversity compared with that of other protected areas within the system. Biodiversity assessments may include measures of plant and animal species richness, structural diversity within PA, and ecosystem heterogeneity, as well as measures of enduring geological features, such as bedrock, soils, aspect, slope, hydrology, and altitude.

c) The PA has a relatively high degree of endemism

Endemism is existence (and or confinement/prevalence) of a species to a particular locality or region due to some special features or habitats. In responding to this question, the participant should clearly define which geographic area will be used to determine endemism.

d) The PA provides a critical landscape function

Protected Areas perform a critical landscape function including areas that have important feeding, breeding and migration value, or act as corridors for terrestrial species whose existence would be jeopardized by the alteration of those areas.

e) The PA sustains minimum viable population of key species

A minimum viable population of a species is the number necessary for that species to persist in the future, given the random variability of population dynamics. This indicator implies that the protected area has adequate population of key species, as well as sufficient habitat to sustain the population.

Key species are those species whose conservation and management will likely benefit a broad range of other species. Examples of key species include: area-limited species (animals with particular distribution requirements, such as large home ranges, as well as rare, threatened, and endangered species); process-limited species (species dependent upon ecological processes such as fire or flood); flagship species (those species whose conservation and promotion may foster broad public support); keystone species (species that have a disproportionately large impact on an ecosystem, and whose removal would cause drastic and unpredictable consequences).

f) The PA includes ecosystems whose historic range has been greatly diminished

Greatly diminished ecosystems/forest types are those ecosystems (or forests types) that were once widespread and predominant in the landscape, but have been extensively converted into other land usages. Examples include remnant patches of old-growth forests or natural forests that have been deforested and converted to artificial plantation or agricultural land (e.g. Sal forest).

2. Socio-economic Context of PA

Socio-economic Context of PA					
y	m/y	m/n	n	Verifiers	Notes/comments
□	□	□	□	a) PA is an important source of employment	
□	□	□	□	b) PA supports subsistence for local people	
□	□	□	□	c) PA has community development opportunities through sustainable use.	
□	□	□	□	d) PA has a high recreational value	

a) The PA is an important source of employment for local communities.

Employment may include paid positions/services with the Protected Area to aid in management activities.

b) Local communities depend upon the PA resources for their subsistence.

Subsistence usages include Protected Area resources such as food, medicine, shelter, and materials (e.g. home building), fuel wood, and other NTFPs, which are traditionally used by local communities.

c) The PA has Community Development Opportunities through sustainable resource utilization.

Community Development Opportunities imply that resources of PA can be utilized to improve the livelihood status of the local people. Sustainable resource use is being considered as any use of a Protected Area resource for economic or subsistence purposes, which is consistent with the Protected Area objectives, falls within the resource's regenerative capacity, and has a minimal impact on other Protected Area resources. Examples of sustainable resource usage could include sustainable harvesting and marketing of medicinal plants, and ecologically conscientious eco-tourism.

d) The PA has high recreational value.

The recreational value will depend on the frequency and intensity of the use of the PA for recreational purposes, and its importance for recreation for neighboring communities.

3. Legal Security and Conflict

Legal Security					
y	m/y	m/n	n	Verifiers	Notes/comments
□	□	□	□	a) The PA is legally gazetted	
□	□	□	□	b) Conflict regarding land encroachment	
□	□	□	□	c) Conflict regarding illicit removal of forest produce	
Number				d) Number of offence cases on land encroachment registered this year.	Provide ha. of area encroached
Number				e) Number of offence cases on illegal timber/fuel wood or other produce registered this year.	Provide volume of resources confiscated.
Number				f) Number of cases settled on land encroachment issue this year	Provide ha. of area recovered.
Number				g) Number of offence cases settled on illegal resource removal this year.	

a) The PA is legally gazetted.

Official declaration of the Protected Area gives it a long-term protection, which implies that rights to All Protected Area resources are legally protected, including timber, mineral, and water resources.

Note, where: - 'n' – not officially accepted by ministry (MOEF); 'm/n' – officially accepted by ministry, yet to be gazetted; 'm/y' – process for legal gazetting is ongoing; 'y' – legally gazetted/published.

b) Conflict on land encroachment issue in the PA.

Examples could include conflict with indigenous or local people over legal rights of land. Conflict may be between local people and government (FD), within government agencies or between government and other non-governmental organization over boundary or jurisdiction of the park.

Note, where: - 'n' – there are no conflict between government and local people/other government organization/non-governmental organization; 'm/n' – there are limited conflicts and can be (or being) worked out through existing mechanisms; 'm/y' – number/types of conflicts are overwhelming affecting management activities and need revision of existing legal and procedural mechanism; 'y' – conflicts are overwhelming and need immediate action from top authority.

b) Conflict on illegal removal of forest produce.

Examples could include conflict with indigenous or local people over illegal collection of timber, fuel wood, NTFPs and hunting etc. Number of offence cases made by Forest Department might be an indication of severity of problem with regard to the usage of resources from PAs.

Note, where: - 'n' – there are no conflicts between government (FD) and local people; 'm/n' – there are limited conflicts and can be (or being) worked out through existing mechanisms; 'm/y' – number/types of conflicts are overwhelming and negatively affecting management activities and natural resources and needs revision of existing legal and procedural mechanism; 'y' – conflicts are overwhelming and need immediate action from top authority.

4. Protected Area Site Design and Location

Site Design and Location					
y	m/y	m/n	n	Verifiers	Notes/comments
□	□	□	□	a) The PA zoning system is adequate to achieve PA objectives.	
□	□	□	□	b) The land use in the surrounding area enables effective PA management.	
□	□	□	□	c) The PA is linked to another protected or biodiversity rich area.	

a) The PA zoning system is adequate to achieve the PA objectives.

The zoning system may include, for example, core zones, buffer zones (or resource use zones), and cultural sites. Effective zoning areas should be able to protect vulnerable species, habitats, natural processes and sufficient enough to meet the demand of the local people.

b) The land use in the surrounding area enables effective PA management.

Compatible surrounding land use includes land that has a minimal impact on the Protected Area resources and functioning. Examples of such land use could include areas with low/minimal road, population density, agricultural lands and or areas surrounded by responsibly managed forestland /tea state or international boundaries.

c) The PA linkage to another area of protected or bio-diversity rich area.

Such linkages include adjoining protected and conserved areas or any other landmarks, which support biodiversity (e.g. wetlands like Beel and Haor).

5. Pressure and Threat Concerning PA

Pressure							
1.							
In the past 5 years this activity has:		The overall severity of this pressure over the past 5 years has been:					
□	Increased sharply	Extent		Damage		Permanence	
□	Increased slightly	□	Throughout (>50%)	□	Severe	□	Permanent (>100 years)
□	Remained constant	□	Widespread (15–50%)	□	High	□	Long term (20–100 years)
□	Decreased slightly	□	Scattered (5–15%)	□	Moderate	□	Medium term (5–20 years)
□	Decreased sharply	□	Localized (<5%)	□	Mild	□	Short term (<5 years)

Pressures are forces, activities, or events that already have a detrimental impact on the integrity of the Protected Area (i.e. that have diminished biological diversity, inhibited regenerative capacity, and/or impoverished the area's natural resources). Pressures include both legal and illegal activities, and may result from direct and indirect impacts of an activity.

Threats							
1.							
□ Will be a threat in the next 5 years				□ will not be a threat in the next 5 years			
Probability of the threat occurring is:		The overall severity of this threat over the next 5 years is likely to be:					
□	Very high	Extent		Damage		Permanence	
□	High	□	Throughout (>50%)	□	Severe	□	Permanent (>100 years)
□	Medium	□	Widespread (15–50%)	□	High	□	Long term (20–100 years)
□	Low	□	Scattered (5–15%)	□	Moderate	□	Medium term (5–20 years)
□	Very low	□	Localized (<5%)	□	Mild	□	Short term (<5 years)

Threats are potential or impending pressures in which a detrimental impact is likely to occur or continue to occur in the future. Examples of pressures and threats to consider in the protected area assessment include:

- **Logging** – Includes legal and illegal logging.
- **Conversion of land use** – Includes conversion of protected land to agriculture, housing, settlements, roads, and other non-protected uses.
- **Unsustainable NTFP collection** – Includes the collection of non-timber forest products such as food, medicinal plants, building material, resins, and other resources from the Protected Area, either for trade or for subsistence.
- **Hunting** – Includes legal hunting practices that threaten Protected Area resources, poaching for illegal trade, and hunting for subsistence purposes.
- **Grazing** – Includes grazing by livestock and fodder collection.
- **Mining** – Includes all forms of drilling, mining, and exploration of underground resources (e.g. natural gas exploration).
- **Constructions** – Includes dams and hydro-electricity generation.
- **Natural processes** – Includes natural processes such as floods and cyclone.
- **Invasive alien species** – Include plants and animals purposefully or inadvertently introduced by humans, which are posing threats.

Note

In identifying threats and pressures in the assessment process, it will be helpful to make an initial list of potential threats and pressures across the entire Protected Area system. This step will ensure that all Protected Area managers consider each of the potential threats.

Probability

Probability is the likelihood of the threat occurring in the future, and may range from very low to very high. Factors to consider when responding to this question include the degree and pervasiveness of this activity in the past, external forces such as political pressures, and existing management constraints.

Extent

Extent is the range across which the impact of the activity occurs. The extent of an activity should be assessed in relation to its possible distribution or occurrence. For example, the extent of illegal timber felling would be

measured relative to the area of PA and distribution of felling. For poaching/illegal hunting for example, the extent of poaching would be measured relative to the possible occurrence of the species population.

Note, where: - "Throughout" means that an activity occurs in 50 per cent or greater of its distribution or of the area, "widespread" means occurrence in between 15 and 50 per cent, "scattered" occurs in between 5 and 15 per cent, and "localized" occurs in less than 5 per cent of its potential range.

Damage

Damage is the degree, either directly or indirectly, to which the pressure affects overall Protected Area resources. Possible damage from illegal timber felling, for example, could include loss of forest cover, disruption of breeding and dinning sites of key species, fragmentation of critical habitat, degradation of site quality and increased access for additional threats, such as land clearing.

Note, where: - "Severe" damage is serious damage or loss to Protected Area resources, including soil, water, flora and/or fauna, as a direct or indirect result of an activity. "High" damage is significant damage to Protected Area resources. "Moderate" damage is damage to Protected Area resources that is obviously detectable, but not considered. "Mild" damage is damage that may or may not be easily detectable, and is considered slight or insignificant.

Permanence

Permanence is the length of time needed for the affected Protected Area resources to recover with or without human intervention. Recovery is defined as the restoration of ecological structures, functions, and processes to levels that existed prior to the activity's occurrence or existence as a threat. Recovery time assumes that the activity ceases, and that either management interventions take place, or natural processes are allowed to occur. The degree of permanence, which could also be called resilience, will depend on such factors as the type of damage, the ability of human intervention to restore the resources, and/or the regenerative capacity of the resource itself.

Note, where: - "Permanent" damage is damage to a resource that cannot recover, either by natural processes or with human intervention, within 100 years. "Long term" damage can recover in 20 to 100 years. "Medium term" damage can recover in 5 to 20 years. "Short term" damage can recover in less than 5 years.

6. Physical Infrastructures of the PA

Physical Infrastructure					
y	m/y	m/n	n	Verifiers	Notes/comments
□	□	□	□	a) Protected Area boundary demarcation.	
□	□	□	□	b) Transport infrastructure is adequate.	
□	□	□	□	c) Staff facilities are adequate.	
□	□	□	□	c) Visitor facilities are appropriate.	
□	□	□	□	d) Field equipment is adequate.	

a) Protected Area boundary demarcation

Effective PA boundary demarcation includes marking of PA boundaries including core and buffer zone with management (e.g., restriction sign) and or educational signs.

Note: 'n'- the boundary of the PA is not know by the management authority or by the local residents/neighboring land users; 'm/n'- the boundary of the PA is know by the management authority but is not known by local residents/neighboring land users; 'm/y'- the boundary of the PA is know by the management authority or local residents/neighboring land users but is not properly demarcated; 'y'- the boundary of the PA is know by the management authority or local residents/neighboring land users and is properly demarcated.

b) Transportation infrastructure is adequate to perform critical management activities.
The adequacy of transportation infrastructure (e.g. park vehicles and roads) depends on the intensity of management and the degree of pressures and threats. At a minimum, adequate transportation should enable all critical management activities to be conducted in a timely manner.

c) Staff facilities are adequate to perform critical management activities.
Facilities include, for example, office buildings, research stations, field offices, staff housing, and training facilities.

d) Visitor facilities are appropriate to the level of visitor use.
The adequacy of visitor facilities depends on the management objectives, the vulnerability of the Protected Area resources, and the intensity of use. Examples of visitor infrastructure include visitor/information centers, drinking water supplies, sanitary facilities, camping areas, and hiking trails.

e) Field equipment is adequate to perform critical management activities.
Field equipment includes the full range of management and monitoring equipments needed to safely and effectively conduct all critical management activities (e.g. pegs, measuring tape, diameter tape, height measurement instruments and tents, etc).

Note: 'n'- no physical infrastructure for transportation/staff and visitor facilities /equipments for PA management; 'm/n'- little/some physical infrastructure for transportation/staff and visitor facilities/ equipments for basic PA management in place; 'm/y'- adequate physical infrastructure for transportation/staff and visitor facilities/ equipments for PA management in place; 'y'- all physical infrastructure for transportation/staff and visitor facilities/ equipments for effective PA management in place.

7. Capabilities of On-site Personnel

On-site personnel					
y	m/y	m/n	n	Verifiers	Notes/comments
□	□	□	□	a) Number of on-site personnel	
□	□	□	□	b) Skills of on-site personnel	
□	□	□	□	c)Training and development opportunities	

a) The number of on-site personnel to manage the PA.
The presence of sufficient PA staff (Forest Guards, Rangers, ACFs) is generally essential to the effective management of a PA. At a minimum, sufficient staffing should enable all critical/basic management activities to take place in a timely manner.

Note: 'n'- on-site personnel, not enough to perform even the basic/critical management activities (e.g. law enforcement) in a timely manner; 'm/n'- some on-site personnel but, not enough to perform all management activities in a timely manner; 'm/y'- number of on-site personnel is able perform all planned management activities in a timely manner; 'y'- number of on-site personnel is adequate to perform all planned management activities in a timely manner.

b) Skill of on-site personnel to conduct critical management activities.

Protected Area management requires a range of skills (e.g. management planning, wildlife and forest inventory and monitoring, report writing and communication skills). Having adequate skills imply that employees have the education, training, experience, and capacity needed to perform all critical management activities.

Note: 'n'- on-site personnel, are not skilled enough to conduct even the basic/critical management activities; 'm/n'- some on-site personnel have skills to perform some management activities; 'm/y'- on-site personnel are skilled to perform all planned management activities; 'y'- every on-site personnel has proper educational background, training and experience to perform all planned management activities in a timely manner.

c) Training and development opportunities are appropriate to the needs of the staff.

Examples of human resource development opportunities include long-term formal education, short-term workshops, mid-career training, study tours, job rotations, seminars and informal exchanges. Ideally, training and development opportunities are part of a broader, long-term human resource development strategy. Training of off-site partners, especially for community leaders (of CBOs/RMOs) will be an indicator when the activities start at core and buffer areas.

Note: - 'n' – no indication/assessment of training needs for on-site staff; 'm/n' – training needs identified, no training yet initiated; 'm/y' – training needs identified and some basic courses are being provided; 'y' – all on-site staff has received proper training to conduct all management activities.

8. Budget and Financial Plan of Protected Areas

Budget and Financial Plan					
y	m/y	m/n	n	Verifiers	Notes/comments
□	□	□	□	a) Budget in the last 5 years was adequate.	
□	□	□	□	b) Current budget is adequate.	
□	□	□	□	c) Management of budget is appropriate	
□	□	□	□	d) Long term financial security of PAs	

a) Budget in the past 5 years has been adequate to conduct critical management activities.

It is likely that funding will always be tight for Protected Areas. While responding to this question, Protected Area managers should carefully reflect on whether previous funds (for the last 5 years) enabled critical management activities to take place. If the response is not "yes", it may be useful to note which critical management activities are constrained by funding. Critical management activities are any activities necessary to prevent, mitigate or restore irreplaceable or unacceptable losses to natural or cultural Protected Area resources.

Note: - where, 'n' – past budget was too limited to perform critical management activities; 'm/n'- past budget was inadequate, but some basic management needs were met; 'm/y' – past budget was acceptable, able to perform most management needs; 'y' – past budget was sufficient to carry out all management needs.

b) Budget for the current year(s) is adequate to conduct critical management activities.

Note: - where, 'n' - there is no budget for the Protected Area; 'm/n'- the available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage; 'm/y' - the available budget is acceptable, but could be further improved to fully achieve effective management; 'y' - the available budget is sufficient and meets the full management needs of the protected area.

c) The management of budget is appropriate to PA priorities and objectives.

Actual expenditures are in accordance with the Protected Area objectives, match the annual budget, have a clearly defined rationale, and are justified by the threats, pressures, and management constraints of the Protected Area.

Note: - where, 'n'- budget management is poor and significantly undermines effectiveness; 'm/n' - budget management is poor and constrains effectiveness; 'm/y' - budget management is adequate but could be improved; 'y' - budget management is excellent and aids effectiveness.

d) The long-term financial plan for the PA is stable.

A stable, long-term financial plan may include long-term relationship with and commitments from Government/donors/partners, an endowment for Protected Area management, legally binding mechanisms to fund the Protected Area (e.g. taxes, generated revenue retained, state support), a user fee system, and/or other financing mechanisms. As a minimum, a stable financial outlook implies a well-developed, realistic strategy to provide long-term financial sustainability. Such a strategy should neither compromise the Protected Area objectives, nor unduly use Protected Area resources beyond its capacity.

Note: - 'n'- there is no long-term financial plan (or budget) for the Protected Area and management is wholly reliant on government yearly basis and or dependent on outside sources; 'm/n' - there is very little secure budget from the government and the Protected Area could not function adequately without outside funding; 'm/y'- there is a reasonably secure financial plan developed for the Protected Area, which is yet to get approval from government; 'y'- there is a financial plan for the Protected Area.

9. Protected Area Management Planning

Protected Area Management Planning					
y	m/y	m/n	n	Verifiers	Notes/comments
□	□	□	□	a) Management Plan for Protected Area.	
□	□	□	□	b) Existence of annual work plan.	
□	□	□	□	c) Inventory of natural resources and application.	
□	□	□	□	d) Core and buffer zone management plan.	
□	□	□	□	e) Core zone management activity supports PA objectives.	Provide area (ha) of plantation under exotic and indigenous species.
□	□	□	□	e) Involvement of local/indigenous people.	
□	□	□	□	f) Co-management mechanism enhances accomplishment of PA objectives.	

a) There is a comprehensive, relatively recent written management plan.

At a minimum, a Protected Area management plan should include four elements: a) biophysical description of the area being managed; b) clearly defined goals and objectives, which are specifically linked to the biodiversity assets of the Protected Area, c) systematic steps to achieve those goals, d) mechanism and/or process for modifying the plan based on new information.

Note: - 'n'- there is no management plan for the Protected Area; 'm/n'- a management plan is being prepared or has been prepared but is not being implemented; 'm/y' - an approved management plan exists but it is only being partially implemented because of funding constraints or other problems; 'y' - An approved management plan exists and is being implemented;

b) Annual work plan exist and acted upon accordingly.

A work plan, usually developed annually, describes targets for achieving management objectives, as well as specific activities needed to fulfill each of those targets. The work plan can be used to gauge management effectiveness and to monitor staff performance.

Note, where: - 'n'- no annual work plan exists; 'm/n' - an annual work plan exists but activities are not carried out / monitored against the plan's targets; 'm/y' - an annual work plan exists and actions are carried out against the plan's targets, but many activities are not completed; 'y' - an annual work plan exists and all prescribed activities are completed.

c) There is a comprehensive inventory of natural and, or, cultural resources.

A comprehensive natural resource inventory includes a list of species found within the Protected Area, the location of key species, and identification of the critical habitat and natural processes needed to maintain these species. A cultural resource inventory identifies the range of uses of Protected Area resources by local communities, and the location of important cultural sites within the Protected Area. In addition, resource inventories should include maps of sufficient details to enable effective Protected Area management.

Note, where: - 'n' – there is no inventory of natural and/or cultural resources; 'm/n' – there exists inventory of natural and or cultural resources, but mostly outdated/ or not sufficient enough to support planning and decision making; 'm/y' –existing inventory is updated regularly, but not incorporated in the planning; 'y' - update of inventory is regularly carried out and is incorporated in the planning process.

d) Core and buffer zone management plan.

As protected areas (PAs) will be based on UNESCO biosphere reserve concept i.e., divided into core and buffer zone/resource utilization zone, and as the livelihoods of people living in buffer zone will be affected by the management plan for core and buffer area, it is necessary that management plan are coherent according to the needs of the local/tribal/indigenous people and reduce pressure on the core zone.

Note, where: - 'n' – no division of usage zones within the reserve; 'm/n' – studies and participatory process are under way to determine appropriate usage zones; 'm/y' – zones are defined, but land use plans are yet to develop to meet the demands of the local people in the buffer zone and reduce pressure on core zone; 'y' – land use plans developed and conform to meet the demands of the local people in the buffer zone and reduce pressure on core zone.

e) Core zone management activity supports PA objectives.

Management activity on core zone should be directed towards recovering historical vegetation composition of each PA.

Note, where: - 'n' – enrichment plantation supports plantation of exotic species; 'm/n' - enrichment plantation supports mainly plantation of exotic species and few indigenous species; 'm/y' - enrichment plantation supports mainly plantation of indigenous species and few exotic species; 'y' - enrichment plantation supports plantation of indigenous species.

f) Involvement of local/indigenous people in the planning process.

The planning process should allow adequate opportunities for key local stakeholders to influence the management plan (especially buffer zone).

Note, where: - 'n' - local stakeholders have no input into decisions relating to the management of the protected area; 'm/n' - local stakeholders have some input into discussions relating to management but no direct involvement in the resulting decisions; 'm/y'- local stakeholders directly contribute to some decisions relating to management; 'y' - local stakeholders directly participate in making decisions relating to management.

g) Incorporation of Co-management mechanism in the management plan would strengthen processes to accomplish PA objectives.

Co-management is "a situation in which two or more social actors (stakeholders) negotiate, define and guarantee amongst themselves a fair sharing of the management functions, responsibilities and entitlements for a given territory, area or set of natural resources".

Note: - 'n'- the co-management mechanism will not help to achieve PA objectives; 'm/n'- level of people involvement should be restricted to share of management functions only; 'm/y'- sufficient time should be given to get accustomed with the co-management mechanism (involvement in management function, decision making and entitlements) to achieve PA objectives; 'y'- the co-management mechanism is a must tool to achieve PA objectives.

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