



Concept Paper

Project Number: 45084
July 2011

Bangladesh: Climate Resilient Infrastructure Improvement in Coastal Zone Project

Asian Development Bank

I. THE PROJECT

A. Rationale

1. This project is the result of the Government of Bangladesh's Strategic Program for Climate Resilience (SPCR), prepared under the Pilot Program for Climate Resilience (PPCR). The PPCR is a part of the Strategic Climate Fund (SCF)¹ within the Climate Investment Funds (CIF),² to pilot and demonstrate ways to mainstream climate resilience in development planning and management. The SPCR was approved by the PPCR Sub-committee on 10 November 2010. Led by the Asian Development Bank (ADB), the World Bank and International Finance Corporation, proposed investments in the Bangladesh SPCR will focus on improving coastal embankments, rural connectivity, water supply and sanitation, promoting public-private financing, and capacity building for mainstreaming climate resilience, and knowledge management. As one of the projects approved for enhanced climate resilience under the SPCR, the Climate Resilient Infrastructure Improvement in Coastal Zone Project will improve livelihoods in the rural coastal districts vulnerable to climate variability and change.³

2. Bangladesh is one of the most vulnerable countries to climate variability and change because of its geographic location, low deltaic floodplain, and hydro-meteorological influence of erratic monsoon rainfall and other extreme climate events. Increased risks of severe flooding, more frequent extreme weather events, salinity intrusion, erratic rainfall pattern, increased temperature and a potential sea level rise pose new risks to the rural infrastructure, particularly to the coastal districts. Rural infrastructure is directly vulnerable to the impacts of climate variability and change as well as indirectly, through changes to the surrounding environment. Changes in temperature are likely to impact road pavements. Extreme weather events such as stronger and/or more frequent cyclones and storm surges will affect the capacity of drainage and overflow systems to deal with stronger or faster velocity water flows. Increased salinity levels will reduce the structural strength of pavements and lead to precipitated rusting of the reinforcement in concrete structures, thereby reducing their effective life. Changes in rainfall pattern and water levels will impact road foundations with obvious consequences on their sustainability and robustness. To ensure its longevity and sustainability, any rural infrastructure investment, especially in coastal districts must be resilient to climate change associated extreme events. Inadequate attention to these impacts will increase the long-term costs of infrastructure investments, and the likelihood that such investments fail to deliver the intended benefits.

3. Climate change threatens the significant achievements made by Bangladesh in the last two decades in raising incomes and reducing poverty. In the country, women are relatively more vulnerable to extreme climate events because of poorer access to education and health services and economic opportunities; limited mobility; and various social restraints. By 2050, climate change impact is projected to result in an increase in the temperature by over 1.0°C and sea level rise of about 30 cm. This could make an additional 14% of the country extremely

¹ The SCF is to finance targeted programs with dedicated funding to pilot new approaches with potential for scaling up. It includes PPCR, Forest Investment Program, and Scaling up Renewable Energy Program in Low Income Countries.

² The CIF are a unique pair of financing instruments designed to support low-carbon and climate-resilient development through scaled-up financing channeled through ADB, the African Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, and World Bank Group.

³ A project preparatory technical assistance (PPTA) is needed for conducting technical, economic, financial and social due diligence of the proposed project and is included as Appendix 4.

vulnerable to floods and dislocate more than 35 million people in the coastal districts. The country has an outstanding adaptation deficit and there exist substantial risks from severe flooding even in the current climate. According to a recent estimate, 87% of roads in the country will be inundated by up to 0.5 meters due to climate change by 2050.⁴ The cost of adaptation for the railways, road network, embankments and drainage infrastructure to offset additional inundation due to climate change alone is \$ 2.7 billion. The cost estimate is conservative as it does not include the additional adaptation required in urban areas and unprotected river banks.

4. The project, while enhancing longevity and sustainability, will improve livelihoods in nine rural coastal districts prone to climate variability and change.⁵ The project will consider various climate proofing options both for engineering (subsurface conditions, material specifications, cross section and standard dimensions, drainage and erosion, and protective engineering structures), and non-engineering (maintenance, planning and early warning, knowledge products development and dissemination, capacity development and environmental management). ADB's Country Partnership Strategy for Bangladesh (2006-10) emphasizes the need for integration of disaster risk management and climate change adaptation and dealing with climate-induced natural disasters.

5. LGED has established a database and GIS-equipped facilities to analyze infrastructure design, and socioeconomic and climate related information with spatial dimensions. This information is currently used in the design of new infrastructure projects. In absence of appropriately skilled personnel and specialized equipment, this valuable source of information and data needs to be transformed and used as the source for the design of climate resilient infrastructure. Further processing of this information and its conversion into knowledge products for use in the design of climate resilient infrastructure and dissemination through links with related institutions would be necessary for effective knowledge management.

B. Impact, Outcome, and Outputs

6. The impact of the project will be improved and sustainable livelihoods in the rural coastal districts affected by climate variability and change. The project outcome will be coastal infrastructure climate proofed benefiting two million people including the poor and women. The outputs as envisaged are (1) road connectivity improved with climate-proofed design; (2) marketing facilities upgraded with specific provision for climate vulnerable groups and women; (3) capacity for climate-resilient infrastructure management improved; and (4) knowledge management improved to capture experience and lessons coming out of project implementation for application in other similar areas in the country and the region.

C. Investment and Financing Plans

7. The project cost is estimated at \$70.0 million.⁶ The tentative investment plan is summarized in Table 1.

⁴ Policy Research Working Paper 5469, Climate Proofing Infrastructure in Bangladesh, The World Bank, Development Research Group, Environment and Energy Team, November 2010.

⁵ These districts are: Satkhira, Khulna, Bagerhat, Perojpur, Barisal, Jhalokati, Bhola, Patuakhali and Barguna. Subprojects to be funded under the project shall be selected and determined on the basis of agreed criteria to be established.

⁶ KfW has also shown initial interest to cofinance the project.

Table 1: Tentative Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Strategic Climate Fund ^a	30.0 ^b	42.8
ADB ^c	20.0	28.6
Government	20.0	28.6
Total	70.0	100.0

ADB = Asian Development Bank

^a Financed by the Strategic Climate Fund under the Pilot Program for Climate Resilience and administered by ADB.

^b Loan \$20 million, and grant \$10 million (including \$250,000 for project-based knowledge management)

^c Loan from ADB's Special Funds Resources.

Source: ADB staff estimates

D. Indicative Implementation Arrangements

8. The Executing Agency will be the Local Government Engineering Department (LGED) in the Local Government Division of the Ministry of Local Government, Rural Development, and Cooperatives. A project steering committee, chaired by the secretary of the Local Government Division, will provide overall policy guidance for project implementation. A suitably staffed project management office (PMO), to be established by LGED at its headquarters in Dhaka, will implement the project. The PMO will have two regional offices in the most vulnerable coastal districts. The PMO will be assisted by consultants with expertise in climate risks and vulnerability assessment, engineering design and supervision, economics and finance, social and gender development, participatory approaches, environmental safeguard and monitoring and evaluation, and local governance. The LGED coastal district offices, headed by executive engineers, will be responsible for implementing subprojects under the guidance of the PMO. Advance contracting of consultants and procurement, and retroactive financing will be considered. All procurement to be financed under the project will be carried out in accordance with ADB's Procurement Guidelines (2010, as amended from time to time) and consultants will be recruited in line with ADB's Guidelines on the Use of Consultants (2010, as amended from time to time). A consulting firm will be recruited using Quality and Cost-Based Selection (QCBS) method. Quality: cost ratio of 80:20 will be used for the QCBS.

II. DUE DILIGENCE REQUIRED

9. The following due diligence is included in the project preparatory technical assistance (PPTA).

- (i) **Technical.** To be undertaken as part of the feasibility studies by the PPTA. Technical aspects include design of climate proofed infrastructure and estimation of additional costs for such investment as well as the development of knowledge management interventions.
- (ii) **Economic and financial.** Economic and financial viability and sustainability will be assessed by the PPTA in accordance with ADB's guidelines.
- (iii) **Governance.** Public financial management, procurement, anticorruption measures, policy and legal, capacity, and other institutional issues and mechanisms will be assessed by the PPTA in accordance to ADB guidelines and will be included in the Report and Recommendation of the President (RRP) to the Board of Directors and the project administration manual (PAM).

- (iv) **Poverty and social.** Poverty reduction and social impacts, and gender assessment (gender equity theme) will be undertaken by the PPTA and will be documented in the RRP and PAM.
- (v) **Safeguards.** Safeguards assessments (environment, involuntary resettlement, and indigenous peoples) will be undertaken by the PPTA and will be documented in the RRP and PAM.

III. PROCESSING PLAN

A. Risk Categorization

10. As per ADB risk categorization guidelines, the project is considered as a *low risk* category project. It is financially small and is category B from a safeguard point of view. The project builds on the successful experience of several similar ADB financed projects. LGED has the experience and capacity to implement externally-financed projects.

B. Resource Requirements

11. Estimated staff requirement includes 90 person-days inputs of the ADB Mission Leader and 20 person-days for other mission members. A PPTA will be needed for conducting the due diligence of the Project (Appendix 4).

C. Processing Schedule

Table 2: Proposed Processing Schedule

Milestones	Expected Completion Date
PPTA Fact-finding (completed)	1-7 June 2011
PPCR grant approval	17 August 2011
Concept Paper clearance (VP)	31 August 2011
TA Commencement	1 November 2011
Loan Fact-Finding Mission	15 May 2012
Staff Review Meeting	15 July 2012
Loan negotiations	15 August 2012
Board consideration	30 September 2012

PPCR = Pilot Programming for Climate Resilience; PPTA = project preparatory technical assistance; VP = Vice-President
Source: ADB staff estimates

IV. KEY ISSUES

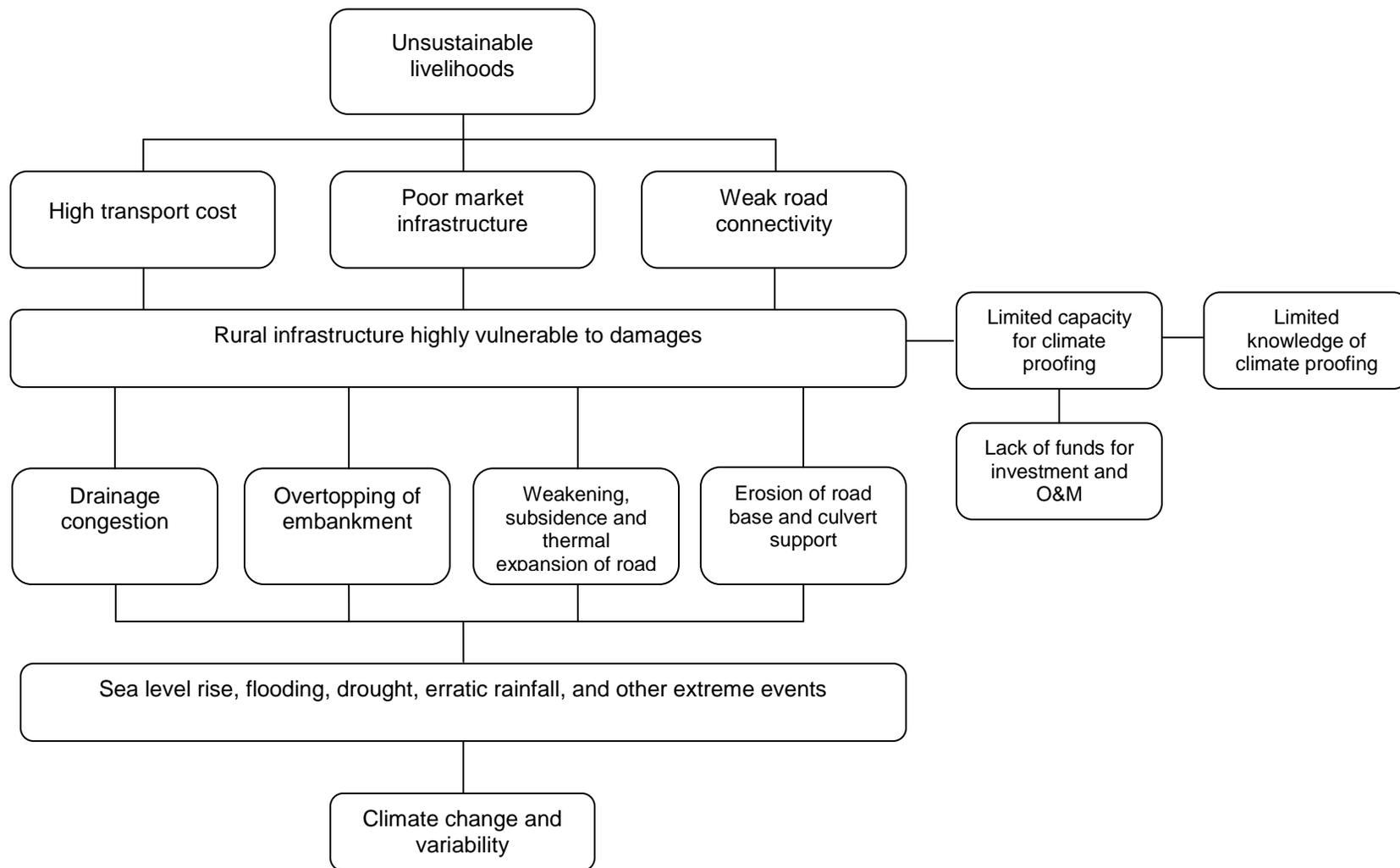
- 12. No major issues identified that require extra due diligence.

BASIC PROJECT INFORMATION

Aspects	Arrangements
Modality	Project loan
Financing	ADB administered SCF under the PPCR, and ADB
COBP/RCOBP	Draft Bangladesh COBP 2012-2014
Classification	<p>Sector (subsectors): Agriculture and Natural Resources (Agriculture and Rural Sector Development)</p> <p>Themes (subthemes): Economic Growth (widening access to markets and economic opportunities, environmental sustainability ,gender equity (gender equity in economic opportunities) and capacity development (institutional development)</p> <p style="text-align: center;"><i>Climate change: adaptation</i></p> <p>Targeting classification: Geographic dimension of inclusive growth (TI-G)</p> <p>Gender mainstreaming category: Gender equity theme</p> <p>Location impact: Rural (high)</p> <p>Safeguards: Environment (B), involuntary resettlement (B), and indigenous peoples (B).</p>
Risk categorization	Low risk
Partnership(s)	The project will be funded by SCF under PPCR, supported jointly by ADB, World Bank, and IFC. PPCR interventions in Bangladesh will focus on improving coastal embankments, rural connectivity, water supply and sanitation, promoting public-private financing, and capacity building for mainstreaming climate resilience and knowledge management.
Use of a PBA	Not applicable
Parallel PIU	Not applicable
Department and division	South Asia Department Environment, Natural Resources and Agriculture Division
Mission leader and members	Rezaul Khan (Mission Leader), Natural Resources and Agriculture Economist, SAER Jiangfeng Zhang, Senior Natural Resources and Agriculture Economist, SAER Mira Davidovski, Senior Counsel, OGC Shanny Campbell, Social Development Specialist, SAER Md. Rafiqul Islam, Senior Project Officer, BRM Zahir Uddin Ahmad, Senior Water Resources Officer, BRM Ferdousi Sultana, Senior Social Development Officer (Gender), BRM Arif M. Faisal, Project Officer (Environment), BRM Shahidul Alam, Project Officer (Resettlement), BRM

ADB = Asian Development Bank; BRM = Bangladesh Resident Mission; COBP = country operations business plan; IFC = International Finance Corporation; OGC = Office of the General Counsel; PBA = programmatic based approach; PIU = project implementation unit; PPCR = Pilot Program for Climate Resilience; RCOBP = regional cooperation operations business plan; SAER = Environment, Natural Resources and Agriculture Division; SCF = Strategic Climate Fund; TA = technical assistance.

**BAN: CLIMATE RESILIENT INFRASTRUCTURE IMPROVEMENT IN COASTAL ZONE PROJECT
PROBLEM TREE**



PRELIMINARY DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p>Impact Improved and sustainable livelihoods in the vulnerable coastal districts affected by climate variability and change</p>	<p>5 years after project completion (2022):</p> <p>Household incomes in project areas increased by 20% a year (2012 base line ----)</p>	<p>BBS reports</p> <p>Surveys of project areas</p> <p>External independent performance evaluation</p> <p>LGED MIS database</p> <p>BBS compendium of environmental statistics</p>	<p>Assumptions Poverty-focused programs continued</p> <p>The government sustaining its commitment to mainstream climate change</p> <p>Risks Climate change related impacts are not within predicted level</p>
<p>Outcome Coastal infrastructure climate proofed benefiting 2 million people including poor and women</p>	<p>At the end of the project (2017):</p> <p>Increased robustness and resilience of infrastructure design and construction</p> <p>% reduction in flooding where drainage capacity has been increased</p> <p>Annual average travel time for project households to access preferred markets reduced to -- hours from -- hours (2012)</p> <p>Average transport cost of farm produce to preferred market reduced to Tk -- /kg/km from Tk- /kg/km (2012)</p>	<p>External independent evaluation of robustness and resilience infrastructure design</p> <p>Household surveys data in project areas</p> <p>LGED MIS database</p> <p>Traffic data survey</p> <p>Farmer surveys</p> <p>Transport worker surveys</p>	<p>Assumptions Transport services increase in project areas because of climate proofed roads</p> <p>Women willing to participate in all activities</p> <p>Capacity development program for LGED and local communities strengthened</p> <p>Risks Major natural disasters</p>
<p>Outputs 1. Road connectivity improved with climate-proofed design</p>	<p>100 km of <i>upazila</i> roads upgraded and climate proofed</p> <p>200 km of union roads improved and climate proofed</p> <p>100 km of village roads improved and climate proofed</p> <p>1,500 meters of bridges and culverts constructed and climate proofed</p>	<p>Project reports</p> <p>LGED project performance</p>	<p>Assumptions Sufficient contractors available in the project districts</p> <p>Quality of the roads maintained</p>

Design Summary	Performance Targets and Indicators	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p>2. Marketing facilities upgraded with specific provision for climate vulnerable groups and women</p>	<p>20 rural markets facilities improved with 30% space allocation for women</p> <p>5 infrastructure for fishing communities developed</p> <p>Renewable energy installed in 20 rural markets covering sections for women</p> <p>Safe water supply, sanitation and waste management installed in 20 rural markets and communities</p>	<p>Project reports</p> <p>Market Surveys</p>	<p>Assumptions Microenterprises developed around markets</p>
<p>3. Capacity for climate resilient infrastructure management improved</p>	<p>LGED and beneficiaries including women capable of incorporating climate change in rural infrastructure planning and design</p> <p>Improved decision making and planning based on climate resilient rural infrastructure management plan and vulnerability mapping</p>	<p>Project reports</p> <p>LGED project performance</p>	<p>Assumptions Trained staff with new knowledge and skills retained</p> <p>Risk Commitment to climate change resilient infrastructure management not sustained</p>
<p>4. Knowledge management improved</p>	<p>Knowledge products such as pertaining to project related design and implementation activities developed and the, results and lessons learned disseminated among local stakeholders, including civil society organizations and the private sector and documented in the LGED database for wider dissemination across the country and the region, as well as shared with other</p>	<p>Project reports and other documents on LGED data base and website</p> <p>LGED project performance reports</p>	<p>Risk Improved knowledge not applied</p>

Design Summary	Performance Targets and Indicators	Data Sources and Reporting Mechanisms	Assumptions and Risks
	CIF country partners Climate proofing of rural infrastructure published and disseminated on LGED website, and linked to national website for wider dissemination.		

Activities with Milestones	Inputs
<p>1. Preparatory Activities</p> <p>1.1 Approval of DPP (Q3 2012)</p> <p>1.2 Establishment of PMO (Q4 2012)</p> <p>1.3 Loan Effectiveness (Q3 2012)</p> <p>1.4 Draft RFP for consultants Q3 2012</p> <p>1.5 RFP issued by EA Q3 2012</p> <p>1.6 Draft DPP prepared by EA Q1 2012</p> <p>1.7 Draft procurement plan Q2 2012</p> <p>1.8 Draft bidding document for civil works and supply Q2 2012</p> <p>1.9 Procurement plan endorsed by ADB Q2 2012</p> <p>1.10 Consultant recruitment ready up to and including bid evaluation report July 2012</p> <p>1.11 Bid documents for civil works and supply endorsed by ADB Q3 2012</p> <p>2. Project Management</p> <p>2.1 Incremental Project Staff (Q3 2012)</p> <p>2.2 Procurement of Vehicle and Equipment (Q3 2012)</p> <p>2.3 Recruitment of Consultants (Q4 2012)</p> <p>2.4 Prepare region-wise SAR (Q1 2013 – Q4 2015)</p> <p>2.5 Contract out and Construction Works (Q3 2012-Q1 2017)</p> <p>3. Rural Infrastructure Management</p> <p>3.1 Preparing climate change-resilient rural infrastructure management plan (Q4 2013)</p> <p>3.2 Preparing vulnerability Maps (Q4 2013)</p> <p>3.3 Preparing sustainable road maintenance plan (Q1 2014)</p> <p>3.4 Training program for LGED (Q2 2013)</p> <p>3.5 Capacity Building of LGIs (UP) (Q3 2013)</p> <p>3.6 Capacity Building of Beneficiaries (Q4 2013)</p> <p>3.7 Climate Change Awareness Training (Q4 2013)</p>	<p>SCF under PPCR - \$30 million</p> <p>Government - \$20 million</p> <p>ADB- \$20 million</p>

ADB = Asian Development Bank; BBS = Bangladesh Bureau of Statistics; DPP = Development Project Proposal; EA = executing agency; LGED = Local Government Engineering Department; LGI = Local Government Institutions; MIS=Management Information System; PMO = project management office; PPCR = Pilot Program for Climate Resilience; RFP = request for proposal; SAR = Subproject Appraisal Reports; UP = Upazila Parishad

Source: Asian Development Bank estimates

PROJECT PREPARATORY TECHNICAL ASSISTANCE

A. Justification

1. The project preparatory technical assistance (PPTA) is needed for conducting technical, economic, financial and social due diligence for the Project. The outcome of the PPTA will be a project design and feasibility study that the Government and the Asian Development Bank (ADB) will have agreed upon.

B. Major Outputs and Activities

2. The major outputs and activities are summarized in Table A4.1.

Table A4.1: Summary of Major Outputs and Activities

Major Activities	Expected Completion Date	Major Outputs	Expected Completion Date
Review of available reports and literature, gap analysis and stock assessment on the subject, and prepare detailed TA work plan	Month 1	Inception Report	Month 1
		Inception Workshop	Month 1
Review and assessment of current system of information and data analysis and management in LGED and identification of information and capacity gaps and knowledge needs for the design of a Knowledge Management program, within LGED linked to national information and knowledge management hub in the ministry of environment.	Month 2	Midterm Report	Month 3
		Draft Final Report	Month 4
		Final Workshop	Month 5
		Final Report	Month 5
Organize a series of stakeholders' workshop to present findings and discuss innovative options	Month 3		
Conceptualize the project including the design and monitoring framework	Month 3		
Assessing technical, economic and financial viability and climate risks and vulnerability assessment	Month 4		
Assessing financial management, procurement, anticorruption measures, policy and legal, capacity, and other institutional issues and mechanisms	Month 4		
Poverty reduction and social impact assessment	Month 4		
Safeguards assessments (environment, involuntary resettlement, and indigenous peoples)	Month 4		

TA = technical assistance

Source: ADB staff estimates

C. Cost Estimate and Proposed Financing Arrangement

3. The total cost of the PPTA is estimated at \$700,000 equivalent. \$600,000 will be financed on a grant basis by the Strategic Climate Funds (SCF),¹ and administered by ADB. The government will provide in-kind support in the form of office accommodation, administrative support, supplies, field transport, and assign specialists as counterpart staff, and assistance in organizing seminars and workshops, together estimated at \$100,000 equivalent.

4. The detailed cost estimate is presented in Table A4.2.

Table A4.2: COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Total Cost
A. Strategic Climate Fund^a	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	240.0
Number of Person-months	11
ii. National Consultants	200.0
Number of Person-months	42
b. International and Local Travel	50.0
c. Reports and Communications	5.0
2. Equipment ^b	10.0
3. Workshops, Training / Seminars & Conferences ^c	10.0
4. Surveys	15.0
5. Miscellaneous Administration and Support Costs	10.0
6. Contingencies	60.0
Subtotal (A)	600.0
B. Government Financing^d	
1. Office Accommodation and Transport	30.0
2. Remuneration and Per Diem of Counterpart Staff	15.0
3. Facilities for Workshops and Meetings	20.0
4. Survey and Database	35.0
Subtotal (B)	100.0
TOTAL	700.0

^a Under the Pilot Program for Climate Resilience and administered by the Asian Development Bank.

^b Equipment includes 4 computers, 2 printers, 1 photocopier, 3 air conditioners, and 1 facsimile machine estimated at \$10,000.

^c Workshops, Training/Seminars & Conferences includes 4 regional and 2 national stakeholders consultation/workshops estimated at \$ 10,000.

^d The Government contribution will be in-kind.

D. Consulting Services

5. The PPTA will be implemented over a period of 5 months from the fielding of consultants, which is anticipated in November 2011. ADB will recruit a team of consultants through a firm using simplified technical proposal for the quality- and cost-based selection (QCBS) method to provide 11 international and 42 national person-months of consulting

¹ Under the Pilot Program for Climate Resilience.

services. Quality: cost ratio of 80:20 will be used for the QCBS. The consultants will be engaged by ADB in accordance with its Guidelines on the Use of Consultants (2010, as amended from time to time).

Table A4.3: Summary of Consulting Services Requirement

International		National	
Name of Positions	Person-months	Name of Positions	Person-months
Rural Infrastructure Specialist	5	Climate Change Specialist	3
Climate Change Specialist	2	Project Economist	3
Project Economist	2	Rural Infrastructure Engineer	5
Knowledge Management Specialist	2	Hydrologist	3
		Environmental Specialist	3
		Safeguard Specialist	3
		Participatory Development Specialist	4
		Poverty Reduction Specialist	3
		Gender and Development Specialist	3
		Institutional Development Specialist	3
		Financial Management Specialist	3
		Rural Water Supply Specialist	3
		Renewable Energy Specialist	3

6. The outline terms of reference for the PPTA consultants are described in paras 7 to 21:
7. **Rural Infrastructure Specialist/Team Leader** (international, 5 person-months) - The team leader will manage the team, coordinate with counterpart staff and prepare a comprehensive project proposal in a format suitable for ADB loan processing. The team leader will be responsible to prepare the project proposal including climate risks and vulnerability assessment of project areas, sector analysis, design and monitoring framework including baseline data, economic and financial analysis, financial management assessment, cost estimates and financing plan, procurement plan, terms of reference for consulting services, gender assessment and action plan, social and safeguard assessment (environment, involuntary resettlement, and indigenous peoples), selection criteria for subprojects, and project administration manual (PAM).
8. **Climate Change Specialists** (international, 2 person-months; national 3 person-months) - Climate Change Specialists will be responsible for (i) conducting climate change impact, vulnerability and adaptation assessments; (ii) identifying all potential adaptation solutions, including soft and hard measures; and (iii) incorporating selected adaptation priorities into the project design, including institutional arrangements and budget.
9. **Project Economists** (international 2 person-months; national 3 person-months) - The economists will (i) prepare the project's detailed budget and investment plan based on the sub-project detailed design cost; and (ii) undertake a detailed economic and financial analysis of the subprojects.
10. **Knowledge Management Specialist** (international, 2 person-months) – Knowledge Management Specialist will be responsible for (i) reviewing and assessing the current system of information and data analysis and management in LGED; (ii) identifying information and capacity gaps and knowledge needs for the design of a knowledge management program, within LGED linked to national information and knowledge management hub in the ministry of

environment; and (iii) developing a knowledge management component for the project.

11. **Rural Infrastructure Engineer/Deputy Team Leader** (national, 5 person-months) - The rural infrastructure engineer/deputy team leader will (i) assess the selection and eligibility criteria; (ii) develop technical, economic, social, and environmental criteria for screening and selecting schemes to be upgraded under the project; (iii) verify construction and maintenance cost estimates for sub-project selected for upgrading; and (iv) check and finalize cost estimates for climate proof infrastructure proposed for improvement.

12. **Hydrologist** (national, 3 person-months) - The hydrologist will (i) recommend options for improving design criteria of the rural infrastructures (roads, embankments, bridges, culverts, etc) based hydrological analysis considering climate change scenario; (ii) review lessons learned from previous rural infrastructure projects of the Local Government Engineering Department (LGED) from hydrological analysis perspective; and (iii) provide support to the design engineers to come up with an improved climate resilient rural infrastructure design.

13. **Environmental Specialist** (national, 3 person-months) - The environmental specialist will (i) assess the potential environmental impacts of the proposed project, including physical, ecological, and social environments; and (ii) conduct a comprehensive appraisal of the environmental impact of the project activities in line with the ADB's Safeguard Policy Statement (2009).

14. **Safeguard Specialist** (national, 3 person-months) - The safeguard specialist will (i) undertake an assessment of resettlement and land acquisition practices of the Local Government Engineering Department (LGED) and (ii) assess the presence and vulnerability of indigenous people and ethnic minority groups in the concerned areas of the project. The specialist will prepare a resettlement framework and an indigenous peoples planning framework to ensure compliance with ADB's Safeguard Policy Statement (2009).

15. **Participatory Development Specialist** (national, 4 person-months) - The participatory development specialist will be responsible for organizing stakeholder consultation to effectively manage rural infrastructure and establish procedures to ensure full involvement by beneficiaries in line with the participatory development approach.

16. **Poverty Reduction Specialist** (national, 3 person-months) - The poverty reduction specialist will (i) collect social data as required; (ii) analyze the socioeconomic data required for benchmark information on poverty and its distribution and poverty impact ratio analyses; (iii) develop poverty and social selection criteria; and (iv) develop a results-based monitoring and evaluation system.

17. **Gender and Development Specialist** (local, 3 person-months) - The gender and development specialist will (i) develop and suggest mechanisms whereby degree of women's effective participation can be improved in management, as users and as beneficiaries; (ii) recommend steps to incorporate gender criteria into the project impact monitoring system; (iii) prepare a budget for gender and development activities; and (iv) prepare a gender action plan.

18. **Institutional Development Specialist** (national, 3 person-months) - The institutional development specialist will (i) prepare a capacity development program for LGED to manage inclusive and participatory development; and (ii) prepare guidelines for improving the operational efficiency of LGED for sustainable maintenance of rural infrastructure.

19. **Financial Management Specialist** (national, 3 person-months) - The financial management specialist will undertake a financial management assessment of the Executing Agency to ensure that financial management capacity is sufficient to implement the proposed project. The specialist will also design the funds flow mechanism for the ensuing project, based on the financial management assessment.

20. **Rural Water Supply Specialist** (national, 3 person-months) - The rural water supply specialist will (i) assess the potential for small piped water supply systems, either from shallow or from deep tube wells, to improve supply of safe water in growth centers and (ii) provide technical and financial cost analysis for possible project scope estimate.

21. **Renewable Energy Specialist** (national, 3 person-months) - The renewable energy specialist will (i) assess the suitability of different options to improve energy supply at growth centers and (ii) prepare a design and cost estimate for project scope.

E. Implementation Arrangements

22. The executing agency is LGED of the Ministry of Local Government, Rural Development and Cooperatives. LGED will provide office accommodation, supplies, and field transport and will assign specialists as counterpart staff.

Table A4.4: Proposed Technical Assistance Processing and Implementation Schedule

Major Milestones	Expected Completion Date
PPTA fact-finding (completed)	1-7 June 2011
Government Confirmation of aide memoire	20 June 2011
Government TPP approval	25 June 2011
PPCR grant approval	15 August 2011
ADB TA Approval	31 August 2011
TA Commencement	1 November 2011

ADB = Asian Development Bank; PPCR = Pilot Programming for Climate Resilience;
PPTA = project preparatory technical assistance; TA = technical assistance; TPP = TA project profile
Source: ADB Staff estimates

INITIAL POVERTY AND SOCIAL ANALYSIS

Country:	Bangladesh	Project Title:	Climate Resilient Infrastructure Improvement in Coastal Zone Project
Lending/Financing Modality:	Project	Department/ Division:	South Asia Department / Environment, Natural Resources and Agriculture Division

I. POVERTY ISSUES

A. Links to the National Poverty Reduction Strategy and Country Partnership Strategy

Poverty is still extensive in Bangladesh and it is more acute in the coastal areas. In project areas, the poverty situation is worse than other areas which are characterized by lack of infrastructure as well as service facilities. In the coastal districts, the high incidence of poverty and heavy reliance on agriculture and natural resources increase vulnerability to climate change impacts. The effects of climate change could reverse any progress in tackling extreme, plunging the most vulnerable in the communities –women, children and the disabled into deeper poverty.

The Draft Sixth Five Year Plan (SFYP) of Bangladesh considers poverty as the single-most important socio-economic policy challenge for Bangladesh and considers its multiple dimensions. Accelerated economic growth and employment, reduction of regional disparities and income inequality, ensuring social protection for the underprivileged ensuring gender parity and environmental sustainability are some of the strategies considered for poverty reduction.

ADB's Country Partnership Strategy for Bangladesh (2006-10) emphasizes the need for integration of disaster risk management and climate-change adaptation as building blocks in development policies and plans together with support for developing capacity and strengthening institutions; addressing vulnerability and risks in national development strategies and actions; adapting to climate change in agriculture, water, health, and natural resource management; and dealing with climate-induced natural disasters.

B. Targeting Classification

General Intervention Individual or Household (TI-H) Geographic (TI-G) Non-Income MDGs (TI-M1, M2, etc.)

Explain the basis for the targeting classification:

Poverty is relatively higher in coastal areas. The effects of climate change could plunge the majority of rural people in coastal districts into deeper poverty. At the national level, the project will target most vulnerable areas of the coastal districts. At project level, poor households and women will be preferably selected to access short-term employment, trainings and economic opportunities.

C. Poverty Analysis

1. If the project is classified as TI-G, or if it is policy-based, what type of poverty impact analysis is needed?

Poverty Analysis. The most direct economic measure of poverty is based on income or expenditure. Such data will be collected through sample surveys, such as household income and expenditure surveys. An analysis of income inequality will also be conducted.

Distribution Analysis. To improve the impact of poverty reduction efforts, distribution analysis will be used to assess the equity of project effects, that is, to assess the distribution of economic and financial costs and benefits and net benefits between the poor and other stakeholders.

Poverty Impact Ratio Analysis. This is intended to estimate the proportion of the net economic benefits designed to go to the poor compared with total net economic benefits.

Accessibility Analysis. The positive impact of infrastructure on poverty reduction is indicated by the highly statistically significant association of poverty with the coverage of irrigation; the access to electricity; and the accessibility of villages to other rural infrastructure, service providers, and employment opportunities. The technical assistance (TA) will identify infrastructure that directly benefit poor men and women by creating employment opportunities.

2. What resources are allocated in the PPTA/due diligence?

A poverty reduction specialist will be engaged for 3 person-months. Resource for study and survey has been allocated.

II. SOCIAL DEVELOPMENT ISSUES

A. Initial Social Analysis

Based on existing information:

1. Who are the potential primary beneficiaries of the project? How do the poor and the socially excluded benefit from the project?

The Project will benefit the entire community including the poor and women by creating roads, markets and other infrastructure. The road users—bus and truck owners and operators, passengers, and cargo movers, the market users—shop owners, consumers, —as well as the general population both male and female of all ages in the area of influence will benefit. Farmers (large, small, medium, and marginal) will benefit from higher productivity and increased agricultural coverage as a result of reduced waterlogging and flooding. The poor and vulnerable men and women will directly benefit from the employment generated by the construction of project facilities and for maintenance.

2. What are the potential needs of beneficiaries in relation to the proposed project?

The beneficiaries need efficient rural transport and supporting infrastructure for widened access to markets, economic opportunities, agriculture inputs and other services, and opportunities to make the best use of their land and other assets free from flooding and drought. The poor women and men need employment opportunities and access to livelihood activities.

3. What are the potential constraints in accessing the proposed benefits and services, and how will the project address them?

Subproject beneficiaries are unable to finance roads, markets and other infrastructure. The project will construct roads, and markets to improve access to economic opportunities and social services; and generate livelihood activity for poor and women.

B. Consultation and Participation

1. Indicate the potential initial stakeholders.

The initial stakeholders are the Ministries of Finance, Planning, and Local Government, Rural development and Cooperatives of Government of Bangladesh. The executing agency will be Local Government Engineering Department. At the local level, stakeholders include local administration, union councils, farmers, market users and general people of the project area. Both women and men have stake in all categories of infrastructure. Various line departments and their local offices will also be involved. The demand group includes farmers, retail traders and businessmen, small entrepreneurs, wholesale traders, woman traders, poor and vulnerable women, rickshaw pullers and van drivers, transport owners, school and college teachers, students and other people of the community.

2. What type of consultation and participation (C&P) is required during the PPTA or project processing (e.g., workshops, community mobilization, involvement of nongovernmental organizations and community-based organizations, etc.)?

Different types of consultation and participation will be required at various levels. The PPTA will be implemented through a participatory and consultative approach with the executing agency staff, and other stakeholders. Stakeholder consultation will be a key activity to reach consensus on the project designs.

3. What level of participation is envisaged for project design?

Information sharing Consultation Collaborative decision making Empowerment

4. Will a C&P plan be prepared during the project design for project implementation? Yes No Please explain.

The PPTA will assess the participation methods and lessons from the ongoing rural infrastructure projects and identify ways for effective stakeholder participation during the implementation phase. An effective, practical and inclusive participation strategy will be developed based on the findings of the consultations and considering the needs and interests of diverse groups of the population. It will also include strengthening capacity of LGED and union councils in managing a participatory development process.

C. Gender and Development

Proposed Gender Mainstreaming Category: Gender equity theme

1. What are the key gender issues in the sector/subsector that are likely to be relevant to this project/program?

Women in the project area are mostly engaged in household and farming activities. They have limited access to economic opportunities and social services. Understanding of their role in construction and as users of infrastructure is limited. Especially in rural areas women's access to market, the heart of rural economy is minimal and their role in local government decision making is negligible. The need to consider women as a distinct group and the importance to address their needs is unspoken. Many families of the rural areas are effectively female headed and they fall into the poorest category of rural population and need support for employment and livelihoods. During disasters, they are

the ones who suffer the most in managing household needs.

2. Does the proposed project/program have the potential to promote gender equality and/or women's empowerment by improving women's access to and use of opportunities, services, resources, assets, and participation in decision making?

Yes No Please explain.

The ensuing project will focus on increasing women's participation in project planning implementation, monitoring, and maintenance, generating employment opportunities for women by involving them in construction, maintenance, and tree plantation activities; fostering the entrepreneurship of women; and promoting female members' participation in local governance decision making. The Project will target women through specific components and activities such as in infrastructure maintenance through labor contracting societies and in markets through women market sections for employment and income. The PPTA will suggest means to increase women's share in the labor opportunities arising from the project and also increase their participation and benefits from all components. A realistic gender action plan will be developed during the PPTA and resources will be made available to implement it. The pilot low cost water supply and renewable energy activities will also ensure women's participation and benefits.

3. Could the proposed project have an adverse impact on women and/or girls or to widen gender inequality?

Yes No Please explain

The project will not have any adverse impact on women and children; it will foster gender equality in economic opportunities and facilitate their empowerment.

III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS

Issue	Nature of Social Issue	Significant/ Limited/ No Impact/ Not Known	Plan or Other Action Required
Involuntary Resettlement	Generally roads and other infrastructure are developed on government land, and existing pathways or alignments. So, land acquisition and involuntary settlement is not likely in the interventions being examined under the TA. Small strips of land acquisition may be required for proper alignments. However, this will be screened during the TA for selected interventions and a resettlement framework will be prepared for the implementation phase with the aim to minimize involuntary resettlement.	Not known	<input type="checkbox"/> Resettlement Plan <input checked="" type="checkbox"/> Resettlement Framework <input type="checkbox"/> Environmental and Social Management System Arrangement <input type="checkbox"/> None <input type="checkbox"/> Uncertain
Indigenous Peoples	Indigenous peoples issues will be examined during the TA for the proposed project activities. No major adverse impact is likely. As the interventions are still to be identified, an indigenous people framework will be developed by the TA with suggested actions where significant settlement of indigenous people is found and major impact possible.	Not known	<input type="checkbox"/> Indigenous Peoples Plan <input checked="" type="checkbox"/> Indigenous Peoples Planning Framework <input type="checkbox"/> Environmental and Social Management System Arrangement <input type="checkbox"/> None <input type="checkbox"/> Uncertain
Labor <input checked="" type="checkbox"/> Employment Opportunities <input type="checkbox"/> Labor Retrenchment <input type="checkbox"/> Core Labor Standards	The Project will increase the employment opportunities for the poor and others significantly through contractors, LCS, markets and in ancillary activities. Reduction of gender discrimination and improvement of employment and working conditions will be facilitated.	Significant (positive)	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input checked="" type="checkbox"/> No Action <input type="checkbox"/> Uncertain
Affordability	No significant issue on affordability is anticipated. This aspect will be examined by the TA team; especially the	Limited	<input type="checkbox"/> Action <input checked="" type="checkbox"/> No Action

	community contribution for infrastructure will be fixed based on the assessment done in a participatory manner.		<input type="checkbox"/> Uncertain
Other Risks and/or Vulnerabilities <input type="checkbox"/> HIV/AIDS <input type="checkbox"/> Human Trafficking <input checked="" type="checkbox"/> Others (natural disasters)	The infrastructure will be designed to survive natural disasters. The increased mobility may encourage the harmful migration of men, women, and children. The project will orient local government institutions about the risk and ways to prevent these through community awareness-raising programs		<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input checked="" type="checkbox"/> No Action <input type="checkbox"/> Uncertain
IV. PPTA/DUE DILIGENCE RESOURCE REQUIREMENT			
1. Do the TOR for the PPTA (or other due diligence) include poverty, social and gender analysis and the relevant specialist/s? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
2. Are resources (consultants, survey budget, and workshop) allocated for conducting poverty, social and/or gender analysis, and C&P during the PPTA/due diligence? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			