



# PROJECT IDENTIFICATION FORM (PIF)

UNEP/GEF WORKING TEMPLATE

**PROJECT TYPE:** FULL-SIZED PROJECT  
**TYPE OF TRUST FUND:** LDCF

## PART I: PROJECT INFORMATION

<b>Project Title:</b>	Ecosystem-based approaches to Adaptation (EbA) in the drought-prone Barind Tract and Haor "wetland" Area		
<b>Country(ies):</b>	Bangladesh	<b>GEF Project ID:</b>	
<b>GEF Agency(ies):</b>	UNEP	<b>GEF Agency Project ID:</b>	1150
<b>Other Executing Partner(s):</b>	Ministry of Environment and Forestry (MoEF)	<b>Submission Date:</b>	10/06/2013
<b>GEF Focal Area (s):</b>	Climate Change Adaptation	<b>Project Duration(Months)</b>	48 Months
<b>Name of parent programme (if applicable):</b>		<b>Agency Fee (US\$):</b>	494,000

### A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives	Trust Fund	Indicative Grant Financing (\$)	Indicative Co-financing (\$)
CCA-1	LDCF	2,080,000	7,000,000
CCA-2	LDCF	2,600,000	8,500,000
CCA-3	LDCF	520,000	1,500,000
<b>Total project costs</b>		5,200,000	17,000,000

### B. INDICATIVE PROJECT FRAMEWORK

**Project Objective:** To reduce the vulnerability of communities to climate change impacts in the Barind Tract and Haor Area using Ecosystem-based Approaches to Adaptation (EbA).

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
1. Capacity development for implementing EbA and upscaling into national and local plans.	TA	1. Strengthened technical capacity of local and national institutions to plan, implement and upscale EbA.	1.1 EbA integrated into existing climate change committees, units and departmental cells.  1.2 A stocktaking exercise undertaken and revisions of existing policies and strategies produced to identify entry points for promoting EbA and up-scaling EbA into national strategies including budget allocations.  1.3 Policy briefs and technical guidelines developed and distributed for policy- and decision-makers on increasing resilience of local community livelihoods to climate change using appropriate wetland and dryland restoration techniques based on knowledge gained from EbA interventions in Component 2,	LDCF	742,857	476,190

			<p>emerging research findings as well as local indigenous knowledge.</p> <p>1. 4 Government staff from the Climate Change Unit and relevant CCFPs trained on planning and implementing EbA interventions.</p>			
2. EbA interventions that reduce climate change vulnerability and restore natural capital.	Inv	2. Increased resilience and reduced vulnerability of local communities to climate change impacts, in the Barind Tract and in the Haor Area.	<p>2.1 Vulnerability impact assessments (assisted by UNEP led PROVIA<sup>1</sup>) conducted and EbA protocols developed to guide interventions in pilot areas.</p> <p>2.2 Resilient restoration of wetlands in landscapes that were initially degraded in the Haor Area for increasing freshwater ecosystem goods/services – including fish, fibre, water purification and supply, flood regulation, sediment/nutrient retention and export, and biodiversity reservoirs – under changing rainfall patterns including heavier and more erratic rainfall during the monsoon season.</p> <p>2.3 Resilient restoration of drylands in landscapes that were initially degraded in the Barind Tract to increase water infiltration and agricultural production under increasing drought conditions and dry spells during erratic monsoon and dry seasons.</p> <p>2.4 EbA support measures – for reducing erosion and increasing ground water replenishment – integrated into existing local community livelihood activities, including <i>in situ</i> rainwater harvesting structures and drought/flood-resilient eco-agriculture.</p> <p>2.5 Alternative livelihoods based on the benefits of functional wetland and dryland ecosystems developed and promoted to enhance community resilience to climate change impacts.</p> <p>2.6 Local authorities, communities, committees and user groups, with an emphasis on women and youth, trained on adapting community livelihoods to climate change by using specific techniques for restoring degraded wetlands and drylands in the Haor Area and Barind</p>	LDCF	<b>3,714,286</b>	<b>13,809,524</b>

<sup>1</sup> Program of Research on Vulnerability Impact Assessment

			Tract respectively.			
3. Research and knowledge management for appropriate EbA design.	TA	3. Strengthened information base (scientific and traditional knowledge) – derived from LDCF interventions in the Haor Area and Barind Tract – for supporting the design and upscaling of EbA interventions across Bangladesh.	3.1 A central information base – of data on EbA lessons learned and cost-effectiveness from the Haor Area, Barind Tract and other regions across Bangladesh – established in MoEF within an appropriate entity e.g. the Climate Change Unit or a relevant department’s Climate Change Focal Point for effective EbA project design.  3.2 Post-graduate and post-doctorate research (including long-term research programmes and individual research projects) produced focused on specific climate change risks and providing technical guidance to reduce these risks.  3.3 Information and lessons learned – including cost-effectiveness – on EbA interventions implemented in the Barind Tract and Haor Area widely disseminated through tailored policy briefs.  3.4 An upscaling strategy for EbA across Bangladesh developed, based on business case models for both the public and private sectors.		495,238	1,904,760
Sub-Total					4,952,381	16,190,474
Project management cost				LDCF	247,619	809,526
<b>Total project costs</b>					5,200,000	17,000,000

**C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)**

A. Sources of Co-financing	B. Name of Co-financier	C. Type of Co-financing	D. Amount (\$)
National Government	Ministry of Environment and Forestry (MoEF)	Grant	1,000,000
National Government	Barind Multipurpose Development Authority (BMDA), Ministry of Agriculture (MoA)	Grant	7,000,000
National Government	Bangladesh Water Development Board (BWDB), Ministry of Water Resources (MoWR).	Grant	7,000,000
Implementing Agency - UNEP	UNEP led Asia Pacific Adaptation Network	Grant	1,500,000
Implementing Agency - UNEP	UNEP led Program of Research for Vulnerability Impact Assessment (PROVIA)	In kind	500,000
<b>Total Co-financing</b>			17,000,000

**D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY<sup>1</sup>**

GEF	Type of	Focal area	Country	Grant	Agency Fee	Total (\$)
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Agency	Trust Fund		Name/Global	amount (\$ (a)	(\$ (b)	(a + b)
NA						
<b>Total Grant Resources</b>						

#### E. PROJECT PREPARATION GRANT (PPG)

	<u>Amount Requested (\$)</u>	<u>Agency Fee for PPG (\$)</u>
• No PPG required	_____	_____
• (up to) \$50k for projects up to and including \$1 million	_____	_____
• (up to) \$100k for projects up to and including \$3 million	_____	_____
• (up to) \$150k for projects up to and including \$6 million	100,000	9,500
• (up to) \$200k for projects up to and including \$10 million	_____	_____
• (up to) \$300k for projects above \$10 million	_____	_____

#### PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF PROJECT ONLY

GEF Agency	Type of Trust Fund	Focal area	Country Name/Global	(in \$)		
				PPG (a)	Agency Fee (b)	Total c = a + b
<b>Total PPG Amount</b>						

MFA: Multi-focal area projects; Multi-Trust Fund projects.

## PART II: PROJECT JUSTIFICATION

### E. PROJECT OVERVIEW

#### A.1. Project Description

##### A.1.1. The project problem, root causes and barriers that need to be addressed

The Barind Tract (8,720 km<sup>2</sup>) in the northwest and the Haor Area (24,500 km<sup>2</sup>) in the east of Bangladesh are very important ecological regions as they have been identified in the NAPA as critical areas, most vulnerable to the effects of climate change<sup>2</sup>. The Barind Tract is a semi-arid region, of fertile alluvial sediment, in the Bengal basin which covers the major parts of Rajshahi, Dinajpur, Rangpur, Bogra and Pabna districts. The Hoar Area covers Sunamgani, Habigani and Moulvibazar districts in the Meghna basin and includes Bangladesh's most important freshwater wetlands. Furthermore, the Haor wetland area is very important with regard to the fisheries sector which has been identified as one of the main priorities within the Bangladesh Climate Change Strategy and Action Plan (BCCSAP). Please refer to Annex B for a map detailing the project areas.

Ecosystems in both regions provide a range of ecosystem services that are essential to local communities living therein. These ecosystem services include: i) support services (nutrient cycling, seed dispersal, biodiversity conservation, primary production); ii) provisioning services (food, fibre, water); iii) regulating services (carbon sequestration, waste decomposition, flood regulation, water supply and purification, sediment and nutrient retention, nutrient recycling, erosion control); and iv) cultural services (ecotourism, aesthetic value, recreation, education).

Fertile soils in the semi-arid Barind tract support agricultural production of aman rice, boro rice, aus, jute and drought tolerant chickpea as well as domestic vegetable production. The drylands in the Barind Tract are therefore

<sup>2</sup> Ministry of Environment and Forests, Government of the People's Republic of Bangladesh, National Adaptation Programme of Action, November 2005

vital to local communities and provide additional services such as medicinal plants<sup>3</sup> and grazing for livestock. Local communities in the Hoar area, in addition to the above mentioned ecosystem services, are heavily dependent on the wetland habitats for fish (haors<sup>4</sup> are the main source and reserves of the brood stock of fish), waterfowl and flood regulation.

The Barind Tract and Hoar Area are both experiencing rapid population growth and increasing environmental degradation, which is threatening the ability of these regions to deliver ecosystem services, thereby increasing the vulnerability of local communities. Despite the importance of the dryland and wetland ecosystems to the local communities, these systems are currently under threat from unsustainable exploitation of a range of natural resources. Major threats to the integrity of the Barind Tract drylands and Hoar Area wetlands include: i) high localised rates of deforestation, land degradation and soil erosion; ii) over-fishing (Hoar); iii) sedimentation of rivers; iv) poorly planned development activities and infrastructure; v) improper drainage; vi) agricultural expansion; vii) agrochemical pollution; viii) water diversion for irrigation; ix) further unsustainable agriculture practices; and x) drought (Barind Tract).

These environmental threats are exacerbated by climate variability and climate changes that have been observed in recent times and will be magnified in the future. Climate change has already resulted in an increased frequency and severity of seasonal droughts and intermittent dry spells in the Barind Tract. Conversely, total annual precipitation has increased and heavier and more erratic rainfall has been observed in the Hoar Area of Bangladesh<sup>5</sup>. Future climate scenarios predict that the observed conditions will worsen. Drought and intermittent dry spells in the Barind Tract will be exacerbated during both the monsoon and dry seasons. In the Hoar Area there will be significant changes in the timing and intensity of rainfall resulting in heavier and more erratic rainfall during the monsoon.

The increased frequency and intensity of drought in the Barind Tract will result in: i) decreased availability and quality of water for agriculture, industry and household use; ii) increasing food insecurity; iii) loss of livelihood options; iv) deteriorating sanitary conditions and increased health risks; and v) loss of human life. An increasing frequency of heavy rainfall events in the Hoar Area, is expected to result in: i) higher river flows, causing breaching of embankments and widespread flooding; ii) increased river bank erosion, resulting in damage to agricultural areas, infrastructure and homes; and iii) increased sedimentation of riverbeds, leading to poor drainage, water logging, and decreasing availability and quality of surface water. Climate change will therefore severely affect local communities in both of these regions. Agricultural production in particular is impacted by the effects of both droughts and floods. Reduced productivity of staple crops as a result of droughts causes increased food prices and decreased household food security. Furthermore, the decreased availability and quality of water during droughts and dry spells can result in increased incidence of illness and waterborne diseases<sup>6</sup>. The impact of climate change on the water, agricultural and other economic sectors in Bangladesh substantially reduce the country's ability to reduce poverty and enable economic growth.

The **problem** that the proposed LDCF project seeks to address is that communities in the Barind Tract and Hoar Area of Bangladesh and the livelihoods of these communities are vulnerable to current and expected climate change impacts, including increased average temperature, increased frequency and severity of drought and dry spells, and changing rainfall patterns including heavier and more erratic rainfall. The vulnerability of affected populations to these climate change impacts is exacerbated by limited capacity, knowledge and financial resources to adapt. Therefore, there is an urgent need to implement adaptation interventions that will build the climate change resilience of communities living in these areas. Further, on-going development investments, for example in irrigation, by Government and donors in the project region will be undermined if these investments are not climate-proofed. Urgent interventions are required to build capacity to plan, implement, research and upscale ecosystem based adaptation measures to advance climate change adaptation in the Barind Tract and Hoar Area of Bangladesh.

The **preferred response** is to build the climate resilience of communities living in the Barind Tract and Hoar Area using Ecosystem-based Adaptation (EbA) approaches. This will be achieved through the implementation of EbA interventions in the Barind Tract and Hoar Area, strengthening the capacity of local and national institutions

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<sup>3</sup> Siddique, N.A., Bari, M.A., Pervin, M.M., Nahar, N., Banu, L.A., Paul, K.K., Kabir, M.H., Huda, A.K.M.N., Mollah, M.U. & Ferdous, K.M.K.B. 2005. Screening of endangered medicinal plants in Barind Tract in Bangladesh. *Pakistan Journal of Biological Sciences* 8, 1783-1793.

<sup>4</sup> Haors are bowl-shaped depressions between the natural levees of a river subject to monsoon flooding every year and are therefore covered with water ~six months of the year.

<sup>5</sup> UK Department of Energy and Climate Change, 2011. *Climate: Observations, projections and impacts – Bangladesh*.

<sup>6</sup> FAO 2007. *Climate variability and change: adaptation to drought in Bangladesh*.

to employ EbA approaches, and the subsequent dissemination of knowledge on the design and implementation of EbA.

EbA provides a low-cost and effective approach for building long-term adaptation and climate resilience of the communities in the Barind Tract and Haor Area. EbA reduces climate change vulnerability while providing multiple benefits to society and the environment by protecting, maintaining and rehabilitating ecosystems<sup>7</sup>. Furthermore, EbA contributes to climate change mitigation by reducing emission of greenhouse gases and contributing to carbon sequestration.

There are a number of **barriers to the effective adaptation** of local communities in Bangladesh to climate change impacts, of which **limited and/or reduced natural resources** is the most significant. A healthy natural resource base is necessary for local communities to adapt to climate change risks. Maintaining and/or enhancing the flow of ecosystem goods and services ensures that communities can survive, recover quickly and even thrive in a changing climate. Without a resilient natural resource base and associated ecosystem goods and services, local communities are forced to undertake unsustainable strategies such as resorting to unsustainable exploitation of remaining natural resources, migrating to other areas and borrowing money under future climate change conditions.

**Additional barriers** to effective adaptation of local communities in Bangladesh include: i) limited government action at the local level; ii) insufficient capacity for coordinated action of local government institutions; iii) limited knowledge and awareness of the relevance of climate change for the work of politicians and government officials across line ministries; iv) lack of a comprehensive national climate policy that focuses on incorporating climate change into national development; and v) limited inclusion of local people in the policy-making process.

The proposed LDCF project will contribute to overcoming the above adaptation barriers by: i) building the capacity of national and local government institutions for planning and implementing effective local-level **Ecosystem-based approaches to Adaptation** (EbA); ii) providing an evidence base of best-practice for these approaches, based on research; and iii) undertaking local level **EbA interventions** in drought- and flood-prone areas, and monitoring their effectiveness, in order to catalyse future up scaling of successful approaches.

#### *A.1.2. The **baseline** scenario and associated baseline projects*

Communities living in the Barind Tract and Haor Area are dependent on a range of ecosystem services, in particular, for the Barind tract communities rely on ecosystems for – agricultural production/food provision, water filtration, groundwater recharge, and erosion control. In the Haor area communities depend on ecosystems for – fisheries/food provision, flood mitigation, reduced siltation of soils and availability of freshwater. However, the provision of these services is under threat due to land degradation, deforestation, and poorly planned development activities. These problems are further exacerbated by the impacts of climate change. The Barind Tract is particularly vulnerable to climate change hazards such as increased severity and frequency of seasonal droughts and dry spells, which negatively affects local community livelihoods activities and results in reduced household income and food security. In the Haor Area, climate change hazards include heavier and more erratic rainfall during the monsoon season, which is causing increased frequency and severity of flooding and riverbank erosion and results in reduced agricultural productivity, loss of income, and damage to infrastructure, arable land and homes. The main challenges in these two regions are ensuring food and water security, protecting community livelihoods, and protecting infrastructure. These challenges are being addressed by a number of baseline projects, further described below.

#### **Baseline projects in the Barind Tract**

The **Barind Multipurpose Development Authority (BMDA)**, administered by the Ministry of Agriculture, was established in 1992. The objectives of the BMDA are to: i) arrest desertification through large-scale plantations; ii) green the Barind Tract; iii) convert the Barind Tract into a granary of Bangladesh; and iv) improve the livelihoods of people. The BMDA is undertaking several different projects in the Barind Tract in order to meet these objectives.

- The **Irrigation Programme through Surface Water Augmentation** (hereafter referred to as the ‘**Irrigation Programme**’) project is being implemented by the BMDA in all districts of the Barind

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<sup>7</sup> Jones, H.P., D. G. Hole & E. S. Zavaleta. 2012. Harnessing nature to help people adapt to climate change. *Nature Climate Change* 2: 504-509

Tract. The Irrigation Programme has a budget of ~ USD 12,875,000<sup>8</sup> funded by the GoB and will run from January 2013 to June 2016. The objectives of this baseline project are to: i) increase the usage of surface water in irrigation to lower the pressure on ground water; ii) bring 12,000 ha of land under controlled irrigation; iii) increase food production; and iv) generate employment through agricultural activities.

- Also being implemented by the BMDA in the Barind Tract is the **Seed Production Strengthening Project** (hereafter referred to as the '**Seed Project**'). The objectives of this baseline project are to: i) reduce the shortage of standard quality rice and wheat seeds; ii) motivate farmers to produce local and hybrid variety seeds through display plots; and iii) provide training on the production, processing and storage of standard quality rice and wheat seeds. The Seed Project began in July 2012 and will run until June 2017 with a budget of ~ USD 4,370,000<sup>9</sup> funded by the GoB.
- The Dinajpur and Bogra districts of the Barind Tract are included in the **Development of Rural Communication Network for Marketing of Agricultural Products Project** (hereafter referred to as the '**Communication Network Project**'). The main objective of this project is to construct feeder roads to remote areas to promote a rural communication network. A further objective of this baseline project is to prevent desertification through an afforestation programme alongside the feeder roads. The project began in July 2012 and will run until June 2017, with a total budget of ~ USD 52,740,000<sup>10</sup> funded by the GoB.

Climate change impacts, including droughts and intermittent dry spells, will negatively affect the baseline projects being implemented through the BMDA. Reduced water availability associated with drought conditions will diminish the capacity for irrigation activities, reducing the ability of the **Irrigation Project** to achieve its target area under controlled irrigation. Droughts will reduce agricultural productivity in general, including the yield of improved quality seed generated by the **Seed Project**, thereby reducing household income and limiting access to quality seeds (including drought-resilient varieties). Droughts and dry spells will also negatively affect the establishment of plantations along roadsides under the afforestation activities of the **Communication Network Project**. The above BMDA projects are sought as baseline projects for this LDCF project. The proposed LDCF project will build on these baseline projects and reduce their vulnerability to climate change through building technical capacity and increasing the awareness of EbA, and strengthening policies and strategies that promote EbA approaches. EbA interventions implemented in the Barind Tract will also contribute to increasing the quality and availability of fresh water, which will support the objectives of the **Irrigation Project**, **Seed Project** and **Communication Network Project**. The introduction of climate-resilient species for agricultural production and reforestation activities will further reduce the vulnerability of the BMDA's initiatives to climate change. For further details on the impacts of climate change on the BMDA baseline projects, as well the how the proposed LDCF project will increase their climate resilience; see Annex 1 (Table A1).

### ***Baseline projects in the Haor Area***

A range of **business-as-usual GoB-led interventions** have been implemented in the Haor Area from 1975-2012 (Table 1) to cope with frequent flooding. These include Early Implementation Projects (EIP), System Rehabilitation Projects (SRP), Flood Action Plans (FAP), and Haor Rehabilitation Schemes (HRS). These baseline projects are maintained by the **Bangladesh Water Development Board (BWDB)** with a budget allocated by GoB (~US\$ 100,000,000<sup>11</sup>). Baseline projects have focused primarily on the construction and maintenance of embankments, sluice gates, culverts and other hard infrastructural measures to reduce the extent of flooding during the monsoon season. However, the construction of hard infrastructure has altered the hydrologic and flooding regime of the Haor Area wetland systems, negatively affecting productivity of fisheries and agriculture. The main impacts include: i) reduction of fish habitat, diversity and productivity; ii) loss of indigenous aquatic plants including wild rice varieties; iii) loss of soil fertility; and iv) loss of natural water reservoirs.

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<sup>8</sup> Budget of 100065.4 lakh taka. Conversion to USD based on the USD to BDT exchange rate on 4/4/2013.

<sup>9</sup> Budget of 3416.43 lakh taka. Conversion to USD based on the USD to BDT exchange rate on 4/4/2013.

<sup>10</sup> Budget of 41299.7 lakh taka. Conversion to USD based on the USD to BDT exchange rate on 4/4/2013.

<sup>11</sup> ~USD 100,000,000 is budgeted for the Flood Management of Haor areas over the next five in the Master Plan of the Haor Area, 2012. Ministry of Water Resources.

**Table 1. Status of BWDB schemes/projects that have been implemented from 1975 and are currently being annually maintained with GoB budget disbursements.**

<b>Project type</b>	<b>No. of projects</b>	<b>Area coverage (ha)</b>
Drainage	1	3,058
Flood Control and Drainage	60	363,253
Flood Control	10	33,565
Flood Control Drainage and Irrigation	46	324,165
Irrigation	1	688
<b>Total</b>	<b>118</b>	<b>724,729</b>

The GoB has learned a number of lessons from past projects implemented in the Haor Area. These have been considered in the development of the Haor Master Plan in which the 153 project investment portfolios will be used to improve the current projects and schemes in the area as well as develop new projects to link these on-going initiatives. It is evident in the Haor Master Plan that the GoB has acknowledged the need for an integrated and sustainable approach to address the environmental and current climatic challenges faced by communities in the Haor Area. However, the current baseline projects do not take into account the potential impacts of climate change and are consequently at risk of significant setbacks in the medium and long-term.

Climate change will exacerbate many of the current problems and natural hazards that the baseline projects in the Haor Area experience. A significant change in rainfall pattern and quantity is predicted, including heavier and more erratic rainfall during the monsoon, which will result in: i) increased river flows, causing breaching of embankments and widespread flooding; ii) increased river bank erosion, resulting in loss of homes and arable land; and iii) increased sedimentation in riverbeds, leading to poor drainage, waterlogging and reduced surface water storage capacity. These impacts will damage the hard infrastructure measures currently being constructed by the baseline projects. The proposed LDCF project will increase the resilience of the baseline projects in the Haor Area to climate change by building technical capacity and increasing the awareness of EbA approaches within the BWDB. EbA interventions implemented by the proposed LDCF project will reduce flooding, thereby reducing damage to infrastructure built by the baseline projects. Furthermore, EbA interventions implemented in the Haor Area will increase the resilience of local communities to flood impacts in alignment with objectives of the current BWDB interventions. For further details on the effect of climate change on the BMDB baseline projects, as well as how the proposed LDCF project will increase their climate resilience, see Annex 1 (Table A1).

*A.1.3. The proposed **alternative scenario**, with a brief description of expected outcomes and components of the project*

In alignment with Priority Activities identified by the Bangladesh NAPA and the BCCSAP 2009, the proposed LDCF project will increase the resilience of the baseline projects and the livelihoods of local communities to climate change-induced hazards and long-term climatic changes. This will be achieved by complementing government development activities with on-the-ground EbA interventions in the Barind Tract and Haor Area.

The proposed LDCF project will implement climate-proofing, pre-investment interventions to support local community livelihoods in the Barind Tract and Haor Area. This will include: i) rainwater harvesting, groundwater replenishment and drought-resilient and mixed farming systems in the Barind Tract; ii) conserving and sustainably managing core ecosystem areas for fish breeding, ecological agriculture and mixed farming systems in the Haor Area; and iii) mainstreaming EbA into development agenda, training communities on EbA, including the use of landscape approaches to natural resource management for sustaining agriculture/food production, conserving biodiversity and supporting local community livelihoods, as well as implementing long term research on EbA. The above will be achieved by delivering three integrated and complementary components.

**Component 1: Capacity development for implementing EbA and upscaling into national and local plans**

This component will strengthen the technical capacity of local and national institutions to plan, implement and upscale EbA.

Indicative activities to be funded by LDCF resources will include:

- building or strengthening the EbA focus within the CCU, MoEF, CCFPs and linked local government institutions;



- stocktaking and revision of existing policies and strategies to identify entry points for promoting EbA, and thus reducing climate change vulnerability;
- upscaling of EbA into national strategies, including budget allocations;
- developing policy briefs and technical guidelines on increasing the resilience of local community livelihoods to climate change using appropriate wetland and dryland restoration techniques – these briefs and guidelines will be based on knowledge gained from the EbA interventions introduced under Component 2, the latest research as well as indigenous knowledge;
- distributing policy briefs and technical guidelines to relevant policy- and decision-makers; and
- training of government staff within the CCU, MoEF, CCFPs and linked local government institutions on planning and implementing EbA interventions.

***Component 2: EbA interventions that reduce climate change vulnerability and restore natural capital***

This component will increase the resilience of local communities to climate change impacts, including temperature rise and increased drought in the Barind Tract and hydrological changes in the Haor Area. This will be achieved through the tailored restoration of wetland and dryland areas for specific climate risks and local community livelihoods.

Activities to be funded under this component include:

- conducting a vulnerability impact assessment of local communities in the Barind Tract (with the assistance of UNEP led PROVIA);
- developing intervention protocols to guide EbA measures in pilot areas;
- establishing resilient restored wetlands in degraded landscapes in the Haor Area to increase freshwater ecosystem goods and services under changing rainfall patterns, including heavier and more erratic rainfall during the monsoon season.;
- establishing resilient restored drylands in degraded landscapes in the Barind Tract to increase water infiltration and agricultural production under increasing drought conditions and dry spells during the monsoon and dry seasons;
- integrating EbA support measures for reducing erosion and increasing ground water replenishment into local community livelihood activities – this will include the introduction of rainwater harvesting structures and drought/flood resilient eco-agriculture;
- monitoring the cost-effectiveness of the interventions in a scientifically rigorous manner;
- developing and promoting alternative livelihoods based on the benefits of functional wetland and dryland ecosystems to enhance community resilience to climate change impacts; and
- training of local authorities, committees and user groups on adapting community livelihoods to climate change using specific techniques for restoring degraded wetlands and drylands, in the Haor Area and Barind Tract, respectively.

***Component 3: Research and knowledge management for appropriate EbA design***

This component will strengthen the information base of both scientific and indigenous knowledge from the full range of ecosystems in Bangladesh to support the design and upscaling of EbA interventions. This information base will need to cover a wide range of ecosystems in order to inform EbA projects across Bangladesh. It is for this reason that this proposed LDCF project will undertake interventions in Component 2 in both wetlands (Haor Area) and drylands (Barind Tract).

Activities to be funded under this component include:

- establishing of a central information base – that draws on the lessons learned and cost-effectiveness of the EBA interventions undertaken in Component 2 – established in MoEF within an appropriate entity e.g. the CCU or a relevant department's Climate Change Cell for effective EbA project design;
- developing post-graduate and post-doctorate research focused on specific climate change risks and providing technical guidance to reduce these risks. This will include long-term research programmes and individual research projects;
- researching on appropriate multi-purpose, indigenous plant species for wetland and dryland restoration and developing EbA plans for targeted areas; and
- disseminating of information and lessons learned – particularly cost-effectiveness – on EbA interventions implemented in the Barind Tract and Haor Area through tailored policy and information briefs, designed for a wide range of audiences, including government, private sector, general public, school children and university students. Developing an upscaling strategy for EbA across Bangladesh, based on detailed cost-effectiveness data collected in Component 2, that targets both government and the private sector.

#### *A.1.4. Additional cost reasoning and expected contributions from the baseline, the LDCF and co-financing*

The proposed LDCF project aims to build the resilience of local community livelihood activities in the drought-prone Barind Tract and Haor wetland Area by complementing the GoB-led baseline projects in these regions. This will be achieved by: i) mainstreaming an EbA focus into government ministries by strengthening human, institutional and technical capacity; ii) implementing on-the-ground EbA interventions and local-level community training; and iii) establishing a national EbA research and knowledge management center. The additional cost reasoning for each component of the proposed LDCF project is described below. A description of the climate change vulnerabilities of the baseline projects versus the adaptation alternative under the proposed LDCF project is in Annex A (Table A.1).

#### ***Component 1: Capacity development for implementing EbA and upscaling into national and local plans***

##### **Business as usual scenario:**

Significant progress has been made by the Government of Bangladesh (GoB) to include climate change as an integral part of national strategies. This includes: i) developing the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009; ii) establishing a Climate Change Unit (CCU)<sup>12</sup> under the Ministry of Environment and Forestry (MoEF) to regularly coordinate the relevant activities of the BCCSAP 2009 between the respective government ministries; iii) allocating Climate Change Focal Points (CCFPs) in all ministries; and iv) setting up the Bangladesh Climate Change Trust Fund (BCCTF) fund to assist in financing the implementation of the BCCSAP 2009. Furthermore, a substantial amount of research has been conducted by a number of institutions in Bangladesh regarding climate change impacts and the need for climate change adaptation.

At present, however, the CCU, MoEF as well as CCFPs and linked local government institutions do not have the technical capacity and expertise to effectively facilitate EbA and related project coordination and delivery. In addition, information for developing effective EbA projects is not readily available for: i) informing the design and implementation of projects by CCFPs and related local government staff; ii) informing the evaluation of projects submitted to the CCU for funding; and iii) assisting the CCU to provide ministries and in particular local government institutions with consolidated information on EbA to support local community livelihoods. As a result, technical knowledge for designing, implementing and evaluating EbA projects across Bangladesh is limited. Furthermore, communities are not adequately provided with information regarding the benefits of EbA under future climate change conditions. In order for climate change projects to adequately integrate EbA, the human resource, institutional and technical capacity of the CCU and CCFPs across ministries needs to be strengthened. This will ensure that climate change adaptation, disaster risk reduction and early warning system measures are adequately complemented with EbA across Bangladesh. The exact value of CCU activities and relevance to this proposed project needs to be determined during the PPG phase however, for this LDCF project USD 476,190 of the financing is relevant as co-financing.

##### **Adaptation scenario:**

With LDCF funding, the proposed LDCF project will ensure that government ministries are efficiently equipped for designing and implementing EbA projects for building the resilience of local community livelihoods to climate change. With this increased technical capacity, as well as through the demonstration of EbA interventions under Component 2, the proposed project will ensure that EbA is integrated into national and local strategies and policies.

The additional cost of increasing capacity within the CCU and CCFPs to implement EbA, and incorporate EbA into national strategies and policies, is **USD 742,857**.

#### ***Component 2: EbA interventions that reduce climate change vulnerability and restore natural capital***

##### **Business as usual scenario:**

Climate change will continue exacerbate many of the current problems and natural hazards experienced by communities in the Barind Tract and the Haor Area. As the frequency and severity of drought and dry spells increase in the Barind Tract, community livelihood activities will become increasingly difficult, especially in

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<sup>12</sup> The unit operates under the National Environment Committee chaired by the Prime Minister and the National Steering Committee on Climate Change headed by the Minister of MoEF. The CCU is responsible for gaining access to global climate funds and dealing with funding applications and monitoring of climate-related projects.

marginal and degraded lands. In the Haor Area, a significant change in rainfall patterns and quantity is predicted which will result in: i) increased flooding; ii) increased erosion; and iii) increased sedimentation leading to reduced quality and quantity of surface fresh water. Climate change impacts, including droughts and intermittent dry spells, will negatively affect the baseline projects being implemented through the BMDA. (For more details on the impacts of climate change to baseline projects see table A1 in Annex 1). The GoB has recognised the need for interventions that will reduce the vulnerability of local communities to these natural hazards and is implementing projects in the Barind Tract through the BMDA (**Irrigation Programme** ~ USD 12,875,000; **Seed Project** ~USD 4,370,000; **Communication Network Project** ~USD 52,740,000) and in the Haor area through the **BWDB** (~USD 100,000,000). These baseline projects are mainly focussed on addressing current natural hazards through construction of hard infrastructure and do not consider future climate risks nor include EbA approaches. Consequently, the sustainability of the interventions of these baseline projects are vulnerable to future impacts of climate change.

### **Adaptation scenario:**

The proposed LDCF project will ensure that business-as-usual baseline activities integrate appropriate EbA approaches into their design, thereby ensuring that they achieve long-term reductions in vulnerability of local communities under a changing climate. Based on stakeholder consultations undertaken during the PIF development, it is estimated that 10% of each of the BMDA baseline projects total budgets are relevant for the proposed LDCF project and that the BWDB will contribute the equivalent amount. The activities suggested in this component will build upon baseline activities whose costs are estimated at 13,809,524 USD. These amounts will be further reviewed during the PPG phase.

Resilient drylands will be established in degraded landscapes in the Barind Tract that will increase water infiltration and agricultural production, and thus will complement the objectives and activities of the Irrigation Programme. The construction of rainwater harvesting structures to reduce the need for irrigation infrastructure will further support the objectives of this programme. Mixed farming systems that utilise drought-resilient species will also be employed in the Barind Tract, complementing and adding onto the objectives of the Seed Project. One of the objectives of the Communication Network Project in the Barind Tract is to introduce an afforestation programme alongside the feeder roads. The proposed LDCF project will build on this programme by introducing an EbA approach and ensuring that a range of climate-resilient and multi-benefit tree and crop species are used for reforestation. This will decrease the vulnerability of local communities to climate change impacts, through the provision of alternative food sources, fuelwood, livelihood options and short-term income generating activities. The establishment of resilient wetlands in degraded landscapes in the Haor Area will increase the provision of freshwater ecosystem goods and services and reduce the severity and frequency of flooding, thereby complementing and reducing the need for the hard infrastructure construction projects carried out by the BWDB. Additionally, the introduction of flood-resilient eco-agriculture as well as the conservation and sustainable management of core ecosystem areas will increase the resilience of local communities to flood impacts, in alignment with objectives of the current BWDB interventions. A summary of the LDCF interventions against baseline scenario is provided in table A1 in Annex 1.

The additional costs of incorporating EbA interventions into the baseline projects to reduce climate vulnerability and restore natural capital is **USD 3,714,286**.

### ***Component 3: Research and knowledge management for appropriate EbA design***

#### **Business as usual scenario:**

Currently, there are several institutions – BRAC University, University of Chittagong, Bangladesh Center for Advanced Studies, Bangladesh Institute of Development Studies, Institute of Water Modelling, SAARC Meteorological Research Center, Center for Environmental and Geographic Information Services – undertaking climate change work in Bangladesh. Most of the information and knowledge generated in these institutions, however, is not readily available and synthesised for designing EbA projects focussed on climate-resilient local community livelihoods. Most of the information and lessons learned from experiments as well as national and local level projects are generally captured by the relevant institution. Therefore, this research and work is at present scattered across existing institutions and many stakeholders are not aware of mechanisms to obtain it. At present, there is a need for a central climate change information-sharing centre to consolidate and disseminate all available information regarding climate change. This will assist CCFPs and their ministries design and implement appropriate EbA projects as well as the CCU evaluate climate change adaptation proposals for accessing funding from the Climate Change Resilience Fund and the Bangladesh Climate Change Trust Fund. In the absence of a climate change information-sharing platform, it is likely that on-going investments in climate change adaptation

and ecosystem management in Bangladesh will continue in an *ad-hoc* and uncoordinated fashion. For this project proposal it is proposed that baseline activities costs will include co-financing of **USD 1, 904, 760** from CCU financing and the UNEP led Asia Pacific Adaptation Network which will be relevant to collating climate change information in Bangladesh in a centralised information base – the exact values will be determined during the PPG phase.

#### **Adaptation scenario:**

With LDCF funding, the proposed LDCF project will establish a central information base in MoEF that will encourage and collate climate change research in Bangladesh, with a particular emphasis on EbA. For the full potential of EbA to be recognised for increasing the adaptive capacity of local communities to climate change, the proposed LDCF project will use existing literature and tailored research to identify appropriate: i) measures for rainwater harvesting, water storage/conservation techniques and efficiency in irrigation; ii) climate-resilient/multi-benefit tree and crop species/varieties for inclusion in mixed farming and agro-forestry practices; iii) alternative livelihoods options for local communities to generate income when faced with increasingly unpredictable severe weather events; iv) techniques for maintaining/enhancing production and improving soil conditions under a changing climate; and v) sustainable crop and livestock/fisheries management. Through the appropriate research and knowledge management, the proposed LDCF project will facilitate the design of future EbA projects using the information and knowledge already available in the country and global best practice. Lesson learnt and good practice collected from the project will be shared and disseminated through the UNEP led Asia Pacific Adaptation Network (APAN.)

The additional costs of establishing appropriate knowledge management and research for EbA are **USD 495, 238**.

#### *A.1.5. Adaptation benefits*

**At the local level**, the following adaptation benefits will be realised by communities living in the Barind Tract and Haor Area: i) improved natural capital and ecosystem services, including natural capital that is replenished (potable water, fertile soils), natural capital that is cultivated or produced (crops, fish stocks) and natural capital that is renewed (ecosystem services/biodiversity); ii) increased livelihood options (crops, fish, trees, eco-agriculture) for facing uncertain climate events; iii) strengthened livelihood ‘safety nets’ for providing natural resources during/after extreme weather events; iv) increased physical/natural capital for moderating environmental extremes, minimising natural disasters and stabilising ecosystem components e.g. intact wetlands for enhancing *inter alia* flood regulation, erosion control; and v) improved human capital through capacity building/training activities for restoring degraded drylands and wetlands.

Recipient local communities will immediately perceive the **short-term benefits** of climate-resilient dryland and wetland establishment in the Barind Tract and Haor Area. These benefits will initially accrue at a local level within the proposed project’s area. However, research/information consolidated and generated under Component 3 will ensure that local level interventions are sustainably expanded and replicated across the country. This will enable the proposed project’s climate change adaptation benefits to cover greater geographic scales and persist long after project completion.

#### *A.1.6. Innovativeness, sustainability and potential for scaling up*

The proposed LDCF project is grounded in the principles of EbA which is innovative itself. A rapidly growing body of studies suggest that EbA projects deliver favourable cost/benefit ratios when compared with hard adaptation strategies. This is because EbA can help support governments to meet not only their adaptation needs but also their mitigation commitments and broader development goals. EbA reduces climate change vulnerability, but it simultaneously provides a range of co-benefits such as carbon storage and sequestration, biodiversity conservation, alternative livelihoods, and poverty reduction opportunities. Furthermore, restoring or protecting the extent of dryland/wetland ecosystems improves ecosystem resilience, which reduces the risk of ecosystems reaching tipping points and shifting to unmanageable or unrecoverable states as climate change proceeds<sup>13</sup>.

To ensure that the proposed LDCF project’s concepts, directions and interventions are sustainably expanded and replicated throughout the Barind Tract and Haor Area, the proposed LDCF project will: i) build a robust knowledge base for designing appropriate EbA interventions in the face of climate change; ii) mainstream climate change adaptation (including EbA) into the CCU and relevant policies and plans; and iii) undertake capacity building of all

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<sup>13</sup> Jones et al 2012. Harnessing nature to help people adapt to climate change. Nature. Published online: 26 June 2012 | doi: 10.1038/nclimate1463

stakeholders (from government to community-level) to enhance climate-resilient dryland/wetland restoration and support decentralization/devolution. This will reduce the vulnerability of dryland/wetland landscapes and associated local community livelihoods established to climate change impacts.

Participation/community engagement will be an important factor during all phases of the proposed LDCF project and will form the basis of long-term consensus building. The LDCF project will focus on increasing the involvement of local communities in the development of EbA interventions. This will build confidence and trust between local communities and the MoEF and CCU, as well as empower communities to participate in the establishment of climate-resilient drylands/wetlands and to understand the respective adaptation benefits. This will guarantee that communities protect the climate-resilient drylands/wetlands established under the proposed project.

## **A.2. Stakeholder engagement**

The project will use a thorough participatory approach with stakeholder participation and validation for all major activities. Stakeholder consultations around proposed activities will mobilise local communities, initiate discussions and promote buy-in from local communities. Consultations at a national level will include ministries, NGOs, international partners and the private sector. At the local level local government departments, community user groups, community members and relevant organisations will be included. Key stakeholders of the proposed LDCF project include local communities, regional and district administrations, and government agencies and stakeholders from the baseline projects. As the Executing Agency of the proposed project is the MoEF, the CCU (located within the MoEF) will act as the national coordinating body.

Other government ministries involved in the proposed LDCF project will include the Ministry of Agriculture (MoA) and the Ministry of Water Resources (MoWR). The BMDA (within the MoA) is implementing the baseline projects in the Barind Tract, and the BWDB (within the MoWR) is implementing the baseline projects in the Haor Area. The Center for Environmental and Geographic Information Services (CEGIS within the MoWR) and the Department of Environment (DoE) have also been consulted during the preparation of the proposed LDCF project. Research institutions – BRAC University, University of Chittagong, Bangladesh Center for Advanced Studies, Bangladesh Institute of Development Studies, Institute of Water Modelling – will provide the scientific basis for establishing climate-resilient drylands/wetlands, including research on appropriate multi-purpose indigenous plant species. Both local and international experts will be important stakeholders for guiding the proposed project's activities under all project components. Furthermore, the proposed project will actively engage with NGOs and Community Based Organisations as partners for on-the-ground implementation.

The **main stakeholders** of the proposed LDCF project are the local communities living in and adjacent to the project areas in the Barind Tract and Haor Area. Local communities will be actively engaged throughout the project design and implementation. Furthermore, local communities will provide the traditional/indigenous knowledge basis for the proposed LDCF project's components. The LDCF project will consider gender equality during all stages of design and implementation. Gaining an understanding of gender-specific needs will enable the proposed project to provide adaptation benefits to both men and women. Lastly, gender disaggregated indicators will be included in the programme's monitoring and evaluation framework.

At the commencement of the PPG implementation phase, an inception workshop will be convened for all major stakeholders. During this workshop, a project steering committee will be formed. As the PPG implementation phase progresses, a list of possible adaptation alternatives will be developed. Appropriate EbA adaptation interventions and project sites for demonstration of these interventions will then be finalised. The selection of interventions and project sites will take place during mapping workshops, where experts in fields related to the project interventions (e.g. socio-economic development experts; wetland, ecosystem and biodiversity managers, hydrologists, civil engineers, etc.) assess the potential adaptation measures, the selection criteria and the process for selecting appropriate demonstration sites. The inception and mapping workshops will also enable the: i) collection of baseline information; ii) documentation of ongoing initiatives and potential areas of collaboration; and iii) the initiation of discussions with potential implementing and co-financing partners.

## **A.3. Risks and mitigation measures**

Please see Table 2 below for a summary of the risks that might prevent the proposed LDCF project's objectives from being achieved.

**Table 2. A summary of the proposed LDCF project’s risks, risk ratings and mitigation measures.**

Identified Risks	Rating	Mitigation Measures
Resistance of stakeholders to accept change i.e. the adaptation alternative over the business-as-usual. This has a potential to affect the scaling up of project activities.	High	<ul style="list-style-type: none"> <li>• The proposed project will be institutionalised within the MoEF and CCU to ensure sustainable delivery into the future.</li> <li>• Awareness raising will be conducted at all levels using appropriate IEC (Information, education and communication) means/materials.</li> <li>• Capacity building and training of important stakeholders will be conducted to increase their understanding/awareness of the benefits of the project’s activities.</li> </ul>
Unfavourable climate conditions including current climate and seasonal variability and/or extreme weather events.	High	<ul style="list-style-type: none"> <li>• Ensure that current climatic variability is taken into account in project design.</li> <li>• Integrate EbA support measures (rainwater harvesting structures, drought/flood resilient eco-agriculture) for reducing exposure of project activities to unfavourable conditions.</li> <li>• Focus on climate-resilient species for dryland/wetland restoration.</li> </ul>
Staff turnover in responsible government departments (in particular MoEF and CCU)	High	<ul style="list-style-type: none"> <li>• Establish supporting relationships during the initial stages of project design with appropriate individuals in the respective Ministries/Departments.</li> </ul>
Increasing Overseas Development Assistance increases demands on government staff time/capacity.	Medium	<ul style="list-style-type: none"> <li>• Collaborate closely with other related overseas development projects/programmes/activities/initiatives to ensure government staff time is managed and capacity built according to the required in-country needs.</li> </ul>
Capacity constraints of local institutions may limit the ability to undertake the required research/assessments and project interventions.	Medium	<ul style="list-style-type: none"> <li>• Initiate collaboration and exchange between local institutions and international research institutes.</li> <li>• Develop human resource capacity as required.</li> <li>• An international and local expert will work closely with the proposed project managers, researchers and other relevant stakeholders.</li> </ul>
Priority interventions implemented are not found to be cost-effective.	Low	<ul style="list-style-type: none"> <li>• Cost-effectiveness will be a core principle in the implementation of climate-resilient/multi-benefit adaptation measures. Detailed information will be recorded regarding cost effectiveness.</li> </ul>

#### **A.4. Coordination with other relevant GEF financed and other initiatives**

The proposed LDCF project will coordinate closely with public, private and local community stakeholders that are involved in the design and implementation of the following initiatives, so as to build synergies between projects and avoid duplication:

- UNEP led Asia Pacific Adaptation Network which is the Asia-pacific leg of the Global Adaptation Network. Its mandate is to mobilizing knowledge and technologies to support adaptation in Asia Pacific region. 1.5MUSD are sought as grant co-finance from UNEP as the leading agency for APAN.
- UNEP-UNDP LDCF project “Assisting Least developed Countries (LDCs) with country-driven processes to advance National Adaptation Plans (NAPs)”. The project budget is 2MUSD and will be implemented from 2013-2015.
- UNEP led Programme of Research on climate change Vulnerability, Impacts and Adaptation (PROVIA) which provides for more cohesive and coordinated global research support and accessibility of Vulnerability Impact Assessment (VIA) knowledge to policymakers and other stakeholders. 500USD are sought as in-kind co-finance from UNEP to the project.
- UNEP SCCF Global project ‘Enhancing Capacity, Knowledge and Technology Support to Build Climate Resilience of Vulnerable Developing Countries.’ The project will run from 2013-2017 with a budget of 4,900,000 USD. The main aim of the project is to reduce the vulnerability of Least Developed Countries and developing African and Asia-Pacific countries to climate change impacts by providing capacity, knowledge and technology support on Ecosystem Based approaches to Adaptation.
- GoB-led project ‘Community-based Sustainable Management of Tanguar Haor (CSMTH)’, executed by IUCN in Bangladesh, focussing on establishing a sustainable management system in the Ramsar wetland site of the Tanguar Haor in Northern Bangladesh. The project is currently in its third and last phase (01/07/2012-30/06/2015), which aims to consolidate efforts undertaken since its first phase in 2006. The

project is funded by the Swiss Agency for Development and Cooperation (SDC), The total project budget for the third phase is ~US\$ 2,270,537

- ‘Ecosystems for Life’ – A Bangladesh-India Initiative focussing on developing a trans-boundary technical understanding of the Bangladesh-India system of rivers, floodplains, canals, and water bodies (namely, Ganges, Brahmaputra and Meghna rivers systems) to ensure sustainability of the ecosystems. The project is a civil society led multi-stakeholder dialogue process executed by the IUCN and funded by the Embassy of the Kingdom of the Netherlands (EKN) and IUCN. The overarching goal of the initiative is to increase understanding of the values of ecosystems in the Bangladesh sub-region using various dialogue processes.
- The ‘Comprehensive Disaster Management Programme’ (CDMP I and II) including the ‘Disaster and Climate Risk Management in Agriculture’ (DCRMA) project, aimed at improving and strengthening capacities for effective disaster risk reduction and climate change adaptation. The project budget is 69.5 million USD and will be implemented from 2010-2014.
- ‘Wetland Biodiversity Protection’ Project funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and focussing on increasing wetland biodiversity by restoring freshwater fishery habitats in the Pabna District. The project budget is 7.5 million Euro from 2009 – 2015.
- UNDP-led project entitled ‘Community based adaptation to Climate Change through Coastal Afforestation in Bangladesh’, funded by the LDCF (USD 3.3 million) from 2009-2013, and aims to enhance resilience of coastal communities as well as introduce new options for income generation.

## **B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:**

### **B.1. National strategies and plans or reports and assessments under relevant conventions**

GoB is increasingly aware of the country’s vulnerability to climate change. As a result, the government formed the National Steering Committee on Climate Change (NCCC) headed by the Minister, under the MoEF and tasked with developing, coordinating, facilitating and overseeing the implementation of national climate change strategies and plans. The NCCC includes a CCU in the MoEF for overall coordination and management and CCFPs in other government ministries for planning and implementing activities within the respective ministry. The proposed LDCF project has been developed based on in-country guidance from the NCCC, CCU and relevant CCFPs. Furthermore, the NCCC has approved the proposed project’s aims and interventions.

GoB signed the United Nations Framework Convention on Climate Change (UNFCCC) in June 1992 and ratified the UNFCCC in April 1994. In order to fulfil its commitments and obligations to the UNFCCC as required by Articles 4.1 and 12.1, Bangladesh developed the Initial National Communication in 2002 and the National Adaptation Programme of Action (NAPA) in 2005. In 2008, GoB prepared and adopted the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) as a dynamic document that incorporated and substantially expanded the NAPA. The present BCCSAP 2009 is a revised version of the BCCSAP 2008 and reflects the changed development priorities of the new democratic government, including the government’s Vision 2021. This vision is to eradicate poverty, increase employment opportunities, ensure food security, provide access to energy and power, and achieve economic and social well-being of all citizens of the country. The BCC Strategy 2009 prioritises adaptation and the BCC Action Plan includes six main pillars including food security, social protection and health, comprehensive disaster management, infrastructure, research and knowledge management, low carbon development and capacity building. The proposed LDCF project is in line with priority areas identified for action in the BCCSAP 2009, including developing and harnessing water resources through better river course management and river training, and minimising the destructive potentials of future floods that are expected to be more severe. The proposed LDCF project has been designed to work towards the following BCCSAP pillars:

- **Pillar/Theme 1.** Food security, social protection and health, including: Programme 3) adaptation against drought; Programme 4) adaptation in fisheries sector; Programme 5) adaptation in livestock sector; Programme 8) livelihood protection in ecologically fragile areas; and Programme 9) livelihood protection of vulnerable socio-economic groups (including women).
- **Pillar/Theme 3.** Infrastructure – in the context of EbA e.g. natural infrastructure, including Programme 5) adaptation against Floods (Haor Area).
- **Pillar/Theme 4.** Research and Knowledge Management, including: Programme 1) establishment of a center for knowledge management and training on climate change.
- **Pillar/Theme 6.** Capacity Building and Institutional Strengthening, including: Programme 3) strengthening human resource capacity; Programme 4) strengthening gender consideration in climate change management; and Programme 5) strengthening institutional capacity for climate change management.

The proposed LDCF project is, furthermore, consistent with the following project investment portfolios identified in the Haor Master Plan (Volume I, II and II): i) WR-02, flood management of Haor Areas; ii) WR-08, study of

climate change impact on the Haor Areas; iii) AG-08, intensive cultivation of homestead vegetables and horticulture; iv) AG-20, cultivation of innovative agriculture through floating bed vegetables; v) FI-02, habitat restoration for rehabilitation of fish diversity; vi) FI-11, restoration of river duars (deep pools) for protecting brood/mother fish; vii) F1-18, study on the impact of climate change and interventions on fisheries resources; viii) LS-01, improvement of fodder availability for livestock development; ix) LS-10, promotion of small and mini poultry and duck farms; x) FR-01, establishment of one forest nursery in each of the 57 Upazilas of the Haor Area; xi) FR-02, afforestation through involvement of local community in Haor Area; xii) BW-01, eco-management of Haor wetlands for biodiversity protection; xiii) BW-02, restoration of important wetlands; and xiv) IT-01, strengthening and capacity development of the BHWDB.

With regards to the Bangladesh NAPA, the proposed LDCF project has been designed to address the following priority activities: 9) development of eco-specific adaptive knowledge (including indigenous knowledge) to enhance adaptive capacity for future climate change; 10) promotion of research on drought, flood and saline tolerant varieties of crops to facilitate adaptation in future; 12) adaptation to agriculture systems in areas prone to enhanced flash flooding – North East and Central Region; and 13) adaptation to fisheries in areas prone to enhanced flooding in the North East (Haor area) and Central Region through adaptive and diversified fish culture practices.

In addition to the Bangladesh BCCSAP, NAPA, NCs, Haor Master Plan and Vision 2021 the LDCF project is consistent with the following national government policies/plans/strategies: i) Sixth Five Year Plan; ii) Poverty Reduction Strategy (2012); iii) the National Capacity Self- Assessment (2007); iv) National Water Policy (2004); v) Millennium Development Goals (MDG) (2000-2015); vi) National Forestry Policy (1994); vii) National Agriculture Policy (1999); viii) National Fisheries Policy (1998); ix) National Livestock Development Policy; x) National Environment Policy (1992); and xi) National Rural Development Policy (2001).

## **B.2. GEF Focal area and/or fund(s) strategies, eligibility criteria and priorities**

The proposed LDCF project has been developed using the Updated Results-Based Management Framework for the Least Developed Countries Fund (LDCF), Adaptation Monitoring and Assessment Tool (GEF/LDCF.SCCF.9/Inf.4 October 20, 2010) and the “Operational Guidelines on Ecosystem-based approaches to Adaptation (GEF/LDCF.SCCF.13/Inf.06 October 16, 2012).

The LDCF project corresponds to Objective CCA-1 “Reducing Vulnerability: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level”; CCA-2 “Increasing Adaptive Capacity: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level;” and CCA-3 “Adaptation Technology Transfer: Promote transfer and adoption of adaptation technology. Table A indicates the funds that are being allocated to the relevant Focal Areas under the Results-Based Management Framework.

Under Component 1, the proposed LDCF project will ‘climate-proof’ existing local community livelihoods and income strategies in pilot sites in the Barind Tract and Haor Area. This will be achieved by using EbA for maintaining and/or enhancing the long-term provision of ecosystems goods and services, promoting adaptation of local communities and conserving biodiversity under future climate change conditions. The EbA will include integrated ecosystem management/restoration, ecological agricultural, mixed farming and sustainable fisheries and crop management. Under Component 2 and 3, the proposed project will assist national GoB projects to integrate EbA into existing capacity building, knowledge support and project design activities. This will contribute to building technical capacity in the country to produce and implement well-designed EbA projects, thereby reducing the vulnerability of communities to climate change.

The proposed LDCF project has been designed specifically to meet the urgent and immediate adaptation needs of Bangladesh’s most vulnerable local communities as **identified in the BCCSAP 2009 and Bangladesh NAPA (Decision 7/CP.7)**. It blends activities and elements from both plans.

In line with the LDCF eligibility criteria and priorities, the proposed LDCF project will use LDCF resources to finance the additional costs needed for increasing the climate change resilience of local community livelihoods in the Barind Tract and Haor Areas. This will be achieved by building on GoB-led baseline projects and strengthening capacities and technical knowledge in government ministries for designing EbA projects. The proposed project is entirely country-driven and well-coordinated with a number of GEF and non-GEF initiatives in the country (see Section A4).



In line with the LDCF guidelines, the project has been developed and will be implemented using the following approaches: i) participatory (communities and relevant stakeholders); ii) learning-by-doing; iii) multi-disciplinary; iv) complementary; and v) gender sensitive. It will take a two-pronged approach for building the climate change resilience and adaptive capacity of on-going government investments in vulnerable areas/communities. It will, **firstly** integrate climate-resilient, and in particular EbA approaches, into GoB-led baseline early warning and disaster risk reduction extension projects. **Secondly**, EbA will be mainstreamed into climate change adaptation planning through: i) appropriate human resource, technical and institutional capacity building; and ii) establishing an appropriate EbA research and knowledge management system.

### **B.3. The GEF Agency's comparative advantage for implementing this project**

UNEP's considerable experience in implementing ~80 adaptation-related projects including SCCF, LDCF and AF projects throughout Africa and Asia-Pacific provide experience upon which the agency will draw during the implementation of the LDCF project. Furthermore, UNEP has a proven international and national record for its strong technical and scientific background in the field of climate change, and as such is an appropriate agency for providing EbA capacity building and implementation support within Bangladesh. UNEP's experience in community-based projects, natural resource management and support for the development of national environmental policy is well recognised in Asia.

UNEP's Flagship Programme: Ecosystem-based Adaptation represents a ground-breaking shift in focus in the realm of climate change adaptation, which has been commended by the Conference of the Parties to the UNFCCC (CoP). The EbA approach is multidisciplinary in nature, and involves managing ecosystems to build their resilience, and use ecosystem services to promote climate change adaptation and disaster risk management. This approach has been endorsed by IUCN and the EC, and provides a platform for engaging a broad range of stakeholders and sectors in the adaptation process. This approach, furthermore, has recently been endorsed by GEF through the Operational Guidelines on "Ecosystem-Based Approaches to Adaptation" GEF/LDCF.SCCF.13/Inf.06 October 16, 2012.


UNEP's expertise and support are important to making the environment an integral part of the work of UN country teams. At the regional level, UNEP is a member of the UN Development Group for Asia and Pacific that coordinates regional support to UN Country Teams. Furthermore, UNEP participates in the regional Peer Support Group that provides hands-on support to UN Country Teams. In terms of capacity to implement the proposed project in Bangladesh, the MoEF has appropriate systems, including a country-wide institutional network and necessary staff and infrastructure. In addition, UNEP has extensive experience implementing projects in Bangladesh, with several on-going projects including: i) Technology Needs Assessment; ii) Environment and Climate Change Outlook; iii) Assessing Policies and Capacity Strengthening Needs on SCP; iv) UNEP-ADB-GEF Climate Technology Network and Finance Centre (Bangladesh is one of the countries of this regional project); and v) Short-lived Climate Pollutants (CCAC) of which Bangladesh is a founding member of CCAC, and has a strong political commitment towards it. Furthermore, UNEP has a long history of implementing projects within Bangladesh with previous projects such as: i) National Sustainable Development Strategy; ii) Bangladesh State of Environment; and iii) Dhaka State of Environment Report. Through its regional office in Bangkok and capacity to work directly with governments, UNEP will be able to mobilise staff time and resources to supervise the project. Close proximity to UNEP's Bangkok regional office and regular communication with the national implementing partners will provide the means for successful project delivery.

**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S)  
AND GEF AGENCY(IES)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Shafuqur Rahman Patwari	Secretary;	Ministry of Environment and Forests	04/ 11/ 2013

**B. GEF AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Maryam Niamir-Fuller, Director, GEF Coordination Office, UNEP, Nairobi		06/10/2013	Ermira Fida, Portfolio Manager, GEF climate change adaptation DEPI, UNEP	+ 254 714636329	ermira.fida@unep.org

## ANNEX A: Adaptation benefits of the proposed LDCF project.

**Table A1. Climate change vulnerabilities of the baselines projects versus the adaptation alternative under the LDCF alternative scenario.**

Baseline projects	Climate change hazards affecting the project area	Impacts to the baseline projects and targeted populations as a result of climate change	Ecosystem goods/services targeted by the LDCF project	Adaptation measures supported by the LDCF project	How the proposed LDCF project will contribute towards increasing the resilience the baseline projects
<b>Project targeted vulnerable sites and communities:</b>					
Local communities living in the Barind Tract and Haor Area that are vulnerable to climate change impacts.					
<p><b>Barind Multipurpose Development Authority (BMDA)</b></p> <ul style="list-style-type: none"> <li>• Irrigation Project aims to use surface water for irrigation to increase food production</li> <li>• Seed Project aims to increase agricultural production through the provision of quality seeds</li> <li>• Communication Network Projects aims to arrest desertification through afforestation along roadsides.</li> </ul>	<p>Seasonal droughts and intermittent dry spells (due to increased temperatures and increasingly erratic rainfall).</p> <p>Increase in average temperature and number of hot days and hot nights.</p>	<p><b>Increased water stress and greater demand for irrigation</b> for agriculture and reforestation activities.</p> <p><b>Reduced household income and food security</b> as a result of <b>crop losses and decreased agricultural productivity.</b></p> <p><b>Reduced quality and availability of fresh water</b> for irrigation, agriculture and domestic use.</p> <p><b>Reduced viability of agriculture and reforestation activities</b> that are not using drought-tolerant species and techniques.</p>	<p><b>Increased resilience of natural infrastructure</b> such as wetlands and watersheds to the impacts of drought.</p> <p><b>Increased quality and availability of fresh water,</b> through increasing the rate of infiltration of rainwater into topsoils.</p> <p><b>Reduced erosion and fertility loss of soils</b> in restored drylands.</p> <p><b>Increased resilience of biodiversity.</b></p>	<p><b>Strengthening the technical capacity</b> of local and national institutions to plan, implement and upscale EbA.</p> <p><b>Increasing the resilience and reducing the vulnerability</b> of local communities to climate change impacts, particularly <b>temperature rise and increased drought</b> in the Barind Tract, through the establishment of <b>resilient drylands</b> in degraded areas.</p> <p><b>Strengthening the information base</b> of both <b>scientific and indigenous knowledge</b> to support the design of EbA interventions.</p>	<p><b>Increased natural capital</b> and availability of <b>ecosystem services.</b></p> <p><b>Increased water availability</b> for irrigation projects.</p> <p>Introduction of <b>drought-tolerant species.</b></p> <p><b>Increased technical capacity</b> for designing and implementing EbA interventions as a result of capacity-building activities.</p> <p><b>Increased food security and diversity of livelihood options</b> as a result of <b>increased climate resilience and availability of NTFPs.</b></p>
<p><b>Bangladesh Water Development Board (BWDB)</b></p> <ul style="list-style-type: none"> <li>• Construction of hard infrastructure, including embankments, sluice gates, culverts and canals, to reduce the impact of floods in the Haor Area.</li> </ul>	<p>Increased frequency and severity of heavy rainfall events during the monsoon season.</p> <p>Erratic or unpredictable onset of rainfall during the monsoon season.</p>	<p><b>Damage to hard infrastructure</b> such as canals, culverts and embankments as a result of <b>flooding.</b></p> <p><b>Reduced household income and food security</b> as a result of <b>increased frequency and severity of flood damage to agricultural areas</b> and other livelihood assets.</p> <p><b>Reduced quality and availability of fresh water</b> as a result of increased sedimentation and pollution of surface waters,</p>	<p><b>Mitigation of floods</b> through the enhanced retention of water by restored wetlands.</p> <p><b>Increased resilience of natural infrastructure</b> to flood impacts.</p> <p><b>Reduced erosion</b> of flood-prone areas.</p> <p><b>Increased productivity of fisheries.</b></p> <p><b>Increased quality and availability</b> of fresh water.</p>	<p><b>Strengthening the technical capacity</b> of local and national institutions to plan, implement and upscale EbA.</p> <p><b>Increasing the resilience and reducing the vulnerability</b> of local communities to climate change impacts, particularly <b>hydrological changes</b> in the Haor Area, through the establishment of <b>resilient wetlands</b> in degraded landscapes.</p> <p><b>Strengthening the information base</b> of both <b>scientific and indigenous knowledge</b> to support the design of EbA interventions.</p>	<p><b>Reduced impact of floods</b> on infrastructure, livelihood assets and households.</p> <p><b>Increased availability</b> of freshwater <b>ecosystem goods and services.</b></p> <p><b>Increased food security</b> as a result of enhanced productivity of freshwater fisheries.</p> <p><b>Increased resilience</b> of local community <b>livelihoods and food security</b> to flood impacts.</p>

Baseline projects • Goals and activities	Climate change hazards affecting the project area	Impacts to the baseline projects and targeted populations as a result of climate change	Ecosystem goods/services targeted by the LDCF project	Adaptation measures supported by the LDCF project	How the proposed LDCF project will contribute towards increasing the resilience the baseline projects
<b>Project targeted vulnerable sites and communities:</b> Local communities living in the Barind Tract and Haor Area that are vulnerable to climate change impacts.					
<b>Barind Multipurpose Development Authority (BMDA)</b>  <ul style="list-style-type: none"> <li>• Irrigation Project aims to use surface water for irrigation to increase food production</li> <li>• Seed Project aims to increase agricultural production through the provision of quality seeds</li> <li>• Communication Network Projects aims to arrest desertification through afforestation along roadsides.</li> </ul>	Seasonal droughts and intermittent dry spells (due to increased temperatures and increasingly erratic rainfall).  Increase in average temperature and number of hot days and hot nights.	<p><b>Increased water stress and greater demand for irrigation</b> for agriculture and reforestation activities.</p> <p><b>Reduced household income and food security</b> as a result of <b>crop losses and decreased agricultural productivity.</b></p> <p><b>Reduced quality and availability of fresh water</b> for irrigation, agriculture and domestic use.</p> <p><b>Reduced viability of agriculture and reforestation activities</b> that are not using drought-tolerant species and techniques.</p>	<p><b>Increased resilience of natural infrastructure</b> such as wetlands and watersheds to the impacts of drought.</p> <p><b>Increased quality and availability of fresh water,</b> through increasing the rate of infiltration of rainwater into topsoils.</p> <p><b>Reduced erosion and fertility loss of soils</b> in restored drylands.</p> <p><b>Increased resilience of biodiversity.</b></p>	<p><b>Strengthening the technical capacity</b> of local and national institutions to plan, implement and upscale EbA.</p> <p><b>Increasing the resilience and reducing the vulnerability</b> of local communities to climate change impacts, particularly <b>temperature rise and increased drought</b> in the Barind Tract, through the establishment of <b>resilient drylands</b> in degraded areas.</p> <p><b>Strengthening the information base</b> of both <b>scientific and indigenous knowledge</b> to support the design of EbA interventions.</p>	<p><b>Increased natural capital</b> and availability of <b>ecosystem services.</b></p> <p><b>Increased water availability</b> for irrigation projects.</p> <p>Introduction of <b>drought-tolerant species.</b></p> <p><b>Increased technical capacity</b> for designing and implementing EbA interventions as a result of <b>capacity-building activities.</b></p> <p><b>Increased food security and diversity of livelihood options</b> as a result of <b>increased climate resilience and availability of NTFPs.</b></p>
<b>Bangladesh Water Development Board (BWDB)</b>  <ul style="list-style-type: none"> <li>• Construction of hard infrastructure, including embankments, sluice gates, culverts and canals, to reduce the impact of floods in the Haor Area.</li> </ul>	Increased frequency and severity of heavy rainfall events during the monsoon season.  Erratic or unpredictable onset of rainfall during the monsoon season.	<p><b>Damage to hard infrastructure</b> such as canals, culverts and embankments as a result of <b>flooding.</b></p> <p><b>Reduced household income and food security</b> as a result of <b>increased frequency and severity of flood damage to agricultural areas</b> and other livelihood assets.</p> <p><b>Reduced quality and availability of fresh water</b> as a result of increased sedimentation and pollution of surface waters,</p>	<p><b>Mitigation of floods</b> through the enhanced retention of water by restored wetlands.</p> <p><b>Increased resilience of natural infrastructure</b> to flood impacts.</p> <p><b>Reduced erosion</b> of flood-prone areas.</p> <p><b>Increased productivity of fisheries.</b></p> <p><b>Increased quality and availability of fresh water.</b></p>	<p><b>Strengthening the technical capacity</b> of local and national institutions to plan, implement and upscale EbA.</p> <p><b>Increasing the resilience and reducing the vulnerability</b> of local communities to climate change impacts, particularly <b>hydrological changes</b> in the Haor Area, through the establishment of <b>resilient wetlands</b> in degraded landscapes.</p> <p><b>Strengthening the information base</b> of both <b>scientific and indigenous knowledge</b> to support the design of EbA interventions.</p>	<p><b>Reduced impact of floods</b> on infrastructure, livelihood assets and households.</p> <p><b>Increased availability</b> of freshwater <b>ecosystem goods and services.</b></p> <p><b>Increased food security</b> as a result of enhanced productivity of freshwater fisheries.</p> <p><b>Increased resilience</b> of local community <b>livelihoods and food security</b> to flood impacts.</p>

## ANNEX B: Map of Bangladesh

Red circles delineate selected project areas/sites.

