GEF

Global Environment Facility

Mohamed T. El-Ashry
Chief Executive Officer
and Chairman

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January 9, 2001

Dear Council Member:

UNDP, as the Implementing Agency for the project, *Bangladesh:Coastal and Wetland Biodiversity Management at Cox's Bazar and Hakaluki Hoar*, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by the Council in December 1999 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by UNDP satisfactorily details how Council's comments and those of the STAP reviewer have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.gefweb.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

for Mohamed T. El-Ashry
CEO and Chairman

cc: Alternates, Implementing Agencies, STAP

United Nations Development Programme
GLOBAL ENVIRONMENT FACILITY (GEF)

4 December 2000

Dear Mr. El-Ashry, Mohamed:

Subject: **BGD/99/G31/A/1G/99-Coastal and Wetland at Cox's Bazar and Hakaluki Haor**

I am pleased to enclose the project for Bangladesh entitled **"Coastal and Wetland at Cox's Bazar and Hakaluki Haor "** approved by the GEF Executive Council in December 1999. Also enclosed is the response to comments provided by the GEF Secretariat and Council.

As per paragraph 29 and 30 of the GEF Project Cycle, we are submitting this project to you for circulation to the Executive Council Members for comments and, subsequently, for your final endorsement.

Thank you in advance for expediting the review and approval of this project.

Yours sincerely,

Rafael Asenjo
Executive Coordinator

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PM

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Comments by GEF Council Members

Bangladesh: Coastal and Wetland Biodiversity Management at Cox' s Bazar and Hakakuki Haor

I. Comments by STAP

ISSUE	RESPONSE: REFERENCE IN PROJECT DOCUMENT
STAP Reviewer Comments on Project Brief	Reflected as appropriate in Project Brief prior to GEF Bilateral and GEF Council approval of project brief.

II. Comments by World Bank

ISSUE	RESPONSE: REFERENCE IN PROJECT DOCUMENT
World Bank Comments on Project Brief	Reflected as appropriate in Project Brief prior to GEF Bilateral and GEF Council approval of project brief.

III. Comments by UNDP

ISSUE	RESPONSE: REFERENCE IN PROJECT DOCUMENT
UNDP Comments on Project Brief/Project Document	Issues raised have been reflected as appropriate in finalized Project Document. UNDP HQ comments have also been incorporated.

IV Comments by GEF Council Members

Issue and Response	REFERENCE IN PROJECT DOCUMENT
Netherlands:	
1. The project idea seems to be important but difficult to realize in the hostile institutional context of Bangladesh. A good overview of the different interests in the region is lacking. These interests are larger than biodiversity and fisheries.	Section A.3, institutional framework, Section F
2. The comments of the reviews in Annex C are not sufficiently covered in the project proposal.	Throughout
3. The new and weak government institution on biodiversity conservation (Department of Environment) will not be able to manage the strong conflicts of interests in the region. Synergy with notably the water managers for as a partner the achieve any institutional sustainability.	Section B.4.1, B.4.2, Section C Outputs 1.3, 2.3, 3.2. Note also comment in section A2 that the project preparation process catalyzed operationalization of BECA legislation
4. Links with other programmes and projects are mentioned but not elaborated. The broader context seems important for achieving any result.	Section E
5. It seems doubtful that project results could be consolidated after the project ends. This forms the weak component of the proposal More emphasis on strengthening the capacity of the Department of Environment, the local authorities and especially on the capacity and participation of the local population/stakeholders.	Section B.3, Section C Outputs 1.2, 2.2, 3.3 Section B.4.4, Annex 5
6. Participation of NGOs is absent (para 24). Local users will hardly feel any	

ownership for the project. So the local NGOs could be a valuable and essential partner for the achievement of results and the sustainability.	
II. France: **1. Regulations, management plan, biodiversity studies, 2. Establishment of a management system, 3. Public awareness programs, and 4. Creation of alternative livelihoods.** Cost: US$13 million; GEF to provide US$6 million. The following point should be addressed during project preparation: Efforts to ensure the financial sustainability of the management system should not be limited to the studies to be conducted during the project. A more ambitious objective and timetable for ensuring the project's financial sustainability should be established.	Section F
III. Comments from the Constituency of Republic of Korea, Australia and New Zealand: This is the only project of regional or national environmental significance for the constituency. The targeted areas include important sites for the East Asian-Australasian flyway for migratory birds. Australia has not contributed resources to the project implementation.	NA
IV. Comments from Germany: It seems that more emphasis should be placed on inter-sectoral Coordination in order to promote the conservation of Cox's Bazar and Hakaluki Haor: Many different government agencies surely have a stake in the area, and it is unlikely that the relatively young DoE will have the power to implement all the measures for conservation and sustainable use of the areas' biodiversity, without coming into conflict with other government agencies. Inter-ministerial coordination and coordination among various concerned government bodies should therefore have a higher priority than at present.	Section C – Outputs 1.3, 2.3, 3.2; Section F

UNITED NATIONS DEVELOPMENT PROGRAMME

PROJECT OF THE GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

PROJECT DOCUMENT

Project Number: BGD/99/G31
Project title: Coastal and Wetland Biodiversity Management at Cox' s Bazar and Hakaluki Haor
Project short title: CWBMP
Estimated start date: 01/07/2000
Estimated end date: 30/6/2007

Management arrangement: National Execution
Designated institution: Department of Environment, Ministry of Environment and Forests
United Nations implementing agency: UNDP AND UNOPS
Project sites: Cox' s Bazar, Hakaluki Haor
Beneficiary countries: Bangladesh

Classification information
ACC sector and sub-sector: Natural Resources
DCAS sector and sub-sector: Biological Resources
Government sector and sub-sector: Environment & Forest
Primary areas of focus/sub-focus: Promoting Environment and Natural Resources Sustainability
Secondary areas of focus/sub-focus: Legislation;
Primary type of intervention: Target Place (Environmental Habitat)
Secondary type of intervention: Natural Features
Primary target beneficiaries: Inhabitants within and around the ecosystems.
Secondary target beneficiaries: Biodiversity related sectors /policy makers/civil society.

LPAC review date: **Programme officer:**
23 March 2000 **M. Aminul Islam**
BPAC review date:

Summary of UNDP and cost-sharing inputs
(as per attached budgets)

UNDP:	
TRAC (1&2)	
TRAC (3)	
STS	
Other (GEF)	$5,520,000
Cost-sharing:	
Government (CD VAT)	
Financial institution	
Third party	
Total	$5,520,000
Parallel Financing:	
Government	$3,340,000
Associated Financing:	
UNDP	$6,552,000
Government	$ 206,000
GRAND TOTAL	**$ 15,618,000**
Administrative and operational services	
SOF 03	
Cost-sharing	
Total	

Government inputs: (local currency)
(in kind) Tk. 11,508,000
(in cash) Tk. 11,848,000

Brief description: The overall objective of the present project is to establish and demonstrate an innovative system for management of Ecologically Critical Areas (ECAs) in Bangladesh that will have a significant and positive impact on the long-term viability of the country' s globally significant biodiversity resources. The project will support DOE efforts to operationalize the ECA concept at two main sites: one site (which includes three ECAs) within the country' s long and biodiversity-rich coastal zone and the second at one of the largest and most important of the country' s many inland freshwater wetlands. Through a combination of GEF incremental cost financing and baseline and co-financing, conservation and sustainable use of these sites will be demonstrated. This demonstration should create important opportunities for replication in coastal, freshwater wetland and other ecosystems throughout the country, including other sites recently nominated as ECAs.

On behalf of:	**Signature**	**Date**	**Name/Title**
Government	_____	_____	_____
Executing Agent	_____	_____	_____

UNDP _____ _____
_____

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

ADAB	Association of Development Agencies of Bangladesh
AOS	Administrative and Operational Services
APR	Annual Project Report
BECA	Bangladesh Environment Conservation Act (1995)
BELA	Bangladesh Environment Lawyer's Association
CBO	Community Based Organisation
CEN	Coalition of Environmental NGOs
CWBMP	Coastal and Wetland Biodiversity Management Project
DC	Deputy Commissioner
DG	Director General
DOE	Department of Environment
ECA	Ecologically Critical Area
ECAMU	Ecologically Critical Area Management Unit
GEF	Global Environment Facility
GOB	Government of Bangladesh
HH	Hakaluki Haor
HYV	High-yielding variety
IPM	Integrated pest management
MOEF	Ministry of Environment and Forest
M & E	Monitoring & Evaluation
NCS	National Conservation Strategy
NCSIP	National Conservation Strategy Implementation Project
NGO	Non-Governmental Organisation
NEMAP	National Environmental Management Action Plan
NEX	National Execution
PMU	Project Management Unit
PRA	Participatory Rapid Appraisal
PRIF	Project Investment Funding
RBAP	Regional Bureau of Asia and Pacific
SI	Sonadia Island
SM	St. Martin' s Island
TF	Teknaf Peninsula
TPR	Tripartite review
TRAC	Total Resource Allocation from the Core (UNDP Resources)
UNOPS	United Nations Office for Project Services
UNCED	United Nations Conference on Environment and Development
VCC	Village Conservation Centres
VCG	Village Conservation Group

SECTION A : CONTEXT

A.1 DESCRIPTION OF THE SUB-SECTOR

Perhaps more so than for any other nation, the fate of Bangladesh—its people and its prospects for sustainable development—is determined by its relationship with water and wetlands. During the monsoon season, at least seven to eight million ha, or about half of the country (and sometimes considerably more), may be considered wetland (Hughes *et. al*. 1994). The country' s wide range of wetlands includes more than 700 rivers and streams, thousands of shallow freshwater lakes and marshes (known locally as *haors, baors* and *beels*), floodplains, inshore coastal areas and extensive estuarine systems. A majority of Bangladesh' s 120 million people are critically dependent on the country' s wetland systems as vital natural resources to sustain them, primarily through agriculture and fishing. Indeed, the movement of water to the sea and associated processes of sedimentation, accretion and mangrove growth have created much of the country' s land. Ironically, this dependence all too often turns into disaster during Bangladesh' s annual period of flooding.

While serving as the central pillar of Bangladesh' s resource base and thus providing an essential support for its goal of achieving sustainable human development, the country' s wetland ecosystems also offer critical habitats for internationally important biological diversity. Bio-geographically, Bangladesh lies at the junction of the Indian and Malayan sub-regions of the Indomalayan Realm. It also sits at the crossroads of two major international shorebird migration flyways, i.e., along the western edge of the East Asian - Australasian flyway and at the eastern edge of the Central Asian – Indian flyway. The country' s biodiversity reflects this crossroads character.

Bangladesh' s wetland habitats are particularly significant in supporting avifaunal, aquatic and plant biodiversity. *Avifaunal biodiversity* is high, with approximately 650 bird species recorded nationally thus far (compared with 800 in Europe and the Middle East together), at least 40 of which are globally threatened. Floodplains and other inland wetlands, along with coastal wetlands, support millions of migratory waterfowl annually, from over 150 species (Asian Wetlands Bureau 1985). Inshore areas of the Bay of Bengal, as well as inland wetlands, support considerable *aquatic biodiversity*, including some 120 species of marine fish, 260 species of freshwater and brackish water fish and several globally threatened turtle species (Hussain 1997). *Plant biodiversity* in Bangladesh is estimated at over 5,000 species of higher plants, some 158 of which are found in freshwater wetlands and 334 in coastal wetlands (Khan *et. al*. 1994). Key components of Bangladesh' s plant biodiversity include its globally significant mangrove resources as well as the within-species genetic diversity found in several thousand varieties of rice grown within seasonally flooded areas.

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The PRIF project has carefully selected two wetland sites of distinct importance for their globally significant biodiversity, particularly their avifaunal, aquatic and plant biodiversity. These were selected from a short-list of ten sites, based on the degree to which the following criteria were met:

- National priority areas for biodiversity conservation, as defined by, e.g., the UNCED national report, National Conservation Strategy, etc.;
- Globally significant biodiversity, including endemic, threatened and endangered species, representative habitats and/or significant within-species genetic diversity;
- Opportunities for development of sustainable use programmes;
- Threats and root causes realistically addressable through a GEF intervention;

- Full support of local communities;
- Representativeness of distinct wetland ecosystems, i.e., inshore marine and coastal ecosystems and shallow freshwater *haors* or lakes, and;
- Representativeness of the challenges facing management of the sites, implying important opportunities for replication.

The importance ascribed to both sites and to the present project is further reflected in the sites' recent nomination as Ecologically Critical Areas (ECAs) under the 1995 Environmental Conservation Act (BECA ' 95).

Each project site is introduced below. Additional information on site biodiversity is presented in **Annex 3**, while **Annex 4** provides details on socio-economic characteristics of project beneficiaries at each of the sites.

A.1.1 Cox' s Bazar

The Cox' s Bazar site lies at the extreme southeastern corner of Bangladesh on the border with Myanmar as per the maps prepared by the PRIF study project. The site consists of three component areas: (i) the western, coastal zone of Teknaf Peninsula (10,465 ha in area), which is a long, narrow and forested peninsula separating the Bay of Bengal from the estuary of the Naaf River and neighboring Myanmar; (ii) St. Martin' s Island (590 ha), a sedimentary continental island located 10 km south of Teknaf Peninsula, and; (iii) Sonadia Island (4,924 ha), a barrier island a few km north of Teknaf Peninsula. The coastal and island habitats represent the site' s ' focal areas' and total approximately 16,000 ha. Each focal area exactly coincides with the Ecologically Critical Area (ECA) declared for the site in question (see below, section A.3). An additional 30,000 ha, consisting of degraded but still biodiversity-rich upland forest watershed on Teknaf Peninsula, will be considered as the ' buffer zone.' While the project is designed to address and remove all threats to biodiversity within its focal areas, threats within the wider ' buffer zone' will be mitigated in order to provide additional protection for the ' focal areas.'

Overall, people living within the Cox' s Bazar site are heavily dependent on fisheries, marine products and, to a lesser extent, agriculture for their livelihoods. Over 90% of fisheries production in the area is artisanal in nature, and the sector acts as an important source of employment.

The section of the Bangladeshi coastal zone encompassed by the site contains biodiversity of global significance (see Annex 4). Over 800 species of wildlife have been identified from the site component areas, more than 20 of which are globally (near) threatened. Globally threatened species include:

- four species of endangered marine turtles, i.e., Loggerhead turtle *Caretta caretta*, Green turtle *Chelonia mydas*, Olive Ridley turtle *Lepidochelys olivacea* and Hawksbill turtle *Eretmochelys imbricata*;
- nine species of birds;
- six species of marine mammals.

The biodiversity importance of the site component areas may be summarised briefly as follows:

- *Teknaf Peninsula*: Teknaf Peninsula is one of the longest sandy beach ecosystems (80 km) in the world. It represents a transitional ground for the fauna of the Indo-Himalayan and Indo-Malayan ecological sub-regions (notably within its ' project area'). The peninsula provides breeding areas for four globally threatened species of marine turtles and, lying along international bird migration flyways, serves as a significant bird area, with over 81 species recorded. Finally, its inshore waters host globally threatened marine mammals.

- *St. Martin' s Island*: St. Martin' s Island is one of the few areas in the world where coral-algal communities dominate rocky reefs (Tomascik 1998). This unique set of environmental conditions, biotic and abiotic, has no parallel in Bangladesh and perhaps not worldwide. The island also supports significant breeding areas for globally threatened marine turtle species, as well as serving as a stepping stone for several globally threatened migratory waders.

- *Sonadia Island*: Sonadia Island supports the last remaining remnant of mangrove forest in south-east Bangladesh, which once stretched along much of the coastline of Chittagong and Cox' s Bazaar provinces. Sonadia' s mangroves are distinct from the well-known Sundarbans in south-west Bangladesh, due to their development in a coastal lagoonal setting rather than in a delta. This has led to the domination of different mangrove species, ones which are able to tolerate higher levels of salinity than their Sundarbans cousins. In addition to this important mangrove area, the island supports large numbers of waterbirds, rich communities of mollusks and echinoderms and marine turtles.

A.1.2 Hakaluki Haor

The second project site offers a very different type of ecosystem as well as a new set of management issues. The *haor* basin in northeastern Bangladesh is an extensive alluvial plain supporting a variety of wetland habitats. It contains about 47 major *haors* and more than 6,000 *beels*, or freshwater lakes, nearly half of which are seasonal.[1] At least nine of the region' s wetland sites meet one or more of the Ramsar criteria for wetlands of international significance.

Hakaluki Haor itself is a complex of more than 80 inter-connecting *beels* located in the Moulvi Bazar District as per the maps prepared by the PRIF study project. The lakes are mainly fed by the Juri, Kantinala and Kuiachari Rivers and drain through a single outlet, the Kushiara River. During the dry season, the *beels* cover an area of approximately 4,400 ha. However, during the rainy season, the entire area floods, and the *beels* are united as one large lake, or *haor*, with an area of approximately 18,000 ha. This makes it the largest *haor* in Bangladesh. This 18,000 ha area represents the project ' focal area' , as well as the defined area of the ECA declared for Hakaluki Haor.

Some 190,000 people live in the area surrounding Hakaluki Haor. As the *haor* itself floods annually, habitations are clustered along its slightly raised fringes. Local people have two main sources of livelihood—fisheries and agriculture—which occasionally come into conflict. Depending on how water levels are controlled, there is a tension between the areas available for fish vs. agricultural production, and thus between the potential levels of production from each. One task facing managers is thus to find equitable ways to achieve balance between these sometimes competing forms of production.

Hakaluki Haor is a highly significant site for a wide variety of waterfowl, particularly *Anatidae*. It is important for wintering migratory shorebirds and as a mother fishery. Its overall significance is perhaps best expressed with reference to the various criteria for inclusion as a Ramsar site. In a comprehensive 1995 survey, Hakaluki was deemed to fulfil the following five Ramsar criteria:

[1] A *haor* generally encompasses a number of *beels*, into which it divides each year as floodwaters subside.

- "It is a particularly good representative example of a wetland which plays a substantial hydrological, biological or ecological role in the natural functioning of a major river basin…" (Ramsar Criterion 1.c).
- "It supports an appreciable assemblage of rare, vulnerable or endangered species of plant or animal, or an appreciable number of individuals of any one or more of these species." (Criterion 2.a).
- "It is of special value for maintaining the genetic and ecological diversity of a region because of the peculiarities of its flora and fauna." (Criterion 2.b)
- "It regularly supports 20,000 waterfowl." (Criterion 3.a).
- "It regularly supports substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity or diversity (Great Cormorant, Tufted Duck)" (Criterion 3.b).

More recent observers have pointed to a sixth criterion met by the site, i.e., that it regularly supports 1% of the individuals in a population of one species or sub-species (Baers Pochard).

A.2 HOST COUNTRY STRATEGY

Bangladesh's environmental policy, including its strategy towards wetland and coastal issues, has made broad strides during the 1990s. The major elements are outlined below, along with specific references to project sites:

- *Biodiversity Convention (1991)*: Bangladesh has signed and ratified the Biodiversity Convention.

- *UNCED Country Report (1991)*: The report emphasises the "enormous importance" of the country's wetland areas, "…both as havens of biodiversity and as major sources of the nation's livelihood" (MOEF 1991). It also notes the need for "immediate" action to conserve the country's approximately 10,000 varieties of rice, as well as the many local varieties of fruits, legumes and other vegetables. The report calls for the development and implementation of pilot wetland protection projects with effective community participation, and it names Hakaluki Haor as one of six priority sites for such projects (Ibid.).

- *National Conservation Strategy (NCS, 1991)*: The NCS provides specific strategies for sustainable development in 18 sectors of the economy. Among its recommendations is that St. Martin's Island (also known as Narikel Jinjira) be declared a protected area. The NCS Implementation Project 1 has included, *inter alia*, preparation of a detailed study of St. Martin's Island, together with a draft management plan (see NCSIP-1 1997).

- *Environment Policy, 1992*: The Environment Policy adopted in 1992 gives due importance to wetlands and related issues. The Policy includes, *inter alia*, the following aspects:

    - ❖ rivers, canals, ponds, lakes, *haors, beels, baors*, and all other water bodies and resources should be kept free from pollution;
    - ❖ wetlands should be conserved for the protection of migratory birds;

- ❖ activities which diminish the wetlands/ natural habitats of fish should be prevented and rehabilitative measures encouraged;
- ❖ existing projects on water resources development, flood control and irrigation should be examined to determine their adverse impact on fisheries, and;
- ❖ environmental impact assessment (EIA) should be conducted before undertaking new projects for water resources development and management;

- *National Environment Management Action Plan (NEMAP, 1995)*: The Ministry of Environment and Forests (MOEF) prepared NEMAP based on a comprehensive participatory planning process ranging from grassroots up to national levels. Local communities, government agencies, non-governmental organizations, professional groups, academics, parliamentarians, lawyers and journalists all provided inputs. Together, these stakeholders identified key institutional, sectoral, location-specific, and long-term issues and actions. NEMAP thus constitutes a synthesis of perceptions of the government, local NGOs/CBOs/Civil Society and the people on environmental issues and the actions needed to address them. NEMAP identifies, *inter alia*, a set of environmental problems that cannot be addressed by a single sectoral agency but rather requires integrated, inter-sectoral interventions. Among such issues are wetland management and coastal and marine resources management.

- *Integrated Coastal Zone Management (ICZM)*: In December 1999, the Minister of Water Resources Management announced the Government' s intention to develop an ICZM policy. Among other objectives, the ICZM policy will attempt to rationalise and more effectively co-ordinate a number of environment and development initiatives taking place within the coastal zone. A number of donors, including the World Bank and the Netherlands, will be supporting the development of this policy over the coming seven-year period.

In the area of legislation, the Bangladesh Environment Conservation Act (BECA) articulates and expands upon the environmental management and sustainable development goals of the 1992 Environmental Policy. In particular, it defines the environmental regulatory regime and DOE' s mandate with respect thereto. Among the measures instituted by this law is a provision for the Declaration of Ecologically Critical Areas (ECAs).

Declaration of Ecologically Critical Areas

(1) If the Government is satisfied that due to degradation of environment the ecosystem of any area has reached or is threatened to reach a critical state, the Government may by notification in the official Gazette declare such areas as Ecologically Critical Areas.

(2) The Government shall specify, through the notification provided in Sub-clause (1) or by separate notification, which of the operations or processes cannot be initiated or contiued in the Ecologically Critical Area (Bangladesh Environment Conservation Act, 1995) (Abdus 1998).

BECA serves to partially counteract the often-conflicting goals of various sectoral laws such as the Forest Act (1927), Protection and Conservation of Fish Act (1950), State Acquisition and Tenancy Act (1950), Wildlife (Preservation) Act (1977), the Haor Development Board Ordinance (1977) and the Wildlife Act (1992). Some of the threats to wetland biodiversity stem from a failure to act on provisions in this legislation. For example, the Wildlife Act prohibits hunting of wildlife, but has rarely been enforced. Other threats result from potential conflicts among the legislative provisions which, for example, promoted the conversion of wetlands to agriculture. While the goal of conservation is enshrined under the provisions of BECA, further harmonisation of legislation and policies is needed.

In April 1999, the authority granted under BECA was utilized for the first time, as the Director General of the Department of Environment (DOE) officially declared nearly 40,000 ha, within six separate wetland areas, as ECAs. These included each of the four component sites within the present project—Hakaluki Haor, Sonadia Island, St. Martin's Island, and Teknaf Peninsula—but not their buffer zones, all of which were deemed to meet the 'urgency criterion' required by BECA, i.e., they were "threatened to reach a critical state."[2] This Declaration was prepared in the context of the GEF PRIF project preparation.

Although a large number of ecosystems in Bangladesh could accurately be described as "threatened", it would be impossible for the Government to declare and manage all of them as ECAs. In order to identify priority sites, a series of biodiversity 'importance criteria' have been taken into account in addition to the above 'urgency criterion.' For the initial ECA designation the criteria used were the same as those applied in selecting GEF project sites (see section A.1 above). This led to the selection of two additional sites as ECAs: Tanguar Haor, an important wetland area located in northeastern Bangladesh, and Marjat Baor, a small but biologically significant oxbow lake. All ECAs thus far selected include a combination of public and private lands, with relevant restrictions equally applicable to both.

The Act provides for temporary ECA Declarations in certain cases—for example where a highly specific threat (e.g., from a single industrial plant) has been identified and removed. However, in the case of the present sites the Government's intention is that the ECA Declarations and associated management structures will be permanent.

A.3 INSTITUTIONAL FRAMEWORK OF THE SUB-SECTOR

Increasing awareness of the importance of the environmental dimension of economic development resulted in the creation of the Ministry of Environment and Forests (MOEF) in 1989. The Ministry is now a permanent member of the Executive Committee of the National Economic Council, which is the major decision-making body for economic policy issues and also approves major public investment projects. It plays a key role in planning, reviewing and monitoring environmental initiatives and in ensuring that environmental concerns are properly integrated into the national development process. This includes responsibility for ensuring that environmental concerns are given due recognition in the development programmes of sectoral ministries. The Ministry has an active role to play in policy advice and environmental action planning, in coordinating and overseeing the implementation of action plans, and in reviewing and monitoring the impact of development initiatives on the environment across all sectors.

MOEF combines two departments, the Forestry Department and the more recently-created Department of Environment (DOE). DOE, as the technical arm of the Ministry, is responsible for environmental planning, management and enforcement. Its responsibilities include:

- assessment and monitoring tasks, such as on-site surveillance of environmental mitigation components of development projects;
- promoting environmental awareness through public information programmes;
- controlling and monitoring industrial pollution;
- co-ordinating implementation of the 1995 Environmental Conservation Act (see below), and;

[2] It should be noted that none of the sites, however, was considered to have already reached a critical or otherwise irreversible state.

- overall policy and planning, inter-ministerial coordination and international liaison for all matters related to the natural environment, including serving as the focal point for relevant international conventions, e.g., the Convention on Biological Diversity, Ramsar Convention, etc.

The Forest Department is responsible, *inter alia*, for the management of mangrove forests and afforestation programs in the coastal areas, as well as the establishment and management of protected areas.

Other Government Departments with important responsibilities related to natural resource management include the following:

- The Ministry of Fisheries and Livestock has responsibility for fishery resources management as well as, to some extent, management of wetlands.

- The Ministry of Local Government and Rural Development (LGRD) has important responsibilities regarding development plans and policies and their implementation at local level, which may have substantial implications for resources and their management.

- The Bangladesh Water Development Board is responsible for water management and water control infrastructure such as coastal embankments.

- Ministry of land is responsible for land administration and lands record and survey.

A.4 Prior and Local Communities/CBOs /NGOs/Civil Society' s Assistance to the Sub-sector

A.4.1 National-level

The level of support to the environment sub-sector has risen rapidly in recent years as both Donors and Government have increasingly come to recognise its importance. The NEMAP process provided both parties with a framework for conceptualising programmes of assistance. The resulting major programmes of support for environmental management are outlined below:

A.4.1.1 Sustainable Environment Management Programme (SEMP)

UNDP' s Sustainable Environment Management Programme (SEMP) will provide over $26 million during a five-year period (1998-2002). SEMP consists of some 22 sub-projects organised into five major components, as follows:

- *Policy and institutions*
  - Institutionalisation of NEMAP
  - **Capacity building for environmental legislation and policy analysis**
  - Mainstreaming environment in national planning
  - **Studies on sharing of common regional resources, improved land administration and management, coastal land use zoning in the South West and policy analysis studies**

- *Participatory ecosystem management*
  - **Community based *haor* and floodplain resource management**
  - Sustainable resource management in brackish water areas
  - Sustainable Livelihood in riverine *charlands*
  - Ecosystem management in the *Barind* areas

- Participatory upland resource management
- Sustainable rural energy
- Environment fund: supporting small, innovative grassroots initiatives

- *Community-based sanitation*
  - Community-based water supply and sanitation
  - Community-based urban solid waste management in Dhaka
  - Community-based urban wastewater treatment
  - Community based rural industrial waste management

- *Awareness and advocacy*
  - **Environmental awareness and monitoring at grassroots level**
  - **Mainstreaming environment in the media**
  - **Environmental documentation**
  - **Environmental advocacy**
  - **Sustainable development network**

- *Training and education.*
  - Environmental education at the non-formal level
  - Environmental curricula at the primary and secondary levels

Each of the above component areas includes projects of direct relevance to conservation of biological diversity. SEMP components indicated in **bold** have been targeted for direct co-operation with the present GEF project (see section E., Inputs).

A.4.1.2 Bangladesh Environment Management Programme (BEMP)

The Bangladesh Environmental Management Project (BEMP) is a five-year project from the Canadian International Development Agency (CIDA) designed to help DOE to fully and demonstrably implement its mandate. In particular, it aims to strengthen DOE' s capacities to undertake strategic change, to think and operate in a policy context, to stretch its planning horizons beyond the current year and current set of projects, to continuously address its organisational mandate and to develop program frameworks.

Specific BEMP components include the following:

- Institutional planning and development
- Policy and legal reform
- Demonstration projects (see A.4.3 below)
- Local environmental initiatives
- Environmental awareness
- Resource information systems
- Human resources development
- Project management.

The various initiatives taking place under BEMP, many of which relate directly to biodiversity management, represent an important baseline of support for the present UNDP-GEF project. As such, their implementation will continue to be monitored closely to ensure continuing complementarity and wherever possible, synergies between the projects. Such is already clearly the case between the SEMP and BEMP projects.

A.4.2 Site-level: Cox' s Bazar

There has been no prior donor support to the environment sub-sector in the Cox' s Bazar area. However, some support has been provided in the area of fisheries management, in particular through a regional UNDP/FAO project, the Bay of Bengal programme. This regional project has included Chittagong and Cox' s Bazar Districts as part of its pilot effort. So far, the project has aimed at improving management of fisheries through awareness building and strengthening of relevant institutions.

Also of potential importance to biodiversity management in the Cox' s Bazar area is a multi-donor effort aimed at developing a system of Integrated Coastal Zone Management (ICZM), which is currently at a preparatory stage. The World Bank, Netherlands and the World Food Programme are supporting the project.

A.4.3 Site-level: Hakaluki Haor

The Canadian International Development Agency (CIDA) has had substantial experience with projects in the Northeast region of Bangladesh where Hakaluki Haor is located. This has included a pre-feasibility study known as the Northeast Regional Environment Management, Research and Education Project (NEMREP). NEMREP studied biodiversity in the area and proposed a number of initiatives related to management of internationally significant wetland sites in the region, including Hakaluki Haor. This work has provided an important background for the present GEF project.

As part of its BEMP programme (see above, section 4.1.2), CIDA has prepared a River/ Wetland Integrated Environmental Management Project. The project is part of pre-investment work that Canada has been supporting over the past several years. Its goal is to build DOE' s capacities related to environmental oversight of a major infrastructural development project, including its ability to oversee and evaluate environmental impact assessments. The development project in question will consist of dredging and stabilisation works along the Kalni-Kushiyara river, which feeds directly into Hakaluki Haor.

In the broader area of resource management, the World Bank has supported a series of fisheries management projects, the latest of which is the Fourth Fisheries Project, valued at $41.67 million. This national-level project, which includes among its objectives increased fish production and establishment of fish sanctuaries, will have some impact and potential benefit for the Hakaluki Haor site includes restoration of Haor ecology congenial environment for migratory birds habitat and regeneration of aquatic flora and fauna. The project also has a World Bank GEF-funded component, "Aquatic Biodiversity Conservation," which is supporting activities such as the introduction of community-based aquatic sanctuaries, although this project will not be working in the Northeast region.

Another World Bank project, the Social Investment Program Project (SIPP), which began in early 1999, is a poverty alleviation program targeting the "hard-core poor" throughout the country. This project may serve as a useful source of baseline finance at the project site, particularly for addressing the need for alternative sustainable livelihoods.

SECTION B : PROJECT JUSTIFICATION

B.1 PROBLEMS TO BE ADDRESSED: THE PRESENT SITUATION

B.1.1 Cox' s Bazar

Two categories of threats are seen to be facing the Cox' s Bazar site (see **Annex 4, Table E.6)**. Not all threats apply to each of the component areas – the table below indicates which threats apply to which areas. The first category of threats is related to *erosion of the biological resource base due to overharvesting*, and in some cases inefficient harvesting, of resources. It includes the following specific threats:

- Excessive cutting of mangrove and sand dune vegetation for fuelwood ;
- Illegal harvesting of threatened turtles and turtle eggs;
- Removal of corals for sale as curios;
- Large-scale marine invertebrate (shell) collection for sale as curios and as chicken feed;
- Destructive fishing methods, including (i) fishing for shrimp fry; (ii) high levels of ' trash fish' and turtle by-catch; (iii) use of gill nets;
- Hunting of shorebirds.

A second group of threats involves *degradation and loss of habitats*, some of which arise from the above-described resource over-harvesting. It includes the following specific threats:

- Beach compaction by vehicles;
- Degradation of mangrove and sand dune habitats due to unregulated livestock grazing;
- Conversion of critical habitats to alternative land uses, e.g., aquaculture, agriculture, salt pans, tourism infrastructure, small-scale industrial enterprises;
- Pollution and land degradation from agro-chemicals, boat operational discharges, tourism, small industries;
- Coastal erosion and coral damage due to shell and boulder removal, and;
- Destruction of sand dunes (turtle nesting habitat) by human activities (construction of temporary shelters by fishermen, vehicle traffic and boat docking).

Threat	Teknaf Peninsula	St. Martin' s Island	Sonadia Island
Overharvesting			
Excessive cutting of mangrove			
Excessive cutting of sand dune vegetation			
Illegal harvesting of turtles and turtle eggs			
Removal of corals			
Large-scale marine invertebrate (shell) collection			
Destructive fishing methods			
Hunting of shorebirds			
Degradation and loss of habitats			
Beach compaction by vehicles			
Degradation of mangrove habitats due to grazing			
Degradation of sand dune habitats due to grazing			
Conversion of habitats to aquaculture			
Conversion of habitats to agriculture			
Conversion of habitats to salt pans tourism and small-scale			

industry			
Pollution and land degradation from agro-chemicals			
Pollution and land degradation boat discharges			
Pollution and land degradation from tourism and small industries			
Coastal erosion and coral damage due to shell and boulder removal			
Destruction of sand dunes			

The following have been identified as key **causes** of biodiversity loss at the Cox' s Bazar sites:

1. No legally instituted protection measures for ecologically critical areas
2. No effective management authority at field-level
3. Limited participation by local communities in resource use decision-making
4. Inadequate information on status and functioning of critical ecosystems
5. No management planning for ecologically critical areas
6. Limited opportunities for alternative sustainable livelihoods
7. Lack of alternative sources of fuelwood and fodder
8. No integrated coastal zone management
9. Limited public awareness of environmental issues
10. Lack of technical knowledge, capacities

B.1.2 Hakaluki Haor

Similar categories of threats have been identified as facing at Hakaluki Haor as were found at Cox' s Bazar (see **Annex 4, Table E-6**). The first is thus related to the *degradation and loss of habitat*. These include the following specific threats:

- Loss of reedland and swamp forest areas due to conversion for agriculture;
- Reduction in surface area and depth of mother fisheries and other aquatic habitats (beels). due to sedimentation, drainage and river diversion for irrigation;
- Degradation of reedland and grassland habitats due to overgrazing within the *haor*, and;
- Minor risk of degradation of aquatic habitat due to agro-chemical pollution from tea estates.

The following threats related to *over-harvesting of resources* have been identified:

- Loss of reproductive capacity of fishery due to inappropriate fishing practices;
- Loss of genetic diversity due to increasingly intensive tillage of high-yield varieties (HYV) of rice;
- Unsustainable levels of fuelwood collection;
- Over-harvesting of amphibians, including turtles and frogs; and
- Reduced bird populations due to hunting.

The following have been identified as key **causes** of biodiversity loss at the Hakaluki Haor site:

1. No legally instituted protection measures for ecologically critical areas
2. No effective management authority at field-level
3. Limited participation by local communities in resource use decision-making
4. Inadequate information on status and functioning of critical ecosystems
5. No integrated management planning for ecologically critical areas
6. Limited opportunities for alternative sustainable livelihoods

7. Lack of alternative sources of fuelwood and fodder
8. Limited public awareness of environmental issues
9. Lack of technical knowledge, capacities
10. Poor enforcement of fisheries and wildlife protection acts

B.2 EXPECTED END OF PROJECT SITUATION

It is expected that by the end of this project, an innovative system will have been demonstrated and institutionalised whose objective will be the effective long-term conservation and management of ecologically important areas of Bangladesh. The importance of people' s participation to the succes of such a system will also have been demonstrated. By the project' s end, in addition to the six ECAs that have already been declared, a number of additional, carefully selected sites will have been named as ECAs.

At the national level, it is expected that sufficient management capacity will have been created within DOE to allow the effective co-ordination and management of a growing network of ECAs. Mechanisms will exist to allow inter-sectoral communication and dialogue concerning conservation and sustainable use of ecologically sensitive areas of the country. Where appropriate, DOE will have initiated legal actions aimed at enforcing ECA regulations. Finally, awareness will have been raised concerning the ECA concept and the importance of conservation in general.

At the District level, a system of ECA management units will have been demonstrated, with potential for expansion to other parts of the country where ECAs may have been declared, but not yet operationalised. Inter-sectoral co-ordination will also have been demonstrated at this level.

At the level of the individual project sites, visible and tangible progress will have made towards effective long-term biodiversity conservation. Village Conservation Groups and Centres will have demonstrated to local people the principles of effective conservation and sustainable use. They, in turn, will have helped to implement a series of urgent conservation measures as well as an additional set of measures to be specified in each site' s management plan. As a result of these measures, it is expected that the many varieties of globally and nationally important biodiversity found at these sites will have been conserved.

B.3 TARGET BENEFICIARIES

In any GEF biodiversity project, the most direct ' beneficiaries' are the species constituting the country' s biodiversity. In this sense, the birds, fish, plants and other species found at the project sites and throughout Bangladesh are the project' s most direct ' beneficiaries' .

However, the existence of a funding source such as the GEF strongly suggests that humans too have much to gain from biodiversity conservation. The benefits take a variety of forms, ranging from the existence and use benefits accruing to conservation enthusiasts—armchair and otherwise—to the more tangible gains of human consumptive users, who will benefit from a more reliable and dependable flow of services from the ecosystems in question. The present project has each of the above target groups in mind.

More specifically, a number of categories of in-country beneficiary may be identified, as follows:

- Local communities, particularly those participating in the Village Conservation Groups. They include mainly fishing communities in the case of Cox' s Bazar site and both fishing and agricultural communities at Hakaluki Haor;

- Staff of co-operating agencies, particularly DOE, who will benefit from exposure to advanced techniques of conservation and resource management;

- Local universities, local NGOs/CBOs/Civil society, scientific and technical professionals, who will benefit from consulting opportunities on the project and contact with leading international experts in various conservation fields

B.4 PROJECT STRATEGY AND INSTITUTIONAL ARRANGEMENTS

An effective operational strategy must take the existing institutional framework (see Section A.4) as a point of reference and design mechanisms that can fit effectively within this structure. At the same time, it should hope to affect that structure and its associated operating mechanisms in moderate, but constructive and sustainable, ways. The goal is a project that both operates efficiently and leaves a sustainable impact.

The project will support and enhance structures at three distinct levels: National, District/Site and Village levels.

B.4.1 National Component / Level

Key individuals and operational structures at the national or overall project level are as follows:

- **National ECA Committee:** A National ECA Committee will be established in order to create an inter-sectoral channel of communication between MOEF and other Government ministries with potentially overlapping interests within ECAs. The Committee will provide MOEF with a vehicle for communicating ECA-related policies—including plans for establishing new ECAs, issuance of new or revised regulatory restrictions within existing ECAs, management plans, etc.—to line ministries. Committee members will include representatives from the Department of Forest, Department of Fisheries, Department of Agricultural Extension, Social Affairs Department, Ministry of Lands and Tourism Department (other concerned Departments). The Secretary, MOEF, will chair the Committee, assisted by the NPD, representative of local NGOs/CBOs/Civil society and local government representative. The project BME and a representative of UNDP/GEF will attend as observers. The Committee will meet annually and on an ad-hoc basis as required.

- **Project Steering Committee (PSC):** The Project Steering Committee will, together with the executing agency, be responsible for overall project oversight. It will meet for the first time within six months of project inception, and annually thereafter, to review a workplan for the upcoming year' s activities. In subsequent years, it will also review and comment upon project implementation during the preceding year. The Secretary, MOEF will chair the PSC. Members of the PSC will include all members of the National ECA Committee, as well as the Deputy Commissioners of Cox' s Bazar and Moulvi Bazar Districts, the Project BME, and representatives

of UNDP/GEF, associated projects and sub-implementing agencies (SIAs). Representatives of Ministries of Fisheries and Livestock; Land (ADC Revenue); Water Resources; LGRD & Co-operatives; Disaster Management and Relief; Department of Agriculture Extension, and other relevant ministries/agencies, the private sector, industries, local NGOs/CBOs/Civil society. Representatives from other institutions may join the PSC upon nomination by the Chair.

- **Project Management Unit (PMU)**: The PMU will be located in the Department of Environment' s headquarter. It will be directly responsible for co-ordination, project management, monitoring, and implementation of activities of national component as well as its individual site components. The PMU will prepare an annual workplan and summary of the previous year' s activities for review by the PSC. It will directly oversee implementation of the workplan, whether by consultants, sub-contractors or sub-implementing agencies, and in this context will be responsible for preparing relevant detailed terms of reference and/or letters of agreement. The PMU will act as secretariat for the Project Steering Committee and, if requested, for the National ECA Committee. It will liaison with UNDP, and will report to and work closely with the NPD. Staff will include a Biodiversity Management Expert, National Project Co-ordinator, Monitoring & Evaluation Specialist, Biodiversity Database Management Specialist, and assigned support staffs.

- **National Project Director (NPD)**: The National Project Director will be responsible for overall planning, management, implementation, monitoring, supervision and reporting of the project. S/He will be guided by the rules/provisions of ERD-UNDP NEX Manual. NPD will work closely with the BME and PMU members to ensure the project outcomes. S/He will hold the financial operational power in the implementation of project. The project team under the leadership of the NPD will ensure implementation of project activities without undue delays. The NPD will be a member of the ECA National Committee and Member-Secretary of the Project Steering Committee.

- **Implementing Agency for GEF**: United Nations Development Programme (UNDP).

- **Designated Institution for National Execution**: DOE under the Ministry of Environment and Forests will act as designated institution for NEX (Executing Agency). MOEF will provide overall guidance and policy support. Executing Agency, if felt necessary, may opt for getting assistance/services from United Nations Office for Project Services (UNOPS) through LOA arrangement.

B.4.2 Site Components / District Level

Each project site is located within a single district.[3] Key individuals and operational structures at the site component / district levels are as follows:

- **Local ECA Committees**: In order to ensure coordination with and among the full range of District-level Government departments which may be relevant to a particular site component, a Local ECA Committee will be established for each site component. Its main objective will be facilitating, as and when necessary, a dialogue among various state agencies concerning issues of common interest related to management of the ECA. In particular, the results and planned activities of GEF- and co-financed activities will be presented at these meetings. The Deputy Commissioner of the relevant District will chair meetings of the Local ECA Committee.[4]

[3] Administrative levels in Bangladesh, from highest to lowest, are Divisions, Districts, Thanas, Unions and Villages.

[4] The Deputy Commissioner is, in effect, the Governor of the District.

- **ECA Management Unit**: Each site component will maintain an ECA Management Unit (ECAMU) within the vicinity of the project site. The ECAMU will represent a local enforcement presence on the part of DOE, which will operate these units. It is expected that the units ultimately will become part of DOE' s (planned) district-level offices. DOE will also provide one full-time professional and two support staff to each ECAMU as part of its co-financing contribution to the project. GEF-funded National Experts will provide technical support and for the most part will be based at the ECAMU as an out-posted member of the PMU.

- **National Expert:** Implementation of each site component will be guided by national experts, with extensive experience in the various management techniques being demonstrated at the site. The project' s two national experts will have dual roles. First, s/he will be responsible for technical aspects related to implementation of their respective site components; for this reason, they will normally be based within the ECA Management Unit. In addition, the experts will be staff members of the PMU. They will work under the supervision of the BME and NPC and will also support implementation of the national component. They will thus may be required to spend a portion of their time at the PMU. Selection of national project experts will be on a competitive and transparent basis, to ensure the recruitment of individuals of the highest possible professional quality. Terms of reference for national experts are provided in Annex 1.

B.4.3 Village-level structures

Key individuals and operational structures at the village level are as follows:

Village Conservation Groups (VCGs):

Village Conservation Groups (VCGs) will be organized to facilitate sustainable conservation and management of biodiversity in the project sites through participatory, stakeholder and community based approaches, organization of communities. These VCGs are same groups but not limited to those groups organized and trained under Coastal Fishing Communities Project supported by UNDP.

Establishment of Village Conservation Management Committees

In each target village, taking a bio-village approach, a local conservation/resource management committee would be set up, consisting of all stakeholders including women and representatives from the community. The role of these committees would be to develop and implement their own sustainable biodiversity management schemes with technical assistance from the project, linking up with local government institutions, village organizations and co-ordinating all resource extractive activities. Training would be provided to all members in order to increase their knowledge and skills in managing biodiversity on a sustainable basis. These biodiversity conservation committees would also play roles as communicators and advocates for sustainable resource management and act as centres for village based conservation activities. The underlying objective would be to turn resource exploiters into resource conservationists and role models. Conservation education and training would be arranged by the implementing partners of the project.

Biodiversity Representation

Annex 3 includes a timetable for establishing the above structures, all of which will need to be set up as quickly as possible in order to ensure the rapid launch of field activities.

B.4.4 Project Execution and Management

The Executing Agency will be the Department of Environment (DOE) under Ministry of Environment and Forest. The Project will be established at DOE' s Headquarter in Dhaka. The DOE will take over the responsibility of carrying out the project activities based on the detail workplan. The Biodiversity Management Expert (BME) will assist the National Project Director in the technical operation of the project. The BME will also be assisted by other international and national experts and consultants. UNDP will act as the UN Implementing Agency and UNOPS will implement specific activities as explicit in the Letter of Agreement (LOA) signed between the Executing Agency and UNOPS (Annex 7). The project will follow the ERD/UNDP NEX Manual which covers operation and management including financial and accounting arrangements (Annex 6). NGOs/CBOs/Consulting or research firms or relevant organizations as implementing partners of the project will be selected as per guideline given in Annex 5.

B.5 REASONS FOR ASSISTANCE FROM UNDP

This project responds to a Government of Bangladesh request for assistance in devising strategies to conserve and sustainable utilise its wetland resources. Such a goal is fully in line with priorities established under the National Environmental Management Action Plan.

For its part, the United Nations system, and UNDP in particular, is increasingly concerned with the effective management of wetland resources. This concern is reflected, *inter alia*, in the Agenda 21 document, which focuses attention on the importance of wetlands as a repository of substantial biodiversity and calls for international grant funding for their conservation. The Global Environment Facility, including UNDP, has taken up this challenge with the development of an operational programme (OP2) for freshwater ecosystems.

Finally, co-financing which UNDP-GEF have been successful in bringing under the umbrella of this project supports many of the organisation' s sustainable human development concerns, including concern for environment, women, sustainable livelihoods, etc.

B.6 CO-ORDINATION ARRANGEMENTS

Co-ordination will be an essential factor in the successful implementation of this project. Each of the operational structures described in section 4.2 will have a unique role in ensuring effective co-ordination. The forms of co-ordination that will be required and the roles of the various individuals and structures are as follows:

Co-ordination among the project components:

It has been noted above that one purpose of the national component and the PMU itself is to ensure cross-fertilisation among the project sites. For this purpose, effective communications will be required between the PMU and the sites, which will be ensured by the National Experts. The site components will also co-ordinate directly between themselves, particularly in operational matters, cross-site issues and problems and for information-sharing and mutual support. These day-to-day, informal linkages will be an essential co-ordination mechanism and will serve as the primary channel of information exchange between project staff. Telecommunications and information technology facilities to enable such exchanges will be provided for all sites.

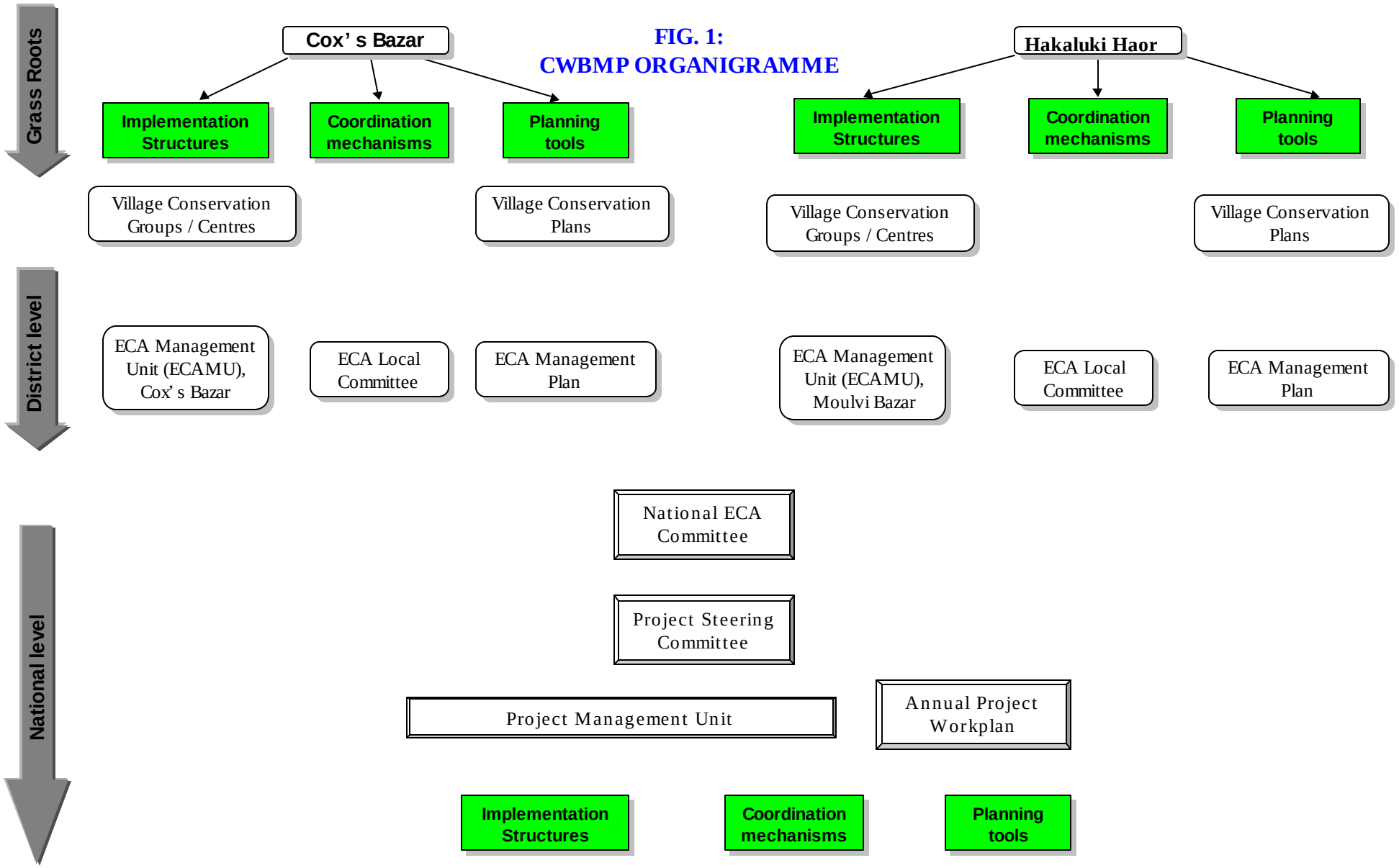
Co-ordination with and among Government agencies:

At the local level, co-ordination with and among local agencies, district offices and local Government authorities will be ensured through meetings of the Local ECA Committee. Responsibility for chair-

ing these meetings, and for ensuring inter-sessional co-ordination with such agencies, will be with the Deputy Commissioner The GEF Biodiversity Management Expert and the site' s National Expert will also maintain contacts with other agencies, while keeping the National Project Director informed as to the nature of such contacts.

The proposed organisational structure for the Project is shown in Figure 1 next page :

FIG. 1:
CWBMP ORGANIGRAMME



- **Coordination with other stakeholders and related activities**: In addition to the formal coordination mechanisms outlined herein, informal coordination with other stakeholders and related parties (e.g. NGOs/CBOs/Civil society, local stakeholders and communities, other related conservation projects and activities) will be the joint responsibility of the Project BME and NPC. Project staff will be at all times strive to maintain close and productive contact with all bodi[1]es and individuals who can contribute to the success of the Project, and will ensure that the activities of the Project are coordinated with any other related activities being undertaken, to minimise duplication of effort and wastage of resources.

- **Coordination with sources of co-financing**: Liaison with co-financed projects and programmes being financed, will be undertaken primarily by the Project BME and NPC.

B.7 COUNTERPART SUPPORT CAPACITY

The Ministry of Environment and Forest gained valuable experience on environment and forest resource management over the years through various donor assisted efforts including the projects under Asian Development Bank supported biodiversity project for the Sundarbans, preparation of Forestry Master Plan, strengthening of Department of Environment through training and infrastructure development, UNDP supported Integrated Resource Management Plan for Sunderban, formulation of National Environment Management Action Plan and Sustainable Environment Management Programme. The MOEF is now plays key role in planning, reviewing and monitoring environmental initiatives and in ensuring that environmental concerns are properly integrated into the national development process.

The Department of Environment (DOE) is the authority for Bangladesh Environmental Conservation Rule. DOE is one of the two technical agencies of the MOEF, and other one is the Forest Department. DOE is responsible for environmental planning, monitoring, management and enforcement and co-ordinating implementation of the 1995 Environmental Conservation Act.

SECTION C : DEVELOPMENT OBJECTIVE

The **overall objective** of the project is to establish an innovative system for management of Ecologically Critical Areas (ECAs) in Bangladesh that will have a significant and positive impact on

The first step in achieving this output has already been achieved during the PRIF phase of the project, i.e., the declaration of all three component areas of the Cox' s Bazar site as ECAs under BECA ' 95. This declaration included draft rules specifying restricted activities at the nominated sites. As management plans are developed for the component sites (see Output 1.5), new detailed rules will be developed and promulgated for each ECA. Finally, the project will support performance monitoring of implementation of both draft and detailed rules and associated technical cooperation.

Activities

1.1.1. Declaration of ECA for Cox' s Bazar site under 1995 Environmental Conservation Act (BECA ' 95), including draft rules specifying restricted activities

1.1.2. Following review and development of management plan, new detailed rules are promulgated

1.1.3. Performance monitoring of implementation of detailed rules

1.1.4. Government enforces ECA regulations, where necessary through legal system.

Output 1.2 An effective field-level management system is operated and maintained

The above legal restrictions and guidelines will be of little use in the absence of a long-term management presence on the part of the DOE. The project will therefore support the establishment of an ECA Management Unit, or ECAMU, in the town of Cox' s Bazar, as a satellite office of the Chittagong regional office of DOE. For the duration of the project, the Cox' s Bazar ECAMU would be staffed by a combination of project and DOE staff (see Section 4 for long-term sustainability). The ECAMU would be responsible, *inter alia*, to coordinate implementation of urgent conservation activities, as well as those of the full management plan. GEF funds under this output would be utilised for: (i) recruitment of national experts to support and work with Government ECAMU staff; (ii) equipment, and; (iii) training for ECAMU staff. The ECAMU will be staffed by at least one well-trained officer, together with several support staff.

Activities

1.2.1 Establishment of an ECA Management Unit (ECAMU) in Cox' s Bazar.

1.2.2 ECAMU begins implementation of indicative management plan as specified in GEF project document

1.2.2 ECAMU officials are provided with relevant technical support and training

per management plans to be produced (see Output 1.5 below). These activities will include the protection of nesting habitats of globally endangered marine turtles through sand dune stabilization and protecting areas from poaching of turtle eggs. About 5,000 ha of sand dune habitat will be brought under habitat protection. In addition, the remaining mangrove patch at Sonadia Island will be protected from further cutting, and assisted regeneration will be undertaken to ensure quick recovery of degraded mangrove habitat. About 800 ha. will be regenerated in this manner. Finally, representatives of the VCGs, together with local government officials (ECAMU, Fisheries, Agriculture, Forest, Livestock, Water Development), will form an ECA Coordinating Committee to ensure inter-sectoral coordination.[5] The project will help to organise regular meetings of this body.

Activities

1.3.1 With assistance from local NGOs/CBOs/Civil society, establish VCGs at each project component site, i.e., Teknaf Peninsula, Sonadia Island and St. Martin' s Island

1.3.2 Awareness is raised among VCG and other community members concerning, e.g., impacts of shrimp fry collection, oily waste discharges, etc.

1.3.3 VCGs initiate urgent conservation activities, i.e., sand dune stabilization, mangrove regeneration, turtle conservation

1.3.4 VCGs initiate activities to ensure availability of alternative fuelwood and fodder

Output 1.4 Ecological information concerning critical ecosystems at Cox' s Bazar site is available to and used by managers)

While some ecological information has been gathered during the PRIF phase, nevertheless, additional information will be needed. Steps in the area of data acquisition and management will include: establishment of a database, using existing and new ecological information; development of an ecological monitoring programme, and; development of a system for collection, processing and dissemination of the above information, i.e., management information system. Government co-financing will be made available for the creation of a marine research laboratory on St. Martin' s Island.

Activities

1.4.1 Establishment of a database, using existing and new ecological information

1.4.2 Development of an ecological monitoring programme

1.4.3 Develop system for collection, processing and dissemination of above information (management information system)

An important step will be to determine zonation at each component site, including core protection zones, buffer zones and multiple use zones. Detailed site management plans will then be formulated, with emphasis on core protection and buffer areas within each ECA. Finally, additional conservation activities specified by the management plan will be implemented. These will pick up where urgent conservation activities (Output 1.3) left off, and will continue to involve Village Conservation Groups (VCGs) in their implementation. Government co-financing, and potentially private sector support,[6] will be utilized for a variety of infrastructural improvements associated with the establishment of a marine park at St. Martin's Island. These will include boat landings, elevated mangrove walkways, improved communications, etc. Similar developments, albeit on a smaller scale, are planned for Sonadia Island. Developments will be carefully formulated as part within the management plan preparation process.

Activities

1.5.1 Determine zonation for Cox's Bazar site, including core protection zones, buffer zones and multiple use zones

1.5.2 Formulate detailed site management plan, with emphasis on core protection and buffer areas

1.5.3 Implement additional conservation activities as specified by management plan

Output 1.6 Alternative sustainable livelihood and sustainable use strategies are developed and implemented

This output, which is entirely co-financed through a UNDP/GOB project, "Empowerment of Coastal Fishing Communities for Livelihood Security", will support the development of alternative sustainable livelihoods within fishing communities throughout the Cox's Bazar site. These communities are the major source of direct anthropogenic pressure impacting resources and biodiversity at the site and as such will require adequate support for developing substitute livelihoods. Support will be provided in areas such as micro-enterprise development, marketing, savings and credit, etc. Strategies for sustainable use of fisheries resources, fuelwood, etc., will also be developed and implemented.

Output 1.7 An integrated pest management programme is implemented

UNDP will provide support for the extension of integrated pest management methods to coastal agricultural areas along Teknaf Peninsula. This programme will estab-

Output 2.1 Utilizing existing legal mechanisms, legal protection is established for Ecologically Critical Areas (ECAs)

The first step in achieving this output has already been achieved during the PRIF phase of the project, i.e., the declaration of a large portion of Hakaluki Haor as an ECA under BECA ' 95. This declaration included draft rules specifying restricted activities at the site. Following the development of a management plan (see Output 2.6), new detailed rules will be developed and promulgated. Finally, the project will support performance monitoring of implementation of both draft and detailed rules and associated technical cooperation.

Activities

2.1.1 Declaration of ECA for Hakaluki Haor site under 1995 Environmental Conservation Act (BECA ' 95), incl. draft rules specifying restricted activities

2.1.2 Following review and development of management plan, new detailed rules are promulgated (CIDA)

2.1.3 Performance monitoring of implementation of detailed rules (CIDA)

Output 2.2 DOE operates and maintains an effective field-level ECA management system

The project will support the establishment of an ECA Management Unit, or ECAMU, in the town of Moulvi Bazar, with support of total one officer and two staff from DOE. DOE will provide office space on rental basis in order to accommodate national and international project team for the site. For the duration of the project, the Moulvi Bazar ECAMU would be staffed by a combination of project and DOE staff (see Section 4 for long-term sustainability). The unit would be responsible, *inter alia*, to coordinate implementation of an indicative management plan (to be specified in the GEF project document) as well as the full management plan. DOE officials assigned to the ECAMU will be provided with relevant technical support and training.

Activities

2.2.1 Establishment of an ECA Management Unit (ECAMU) at Moulvi Bazar,

2.2.2 ECAMU staff receive relevant training and awareness-raising **(GEF)**

2.2.3 ECAMU, with technical support from project staff, oversees implementation of indicative management plan (as specified in GEF, UNDP, CIDA pro-docs.)

Output 2.3 Village Conservation Groups (VCGs) and a Local ECA Committee are established to

forcement of wildlife and fisheries protection acts; improvements to fish migration channels, and; a local awareness campaign.

Activities

2.3.1 With assistance from local NGOs/CBOs/Civil society, establish 5-7 VCGs at strategic locations surrounding the Haor

2.3.2 Establish an ECA Coordinating Committee composed of representatives of the VCGs as well as local government officials (ECAMU, Fisheries, Agriculture, Agriculture Extension, Forest, Livestock, Water Development, Ministry of Land/ADC (Revenue)

2.3.3 Awareness is raised among VCGs, Coordinating Committee members and other community members concerning conservation and sustainable use issues

2.3.4 Training is provided to the above stakeholders

2.3.5 Freshwater swamp and reedland forest regeneration

2.3.6 Community-based enforcement of wildlife and fisheries protection acts

2.3.7 Alternative fuelwood and fodder production

2.3.8 Improvements to fish migration channels

Output 2.4 Ecological information concerning critical ecosystems at the Hakaluki Haor site is available to and used by regional and national-level managers

Steps in the area of data acquisition and management will include: establishment of a database, using existing and new ecological information; development of an ecological monitoring programme, and; development of a system for collection, processing and dissemination of the above information, i.e., management information system. GEF funding will cover the biodiversity component of this output.

Activities

2.4.1 Establishment of a database, using existing and new ecological information

2.4.2 Development of an ecological monitoring programme

2.4.3 Develop system for collection, processing and dissemination of above information (management information system)

2.4.4 Awareness campaign

2.4.5 Develop Tele-communication and electronic media for information dissemination and data base management for reporting and regular monitoring and evaluation of critical ecosystems.

Output 2.5 A management plan covering conservation and sustainable use of Hakaluki Haor

2.5.2 Formulate detailed site management plan, with emphasis on key areas identified in 2.5.1

2.5.3 Implement additional conservation activities as specified by management plan. These are likely to include, *inter alia*, crop germplasm conservation, management of fish sanctuaries and bird areas, community-based integrated water management

Output 2.6 Alternative sustainable livelihoods and sustainable use strategies are developed and implemented

This output, which is entirely co-financed, will support the development of alternative sustainable livelihoods within communities surrounding Hakaluki Haor. These communities are the major source of direct anthropogenic pressure impacting resources and biodiversity at the site and as such will require adequate support for developing substitute livelihoods. Support will be provided in areas such as micro-enterprise development, marketing, savings and credit, etc. Strategies for sustainable use of fisheries resources, fuelwood, etc., will also be developed and implemented.

Output 2.7 An integrated pest management programme is implemented

UNDP will provide support for the extension of integrated pest management methods to the Hakaluki Haor area. This programme will establish farmer field schools and train farmers in IPM methods. At the project site, it will be linked with the Village Conservation Groups in order to maximise the impacts on awareness and practices.

Activities

2.7.1 Integrated pest management techniques introduced through establishment of Farmer Training Groups

Objective 3: To support efforts by DOE to institutionalize the concept of ECA management using the experience gained through the above demonstration sites

Output 3.1 Ensuring that legal mechanisms at national level are able to support operationalization of ECA concept

Output 3.2 Policy formulation and analysis concerning ECAs is based on an appropriate integration of economic and social factors

This output will focus on the development of policies towards ECAs, in particular the further development of criteria and plans for selection of ECAs, i.e., replication of the concept, and ways of ensuring their sustainable financing. It will also seek to identify and find means of addressing actual or potential conflicts with other, sectoral-based legislation, as discussed in paragraph 8. Specific policy analyses will be conducted and DOE capacities strengthened in this area. Although it will be managed as part of the national component, resources will be directed towards assessment of project sites and other actual or planned ECAs containing biodiversity of global significance. Issues to be addressed will include: (i) economic valuation and prioritization of globally significant biodiversity as factors in the selection and management of ECAs; (ii) mobilization of resources for biodiversity conservation within ECAs, including the use of economic instruments such as user fees, penalties, etc.; (iii) incentives for community protection of natural habitats; (iv) land use conflict resolution mechanisms, e.g., fisheries vs. agriculture, and; (v) impacts of various land and water uses on resource productivity.

Activities

3.2.1 Policy analyses prepared, including generation of management options
3.2.2 National-level inter-sectoral ECA Committee assesses and makes decisions based on findings of policy analyses

Output 3.3 Strengthening capacity for management of ECAs

As part of a broader environmental training needs assessment, training needs related to the management of ECAs will be assessed as a basis for the design and implementation of a training programme. Training activities are expected to include: (i) a series of workshops on ECA management, and; (ii) study tours to successful examples of multiple use protected areas within the South Asian region.

Activities

3.3.1 Workshops on ECA management
3.3.2 Study tours showing examples of multiple use protected areas

3.4.2 Awareness activities targeting government and private sector

3.4.3 Electronic media will be used for awareness activities through establishing Home-page and Website on project for wide dissemination .

SECTION E : INPUTS

E.1 NATIONAL INPUTS – GOVERNMENT OF BANGLADESH

Government support in the form of in-kind contributions, parallel financing and associated financing has been developed and will be implemented in close coordination with the UNDP/GEF project. This financing has been tailored to meet various objectives which directly underlie those of the UNDP/GEF support.

Total Bangladesh Government financing available for the project is Tk 23,356,000 or US$ 0.46 million. The financing comes in several distinct components, each of which is described briefly below, along with the inputs being provided.

E.1.1 In-kind contribution to GEF-funded project components

Government cost-sharing support total amount of US $459,222 which includes personnel, housing and CDVAT as follows :

Item	Personnel	Housing	CDVAT	Total
In Taka	7,308,000	7,980,000	8,068,000	23,356,000
In US $	143,689	156,901	158,632	459,222

E.1.1.1 Personnel

The Government will provide the following personnel support for implementation of the GEF project and for management of ECAMUs in kind :

Quantity	Item	Duration	Cost per month (Tk)	Total cost (Tk)
1	National Project Director	84 w/m	25,000	2,100,000
2	National professional staff assigned to ECAMUs	168 w/m	15,000	2,520,000

Description	Duration	Cost per month (Tk)	Total cost (Tk)
ECAMU field sub office at St. Martin/Teknaf in Cox' s Bazar	84 months	10,000	840,000
ECAMU in Cox' s Bazar	84 months	20,000	1,680,000
ECAMU in Moulvi Bazar	84 months	15,000	1,260,000
PMU in Dhaka	84 months	50,000	4,200,000
TOTAL			7,980,000

E.1.2 Government in-kind contributions to associated-financed activities

E.1.2.1 UNDP/FAO Community Fisheries Project

The Government of Bangladesh and UNDP have recently approved a $5.8 million project for community fisheries management along the eastern coast of Bangladesh. This project has been designed in the knowledge that GEF financing was expected for a partially overlapping area of coastline, i.e., the Cox' s Bazar site. Estimated contributions from GOB and UNDP have been made based on a pro-rated portion of the overall Community Fisheries project budget (see also section E.2 below).[7] GOB' s pro-rated contribution is estimated at $160,000.

E.1.2.2 UNDP Sustainable Environment Management Programme

UNDP' s major effort to support the Ministry of Environment and Forest in the implementation of Sustainable Environmental Management Programme (SEMP) in Bangladesh consists of a $26.4 million project. In the course of designing the GEF project, it became clear that SEMP was defined broadly enough to allow a portion of its funds to be oriented towards issues and locations relevant to the GEF project. Section 3 below defines the portion of the UNDP funds that are to be geared to support the GEF project. Based on that breakdown, a pro-rated portion of the Government contribution has also been designated, and is estimated as $36,000.

E.1.2.3 UNDP/FAO Integrated Pest Management Project

A pro-rated portion of the Government contribution to this project has also been designated, and is estimated as $10,000.

As part of a Government programme for afforestation, it has been agreed with MOEF that approximate portion of the total cost of the following projects resources may available for this project which will be spent for natural resources management at project areas;

Area of Support	Amount
Samudra Jhaow Bonaiyon, Cox's Bazar	$ 12,600
Safari Park	$139,200
Forest Resource Management Project (FRMP)	$291,400
Green Belt Project	$ 10,800
TOTAL	**$454,000**

E.1.3.3 Legal costs associated with enforcement of ECA regulations

It is to be expected that violations of ECA regulations will take place during the course of the project. Given the partly legal approach being taken by the project, it is likely that enforcement proceedings will involve legal expenditures as polluters and violators are prosecuted. While it is impossible to predict the exact level of such expenditures, a figure of $330,000 of parallel financing is considered a reasonable estimate. This financing is not expected to be made concrete in the form of a project, etc. It is simply an estimate linked to the expectation that government will at some point establish an environmental court, which will incur relevant costs.

E.2 UNDP FINANCING

E.2.1 UNDP Associated Financing

E.2.1.1 UNDP/FAO Community Fisheries Project

Associated financing earmarked for 5 years total of UNDP TRAC resource US $ 5,882,000 of which $2,126,470 approved for 2000-2001 and $3,755,530 earmarked for 2002-2005 as follows:

Area of support	2000-2001	2002-2005
Empowerment and livelihood security for coastal fishing communities in GEF sites in Cox's Bazar, Sonadia and St. Martins.	$2,126,470	$3,755,530
TOTAL	$ 5,882,000	

E.2.1.3 UNDP/FAO Integrated Pest Management Project now is taken over by DANIDA

Associated financing for farmers training on IPM in the project sites may involve cost equivalent to $100,000.

E.3.2 UNDP-GEF FUNDING

GEF will provide US$ 5.9 million for the project. The breakdown is shown in the following tables:

E.4.1 Personnel

DESCRIPTION OF INPUTS	UNIT COST AND NO. OF UNITS (US$)	COST (US$)
INTERNATIONAL EXPERT & CONSULTANTS		
(To be recruited by UNDP/UNOPS)		
Biodiversity Management Expert (BME)*	36 w/m @ 10,000 / month	360,000
Wetland ecologist	5 w/m @ 15,000 / month	75,000
Marine ecologist	5 w/m @ 15,000 / month	75,000
Institutional, policy & legislation expert	5 w/m @ 15,000 / month	75,000
Unspecified international consultants	5 w/m @ 15,000 / month	75,000
	Sub-total International experts and Consultants	*660,000*
UNITED NATIONS VOLUNTEERS (UNV)		
Conservation management planner-CB	12 w/m @ 3,000 / month	36,000
Conservation management planner-HH	12 w/m @ 3,000 / month	36,000
	Sub-total UNV	*72,000*
ADMIN. SUPPORT PERSONNEL		
Admin support personnel at PMU	672 w/m @ ------ / month	168,700

DESCRIPTION OF INPUTS	UNIT COST AND NO. OF UNITS (US$)	COST (US$)
National Professionals		
(NPPPs will be recruited by UNDP)		
National Project Co-ordinator *	84w/m @2080 /month	174,720
Plant biodiversity management expert	9 w/m @1730 /month	15,570
Wildlife biodiversity management expert	6 w/m @1730 /month	10,380
Freshwater fisheries biodiversity expert	6 w/m @1730/month	10,380
Marine fisheries biodiversity expert	6 w/m @1730/month	10,380
Legal expert	3w/m @1730/month	5,190
Policy & institutional expert	3 w/m @1730/month	5,190
Socio-economic/gender/PRA expert	9 w/m @1730/month	15,570
Resource economist	3 w/m @ 1730/month	5190
Monitoring & evaluation specialist *	84w/m @1040/month	87,360
Biodiversity database management specialist*	24w/m @1040/month	24,960
Unspecified NPP	6w/m @1730/month	10,380
*Based at PMU in Dhaka	*Sub-total NPPP at PMU*	*375,270*
NPPP at Cox's Bazar Field Office		
Plant biodiversity management specialist	24 w/m @1040 /month	24,960
Wildlife biodiversity management specialist	24 w/m @1040 /month	24,960
Marine fisheries biodiversity specialist	24 w/m @1040/month	24,960
Marine Biologist	12 w/m @ 1040/month	12,480
Grassroots level officers	396 w/m @300/month	118,800
	Sub-total NPPP at CB	*206,160*
NPPP at Field sub-office at St. Martin		
Grassroots level officers	360 w/m @300 /month	108,000
	Sub-total NPPP at St. Martin	*108,000*
NPPP at Field office at Haka Luki Haor		
Plant biodiversity management specialist	24 w/m @1040 /month	24,960
Wildlife biodiversity management specialist	24 w/m @1040 /month	24,960
Fisheries biodiversity specialist	24 w/m @1040/month	24,960

DESCRIPTION OF INPUTS	UNIT COST AND NO. OF UNITS (US$)	COST (US$)
GIS, mapping and cartography services		2000
Information technologies, networking and maintenance		125,0
Unspecified activities		78,79
SUB-CONTRACTS COMPONENT TOTAL		**2,380,190**
E.4.3 TRAINING		
Fellowships (to be arranged by UNOPS)	4 Fellowships @ ------	50,000
Group Training/Study Tour (from PMU, DOE, PC, ERD, IMED, Forest Department, Fisheries Department, and UNDP)	12 Participants @ --------	60,000
In Country Training (from PMU, ECAMU, DOE, MOEF, PC, ERD, IMED, Ministry of Land, DAE, Forest Department, Fisheries Department, Livestock Department, LGED, NCS, Tourism, Local Government, NGOs/CBOs/Civil Societies)	30 participants @ --------	45,000
In-Country Workshops	12 workshops @ ------	50,000
TRAINING COMPONENT TOTAL		**205,000**
E.4.4 EQUIPMENT AND SUPPLIES		
Expendable Equipment		21,500
Office supplies		
	Sub-total expendable equipment	*21,500*
NON-EXPENDABLE EQUIPMENT (GOB will provide adequate CDVAT applicable for the following non-expendable items to be procured by UNDP for the project under DCS.)		
Vehicles		
- Four-wheel drive vehicles	3 vehicles @ ------ (2 of which with boat trailers)	78,000

DESCRIPTION OF INPUTS	UNIT COST AND NO. OF UNITS (US$)	COST (US$)
Photographic & video equipment		15,000
Misc. computer hardware & software		
Marine lab & diving equipment		
Telecommunications equipment(Phone, fax, ISD, wireless, intercom etc.)		
Generators & elect. appliances (3 Nos)		
Office furniture, fixtures, etc.		
Training equipment (including books and journals)		
Unspecified equipment		10,000
	Sub-total non-expendable equipment	**397,000**
OPERATIONS & MAINTENANCE		
Operations and maintenance (including rental Cost of aircooler, two vehicles and two computer set up to procurement of those)		160,000
	Sub-total operations & maintenance	**160,000**
E.4.5 MISCELLANEOUS		
REPORTING		
Reporting		26,000
	Sub-total Reporting	26,000
SUNDRIES		30,000
Sundries		
	Sub-total Sundries	30,000
MISCELLANEOUS TOTAL		**56000**
MICRO CAPITAL GRANTS		
Biodiversity Conservation Fund for Local Communities/CBOs		100,000
	Sub-total Conservation Grants	100,000
BUDGET TOTAL		**5,520,000**

One potential risk involves potential inter-ministerial conflicts resulting from DOE' s assertion of its responsibilities within the ECA areas. This risk has been addressed in two ways. First, relevant ministries have been informed and involved throughout the stakeholder consultation process (see Section 5 and Annex E). Second, the establishment of Local and National ECA Committees will provide an essential forum for inter-ministerial co-ordination. It is believed that as a result, the risks of inter-ministerial conflict can be minimised.

A second identified risk relates to the financial sustainability of the project, particularly the establishment of field-level ECA Management Units (ECAMUs). As with many development projects, there is a risk that, once external support dries up, efforts may dwindle. This risk has been addressed in several ways.

First, the degree of commitment on the part of DOE has been carefully assessed and appears very strong. This is evidenced by the quick action taken, in a matter of days and within the context of the PRIF project, in declaring six ECAs.

Second, it has been agreed in the context of the incremental cost analysis that the Government will contribute manpower from the beginning of the project to staff the ECAMUs and that this will be institutionalised, i.e., permanent posts created within the staffing table. This will not only greatly facilitate the project' s capacity building efforts, but will also ensure that permanent staffing of the units will outlive the project.

The Village Conservation Groups established by the project will carry no long-term annual recurrent costs requirements. Rather, through awareness raising, empowerment and capacity building, these ad hoc institutional arrangements will be self-sustaining. Finally, the question of long-term financing to support management of the ECAs is being addressed by output 3.2 of the project through studies which will look at various potential economic instruments, including user fees and penalties. This effort will further reduce the risks associated with project sustainability.

SECTION G : PRIOR OBLIGATIONS AND PREREQUISITES

The prior obligations for work to commence this project is to approve the Project Docu-

3. Identification and deputation of counterpart personnel for project activities by concerned government agencies as required, for the duration of the project period, with transfers, if any, of such staff restricted to the project area.

4. Cost of travel of DOE officials posted in the project offices will be born by project as per Government rules and regulations and similarly cost of travels of counterpart personnel required if any will be born by concerned authorities.

5. Allocation made in Government budget to cover CDVAT on imported equipment to enable the Government to take over all the imported equipment at the end of the project. According to current NBR Rules these have to be paid at the time of importing the equipment.

The project document will be signed by UNDP, and UNDP assistance to the project will be provided, subject to UNDP being satisfied that the pre-requisites listed above have been fulfilled or are likely to be fulfilled. When anticipated fulfilment of one or more pre-requisites fails to materialise, the UNDP may at its own discretion, either suspends or terminate its assistance.

SECTION H : PROJECT REVIEWS, REPORTING, MONITORING AND EVALUATION

Overall policy guidance of the Project will be the responsibility of the PSC, which will meet at least once every twelve months. Secretary, Ministry of Environment and Forests will chair the Project Steering Committee. The Project Management Unit (PMU) headed by the Biodiversity Management Expert supported by NPC, will act as Secretariat for the PSC. NPD as the Member-Secretary of the Project Steering Committee will call meeting in consultation with the Chairman of the PSC. Details of the composition and responsibilities of PSC are given in para B.4.1.

A detailed schedule of project reviews will be developed by the project management, in consultation with project implementation partners and representatives of the participating communities, during the early stages of project initiation, and incorporated in the Project Inception Report. Such a schedule will include methodologies and tentative time frames for Tripartite Reviews, Steering Committee Meetings, Participatory Monitoring and Evaluation of the Project by the participating communities, Annual Project Report (APR). The project will be subject to UNDP/GEF Monitoring and Evaluation rules and practices, including preparation of the annual Project Implementation Review (PIR).

Evaluation format for the project will follow or subject to the instructions and guideline of the UNDP-GEF M&E Unit.

H 2. Evaluation

The project will be subject to **Tripartite Review** (TPR) at least once every twelve months by representatives of the Bangladesh Government, the executing agency and UNDP, the first such meeting to be held within the first twelve months of the start of full implementation. The Project Support Unit shall prepare and submit to each TPR meeting an Annual Project Report (APR). **Quarterly progress reports** will also be provided during the first two years of the project to ensure that design and inception activities are closely monitored. Separate reviews of each site component to be conducted. Monitoring and Evaluation Indicators will be built into the project in consultation with UNDP/GEF. In accordance with GEF requirements, **Project Implementation Reviews (PIR)** will be prepared annually.

An independent **Mid-Term Evaluation** (MTE) will be undertaken at the end of the third year of the project to review progress and effectiveness of implementation. Findings of this review will be incorporated as recommendations and will be instrumental for bringing improvement in the overall project design for the remaining period of the project' s term. UNDP/GEF will arrange the MTE in consultation with project management.

A **Project Terminal Report** will be prepared for consideration at the terminal tripartite meeting. Draft report will be distributed sufficiently in advance to allow in-house review and technical clearance by the GEF prior to the terminal tripartite review.

H 3. Reporting

The NPD with support from PMU will be responsible for the preparation and submission of the following reports:

(a) Progress Reports

National Progress Reports as per requirement of GEF will be prepared as and when required

(c) Annual Project Report (APR)

APR in a prescribed format will be prepared and submitted annually by the project management as per guidelines set for the same.

(d) Project Implementation Review (PIR)

APR in a prescribed format will be prepared and submitted annually by the project management as per guidelines set for the same

(e) Technical Reports

Brief summary reports will be prepared by the National and International Consultants, and by those supported on Study Tours and Fellowships at the completion of their assignments for evaluation by the Executing Agency. Technical Reports are detailed documents covering specific areas of analysis or scientific specialisations within the overall project, e.g. hydrology, flora, fauna, stakeholders and socio-economics, soils, pollution, etc. As part of the Inception Report the Project BME will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Technical Reports may also be prepared by external consultants as Final Reports for their technical inputs, and should be comprehensive, specialised analyses of clearly-defined areas of work performed within the framework of the project and its sites.

(f) Project Terminal Report

The Project Terminal Report would be prepared well ahead of the Terminal TPR by the project. This comprehensive report will summarise all activities, achievements, outputs and outcomes of the Project, lessons learned, objectives met, structures and systems implemented, including any deviations etc. and will be the definitive statement of the Project' s activities over the five-year duration. It will also lay out recommendations for any follow-up, further steps that may need to be taken to ensure sustainability and replicability of the Project' s activities.

SECTION I : LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement (SBAA) between the government of the People' s Republic of Bangladesh and the United Nations Development Programme, signed by the parties on 26 November 1986. The host country-implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government cooperating agency described in that Agreement.

All activities stipulated in the Project Document shall be implemented accordingly. However, should there be a need to make changes/modifications to any of the agreed activities, all signatories of the Project Document must concur, before such changes are made.

The following amendments may be made to the original Project Document, even if they are signed by the UNDP Resident Representative only, provided the later assumes that all other signatories of the Project Document have no objections to the proposed amendments:

- Revisions in, or additions to, any of the Annexes of the Project.
- Revisions which do not involve significant changes in the project' s immediate objectives, outputs, and which are attributable to a reordering of the activities or inputs in order to improve the realisation of the objectives or the outputs.
- Mandatory yearly revisions which are made to reorganise the provision of already scheduled inputs, to reflect an increase in the cost of expert services or other services due to inflation.

The government executing agent designated on the cover page to this project document has been duly delegated by the government coordinating authority to carry out this project and accordingly will follow the NEX accounting, financial reporting and auditing procedures set forth in the documents as may be amended by UNDP from time to time.

SECTION J : BUDGET COVERING UNDP CONTRIBUTION

(see in the following pages)

insert budget page 1

insert budget page 2

GOVERNMENT APPOINTED POSITIONS

National Project Director (NPD)

The National Project Director will be responsible for overall administration, management, implementation, monitoring and reporting as the chief of the Project Management Unit (PMU). She/he will be the dedicated national professional to project and will serve as the focal point over the years for project activities in Bangladesh. She/he will initiate and execute the activities of the Project Management Unit, ECAMUs ensuring adherence to the project documents and work plans which will form the basis for project implementation. S/he will hold the financial operational power in the execution of project as per UNDP/ERD NEX manuals. S/he will be responsible to the Project Steering Committee and will also;

- Develop and maintain close liaising with the sectoral government ministries/agencies, UNDP-GEF, NGOs, civil society, international organizations, stakeholders and implementing partners of the project.
- Undertake the necessary administrative, financial and managerial responsibility and in time initiative to implement the project in maximal ways.
- Supervise and lead the biodiversity project team in discharging their duties at optimum level ensuring resources are employed efficiently and effectively.
- Implement the decisions of the Project Steering Committee and seek for the best issues for further development of the project.
- Undertake any other responsibility entrusted upon him/her as may be assigned by the PSC or by government authority.

The following are amongst the key criteria by which the NPC will be selected;

Post graduate degree in Biological Sciences or related discipline. Degree in forestry will be an added qualification. The NPD will be appointed from the DOE officials expert in Biodiversity Conservation with the concurrence of MOEF and UNDP. Should have proven experience in Biodiversity of Coastal and Wetland Resources management and national project execution. Experienced in handling GEF biodiversity management project under UN systems is preferred. As this is the continuation of PRIF Study : BGD/94/G41-Coastal and Wetland Biodiversity Management Project, the NPD of that project may continue as the NPD of this BGD/99/G31 for the interest of successful implementation of the project.

ECA Management Officer (2 Positions)

Duration : 84 person months each

Station : Cox' s Bazar/Moulavibazar

- Ability to work under pressure and to deadlines; coordinate and monitor effectively while organizing occasional project events.
- Adaptable to multicultural and multidisciplinary team of experts and willing to undertake intensive field works in the coastal/wetland areas of Bangladesh.
- Excellent analytical and communication skills (written and spoken) in English and Bangla and computer literate.

INTERNATIONAL EXPERTS AND CONSULTANTS

Coastal and Wetland Biodiversity Management Project supported by the UNDP-GEF and executed by the Ministry of Environment and Forest, Government of Bangladesh is aimed at demonstrating an innovative participatory management systems and sustainable use of biodiversity resources in four Ecologically Critical Areas having globally significant species.

1. Biodiversity Management Expert (1 position)

Duration : 36 person months

Station : PMU-Dhaka (Field visits required)

The Biodiversity Management Expert (BME) will play the vital role for successful implementation of the project operations to establish an innovative system for management of Ecological Critical Areas and Biodiversity Conservation. S/he will report to NPD and periodically to project steering committee, work closely with NPC and other short-term and visiting consultants to execute a comprehensive portfolio of jobs and performs any other jobs as may be assigned by NPD or project management. His/her main tasks will be in the following areas;

- Designing, planning, managing, monitoring, coordinating, training, providing strategic guidance to maximize efficiency of the biodiversity project team for making institutional arrangements to integrate and to implement the biodiversity conservation/management of Bangladesh.
- Undertake direct responsibility for project management and implementation based on the GOB/UNDP-GEF policies, project documents, background, justification, procedures and annual work plans.
- Lead to strengthen activities at the project sites and manage PMU, ECAMUs to ensure better work conditions to optimize the productivity of the project team and to monitor specific aspects of project activities and implementation.
- Provide technical guidance and supervise project's professional team including all international consultants, NPPPs, implementing partners regarding consistency of the project's objectives, inputs, activities and outputs ensuring that milestones and deliverables are clearly identified from the

- Some professional experience in Asia preferably within United Nations or similar international development organization in partnership development in participatory approach.
- Ability to lead multicultural and multidisciplinary team of experts and willing to undertake extensive field visits in the project sites.
- Demonstration ability to deliver training sessions and interact with local government and diverse range of counterparts and other stakeholders.
- Resourceful with initiative and maturity of judgement; proven diplomatic and negotiation skills and human resources management experiences is essential.
- Excellent written and verbal communication skills in English and computer literate.

2. Wetland Ecologist (1 position)

Duration : 6 person months

Station : Moulavibazar(Field visits required)

The Wetland Ecologist will provide specialized support for implementation of project activities at Hakaluki Haor(freshwater wetland complex) and at the national level. S/he will work under supervision of the biodiversity management expert, and in association with the national experts in biodiversity and conservation management planner (UNV). His/her main tasks will be in the following areas:

- Review and consolidate existing ecological information concerning Hakaluki Haor and neighboring areas (e.g., habitat and species distributions, specific threats and their ecological consequences).
- Design of short and long-term programmes of Hakaluki Haor swamp and reedland swamp with special reference to forest regeneration and fish management including migration channel improvement for sustainable ecological impact including habitats restoration for migratory birds.
- Develop an ecological monitoring and evaluation programme for improvement/conservation of wetland ecology, eco-tourism resorts and associated management information system.
- Assess the problems factors responsible for wetland degradation and existing resource utilization pattern of the wetlands by local community or stakeholders.
- Develop eco-specific wetland biodiversity management and demonstration guidelines for sustainable monitoring and evaluation systems.
- Characterize the physical, biological, geological and social features of the wetland resources.

- Ability to adapt with multicultural and multidisciplinary team of experts and willing to undertake extensive field works in the project sites.
- Excellent analytical and communication skills in English; Resourceful with initiative, maturity of judgement and computer literate.

3. Marine Ecologist (1 position)

Duration : 6 person months

Station : Cox' s Bazar (Field visits required)

The Marine Ecologist will provide specialized support for implementation of project activities at the Cox's Bazar sites and at the national level. S/he will work under the supervision of the Biodiversity Management Expert and in association with the conservation management planner (UNV) and various national experts. His/her main tasks will be in the following areas;

- Review and consolidate existing ecological information at Teknaf Peninsula, and Sonadia and St. Martin's Islands (e.g., habitat and species distributions, specific threats and their ecological consequences).
- Design of short and long-term programmes of Cox's Bazar Coastal area special reference to sand dune stabilization, mangrove regeneration, conservation of coastal and marine resources for sustainable ecological balance.
- Develop an ecological monitoring and evaluation programme for improvement/conservation of marine ecology, ecotourism resorts and associated management information system.
- Assess the problems factors responsible for coastal and wetland degradation and existing resource utilization pattern of the wetlands by local community or stakeholders.
- Develop eco-specific coastal and wetland biodiversity management and demonstration guidelines for sustainable monitoring and evaluation systems.
- Characterize the physical, biological, geological and social features of the coastal and marine resources.
- Conduct training of NPPPs, community resources management planner and managing of rehabitations of habitats and any other relevant project activities as and when required by the NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Marine Ecology/Marine Biology/Coastal Management/Oceanography or marine biological sciences preferably Ph. D.

4. Institutional, Policy and Legislation Expert (1 position)

Duration : 6 person months

Station : PMU/Cox's Bazar/Moulavibazar(Field visits required)

The Institutional, Policy and Legislation Expert will provide specialized support to institutionalize the concept of ECA and legal mechanisms at both project sites and at the national level. S/he will work closely with the National Project Coordinator, Legal Expert, Policy and Institutional Expert, Socio-economic/Gender/PRA Expert and Resource Economist and with many other national experts. His/her main tasks will be in the following areas;

- Review and recommend practical application/enforcement of existing policies, Acts, regulations and also review the present GOB institutional arrangements from central to grassroots level in terms of mandates, roles, strengths and weaknesses to recommend any needed changes to DOE's ECA, HQ and field management structures to ensure efficient biodiversity management.
- Prepare guidelines for ECA management for local institutions, local stakeholders as well as resource users for sustainable management of project activities in a participatory approach aimed at conserving biodiversity.
- Develop institutional framework which is socially acceptable and technically feasible for eco-friendly biodiversity management by the village conservation committee and groups in particular and community in general.
- Assess and recommend roles of ECAs in terms of institutional arrangement both at vertical and horizontal level. Analyse the gaps of different sectoral policies and institutional roles in terms of ECA management and make policy recommendations .
- Develop technical assistance missions, representational missions and data analysis carrying out substantive serving of meetings and conference of inter-governmental bodies including conducting internal and external workshops and seminars.
- Formulate policies to integrate and monitor the economic and social factors, developing training of trainers (TOT) programmes and any other assigned duties as and when required by NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be ;

- Post graduate degree in Environmental Law/Environmental Economics/International Development Economics/International Relations/Institutional Policy or any closely related discipline preferably Ph. D.

UNITED NATIONS VOLUNTEERS

5. Conservation Management Planner (2 positions)

Duration : 12 person months each

Station : Cox's Bazar and St. Martin/Moulavibazar

Conservation Management Planner (CMP) will be responsible for preparing the biodiversity conservation plan at village resource and community interaction based spatial unit level within the logical framework approaches (LFA) of each macro eco-specific project sites. CMP will work under the close supervision of international experts and in association with the project team . In preparing the biodiversity conservation plan, CMP will follow the strategic guidance spelled out in the project document. CMP will synthesize data/information at the grassroots level on biodiversity conservation, land, water and other biodiversity natural resource use and institutional arrangements in socio-economic/Gender/PRA context. The preparatory activity for conservation plan requires involvement of local stakeholders participation and consensus building on the plan to be developed. Develop innovative and effective methodologies for the active participation of people in the development planning. Conduct training needs assessment, develop training of trainers (TOT) programme, village level conservation planning matrix on biodiversity conservation strategy and perform any other assigned duties as and when required by NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Conservation Biology/Environmental Sciences/Environmental Ecology/ Environmental Economics or any related discipline.
- 5-7 years professional experiences of which at least 2 years in Biodiversity conservation related activities at the Grassroots level in the coastal and freshwater/wetland area.
- Proven experience in field level work, data collection and processing and training beneficiaries to develop the livelihood IGA and ecological management.
- Socio-economic, Gender/PRA/RRA development the modeling of economic and institutional approaches in concentration with Ecological and Biodiversity in terms of quantity or quality.
- Experience in designing capacity building activities, IGA and Biodiversity resources management

NATIONAL PROJECT PERSONNEL AND PROFESSIONALS

SENIOR LEVEL NPPPs

1. National Project Coordinator (1 position)

Duration : 84 person months

Station : PMU-Dhaka (Field visits required)

The National Project Coordinator (NPC) will provide overall specialized technical, managerial and administrative support to the project under direct guidance and direction of the NPD and close supervision of BME. S/he will work closely with international consultants and guide national project team to implement the project activities so as to achieve the project objectives. NPC will acquire on the job training and skill to take over the responsibilities of BME on completion of his 36 person months input period. The NPC will be responsible for ;

- Designing, planning, monitoring, coordinating, training, supervising and providing strategic assistance to maximize the efficiency of the biodiversity project team to integrate and to implement the project.
- Undertake direct responsibility for administration and management of the PMU, ECAMUs; guide PMU professional, administrative, finance personnel and logistics arrangements to establish internal control systems and better work environment to optimize the productivity of project team.
- Provide comprehensive support to NPD in the preparation of authoritative scientific and technical papers and liaison/interact with government ministries/departments, international organizations, NGOs, CBOs, local stakeholders, institutions and implementing partners of the project.
- Assist NPD in briefing experts, consultants and other relevant participants about systematic arrangements, procedures and reporting ensuring consistency with regard to policies of the project's objectives, inputs, activities and outputs; facilitate missions, monitoring and evaluation.
- Act as officer-in-charge of the PMU in absence of NPD and BME and perform any other assignments while relieving NPD or project authority.

The following are amongst the key criteria by which the National Project Coordinator will be selected:

- Post graduate degree (preferably Ph.D.) in Biological Sciences or natural resources management and working background of biodiversity and Coastal/Wetland resources management and envi-

- Excellent written and verbal communication skills in English and Bangla; drafting speeches and reports; computer literacy is desirable.
- Ability to work under pressure and to deadlines; coordinate and monitor effectively in organizing occasional project events.

2. Plant Biodiversity Management Expert (1 position)

Duration : 9 person months

Station : Cox' s Bazar and Moulavibazar

The Plant Biodiversity Management Expert will provide specialized support to project activities under direct guidance of NPD, BME and supervision of NPC and closely with other international experts and NPPPs and project personnel. S/He will be responsible for supervising the Mid Level experts and perform the following;

- Design and conduct detailed survey in order to assess the present status and introduceable issues of biodiversity and ecology distribution of terrestrial and aquatic fauna in the ECAs with particular focuses.
- Review and recommend practical application of knowledge learned from conventions, agreements, laws and regulations relating to floral biodiversity conservation and their enforcement. Also review existing status of habitats of fauna and threats they are facing in the coastal and wetland areas of Bangladesh.
- Assess the diversity of flora and develop practicable plan for conservation in the project sites; (rare and endangered species, globally significant species, unique ecological characteristics, commercial and non commercial species with their utilization status, interactive fisheries and common species exploited).
- Prepare eco-specific plant biodiversity management plan and design pilot demonstration of community/agro forestry with focus on plant biodiversity conservation.
- Synthesize inputs from the grassroots level to develop innovative and effective methodologies for ensuring the active participation of all local communities/CBOs/NGOs/civil societies to the extent possible to develop plant diversification, soil fertility management, IPM, ICM in assessing EIA etc.
- Investigate other sectoral activities which are making or likely to make adverse impacts on the coastal and wetland biodiversity resources of Bangladesh and provide input for local conservation plan.
- Provide training to the Mid and Grassroots Level project personnel and to the facilitator of the participatory workshops to be held in the demonstration areas and perform any other ECA management related jobs assigned by the NPD or project authority.

- Adaptable to multicultural and multidisciplinary team of experts and willing to undertake intensive field works in the coastal/wetland areas of Bangladesh.
- Excellent communication skills (written and spoken) in English and Bangla and computer literate.

03. Wildlife Biodiversity Management Expert (1 position)

Duration : 6 Person months

Station : Cox' s Bazar and Moulavibazar

The Wildlife Biodiversity Management Expert will provide specialized support to project activities under direct guidance of NPD, BME and supervision of NPC and closely with other international experts and NPPPs and project personnel. S/He will be responsible for supervising the Mid Level experts and performing the following ;

- Design and conduct detailed survey in order to assess the existing status, habitats of fauna and threats they are facing, ecology and distribution of terrestrial and aquatic fauna in the demonstration area with particular focuses on the wildlife.
- Review and recommend practical application of knowledge learned from conventions, agreements, laws and regulations relating to wildlife and biodiversity conservation and their enforcement.
- Assess the diversity of fauna and develop practicable plan for conservation in the project sites. Special attention should be given to the diversity management of fauna in the project sites; (rare and endangered species, globally significant species, unique ecological characteristics, vertebrates and invertebrates, commercial and non commercial species with their utilization status and common species exploited).
- Prepare eco-specific wildlife biodiversity management plan and design pilot demonstration of wild life habitat with focus on fauna biodiversity conservation.
- Synthesize inputs from the grassroots level to develop innovative and effective methodologies for ensuring the active participation of all local communities/CBOs/NGOs/civil societies to the extent possible.
- Investigate other sectoral activities which are making or likely to make adverse impacts on the coastal and marine biodiversity resources of Bangladesh.
- Provide training to the Mid and Grassroots Level project personnel and to the facilitator of the participatory workshops to be held in the demonstration areas and perform any other ECA management related jobs assigned by the NPD or authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Wild Life Science/Zoological Science (specialization in wildlife)

04. Freshwater Fisheries Biodiversity Expert (1 position)

Duration : 6 Person months

Station : Cox' s Bazar and Moulavibazar

The Freshwater Fisheries Biodiversity Expert will provide specialized support to project under direct guidance of NPD, BME and supervision of NPC and closely with other international experts and NPPPs and project personnel. S/He will be responsible for supervising the Mid Level experts and perform the following ;

- Analyze existing status habitats of freshwater fisheries biodiversity, including pisciculture, and threats they are facing in freshwater wetland areas of Bangladesh.
- Review and recommend practical application of knowledge learned from conventions, agreements, laws and regulations relating to fisheries and biodiversity conservation and their enforcement.
- Conduct scientific literature surveys, gray literature searches, organizational interviews, and field surveys to assess the diversity of fish in the priority sites; (rare and endangered species, globally significant species, unique ecological characteristics, commercial and non commercial species with their utilization status, interactive water life and common species exploited).
- Prepare eco-specific fresh water fisheries biodiversity management plan and design pilot demonstration of fish habitat with focus on biodiversity conservation.
- Synthesize inputs from the grassroots level to develop innovative and effective methodologies for ensuring the active participation of all local communities/CBOs/NGOs/civil societies to the extent possible in fish diversification, freshwater fisheries sanctuary management, integrated rice fish culture etc.
- Investigate other sectoral activities which are making or are likely to make adverse impacts on the coastal and marine biodiversity resources of Bangladesh.
- Provide training to the Mid and Grassroots Level project personnel and to the facilitator of the participatory workshops to be held in the demonstration areas and perform any other ECA management related jobs assigned by the NPD or authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Fisheries/Freshwater Fisheries/Biology (major in Fisheries) or any closely related discipline from any recognized university or institution, preferably Ph. D.
- 15 years professional experience of which 5 years in relevant research and project experience in open water fisheries research and project fisheries/ fisheries biology.
- Proven track record in biodiversity conservation, management, and sustainable development of wetland biodiversity management in Bangladesh.

05. Marine Fisheries Biodiversity Expert

Duration : 6 Person months

Station : Cox' s Bazar and St. Martin

The Marine Fisheries Biodiversity Expert will provide specialized support to project under direct guidance of the NPD, BME and direct supervision of the NPC and closely with other international experts and NPPPs and project personnel. S/He will be responsible for supervising the Mid Level experts and perform the following;

- Design, develop, implement, monitor and supervise fisheries biodiversity conservation and resource management using locally available resources, as an experimental option for promotion and sustainability of re-generation of the coastal fisheries resources.
- Review existing status habitats of fisheries biodiversity, including pisciculture and threats they are facing, in the coastal and wetland area of Bangladesh.
- Review and recommend practical application of knowledge learned from conventions, agreements, laws and regulations relating to fisheries and biodiversity conservation and their enforcement.
- Conduct scientific literature surveys, gray literature searches, organizational interviews, and field surveys to assess the diversity of fish in the priority sites; (rare and endangered species, globally significant species, unique ecological characteristics, commercial and non commercial species with their utilization status, interactive water life and common species exploited).
- Synthesize inputs from the grassroots level to develop innovative and effective methodologies for ensuring the active participation of all local communities/CBOs/NGOs/civil societies to the extent possible.
- Prepare eco-specific marine fisheries/resorces biodiversity management plan and design pilot demonstration of marine habitat with focus on biodiversity conservation.
- Investigate other sectoral activities which are making or are likely to make adverse impacts on the coastal and marine biodiversity resources of Bangladesh.
- Provide training to the Mid and Grassroots Level project personnel and to the facilitator of the participatory workshops to be held in the demonstration areas and any other ECA management related jobs assigned by the NPD or authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Marine Fisheries/Marine Biology or related discipline from any recognized

06. Legal Expert (1 position)

Duration : 3 person months

Station : PMU-Dhaka (Field visits required)

The Legal Expert will provide specialized support for implementation of project activities at both project sites and at the national level. S/he will work under direct guidance of NPD, BME and direct supervision of International Institutional Policy and Legislation Expert closely with the National Project Coordinator, Policy and Institutional Expert, Socio-economic/Gender/PRA Expert, and Resource Economist and with various other national experts. His/her main tasks will be in the following areas;

- Review and recommend practical application of knowledge learned from conventions, agreements, laws and regulations relating to biodiversity conservation and their enforcement and also formulate the same.
- Prepare awareness/campaign materials on environmental issues, related laws and regulations, formulate strategies as how to provide ecological management justice.
- Develop project site wise biodiversity conservation and management related laws, representational liaison, interagency coordination and response on existing or emerging major issues for national, regional and global levels for biodiversity conservation.
- Examine, identify the means of improving legal and political issues with a view to upgrade and strengthen the ECAs management and biodiversity conservation.
- Analyze issues and constraints regarding policies, strategic planning and implementation roles for involvement of local communities and institutionalization of the biodiversity management system and any other ECA management related jobs assigned by the NPD or authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate/graduate in Law/Environmental Law/Public Policy or closely related discipline from any recognized university or institution.
- 15 years professional experience of which 5 years in environmental law relating to biodiversity conservation and management.
- Proven track record in constituting rules or laws for community based resources management planning, training of development professional.
- Demonstration ability to deliver training sessions and interact with local government and

07. Policy & Institutional Expert(1 position)

Duration : 3 person months

Station : Cox' s Bazar and Moulavibazar

The Policy & Institutional Expert will provide specialized support for implementation of project activities at both project sites and at the national level. S/he will work closely with the National Project Coordinator, Legal Expert, Policy and Institutional Expert, Socio-economic/Gender/PRA Expert, and Resource Economist and with various other international and national experts. His/her main tasks will be in the following areas:

- Review the present GOB policy and institutional arrangements relating to biodiversity from central to grassroots level in terms of mandates, roles, strengths and weaknesses recommend any needed changes to DOE's ECA and field management structures to ensure efficient management;
- Prepare guidelines for developing local institution aimed at conserving biodiversity and ECA management comprising of the local resource users for sustainable management of project activities with active participation of the local people.
- Develop institutional framework which is socially acceptable for Eco-friendly biodiversity management by the village conservation committee and groups in particular and community in general.
- Assess to ECAs roles in institutional aspect and cohesiveness and divergences of institutional aspect of different institutional policy and reforms to formulate the same.
- Develop technical assistance missions, representational missions and data analysis carrying out substantive serving of meetings and conference of inter-governmental bodies including conducting internal and external training and meetings, workshops and seminars.
- Develop training of trainers (TOT) programme in environmental issues and in the formulation of national policies and any other ECA management related jobs assigned by the NPD or authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Law/Environmental Law/Environmental Economics/Public Administration or any closely related discipline preferably Ph. D.

8. Socio-economic/Gender/PRA Expert (1 position)

Duration : 9 person months

Station : Cox' s Bazar and Moulavibazar

The Socio-economic/Gender/PRA Expert will be under the general guidance and direction of the NPD and under direct supervision NPC , the Socio-economic/Gender/PRA Expert will assist the International Experts, in designing, planning, training, monitoring and supervision of the project components relating to socio-economic monitoring and evaluation for ecosystems for biodiversity conservation and management, identification of comparative socio-economic income options for the target beneficiaries. The Socio-economic/Gender/PRA Expert will be responsible for the followings ;

- Assess socio-economic aspects, gender analysis and evaluation of the activities of NGOs and private sector organizations as implementing partners and will provide feedback to the management to strengthen the project implementation.
- Develop a list of indicators which will be used to monitor socio economic parameters extent to gender mainstreaming ensuring that focus is maintained on PRA/RRA activities while the project activities are being carried out.
- Develop methodologies for the analysis of trends of international, regional and sub-regional economics and development impact on biodiversity.
- Organize interdisciplinary study team to review literature/documents and developing detailed study protocol on the socio-economic aspects of the project and collect relevant data ; to develop the entire training of trainers (TOT) programme.
- Identify constraints for socio-economic development in biodiversity management of the project areas and suggest activities/interventions to over come them.
- Assess to what extent rural livelihoods/profession are based on coastal/wetland resources exploitations and survey the socio-economic conditions/situation in and around the project sites.
- Carry out detailed socio-economic survey (by administering a written survey and/or PRA/RRA) using the most appropriate methods for the sites; social and community organizations both government and NGOs supported, who are engaged in socio-economic development.
- Analyze and evaluate the activities of implementation partners to provide feedback and to promote the community development as well as conservation programme and any other ECA management related jobs assigned by the NPD or authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Economics/Environmental Economics/Development Economics/Public

- Demonstration ability to deliver training sessions and interact with local government and diverse range of counterparts and other stakeholders.
- Adaptable to multicultural and multidisciplinary team of experts and willing to undertake intensive field works in the coastal/wetland areas of Bangladesh.
- Good analytical skills; resourceful with initiative, maturity of judgement and computer literate.

09. Resource Economist (1 position)

Duration : 3 Person months

Station : Cox' s Bazar and Moulavibazar

Resource Economist will provide specialized support under the general guidance and direction of the NPD and under direct supervision NPC, the Resource Economist will assist the International Experts. S/he will work closely with the National Project Coordinator, Legal Expert, Policy and Institutional Expert, Socio-economic/Gender/PRA Expert, and with various other national experts for implementation of project activities at both project sites and at the national level in The Resource Economist will be responsible for the following;

- Design the project activities relating to socio-economic monitoring and evaluation for natural resources management, biodiversity conservation and management of ecosystems of comparative socio-economic income options for the target beneficiaries.
- Socio-economic issues and considerations are crucial to the development resources of the coastal area support large number of communities having different livelihood systems and contribute substantially to the national GDP through different economic activities linked with the national economy.
- Identify vulnerable communities and groups exposed to environmental degradation due to development interventions and natural hazards;
- Assess to what extent rural livelihoods are based upon coastal resources and survey the socio-economic conditions/situation in and around the project sites.
- Analyze issues and constraints regarding policies, strategic planning and implementation roles for involvement of local communities and institutionalization of the biodiversity management system in the project sites.
- Develop guidelines for monitoring of socio-economic parameters, investigating social and culture value system in biodiversity resources management and any other ECA management related jobs assigned by the NPD or project authority.

Minimum Qualifications and Experience

- Adaptable to multicultural and multidisciplinary team of experts and willing to undertake intensive field works in the coastal/wetland areas of Bangladesh.
- Good analytical skills; resourceful with initiative, maturity of judgement and computer literate.

MID LEVEL NPPPs

***General Task**:*

Positions at Mid Level will act as the bridge between the Biodiversity Management Specialist and the project team at grassroots level in the implementation of the project activities. Under the supervision of concerned both International and Senior National Expert of the project team. Mid Level NPPPs will design and develop training needs assessment, training or trainers (TOT) programme, training/workshop module, analyze MIS data, field surveys, identify strengths and weaknesses and recommend further development of strategy and will assist in the preparation of site specific plan for ECAs management. They will guide and train up relevant field staff at the grassroots and they will also be responsible for supervising the activities of implementing partners. They will carry out the message of the project vision and mission at the grassroots through field team and will translate the project objectives into reality.

10. Monitoring and Evaluation Specialist (1 position)

Duration : 84 person months

Station : PMU-Dhaka (Field visits required)

The Monitoring and Evaluation Specialist will play a key role in implementation of the project in accordance with the project documents under direction of NPD and supervision of BME/NPC and closely with other international and national project personnel. The Monitoring and Evaluation Specialist will ;

- Establish specific aspects of monitoring and evaluation system incorporating performance indicators based on the project document and agreed with the PMU and project authority.
- Coordinate, facilitate, and review the strategic, scientific and technical inputs which is relevant for project monitoring and evaluation activities and supervise the implementation partners of the project.
- Maintain the project's computer network system and will work as a Network Administrator; and take over the activities of Biodiversity Database Management Specialist on completion of his input period.

- Conduct review of the periodical report that evaluates the project' s performance over the year's and bring up the major lessons learned from the project and assist the GOB/UNDP/GEF to carry out periodical evaluation.
- Disseminate the findings of the project to GOB, research/academic institutions, NGOs/CBOs, and the private sector; and document the implementation process, results, impacts, lessons learnt and case studies for publication.
- Assist in drafting contracts, agendas, background information, project documentation, liaison, forwarding and speeches, reports as required by the NPD, BME or NPC and perform any other ECA management related jobs assigned by NPD.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Business Administration (MIS)/ Environmental Economics/ Development Economics/ Management / Social Sciences or any related discipline (preferably Ph.D).
- 10 years professional experience of which 5 years as a MIS/GIS Specialist in a network environment in the design, installation and operation of MIS and GIS, with particular emphasis in defining users' requirements.
- Experience in managing and trouble-shooting Windows NT network.
- Experience in designing capacity building activities, IGA and natural resources management.
- Demonstration ability to deliver training sessions, interact with users to work effectively and with government officials and diverse range of counterparts and stakeholders.
- Adaptable to multicultural and multidisciplinary team of experts and willing to undertake intensive field works in the coastal/wetland areas of Bangladesh.
- Resourceful with initiative, excellent written and verbal communication skills in English and Bangla; drafting speeches and reports.
- Ability to work under pressure and to deadlines; coordinate and monitor effectively while organizing occasional project events.

11. Biodiversity Database Management Specialist (1 position)

Duration : 24 person months

Station : PMU-Dhaka (Field visits required)

The Biodiversity Database Management Specialist will provide specialized support to project under direct guidance of NPD, BME and supervision of NPC and closely with other international experts, NPPPs and project personnel. S/he will be responsible for establishing database biodiversity management system including GIS, information technology and in the following areas;

- Assess the hardware and software requirements and specification of the project.
- Install, develop and maintain the project' s electronic data base information system, networking, GIS for project monitoring and evaluation purposes, explore and retrieve data from community surveys, ward, local and central level.
- Develop continuous refining and up-dating data base of information relevant for all aspects of biodiversity management, and establishing collaborative relationships with other agencies (GOB, NGO and UNDP) to ensure the maximum sharing of information and references.
- Provide assistance in the development of community maps for community analytical purposes and the preparation of other mapping requirements of the project for monitoring and reporting purposes.
- Liaison with GOB and UNDP information systems and assistance in further development of required geographic information and database application software development.
- Training needs assessment and train up the project team in order to facilitate computerized analysis of survey results and data processing for the biodiversity management related activities undertaken by the project or third parties.
- Setting up remote access telecommunication systems, Website hosting, provide technical input and supervise implementation partners of the project and perform any other duties assigned by the NPD.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Graduate degree in Computer Science and Engineering/Electrical and Electronics Engineering or Post Graduate in Statistics/Applied Physics with computer degrees or any related discipline.
- 7-10 years professional experience of which at least 5 years in installation and operation of MIS and GIS in Windows NT network environment.
- Proven experience in designing and maintaining project's database application, trouble-shooting

12. Plant Biodiversity Management Specialist (2 position)

Duration : 24 person months each

Station : Cox's Bazar and St. Martin or Moulavibazar

In addition of general tasks Plant Biodiversity Management Specialist will assess the status of plant biodiversity and to incorporate the related issues of biodiversity and will be responsible for the following areas;

- Investigate current status of the general plantation of project areas and conduct scientific literature surveys, grey literature searches, organizational interviews, and field surveys to assess the diversity of flora in the project sites; rare and endangered species, globally significant species, unique ecological characteristics;
- Develop an inventory including all major plants including medicinal plants, marine algae and microbial life of the above mentioned demonstration area;
- Formulate strategies to expand and encourage the sustainable use of products and services from the biodiversity resources for local benefits and ECA management purposes.
- Assess the level of threat to the biodiversity resources of the area based on studies on biological richness, threat and use patterns at genetic, species and ecosystem levels.
- Explore the potentialities of eco-tourism and how effectively it can be introduced with controls in the demonstration areas and assess the carrying capacity.
- Provide inputs for the preparation of background papers/technical feasibility studies to develop training programme for grassroots level officers, local communities, facilitators and biodiversity teams.
- Suggest activities to provide incentives for effective conservation of biodiversity by local communities and to measure the rehabilitation of degraded areas using indigenous species and any other ECA management related jobs assigned by the NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Botany/Forestry or any closely related discipline, preferably Ph. D.
- 10 years professional experience of which 5 years in relevant research and project experience in plant biodiversity conservation/environmental issues for sustainable development, coastal zone & wetland biodiversity management.
- Self-motivated, initiative, capable of independent charge of particular responsibilities including planning, monitoring, evaluation and reporting.

13. Wildlife Biodiversity Management Specialist (2 position)

Duration : 24 person months each

Station : Cox's Bazar or Moulavibazar

In addition of general tasks Wildlife Biodiversity Management Specialist will assess the status of wildlife biodiversity and to incorporate the related issues of biodiversity and will be responsible for the following ;

- Assess qualitative and quantitative resources, environmental impact of development interventions on and habitats of wildlife, identification of critical wildlife habitats of coastal and wetland areas.
- Suggest, on the basis of collected data and the synthesized information obtained through people's participation, strategies for the development of in-situ conservation programs, taking into consideration other sectoral needs and activities, in the demonstration areas.
- Conduct rapid surveys in the project area to characterize the wildlife resources to perform any type ECA management activities.
- Formulate strategies to expand and encourage the sustainable use of products and services from the biodiversity resources for local benefits and ECA management purposes.
- Assess the level of threat to the biodiversity resources of the area based studies on biological richness, threats and use patterns at genetic, species and ecosystem levels.
- Identify the factors affecting wildlife species and habitats in wildlife community, list the endangered and threatened species and the relevant causes and suggesting solutions to conserve.
- Explore the potentialities of eco-tourism and how effectively it can be introduced with controls in the demonstration areas and assess the carrying capacity.
- Develop wildlife resources profile in the project area based on primary and secondary data and suggest coastal/wetland zoning for wildlife resources and any other duties assigned by authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Wildlife Ecology/Zoological Sciences (specialization in wildlife) or related discipline from any recognized university or institution, Ph. D. is preferable.
- 10 years professional experience of which 5 years in relevant research and project experience in wildlife biodiversity conservation/environmental issues for sustainable development, coastal zone & wetland biodiversity management.
- Self-motivated, initiative, capable of independent charge of particular responsibilities including planning, monitoring, evaluation and reporting.
- Demonstration ability to deliver training sessions and interact with local government and diverse range of counterparts and other stakeholders

14. Marine Fisheries Biodiversity Specialist (1 position)

Duration : 24 person months

Station : Cox's Bazar and St. Martin

In addition of general tasks Marine Fisheries Biodiversity Specialist will assess the status of coastal and marine fisheries biodiversity and to incorporate the related issues of biodiversity and will be responsible for the following;

- Assess qualitative and quantitative resources, environmental impact of development interventions on and habitats of fisheries, identification of critical fish habitats in and around project sites.
- Suggest on the basis of collected data and the synthesized information obtained through people's participation, strategies for the development of in-situ conservation programs, taking into consideration other sectoral needs and activities, in the demonstration areas.
- Formulate strategies to expand and encourage the sustainable use of biological biodiversity resources for local benefits and ECA management purposes
- Conduct rapid surveys in the project area to characterize the fisheries resources in the project area to perform any other ECA management activities.
- Identify the factors affecting fish species and habitats in community and list the endangered and threatened species and the relevant causes and suggesting solutions to conserve.
- Assess the trends in fisheries community and list the endangered and threatened species and the relevant causes to develop marine fisheries profile.
- Explore the potentialities of eco-tourism and how effectively it can be introduced with controls in the demonstration areas and assess the carrying capacity.
- Suggest marine water use zoning for fish resources and any other jobs assigned by the NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Marine Biology/Fisheries/Marine Fisheries or related discipline from any recognized university or institution, Ph. D. is preferable.
- 10 years professional experience of which 5 years in relevant research and project experience in Fisheries biodiversity conservation/environmental issues for sustainable development, coastal marine & wetland biodiversity management.
- Self-motivated, initiative, capable of independent charge of particular responsibilities including planning, monitoring, evaluation and reporting

15. Marine Biologist (1 position)

Duration : 12 Person months

Station : Cox's Bazar and St. Martin

In addition of general tasks Marine Biologist will assess the status of marine biological resources biodiversity and to incorporate the related issues of biodiversity and will be responsible for the following ;

- Assess qualitative and quantitative resources, environmental impact of development interventions on and habitats of marine life, identification of critical marine habitats,
- Suggest on the basis of collected data and the synthesized information obtained through people's participation, strategies for the development of in-situ conservation programs, taking into consideration other sectoral needs and activities, in the demonstration areas.
- Formulate strategies to expand and encourage the sustainable use of products and services from the biodiversity resources for local benefits and ECA management purposes
- Identify the factors affecting marine biological species and habitats in community and list the endangered and threatened species and the relevant causes and suggesting solutions to conserve.
- Conduct rapid surveys in the project area to characterize the marine resources in the project area and for the any ECA management activities.
- Assess the trends in marine community and list the endangered and threatened species and the relevant causes to develop marine resources profile.
- Explore the potentialities of eco-tourism and how effectively it can be introduced with controls in the demonstration areas and assess the carrying capacity.
- Propose coastal area land use zoning for marine biological resources in the context shrimp farming and salinity intrusion and any other jobs assigned by the NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Marine Fisheries/Marine Biology/Fisheries/Marine Ecology or related discipline from any recognized institution.
- 10 years professional experience of which 5 years in relevant research and project experience in marine biodiversity conservation/environmental issues for sustainable development, coastal marine & wetland biodiversity management.
- Self-motivated, initiative, capable of independent charge of particular responsibilities including planning, monitoring, evaluation and reporting.
- Demonstration ability to deliver training sessions and interact with local government and diverse

16. Freshwater Fisheries Biodiversity Specialist (1 position)

Duration : 24 person months

Station : Moulavibazar

In addition of general tasks Freshwater Fisheries Biodiversity Specialist will assess the status of freshwater fisheries resources biodiversity and to incorporate the related issues of biodiversity and will be responsible for the following ;

- Assess qualitative and quantitative resources, environmental impact of development interventions on and habitats of fisheries, identification of critical fish habitats.
- Suggest on the basis of collected data and the synthesized information obtained through people's participation, strategies for the development of in-situ conservation programs, taking into consideration other sectoral needs and activities, in the demonstration areas.
- Formulate strategies to expand and encourage the sustainable use of products and services from the biodiversity resources for local benefits and ECA management purposes.
- Conduct rapid surveys in the project area to characterize the fisheries resources in the project area and for any ECA management activities.
- Identify the factors affecting fish species and habitats in community and list the endangered and threatened species and the relevant causes and suggesting solutions to conserve.
- Explore the potentialities of eco-tourism and how effectively it can be introduced with controls in the demonstration areas and assess the carrying capacity.
- Develop fisheries resources profile in the project area based on primary and secondary data.
- Propose wetland area land use zoning for fisheries resources in the context shrimp farming and salinity intrusion and any other jobs assigned by the NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate in Freshwater Fisheries/Fisheries/Freshwater Ecology or related discipline preferably Ph. D.
- 10 years professional experience of which 5 years in relevant research and project experience in freshwater fisheries biodiversity conservation/environmental issues for sustainable development, coastal & wetland biodiversity management.
- Self-motivated, initiative, capable of independent charge of particular responsibilities including planning, monitoring, evaluation and reporting.
- Demonstration ability to deliver training sessions and interact with local government and diverse range of counterparts and other stakeholders.

GRASSROOTS LEVEL OFFICERS

General Tasks:

Positions at Grassroots Level will work closely with regional and local community/government, educational institutes at the community level to implement strategies and to strengthen of the project under direct guidance of the Mid Level Experts to ensure participatory approach and team spirits. Common tasks are involved introducing eco-friendly agriculture practices, organic agriculture, IPM/ICM, obtaining primary data from grassroots levels, organize training/workshops for the rural people, responsible for awareness campaign, conducting environmental impact assessment that actively seeks solutions to problem and disseminates the information, coordinate effectively with diverse range of counterparts/stakeholders, supervising the activities of implementing partners of project and perform any other duties assigned by authority.

17. Agriculture Extension Officer (3 position)

Duration : 78 person months each

Station : Cox's Bazar/St. Martin/Moulavibazar.

Agriculture Extension Officer will be responsible for motivating, mobilizing, and involving community members in developing agricultural resources, concentrating the biodiversity through crops diversification, fuelwood and fodder production, sustainable farming system, eco-friendly fertilization and integrated pest management(IPM), Integrated Crop Management (ICM) soil fertility management, assessing EIA, liaison with PMU, reporting, making recommendations further development of project strategy and perform any other ECA management duties assigned by NPD or project team.

Minimum Qualifications and Experience :

The Successful candidate should have/be ;

- Graduate degree in Agriculture/Agriculture Extension or post graduate in Botany (major in Agronomy) or related discipline with extension skills from any recognized university or institution.
- 2-3 years relevant work experience in ecological agriculture development at local community is desirable.
- Possess insight into agricultural problems of fruits and nursery, vegetable crops, crop diversification and IPM/ICM etc.

18. Horticulture Extension Officer (3 position)

Duration : 78 person months each

Station : Cox's Bazar/St. Martin/Moulavibazar.

Horticulture Extension Officer will be responsible for motivating, mobilizing, and involving community members in developing local capabilities of horticultural resources, concentrating the biodiversity through vegetable and fruit crops diversification, flood resistance plantation, homestead forestry, nursery, silviculture, eco-friendly fertilization and pest management, fuelwood and fodder production soil fertility management, assessing EIA, liaison with PMU, reporting, recommend further development of project strategy and perform any other ECA management duties assigned by NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be:

- Graduate in Horticulture/Agriculture (major in horticulture)/Forestry or post graduate in Botany or related discipline from any recognized university or institution.
- 2-3 years relevant work experience in filed extension with local community is desirable.
- Possess insight into horticultural problems of fruits and nursery, vegetable crops, crop diversification etc.
- Self-motivated, initiative, and able to draft clear and concise written material and reporting.
- Adaptable to multicultural and multidisciplinary team of experts and willingness to drive motorbike and to undertake intensive field works in the coastal/wetland areas under pressure and stressful situation.
- Demonstration ability to deliver training, organizing workshops and interact with local government and diverse range of counterparts and other stakeholders.
- Excellent communication skills (written and spoken) in English and Bangla and computer literate.

19. Fisheries Biodiversity Officer (3 position)

Duration : 78 person months each

Station : Cox's Bazar/St. Martin/Moulavibazar

- Post graduate degree in Marine Biology/Fisheries/Biology (major in Fisheries) or any related discipline.
- 2-3 years relevant work experience in fisheries biodiversity monitoring and in partnership with local community is desirable.
- Self-motivated, initiative, and able to draft clear and concise written material and reporting.
- Adaptable to multicultural and multidisciplinary team of experts and willingness to drive motorbike and to undertake intensive field works in the coastal/wetland areas under pressure and stressful situation.
- Demonstration ability to deliver training, organizing workshops and interact with local government and diverse range of counterparts and other stakeholders.
- Excellent communication skills (written and spoken) in English and Bangla and computer literate.

20. Wildlife Conservation Officer (3 position)

Duration : 78 Person months each

Station : Cox's Bazar/St. Martin/Moulavibazar.

Wildlife Conservation Officer will be responsible for motivating, mobilizing, and involving community members in developing wildlife resources, wildlife sanctuary management, concentrating the biodiversity through wildlife conservation, eco-friendly wildlife habitats management, wildlife diseases identification and solution, wildlife biodiversity management, assessing EIA, liaison with PMU, reporting, recommend further development of project strategy and perform any other ECA management duties assigned by NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate in Wildlife Ecology/Zoology (specialization in wildlife) or related discipline from any recognized university.
- 2-3 years relevant work experience in conservation and captive breeding as well as wildlife ecology in partnership with local community is desirable.
- Self-motivated, initiative, and able to draft clear and concise written material and reporting.
- Adaptable to multicultural and multidisciplinary team of experts and willingness to drive motorbike and to undertake intensive field works in the coastal/wetland areas under pressure and stressful situation.
- Demonstration ability to deliver training, organizing workshops and interact with local government and diverse range of counterparts and other stakeholders.

and natural resource in an integrated approach, liaison with PMU, reporting, recommend further development of project strategy and perform any other ECA management duties assigned by NPD or project team.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Tourism or with honors in any Biological Sciences/Environmental Sciences/Natural Sciences or closely related discipline from any recognized university or institution.
- 2-3 years relevant work experience in eco-village development, eco-tourism or rural development works specifically in partnership with the community is desirable.
- Ability to conduct and facilitate training, organizing workshops and community mobilization, problem identification and social skills in understanding community based development.
- Self-motivated, initiative, and able to draft clear and concise written material and reporting.
- Adaptable to multicultural and multidisciplinary team of experts and willingness to drive motorbike and to undertake intensive field works in the coastal/wetland areas under pressure and stressful situation.
- Demonstration ability to deliver training, organizing workshops and interact with local government and diverse range of counterparts and other stakeholders.
- Excellent communication skills (written and spoken) in English and Bangla and computer literate.

22. Community Development Officer (3 position)

Duration : 78 person months each

Station : Cox's Bazar,/St. Martin/Moulavibazar.

Community Development Officer will be responsible for motivating, mobilizing, and involving community members in organizing interdisciplinary study team and developing detailed study protocol to produce the outputs of projects and institutionalize the village conservation groups(VCGs) and village conservation centres (VCCs) in implementing guidelines for biodiversity resources, sustainable and eco-friendly IGA/socioeconomic activities, problem identification and solution, coastal and wetland resources management, monitoring of socio-economic parameters, liaison with PMU, reporting, recommend further development of project strategy and perform any other ECA management duties assigned by NPD or project team.

Minimum Qualifications and Experience :

- Demonstration ability to deliver training, organizing workshops and interact with local government and diverse range of counterparts and other stakeholders.
- Excellent communication skills (written and spoken) in English and Bangla and computer literate.

ADMINISTRATIVE SUPPORT PERSONNEL

1. Accountant (1 position)

Duration : 84 person months

Station : PMU-Dhaka (Field visits required)

The incumbent will be responsible for the maintenance overall aspects of the project accounts, books of accounts, budgeting, budget-tracking, financial operations and reporting, auditing, payroll, assist in setting up internal control systems through operating manuals, guidelines, formats as per UNDP/ERD NEX manuals; providing assistance in developing financial data based MIS and perform any other duties assigned by NPD.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate degree in Accounting with Honors or any closely related discipline from any reputed university.
- 5 years relevant practical experience with any foreign aided project or international development organization or reputed multinational organization.
- Experience in UNDP and GOB accounting, auditing, financial management and reporting systems within project will get priority.
- Proficient in MS Office (Word, Excel, Access, PowerPoint etc.) and computerized accounting to produce several financial/technical reports and to maintain financial correspondence independently.
- Knowledge in general administration, personnel matters, procurement, taxes, VAT and budgeting is essential.
- Excellent analytical and communication skills (written and spoken) in English and Bangla.
- Adaptable to multicultural and multidisciplinary team of experts and ability to produce high quality work under pressure and in stressful situations.

2. Administrative Assistant (3 position)

Duration : 84 person months each

- 3-5 years relevant practical experiences with any foreign aided project or international organization or reputed organizations.
- Experience in UN projects and government systems will be preferred.
- Proficient in MS Office (Word, Excel, Access, PowerPoint etc,) Internet, Email is required and word processing in Bangla is desirable.
- Excellent analytical and communication skills (written and spoken) in English and Bangla.
- Knowledge in administration, personnel matters, procurement, inventory management, cash management, taxes, budgeting is essential.
- Adaptable to multicultural and multidisciplinary team of experts and ability to produce high quality work under pressure and in stressful situations.

3. Secretary (2 position)

Duration : 84 person months each

Station : PMU-Dhaka (Field visits required)

The incumbent will be responsible to provide overall secretarial services like word processing, drafting routine letters/messages/reports to route in timely manner, arranging travel, itinerary preparation for visiting consultants, assisting to arrange workshops/meetings/training, mailing, reception, telephone, photocopying, binding, filling etc.; maintenance of all office equipment including carrying out minor repairs and keeping inventory records of supplies and their usage and any other duties assigned by NPD or project authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Post graduate or graduate in any discipline from any recognized university.
- 5 years relevant working experience with any foreign aided projects or international development or reputed organization.
- Advanced level of computer proficiency in MS Office (Word, Excel, Access, PowerPoint, troubleshooting etc.) and other common software, with minimum accurate typing speed **60 wpm in English and 40 wpm in Bangla is must.**
- Diploma in computer/secretarial science is desirable but not essential.
- Knowledge in procurement, store recording, petty cash handling, logistics supports, developing filling systems and reference materials.
- Fluent in written and spoken English, well organized and systemized to perform the assigned duties.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- Class VIII passed (SSC or equivalent will be preferred) with valid driving license and knowledge of local traffic rules.
- 5 years driving experience with any foreign aided projects or government office or foreign organization.
- Training in automobile mechanisms and/or skill in vehicle maintenance and repair is required.
- Fair knowledge in spoken English is required.
- Ability to work under pressure and to assist the project team with any urgent services.

5. Messenger (3 position)

Duration : 84 person months each

Station : PMU-Dhaka/Cox's Bazar/Moulavibazar (Field visits required)

The incumbent will be responsible to provide all messengerial services to project including daily cleaning of offices furniture, receiving and distributing of mails and documents, systematic filling, storing of office supplies, ensuring office security, arranging entertainment services, assisting in other official job as assigned by NPD or project authority.

Minimum Qualifications and Experience :

The successful candidate should have/be;

- SSC or equivalent (may relaxable having extraordinary qualities and experiences).
- At least 3-5 years practical experience in messengerial functions in any project office or Government or reputed organization.
- Fair knowledge in spoken English is required.
- Well organized and systemized in manner.
- Ability to work under pressure and to assist the project team with any urgent services.

Insert Annex 2 Workplan (3 pages)

1. GENERAL ECOLOGY AND BIOGEOGRAPHY

Bangladesh, with an area of about 144,000 km^2, is located between 20^0 34′ N and 26^0 33′ N latitude and between 88^0 01′ E and $92^0$41′ E longitude. The area presents a subtropical monsoon climate. More than 90% of the country' s total area consists of alluvial plains, crisscrossed by a complex network of rivers and their distributories. These include three of the world' s great river systems, i.e., the Ganges, Brahmaputra and Meghna Rivers. Bangladesh channels nearly all the outflow of the Ganges-Brahmaputra basin to the Bay of Bengal. As much as 4.9 million ha (34% of the country) are inundated for some 5-7 months annually. Uplands are found in the southeast and northeast regions.

Wetlands in Bangladesh are represented by both inland freshwater and tidal salt-water wetlands. Flood plains, *beels* (low-lying depressions in the flood plain), *haors* and *baors* (oxbow lakes) represent the inland freshwater wetlands. The *haors* are bowl-shaped natural depressions between the natural levees of the river subject to monsoonal flooding every year. While the *haor* itself is a seasonal water body formed during the monsoon, the *beels* are low-lying depressions of the *haor* system retaining water even during the dry months of the season. Thus, the *haor* system is a complex of both lacustrine and palustrine wetlands depending on the hydraulic behavior in different seasons. The ecology of the *haor* system is principally driven by seasonal hydraulics. During the monsoon, the entire *haor* system becomes a single body of open water linked to the river system. When floodwater recedes, the *beels* become isolated and remain as standing water bodies till the next rainy season. They differ from a true lake system in that the main source of waters in tropical lakes is rainwater, while a *haor* system depends on both precipitation and floodwater as sources of water.

Tidal salt-water wetlands constitute about 25 per cent of the land area and are represented by mangroves, salt marsh, lagoons, deltaic islands, sand dunes and beaches, barrier islands, sea grass and coral habitats. These coastal wetlands support a very rich diversity of plants and animals, many of which are not found elsewhere. These natural habitats are linked together by a complex web of direct and indirect interactions; disruption of any one has an effect on the others. These habitats are dynamic and are susceptible to change due to coastal processes. They lack resilience and have a low threshold to irreversible damage. The physical and ecological characteristics of these habitats make them especially vulnerable to degradation. Once degradation exceeds the limit set by the low threshold, rehabilitation becomes prohibitively expensive or impossible.

The area belongs to the Indian center of origin of species (Vavilov, 1951). Rice (*Oryza* spp,) and many other crop plants of economic importance are thought to have originated here. As a direct consequence of the variation in agro-ecological conditions, the country' s rice crops exhibit spectacular variation and adaptability. In the hands of rice farmers and due to selection by human agencies, many different strains have evolved, the number of which may easily exceed a conservative estimate of 4,000 (Alim 1962). Some wild species of Oryza, e.g., *Oryza sativa var.fatua*, *O. coarctata* (*Porteresia coarctata*) and *O. minuta*, are also indigenous to the region. Of these, Falashi paddy O. *minuta* is restricted to Tipera, Noakhali and Sylhet, including the *Hakaluki Haor* site of the project area.

The country supports 660 species of birds within an area of 144,000 km^2 (less than England and Wales together). This compares with about 800 each in both Europe and the Middle East (the western Palaearctic), and the United States. It represents about 50% of the total number of bird species recorded from the entire Indian sub-continent, and over 7% of the known bird species in the world (Harvey 1992). The Assam plains in eastern Bangladesh have been identified as an Endemic Bird Area (EBA) by Bird Life International with the status of "urgent conservation priority."

Bangladesh' s rich aquatic biodiversity also includes 260 species of finfish belonging to 55 families (placing Bangladesh third in the world in terms of fish species per land area). It is widely accepted that Bangladesh' s aquatic diversity has not yet been adequately described, and scientists believe that future research will uncover previously unknown species. At any rate, the known levels of endemism in the Ganges/Brahmaputra basin are very high: 25% of the aquatic species found in this basin are found nowhere else in the world. **Because of its geographical position at the receiving end of the three major rivers, and given the dispersal behavior of aquatic biodiversity, the wetlands of Bangladesh become crucial for conserving the globally important biodiversity of the entire basin.**

The marine resources of the Bay of Bengal are part of the world' s largest malacological province. These resources include clams, oysters, scallops, snails, slugs, chiton, squids, octopuses and some others. The ichthyofauna of the Bay of Bengal includes about 475 recorded species of fish, 53 of which are cartilaginous and 422 species are bony fish. Chowdhury and Sanaullah (1991) described 19 species of shrimps and prawns found in the marine waters of Bangladesh. At least seven species of edible oyster can be found in the coastal waters of Bangladesh.

The beach extends from Cox' s Bazar to Badar Mokam at Teknaf region and is sometimes interrupted by the shallow estuaries of streams and rivers coming out of the hills behind it. A number of rivers and streams exit from the watershed areas of the hills in the background and drain into the sea. In several areas, water rolls through dissected rocky valleys to the sea forming waterfalls. Exposed boulders consisting of even bedded siltstones and shales embedded to shallow marine beds. All the rivers and streams falling into the Bay of Bengal are tidal up to a considerable length inland. Teknaf may represent the longest continuous uninterrupted beach in the world with tropical rain forest in the background. Along with this rich tropical forest diversity, the area acts as a corridor between the terrestrial and marine biodiversity.

2.1.2 Habitat diversity

The coastal zone and the near shore areas of Teknaf Peninsula beach, consist of diverse habitats in their natural condition, i.e., beaches, dunes, and estuaries.

2.1.3 Plant diversity

The coastal vegetation along the peninsular beach is represented by sand dune vegetation. (W.W. Hunters, 1897; Sinclair, 1956; Sinclair, 1956) The succession sequence of strand vegetation of the tropical coast is discernable in some areas. But, in most cases the seral communities are deflected due to intense human disturbance. The vegetation of the dunes consists of 35 species of Angiosperm, including 26 dicots and 9 monocots. *lpomoea pes-capre* (Chagal-kuri) *lpomoea sp. Leucas aspera* (Shetodron) *Clerodendrum viscosum* (Budding) *Argyreia nervosa* (Bijtarak) are the common creeping plants that act as sand binders in the primary dunes. The grasses in these dunes include *Cynodon dactylon* (Durba) *Cynodon sp.* (Narichha) *Paspalum scrobiculatum* (Goicha), *Paspalum vaginatum.* The mature inland dunes consist of trees and shrubs. The common plants found are *Phyllanthus reticulatus* (Panseuli), *Cassia tora* (*) Clerodendrum inerme*(Bhat), *Vitex trifolia* (Nil-nishinda) *Ziziphus mauritania (*Baroi), *Casuarina equisetifolia* (Jhao), *Streblus aspera* (Sheora) *Vitex pubescens* (Goda) and *Pandanus odoratissimus* (Kea).

2.1.4 Faunal diversity

The area is important for a wide variety of waterfowl and shorebirds (Rashid and Khan 1987). The

toptilos javanicus (Lesser Adjutant) and *Leptoptilos dubius* (Greater Adjutant Stork) has also been recorded from the area.

Common migrants and winter visitors include *Anas acuta* (Pintail), *Pluvialis dominica* (Eastern Golden Plover), *Charadrius dubius* (Little Ringed Plover), *Charadrius alexandrinus* (Kentish Plover), *Charadrius hiaticula* (Ringed Plover), *Charadrius mongolus* (Mongolian Plover), *Numenius phaeopus* (Whimbrel), *Numenius arquata* (Curlew), *Tringa totanus* (Common Red Shank), *Tringa nebularia* (Green shank), *Gallinago stenura* (Pintail Snipe), *Gallinago gallinago* (Fantail Snipe), *Calidris alba* (Sanderling), *Chlidonias hybrida* (Whiskered Tern), *Larus ridibundus* (Blackheaded Gull), *Philomachus pugnax* (Ruff and Reeve) and *Sterna hirundo* (Sterna Hirundo). Large numbers of Open-bill Storks *Anastomus oscitans* occur on migration, and flocks of up to several hundred birds have been recorded. Other migrants and winter visitors recorded in small numbers include *Threskiornis melanocephalus* (White Ibis), *Pseudibis papillosa, Anser indicus* (Barheaded Goose), *Anser. Anser* (Grey Leg Goose), *Haematopus ostralegus* (Oyster Catcher), *Tringa stagnatilis* (Marsh Sandpiper), *Calidris tenuirostris* (Eastern Knot) *Larus ichthyaetus* (Great Blackheaded Gull), *Larus brunnicephalus* (Brownheaded Gull*) Rynchops albicollis* (Indian Skimmer). Birds of Prey include *Haliaeetus leucogaster* (White-bellied Sea-Eagles),*Eurynorhynchus pygmeus* (Spoonbill Sandpiper) *Limnodromus semipalmatus* (Asian Dowitcher) and *Tringa guttifer* (Nordmann's Greenshank).

The coastal beach is an important nesting site for at least four species of marine turtles. These are *Caretta caretta* Loggerhead, *Chelonia mydas* Green Turtle, *Eretmochelys imbricata* Hawksbill Turtle, *Lepidochelys olivacea* Olive Ridley. Important terrestrial mammal species include *Canis Iupus* Grey wolf; *Cuon alpinus* Asiatic Wild Dog; *Vulpes bengalensis* Bengal Fox; *Catopuma temmincki* Asiatic Golden Cat; *Neofelis nebulosa* Clouded leopard; *Pardofelis marmorata* Marbled Cat ; *Melursus ursinus* Sloth Bear and *Selenarctos thibetanus* Asiatic Black Bear. All occur in the contiguous hills and prey on animals on the beach. *Prionailurus viverrinus* Fishing Cat; Ao*noyx cinerea o*riental Small clawed otter; *Lutra perspicillata* Smooth coated otter are found in the hill streams and their estuaries.

2.1.5 Global Biodiversity Significance

As noted above, the coastal beach area is an important nesting site for at least four species of marine turtles listed as globally threatened by IUCN. These are *Chelonia mydas* Green Turtle. *Eretmo-*

Nordmann's Greenshank; and *Leptoptilos javanicus* Lesser Adjutant. All are listed as globally threatened species.

2.2 Sonadia Island

2.2.1 Description of Site

The island is located to the south of Maheshkhali Island and north west of Cox' s Bazar town. It is about 7 km^2 in area. Geomorphologically, it is a barrier island. It has been formed as natural sandy breakwaters that face parallel to the flat coastlines of Maheskhali Island. Consisting of gently sloping low-lying coast unprotected from the sea by cliffs facing the ocean, it is the ideal site for such barrier island formation. In the east, a small channel a few meters wide separates Sonadia from Maheshkhali Island, while to the west shallow bays separate it by a few kilometers from the mainland. A sandy ridge extends along the island' s length from north west to south east. Winds and waves are the major forces determining the features of the dunes. Two dune ridges are recognized, one known as "Barchar" and the other, "Maghchar", covering a relatively smaller area.

2.2.2 Habitat Diversity

Sonadia Island provides diverse habitat that supports three different vegetation types—sand dunes, salt marshes and mangroves. Unspoiled sandy beaches and extensive shallow sand bars provide important feeding, roosting and nesting ground for a number of resident and migratory shorebirds.

2.2.3 Plant diversity

The vegetation of the sand dune consists of 35 species of angiosperm, in particular *Ipomea pescapre, Vitex trifolia, Ziziphus mauritania Clerodendrum inerme,* Bhat *Pandanus odoratissimus* and *Calotropis gigantia.* The salt marsh vegetation consists of *Porteresia coarctata* and *Myristichia wighthenia.* The mangrove vegetation consists of 27 species. Common among them are *Avicennia officinalis, Avicennia marina, Avicennia alba, Sonneratia apetala, Aegicerus corniculatum, Ceriops decandra* and *Aegialitis rotundifolia.*

The mangrove vegetation consists of plants with higher salt tolerance than any other mangrove species occurring in other parts of the country, including the Sundarbans. Unlike mangroves of the Sun-

The island is also very rich in mollusks and echinoderms. Three marine turtles—Olive Ridley turtle, Loggerhead, and green turtle—nest on the island' s unspoiled beach area.

2.2.5 Global Conservation Significance

Bangladesh is bestowed with one of the largest compact patches of mangrove forest in the world, known as the Sundarbans. This forest is situated in the southwest region of the country. However, compared with the Sundarbans, the dominant plants in Sonadia' s mangrove forest are different. While the Sundarbans and the Chakaria Sundarbans have developed in a deltaic formation, the mangroves of Sonadia Island have developed in a lagoonal coastal setting. Sonadia' s mangroves are thus more tolerant to salinity than their Sundarbans counterparts. Distinctiveness of the dominant plants of this forest has been attributed to the extreme ecological factors—high contents of salt in the soil and water, etc. (Ahmed et. al, 1981).

Mangroves once occupied the entire coast of Chittagong and Cox' s Bazar. Chakaria Sundarbans, one of the oldest mangroves, developed in the delta of the Matamuhuri river These forests, along with the forest in other parts of the coast, have been converted to agricultural land, shrimp culture, salt ponds and for human settlements. The process is still ongoing. Mangroves in Sonadia Island are the only natural mangrove left in the south-eastern portion of the country.

Rice cultivation in the coastal areas is becoming increasingly difficult due to rising levels of salinity. The causes include global sea level rise and reduced supply of fresh water. In order to utilize the coastal area for rice cultivation and attain food security, production of salt-tolerant varieties of rice has become necessary. *Porteresia coarctata* (Roxb) Tateoka, formerly classified as *Oryza coarctata*, a wild relative of rice, is native to the coastal saline areas of Bangladesh and eastern India. More recently, the species has gained considerable attention among the international scientific community due to its high level of tolerance for salinity. It could therefore be a source of genes for salt tolerance to transfer into cultivated rice (IRRI 1989). Scientists of the IRRI, UK, India and Bangladesh are engaged in research to develop salt-tolerant varieties of rice utilizing the genetic potential of the species. Due to high genetic variability in different ecological conditions, Saminathon Institute has expressed concern to preserve different land races of the species before they become extinct. The plant population of *Porteresia* at Sonadia represents the land race of the species which is more tolerant of high salinity than any other land races along the central and western coast of Bangladesh.

Finally, the mangroves and shallow shoals formed surrounding the island provide an excellent win-

1988, Khan 1985; Chowdhury et al 1992; Ahmed 1995). However, recent studies by Tomascik (1997) have concluded that the island itself is a sedimentary island, consisting of continental base rocks which coral communities have colonized due to favorable ecological conditions.

2.3.2 Plant Diversity

The island is a good example of co-occurrence of corals, sea grasses and mangroves. Sandy beaches also support sand dune vegetation. A recent survey under NCSIP-1 recorded a total of 151 species of benthic and drifted algae, 18 species of bryophytes and 157 species of angiosperms.

The mangrove formation here is quite different from any other mangroves in the country in that it is a pure *Lumnitzera racemosa* formation. Associated species are *Acanthus ilicifolius, Aegialitis rotundifolia, Hibiscus tiliceous, Excoecaria agallocha* and *Clerodendrum inerme*. *Pandanus odoratissimus* and *Ipomea pescaprae*, in association with grasses *Panicum repens, Passpalum vaginatum* and sedges *Cyperus* spp. and *Fimbristylis* spp., constitute the vegetation of the sand dunes. *Streblus asper* and *Vitex trifoliata* are also found among the crevices formed by the rocks. Common algal plants include *Hypnea Ceramium, Acanthophora, Polysiphonia* among Rhodophyceae*; Sargassum* spp. *Dictyota* spp.*Sphacelaria* spp. *Padina* among Phaeophyceae*; Enteromorpha, Chaetomorpha Cladophora, Caulerpa, Helimeda* and *Ulva*, which belong to Chlorophyceaea; *Ocilatoria* spp. *Lyngbya* spp. *Calothrix* and *Nostoc* are members of Cyanophyceae.

2.3.3 Faunal Diversity

The rocky subtidal habitat from the seaward margin to about 1000 m offshore support a diverse coral community which can be classified as a veneering coral community, represented by approximately 22 genera and 66 species. Of this, 39 species have been identified as living corals and 14 species soft coral grows up to a depth of 7 m. The living corals include *Porites, Favites, Goniopora, Cyphastrea* and *Goniastrea* speicies are the most abundant. The soft corals include *Sinularia sp, Lobophyton sp., Anthelia Dendronephthya, Palythoa, Nemanthus, Telemectius* and *Discosorna* sp. The taxonomy of a good portion of corals occurring around the island is not yet known.

The island is particularly important as a wintering area for a wide variety of migratory shorebirds, gulls and terns, and as a nesting area for marine turtles. A total of 120 species of birds has been recorded from the island, of which 67 species are resident and 53 are migatory. A total of 18 species of mammals have been recorded from the island. All five species of marine turtle known to occur in Bangladesh have been reported in the area, namely *Chelonia mydas, Caretta caretta, Lepidochelys olivacea, Eretmochelys imbricata* and *Dermochelys coriacea*. Three species are known to nest: *L. olivacea, C. mydas* and *E. imbricata* (Rashid, 1986). A conservation estimate shows that at least 80-120 turtles breed in the area during the nesting season (NCSIP-1, 1997). Other reptiles include *Varanus salvator* and the sea-snakes *Laticauda laticauda, L. colubrina* and *Enhydrina schistosa*. Altogether, the island supports a total of 27 reptile species and four amphibians.

2.3.4 Global biodiversity significance

Global biodiversity significance of St. Martin' s Island stems from a number of considerations as illustrated by Tomascik (1997), i.e., biogeographic importance, ecological importance, socioeconomic importance, scientific importance, international and national significance.

While there have been considerable changes on land, the marine environment remains relatively intact along much of the coastline, especially along the southern part of the island. The sub-tidal habitat that supports coral resources is in a relatively undisturbed state throughout a significant part of the sub-tidal area (Tomascik, 1997). Extensive algal and seagrass beds in the coastal waters may be important as spawning and/or nursery grounds for a number of economically important fish and shellfish species. The island supports a variety of habitats and a number of rare molluscs (e.g. cone shells) and two globally threatened birds (*Vanellus cinereus, Sterna acuticauda*). Two marine mammals from the areas surrounding the island (*Sausa chinensis,* and *Neomeris phoecaenoides*, are listed as globally threatened in the IUCN Red Data Book. The island is also an important nesting ground for two marine turtle species considered as globally endangered by IUCN, i.e., *Lepidochelys olivacea* and *Chelonia mydas*. It is the only continental island in Bangladesh with coral communities and associated flora and fauna, which are found on true coral reefs throughout the Indo-Pacific. There are only a few example worldwide where coral communities dominate rock reefs; St. Martin' s Island provides a unique set of environmental conditions (biotic and abiotic) not found anywhere else in Bangladesh and perhaps not in the world (Tomascick, 1997).

Finally, St. Martin' s Island contains unique geological features. The current controversy over the geology and the origin of unique geomorphologic features on the island (e.g. Chowdhury et al. 1992,

The *Hakaluki Haor* system occurs in one of the largest depressions in the northeastern region of Bangladesh. It represents a complex wetland system with more than 80 interconnecting *beels* in a shallow basin formed between the Patharia and Madhab Hills to the east and the Bhatera Hills to the west. The major sources of water are the Juri, Kantinala and Kuiachari rivers, which traverse the wetland and drain through a single outlet, the Kushiara River. During the rainy season, the entire area is flooded, and all the *beels* are united in a single large waterbody. The maximum water depth reaches 5-6 m during the rainy season.

3.2 Habitat Diversity

The major habitats identified are: open water aquatic vegetation, reeds and swamp forest. All these vegetation types correspond with specific landform features. The perennial *beels* are the home of aquatic vegetation, levees or *Kandas* are occupied by reeds and the elevated marginal lands of flood plains or levees support swamp forest.

3.3 Plant diversity

Wetland vegetation in Bangladesh is represented by a total of 158 species. **The *Hakaluki Haor* system supports at least 73 of these species, or nearly half of the national total**. These include 65 obligate hydrophytes. The open water aquatic vegetation consists of submerged , free floating, rooted floating and a number of emergent plants.

Reed swamp is adapted to lands intermediate in height between the *haor* basin and homestead lands (*kanda*), typically on ridges surrounding the *haor*s. These areas are fairly deeply flooded during the rainy season and dry out during the dry season.

The *Haor* system at one time supported dense communities of trees forming swamp forests consisting of *Barringtonia acutangula*, *Pongamia pinnata*, *Crataeva nurvala*, *Trewia nudifllora* and *Salix tetrasperma* A fully-developed stand exhibits a closed canopy with mature trees standing ten to twelve meters tall. Associated with these at the edges of the water bodies were thick spiny bushes of wild rose *Rosa clinophylla*, and scrub *Lippia javanica*, *Ficus heterophylla* and *Phyllanthus disticha*

winter visitors. The Grey-headed Fish-Eagle *Ichthyophaga ichthyaetus* and Pallas' s Fishing eagle *Haliaeetus leucorhyphus* also occur at the wetland.

Mammals and reptiles known to occur in the area include *Lutra lutra*, *L. perspicillata, Canis aureus, Vulpes bengalensis, Herpestes spp*, the cobra *Naja naja* and a variety of water snakes, freshwater turtle and tortoises.

Economically important fishes include Rui (*Labeo rohita*), Gonia (*L. gonius*), Kalibush (*L. calbasu*), Katla (*Catla catla*), Mrigal (*Cirhinus mrigala*). There are six species of large cat fishes—Boal (*Wallago attu*), Pangus (*Pangasius pangasius*), Air (*Aorichthys aor*), guizza air *Aorichthys seenghala*), Bagha air (*Bagarius bagarius*) and Rita (*Rita rita*). There are many small catfishes, e.g., magur (*Clarias batrachus*), singhi (*Heteropneutes fossilis*), Kani Pabda (*Ompok binoculatus*), madhu Pabda (*Oampok pabda*), Tengra (*Mystus tengra* and *M. vittatus*), koi (*Anabus testudineus*) and a number of other fishes, all of which contribute to the important fish diversity of the *haor*. The giant freshwater prawn (*Macrobrachium rosenbergii*) and small prawns are also distributed widely in the small rivers and canals.

3.5 Global Biodiversity Significance

As noted above, the biodiversity of *Hakaluki Haor* is part of the eastern Himalayan biogeographic region that covers the center of origin of rice and many other crop species. Given the location of the *Haor* system at the lower reach of the two great rivers that drains the region, the global significance of conserving the plant biodiversity is extremely important.

The list of plants recorded from *Hakaluki Haor* includes some threatened aquatic plants. The most important species that are locally and regionally threatened are *Rosa clinophylla* (guji kanta), *Oryza rufipogon* and *Euryale ferox* which is threatened by overharvesting for fuel-wood. *Rosa clinophylla* is an important wild relative of cultivated roses, while *Oryza rufifogon* is a wild relative of the deepwater rice variety and is widely sought by plant breeders for developing disease-resistant rice varieties and flood-tolerant roses.

The freshwater swamp forest (*Barringtonia acutangula, Pongamia pinnata, and Crataeva nurvala*) is the native vegetation of much of the region and indeed of much of Bangladesh. It has disappeared from the country except for the small patches remaining in the Northeast Region of which *Hakaluki* is a part. The swamp forests have now been seriously degraded with only a few patches

Table D.1: Life support plants and their uses (Khan 1998)

Scientific Name	Local Name	Use
Alternanthera philoxeroides	Molancho	Cooked and eaten as leafy green
Aponogeton spp.	Ghechu	Rootstocks eaten raw or cooked
Colocasia esculenta	Kachu, loti	Rootstocks,stolons,petioles and leaves cooked and eaten
Enhydra fluctuans	Helencha	Herb cooked as leafy green
Euryale ferox	Makhna	Seeds consumed raw or made into flour.
Hygrophila auriculata	Kulekhana	Used medicinally in jaundice, dropsy and rheumatism
Ipomoea aquatica	Kalmi	Extensively used as green vegetable
Nelumbo nucifera	Poddo	Seeds eaten raw, rhizomes edible, petals medicinal as cardiac tonic
Nymphaea nouchali and *N. stellata*	Shapla, Neel Kambal	Leaf and flower stalks eaten raw and cooked; rootstocks and seeds consumed as food.
Ottelia alismoides	Ramkarola, Sham kola	All parts cooked and eaten
Persicaria spp.	Biskatali, Pani morich	Consumed as pot herb; used as pesticide and healing agent.
Trapa bispinosa and T. maximowiczii	Paniphaal, Singara	Starchy kernels eaten raw or dried and powdered to make sweets.

The *Hakaluki Haor* ecosystem supports one reptile, 11 birds, and two mammal species listed as vulnerable and endangered categories in the IUCN red data book. It also supports six reptiles, four birds and two mammals listed under CITES schedule I and one amphibian, four reptiles, three birds and four mammals shown under CITES schedule II. **Table D.2** below lists the species under different threatened categories.

Hakaluki Haor supports one of the largest inland fisheries in Bangladesh. Most of the local inhabitants are in some way dependent on the wetland for their livelihood. It is one of the four so-called **' mother fishery areas'** , i.e., areas where brood, young and juvenile fish aggregate and take refuge

[1]

Table D.2 Globally Threatened Wildlife and Plants at Project Sites

					Distribution at project site			
Genus	**Species**	**Common English Name**	**CITES I & II**	**Status/ WCMC**	**Teknaf**	**Sonadia**	**St. Martin Island**	**Hakaluki haor**
Aythya	*baeri*	Baer's Pochard		V				•
Cairina	*scutulata*	White-winged Duck		V				•
Eurynorhynchus	*pygmeus*	Spoonbill Sandpiper		I	•	•		
Limnodromus	*semiplamatus*	Asian Dowitcher		R	•	•	•	
Tringa	*guttifer*	Nordmann's Green-shank	•	I	•	•	•	•
Ardea	*insignis*	White-bellied Heron		E				•
Leptoptilos	*javanicus*	Lesser Adjutant		V	•			•
Alcedo	*hercules*	Blyth's Kingfisher		I				•
Aegypius	*monachus*	Cinereous Vulture		V				•
Aquila	*heliaca*	Imperial Eagle	•	R				•
Haliaeetus	*leucoryphus*	Pallas's Sea-eagle	•	R				•
Falco	*naumanni*	Lesser Kestrel		R				•
Francolinus	*gularis*	Swamp Francolin		V				•
Perdicula	*manipurensis*	Manipur Bush-guail		R				•
Pelecanus	*crispus*	Dalmatian Pelican		V				•
Pelecanus	*philippensis*	Spot-billed Pelican		I				•
Vulpes	bengalensis	Bengal Fox	•	I	•			•
Prionailurus	*viverrinus*	Fishing Cat	•	K	•			•
Lutra	*perspicillata*	Smooth-coated otter		K	•			•
Sousa	*chinensis*	Indo-pacific Hump-backed Dolphine		K			•	
Neophocaena	*phocaenoides*	Finless Porpoise		K	•		•	
Platanista	*gangetica*	Ganges River Dolphin	•	V	•			•
Caprolagus	*hispidus*	Hispid Hare	•	E	•			•
Varanus	*flavescens*	Yellow Monitor	•	I	•			•

Table D.2 Globally Threatened Wildlife and Plants at Project Sites

					Distribution at project site			
Genus	**Species**	**Common English Name**	**CITES I & II**	**Status/ WCMC**	**Teknaf**	**Sonadia**	**St. Martin Island**	**Hakaluki haor**
Kachuga	*sylhetensis*	Assam Roofed Turtle		I				•
Aspideretes	*nigricans*	Black Soft-shell Turtle		R				•
Rana	*tigrina*	Indian Bull Frog	•					•

Table D.3: Comparison of biodiversity in the proposed sites

Site	Ecosystem	Habitat	Plants	Mammals	Birds	Reptiles	Amphibia	Fishes
Teknaf Peninsular Beach	Coastal Plain	Sandy beach Lagoons	*lpomoea pescapre Vitex trifolia Pandanus odoratiimus Casurina equisetifolia*		*Anas acuta, Anastomus oscitans Tringa totanus, T. nebularia, Gallinago stenura, G. gallinago, Calidris alba, Philomachus pugnax Larus ridibundus, Chlidonias hybrida* Leptoptilos dubius	*Chelonia mydas, Caretta caretta, Lepidochelys olivacea, Eretmochelys imbricata Dermochelys coriacea.*		
Sonadia Island	Coastal Island	Coastal Sand dunes Lagoon Mangrove	*Ipomea pescapre, Vitex trifolia, Ziziphus mauritania Clerodendrum inerme Pandanus odoratissimus Calotropis gigantia Avicennia officinalis, Avicennia marina, Avicennia alba, Sonneratia apetala, Aegicerus corniculatum, Ceriops decandra* and *Aegialitis rotundifolia.*		*Tringe nebularia Limnodromus semipalmatus Larus rudibundus, Eurynorhynchus pygmeus, Halcyon coromandra Philomachus pugnax*	*Chelonia mydas, Caretta caretta, Lepidochelys olivacea, Eretmochelys imbricata Dermochelys coriacea.*		
St.Martin Island	Offshore island with coral community	Coral community Coastal Sand	*Lumnitzera racemosa Acanthus ilicifolius , Aegialitis rotundif o-*			*Chelonia mydas, Caretta caretta, Lepidochelys*		

Site	Ecosystem	Habitat	Plants	Mammals	Birds	Reptiles	Amphibia	Fishes
	munity	dunes Mangroves	*lia, Hibiscus tiliceous*, *Clerodendrum inerme. Pandanus odoratissimus, Ipomea pes-caprae, Hypnea,Ceramium, Acanthophora, Polysiphonia Sargassum*.spp. *Chaetomorpha Cladophora, Caulerpa, Helimeda*				*olivacea, Eretmochelys imbricata Dermochelys coriacea*.		
Hakaluki Haor System	Inland-Freshwater wetlands	Seasonal lakes Reed land Freshwater Swamp Forest	*Eichhornia Utricularia Salvinia* . *Nymphaea* spp. *Nymphoides Trapa maxitnowizii Euryale ferox Phragmitis karka Vetiveria zizanioides Barringtonia acutangula Pongamia pinnata Rosa clinophylla*	*Calosciurus ygerrythrus, Kachuga sylhetensis, Lutra lutra, Lutra parspiciliata, Aonyx cinerea, Felis chaus, Felis viverrina.*	*Leptoptilos javanicus, Aythya baeri, A. nyroca, A.heliaca , Aquila heliaca , Falco pergrinus, Haliaeetus leucorhyphus Haliaeetus leucorhyphus, Tringa guttifer, Larus ridibundus, Sterna acuticauda, Rynchops albicollis, Pellorneum palustre, Sarcodiornis melanotos, Grus antigone Anthropides virgo,*	*Aspideretes hurum, Melanochelys tricarinata, Melanochelys tricarinata, Varanus bengalensis, Varanus flavescens, Python molurus Lissemys punctata, Ptyas mucosa , Naja n.naja N.n.kauothia Kachuga sylhetensis,*	*Rana tigrina ,*	Tor tor, Tor putitora, Ompok pabda, Labeo gonia Labeo nandina, Cirrhina reba, Rhinomugil corsula,

1. INTRODUCTION

Experience with development projects world-wide suggests that social and institutional issues are often not adequately addressed in project design. While technical and economic considerations receive a great deal of attention, people-related issues are frequently subordinated or ignored, with detrimental consequences for sustainable development (Cernea, 1985).

Participation of local people and other stakeholders has now been recognised as a key element to ensure sustainable results of both environment and development projects. Participation enables different socio-economic interest groups in an area to develop their capabilities and to play a dynamic role in developing initiatives. It also strengthens the commitment of a wide cross-section of stakeholders, elected representatives, government employees, professional groups, and voluntary groups including NGOs and community-based organisations, by giving them an opportunity to share responsibility in key decisions. Finally, it enables project planners to make use of local knowledge of the environment, of specific land and water regimes and land and water use by different socio-economic groups.

A good plan always depends on technical feasibility, resource availability, institutional base, endorsement of the conceptual framework by the stakeholders and their participation right from the beginning. Community participation in identifying issues / problems and workable solutions to those plays a vital role in sustainable development. In the case of biodiversity conservation it is particularly important to ensure participation of the local population and other stakeholders to manage the biodiversity resources of a given area.

The following statement by Cohen and Uphoff (1979) may serve as a working definition of participation:

> With regard to rural development ... participation includes people's involvement in decision-making processes, in implementing programmes, their sharing in the benefits of development programmes and their involvement in efforts to evaluate such programmes.

Chandrasekharan (1985) has made a similar observation, i.e.:

> Participation, strictly, is to be interpreted as a development objective, as well as a necessary input for development: as a means of development, as well as its end. *Participation is not a technology. It is a process of social action and social change.*

Peoples' participation involves community action and, particularly in the context of wetlands, needs to ensure that the poorest of the poor have an effective role—in choosing social actions, in implementing decisions and deriving equitable benefits from the programmes. Specific areas in which public participation needs to be engendered are:

- Coastal and freshwater fisheries resource management;

management. The involvement of local people in the management process is of prime importance given that they are an active, if not dominant, element of the ecosystem.

Until 1990 all development planning in Bangladesh, particularly the preparation of five-year plans, followed a strong tradition of centralized national planning which was highly sectoral, technocratic and top down. With the democratization of the country after many years of autocratic rule, the idea of a bottom-up approach b e-gan to make headway.

In mid-1995, the Government endorsed a new planning methodology known as the Perspective Planning Pr o-cess (PPP), which covers a 15-year period (1995-2010). Six different documents were prepared based on consultation meetings held at district level and sector-specific review by the ministries and departments. Vo l-ume I states that:

> .....the traditional central planning exercises are genuinely being replaced by a planning process whose centrepiece is local level participatory planning. Planning would be concerned at the local level for the local people by the local people (Ministry of Planning 1995).

The PPP incorporates the following objectives:
poverty alleviation through the generation of productive employment;
human development with emphasis on education, health and family welfare;
bringing women into the mainstream of development, and
attaining environmentally sound and sustainable development.

Along with the PPP, the change to a democratically-elected government in 1990 has opened up public di s-course and policy in a variety of areas, among them environmental management. Bangladesh consequently adopted an Environmental Management Plan (1991), a National Conservation Strategy (1992) and an Env i-ronment Policy (1992). Of particular significance and relevance is the National Environment Management A c-tion Plan (NEMAP), which was developed in 1995 through a fully participatory approach.

NEMAP is a plan of the Government of Bangladesh prepared by the Ministry of Environment and Forests (MOEF) in consultation with people from all walks of life. Its main focus is the formulation of policies and implementation of programmes related to environmental issues. NEMAP is designed to provide a basis for programmes and interventions aimed at promoting better resource management, making people aware of env i-ronmental problems and reversing the present trend towards environmental degradation.
The consultative process developed by NEMAP emphasised maximum geographic coverage and input from as many sectors as possible, particularly from the grassroots level. It also stressed the importance of involving Non-Governmental Organizations (NGOs) in organizing and carrying out this consultative process.
In the course of developing NEMAP, 23 grassroots workshops, six regional workshops, several expert and professional groups/journalist workshops and finally a National level workshop, were organized. Responsibil-ity for organizing these workshops was given to NGOs through the Association of Development Agencies in Bangladesh (ADAB), an umbrella grouping of NGOs and CEN, another umbrella grouping, in this case one of

3. THE CWBMP PARTICIPATORY PLANNING PROCESS DURING THE CURRENT PREPARATORY PHASE

The preparatory phase of the Coastal and Wetland Biodiversity Management Project (CWBMP) has followed the spirit and methods of the NEMAP process by placing special emphasis on the participatory approach to planning. ADAB and CEN, the NGO associations responsible for NEMAP, were likewise in charge of organizing participatory workshops for CWBMP. The project development process followed a phased, bottom-up approach, ***beginning and ending with grassroots-level stakeholders*** *(see* ***Fig. V.1****). The process took place in three main phases:*

(i) Stakeholder Consultation Phase I: grassroots and regional-level workshops
(ii) Project Development Phase: site visits, experts' meetings and project team deliberations
(iii) Stakeholder Consultation Phase II: grassroots presentations, national workshop, Project Steering Committee meeting

Each of these stages in the project development process is outlined below.

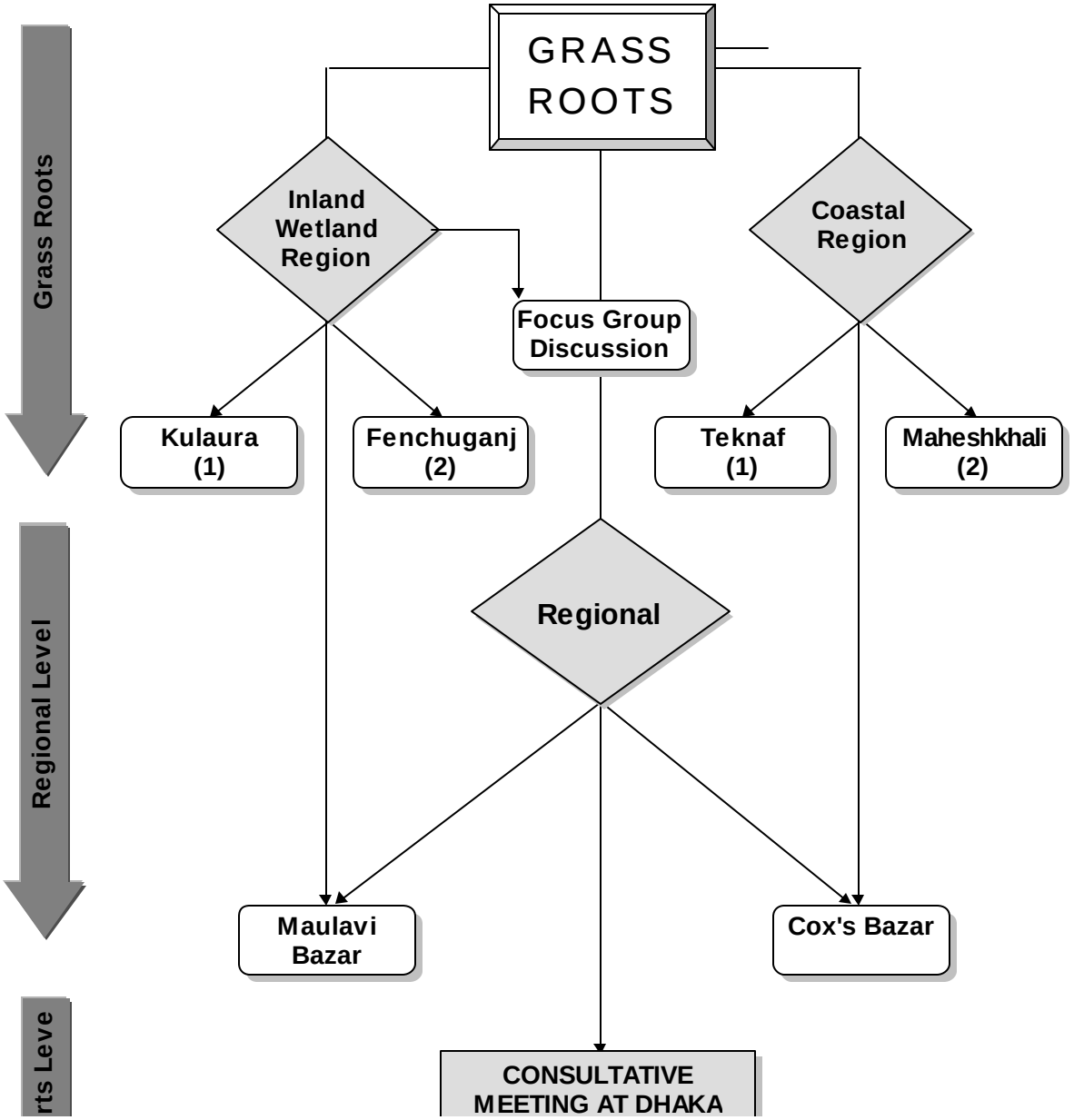
3.1 Stakeholder Consultation Phase I

This stage consisted of a series of six grassroots and regional-level workshops held during November and December 1998. The workshops (see ***Table E.1*** *for schedule) were designed to obtain the views of community members and other stakeholders involved with the project and concerned groups and institutions at different levels.*

Table E.1: Workshop Schedule

Level	Location	Date	Number of Participants	NGO Responsible for Organizing the Workshop
Grassroots	Teknaf	Nov. 24, '98	68	SHED
	Moheshkhali	Nov. 26, '98	101	CDS
	Kulaura	Nov. 12, '98	43	VARD
	Fenchuganj	Nov. 13, '98	45	FIVDB
Regional	Cox's Bazar Sadar	Dec. 13, '98	83	ADAB Chittagong chapter
	Maulavi Bazar Sadar	Dec. 08, '98	82	ADAB Sylhet chapter

FIG. E.1
CWBMP PARTICIPATORY WORKSHOP PLAN
(Bottom-up Approach)



3.1.1 Grassroots-level Workshops

Grassroots-level workshops were designed to facilitate participation from all the major occupational groups of the locality and other stakeholders, with direct/indirect dependence and/or a controlling role over biodiversity resources at the project sites. A total of four grassroots-level workshops (two per site) were organized in the coastal and inland wetland project areas. **Table E.2** shows the backgrounds of the various participants. Participation of women as a separate group was also emphasized in these workshops. The workshops were intended to achieve the following objectives:

- Assess local knowledge and awareness of biodiversity resources at the proposed project sites;
- Identify the past and present biodiversity situation around project sites;
- Identify reasons for depletion of natural resources and biodiversity losses, i.e., threats, root causes and solutions to eliminate threats as perceived by the resources users and other stakeholders;
- Assess willingness of community groups to participate, and;
- Identify actions required to conserve biodiversity at community, local government and national levels.

ADAB Local chapters and host NG0s played a key role in selecting the participants. Representatives of the Thana administration, especially Thana Nirbahi Officers (TNOs), also played active roles in organising the workshops. Facilitators organized participants into sub-groups of 12 - 15 individuals with common interests. Subgroups were:

- fishery, petty traders
- government workers/ officers
- UP chairmen, members, NGO workers, teachers
- Journalists, public representatives.

Each workshop was inaugurated by the respective Deputy Commissioners (DCs). During the opening speeches, workshop objectives / methodologies were explained by the National Project Director (NPD) and by the Team Leader of the Facilitators.

Table E.2: Background of the participants in grassroots and regional workshops

Type of Participants	Grassroots	Grassroots	Regional Workshop
Fisherman	17	2	10
Farmers	4	6	5
Government Service holders	11	9	24
Public rpr/social workers	15	6	11

the format. This helped the participants to understand the issues and make links to their own experiences. The groups / participants demonstrated significant knowledge and understanding of the issues at hand, talked in the light of their own experience, gave examples to support their opinions. They not only identified problems but analysed why the problems existed and offered solutions. The format also encouraged discussion of the potential roles of people, local government, national-level government age ncies in the project.

The main subjects of discussion at these workshops are listed in **Table E.3**.

Table E.3: Main Thematic Issues for Grassroots and Regional Workshops

Region	*Issues*
A. Inland Wetland Region (Hakaluki Haor)	1. Fishery 2. Water resources (Rivers, Haors) 3. Agriculture/Land Resources 4. Plant Diversities 5. Birds 6. Animal Diversities 7. Aquatic Animals (Snake, Shell, Mollusk, tortoise etc.) 8. Water Ways/Transport
B. Coastal Region (Teknaf Peninsula)	1. Fishery 2. Water resources 3. Agriculture/Land Resources 4. Plant Diversities 5. Birds and Animals

The two grassroots workshops at Hakaluki Haor were held in the Thana headquarters of Kulaura and Fenchuganj. Participants (organised by different profession/homogenous group) were asked to address each of the above issues to identify problems and causes and suggest solutions. They were asked to recommend actions that could be taken by them, by the local government and by the national government. Quite a large number of problems and causes thereof were identified and discussed in the workshops. A variety of solutions were suggested in order to protect the resources from further depletion. A synthesis of the findings of the two Hakaluki Haor grassroots workshops, as revised by the regional workshop (see below), is presented in Table E.4.

The two grassroots workshops for the Cox' s Bazar sites were held at Teknaf and Moheshkhali Thana Headquarters. The findings of these workshops, as amended by the regional workshop, are presented in Table E.5.

Both workshops demonstrated the in-depth knowledge of local inhabitants about the threats and root causes of biodiversity loss and a high level of awareness. Their willingness to participate in the problem solving

Table E.4: Synthesis of Regional Workshops – Inland Wetland Region/Hakaluki Haor

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
Fishery	- Decline in fish production - Some species are already extinct - Some species are going to be extinct. - Decline of fish feed - Decline in shelter/ lack of trees/ bush - Intermediaries are reaping the benefit. Genuine fishermen are reduced to fish labourers - Over harvest of haor water for HYV agriculture	- Over-exploitation of fisheries resources - Use of pesticides, fungicides and herbicides in the upland tea gardens - Waste from the Fenchugonj fertiliser factory dumped into the water system - Waste from the paper mill in Assam dumped into the water system - Use of current nets/ cloth nets for catching fish/fingerlings - Fishery communities are not organised.	- Re-excavation of rivers - Changing the course of the rivers - Creation of sanctuary - Undertaking chemical safe treatment project - Planting trees like hijal, barun etc that promote fish breeding and provide roots for shelter - Leasing out to the genuine fishermen who are more responsible in sustainable fish management and capture of fishery. - Three-yearly lease instead of yearly lease - Strict implementation of existing laws relating to current and cloth nets - Ensuring undisturbed migration cycle for the fish - Undertaking cage culture/ pan culture - Promoting fish breeding by connecting Juri river with haor	- Getting organised among themselves into groups, with the support of local NGOs - Social movement against the users of current nets and cloth nets - Refrain from complete drainng of beel / water bodies during the dry season so that mother fishes are kept alive - Take	- Strict implementation of fishery laws - Lease out water bodies to the genuine fishermen, preferably through NGO groups - Do not renew leases on 20/ 25 beels and maintain as fish sanctuaries	- Framing appropriate policies - Undertaking projects on re-excavation of beels - Arranging beel reserve to ensure fish breeding and preservation of species - Create a law prohibiting import and production of current net

Table E.4: Synthesis of Regional Workshops – Inland Wetland Region/Hakaluki Haor

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
		They have limited ability to invest due to lack of savings and credit.		initiative to motivate and raise awareness within villages		- Sluice gate construction connecting Juri river and haor.
Water Resources	- Pollution of water - Reduced aquatic productivity - Depletion of aquatic plants - Depletion of aquatic animals/ shamuk/ jhinuk/ snails	- Sand coming across the border resulted in siltation - Waste from factories dumped in to the river/ water system	- Preventing waste from factories being dumped into water system - Taking appropriate steps to boost the production of snails and mussels and other aquatic animals in the haor water system - Developing tourism - Motivating the garden owners to produce organic tea, as is already happening in India and Sri Lanka - Create lagoons around tea garden to treat water before it reaches the haor	- Following the examples of other areas, forming water groups who will monitor water quality on periodic basis	- Helping the water groups to do their work properly - Leasing management of water bodies in a way that ensures biodiversity	- Formulate appropriate policies
Land Resources/ Agriculture	- Local varieties of rice are disappearing	- Attraction for HYV agriculture - Use of chemicals	- Promote regenerative agriculture - Maximise use of organic fertiliser - Plant trees to prevent	- Participation of the local people	- Implement flood prevention projects	- Undertake flood / water management

Table E.4: Synthesis of Regional Workshops – Inland Wetland Region/Hakaluki Haor

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
	- Land productivity / fertility is reduced	and pesticides in HYV agriculture - Loss of biomass/ organic fertiliser with the depletion of trees - Siltation - Reduced availability of water - Waterlogging	flood waters from destroying standing crops - Embankment construction - Social afforestation - Farming in upland through irrigation in limited way - Distribution of khas land among the landless farmers with in-built system of regenerative agriculture through training and other interventions - Demonstration farm on eco-farming for motivating the farmers	in the flood management programme on voluntary basis - Embankment construction under food for work program	- Promote ecological farming to enhance land fertility preferably jointly with NGOs	projects - Directorate of Agriculture can develop demonstration plot on ecological agriculture to motivate the local farmers
Plant Diversity	- Decline of trees / depletion of forest resources - Population explosion - Hijal / Barun trees are gone. Loss of fish shelter/ breeding ground - Long standing water	- Use of timber in furniture making, burning bricks - Conversion of forest land into agriculture - Reduced dependence of consumers / patients on herbal medicines / kabirajee	- Participatory forest management - Tree plantation surrounding haor areas.	- Tree plantation; - People to protect the trees; - Increasing awareness among local people through cultural programs in	- Undertaking tree plantation projects	- Sanctioning special project on haor-side afforestation

Table E.4: Synthesis of Regional Workshops – Inland Wetland Region/Hakaluki Haor

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
	- Loss of herbal trees - Aquatic plants are gone.	medicine		educational institutes		
Birds	- Decline in migratory and local birds - Loss of habitat/food/ shelter	- Loss of food including different varieties of small fishes, snails, mussels, oysters, etc. - Hunting of birds - Use of fire arms - Use of light - More human settlement in previous adjacent areas	- Prevent poaching / hunting of birds - Declaration of bird sanctuary - Undertake bird watching project to monitor bird populations - Motivation and awareness raising regarding; protecting birds /leaving them undisturbed; plantation in the haor high lands and kandees	- Refraining from hunting especially with guns - Refraining from reckless felling of tree - Refraining from destroying natural habitat of birds - Intensive program on raising domestic birds such chickens, ducks, pigeons etc	- Vaccination / treatment of domestic birds to protect from diseases - Specific tree plantation program choosing species suited to local ecology	- Undertaking special project to promote domestic birds in the haor area - Formulate necessary laws / policies for protection and promotion of wild birds, both local and migrato

Table E.4: Synthesis of Regional Workshops – Inland Wetland Region/Hakaluki Haor

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
						ry
Animal Diversity	- Domestic animals such as cows, cattle, buffaloes, goats are depleting grazing grounds - More and more lands are being brought under HYV agriculture - Decline in bathans - Vaccination and treatment services are inadequate. As the haor area is remote, service accessibility is a major problem - Wild animals are being depleted	- Reduced availability of fodder - Water pollution due to use of pesticides sprayed in agriculture and tea gardens, waste dumped from the fertiliser factory, siltation coming from across the border	- Project on animal/ wildlife sanctuary - In case of domestic animals, setting up demonstration farms	- Nunber of domestic animals to be increased; - Refraining from destruction of habitats of wild animals; - Some land to be kept in reserve for grazing purposes of domestic animals.	- Undertaking measures and steps for availability of treatment facilities of sick domestic animals; - Educate people on timely/proper treatment of domestic animals	Formulate appropriate policies

Table E.4: Synthesis of Regional Workshops – Inland Wetland Region/Hakaluki Haor

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
	with the destruction of forests					
Waterways/ Transport	- Siltation, less communication, - Employment loss by non-mechanised boatmen due to introduction of mechanised boat transport	- Inadequate water in the haor/ river/ beels - Drying up of channels	- Credit program for the boatmen/creation of alternative employment opportunities - Re-excavation of canals/khals, beels	- To support and take part in excavation and re-excavation programmes	- Undertake re-excavation of canals/beels - Arrange bank loan for the boatmen.	- Project on re-excavation of rivers/ water ways connecting Hakaluki Haor.

Table E-5: Synthesis of Regional Workshop - Coastal Region/Teknaf Peninsula

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
Fisheries	- Too many people are entering fishing profession leading to per capita falls in income - Massive capture of fingerlings before they grow into adult fishes - Mother lobsters, marine turtles, Hilshas and *Lal Kakras* are being depleted - Some species of shamuk, jhinuks, mollusks, oysters, snails are disappearing - Trawlers from Thailand, India, Myanmar take fish from Bangladesh territory by	- Cutting of mangrove trees and conversion for shrimp cultivation - Inadequate arrangements for fish preservation/ processing - Practice / training of air force pilots during *hilsha* season: bimans hovering over bay, bomb explosions, etc. - Massive use misuse of pesticides in agriculture - Garbage from the ships thrown into the Bay - Collection of	- Reform lease system: lease out to genuine fishermen who will in turn strike balance between catch and preservation - Creating alternative jobs for fingerling collectors - Arrange fishery loan especially during the fish drying season and save them from financial intermediaries - Organise fishery groups, train them for a bigger role in future - Release other fingerlings while collecting shrimp fingerlings. Canals linking the sea with the collectors work point can be installed. - Continue	- Social movement against users of current and cloth nets - Organise protest against corruption - Participatory management of fishery	- Strict implementation of the fishery laws/ identifying the genuine fishermen to lease out the water bodies and in the process involving the NGOs to organise the fishery community	- Excavation of water bodies where necessary - Fish sanctuary - Preservation steps, - Sanctuary-related policy/ law policy formulation

Table E-5: Synthesis of Regional Workshop - Coastal Region/Teknaf Peninsula

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
	using fake numbers in their trawlers. They also pollute marine water by dumping rotten fish.	shamuks/ jhinuks/ snails/ oysters/ mollusks - Artificially converting water bodies into agriculture land - Illegal use of current nets and cloth nets, destroying the fingerlings - Siltation - Collection of (marine) turtle eggs - Collection of shrimp fingerlings and killing other fish species - Probal are depleting	involvement of fishery and other stakeholders in the planning process, as is being done now in this project - Install hatchery to produce fingerlings - Re-excavation of rivers - Creation of sanctuary - Replanting mangrove trees like *kaora* that promote fish breeding - Strict implementation of fishery laws			
Water Resources	- Salinity of water - Cyclone/ tidal wave/ loss of crops by	- Natural disaster - Siltation in rivers & estuary	- Undertaking de-siltation programmes - Raising awareness of local people	- Replant mangrove forest - Organise and do	- Strict implementation of fishery laws	- Take steps to ensure safe drinking water for

Table E-5: Synthesis of Regional Workshop - Coastal Region/Teknaf Peninsula

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
	cyclone - Non-availability of layer for the installation of tubewells - Unplanned salt production - Pollution of marine water - Use of explosives in marine fish catch by foreign trawlers - Turtles are being depleted	- Breach in embankment - Discharge of oils from ships/trawlers in the bay	regarding impacts of destroying turtle eggs - Sanctuary to preserve marine turtles, frogs etc - Project on managing on flood prevention / management, e.g., embankment	advocacy against water pollution - Be active in preserving turtle eggs, frogs, snails, mussels, oysters and other marine species - Get organised to protect embankment / participatory embankment management as is happening in Bhola - Participate in water	- Supervision work during turtle egg laying season - Undertaking desiltation programmes - Project on construction of embankment	the coastal people - Policy change regarding shrimp versus mangrove forest preservation - Special projects involving the NGOs and Forestry Department in large-scale plantation of mangrove and hill forests as well as social forestry

Table E-5: Synthesis of Regional Workshop - Coastal Region/Teknaf Peninsula

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
				preservation		
Land Resources/ Agriculture	- Local varieties -- *binni dhan, girim dhan, kalijira, hasna chikoon, luibba*, are gone - Land fertility / productivity is reduced - There was natural production of rice and chirim fish - Reduction in rice cultivation, more land gone to salt and shrimp - Water logging in some parts of Moheskhali - Destruction of betel leaf garden, leaf disease	- Lack of embankment in Sonadia /marine salt water centers/ hampers agriculture ; - Cyclone affects pollination /reduces productivity. - Attack of pests / worms/insects	- Revive local varieties of rice, if necessary arrange alternative marketing to promote organic products - Revive natural production of rice and *chirim* together - Demonstration plot in organic farming, maximise the use of organic fertilizer to revive soil fertility - Embankment to protect crops from tidal wave and flood water - Experiment on saline tolerant varieties of rice	- People's initiative to revive the old local varieties of rice	- Technology support in producing rice, betel, salt, etc (appropriate technology) - Arranging training and workshops - Helping the farmers get bank loans	- Framing policies to promote regenerative agriculture - Directorate of agriculture can undertake projects to demonstrate eco-farming jointly with the NGOs - Mobilising funds in this regard
Plant Diversity	- Depletion of many species of trees, e.g.,	- Rohinga refugees added to the problem	- Introduce sound monitoring system - Introduce	- Getting organised to protect	- Thana parishad nursery to play	- Undertake project to revive Coastal

Table E-5: Synthesis of Regional Workshop - Coastal Region/Teknaf Peninsula

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
	chapalia, jaani, jarail, teksal, karai, keura, bahra, amlaki, fani mansha, pathorkochi, bashak, hartaki, chalta, telsur and *chapila* - Depletion of mangrove forests - Insect attack on coconut trees	by cutting more trees - Irresponsible behaviour of certain forest officials who are in collusion with the timber traders and responsible for massive deforestation - Lease out of mangrove forests for shrimp cultivation	participatory forestry management - Involve the NGOs who will organise the locals to train, motivate, plant and preserve	forest. - Informing the administration about the tree killers - Working with the people to protect, plant and promote forestry - Advocacy role to revive coastal mangrove forests - Extend Green belt programme - Support tree plantation	an important role in sapling distribution - Local union parishad to play a key motivating role in popularising tree plantation - Generating alternative employment for those who survive on stealing trees - Sanctuary creation - Preventive steps against using timber as fuel in brick kilns	mangrove forest - Nursery raising on massive scale and find sound distribution mechanism preferably through NGO Groups - Embankment plantation project

Table E-5: Synthesis of Regional Workshop - Coastal Region/Teknaf Peninsula

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
					- Conserving tigers and elephants as natural protectors of forests - Implementing project on embankment afforestation	
BIRDS AND ANIMALS	- Habitat loss: habitat and food is gone with the depletion of forests - Depletion of birds and animals, including elephants, Cox, monkey, leer, wild lien, wild dog, different snakes etc. - Among domestic	- Hunting / poaching is on the rise - Series of cyclones killed a lot of animals - Corruption by foresters allows poachers to kill wild animals - Poverty compels them to sell their	- Local people to inform the local administration when the life of birds or animals is in danger - Refraining from harmful hobby like hunting / poaching - Punishment for the poachers/ hunters - Special loan program to support raising of domestic birds and	- Raised land on voluntary basis to protect animals from cyclone and flood water; - Raising improved varieties of animals - Refraining	- Raised land / pucca construction to protect birds and animals during cyclone; - Thana animal doctors to visit at least once a week the remote island areas to	- Undertake appropriate measures to implement forest reserve laws and policies; - Special embankment construction from Sonadia to Ghorijhon

Table E-5: Synthesis of Regional Workshop - Coastal Region/Teknaf Peninsula

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
	animals, cow, buffaloes, goats, horses etc. - Among birds tia, hargila, kite, doyel, dahuk, vulture, fallcon, manikJora, etc, - Same situation with migratory birds	domestic animals - Fewer trees means fewer fruits. Previously, birds that survived on fruits are now suffering from food shortage - Over population - Some unemployed villagers partly survive on killing wild animals including deer in collusion with the foresters; others kill deer and birds as a hobby	animals - Raising improved varieties of animals	from harmful hobbies like hunting / poaching - Opinion leaders to provide motivation to the people to protect and preserve birds and animals - Local people to inform the local administration when the life of birds or animals is in danger	treat the animals - Punishment for the poachers/ hunters - Motivate the public to preserve and promote the birds and animals who are friends in need; - Special loan program to strengthen domestic birds and animal project	ga; - Involving the people and the local government in promoting birds and animals and associated afforestation - Bank loan for promoting domestic birds and animals - Wildlife sanctuary project by the government - NGOs to undertake collaborative programme to promote birds and

Table E-5: Synthesis of Regional Workshop - Coastal Region/Teknaf Peninsula

Issue/ Biodiversity	Problems	Causes/Reasons	Proposed Solutions/ Recommendations	Action to be taken/Role to be played by		
				Local People	Local Govt.	National Govt.
				- Vaccination of birds and animals at people's own initiative		animals - Develop transport and communication system with the offshore island specially Sonadia and St. Martin Island

3.1.2 Regional-level workshops

Regional-level workshops were organized at Moulovi Bazar and Cox' s Bazar, one for each site (see Fig. 1). Participants in regional workshops included stakeholders such as district-level government officials from var i-ous departments, politicians, journalists, cultural activists, NGO officials, academics and other professionals. About 50% of the participants from the grassroots workshops also attended the regional workshops. Deputy Commissioners (DCs) of the respective districts took an active part in the organisation of the workshops and provided administrative support.

Objectives of the regional workshops were:

- to review and comment upon the findings of the grassroots workshops;
- to discuss possible institutional arrangements for the project, and;
- to assure the participants from the grassroots workshops that their views were being properly taken into account at a higher level.

Reports from the above-described grassroots-level workshops were presented at the regional workshops. Grassroots subgroup reports were compiled and presented in the regional workshops for further feedback and validity testing.

The issues that came up in the workshops were fisheries, water resources, land resource/agriculture, Plant/tree resources/ animal diversities, aquatic plants, animals, birds, water ways/ transport etc.

The outcomes of Grassroots and Regional level workshops were not very different. In fact, the grassroots level findings were presented in the regional-level workshops for validity test and participants in the regional level workshops did not differ much with the facts and findings perceived by the grassroots population. Only a few additions were made by the regional-level participants which were incorporated accordingly. These mainly relate to the role to be played by Government agencies and measures to be taken for improvement of the situation. These are also quite valuable in shaping the project.

3.2 Project Development Phase

This phase encompasses the entire period of project development, i.e., it overlaps with the first and second stakeholder consultation phases. It is described here for two reasons. First, it included a number of consult a-tions with experts, Government officials and local people. Second, and most importantly, this phase served as a bridge between the first and second stakeholder consultation phases. In short, ideas and analysis generated during the first stakeholder consultation phase were processed through a team of experts with an unde r-standing of GEF project formulation methods and requirements. At the end of this process, a project brief emerged, which was then re-submitted to many of the same stakeholders for val idation and approval.

3.2.1 Experts' consultative meeting

- presenting the proposed ‘ Institutional Framework’ for the project for discussion by experts in order to get feedback from them.

The Expert-level consultative meeting was held after the series of grassroots and regional level workshops with the view that local peoples’ ‘ experiential wisdom’ should go to the experts for comments. The experts’ view was also sought concerning the institutional arrangements proposed by the project for implementation of the biodiversity proposals that originated with the people. In general, the goal of this workshop was to find a meeting point between ‘ people’ s science’ and laboratory science.

The Expert-level workshop was attended by professional scientists as well as institutional experts from, e.g., the Planning Commission and ERD as well as specialists in agriculture, fisheries, forestry, botany etc. Other participants included government officials, NGOs, journalists, members of civil society and academics. The Director General of DoE chaired the meeting while the special guest was the Deputy Resident Representative of UNDP. The Secretary of the Ministry of Environment and Forest (MOEF) inaugurated the workshop and was present as the Chief Guest.

A wide range of issues was discussed in the workshop including: methodological issues, scientific literature review, chemical fertilizer use in agriculture, alternative job creation for those who survive on depleting biod i-versity, improving the quality of reporting, local community participation in a global project, law regarding protected areas, declaration of protected area, inventory of different species, use of GIS technology, training module, eco-system linkages, socio-economic resource mapping and chemical safety program.

3.2.2 Project team deliberations

A project team had been assembled since mid-1998 to visit sites, gather and assess information on the project sites and to implement the PRIF activities. This process continued into early 1999. At this point, in addition to a number of project reports (see list of references) and other materials, feedback and reporting from all of the above consultations, i.e., grassroots and regional meetings, experts’ meeting, etc., was available. It was only at this point that drafting of the project brief commenced.

A key step in formulating the project was to conduct a threats analysis, from which remedial measures, i.e., outputs, would emerge. This was done, drawing on analyses and recommendations derived from the stakeholder meetings as presented above in **Tables V.4 and V.5**. The results of this analysis are presented below in **Tables V.6** and **V.7**.

3.3 Stakeholder consultations, Phase II

3.3.1 Grassroots Stakeholder Workshops

3.3.1.1 Teknaf

part in the consultation process and a range of comments, questions and requests for clarification were received.

The general response to the proposed project activities was very positive and the local people evinced a high degree of support for the proposed immediate conservation initiatives and expressed concern for long term sustainable initiative. Interestingly, participants themselves expressed serious concerns about the destruction of [8]bio-diversity in the region. All participants are aware of the fact that the natural resources which they saw 20-30 years back have drastically declined in recent years. Participants are also aware that a large number of various fish fries are destroyed at the time of catching shrimp fries. Consequently, the total volume of sea fish harvests has declined significantly in the area. They suggested various measures including alternative income generating activities for stopping this destructive act.

Participants were strongly in favor of conservation of old and creation of new mangrove forests in the locality. The prospect of eco-tourism based on turtle conservation program does not seem to excite the people possibly because turtle is a taboo among the Muslims. They also do not perceive that it will attract a good number of tourists in the area. The stakeholders overwhelmingly support the proposal of constructing an alternative road to stop heavy traffic along the beach. They believe that heavy traffic is destroying the sand dunes, which, in turn, is destroying the bio-diversity along the coastal belt. They in general have a positive attitude toward the proposed project activities. Last but not the least, participants want to have a say in the implementation of the project.

3.3.1.2 Cox's Bazar

The consultation team undertaking the field mission organized a half-day workshop on May 8, 1999 at Cox's Bazar. People invited to the meeting were local journalists, lawyers, public representatives, government officials, executives and workers of NGOs and Red Crescent, scientists from fishery department, fishermen, , and other stakeholders. At the beginning of the consultation meeting beginning participants were told about project objectives and its proposed activities. A pamphlet that was prepared on the basis of the proposed interventions of the project was distributed among the participants. It was prepared in the Bengali language for the easy understanding of the local people.

3.3.1.3 Sonadia Island

The consultation meeting at Cox's Bazar was organized for the above-mentioned site. People from different social groups belonging to the island were invited take part in the consultation meeting. The attendees were mostly fishermen and shrimp fry collectors. UP members and chairman were also present in the meeting. At the beginning of the meeting project objectives and proposed interventions were explained to the stakeholders in local dialect.

The participants showed strong support in favor of fish conservation center. Even the genuine shrimp fry harvesters strongly responded in favor of restricting shrimp fry harvesting in their own localities provided alternative occupational opportunities are created for them. The stakeholders showed keen interest in establishing eco-tourism centering the turtle breeding locations in the island. Participants expressed support for the

pants supported the GO-NGO coordination in order to supplement each other shortcomings. The participants supported formation of a village coordination committee.

3.3.1.4 St. Martin' s Island

The vast majority of the population of the island is fisherman. Some collect shrimp fries and some do deep-sea fishing. Stakeholders believe that fish production is declining because a large quantity of fish fries other than shrimp fries are killed in the process of collection shrimp fries and brood fishes are caught during July through September. Stakeholders are strongly in favor of restricting shrimp fry collection and catching brood fishes during the breeding season. Oyster snail and limited number of people collects coral from the island. Stockholders are strongly supported the control on the collection of these natural resources, but not without providing alternative means of livelihood for those who are involved with it. Forest department has no activ i-ties in the island. Homestead forestry is only source of fuel of the island. Stakeholders anticipate serious fuel crises in near future due to high population growth in the island. Recently some mangrove plants are naturally growing along the coast, which they think if not protected will soon be harvested for using as fuel wood. Participants are strongly in favor of enforcing the existing environmental laws to stop coral and other natural resources extraction. They feel that island is vulnerable to tidal bore because it neither have plants nor any embankment. They proposed both biological and physical means to protect the island from beach erosion. Stakeholders expressed their desire to get involved in planning and implementing the proposed activities. They want NGO, government and people to work together to protect the bio-diversity of the island.

3.3.1.5 Hakaluki haor: Group I

The meeting was held on May 17,1999 at Hakaluki High school, which was close to Kanungo Bazar of Taleempur union of Kulahura Thana. A total of 16 persons were present at the meeting. The chairman of the school committee, who is also a long time leaseholder, was also present in the meeting. The meeting was a t-tended by businessmen, schoolteachers, farmers, school guards, block supervisor of agriculture, and NGO executive and field worker.

People in general are aware of decline of fish, winter fowls, environmental degradation of the area, destru c-tion of plants around haor; and water pollution due to chemical flow in from the fertilizer factory. They all feel that their lives and livelihood are threatened due to this environmental hazard.

They are in support of restriction of indiscriminate fishing particularly against the violation of fishing rules. The fishing rule of the haor is that lessee can only fish drying the water once in three years. Participants strongly supported the implementation of the law to increase fish production. Hunting birds although illegal by law is hardly enforced. Although migratory birds are caught or hunted by some, the cast majority people are very sympathetic to birds. They consider the birds as their guests who should be protected rather than hurt. Participants want the enforcement of law against the violators of hunting as fishing law. TNO of the locality believes that existing law will not help protect the environment of the haor. He wants enactment new law and appointment of a magistrate to enforce the law.

The group members were very positive in their attitude toward the project. In order to implement the project

although during monsoon water touches their corridor. Members of the consultation team with the help of female BRAC field staff contacted the villagers of the locality and explained the objectives of the proposed meeting. Interestingly enough unlike other places women showed great interest in the meeting and did not hesitate to take part in the meeting. All these participants are immigrants from other districts. Most of these people depend more on land agriculture second generation of resources of the haor. Women here did not hesitate to take part in discussion with male outsides particularly the consultation team.

Participants were farmers, businessmen, and wage labors, women although do not work outside earn some income by raring ducks and poultry. The most interesting aspects of women were that they did not hesitate to differ with men on certain issues.

In general this group appeared to be less concerned about the haor possibly because they partially depend upon haor and partially on cultivation of land. People of this part of the haor are migrant farmers from other districts. Both men and women supported the enforcement of hunting prohibition law although hunting of majority birds is now available than before. Participants did not seem to realize the importance wetland forests around the haor expect for the purpose of fuel wood. They however, strongly supported the roadside plant a-tion.

All participants catch fish in the haor despite lessees strong reaction. According to them fingerlings can' t be harvested because police burns the nets and arrests the catchers, they are also strongly against catching of fingerlings because that reduces total fish productions. In order to reduce dependency on haor for livelihood participants suggested alternative occupations the people. One of the most important alternative occupations could be cow racing, as there are large trace of grazing land an available after monsoon. NGOs are actively involve in the area and they want strong cooperation between government and NGOs for implementation of the program. The migrant population seems to have greater confidence in NGOs compared to the native population. They supported the establishment project office at district headquarter and formation of the village level coordination committee for involving the local people. Participants want NGO to play much greater than the government in implementing the project. Participants were not found interested in forming fishermen' s cooperative because they were not professional fishermen. However there is non-active fishermen cooperative in the area.

Table E.6 – Threats / Causes / Activities Matrix for Project Sites

A. Cox' s Bazar

Ecological effects/ Threats	Key for Causes	Causes	Key for Activities	Outputs & Activities

biological resource base due to overharvesting or inefficient harvesting of resources				*1.1 Utilizing existing legal mechanisms, legal protection is established for ecologically critical areas (ECAs)*
• Excessive cutting of mangrove (SI) and sand dune vegetation (AL) for fuelwood	➢ 1, 2,3,5, 6,7,9	1. No legally instituted protection measures for ecologically critical areas	1.1.1-1.1.3	1.1.1 Declaration of ECA for Cox' s Bazar site under 1995 Environmental Conservation Act (BECA ' 95), including draft rules specifying restricted activities
• Harvesting of turtles and eggs (AL)	➢ 1,2,3,4,5,9	2. No effective manag e-ment authority at field-level	1.2.1-1.2.3	1.1.2 Following development of management plan, new detailed rules are promu lgated
• Removal of corals (SM)	➢ 1,2,3,5,6,9			1.1.3 Performance monitoring of implementation of detailed rules
• Collection of shells for curio trade (SM) and for chicken feed (TF)	➢ 1,2,3,5,6,9	3. Limited participation by local communities in resource use decision-making	1.3.1-1.3.2	*1.2 DoE operates and maintains an effective field-level management system*
• Destructive fishing methods, esp e-cially (i) for shrimp fry (TF, SI), (ii) use of Tana Jal (?), (iii) high catches of trash fish (TF), (iv) gill nets, (v) turtle by-catch (AL)	➢ 1,2,3,6,9, 10		1.5.1-1.5.3	1.2.1 Establishment of an ECA Management Unit (ECAMU) in Cox' s Bazar, as a satellite office of the Chittagong regional office of DoE
• Hunting of shorebirds (AL)	➢ 1,2,3,9	4. Inadequate information on status and functioning of critical ecosy stems	1.6.1-1.6.3	1.2.2 ECAMU begins implementation of indicative management plan as specified in GEF project document
Degradation and loss of land and habitats	➢ 1,5,8,9,11	5. No management plan-ning for ecologically critical areas	1.7	1.2.3 ECAMU officials are provided with relevant technical support and training
• Beach compaction by vehicles (TF)	➢ 1,3,5,9			*1.3 Village Conservation Groups are established to ensure local participation and to implement conservation activities*
• Loss of mangrove areas due to co n-version for shrimp culture (SI)	➢ 1,5,7	6. Limited opportunities for alternative sustainable livelihoods	1.4.2	1.3.1 With assistance from local NGOs, establish VCGs at each project component site, i.e., Teknaf Peninsula, Sonadia Island and St. Martin' s Island
• Degradation of mangrove (SI) and sand dune (AL) habitats due to un-regulated livestock grazing	➢ 1,5,8,9,10	7. Lack of alternative sources of fuelwood and fodder	1.8	1.3.2 Awareness is raised among VCG and other community members concerning, e.g., impacts of shrimp fry collection, oily waste discharges, etc.
• Conversion of critical habitats to alternative land uses, e.g., aquacu l-ture (SI), agriculture (AL), salt pans (TF), tourism infrastructure (TF), small-scale industrial enterprises (TF)	➢ 1,5,8,9,10	8. No integrated coastal zone management	1.3.2	*1.4 VCGs undertake urgent conservation activities*
• Pollution and land degradation from agro-chemicals (TF), boat oper a-tional discharges (AL), tourism (TF), small industries (TF)	➢ 1,2,5,6,9	9. Limited public awareness of environmental issues	1.2.3, 1.10	1.4.1 VCGs initiate urgent conservation activities, i.e., sand dune stabilization, ma n-grove regeneration, turtle conservation
• Coastal erosion and coral damage due to shell and boulder removal (TF, SM)	➢ 1,4,5,8,9	10. Lack of technical knowledge, capacities	1.9	1.4.2 VCGs initiate activities to ensure availability of alternative fuelwood and fodder
• Destruction of sand dunes (turtle nesting habitat) by human activities (e.g., temporary fishermen shelters, vehicle traffic, boat docking)		11. Lack of road		ical information concerning critical ecosystems at Cox's Bazar site , is available to and used by managers
				1.5.1 Establishment of a database, using existing and new ecological information
				1.5.2 Development of an ecological monitoring programme
				1.5.3 Develop system for collection, processing and dissemination of above inform a-tion (management information system)
				1.5.4 Develop Tele-communication and electronic media for information dissemination and database management for reporting and regular monitoring and evaluation of critical ecosystems.
				1.6 A management plan covering conservation and sustainable use of Cox' s Bazar ECA is developed and implemented
				1.6.1 Determine zonation for Cox' s Bazar site (core protection, buffer zones, etc.)
				1.6.2 Formulate detailed site management plan, with emphasis on core protection and buffer areas
				1.6.3 Implement additional conservation activities as specified by management plan
				1.7 Alternative sustainable livelihoods are developed and implemented
				1.8 A programme for integrated coastal zone management is developed

B. Hakaluki Haor

Ecological effects / Threats (Proximate causes)	Key for Underlying Causes	Underlying Causes	Key for Activities	Activities

...tion and loss of wetland habitats	
• Loss of reedland and swamp forest areas due to conversion for agri-culture	1,2,5,6
• Reduction in surface area and depth of mother fisheries and other aquatic habitats (beels) due to sedimentation, drainage and river diversion for irrigation	1,2,5
• Degradation of reedland and grassland habitats due to overgrazing within haor	1,2,5,7,8
• Degradation of aquatic habitat due to agro-chemical pollution	1,2,8,9
Eroding biological resource base due to overharvesting or inefficient harvesting of resources	
• Loss of reproductive capacity of fishery due to inappropriate fishing practices	1,2,3,8,9
• Loss of genetic diversity due to increasingly intensive tillage of HYV rice	1,2,8,9
• Unsustainable levels of fuelwood collection	1,2,7
• Over-harvesting of amphibians, including turtles and frogs	1,2
• Reduced bird populations due to hunting of migratory and other birds	1,2,10

1. No legally instituted protection measures for ecologically critical areas	
2. No effective management authority at field-level	
3. Limited participation by local communities in resource use decision-making	
4. Inadequate information on status and functioning of critical ecosystems	
5. No integrated management planning for ecologically critical areas	
6. Limited opportunities for alternative sustainable livelihoods	
7. Lack of alternative sources of fuelwood and fodder	
8. Limited public awareness of environmental issues	
9. Lack of technical knowledge, capacities	
10. Poor enforcement of fisheries and wildlife protection acts	

2.1 Utilizing existing legal mechanisms, legal protection is established for Ecologically Critical Areas (ECAs)

2.1.1 Declaration of ECA for Hakaluki Haor site under 1995 Environmental Conservation Act (BECA ' 95), incl. draft rules specifying restricted activities

2.1.2 Following review and development of management plan (see activity __), new detailed rules are promulgated **(CIDA)**

2.1.3 Performance monitoring of implementation of detailed rules **(CIDA)**

2.2 DoE operates and maintains an effective field-level ECA management system

2.2.1 Establishment of an ECA Management Unit (ECAMU) at Moulvi Bazar, as a satellite office of the Chittagong regional office of DoE **(Gov't)**

2.2.2 ECAMU staff receive relevant training and awareness-raising **(GEF)**

2.2.3 ECAMU, with technical support from project staff, oversees implementation of indicative management plan (as specified in GEF, UNDP, CIDA pro-docs.)

...e Conservation Groups (VCGs) and a Local ECA Committee are established to ensure local participation and to implement conservation and sustainable use activities

2.3.1 With assistance from local NGOs, establish 5-7 VCGs at strategic locations surrounding the Haor

2.3.2 Establish an ECA Coordinating Committee composed of representatives of the VCGs as well as local government officials (ECAMU, Fisheries, Agriculture, Forest, Livestock, Water Development)

2.3.3 Awareness is raised among VCGs, Coordinating Committee members and other community members concerning conservation and sustainable use issues

2.3.4 Training is provided to the above stakeholders

2.4 VCGs undertake urgent conservation activities

2.4.1 Freshwater swamp and reedland forest regeneration

2.4.2 Community-based enforcement of wildlife and fisheries protection acts

2.4.3 Alternative fuelwood and fodder production

2.4.4 Improvements to fish migration channels

2.4.5 Awareness campaign

2.4.6 Electronic media will be used for awareness activity through Homepage and Website on project for dissemination of wider dissemination.

...ical information concerning critical ecosystems at Hakaluki Haor site is available to and used by regional and national-level managers

2.5.1 Establishment of a database, using existing and new ecological information

2.5.2 Development of an ecological monitoring programme

2.5.3 Develop system for collection, processing and dissemination of above information (management information system)

2.5.4 Develop Tele-communication and electronic media for information dissemina-

3.3.3 Final PSC Meeting

Finally, the draft project brief, prepared on the basis of the above participatory planning process, was presented for approval at two levels: at the national level, through the ***Project Steering Committee (PSC)****, as well as at the local grassroots level in the form of a second 'validation' round of grassroots stakeholders meetings.*

4. APPROACH/METHODOLOGY FOR PARTICIPATION OF PEOPLE IN THE IMPLEMENTATION PHASE

Peoples' involvement is highly crucial in the implementation phase without which the conservation effort is unlikely to achieve any fruitful result. Again, involvement of people will yield better results (to attain sustainability) if their involvement is also ensured in the planning/design phase and in the monitoring and evaluation phase beyond implementation phase. Biodiversity conservation projects which are supported through the development and active participation of local community have a greater chance of survival, because the supply of benefits is dependent on the long-term success of the project.

The aim of the project is to generate a strong sense of commitment to biodiversity conservation amongst local communities, giving them ownership over management of wild resources. Such commitment will be integral to the achievement of stable conservation in the long-term.

4.1 Major areas for involving people in implementation

In fulfillment of the tasks to be performed as per the TOR, some indications regarding methodologies of involving people also envisaged for undertaking programmes in the implementation phase are described as below. These are:

- Involving people in the awareness raising programmes:

- Insufficient awareness of the ecological implication of current resource use practices is an important factor contributing to biodiversity loss. Local people, therefore, have to be brought under awareness raising programme focusing emphasis on conservation values.

- For undertaking this task local NGOs may be involved to educate their beneficiary groups and other members of the community about the conservation values and sustainable use of biological resources in respective areas. Already existed village organization and community groups can play a vital roles in this regard and prove more effective if properly motivated and trained. By organizing workshops (PRA exercises) on conservation education at village level and providing opportunity to the villagers (resource users) in sharing their lessons and experiences in regard to resource management will enhance the level of awareness among the people and ultimately encourage them to taking part in the conservation efforts (implementation) of the project. Beside NGOs and local level organizations, local village leaders, elites including school teachers, imams, elected representatives also can serve as conservation educator by promoting conservation needs to the local people.

b) Involving people in local level Planning and building their Management Capacities:

Another area of involving community people in the implementation phase is to involve them in developing the local level conservation plan and later in management aspects. The local level conservation plan which will be the basis of the total management plan of the conservancy (of a particular site) to be developed taking peoples (resource users) view and sharing with their experience of managing natural resources. In doing this the whole project area (of one site) have to be divided into several conservation units/ zones (consisting with a cluster of villages) and from each units villagers/ local people will contribute to developing a conservation plan for their own according to the conservation needs of their area. The plans will detail strategies for abetting threats, and assign responsibilities for execution. Depending on the conservation strategy the villagers will recommend and/ or undertake, required technical assistance (providing training, advises and like wise inputs) to be made available to them accordingly.

To engender self-help and sense of Individual and collective responsibilities for conservation by the villagers (at local level) a programme of strengthening local (village) organizations needs to be undertaken. Through this programme the community members will be provided with technical assistance to enhance their skills for management of natural resources. The local NGO(s) will be assigned for this to provide necessary training (to the villagers local organization leaders)) in this regard and play an advisory and advocacy role in spearheading conservation and sustainable use activities.

Where local level organization or NGO groups are not available they will be formed and provided with necessary training and other support to undertake eventually the responsibility of conserving the biodiversity in their respective areas (zones). Special arrangements and efforts to be undertaken to include women in all aspects of conservation planning and management.

c) Engaging Local people in monitoring activities.

Another important area of involving people is to engage them in monitoring the change of wild life in their conservancy area. For this, interested villagers to be selected/recruited (who may form the local level conservation committee) and be provided with necessary training to undertake the job of monitoring. In building the capacity of the team engaged in monitoring, the training will encompass *inter alia* developing simple and verifiable impact indicators, training in basic field biology, recording and reporting techniques.

Efforts to achieve full participation of women in all of these activities will be key to the success of the project, given that they have the greatest involvement with and dependence upon homestead resources.

Similar to the approach and methodologies discussed above have known to be practised by an NGO having objectives of natural resource management in its different work sites comprising wetland(s).

The NGO named NACOM is reported to be engaged in dealing with environmental concerns has developed a methodology to create locally-based natural resource management systems,

in its work areas of *Kapasia, Munshigonj and Teknaf*. The management approach is built around a network of volunteers who are identified based on:

- direct involvement with and dependence on resource utilization;
- residence near the resources;
- expressed interest in protecting their natural and cultural heritage and other criteria.

The activities of the volunteer's network are coordinated through a conservation center established in each area and staffed by a core group of local people who are given necessary training and technical support. The activities include a) create community awareness among the villagers including women and children, b) exchange of information and address community concerns such as resource management, income generation from natural resources and so on.

(By exchanging ideas and sharing experiences of NACOM and other NGOs (if there are more with similar programmes) the methodologies will be developed further.

5. Other areas to involve people

In addition to the areas where people can take part in the implementation phase the other areas to give emphasis on engendering peoples involvement is planning of Social mobilization' programmes as outlined below:

i. Programs to be taken to involve/engage local organizations (particularly organizations of youths such as clubs of sports & culture) in mobilizing communities for conservation.

ii. Conservation committees have to be formed at local level with interested individuals and groups from the villagers. Separate conservation committee with female members have to be formed where possible in order to actively involve the women community in conservation efforts.

iii. Regular discussion, workshops sessions have to be organized at village level (by Govt, NGO initiatives) focusing biodiversity loss and conservation needs.

iv. Provisions of Incentives and awards may be introduced for (conservation) committees taking affective and result oriented conservation efforts/strategies. This will create competition among different conservation committees and increase participation of more and more local people in the implementation of biodiversity conservation initiatives.

This methodology could be enhanced by giving support from external sources like NGOs who may be involved in providing training, research and other activities of motivational and awareness raising.

6. Conclusion

The involvement of local people in the implementation phase have to be initiated with (following the awareness raising programme) building up a network of volunteers and establish a local conservation centre. Then comes development of the site (local) management plan which will be made using a participatory planning methodology (such as ZOP[9])

This management plan will be based on input from local and other resource users, supported by needed technical and policy/ regulatory inputs from technical experts, govt. representatives etc. The management plan could include provision for local organization, training, technology transfer, credit agreements between local organization and government agencies, government action, identification of possible structural measure and so on.

The next step is implementation of the management plan on a trial basis. The trial (Pilot) area must be chosen carefully having the favorable conditions for implementation. The criteria for selecting a pilot area would depend on inter alia:

- An area rich in biological resources but under severe threat of gradual depletion
- Rich in species diversity
- Local people have great dependence on the natural resources of the area
- People are aware of depletion of resources and willing to conserve the natural resources in their area
- The pilot area (for implementing and intervention) should be preferably on Khas (Govt.) land as chances of social conflicts are higher in privately owned land
- Have NGO activities in the area

Finally comes participatory monitoring and evaluation. As discussed in the preceding chapter village people-the local resource users should be engaged in monitoring the wild life so that any changes occur positive or negative the villagers constantly remain aware of that and can go for appropriate measures as needed. This monitoring activity by local people will ensure the sustainable use of the natural resources.

[9] ' ZOP' stands for Goal-Oriented programming methodology. The GTZ (German Technical Assistance) in Bangladesh offer courses on ZOP mainly targeted to NGO personnel but open to all. Experienced ZOP facilitators can be contacted through GTZ office at Dhaka

Guidelines for selection for NGO/CBOs/Consulting firm/Related Organization as Implementing Partners

The Project envisages NGO/CBO/Consulting firm/Related organization as important implementation partners particularly in project sites such as establishing sustainable biodiversity conservation systems in the ecologically critical areas, demonstrating coastal, freshwater wetlands and other ecosystems throughout the country, implementation of natural resources management systems, establishing biodiversity information system and GIS, organizing communities, facilitating the empowerment of community organizations, awareness building and training of community members and groups of enterprise, promotion of sustainable development activities.

The selection of above organization will be completely on competitive basis in sense the organizational quality and capacity to perform the targeted jobs. However, the following criteria may assist the Project Management in the selection of such implementation partners;

Organizations wishing to participate in the project as implementation partners should have/be;

1. Be registered non-governmental organizations accredited by appropriate line ministries such as the Ministry of Environment and Forest, Ministry of Finance, the Prime Minister's NGO Bureau, etc.

2. Have adequate full-time and part-time with required professional qualifications and relevant work experiences profiles for the environment and development related activities.

3. Have working experience in coastal, wetland and freshwater communities for a minimum of Five years addressing both community and environment related concerns and problems.

4. Have either its headquarters or regional offices in the coastal and wetland region preferably in the Cox's Bazar and Greater Sylhet.

5. Have established with sufficient administrative personnel and sound financial position which is certified
by auditor and have appropriate audited financial and annual reports.

All organization interested in participating in the projects as implementing partners will have to submit details about the organization and its work, using a detailed proforma designed and developed by the Project Management. The information so collected will be used to short list the organization. Prior to selection the information submitted by the short listed organization will be cross-checked for accuracy by the Management field visits and discussions with the concerned organization, their beneficiary communities, other existing NGOs/relevant organization working in the same area and selected Government officials of the locality such as the ADC, TNO, TFO and officers of concerned agencies.

The Management may also undertake a survey of NGOs working in and around the project's locations, and using the criteria above develop a preferred list, who could then be approached to indicate their interest in participating in the project as implementation partners to take the responsibility for particular tasks and assignments. To facilitate the identification and selection process shall clearly develop Terms of Reference (TOR) and programme of works which could be undertaken by implementation partners, which shall specify the technical and other requirements in terms of personnel, capacity and experience.

Financial and Accounting Arrangement for UNDP-funded Projects under National Execution

A. General

1. The Ministry of Environment and Forest the Government of Bangladesh hereinafter referred to as "the Government", is responsible to the Administrator of UNDP for the custody and proper use of funds advanced to it by UNDP.

2. The Government will maintain separate accounts [including a separate bank account] for UNDP resources. It will use the funds provided to it only for inputs financed by UNDP, in accordance with the project budget covering UNDP's contribution.

3. Advances of funds to and payments by UNDP on behalf of Governments are governed by the applicable UNDP Financial Regulations and Rules and dirrectives regarding the utilization of currencies.

4. The Government will provide UNDP with financial statements of UNDP funds received and spent, prepared in accordance with the UNDP financial year (1 January to 31 December) in English. The periodicity and content of such statements are set out below. Annual financial statements will be audited by the legally recognized auditors of the Government's own accounts. To the extent feasible, the audit principles and procedures prescribed for the United Nations will be applied by the auditors, who will provide audit reports annually together with the reports set out below.

5. For the purpose of reporting to UNDP, US dollar equivalents will be calculated at the United Nations operational rates of exchange. The resident representative of UNDP will inform the Government of such United Nations rates of exchanges thereto when they occur.

B. Advance of funds

6. Advance will be made by the resident representative at the request of the Governments in accordance with the project document and the required currencies subject to the conditions set out below.

7. The Government will indicate its cash requirements for UNDP funds for each period of the schedule of advances included in the project document and suppoted by updated project workplan at least two weeks before payment is due (Paragraph A.2 of this annex, Request for advance of funds). Advances will be made by UNDP at the time indicated in the schedule of advances, in the amounts and currencies requested by the Government and accordign with upto the work plans. (See also paragraph 9, below for requests for cash advances in currencies not available to the UNDP field office).

8. If the schedule of advances included in the project document no longer reflects actual requirements for funds, a new schedule will be prepared by the Government in consultation with the resident representative. Advances should normally be sufficient to cover anticipated cash requirements or a maximum of three months.

9. Local currency advances to the Government will normally be made by the resident representative if this currency is available to him or her. The resident representative will arrange for advances in currencies not available to him or her to be made by UNDP headquarters or other field offices, as deemed appropriate.

10. Advances to the Government in US dollars will be made by the resident representative if this currency is available to him or her. The resident representative will arrange for advances in currencies not available to him or her to be made by UNDP headquarters or other field offices, as deemed appropriate.

C. Direct payments by UNDP

11. At the request of the Government, UNDP will, after verification of the supporting documentation, make payments directly to individuals or firms providing UNDP- financed services or goods. The requests will be addressed to the resident representative who will either arrange for the payments to be made by his or her office or by UNDP headquarters. The requests will indicate payee, amounts and currencies required, justification for the request and payment instructions reflecting payee's bank. its address and the account number.

12. The resident representative will provide the Government with statements of direct payments made by UNDP within 15 days following 30 April, 31 August and 31 December, for incorporation in the project delivery report in accordance with paragraph 13 (b), below.

D. Periodic financial statements

13. The Government will furnish the resident representative with certified financial statements within 30 days following 30 April and 31 August and within 60 days following 31 December. The statements will include the following:

(a) Status of funds advanced by UNDP (paragraph A.3 of this annex). The statement will be submitted for each period indicated above and will be prepared in the currency of the advance. Separate statements will be issued where different currencies have been advanced. Each statement will reflect cumulatively for the year the amount of funds available at the beginning of the year, funds advanced by UNDP, funds expended by the Government during the reporting period and the resulting balance at the end of that period. The statement will also detail expenditure incurred by month in local currency and the US dollar equivalent calculated at the applicable United Nations operational rate of exchange;

(b) Project delivery report (paragraph A.4 of this annex). The report will be submitted for each period indicated above and will reflect cumulative current-year expenditure classified according to the items listed in the approved project budget. It will incorporate the expenditure incurred by the Government and, where appropriate, the expenditure statement of the UN implementing agency, if any, and the statement of direct payments made by UNDP;

(c) Annual report of UNDP-financed non-expendable equipment (paragraph A.5 of this annex). The Government will furnish the resident representative, for the year to 31 December, within 60 days following that date and together with other financial statements due at that date, with and annual report of non-expendable equipment furnished to the project during the year. Non expendable equipment purchased by the UN implementing agency, if any, and furnished to the project will also be included. The report will describe each item in detail list the identification number given by the Government and the serial or registration number assigned by the marker and reflect the cost at the US dollar equivalent at the time of purchase calculated at the United Nations operational rate of exchange;

(d) Expenditure statement for jointly financed projects. In the case of joint financing of project activities by the Government and UNDP and, as the case may be, other sources of assistane, the certified financial statements referred to above shall be accompanied by a separate statement reflecting expenditure for the full project covering the same period as the certified financial statements. To this expenditure statement should be added an indication of the apportionment by the Government of the reported expenditure to UNDP's contribution and other available funds.

14. If the Government can not submit the financial statements on the date on which they are due, it will inform the resident representative of the reasons and indicate the planned submission date.

E. Government's annual audited financial statements

15. A certified and audited annual financial statement of the status of funds advanced by UNDP, as described in paragraph 13 (a), above, will be made available by the Government to the resident representative within 120 days after the end of the calendar year.

16. The financial statement will be audited and attested to by the entity specified in paragraph 4 above.

F. Government final financial statements

17. Upon financial completion of UNDP assistance to a project, the Government will provide final financial statements to cover the period 1 January to the date of either financial completion or refund of the unspent balance of UNDP funds, if any (see paragraph 18, below). The financial statements will be audited so as to conform to the requirements set out in section E above. The statements will be provided within 120 days from the date of financial completion to the Director General , DOE with copies to the UNDP resident representative.

18. If there is an unspent cash balance of UNDP funds held by the Government, that balance will be refunded by the Government in the currency of the advanced not later than 30 days after the date of financial completion.

G. Audit by UNDP

19. All accounts maintained by the Government for UNDP resources may be audited by the UNDP internal auditors and/or the United Nations Board of Auditors or by public accountants designated by the United Nations Board of Auditors.

Annex 7: Letter of Agreement between the Executing Agency and UNOPS

STANDARD LETTER OF AGREEMENT (LOA)

BETWEEN THE MINISTRY OF ENVIRONMENT AND FOREST

Government of Bangladesh

AND

UNITED NATIONS OFFICE FOR PROJECT SERVICES (UNOPS)

HOW TO USE THIS AGREEMENT

- All agreements on implementation are formulated, negotiated and signed between the executing agent, as responsible for the overall management of the project and implementing agents.
- This agreement is intended for use when a United Nations agency serves as implementing agent for a nationally executed project. A list of eligible such agencies is available in "Overview of support costs arrangements under the successor programme arrangements", effective 1 January 1997: Table 1 page 6.
- This agreement replaces the letter of agreement described in Annex 7.B of the "Overview of Support Cost Arrangements under the Successor Programming Arrangements".
- This standard letter of agreement may be modified according to the local conditions.
- This agreement covers all situations where a United Nations agency participates in implementation (including when the United Nations agency would previously be called "cooperating agency").
- This agreement may be used as a standard, and adapted as appropriate in accordance with national law and circumstances, when the executing agent wants toe enter into implementing agent agreements with entities other than United Nations agencies.
- The executing agent prepares this agreement in consultation with the United Nations agency concerned.
- The agreement must be signed by the executing agent and the United Nations agency.
- The UNDP country office may assist with formulating the agreement, liaising with the United Na-

Dear Mr. Helmke,

1. Reference is made to consultations between officials of the Ministry of Environment and Forests (MOEF), Government of Bangladesh [hereinafter referred to as "the executing/implementing agent(EA/IA)] and officials of the United Nations Office for Project Services [hereinafter referred to as "UNOPS") with respect to the participation of UNOPS in the implementation of UNDP assistance to project BGD/99/G31 – Coastal & Weland Biodiversity Management at Cox' s Bazar and Hakaluki Haor to be executed by the Government. The later shall be represented for the purpose of such execution by the National Project Director, BGD/99/G31 ,Government of Bangladesh.

2. The executing/implementing (EA/IA) agent recognizes that UNOPS enjoys privileges and immunities under the Convention on the Privileges and Immunities of the Specialized Agencies, to which the Government of Bangladesh has agreed.

3. In accordance with the project document (ProDoc) and with the following terms and conditions, we confirm our acceptance of the services to be provided by UNOPS towards the implementation of this project. Close consultations will be held between UNOPS and the Government on the implementation of all aspects of the services to be rendered as described in attachment I, "Description of Services," of this Letter of Agreement.

4. UNOPS shall provide the services and facilities described in Attachment ; Description of Services of this letter of agreement.

5. The EA/IA shall retain overall responsibility for the implementation of UNDP assistance to the programme through its designated National Project Director (NPD).

6. UNOPS assigned for a specific programme activity by the EA/IA shall work under the supervision of the NPD and will be accountable to the NPD for the output of the assigned programme activity. The supervisory arrangements shall be determined in mutual consultation and described in the relevant terms of reference of UNOPS. UNOPS has the obligation to cooperate closely with the overall directives laid down by the EA/IA in consultation with UNOPS. The personnel assigned to the output shall be the responsibility of UNOPS for both performance and responsibility.

7. In the event of a disagreement between the NPD and/or his/her representatives and the project personnel of UNOPS, the matter under dispute shall be referred by the NPD to UNOPS for the purpose of finding a satisfactory solution. In the interim, the decisions of the NPD shall prevail.

8. Upon signature of this letter of agreement and pursuant to the project budget of the ProDoc and the workplan, the UNDP Headquarters will advance Assistance for Operation and Services (AOS) funds to the United Nations implementing agent, according to the specified Schedule of Services attached to this document.

9. UNOPS shall submit such reports relating to the project as may reasonably be required by the NPD in the exercise of his or her duties as well as for audit purposes.

10. The arrangements described in this agreement will remain in effect until the end of project or the completion of activities of UNOPS according to the Attachment, or until terminated in writing by either party. The AOS payments as per specified activities in the Attachment remains in effect based on continued performance by UNOPS unless UNDP receives written indication to the contrary by the executing agent.

11. For any matters not specifically covered by this agreement, the appropriate provisions may be reflected in the budget revisions, if necessary, by the IA/EA in consultation with UNDP and UNOPS.

12. All further correspondence regarding the implementation of this agreement, other than signed letters of agreement or amendments thereto, should be addressed to the National Project Director BGD/99/G31, Government of Bangladesh.

13. The executing agent and UNOPS shall keep the UNDP Resident Representative fully informed of all actions undertaken by them in carrying out this agreement.

14. Except as provided in paragraph 6 above, any dispute between the executing agent and UNOPS arising out of or relating to this letter which is not settled by negotiation or other agreed mode of settlement, shall, at the request of either party, be submitted to a Tribunal of three arbitrators. Each party shall appoint one arbitrator, and the two arbitrators so appointed a who shall be the chairperson of the Tribunal. If, within fifteen days of the appointment of two arbitrators, the third arbitrator has not been appointed, either party may request UNDP to appoint the arbitrator referred to. The Tribunal shall determine its own procedures, provided that any two arbitrators shall constitute a quorum for all purposed, and all decisions shall require the agreement of any two arbitrators. The expenses of the Tribunal shall be borne by the Parties as

assessed by the Tribunal. The arbitral award shall contain a statement of the reasons on which it is based and shall be final and binding on the parties.

15. The EA/IA agent shall handle and be responsible for any third-party claim or dispute arising from operations under this agreement against UNDP or UNOPS, their officials or other persons performing services or their behalf, and shall hold them harmless in respect of such claims or disputes. The foregoing provision shall not apply where the parties agree that a claim or dispute arises from the gross negligence or willful misconduct of the above-mentioned.

16. Any changes to the above arrangements shall be effected by mutual agreement through an amendment to this letter of agreement.

If you are in agreement with the provisions set forth above, please sign and return to this office two copies of this letter. Your acceptance shall thereby constitute the basis for your organization' s participation in the implementation of the specific programme activity(ies).

Yours sincerely,
For the Executing Agent of Government of Bangladesh

.....

Government of Bangladesh

Date :

Signed on behalf of UNOPS

Mr. Reinhart Helmke
Executive Director
United Nations Office for Project Services

Date :

ATTACHMENT to LOA

The UNITED NATIONS OFFICE FOR PROJECT SERVICES(UNOPS) by signing the attached LETTER OF AGREEMENT(LOA) agrees to assist the DEPARTMENT OF ENVIRONMENT, MINISTRY OF ENVIRONMENT AND FOREST(MOEF), Government of Bangladesh and UNDP-Dhaka to implement the following schedule of services/activities under UNDP-GEF aided BGD/99/G31-Coastal and Wetland Biodiversity Management in Cox' s Bazar and Hakaluki Haor;

1. UNOPS will immediately undertake, upon signing of the LOA, the recruitment of International and Local Consultants, including professional staff with the NPD. The recruitment process will be carried out by UNOPS. However, the contracts for project personnel under UNDP will be issued by the UNOPS, but are to be issued by the NPD.

2. UNOPS will be responsible for preparing the terms of references in consultation with NPD and UNDP and conducting the mid-term evaluation of the project jointly with the Government and UNDP.

3. UNOPS will make arrangements for regional training and study tours under engaging the services of relevant institutions in the regions as per programme needs and making the necessary travel arrangements for the participants. The selection of participants will be the responsibility of NPD in consultation with UNDP.

4. UNOPS will finalize the terms of references of the international and national consultants under as per programme needs and in consultations with NPD and UNDP, and recruit them.