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Report and Recommendation of the President to the Board of Directors

Project Number: 45084
August 2012

Proposed Loan and Administration of Grant and Loan People's Republic of Bangladesh: Coastal Climate Resilient Infrastructure Project

This document is being disclosed to the public prior to Board consideration in accordance with ADB's Public Communications Policy (2011). Subject to any revisions required following Board consideration, this document is deemed final.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 5 July 2012)

Currency Unit – taka (Tk)

Tk1.00 = \$0.0122

\$1.00 = Tk81.82

ABBREVIATIONS

ADB	–	Asian Development Bank
GIS	–	geographic information system
km	–	kilometer
LCS	–	labor contracting societies
LGED	–	Local Government Engineering Department
MIS	–	management information system
mm	–	millimeter
MMC	–	market management committee
PMO	–	project management office
PPCR	–	Pilot Program for Climate Resilience
SLR	–	sea level rise

NOTES

- (i) The fiscal year (FY) of the Government of Bangladesh and its agencies ends on 30 June. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2012 ends on 30 June 2012.
- (ii) In this report, "\$" refers to US dollars.

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I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) a proposed loan and (ii) proposed administration of a loan to be provided by the ADB Strategic Climate Fund¹, (ii) proposed administration of a grant to be provided by the ADB Strategic Climate Fund,² all to People's Republic of Bangladesh for the Coastal Climate Resilient Infrastructure Project.³
2. The project, while enhancing longevity and sustainability of infrastructure, will improve livelihoods in 12 rural coastal districts of Bangladesh⁴ vulnerable to climate variability and change.⁵

II. THE PROJECT

A. Rationale

3. The project is included in the Government of Bangladesh's Strategic Program for Climate Resilience (SPCR), prepared under the Pilot Program for Climate Resilience (PPCR). The PPCR is a program under the Strategic Climate Fund (SCF) within the Climate Investment Funds, to pilot and demonstrate ways to mainstream climate resilience in development planning and management. Within the framework of SPCR, the project will enhance climate resilience in the rural coastal areas. The project will integrate climate change adaptation and disaster risk reduction into policy formulation and infrastructure development.
4. Bangladesh is one of the most vulnerable countries to climate variability and change because of its geographic location, low deltaic floodplain, hydro-meteorological influence of erratic monsoon rainfall and other extreme climate events. Climate change threatens the significant achievements made by Bangladesh in the last two decades in raising incomes and reducing poverty. By 2050, climate change impact could make an additional 14% of the country extremely vulnerable to flooding and dislocate more than 35 million people in the coastal districts. About 87% of roads in the country will be substantially inundated due to climate change by 2050.⁶ The low-lying coastal zone of the country is already highly vulnerable both to the normal tidally enhanced monsoon floods and to regular impact from tropical cyclones. About 58 tropical cyclones have impacted Bangladesh during 1960-2010 with severe effect on coastal areas. Salinity intrusion and increase in salinity due to climate change are affecting agricultural productivity and livelihood in coastal areas.
5. In Bangladesh, the climate change will aggravate storm surge-related inundation.⁷ The surges will be elevated by a rising sea level as thermal expansion and ice cap(s) continue to melt. Also, a warmer ocean is likely to intensify cyclone activity and thus heighten storm surges. The destructive impact of storm surges will generally be greater when the surges are accompanied by strong winds and large onshore waves. Larger storm surges threaten greater future destruction, because they will increase the depth of inundation and will move further inland threatening larger

¹ Under the Pilot Program for Climate Resilience financed by the Strategic Climate Fund.

² Under the Pilot Program for Climate Resilience financed by the Strategic Climate Fund.

³ The design and monitoring framework is in Appendix 1.

⁴ These districts are: Bagerhat, Barguna, Barisal, Bhola, Gopalganj, Jhalokati, Khulna, Madaripur, Patuakhali, Pirojpur, Satkhira, and Shariatpur.

⁵ The Asian Development Bank (ADB) provided project preparatory technical assistance. ADB. 2011. *Technical Assistance to the People's Republic of Bangladesh for Preparing the Climate Resilient Infrastructure Improvement In Coastal Zone Project*. Manila.

⁶ Policy Research Working Paper 5469, Climate Proofing Infrastructure in Bangladesh, The World Bank, Development Research Group, Environment and Energy Team, November 2010.

⁷ Dasgupta et al. 2010. *Vulnerability of Bangladesh to Cyclones in a Changing Climate Potential Damages and Adaptation Cost*. The World Bank Development Research Group Environment and Energy Team, Paper 5280.

areas than in the past. The vulnerability of Bangladesh may increase even more as current evidence points toward a probable increase in the frequency of intense tropical cyclones in the Bay of Bengal.

6. The predicted climate changes will increase the current infrastructure vulnerability as a result of sea level rise (SLR), increased wet season rainfall; increased annual temperatures and increased frequency of severe cyclones. Recent predictions derived from Intergovernmental Panel on Climate Change (IPCC) modeling⁸ based on minimum, and maximum emission scenarios show temperature rising by between 1.9°C and 2.4°C, and wet season rainfall increasing by between 9% and 10%.⁹ The increase in temperature has the potential to cause material expansion resulting in damage to concrete structures such as buildings, bridges, and culverts. Bitumen seals to roads may be susceptible to softening unless higher temperature resistant bitumens are used. Floods resulting from increased rainfall, cyclones, and storm surges have the potential to damage road embankments, markets, and housing. Increasingly severe storm events will also increase the potential flood-related damage as well as cause additional erosion damage from the over-topping of road embankments. High winds associated with storm events have the potential to damage buildings, as well as cause secondary damage from trees and other debris. Wind-driven wave action can have a significant erosive effect on exposed road embankments and bridge abutments. The culmination of these impacts will be a rapid deterioration of rural infrastructure.

7. Predictions of the yearly relative SLR for coastal Bangladesh range from 1.5 to 10 millimeter (mm)/year, with a recent estimate of 7 mm/year being adopted by the World Bank.¹⁰ A general relative SLR of 7mm/year has been taken for assessment of typical subprojects in the project. The “effective” SLR is a combination of relative SLR and land subsidence. The land subsidence has been estimated to be between 2 and 4 mm/ year within the project region. For typical subprojects assessment, an average land subsidence rate of 3 mm/year has been adopted. The adopted figures for a 20 year road design life are 140 mm of relative SLR, plus 60 mm of subsidence, giving a total effective SLR of 200 mm. This 200 mm, with the standard 600 mm freeboard figure (minimum road pavement crest level above the normal annual flood level), forms the basis for the target levels for each road surface within the project. The cost of upgrading of roads and market to future climate change standard is 30%-40% higher compared with current practices.¹¹

8. Poverty is extensive in the country and more so in the rural areas. Although declining, the national poverty is still 31.5% (Report of the Household, Income and Expenditure Survey, 2010). Within the project rural areas, poverty incidence is 35%-39%, higher than the national average. The achievement in poverty reduction can be partly attributed to improved rural infrastructure including the roads and markets. The overall traffic volume in the country has been growing at 10.5% a year, faster than the growth in gross domestic product of over 6%. Improved roads provide more comfortable travel, lower transport costs, and significant savings in vehicle operating costs. With further upgrading of the country’s road network, the demand for road transport will continue to

⁸ IPCC-WG-I, 2007: Climate Change 2007, AR-4, Scientific Basis, Intergovernmental Panel on Climate Change, WMO, Geneva, Switzerland.

⁹ Tanner TM, Hassan A, Islam KMN, Conway, D, Mechler R, Ahmed AU, and Alam, M (2007) ORCHID: Piloting Climate Risk Screening in DFID Bangladesh. University of Sussex, UK.

¹⁰ Dasgupta et al (2010). Vulnerability of Bangladesh to Cyclones in a Changing Climate Potential Damages and Adaptation Cost. World Bank. The World Bank Development Research Group Environment and Energy Team.

¹¹ Climate Change Assessment and Adaptation Strategy of the project provide details of climate assessment and recommended adaptation strategy (available as supplementary document; see list of linked documents in Appendix 2).

rise. However, there is an increasing risk that climate change effects will undermine the performance of existing and new infrastructure in the vulnerable coastal districts.

9. The road network in the coastal districts covered by the project, under present climate conditions, is seriously damaged during extreme climatic events. The maintenance and damage repair requirements of such roads will increase with climate change. For many road sections, the cross-drainage systems are inadequate, with poorly maintained canals and drains not having enough hydraulic capacities to efficiently discharge flows to sluice gated outlets through embankments. This causes substantial “water-logging” of adjacent land, adversely affecting land-use, and this situation will worsen under climate change. Similarly, for rural markets, maintenance and damage repair requirements, with spoilage/wastage of perishable goods will also rise with climate change. As demonstrated by recent cyclone events, the present capacities of cyclone shelters and livestock refuge facilities are insufficient. Many existing cyclone shelters also have vulnerable access roads and power supplies and inadequate water supply and sanitation facilities, which often are not usable during emergency conditions.

10. The farmers, especially the poor and small-scale farmers, suffer from a wide range of constraints that limit their livelihoods. Lack of all-weather road connectivity limits their access to markets; increases the cost of production because of higher transportation costs; lowers commodity prices due to remoteness, and hinders access to education and health services. Poor road connectivity also restricts their access to financial services, technology, and development support services provided by various agencies. During extreme climatic events the poor lose their assets as well as livelihood options. Often after extreme conditions, men tend to migrate leaving their families behind. Poverty incidence is widespread, and there are many female headed households. The women are relatively more vulnerable because of poorer access to education and health services, and economic opportunities; limited mobility; and various social restraints.

11. The development strategy of Bangladesh is closely linked to upgrading rural infrastructure with a focus on road connectivity. The country’s Sixth Five-Year Plan for FY2011 – FY 2015 underscores the importance of rural infrastructure, climate resilience, and adaptation measures.¹² ADB’s Country Partnership Strategy for Bangladesh (2011-2015) emphasizes the need for integration of climate change consideration into sector interventions and climate-proofing infrastructure. The project is also aligned with ADB’s Strategy 2020, which advocates rural infrastructure development and climate-proofing.¹³ The project will address many lessons learned from implementing past and ongoing ADB and development partners including the International Fund for Agricultural Development (IFAD) and Kreditanstalt für Wiederaufbau (KfW) supported rural infrastructure projects in Bangladesh. These include undertaking sustainable operation and maintenance, climate-proofing of infrastructure, robust and effective quality control arrangements, and sharpening focus on capacity development.

B. Impact and Outcome

12. The impact of the project will be improved livelihood in rural coastal districts vulnerable to climate change. The outcome will be enhanced climate resilience of coastal infrastructure in 12 rural coastal districts benefiting the poor and women.

¹² Government of Bangladesh, Planning Commission, Ministry of Planning. 2011. *Sixth Five-Year Plan: FY2011–FY2015*. Dhaka.

¹³ ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank, 2008–2020*. Manila.

C. Outputs

13. The overall project outcome will be achieved through the following project outputs: (i) improved road connectivity; (ii) improved market services; and (iii) enhanced climate change adaptation capacity.

1. Output 1: Improved Road Connectivity

14. **Upgrading roads, culverts and bridges.** The project will upgrade 130 kilometers (kms) of upazila roads, including 780 meters of bridges and culverts. Complementary to this output, IFAD will provide parallel financing to upgrade 174 kms of union roads, and 233 kms of village roads including 2,270 meters of bridges and culverts. Together, these interventions are aimed at providing year-round connectivity between agricultural production areas and markets and to the other parts of the country. Road upgrading will involve improving existing roads to appropriate climate resilient standards and widening and rising of embankments, with suitable slope protection against erosion and wave action. The underpinning thrust will be on adequate earthworks, proper pavements, and cross drainage construction. The road crest level will be 800 mm above the normal annual flood level, with an extra height of 200 mm that will be added for the effective sea level rise to the standard 600 mm freeboard. The embankment protection will mainly involve a combination of turf and shrubs, geotechnical measures where there is a high risk of active erosion, and increased cross drainage.

15. Sustainability of the improved roads will be addressed by appropriate climate resilient design; application of effective quality assurance during construction; allocating the road maintenance planning and supervision to a suitable person in each district; and preparing road maintenance plans. Women belonging to labor contracting societies (LCS)¹⁴ will be engaged to clean out drainage canals, plant trees on roadsides and proper vegetation on embankments, and undertake routine road maintenance works. Road safety measures such as road signs, delineators and bollards near the approach to bridges and reflectors carved in tree trunks, and provision of loading and unloading zones will be incorporated within the road designs. A road safety campaign for vulnerable users will also be a part of project road safety activities.

2. Output 2: Improved Market Services

16. **Upgraded growth centers and large markets.** The project will upgrade 88 growth centers and large markets with 15% of space allocated to women. Each market will be connected either to an existing paved road or to one of those to be improved under the project. Infrastructure improvements include paved trading areas, sheds, water supply system, drainage facilities, sanitation facilities, and market offices. At each market, a market management committee (MMC) comprising representatives of shop owners will be responsible for planning, and operation and maintenance of markets. In selected large markets, provision of mini water supply, deep hand operated tube wells, and sweet water ponds with pond sand filters where ground water quality is problematic will be installed. In three growth center markets, shops owned by women, toilets, and street lighting will be supplied with electricity using solar photovoltaic cells.¹⁵ The beneficiaries will be trained on judicious use and maintenance of the system, and the responsibility of maintaining the system will be borne by the beneficiaries by contributing maintenance charges. Some key elements within growth centers or large markets such as new market sheds will be made climate

¹⁴ LCS comprises poor women with limited income-earning capabilities who carry out routine maintenance on rural roads using basic hand tools and materials supplied by LGED.

¹⁵ The selection criteria for these markets include: no existing or near future plan for Rural Electrification Board power supply, acceptable and viable arrangements for operation and maintenance, and equitable geographic distribution.

resilient. These will be raised on concrete plinths to a level above the existing maximum normal monsoon high tide level plus the effective maximum SLR with an additional 250 mm freeboard. The central market area to be paved will be at maximum SLR level plus 100 mm freeboard with adequate drainage capacity included in the designs. Access into the market will be above normal flood level.

17. **Upgraded village markets and collection points.** Complementary to this output, IFAD will provide parallel financing to upgrade 186 community markets, add 11 women's market sections in existing community markets and build 37 boat landing platforms (*ghats*) to appropriate climate change standard. The market improvements will include a common shed, fish shed, open paved/raised area, women's section, toilet block and internal drainage, and building commodity collection points. LCS members and MMCs will be trained to foster community market development.

3. Output 3: Enhanced Climate Change Adaptation Capacity

18. **Upgraded climate disaster shelters.** To complement this output, KfW will provide financing to construct or extend 15 multipurpose cyclone shelters; improve 10 existing cyclone shelters; upgrade 15 km of cyclone shelter access tracks; and construct 5 *killas* (animal shelters). The designs will take into account climate change effects and strict compliance to relevant building codes with respect to wind loading and floor bearing capacities. Emphasis will be on ensuring adequate water storage and sustainable power supply and appropriate toilet facilities, which can be used during the extreme climatic event. Access roads/tracks will be upgraded to the equivalent of village road climate resilience standard.

19. **Enhanced knowledge management.** Knowledge management for climate change will be enhanced. A framework for expanding institutional learning and knowledge sharing will be developed. This will entail more effective knowledge capture; and compilation, storage and sharing on climate resilience principles for the design, construction and maintenance of rural infrastructure. The project will strengthen the management information system (MIS) and geographic information system (GIS) of the Local Government Engineering Department (LGED); develop a special web-portal interface for learning and networking with other agencies; and support establishing a community of practice (CoP).

20. **Enhanced capacity.**¹⁶ The capability of LGED staff and local government units will be strengthened to better prepare and manage climate resilient rural infrastructure. Capacity development training will include climate resilience and disaster risk management; contract management; financial management; construction supervision; quality control; operation and maintenance; gender and development; and monitoring and evaluation.

D. Investment and Financing Plans

21. The project is estimated to cost \$150.0 million (Table 1). The cost includes incremental costs for enhanced resilience to climate change. The cost of upgrading to future climate change standard is 30%-40% higher compared with current practices.

¹⁶ This sub-component will be financed by SCF, IFAD and KfW.

Table 1: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Output 1: Improved Road Connectivity	88.9
2. Output 2: Improved Market Services	17.1
3. Output 3: Enhanced climate change adaptation capacity	9.1
4. Project Management	19.3
Subtotal (A)	134.4
B. Contingencies^c	13.7
C. Financing Charges during Implementation^d	1.9
Total (A+B+C)	150.0

^a Includes taxes and duties of \$21.5 million to be financed by the government.

^b In mid-2012 prices.

^c Physical contingencies computed at 0%-10% of base costs. Price contingencies computed at 0.3% for 2013 and 0.5% per year thereafter on foreign currency costs, and at 7.5% per year on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest charges. Interest during implementation for the ADB loan has been computed at 1.0% per year. Service charges for the Strategic Climate Fund loan have been computed at 0.1% per year, and for the International Fund for Agricultural Development loan at 0.75% per year.

Source: Asian Development Bank estimates.

22. The Government has requested a loan in various currencies equivalent to \$20.0 million from ADB's Special Funds resources to help finance the project. The loan will have a 32-year term, including a grace period of 8 years, an annual interest rate of 1.0% during the grace period and 1.5% thereafter, and such other terms and conditions set forth in the draft loan agreement. The ADB Strategic Climate Fund¹⁷ will finance the project through a loan of \$20 million equivalent and a grant of \$10 million equivalent and administered by ADB. The PPCR loan will have a 40-year term including a grace period of 10 years and an annual service charge of 0.1%. For the outputs proposed to be financed in parallel by IFAD, IFAD will provide two loans of \$59.0 million equivalent and a grant of \$1.0 million equivalent. The IFAD loan will have a 40-year term including a grace period of 10 years and an annual service charge of 0.75%. For the outputs proposed to be financed in parallel by KfW, KfW will provide a grant of €7.157 million (\$8.8 million equivalent). The government will provide \$31.2 million equivalent, including taxes and duties, and land acquisition/resettlement costs. The financing plan is in Table 2.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	20.0	13.3
Cofinanciers		
ADB Strategic Climate Fund Loan ^a	20.0	13.3
ADB Strategic Climate Fund Grant ^a	10.0	6.6
International Fund for Agricultural Development Loans	59.0	39.4
International Fund for Agricultural Development Grant	1.0	0.7
Kreditanstalt für Wiederaufbau (KfW) ^b	8.8	5.9
Government	31.2	20.8
Total	150.0	100.0

^a Under the Pilot Program for Climate Resilience financed by the Strategic Climate Fund. The ADB Strategic Climate Fund is administered by the Asian Development Bank.

^b KfW funding is € 7.157 million which translates to \$8.8 million at June 2012 exchange rates.

Source: Asian Development Bank estimates.

¹⁷ Under the Pilot Program for Climate Resilience financed by the Strategic Climate Fund.

E. Implementation Arrangements

23. The executing agency will be LGED in the Local Government Division of the Ministry of Local Government, Rural Development, and Cooperatives. A project steering committee will provide policy guidance for project implementation. A project management office (PMO), to be established by LGED at its headquarters in Dhaka, will implement the project. The Chief Engineer of LGED will be responsible for project implementation and coordination. The PMO will have one office in each of the three project regions. A project director in Dhaka will be assisted by two deputy project directors; the regional project offices will be responsible for the day-to-day implementation and supervision of project activities. The LGED district offices, headed by executive engineers, will be responsible for implementing subprojects under the guidance of the PMO. The project will closely coordinate with Bangladesh Water Development Board for development interventions. LGED will appoint two groups of consultants: (i) Design and Supervision Consultants, and (ii) Management Support Consultants. LGED has strong institutional capacity; its capacity in international competitive bidding procurement will be further strengthened through procurement training and procurement clinics to be conducted by the Bangladesh Resident Mission.

24. The implementation arrangements are summarized in Table 3 and described in detail in the project administration manual.¹⁸

Table 3: Implementation Arrangements

Aspects	Arrangements		
Implementation period	January 2013 – December 2018		
Estimated completion date	31 December 2018		
Management			
(i) Oversight body	Project Steering Committee Chair: Secretary, Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives		
(ii) Executing agency	LGED		
(iii) Key implementing agencies	LGED divisional, regional, district and upazila offices		
(iv) Implementation unit	PMO Dhaka RPO (Barisal, Khulna and Madaripur) PIU (12 districts)		
Procurement (financed by ADB and/or SCF) ¹⁹	International competitive bidding	2 contracts	\$ 12 million
	National competitive bidding/Shopping	14 contracts	\$ 28 million
Consulting services	QCBS (quality/cost ratio: 90:10)	959 person-months	\$ 7.3 million
	QCBS (quality/cost ratio: 90:10)	194 person-months	\$ 2.4 million

¹⁸ Accessible from the list of linked documents in Appendix 2.

¹⁹ All procurement of civil works, goods and related services will be in accordance with the ADB Procurement Guidelines (2010, as amended from time to time). Bidding packages procured using National Competitive Bidding may follow the Government's Public Procurement Act, 2006 and Public Procurement Rules, 2008, with modifications agreed between the Government and ADB, as set out in the Procurement Plan. All consulting services will be engaged in accordance with ADB's Guidelines on the Use of Consultants (2010, as amended from time to time).

Retroactive financing and/or advance contracting for ADB or SCF financing	ADB may, subject to its policies and procedures, allow on request (i) advance contracting of civil works, equipment and materials, and consulting services; and (ii) retroactive financing of eligible expenditures up to 20% of each of proposed loans and grant, incurred prior to loan and grant effectiveness but not earlier than 12 months before the date of signing of the related legal agreement. Any approval of advance contracting or retroactive financing will not constitute a commitment by ADB to finance the project.
Disbursement	The ADB loan and the SCF loan and grant proceeds will be disbursed in accordance with ADB's Loan Disbursement Handbook (2012, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.

ADB = Asian Development Bank, LGED = Local Government Engineering Department, PIU = project implementation unit, PMO = project management office, QCBS = quality- and cost-based selection, RPO = regional project office, SCF = Strategic Climate Fund.

Source: Asian Development Bank estimates.

III. DUE DILIGENCE

A. Economic and Financial

25. Economic analysis indicates that the project is viable. The economic analysis includes only quantifiable benefits associated with rural roads and markets. There are, however, significant nonquantifiable benefits including improvements in access to economic and social opportunities. Representative upazila and village road subprojects were analyzed to estimate viability for three scenarios: upgrading to current LGED standards, upgrading to existing climate resilience standards and upgrading to future climate resilience standards. Based on upgrading to the highest level (future climate resilience), and allowing for the project overhead and land acquisition costs, economic internal rates of return (EIRRs) are estimated at 14.0% for the upazila road, 17.1% for the village road, 16.7% for the growth center market; and 28.7% for the village market. The sensitivity analysis confirms that the subprojects are extremely robust. Distribution analyses confirm that the overall project will provide substantial benefits to the poor.

B. Governance

26. Project-specific governance risks have been analyzed by carrying out a governance risk assessment. A thorough assessment of the financial management and procurement capacities of the LGED was undertaken, and a set of realistic risk mitigation measures has been proposed and discussed with the government. Risks associated with project management, including procurement and disbursement, will be mitigated by (i) providing consulting inputs to advise and assist in the procurement of goods and services; (ii) requiring that civil work contracts include a condition that contractors adhere to ADB's Anticorruption Policy (1998, as amended to date); (iii) the PMO periodically inspecting the contractor's fund withdrawals and settlements; and (iv) reporting on project activities and implementation on the LGED website to foster transparency and timely awarding of contracts. ADB's Anticorruption Policy was explained to and discussed with the government and LGED. The specific policy requirements and supplementary measures are described in the Project Administration Manual.

C. Poverty and Social

27. The project will help reduce poverty in the rural communities it covers. The beneficiaries will be (i) road users, namely bus and truck owners and operators, passengers, and businesses using freight services; (ii) market operators, traders, and market users; and (iii) communities in the areas of influence of subprojects who will have improved access to services and increased employment opportunities. An estimated 3.5 million people will directly benefit from the project.

The analysis of subproject roads indicates that the proportion of poor benefiting is 40%-46% for the roads. In addition to the direct and indirect benefits from subprojects, there will be a creation of jobs due to subproject construction. This is estimated at 10,200 person-years, of which at least 20% will be for women. The project will also generate long-term and regular jobs for poor women belonging to LCS. Cyclones shelters will contribute to save human life and livestock in periods of extreme climatic events. The project has been categorized as an effective gender mainstreaming project. A gender action plan has been prepared integrating action areas, targets and indicators for gender equality and women's benefits within the various components of the project. A focal point on gender and development within the PMO will be established. PMO will ensure establishing the MIS system with sex-disaggregated data collection, gender-based analysis, and review and reporting on the implementation of the gender action plan.

D. Safeguards

28. **Environment.** The project is category B for environment. An environmental assessment and review framework, and initial environmental examinations, including environmental management plans (EMPs) for sample subprojects have been prepared. The environmental assessment and review framework sets out the requirements for project screening and classification, subproject selection, information disclosure to, and consultation with, the affected people, EMP development, implementation, and monitoring and reporting. The initial environmental examinations found the planned subprojects to have only small and localized adverse impacts on the environment, which can be managed by the mitigation measures proposed in the EMPs. IFAD and KfW indicated that they will require that the subprojects financed by them in parallel comply with the same environmental standards as those financed by ADB.

29. **Resettlement and Indigenous People.** The project is category A for involuntary resettlement. It is expected that there will be some land acquisition and physical displacement required on many of the road subprojects as they will be raised and widened to provide climate resilience. Land acquisition and resettlement will be negligible under the market and cyclone shelter components, as construction is expected to remain within existing boundaries or on government lands. The government expects that much of the land acquisition will be through voluntary donation. As refusal to donate land or enter into a negotiated financial settlement would necessarily lead to expropriation (in order to retain climate resilient design integrity), any subproject that entails land acquisition (either through voluntary or involuntary means) or physical displacement will be subject to a resettlement plan. As the project is "sector" like, and most of the subprojects are not yet selected, a resettlement framework has been prepared. This will guide the preparation and implementation of land acquisition and resettlement activities across the project. Resettlement plans have been prepared for two sample subprojects which can be used as examples for future planning. The project is category B for indigenous people. Project preparation indicated that no indigenous people communities were impacted by any of the three sample subprojects analyzed. Given that there will be many more subprojects designed and undertaken over the course of the project, and the project area contains small numbers of distinct and vulnerable indigenous people communities, an Indigenous Peoples Planning Framework has been developed to guide the screening and planning process during implementation. LGED has strong institutional capacity and commitment for managing social risks and project's compliance with ADB information disclosure because of wide experience in implementing similar ADB supported projects. The proposed capacity development program as part of the project design will further enhance its capacity. IFAD and KfW indicated that they will require that the subprojects financed by them in parallel comply with the same social safeguards standards as those financed by ADB.

E. Risks and Mitigating Measures

30. The project involves some risks, which are manageable and will be largely mitigated during implementation. The integrated benefits and impacts are expected to outweigh the costs, given the likelihood of the risks occurring. Major risks and mitigating measures are summarized in Table 4.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Implementation delays, including disruptions during the upcoming government elections	Potential delays in project start-up will be reduced by taking advance action on contracting of civil works and consulting services.
Lack of sustainability of interventions	Sustainability will be addressed by appropriate climate resilient design, robust and effective quality control arrangements during construction, and preparing road maintenance plan.

IV. ASSURANCES AND CONDITIONS

31. The government and LGED have assured ADB that implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as will be described in detail in the project administration manual and the loan and grant agreements. The government and LGED have agreed with ADB on certain covenants for the project, which are set forth in the loan and grant agreements. Effectiveness of the ADF loan agreement is conditional upon effectiveness of the SCF loan agreement and the SCF grant agreement, and vice versa.

V. RECOMMENDATION

32. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

- (i) the loan in various currencies equivalent to (\$20 million) SDR --- to the People's Republic of Bangladesh for the Coastal Climate Resilient Infrastructure Project, from ADB's Special Funds resources, with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; for a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan agreement presented to the Board;
- (ii) the administration by ADB of the loan not exceeding the equivalent of \$20,000,000 to the People's Republic of Bangladesh for the Coastal Climate Resilient Infrastructure Project, to be provided by the ADB Strategic Climate Fund; and
- (iii) the administration by ADB of the grant not exceeding the equivalent of \$10,000,000 to the People's Republic of Bangladesh for the Coastal Climate Resilient Infrastructure Project, to be provided by the ADB Strategic Climate Fund.

Haruhiko Kuroda
President

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p>2. Improved market services</p> <p>3. Enhanced climate change adaptation capacity</p>	<p>88 growth centers and rural markets improved (target: 15% space allocation for women vendors) (ADB and SCF)</p> <p>186 community markets improved [target: 15% space allocation for women vendors] (IFAD)</p> <p>11 community markets enhanced through the addition of women's markets sections (IFAD)</p> <p>37 boat landing stages constructed or upgraded (IFAD)</p> <p>15 multipurpose cyclone shelters constructed or extended (with separate corners for women) (KfW)</p> <p>10 existing cyclone shelters improved (with separate corners for women) (KfW)</p> <p>15 kms of cyclone shelter access tracks upgraded (KfW)</p> <p>Construction of 5 killas in selected locations (KfW)</p> <p>LGED MIS/GIS system enhanced (SCF)</p> <p>Special web-portal designed and operated (SCF)</p> <p>CoP established (SCF)</p> <p>100 trainings conducted on climate-proofing of rural infrastructure and knowledge management (target: 15% women participation) (SCF, IFAD and KfW)</p> <p>Climate Change Assessment and Adaptation Strategy approved by December 2013 (SCF)</p> <p>Climate resilient rural infrastructure management plan for LGED approved by 2015 (SCF)</p>	<p>For all indicators:</p> <p>LGED management information system database</p>	

Activities with Milestones	Inputs
1. Improved Road Connectivity	Loan
1.1 Land acquired for road construction (Q2 2013-Q3 2015)	ADB: (ADF) \$20.0 million
1.2 Tendering for civil works (Q2 2013 –Q3 2015)	Item \$ million
1.3 Prepare sustainable road maintenance plan (Q1 2014)	Civil works 19.4
1.4 Construct road subprojects (Q3 2013 –Q3 2018)	Others 0.6
2. Improved market services	SCF: \$ 20.0 million
2.1 Tendering for civil works (Q3 2013 –Q3 2015)	Item \$ million
2.2 Construct rural market facilities (Q4 2013 –Q3 2018)	Civil works 18.4
3. Enhanced climate change adaptation capacity	Others 1.6
3.1 Development and approval of training program (Q2 2013)	IFAD: \$ 59.0 million
3.2 Training program for LGED conducted (Q2 2013–Q4 2014)	Item \$ million
3.3 Capacity Building of local governments conducted (Q3 2013–Q4 2014)	Civil works 58.9
3.4 Capacity Building of beneficiaries conducted (Q4 2013 –Q4 2014)	Others 0.1
3.5 LGED MIS/GIS upgraded (Q1 2014)	Grant
3.6 CoP established (Q2 2014)	SCF: \$ 10.0 million
3.7 Knowledge products published (Q4 2017)	Item \$ million
3.8 Tendering of subprojects (Q2 2013)	Consulting Services 8.4
3.9 Construction of subprojects (Q3 2013 – Q4 2016)	Others 1.6
	IFAD: \$ 1.0 million
	Item \$ million
	Training, workshop and studies 1.0
	KfW: \$ 8.8 million
	Item \$ million
	Civil works 7.3
	Others 1.5
	Government \$31.2 million
	Item \$ million
	Civil works 18.3
	Recurrent costs 5.0
	Others 7.9

ADB = Asian Development Bank, ADF = Asian Development Fund, SCF= Asian Development Bank Strategic Climate Fund, CoP= community of practice, GIS = geographic information system, IFAD = International Fund for Agricultural Development, KfW = *Kreditanstalt für Wiederaufbau*, km = kilometer, LGED = Local Government Engineering Department, MIS = management information system, SCF = Strategic Climate Fund.

Note: Baseline values of impact and outcome are based on PPTA findings.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=XXXXX-XX-3>

1. Loan Agreement
2. Loan Agreement: Strategic Climate Fund
3. Grant Agreement: Strategic Climate Fund
4. Sector Assessment (Summary): Agriculture and Natural Resources
5. Project Administration Manual
6. Contribution to the ADB Results Framework
7. Development Coordination
8. Economic and Financial Analyses
9. Country Economic Indicators
10. Summary Poverty Reduction and Social Strategy
11. Gender Action Plan
12. Initial Environmental Examination
13. Environmental Assessment and Review Framework
14. Resettlement Plan: Dhalikhanda-Bashtala Upazila Road Subproject
15. Resettlement Plan: Kalir Bazar-Chakhar Union Parisad and Jangalia Government Primary School cum Cyclone Shelter Access Village Road Subproject
16. Land Acquisition and Resettlement Framework
17. Indigenous Peoples Planning Framework
18. Risk Assessment and Risk Management Plan

Supplementary Document

19. Climate Change Assessment and Adaptation Strategy