ANNUAL REPORT 2011

Bangladesh Climate Change Resilience Fund (BCCRF)

BCCRF

Bangladesh
Climate Change
Resilience Fund

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(JULY 2010 – DECEMBER 2011)[1]

[1] This annual report is being prepared on an exceptional basis for the period July 2010 to December 2011. Henceforth all annual reports will cover the period January 1 to December 31.

Bangladesh Climate Change Resilience Fund (BCCRF)

Multi-Donor Trust Fund Report

Prepared by the World Bank

January 31, 2012

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Acronyms

BCCRF	Bangladesh Climate Change Resilience Fund
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
CBA	Cost Benefit Analysis
CCCP	Community Climate Change Program
CDKN	Climate and Development Knowledge Network
CEA	Cost Effectiveness Analysis
DAE	Department of Agriculture Extension
ECRRP	Emergency 2007 Cyclone Recovery and Restoration Project
GC	Governing Council
GoB	Government of Bangladesh
IDA	International Development Association
IPCC	Intergovernmental Panel on Climate Change
LGED	Local Government Engineering Department
MC	Management Committee
MDG	Millennium Development Goals
MoEF	Ministry of Environment and Forest
MoU	Memorandum of Understanding
PKSF	Palli Karma Shohayak Foundation (Rural Activities Support Foundation)
WHO	World Health Organization

1. Background and Governance

1.1 Background

Bangladesh is one of the world's most vulnerable countries to climate change. Rising global temperatures are likely to increase the frequency and intensity of cyclones in the Bay of Bengal as well as monsoon rainfall, resulting in catastrophic floods in the Ganges– Brahmaputra-Meghna Basin. Sea level rise and the consequent coastal flooding and saline intrusion into aquifers constitute serious threats. The resulting impact on people's livelihoods can be devastating, especially in light of Bangladesh's high population density.

To address this immense challenge, Bangladesh launched its first Climate Change Strategy and Action Plan (BCCSAP) in 2009 to build a medium- to long-term program for enhancing resilience to climate shocks and facilitating low carbon and sustainable growth. BCCSAP identifies six main pillars: (i) food security, social safety and health; (ii) comprehensive disaster management; (iii) infrastructure; (iv) research and knowledge management; (v) mitigation and low carbon development; and (vi) capacity building to address climate change impacts on various sectors of development.

At the same time development partners had recognized the importance of implementation of BCCSAP and established the Bangladesh Climate Change Resilience Fund (BCCRF), with contribution from bilateral donors. A Memorandum of Understanding (MoU) was signed in May 2010 by the development partners and the government to facilitate establishment of BCCRF. This fund has received, to date, approximately US$125 million from development partners, including the Department for International Development (DFID), the European Union (EU), as well as the Governments of Denmark, Sweden and Switzerland.

BCCRF is managed and implemented by the Government of Bangladesh (GoB). A technical assistance portion of BCCRF is being executed by the World Bank with agreement of the GoB. On behalf of the contributing Development Partners, and in consultation with the GoB, the World Bank ensures, for a limited duration, the performance of due diligence requirements for BCCRF (including fiduciary management, transparency and accountability). In addition, the World Bank would ascertain that expenditures associated with the implementation of projects and activities financed by BCCRF resources are incurred with attention to the principles of economy, efficiency and effectiveness.

Key Dates

May 31, 2010	*Signing MOU*
July 6, 2010	*DFID & Denmark sign contribution to BCCRF*
Nov 8, 2010	*Sweden signs contribution to BCCRF*
Dec 6, 2010	*Switzerland signs contribution to BCCRF*
Dec 15, 2010	*EU signs contribution to BCCRF*
Jan 18, 2011	*Gazette notification composition MC & GC*
Feb 23, 2011	*1st MC meeting*
April 13, 2011	*2nd MC meeting*
April 25, 2011	*3rd MC meeting*
May 19, 2011	*1st GC meeting*
Aug 8, 2011	*Signing Shelter Project Grant Agreement*
Oct 13, 2011	*4th MC meeting*
Nov 1, 2011	*Signing Secretariat Grant Agreement*
Nov 16, 2011	*5th MC meeting*

1.2 Governance

BCCRF is an innovative partnership between the Government of Bangladesh, Development Partners and the World Bank to address the impacts of climate change. Leadership in implementing BCCRF rests with the Government in collaboration with the World Bank and Development Partners. The partnership enables the Government to channel grant funds to millions of Bangladeshis to help build their resilience to the effects of climate change

- **BCCRF is a country-led financing mechanism.**
- **The Governance framework ensures full Government ownership and leadership**

How is BCCRF Governed?

BCCRF's governance arrangements consist of three tiers: (i) Governing Council; (ii) Management Committee; and (iii) Secretariat.

(i) Governing Council

The Governing Council (GC) provides overall strategic direction and guidance to BCCRF and ensures its alignment with the BCCSAP. It is a high level committee chaired by the Minister of the Ministry of Environment and Forests (MoEF) and comprises the respective Ministers from the Ministries of Agriculture, Finance, Food and Disaster Management, Foreign Affairs, Water Resource and Women's and Children Affairs; Secretaries from the Prime Minister's Office, MoEF, Economic Relations Division (ERD) of the Ministry of Finance, and Ministry of Planning; two representatives from the contributing Development Partners; two representatives from civil society; and the Country Director of the World Bank as an observer.

Its primary responsibility is to provide advisory guidance on the program's strategic goals and alignment with the Government's climate change strategy, grant criteria, and high-level issues, such as the eventual transfer of BCCRF's fiduciary management responsibility to the Government. In particular, it approves projects to be funded and reviews the achievement of results.

(ii) Management Committee

The Management Committee (MC) is a small technical committee chaired by the Secretary of MoEF and includes: two other representatives from MoEF (Joint Secretary, Development and Deputy Secretary, Environment); one representative from ERD (Additional Secretary) and one from the Planning Commission (General Economic Division); two representatives from contributing Development Partners; one representative from the World Bank; and one representative from civil society.

The MC's primary responsibilities are to: (i) carry out detailed reviews of grant requests submitted by the Secretariat; (ii) ensure that grant requests submitted are in line with the agreed Implementation Manual; and (iii) recommend projects for preparation to the GC. The MC also reviews and endorses the Implementation Manual, the work program and budget allocations as well as the reports prepared by the Secretariat for submission to the GC prior to public dissemination. If funding is required for project preparation, the MC issues its recommendation on the amount needed to the GC.

(iii) Secretariat

The Secretariat – to be based in MoEF – will be responsible for providing support to the GC and MC as well as advocacy, communication and coordination support to all agencies implementing activities funded by BCCRF.

On February 23, 2011, the MC approved the establishment of a Secretariat within MoEF to support the administration of BCCRF activities. The GC subsequently approved an allocation of US$0.2 million on May 19, 2011 for the establishment of the Secretariat and a grant agreement was signed between the World Bank and ERD on November 1, 2011. Recruitment of the Secretariat staff is underway. Until the Secretariat in MoEF is operational, a dedicated World Bank team is carrying out the secretariat functions.

The Secretariat's three main functions are to: provide day to day support to the MC and GC; conduct advocacy, communication and coordination; and prepare the transfer of BCCRF's financial management to the Government. Adequate staffing of the Secretariat would ensure the sustainability of BCCRF and its operations.

Role of the World Bank

As mentioned above, the World Bank is responsible for ensuring the performance of due diligence to fiduciary management, transparency and accountability in the execution of BCCRF's operations and activities. It ensures that BCCRF resources for the implementation of projects and other activities are utilized with attention to the principles of: (i) economy – costs are kept low; (ii) efficiency – BCCRF is getting the most out of the expenditures; and (iii) effectiveness – monies are used for the intended purposes and toward targeted results.

The World Bank was selected because of its extensive experience in managing trust funds. In 2009, the Bank administered more than 1,000 active trust funds amounting in total to above US$20 billion from 217 donor agencies (representing 53 countries). In addition, the World Bank is well positioned to share its analytical and technical advisory experience on international best practices in development. Hence, it is also providing analytical work, knowledge management and technical assistance for the implementation of the BCCSAP via BCCRF.

Implementation Manual

The guidelines for BCCRF operations are contained in an Implementation Manual prepared by the World Bank in consultation with the Government and Development Partners. The manual presents the policies and practices for the implementation of BCCRF, including the governance structure, criteria for accessing funds, as well as monitoring and evaluation arrangements. The manual also describes the procedures applied by the World Bank in carrying out the due diligence requirements for BCCRF.

2. Trust Fund Management

2.1 Communication

Communication plays a vital role in disseminating information to the public on Bangladesh Climate Change Resilience Fund. Communication in BCCRF focuses mainly on sharing knowledge and information on the fund modality and its impact among a wide range of national and international stakeholders, including Government officials, NGOs, civil society members, development partners, academics, students and last but not the least, local level grass root organizations and the target beneficiaries who are vulnerable to the effects of climate change.

Communication Officer. After a few hiccups in the beginning to engage a communication expert, BCCRF has a full time Communication Officer on board since June 1, 2011.

Logo. Keeping in mind the branding and identity role out of BCCRF a logo has been designed and has already been used in different outreach materials that had already been developed. The leaves symbolize the life on a tree, which in turns represent the improved livelihoods one is aiming to achieve by building people's resilience to climate change. **Green** is the color environmentalists use to represent nature because of the green grasses and leaves that are scattered all over the world. *Going green* is now a popular term used to describe changing one's lifestyle for the benefit of the environment. **Blue** is the color of water and the sea which symbolize life and purity.

Website. The development of BCCRF website is a major communication tool for information sharing and knowledge dissemination. Currently the BCCRF site has been hosted temporarily in the World Bank site www.worldbank.bd/bccrf but soon will move to an independent site. The website promotes the fund modality, selection process of the projects and the criteria, project Governance mechanism, FAQ, activities of BCCRF, some facts and figures on climate change and the work of its partners along with enabling BCCRF to maintain transparency and adhere to Right to Information Act. A competent vendor has been selected to develop the site independently. Considering the wide range of its stakeholders there is plan of constructing a Bangla version of the website as well.

Durban information package. An information pack containing a newsletter – focusing on the ongoing activities of BCCRF, a one pager on the Governance framework of BCCRF and a one pager on the future intervention of BCCRF activities has been prepared targeting the Durban Conference on Climate Change, COP 17 (Dec 2011). The information pack was handed over to MoEF for distribution to the stakeholders during the conference. In the Bangladesh stall, set up in the International Conference Center, visitors evinced keen interests about the information package and all 400 copies were quickly exhausted. The information pack is also an effective tool for the media and other stakeholders depicting an overview of BCCRF to date. Presentation containing the current status of the BCCRF, the projects being run, future interventions was done for the official delegation participating to the COP17 conference to enhancing their understanding on BCCRF. Representatives from donor delegations, Government and the media also attended the event.

BCCRF is also focusing on **reaching out the civil society** and media with the information on the fund to resolve confusion regarding BCCRF and other climate change funds. As an effort,

presentation focusing BCCRF modality has been made in a workshop organized by the civil society. A significant number of meetings have been held with different civil society/organizational representatives that have asked for details on BCCRF. A number of meetings with the media were also organized clarifying the role, position and current projects under BCCRF.

A ***communication strategy*** is being prepared for BCCRF. This strategy will have very clear objective focusing on detailed communication activities targeting the major stakeholders of BCCRF. The plan will map out all the major outreach materials, events at national and local level keeping specific target audience and time line in mind over the whole project period.

2.2 Staffing

The Implementation Manual (dated March 2011 and approved by the MC) spells out the roles and responsibility of the World Bank team. The WB team was expected to be composed of a Program Manager, a Portfolio Monitoring and Results Specialist, Communication Specialist, a Program/Finance Analyst and admin support as needed. In addition, it was envisaged that the WB team would tap into the Bank's Bank fiduciary staff resources during the design, negotiation, and implementation of grant activities and that every grant proposal will be managed by a TTL in his/her respective sectors.

The World Bank is now focusing on the international recruitment of the Dhaka based **Program Manager** position. The position was advertised in December, 2011. A number of candidates have been short-listed and interviewed. It is expected that the successful candidate will take up the position as soon as possible.

On August 13, 2009 the WB had advertised this position. A panel interviewed the 6 shortlisted candidates in February 2010 and made their recommendation to the World Bank Management. The uncertainty surrounding BCCRF at the time resulted in a delay in offering the position. By the time the position was offered the selected candidate had already accepted another position. In the meantime, in January 2010, a **Sr. Monitoring and Evaluation Specialist** (on Secondement from DFID) had joined the team. Given the delay in the establishment of BCCRF, the job of M&E specialist could not be performed. Instead, the Sr. M&E Specialist became involved in all aspects of BCCRF administration and management together with the BCCRF TTL- based in Washington. It was agreed with DFID that the title of the Sr. M&E Specialist will be revised to Sr M&E and Trust Fund Coordinator, to better reflect the scope of work. To date therefore, the Program management position has been jointly held by the Washington based- TTL and the Dhaka based Sr M&E specialist.

BCCRF Core Team
*BCCRF TTL; Program Manager (*temporarily filled by the BCCRF TTL and Sr. M&E Specialist); *Sr. M&E Specialist and Trust Fund Coordinator; Communication Specialist; Program Analyst; Administration Support; Trust Fund Support*

Project teams:
Cyclone Shelter Project: Lead Water Specialist
Cross Dam Proposal: Water Specialist
Community Climate Change Project: Sr. Natural Resources Specialist
Climate Resilient Participatory Afforestation and Reforestation Project: Sr. Environment Specialist
Secretariat: BCCRF TTL and Sr. M&E Specialist
Agricultural Project: Lead Water Specialist

Fiduciary staff:
Environmental Safeguard Specialist; Social Safeguard Specialist; Financial Management Specialist; Procurement Specialist; and Lawyer.

Analytical Work:
Water logging of urban areas: Lead Environmental Economist
Health impacts of climate change: Sr. Environmental Economist

2.3 Financial Reporting

As of December 6, 2011, about 25% of total pledges will have been received. In other words, to date about US$31.7 million has been paid into the BCCRF, out of the total amount pledged of about US$ 125 million.

Table 1: Total Donor Pledges to BCCRF (as of December 2011)

Partners	Pledges			Deposits in donor's currency (million)	Deposits in US$ (million)	Remaining balance in donor's currency (million)	Remaining balance in US$ (million)	Remaining balance as % of pledges (%)
	Currency	Donor currency (million)	Amount in US$ (million)					
Denmark	DKK	10.0	1.8	4.9	0.9	5.1	0.9	50%
DfID*	GBP	60.0	95.0	6.0	9.8	54.0	85.2	10%
EU**	EUR	8.5	11.2	4.3	6.2	4.2	5.0	51%
Sweden*	SKR	90.0	13.0	80.0	12.8	10.0	0.2	89%
Swiss	SWF	3.4	3.4	1.7	1.9	1.7	1.5	50%
Total			**124.4**		**31.7**			**25%**

** Two Calls of Funds have recently been made to DfID (6 million) and Sweden (10 million) but are not yet reflected in this table.*
*** EU intends to increase its contribution to BCCRF by EUR 20 million and to transfer EU 10 million very shortly.*
***Note*: numbers may vary due to currency fluctuations.**

Net available contributions are calculated by adding investment income (paid in by the World Bank) to the total pledges (both paid and unpaid) and subtracting the administrative fee (taken by the World Bank for all Trust Funds) which is calculated at 1% of total contributions.

Table 2: Details of Net Available Contributions

Details	Holding Currency (USD millions)
Total Pledges, of which:	124.4
(+) Unpaid Portion	92.3
(+) Portion Paid-in	31.6
(+) Investment Income	0.1
(-) Admin Fee (1%)	0.3
Net Available Contributions	30.8

Note: numbers may not add exactly due to rounding.

The details of allocations by individual activities are presented in Table 3. The majority of the financing will go towards recipient executed activities that were approved by the MC of the BCCRF. Preparation of these projects will be done using the World Bank's technical expertise, as well as procurement, fiduciary and safeguards requirements.

Table 3 Details of the BCCRF Portfolio, as of December, 2011

ACTIVITY	Status	Start date	End Date	Allocation	Disbursed
Multipurpose Cyclone Shelters (Recipient executed)	**Active**	Aug 8, 2011	Dec 31, 2014	25.0	0.0
Community Climate Change Project (Recipient executed)	Pending			12.5	0.0
Climate Resilient Participatory Afforestation and Reforestation Project (Recipient executed)	Pending			25.0	0.0
Agricultural Adaptation in Climatic Risk Prone Areas of Bangladesh (Recipient executed)	Pending			22.7	0.0
Secretariat (Recipient executed)	**Active**	Nov 1, 2011	Dec 31, 2014	0.2	0.0
Analytical Activities Window (Bank executed)	**Active**	Aug 25, 2010	Dec 31, 2014	3.2	0.2
Program and Projects administration (Bank executed)	**Active**		Dec 31, 2014	4.1	0.5
			Total	**92.7**	

2.4 Monitoring and Evaluation

The Implementation Manual includes a preliminary level results framework. The World Bank team is currently working on revising this framework to reflect the projects approved for preparation and implementation. This revised framework will be shared with the BCCRF partners in early 2012.

3. The BCCRF Portfolio

3.1 Operational Activities

BCCRF has been designed such that, except for well-defined analytical work and knowledge management activities, all investments financed by the fund will be executed by the GoB, its designated agencies or other eligible institutions. GoB's line ministries and agencies as well as other designated institutions may apply for BCCRF grants to finance projects within the CCSAP's six pillars. Such grants are executed by the Government's line ministries or designated institutions and are referred to as "recipient executed" grants. They finance **two types of projects**: (i) those implemented by the Government at the ministry, division, district or sub-district level; and (ii) those implemented by non-governmental organizations (NGOs) including community-based groups, foundations, or other civil society organizations. It is envisaged that 90% of BCCRF recipient-executed grants will finance activities executed by Government bodies while the remaining 10% would support activities implemented by civil society organizations.

3.1.1 Projects implement by GoB (90% of recipient-executed grants)

The Ministry of Environment and Forests (MOEF) issues two rounds of call for proposals in 2011. Around 40 proposals were received from various government agencies. The World Bank screened each proposal received and - based on seven criteria- prepared a *Proposals Screening Report* that was submitted to the Management Committee (MC). In each MC meeting all proposals received to date were reviewed and recommendations were made to select projects for further preparation. In 2011, a total of 5 MC meetings were held. The seven criteria used to screen the proposals are as follow:

1. **Criteria 1: Size of proposal** – Approximated at US$15-25m, based on assumptions regarding the expected size of the total contributions to the BCCRF and on cost effectiveness of carrying out the appraisal and supervision of the individual grants.
2. **Criteria 2: Consistency with CCSAP objectives** – Project activities should be directly linked to one or more of the objectives of the six pillars of the CCSAP, namely : (i) Food security, social protection and health; (ii) Comprehensive disaster management; (iii) Infrastructure; (iv) Research and knowledge management; (v) Mitigation and low carbon development; and (vi) Capacity building and institutional strengthening.
3. **Criteria 3: Experience with development operations** - Priority is given to proposals that use existing project units of development-type operations to administer the grant and the use of existing delivery channels as far as possible, over the creation of new ones. Institutional capacity of the implementing agency is critical in ensuring that projects are efficiently delivered.
4. **Criteria 4: Readiness for implementation** – Given the short implementation period of the grants, projects proposed should be at relatively advanced stage of preparation, that is feasibility studies, detailed designs, environmental impact assessment, and social impact assessments should be completed. This will ensure that project appraisal and grant approval can be expedited and implementation can be completed within the grant window period.
5. **Criteria 5: Results targeted** – Is the intervention clear about results achieved and the impact? Is a clear M&E framework already in place? Is it possible to assess value for money at this point? The change to which the intervention will contribute and the desired impact.

6. **Criteria 6: Complementarities or overlap with other programs -** To ensure synergies are maximized with existing programs and that there is no duplication with existing activities managed by the implementing ministry.

7. **Criteria 7: Social and Environmental Benefits** – To ensure that the there are no major negative environmental impacts and that the expected results include positive impacts on vulnerable groups and women.

The proposals received are:

	Proposal Title	Implementing Agency
1	Multipurpose Cyclone Shelter Construction Project	Local Government Engineering Department (LGED) **Selected**
2	Meghna Estuarine Districts Climate Change Adaptation and Agricultural Development for Ensuring Food Security Project	Ministry of Agriculture: Bangladesh Agricultural Development Corporation
3	Project for Adoption and Mitigation from Climate Change Impacts in the Coastal Regions of Bangladesh	Ministry of Local Government, Rural Development and Cooperatives: Rural Development and Cooperative Division
4	Feeding Manipulation and Waste Recycling of Livestock for Methane Emission Reduction	Ministry of Fisheries and Livestock: Bangladesh Livestock Research Institute
5	Construction of 33,000 MT Capacity Food Storage at Disaster Prone Locations	Ministry of Food and Disaster Management: Food Division
6	Crop Surveillance and disaster monitoring system	Ministry of Defense: Bangladesh Space research and Remote Sensing Organization (SPARRSO)
7	Increased Crop Production for Combating Climate Change impact in Drought Prone Areas of Bangladesh	Center for Environmental and Geographic Information Services (CEGIS)
8	Afforestation and Reforestation for Climate Change Risk Reduction in Hilly and Coastal Areas	Ministry of Environment and Forests: Forest Department. **Selected**
9	Coastal Afforestation for Climate Change Risk Reduction	Ministry of Environment and Forests: Forest Department
10	Reforestation in the Degraded Forestland of the Chittagong Hill Tract	Ministry of Environment and Forests: Forest Department
11	Reforestation and Afforestation in the degraded Forestland of Chittagong Region	Ministry of Environment and Forests: Forest Department
12	Community based Adaptation to Climate Change through Participatory Coastal Afforestation and Water Security	UNDP
13	IDCOL Renewable Energy Program	Infrastructure Development Company Limited (IDCOL)
14	Project for Adoption and Mitigation from Climate Change Impacts on Food Security, Social protection, Energy, Safe Water and Sanitation in the Coastal Areas in Bangladesh	Ministry of Local Government, Rural Development and Cooperatives: Rural Development and Cooperative Division
15	Construction of Urirchar-Noakhali Cross Dam in the District of Noakhali	Bangladesh Water Development Board. **Under Consideration**
16	Construction of Sandwip-Urirchar Cross Dam in the District of Noakhali	Bangladesh Water Development Board
17	Reconstruction of Shelter (Safe shelter) cum school in Climate Change Affected Vulnerable Area	Ministry of Primary and Mass Education, Directorate of Primary and Mass Education

18	Agricultural Adaptation in Climatic Risk Prone Areas of Bangladesh (Drought, Flood and Saline prone areas)	Ministry of Agriculture: Department of Agricultural Extension. **Selected**
19	Building a Climate and Environment Sensitive Generation Through Green Clubs in Schools	Department of Environment and UNDP
20	Establishment of Bangladesh Environmental Training and Research Institute (Phase-1)	Department of Environment
21	Adaptive Urban Poor Community for Secured Livelihood	Water Resources Planning Organization (WARPO)
22	A Comprehensive Investigation into the Impacts of Climate Change on Cyclones and Storm Surges in Bangladesh and Other Related Phenomena	Center for Environmental and Geographic Information Services (CEGIS)
23	Multipurpose use of Sweet Water for Climate Victim People of Coastal Areas of Bangladesh	Ministry of Local Government Rural Development and Co-operatives: Rural Development and Co-operatives Division
24	Strengthening Department of Environment to address climate change and priority Environmental issues	Department of Environment
26	Community based adaptive measures of climate change effect on health sector in selected vulnerable areas of Bangladesh	Ministry of Health and Family Welfare
27	Support to Cyclone Preparedness Programme (MoFDM).	MoFDM and Cyclone Preparedness Program
28	Bangladesh Climate Change Knowledge Portal for Adaption in Water Resources Sector (CEGIS).	CEGIS, Ministry of Water Resources
29	Natural Hazards Risk-based early warning for Enhancing Community response and reducing Disaster Risks in Bangladesh	Disaster management and relief Division
30	Access to modern energy and drinking water supply to rural poor in Aila affected areas of Bangladesh (MOP).	Sustainable Energy Wing, Power Cell (MoPEM)
31	Safe Water Supply, Sanitation and Bio-gas Technology for Rural Livelihood Improvement in Climate Victim People of Bangladesh (CIWMP).	Center for Irrigation and Water Management (CIWM), RDA Bogra
32	Assessment of Hydrobiology in Relation of Fish and Shrimp Biodiversity of Shibsa River (BFRI).	Bangladesh Fisheries Research Institute, Ministry of Fisheries and Livestock
33	Climate Change Impact on Livestock and its Mitigation Project (Ministry of Fisheries and Livestock)	Department of Livestock Services, Ministry of Fisheries and Livestock
34	Climate Change Adaption Technology Transfer for Enhancement of Jute Productivity in Bangladesh (Department of Jute Ministry of Textile & Jute).	Department of Jute, Ministry of Textile & Jute
35	Strengthening the Management of coastal ecosystems to reduce poverty and adapt with the Vulnerability of climate change (DoF).	Department of Fisheries
36	Barisal Irrigation Expansion Project	Ministry LGRD & Cooperatives: Rural Development and Cooperatives Division
37	Restoration of Forest through Promotion of Renewable Energy in the Climate Victim Area	Ministry LGRD & Cooperatives: Rural Development and Cooperatives Division
38	Construction of 8 Food Storage Godowns, capacity 1000 MT each, in Disaster Prone Areas	Ministry of Food & Disaster Management: Food Division
39	Construction of Multipurpose Cyclone Shelters in the coastal belt areas	Ministry of Food and Disaster Management

Among the above mentioned proposals the MC recommended the following projects for further preparation and consideration: *Multipurpose Cyclone Shelter Construction Project* for US$25m, proposed by the Local Government Engineering Division (LGED); *Agricultural Adaptation in Climatic Risk Prone Areas of Bangladesh (Drought, Flood and Saline prone areas)* for US$ 22.76 million submitted by the Department of Agricultural Extension, and *Afforestation and Reforestation for Climate Change Risk Reduction in Coastal and Hilly Areas of Bangladesh project* for US$ 24.949 million submitted by the Forest Department. In addition, it recommended to further evaluate the *Construction of Urir Char - Noakhali Cross Dam* submitted by the Bangladesh Water Development Board.

3.1.2 Civil Society Window (10% of recipient-executed grants)

In order to manage the **Civil Society window** of BCCRF (estimated at 10% of the total funds) the Bank conducted in October 2010 a preliminary review and comparative assessment of four organizations that were proposed by MOEF to manage the civil society window. The organization put forwarded were: Palli Karma-Sahayak Foundation (PKSF); United Nations Development Program (UNDP); International Union of Conservation for Nature (IUCN); and Social Development Fund (SDF). Ten criteria were used to assess the strength and weaknesses of each institution:

(1) Previous experience of implementing funding program (>5 years)
(2) Experience managing large funds (>$ 5 million)
(3) Knowledge of climate change and adaptation
(4) Extent of field presence
(5) Existing mechanism and procedures for funding, supervision, and monitoring
(6) Any existing Operational Manual for funding mechanism
(7) Experience in World Bank fiduciary procedures in procurement and financial management
(8) Availability of sufficient human capacity to manage a civil society funding program
(9) If not, capacity and staffing needed in addition to existing program to manage the CSAP
(10) Requirement for overhead fees

On February 23, 2011, the MC recommended PKSF to implement the civil society window of BCCRF.

3.1.3 All Operational Activities

In addition to the projects implemented by GoB (3.1.1) and the civil society window implemented by PKSF, a **Secretariat** will be established at MOEF (see Chapter 1). Below is a list of all projects currently under BCCRF.

	Title	Implementing Agency
1	Multipurpose Cyclone Shelter Construction Project	Local Government Engineering Division (LGED) (US$25million)
2	Agricultural Adaptation in Climatic Risk Prone Areas of Bangladesh (Drought, Flood and Saline prone areas)	Department of Agricultural Extension (DAE) (US$ 22.76 million)
3	Afforestation and Reforestation for Climate Change Risk Reduction in Coastal and Hilly Areas	Forest Department (FD) (US$ 25 million)
4	Construction of Urir Char – Noakhali Cross Dam	Bangladesh Water Development Board (BWDB) (under consideration)
5.	Community Climate Change Program	Palli Karma-Sahayak Foundation (PKSF) (US$ 12.5 million)
6.	Secretariat for BCCRF	Ministry of Environment and Forests (MOEF) (US$ 0.2 million)

Multipurpose Cyclone Shelter Construction Project

$25 million Implemented by LGED

Background & Objectives

Photo credit: World Bank

Construction of new multipurpose cyclone shelter

Coastal regions such as Barguna, have always been prone to disasters, especially tropical storms. From 1980 to 2000 nearly 60 percent of worldwide deaths from cyclones occurred in Bangladesh alone. With the effects of climate change likely to increase the frequency and severity of cyclones and other natural disasters, Bangladesh needs to adapt to increased uncertainty and be prepared to ride out even the worst storms.

To protect people from tidal surges, Bangladesh has constructed a network of cyclone shelters and developed a community-based early warning system that has served as a model for other countries throughout the world. The multipurpose cyclone shelters are used throughout the year as schools, hospitals and local government offices, and then play a critical role in saving lives during cyclones and other natural disasters. Thanks in large part to the growing network of cyclone shelters and the early warning system, the number of fatalities in 2007's Cyclone Sidr was limited to around 3,500 compared to 140,000 in the 1991 cyclone.

The Government's National Climate Change Strategy and Action Plan calls for the repair, maintenance and construction of additional cyclone shelters throughout the coastal zones of Bangladesh. Estimates of need of additional new shelters vary from 2000 to 4000. In its first meeting, the BCCRF Governing Council (GC) approved a US$ 25 million grant to address the impact of cyclonic storms. The grant is constructing 56 new multipurpose shelters, rehabilitating 50 existing shelters and constructing 40km of connecting roads in five coastal districts.

The GoB is now improving the design of shelters to make them as functional and effective as possible. Built on one-story pillars, the shelters have a reinforced foundation to withstand the force of water and wind speeds up to 260 kilometers per hour. Livestock have space to gather below during disasters. Shelters have tube wells, rainwater harvesting systems and separate rooms for pregnant women and for first aid services. Solar panels are installed on the roof for efficient and reliable power. Sanitary blocks are upstairs so that they remain accessible and untainted during disasters, and include separate toilets for men and women. Improved design increases the lifespan and utility of the shelters, as well as increasing their functionality as schools, clinics and government offices during the rest of the year.

Status Update

The proposed grant of US$25 million was approved by the GC on May 19, 2011 and the Grant Agreement was countersigned by the Economic Relations Division of the Ministry of Finance on August 8, 2011. To speed the implementation of this project, the funds were channeled as additional financing to the *Emergency 2007 Cyclone Recovery and Restoration Project*, under which Component B of the project was providing financing to LGED for the construction and rehabilitation of multipurpose cyclone shelters.

Agricultural Adaptation in Climatic Risk Prone Areas of Bangladesh

$22.8 million Implemented by DAE

Background and Objectives

Climate change and variability is going to have a worsening impact on food security and rural livelihoods in Bangladesh. Agriculture represents a fifth of Bangladesh's gross domestic product and employs more than half of its workforce. Immediate attention therefore needs to be paid to the agriculture sector to address the threats of food insecurity, rural poverty, climate induced relocation and mass rural-urban migration, as a result of climate change.

The Ministry of Agriculture (MoA) has taken the approach of shifting the prevailing paradigm of response and relief modes to a proactive risk reduction approach. In this context, the Department of Agricultural Extension (DAE) has been identifying, testing and validating respective climate change adaptation (CCA) and disaster risk management (DRM) options with the aim of integrating them into national food security strategies and policies.

This BCCRF project with US$22.8m, and technical assistance from Food and Agriculture Organization (FAO) focuses on developing a working approach, replication of validated agriculture CCA options and pilot testing for the development of viable local cropping adaptation practices in salinity, flood and drought prone areas. The Project facilitates needs based and livelihood oriented "demand-driven" and "learning by doing" approaches through stakeholder capacity building, participatory adaptive research, adaptation technology dissemination, and field demonstration to identify and implement viable adaptation practices in close collaboration with local communities. The implementation process is drawing largely on experiences from the successful implementation of previous pilot initiatives in the agricultural sector in Bangladesh[2], where the extensive profiling of livelihood systems and training and capacity building elements were prototyped in the national context. The key objectives are:

- The validation and replication of agricultural CAA technologies and practices targeting resource-poor smallholder farmers in drought, flood and saline-prone areas.
- Strengthening the capacities of DAE and other stakeholders of agricultural CCA for climate change risk management and DRM.
- Development of community-based rural early warning systems in drought, flood and saline-prone areas.
- Enhancement of awareness raising, knowledge sharing, communications and multi-stakeholder engagement in agricultural CCA.

Status Update

The project is currently under preparation by the World Bank. It is expected that the Grant Agreement can be signed by June 2012, with activities to begin shortly thereafter.

[2] For example the UNDP-funded and DAE/FAO-implemented Livelihoods Adaptation to Climate Change Projects (LACC1 and LACC2) and the on-going UNDP-funded and DAE-implemented Disaster and Climate Risk Management in Agriculture Project

Climate Resilient Participatory Afforestation and Reforestation Project

$24. 9 million Implemented by FD

Background & Objectives

Forestry has both climate change mitigation and adaptation benefits: by carbon sequestrating, forests can reduce the global stock of greenhouse gases, and by effectively acting as a barrier against gusts and storm surges, forests can save lives and protect communities vulnerable to climate change.

"Government has taken the initiative to create a green belt along the coastline and to improve forestry coverage in hilly areas for better soil stability and watershed management. The proposed project under the Bangladesh Climate Change Resilience Fund will contribute to our on-going afforestation and reforestation program, as well as the institutional development and alternative livelihoods of the forest communities."
***Ishtiaq Uddin Ahmad**, Chief Conservator of Forests.*

In the Bangladeshi context, the role of forests as an adaptation mechanism is highly significant. In coastal areas, foreshore afforestation is a proven cost-effective method to dissipate wave energy and reduce floods on embankments during storm surges. This was evident during the 1991, 2007 (Sidr) and 2009 (Aila) cyclones. The virtual absence of mangrove forests in coastal Chokoria and surrounding areas resulted in large damages to property and loss of lives in 1991. In contrast, even scattered and unplanned afforestation on the foreshore of embankments affected by the 2007 cyclone Sidr substantially broke the storm surge velocity, reducing damages and losses.

Deforestation is also a major challenge in the hilly areas of Bangladesh, contributing – along with heavy rainfall - to soil erosion and serious landslides. During the 2007 landslide in Bangladesh's second-largest city, Chittagong, deforestation aggravated the impact, causing nearly 900,000 houses to collapse. Change in land use patterns, encroachment of forest land, forest fires, uncontrolled and wasteful commercial logging, illegal felling of trees, turning forest land into grazing fields and collecting fuel wood are considered major reasons for rapid deforestation.

Coordinated action is needed to counter deforestation trends. Planting in coastal zones protects against storm surges, while afforestation in hilly areas improves soil stability, thus reducing the risk of landslides and erosion. The Bangladesh Climate Change Resilience Fund has allocated US$ 25 million to afforest and reforest areas exposed to cyclones, storm surges and landslides. The aim is to afforest 16,000 ha and 2,500 km of strip plantations in seven coastal and hilly districts; and improve livelihoods of forest dependent communities by generating alternative activities. The fund will also support innovative studies to improve forest management in Bangladesh.

Forestation will go a long way to ensure that Bangladeshis are safer from the fury of future cyclones, storms and avoiding landslides. Planting trees and managing forests have become matters of survival for all climate vulnerable countries.

Status Update

Approved by the MC on April 13, 2011, this project is currently under preparation. A concept review meeting was held on October 31, 2011 where the team was commended for its thoroughness in the preparatory phase, and advised that it could proceed with the preparation and appraisal stages of the project. It is expected that the Grant Agreement will be signed in June 2012, with activities to begin shortly thereafter.

Construction of Urir Char – Noakhali Cross Dam

UNDER CONSIDERATION Feasibility Study Implemented by BWDB

Background and Objectives:

The Government of Bangladesh is considering investing in cross dams for land reclamation at the mouth of the Meghna River in the Bay of Bengal. Cross dams are closure structures between naturally accreted chars (or islands), or the char and the mainland, which are meant to accelerate the natural accretion process.

Construction of cross-dams dates from 1957, with a 14 km cross-dam being built in the eastern branch of the Meghna River for the purpose of reclaiming land for agriculture. A second 16 km dam was built in 1964 in the same river branch, after two earlier unsuccesful attempts. The present project area extends from the Sandwip Island, situated in the north-east corner of the Bay of Bengal, via the Unir Char, to the Noakhali mainland. The plans to connect Sandwip with the mainland date from 1984. However the morphology and bathymetry of the area had changed considerably since then, and in 2008-2009 a survey and modeling study, a conceptual design and an environment and social impact study were conducted.

It is recognized that deltas have a high potential for development, and in a large number of deltas, this development has taken place due to a number of natural advantages, such as the natural fertility and high water retention capacity of the soil, the shallow water table, the flatness of the land, the network of watercourses, the relative abundance of water, and the location as the outlet of a river basin.

However, these natural advantages are accompanied by inherent drawbacks, such as high instability and potential for constant change and variability, water logging of the land, flooding by the river and the sea, salt water intrusion, silting, and poor foundation soils. Special measures are necessary to obtain the full benefit of these natural advantages. Creating a man-made environment in such a dynamic estuary profoundly affects the existing hydrological conditions, with impacts that cannot be easily understood.

Status Update

The Consultancy with Prof Mead Allison, Associate Director, Institute for Geophysics, University of Texas, was initiated in August 2010, with assistance from the Water Expert Facility, a facility within the World Bank to provide world class expertise in the water sector to project teams. The objective of the consultancy was to provide an independent assessment of the current work that has been done to assess the feasibility of the cross dams proposed for financing from BCCRF.

The most important model results that drive the decision making for the design of the cross dams and the determination of cross dam impacts are velocity, for assessing whether adverse land erosion will take place, change in tidal water level, which will result in changes in the inundation pattern, and land building estimates, to determine how much land and how quickly it will be built up once the cross dam has been constructed.

There is a considerable level of uncertainty inherent in the critical model results that drive the decision making on the feasibility of the project. A number of recommendations were provided to improve the modeling to reduce some of this uncertainty, but it is recognized that the project carries substantial risks.

In follow on discussions and further consultation with Professor Ainun Nishat (Vice Chancellor of Brac University) and a very senior advisor on Climate Change, it was agreed that BWDB will submit a request to BCCRF to fund the preparatory studies and detailed design for the Urir Char – Noakhali Cross Dam. This will be considered as a small scale real world engineering experiment/ model that can lend itself for more testing and validation for future and strategic engagement on large scale cross-dam development in the Meghna Estuary.

Community Climate Change Project

$12.5 million Implemented by PKSF

Background & Objectives

The Community Climate Change Program (CCCP) is an important window for financing grant funding competitively to nongovernmental organizations to implement community-driven interventions on climate change adaptation. The BCCRF GC has designated Palli Karma- Sahayak Foundation as the umbrella agency responsible for overseeing the Community Climate Change Program.

The program will disburse 10 percent of BCCRF funds, currently amounting to approximately US$12.5 million. Of this amount, US$10 million will fund projects in the three most vulnerable climate zones in Bangladesh: saline affected coastal zones, flood-affected areas and charlands, and drought-affected or rain-scarce areas in north-western Bangladesh. Remaining funds will be allocated to monitoring, learning and sub-project refinement, through knowledge sharing and dissemination of lessons learned.

Status Update

The project is currently in the final stages of appraisal, and it is expected that the Grant Agreement will be signed in early 2012 with a first call for proposals from nongovernmental organizations to be held shortly after.

Secretariat for BCCRF

$0.2 million Implemented by MOEF

Background & Objectives

According to the signed MOU, a secretariat will be established in the Ministry of Environment and Forests to support BCCRF. The Secretariat will have three main functions: (1) provide day to day support to the MC (MC) and GC; (2) advocacy, communication and coordination and (3) preparation of a transition to a Government financial management of BCCRF. A detail description of the functions is provided in the Implementation Manual.

It is planned that the secretariat will be headed by a Joint Secretary or an official of a higher rank, who plays an important coordinating role for all the projects supporting the BCCSAP, in particular those that are funded by BCCRF. To the extent possible, the Secretariat staff will be GoB employees to ensure its long term sustainability.

Status Update

On February 23, 2011 at the MC approved the establishment of the Secretariat. On May 19, 2011 the GC approved an allocation of $0.2 million for the establishment of the Secretariat. A grant agreement was subsequently prepared and signed between the World Bank and ERD on November 1, 2011.

To speed up the implementation of the Secretariat it was agreed with MOEF that a procurement and financial management specialist (already working with the Department of Environment) on a International Development Association (IDA) funded project will work on a part time basis for the Secretariat to speed up the opening of the account and the recruitment of the key climate change specialists.

3.2 Analytical Activities

Background

According to the signed MoU, the World Bank has been delegated the responsibility to provide analytical support for the implementation of the BCCSAP. In order to solicit useful proposals for analytical work to support the six pillars of BCCSAP, the World Bank has consulted the *Climate Change and Bangladesh: Annotated Bibliography January 2010* compiled by the Comprehensive Disaster Management Program, Government of the People's Republic of Bangladesh and Bangladesh Development Research Center; and identified outstanding knowledge gap in the following areas[3]:

1. Impacts of climate change on vector-borne diseases and implications for the Health sector.
2. Natural disasters in a changing climate: Applicability of Risk financing Instruments.
3. Water logging of urban areas in a changing climate: Potential damage and adaptation.
4. Coastal zone in a changing climate: Ingress of salinity frontier.
5. Assessment of the threat of climate-induced out-migration from vulnerable areas.
6. Economic assessment of ways to improve energy use efficiency and green growth in Bangladesh.

The reasons behind identification of these six thematic areas along with brief descriptions of the proposed analytical work are as follows:

1. ***Impacts of climate change on vector-borne diseases and implications for the Health sector*** (in line with the BCCSAP pillar # 1. Food security, social protection, health). Analytical work on Impacts of climate change on vector-borne diseases and implications for the Health sector is required as changes in climate may alter the distribution and growth of important vector species (for example, mosquitoes) and may increase the spread of vector borne diseases, like malaria, dengue fever, lymphatic filariasis, kalaazar, encephalitis, and chickungunia to new and existing areas that lack a strong public health infrastructure. Literature review suggests that while there have been a few studies on water borne infectious diseases (cholera, non-cholera diarrhea, Rotavirus infections), the impacts of climate change on vector borne diseases; and implications for the Health sector has not been investigated in detail. Analytical work in this area should estimate change in location-specific disease incidence, population at risk, costs of adaptation-treatment & prevention, and conduct economic analysis to assess whether the costs are reasonable.

2. ***Natural disasters in a changing climate: Applicability of Risk financing Instruments*** (in line with the BCCSAP pillar # 2: Comprehensive Disaster Management): Analytical work on Natural disasters in a changing climate: Applicability of Risk financing Instruments is required as floods, tropical cyclones, storm surges and droughts are likely to be more severe due to climate change in coming years and literature review suggests analytical work on risk financing in Bangladesh is scarce. Analytical work in this area should focus on understanding the existing risk management framework, investigation of the applicability and institutional requirements of Weather Contingency Safety Net, Catastrophe Insurance and Catastrophe Bonds, Catastrophe Risk Deferred Drawdown Options, and estimation of real and fiscal consequences of natural disasters in presence of risk financing from an ex-ante perspective.

3. ***Water logging of urban areas in a changing climate: Potential damage and adaptation*** (in line with the BCCSAP pillar # 2: Comprehensive Disaster Management and pillar # 3: Infrastructure): Analytical work on Water logging of urban areas in a changing climate: Potential damage and adaptation is required as heavily urbanized

[3] Prior to identifying the outstanding knowledge gap and in agreement with MOEF (Aide Memoir Oct, 2010) the Bank agreed to prepare a policy note on the impact of climate change on extreme weather events (cyclone and monsoon flood). This work will basically bring together the results of two studies: "Vulnerability of Bangladesh to Cyclones in a Changing Climate" and "Climate Proofing Infrastructure in Bangladesh" prepared under the Economics of Adaptation to Climate Change Program. The policy note entitled "**The Cost of Adapting to Extreme Weather Evens in a Changing Climate**" is now ready for printing.

cities in the low-lying deltas of Asia have been identified as especially vulnerable to the increase in the frequencies and intensities of climate extremes predicted by the Intergovernmental Panel on Climate Change (IPCC) and the World Meteorological Organization in the 21st century. In many urban areas in Bangladesh flooding and water logging during rainy season is already a recurrent annual feature. With the addition of climate change effects, such flooding may worsen dramatically into disasters. A few studies have been conducted and proposed to address the vulnerability of Dhaka city and flood management. Hence, analytical work proposed in this area should try to estimate the impacts of climate change on other urban centers (for example, Chittagong, and Sylhet), especially implications for their marginalized segments of the society from economic, social and environmental viewpoints; and evaluate adaptation alternatives.

4. ***Coastal zone in a changing climate: Ingress of salinity frontier*** (in line with the BCCSAP pillar # 1: Food security, social protection and health # 4: Research and Knowledge Management): Analytical work on Coastal zone in a changing climate: Ingress of salinity frontier is required as measurement of soil and water salinity along the coastal zone is already indicating intrusion of saline waterfront landwards in many areas, and the problem of salt water intrusion is expected to be critical for low lying coastal areas with increase in sea surface level and decrease in fresh water flow from Himalayan rivers predicted caused by climate change. Conservative prediction by the IWM suggests the saline front is likely to reach as far as Jessore in the southwest region, and the problems will be severe in the Barisal, Bhola and Patuakhali districts; yet implications of salt water intrusion on livelihood and adaptation alternatives has not been investigated with the exception of a few localized case studies. Analytical work proposed in this area should address prediction of location-specific salinity, estimation of potential impact on agriculture, fishing & aquaculture, industrial production & cost, infrastructure, drinking water and water for domestic use, evaluation of implications for poverty, assessment of potential displacement of Coastal Population and costing of adaptation alternatives.

5. ***Assessment of the threat of climate-induced out-migration from vulnerable areas*** (in line with the BCCSAP pillar # 1: Food security, social protection and health, BCCSAP pillar # 4: Research and Knowledge Management): Analytical work on Assessment of the threat of climate-induced out-migration from vulnerable areas is required as the IPCC has noted time and again that the greatest single impact of climate change might be on human migration—with millions of people displaced by shoreline erosion, coastal flooding and agricultural disruption; and Bangladesh because of its geographic location, low elevation, high population density, poverty incidence, and dependence on natural resources and services is particularly vulnerable to migration induced by future climate change. Analytical work proposed in this area should address Identification of migration routes and destination, projection of approximate magnitude of displacement, quantification of the impacts on infrastructure, assessment of implications for poverty and evaluation of effectiveness of disaster warning system and aid delivery to prevent temporary displacement from becoming permanent.

6. ***Economic assessment of ways to improve energy use efficiency and green growth in Bangladesh*** (in line with the BCCSAP pillar # 5: Mitigation and Low Carbon Development): Analytical work on Economic assessment of ways to improve energy use efficiency and green growth in Bangladesh is required because the Government of People's Republic of Bangladesh is committed to transform the economy towards a greener and low carbon path and recognizes alternative opportunities of reducing carbon impacts in the power sector. Analytical work proposed in this area should focus on identification of ways and institutional requirements to improve energy efficiency, estimation of resulting carbon impact, cost benefit analysis of cleaner energy alternatives and evaluation of implications for proper pricing of energy.

The Process and Selection:

At the 4th MC Meeting on October 13, 2011, the above 6 topics were discussed and it was decided that the following 3 topics will be selected:

Proposal #1: **Impacts of climate change on vector-borne diseases and implications for the Health sector.**

Proposal #3 **Water logging of urban areas in a changing climate: Potential damage and adaptation**

Proposal #4 **Coastal zone in a changing climate: Ingress of salinity frontier** will be considered **after** the ongoing salinity work has been completed.

In addition, the World Bank will explore what the current Climate and Development Knowledge Network (CDKN) work on migration is covering and if there is any gap, further work on Proposal #5 **Assessment of the threat of climate-induced out-migration from vulnerable areas** could be considered.

The following sections present an overview of proposals that were approved for funding for analytical work.

Impacts of climate change on vector-borne diseases and implications for the Health sector.

Background: Climate change and increasing climate variability threaten the attainment of the Millennium Development Goals (MDG), and it is anticipated that some of the worst effects will be on human health. The 2008 Human Development Report highlighted that changes in climate may alter the distribution and growth of important vector species (for example, mosquitoes) and may increase the spread of vector borne diseases, like malaria, dengue fever, lymphatic filariasis, kalaazar, encephalitis, and chickungunia to new and existing areas that lack a strong public health infrastructure. Climate change is also likely to increase the incidence of waterborne infectious diseases and bring additional stresses like dehydration, malnutrition and heat-related morbidity especially among children and the elderly. A literature review suggests among the multiple health threats Bangladesh is facing due to climate change, bulk of the current research is on water borne infectious diseases (see references listed below). The impacts of climate change on vector borne diseases; and implications for the Health sector has not been investigated in detail.

Objective and Expected Outcome: To better understand the health implications of climate change, this component will first look at detailed data on rainfall, temperature and extreme weather events in Bangladesh and the linkages between those and health endpoints of vector borne disease including malaria, dengue fever, lymphatic filariasis, kalaazar, encephalitis, and chickungunia related to climatic factors which are significant for achieving the MDGs. The second part of the analysis will look at implications of this assessment for the design of prevention and treatment policies. As the GoB needs to plan in advance on some of the health-related public expenditures, this type of analysis could influence policy options in the next 10-15 years. The analysis will also review a number of valuable studies about the costs of health interventions (planned actions) to reduce disease incidence and related mortality and morbidity, with a specific focus on areas which are expected to be most vulnerable to the health impacts of climate change. The study will test various methodological approaches for estimating health adaptation costs to deal with all identified vector borne diseases. The proposed research would make a major contribution to better public health policy-making in the context of climate change adaptation in the region.

Methodology and Data: The study will estimate vector borne disease incidence due to climate change (using exposure–response functions from the literature), project future population growth under different scenarios, and estimate the population at risk (multiplying future population by the incidence ratio). The costs of health adaptation will be estimated using market-based data and information in order to perform a cost assessment based on unit values multiplied by the target population living in the vulnerable areas and by the incidence of diseases. Health adaptation costs include treatment costs of additional cases (reactive adaptation) and costs for preventive measures to reduce the incidence of disease (proactive adaptation).The cost of health adaptation will depend on the health outcome, the intervention type (e.g. treatment or prevention), the expected reduction in the incidence of mortality and morbidity in relation to all identified vector borne diseases and finally on the geographical region where the impact is expected. Economic tools of cost-benefit analysis (CBA) and cost-effectiveness analysis (CEA) will be used to assess whether these costs are reasonable. The study of mortality and morbidity will be based on health care survey data from the WHO and within country health statistics.

Next Step: Concept Note prepared and shared with the MC in January 2012

Water logging of urban areas in a changing climate: potential damage and adaptation

Background: Projections by the Intergovernmental Panel on Climate Change and the World Meteorological Organization suggest an increase in the frequencies and intensities of climate extremes in the 21st century using various emission scenarios (WMO 2010; IPCC 2007). Heavily urbanized cities in the low-lying deltas of Asia have been identified as "hotspots", especially vulnerable to climate risks (ADB 2008; IPCC 2007). In many such cities, flooding and water logging during rainy season is already a recurrent annual feature. Furthermore, poor inhabitants of these urban centers are among the most vulnerable as large and densely populated conglomerations of slums and shanties are invariably located in areas of unplanned and unregulated development (World Bank 2010a, UNFCC, 2008).

Although it is anticipated that the future flood vulnerability of a number of major urban centers in Bangladesh will be aggravated due to climate change (GoB, 2008; Alam 2004); only two studies Alam and Rabbani (2007), Huq and Alam (2003) have been conducted and a joint study by the Collaborative Research on Flood Resilience in Urban Areas (CORFU) and the Institute of Water Modeling is under discussion to address the vulnerability of Dhaka city and flood management.[4,5] Hence, there remains a knowledge gap to better understand the impacts of climate change on other urban centers, especially implications for their marginalized segments of the society from economic, social and environmental viewpoints; and adaptation alternatives.

Objectives and Expected Outcome: To assess the capacity of major urban centers (e.g, Chittagong city and Sylhet where water logging is already a periodic phenomenon) to address current climate variability, predict climate change induced consequences for flooding/ water logging: forecast changes in the depth and duration of location-specific water logging and estimate potential damage. It will also identify adaptation options and define key policy priorities for decision-makers to deal with the threat of climate change impacts.

Methodology and Data: The analytical work will require (1) Evaluation of the current knowledge base, including historical climate information, coping strategies, and local capacity to deal with natural disasters—especially those that are related to flooding; (2) Analysis of the adequacy of the existing infrastructure to present climate variability; (3) Assess climate change scenarios and their consequences; (4) Quantification of the likely magnitude of social, environmental and economic damages expected because of climate change and variability; (5) Identification of most vulnerable area, infrastructure and communities to impacts of climate change and variability; (6) Identification and assessment of appropriate alternative intervention scenarios, and prioritization of suitable interventions according to effectiveness in terms of reducing vulnerability to threats from climate change and variability, associated cost, and implementation potential within the institutional setting of the city; and (6) Analysis of the capacity of the city's government to deal with natural disasters (emergency prevention and preparedness capacity, early warning system, emergency evacuation system, notification procedure and its effectiveness, etc) vis-à-vis international best practices, and provide appropriate recommendations.

Geo coded data on assets and activities, digital elevation model, data on rainfall and drainage will be the basis of the analysis. This analytical work will be conducted by various agencies and think tanks of Bangladesh in consultation with international experts.

Next Step: Concept Note prepared and shared with the MC in January 2012.

[4] It is expected that the World Bank Urban Flood Mitigation and Sanitation project will improve Dhaka's storm water drainage systems and pumping stations to alleviate serious flooding in the capital (World Bank, 2006).

[5] Literature survey also identified a number of studies discussing the possibilities and constraints for urban centers in adapting to climate change which may be applicable to Bangladesh (Huraera 2009, McGranahan et al 2007, Satterthwaite et al 2007).

4. Looking forward to 2012

Building on its first year of operations, BCCRF will focus on the following activities in 2012.

(i) Program Management

- Recruitment of a Program Manager to be based in Dhaka.

(ii) Projects under preparation -- Forthcoming appraisal toward committing 75% of BCCRF funds by June 2012

- Agricultural Adaptation in Climatic Risk Prone Areas
- Afforestation and Reforestation for Climate Change Risk Reduction in Coastal and Hilly Areas
- Community Climate Change Project

(iii) Pipeline activities – Research in support of BCCSAP implementation to be launched in the first quarter of 2012

- Impacts of climate change on the spread of vector-borne diseases (such as malaria and dengue fever)
- Potential impact of adaptation options related to water logging in urban areas in a changing climate
- Assessment of the threat of climate-induced migration from vulnerable areas

(iv) Support to establishment of a functioning Secretariat in MOEF

- Completing the recruitment of the Secretariat staff
- Initiating activities to build the Secretariat's capacity

A proposed Annual Work Plan for 2012 is shown below.

4.1 Proposed Annual Work Plan (2012)

Activity	Q1	Q2	Q3	Q4
1. Multipurpose Cyclone Shelter Project	***Building 56 new Cyclone Shelters and rehabilitate 50 existing shelter***			
	8 New Disaster Shelter construction awarded and started (Expected to complete by February 2013)	Rehabilitation of 11 shelters to be started	10 New Disaster Shelter construction to be started	10 New DS contracts to be initiated
2. Afforestation& Reforestation Project	***Afforest and reforest 16,000 hectares and 2,500 km of strip plantation.***			
	Project preparation completed by February	WB Appraisal by April	Operationalization starts by July	Field level activities are initiated
		Negotiation completed by May	PMU Set up	
		DPP presented to GC for approval	Procurement of consultants and goods starts in July	
3. Community Climate Change Project				
	Appraisal	Grant Signing	Project operational	Project operational
	Negotiation	PMU set up completed		
		Project Launching		
4. Agricultural Adaptation Project	***DAE Agricultural project to promote agricultural adaptation***			
	DPP presented to MC	Grant signing	On the ground operations start	Project activities ongoing
	GC approval*			
5. Management Committee Meeting				
	1 meeting in January	1 meeting	1 meeting	1 meeting
	Expected to recommend two new project proposals for preparation		Expected to recommend two new project proposals for preparation	

6. Governing Council Meeting				
	1 meeting in February	1 meeting		1 meeting
	DAE Project and CCCP is expected to get approval at GC meeting	Afforestation project to be approved in June		Expected to approve new project proposals
7. BCCRF Secretariat				
	MOEF opens special account for Secretariat.	Procurement of goods	Proposal submission for Secretariat Phase II	Ongoing operations
	MOEF starts staff recruitment	Workshop with ministries		
8. Analytical and Advisory Activities				
		"The cost of adapting to extreme weather events in a changing climate" printed and distributed.		
	2 Concept Notes (Health and Flooding) circulated	Stakeholder workshop	Research contracts initialized	Ongoing research activities
9. BCCRF General				
Communication	Draft communication strategy to be circulated by January	Ongoing activities as per strategy	Ongoing activities as per strategy	Ongoing activities as per strategy
	Finalization of Comm Strategy by March			
M&E	Draft M&E Framework to be circulated by January	Ongoing activities as per framework	Ongoing activities as per framework	Ongoing activities as per framework
	Finalization of M&E Framework by March			
Quarterly Report	1 report in March	1 report in June	1 report in September	
Annual Report				1 report in December 2012

** If ECNEC permission is required, then approval likely to take longer*

BCCRF benefits from the generous financial support of the Denmark, European Union, Sweden, Switzerland, United Kingdom and technical support of the World Bank