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Report No: PAD3635

INTERNATIONAL DEVELOPMENT ASSOCIATION
PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT FROM THE IDA SCALE-UP FACILITY

IN THE AMOUNT OF
EUR 459.8 MILLION (US\$ 500 MILLION EQUIVALENT)

TO THE

PEOPLE'S REPUBLIC OF BANGLADESH

FOR A

WESTERN ECONOMIC CORRIDOR AND REGIONAL ENHANCEMENT (WECARE)
PROGRAM PHASE I PROJECT

USING THE MULTIPHASE PROGRAMMATIC APPROACH (MPA)

WITH AN OVERALL FINANCING ENVELOPE OF US\$1400 MILLION

May 27, 2020

Transport Global Practice
South Asia Region

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CURRENCY EQUIVALENTS

Exchange Rate Effective April 30, 2020

Currency Unit = 1 EUR

= US\$1.0876

= 1 USD
= 84.95 BDT

FISCAL YEAR

July 1 – June 30

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
BRRL	Bangladesh Road Research Laboratory
BEZA	Bangladesh Economic Zone Authority
BLPA	Bangladesh Land Port Authority
BTRC	Bangladesh Telecommunication Regulatory Commission
BBIN	Bangladesh, Bhutan, India and Nepal
CAG	Comptroller and Auditor General of Bangladesh
CCGP	Cabinet Committee of Government purchase
CE	Citizen's Engagement
CPF	Country Partnership Framework
CMU	Country Management Unit
CoC	Code of Conduct
CIA	Cumulative Impact Assessment
CARE	Climate Adaptation and Resilience for South Asia
DFAT	Department of Foreign Affairs and Trade (Australia)
DPR	Detailed Project Report
DSS	Decision Support Systems
EIA	Environmental Impact Assessment
EROM	Emergency Response Operations Manual
ESA	Environmental and Social Assessment
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FACP	Fiduciary Advisory Consultant Panel
FAPAD	Foreign Aided Project Audit Directorate
GBV	Gender-Based Violence
IRAP	International Road Assessment Program
LOC	India Line of Credit
IMED	Implementation Monitoring and Evaluation Division
ITS	Intelligent Transportation Systems
ITU	International Telecommunication Union
GoB	Government of Bangladesh
LGED	Local Government Engineering Department
LGD	Local Government Division
LDCs	Least Developed Countries
M&E	Monitoring & Evaluation
MFD	Maximizing Finance for Development
MoLGRDC	Ministry of Local Government, Rural Development and Cooperatives
MoRTB	Ministry of Road Transport and Bridges
MPA	Multiphase Programmatic Approach
PPP	Public-private partnership

OFC	Optical Fiber Cable
O&M	Operations & Maintenance
OPRC	Operations and Performance Maintenance Contract
PC	Planning Commission
RMG	Ready-Made Garment
RHD	Roads and Highways Department
RTHD	Ministry of Road Transport and Bridge
PCC	Program Coordination Committee
PrDO	Program Development Objective
PSC	Project Steering Committee
RAI	Rural Access Index
ROW	Right of Way
SAARC	South Asian Association for Regional Cooperation
SASEC	South Asia Sub-regional Economic Cooperation
SESA	Strategic Environmental and Social Assessment
SEZ	Special Economic Zones
SUF	Scale-Up Facility
7FYP	Seventh Five Year Plan
SCDP	Safe Corridor Demonstration Project
RTSICP	Road Transport Sector Integration and Coordination Platform
ToC	Theory of Change
Upazilas	An administrative region in Bangladesh as sub-units of districts
WEB	Wider Economic Benefit
WBG	World Bank Group

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Bangladesh	Western Economic Corridor and Regional Enhancement Program	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P169880	Investment Project Financing	High

Financing & Implementation Modalities

<input checked="" type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	

Expected Project Approval Date	Expected Project Closing Date	Expected Program Closing Date
23-Jun-2020	31-Dec-2026	31-Dec-2030
Bank/IFC Collaboration	Joint Level	
Yes	Complementary or Interdependent project requiring active coordination	

MPA Program Development Objective

To provide efficient, safe, and resilient connectivity along a regional transport corridor in western Bangladesh; and promote local economic development in the hinterland of the corridor.

MPA Financing Data (US\$, Millions)

MPA Program Financing Envelope	1,958.20
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**Proposed Project Development Objective(s)**

To provide efficient, safe, and resilient connectivity along a Section of a regional transport corridor in western Bangladesh and reduce post-harvest losses in the hinterland of the Section

Components

Component Name	Cost (US\$, millions)
Upgrading National Highway Corridor and Enhancing Digital Connectivity	314.20
Upgrading Secondary and Tertiary Roads and Complementary Logistics Infrastructure and Services	171.00
Project Implementation Support and Sustainability	5.60
COVID-19 Relief and Recovery	9.20
Contingent Emergency Response Component	0.00

Organizations

Borrower:	People's Republic of Bangladesh
Implementing Agency:	Roads and Highways Department (RHD) Local Government Engineering Department (LGED)

MPA FINANCING DETAILS (US\$, Millions)

MPA Program Financing Envelope:	1,958.20
of which Bank Financing (IBRD):	0.00
of which Bank Financing (IDA):	1,400.00
of which other financing sources:	558.20

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	758.20
Total Financing	758.20
of which IBRD/IDA	500.00



Financing Gap	0.00
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DETAILS

World Bank Group Financing

International Development Association (IDA)	500.00
IDA Credit	500.00

Non-World Bank Group Financing

Counterpart Funding	258.20
Borrower/Recipient	258.20

IDA Resources (in US\$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
Bangladesh	500.00	0.00	0.00	500.00
Scale-up Facility (SUF)	500.00	0.00	0.00	500.00
Total	500.00	0.00	0.00	500.00

Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2020	2021	2022	2023	2024	2025	2026	2027
Annual	0.00	10.00	60.00	120.00	160.00	100.00	40.00	10.00
Cumulative	0.00	10.00	70.00	190.00	350.00	450.00	490.00	500.00

INSTITUTIONAL DATA

Practice Area (Lead)

Transport

Contributing Practice Areas

Agriculture and Food, Digital Development, Macroeconomics, Trade and Investment, Infrastructure, PPP's & Guarantees

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks



SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Substantial
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Substantial
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● High
8. Stakeholders	● Substantial
9. Other	
10. Overall	● Substantial
Overall MPA Program Risk	● Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[] Yes [✓] No

Does the project require any waivers of Bank policies?

[] Yes [✓] No



Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description

The Recipient shall establish, by no later than three (3) months after the Effective Date, or such other date as agreed with the Association, and thereafter maintain throughout the course of MPA Program implementation, a Program Coordination Committee (PCC) with a mandate, functions, composition and resources satisfactory to the Association. The PCC shall be co-chaired by the Secretary of RTHD and Secretary of LGD, and include representatives from RHD, LGED, RTHD, LGD, ERD, Planning Commission, IMED, FAPAD, BLPA, BEZA and BTRC (Section I.A.1 of Schedule 2 to the Financing Agreement).

Sections and Description

The Recipient shall establish by no later than three (3) months after the Effective Date, and thereafter maintain, a LGD Project Steering Committee (LGD PSC) with a mandate, functions, composition and resources satisfactory to the Association. The LGD PSC shall be chaired by the Secretary of LGD, and include the chief engineer of LGED, the



LGED PIU Project director, and the RHD PIU Project director (Section I.A.2 of Schedule 2 to the Financing Agreement).

Sections and Description

The Recipient, through LGED, shall establish, by no later than one (1) month after the Effective Date, and thereafter maintain, a LGED Project Implementation Committee (LGED PIC) with a mandate, functions, composition and resources satisfactory to the Association. The LGED PIC shall be chaired by the LGED chief engineer, and include the LGED PIU Project director, senior LGED officials and technical experts to provide technical guidance in relation to LGED's Respective Part of the Project (Section I.A.3 of Schedule 2 to the Financing Agreement).

Sections and Description

The Recipient, through LGED, shall establish, and thereafter maintain, a Project Implementation Unit within LGED (LGED PIU), with a mandate, functions and resources satisfactory to the Association, and by no later than three (3) months after the Effective Date, recruit or appoint the following positions within the LGED PIU: (i) one (1) Project director; (ii) one procurement specialist; (iii) one financial management specialist; (iv) one (1) environmental specialist; and (v) one (1) social development or stakeholder engagement specialist (Section I.A.4 and I.A.5 of Schedule 2 to the Financing Agreement).

Sections and Description

The Recipient shall establish, by no later than three (3) months after the Effective Date, and thereafter maintain, an RTHD Project Steering Committee (RTHD PSC) with a mandate, functions, composition and resources satisfactory to the Association. The RTHD PSC shall be chaired by the Secretary of RTHD and include the RHD chief engineer, the RHD PIU Project director, and the LGED Project director (Section I.A.6 of Schedule 2 to the Financing Agreement).

Sections and Description

The Recipient, through RHD, shall establish, by no later than one (1) month after the Effective Date, and thereafter maintain, a RHD Project Implementation Committee (RHD PIC) with a mandate, functions, composition and resources satisfactory to the Association. The RHD PIC shall be chaired by the RHD Chief Engineer and include the RHD PIU Project director, senior RHD officials and technical experts to provide technical guidance in relation to RHD's Respective Part of the Project (Section I.A.7 of Schedule 2 to the Financing Agreement).

Sections and Description

The Recipient, through RHD, shall establish, and thereafter maintain throughout the course of Project implementation, a Project Implementation Unit within RHD (RHD PIU), with a mandate, functions and resources satisfactory to the Association, and by no later than three (3) months after the Effective Date, recruit or appoint the following positions within the RHD PIU: (i) one (1) Project director; (ii) one procurement specialist; (iii) one financial management specialist; (iv) one (1) environmental specialist; and (v) one (1) social development or stakeholder engagement specialist (Section I.A.8 and I.A.9 of Schedule 2 to the Financing Agreement).



Sections and Description

The Recipient, through RHD, shall: (a) establish, and thereafter maintain throughout the course of Project implementation, a Fiduciary Advisory Consultant Panel with a mandate, terms of reference and resources satisfactory to the Association for, inter alia, overseeing the fiduciary aspects of the implementation of RHD's Respective Part of the Project; and (b) by no later than six (6) months after the Effective Date, engage procurement and financial management consultants with qualifications, experience and terms of reference satisfactory to the Association (Section I.A.10 of Schedule 2 to the Financing Agreement).

Sections and Description

The Recipient, through RHD, shall establish, by no later than six (6) months after the Effective Date, and thereafter maintain throughout project implementation, a Road Transport Sector Integration and Coordination Platform (RTSICP) with a mandate, terms of reference, and resources satisfactory to the Association. The RTSICP shall be managed by the Ministry of Road Transport and Bridges, with RHD serving the role of secretariat (Section I.A.11 of Schedule 2 to the Financing Agreement).

Sections and Description

The Recipient shall carry out the Project in accordance with the Implementation Arrangements set out under Sections I.B to I.F of Schedule 2 to the Financing Agreement

Conditions

Type	Description
Disbursement	No withdrawal shall be made for Emergency Expenditures under Part 5 of the Project, unless and until the Association is satisfied that all of the conditions listed in Section I.E.2 of Schedule 2 to the Financing Agreement have been met in respect of said expenditures (Section III.B.1(b) of Schedule 2 to the Financing Agreement)



I. STRATEGIC CONTEXT

A. Country Context

1. Bangladesh has made rapid social and economic progress in recent decades, reaching lower-middle income status by 2015. Gross domestic product (GDP) growth averaged close to 6 percent annually since 2000 and, according to official estimates, accelerated to over 8 percent in FY19. Strong labor market gains contributed to a sharp decline in poverty, with the national poverty rate falling from 48.9 to 24.3 percent between 2000 and 2016, while extreme poverty declined from 34.3 to 12.9 percent. However, the pace of poverty reduction slowed in recent years even as growth accelerated, particularly in urban areas and in the west of the country. Similarly, the progress on shared prosperity slowed between 2010 and 2016 after a decade of improvements, with annual consumption growth of the bottom 40 percent trailing that of the overall population (1.2 versus 1.6 percent). Bangladesh entered the COVID-19 crisis with a relatively strong macroeconomic position. Garment exports and remittances narrowed the external deficit in recent years and international reserves were adequate at the end of April 2020 at US\$32.9 billion, equivalent to six months of imports. While tax collections are amongst the lowest in the world, under-execution of the budget has contained the fiscal deficit, which has been below 5 percent of GDP since FY01. As a result, public debt is low and stood at 33.7 percent of GDP at the end of FY19. A key economic vulnerability is in the banking sector where the non-performing loan (NPL) ratio is high at 9.3 percent of outstanding loans in December 2019, and is underestimated considering significant under-provisioning, regulatory forbearance, and gaps in the legal framework.

2. Growth declined sharply as the COVID-19 pandemic brought about major disruptions to economic activity. In the first half of FY20 (July to December), growth decelerated as slower global trade and deteriorating external competitiveness lowered exports and tighter access to finance constrained private investment growth. COVID-19 has also darkened the economic outlook. FY20 GDP growth is projected in a range between 1.6 percent and a downside scenario of 1.0 percent. The decline in exports is expected to persist, as developed market recessions depress demand for ready-made garments. A shortage of intermediate inputs is expected to lower industrial production, while labor shortages could adversely impact all sectors. Transportation disruptions are expected to dampen agricultural growth, particularly production of perishable products like dairy, poultry, and vegetables.

3. There is a marked divide in poverty reduction between eastern and western divisions of Bangladesh. Poverty reduction since 2010 has been concentrated in the central and eastern divisions of the country, while it has stagnated in the western divisions. The stronger rates of poverty reduction in the east widened a gap between eastern and western Bangladesh that had previously been narrowed between 2005 and 2010. The data also show that consumption growth was significantly lower in the west than in the east, compared to the previous decade. Poverty reduction was driven by a reduction in rural areas, but it was not predominately due to gains in the agricultural sector. The agricultural sector contributed to only 27 percent of the poverty reduction in rural areas, despite employing about 47 percent of rural households, highlighting the need for agriculture to become more poverty reducing.¹

4. In terms of economic structure, the west derives a larger share of income from agriculture than the east. For example, 57 percent of the income of the Khulna Division is generated from agricultural production. The welfare divide between the eastern and western regions is especially evident in rural areas, driven in part by slower agriculture growth affecting relatively more households in the west. However, despite the longer-term trend of growing employment and income in non-agriculture, agriculture income will remain central for poverty reduction. For the poorest households

¹ World Bank, Bangladesh Poverty Assessment, 2019



living in rural areas, agricultural income represents, on average, about 57 percent of total labor income. To increase their incomes, a World Bank study highlights the criticality of better connectivity and efficient logistics to market agricultural products.² Furthermore, value chain analyses point to the importance of modern market infrastructure, given the large share of rural non-farm enterprises that pursue activities related to agriculture (such as trading and processing).

5. Bangladesh is highly vulnerable to health and other hazards. Bangladesh is ranked as the sixth most vulnerable country (of 181 countries), according to the 2018 United Nations Disaster Risk Index. The country's high population density and rapid urbanization make it prone to high rates of morbidity from outbreaks of infectious diseases, such as cholera, dengue fever, and possibly the evolving COVID-19 crisis. Overall, a large section of the population is at risk of health emergencies, including those due to outbreaks of infectious diseases that typically follow natural disasters. The frequency of such disasters is higher in the Southwest region compared to the rest of the country, since the region is more vulnerable to cyclones³, tidal surges, waterlogging, flood, drought and salinity.

B. Sectoral and Institutional Context

6. The road network in Bangladesh needs considerable investments for upgrading and maintenance. The primary road network⁴ is congested and in poor condition, operating at or near maximum capacity and is unable to keep up with rapidly increasing demand. The average speed on the primary network is less than 30 km/hour. With respect to the secondary and tertiary road network⁵, Bangladesh has made remarkable progress, achieving the highest rankings on the Rural Accessibility Index (RAI) in the region and among Least Developed Countries (LDCs). Despite this progress, rural roads across the country are in dire need of regular repair and rehabilitation. Poor quality of construction and maintenance of the primary, secondary and tertiary road network is common, resulting in poor riding quality, reliability and impassable sections during the rainy season. Yet, the national maintenance budget for roads is increasingly in deficit, and road repair is often reactive and is therefore more expensive in the long run. The World Bank's forthcoming Infrastructure Sector Assessment Program (InfraSAP) estimates that Bangladesh will need road sector investments of US\$52 billion until 2025 to meet the growing transportation demand.

7. The poor road conditions are resulting in high logistics costs, constraining Bangladesh from playing a more active role in regional integration despite its strategic geographical location. Pervasive congestion across the national logistics system is estimated to increase standard trucking costs by 100 percent⁶. Logistics costs are especially high for agricultural products, ranging from 4.5 percent of sales (for leather footwear) to 47.9 percent of sales (for horticulture). Inefficiencies in logistics systems can especially have dire consequences during emergency situations like the spread of pandemics (e.g., COVID-19) when the uninterrupted flow of essential goods like food and medical supplies is imperative. Given the transport disruption currently caused by COVID-19, and similar possible future emergencies, food supply chains could collapse in Bangladesh due to the lack of efficient transport to take products from farm to table. In this context, reducing the high post-harvest losses for food security and ensuring timely transportation is vital.

² World Bank, Rural Income Diagnostic (forthcoming)

³ Between 1960-2015, 19 severe cyclones hit the country's coast

⁴ The Primary road network which is under the responsibility of the Roads and Highways Department (RHD), MoRTB - extends more than 21,000 km, of which 7,000 km are national and regional highways, and 13,100 km are Zilla (district) roads.

⁵ Secondary and tertiary network is under the responsibility of the Bangladesh Local Government Engineering Department (LGED), MoLGRDC - extends roughly 375,000 km

⁶ Herrera Dappe, M., 2016, Moving Forward: Connectivity and Logistics to Sustain Bangladesh's Success, World Bank



8. Road safety performance is deteriorating. Estimates of annual deaths in road crashes range from 2,538⁷ to between 20,736⁸ and 21,316⁹, which is estimated to cost Bangladesh 2-3 percent of GDP annually. Between 1990 and 2017, the increase in the road crash fatalities per capita was three times higher in Bangladesh than that across the South Asia region. For the highest-risk group - males between the ages of 15 and 49 - the rate of increase in Bangladesh was 15 times higher than that across the South Asia region. The low but rapidly growing motorization rate (a 2.5 time increase from 2014 to 2017) poses serious threat to road safety, and unless rapid, scaled-up road safety investments are made, a continued upward trend in fatalities and injuries is inevitable. The deteriorating road safety performance is not only undermining the already limited capacity to provide emergency care that would be vital for saving lives should the COVID-19 outbreak worsen, but it also increases the costs of moving vital goods (road crashes account for about 11 percent of truck operating costs¹⁰).

9. Bangladesh's unique geographic conditions present challenges in developing and maintaining the transport system. Situated in the delta of three major and highly active rivers – the Meghna, Jamuna, and Padma - Bangladesh is one of the most disaster-prone and climate vulnerable countries in the world, and the frequency as well as the intensity of floods and cyclones are increasing. The 2019 Global Climate Risk Index ranks Bangladesh among the top 10 most affected countries by climate change. More than 50 percent of all types of roads are exposed to different levels of flooding¹¹. The impacts of climate change are more pronounced in the west, especially the Southwest region, and natural hazards are expected to be more intense in the region in the future due to climate change. An additional 20 percent monsoon rainfall by 2050 is predicted for the Ganga-Brahmaputra-Meghna basin, suggesting more severe inland flooding in the southwest region of Bangladesh. Rainfall and floods damage the roads and impair accessibility. The damaged roads in during the flood seasons result in disproportionately high costs for rehabilitation, especially following high flood events. The region is also at risk of severe droughts. The annual average temperature in Bangladesh shows an increasing trend (+0.6C since 1950), leading to softening and cracking of pavements, and making them more vulnerable to heavy rainfall.

10. Women face a myriad of challenges in the transport and logistics sectors in Bangladesh. Only 8 percent of those employed in the “Transport, Storage and Communications Sector” are female; however, in rural road maintenance work this share is somewhat higher at around 13 percent. Around 3 percent of sellers in rural markets in western Bangladesh are women. There is thus considerable scope to improve the gender balance in the transport sector and in markets, that would allow women to benefit from the gains from enhanced connectivity. A forthcoming World Bank study in Bangladesh finds that the barriers that women face can be divided into the societal, institutional, and individual levels. At the societal level, the main barrier is the social norm of purdah, and often women are stigmatized when working on their own in public places. The study finds that designating stall space for female vendors, to accommodate the purdah, is helpful in alleviating this barrier. At the institutional level, women vendors cite the lack of female-friendly facilities, such as separate toilets with doors that close, disposal bins for sanitary pads, and water for handwashing. And at an individual level, household responsibilities and especially that of child rearing, play an important role in a woman's choice to work. As in the rest of the world, women spend much greater time in care work. ¹² Evidence from the field suggests that many skilled women are not able to continue working due to the lack of childcare facilities. For

⁷ Police First Information Report (FIR). Defined as died at scene of crash.

⁸ Global Burden of Disease

⁹ World Health Organization. 2015. Global Status Report on Road Safety 2015.

¹⁰ Herrera Dappe, M., 2016, Moving Forward: Connectivity and Logistics to Sustain Bangladesh's Success, World Bank

¹¹ Resilience of the Transport Network in Bangladesh, World Bank, TU Delft, 2018

¹² ILO finds that “living with a child under 6 implies a loss of close to one hour of paid work per week for women and an increase in paid working time of 18 minutes per week for men.” Source: ILO (2018). Care work and care jobs for the future of decent work. A 2018 ILO global report finds that women perform 76.2 percent of total hours of unpaid care work, more than three times as much as men. In Asia, this rises to 80 per cent, imposing a “job quality penalty” for the care givers.



example, in an apprenticeship program run by LGED in the district of Jashore, approximately 60 percent of the trained females indicated that they could not work after the apprenticeship was completed due to childcare responsibilities. Women on worksites have also been reported to work fewer hours to balance household and work responsibilities.

11. Digital connectivity remains a challenge in Bangladesh, especially outside the main cities. While mobile internet penetration has grown from 12 percent in 2014 to 22 percent in 2018, Bangladesh ranks 78 among the 79 countries in the Global Connectivity Index for 2018. Of the 176 countries in International Telecommunication Union's (ITU's) annual ICT Development Index 2017, Bangladesh ranked 147. The optical fiber cable (OFC) system suffers from frequent cuts, requiring new OFC to increase coverage and reliability. Inadequate digital connectivity and inability to deploy digital tools will likely hamper Bangladesh's response to the COVID-19 outbreak, including social distancing regimes, essential services through remote operations, and business continuity.

12. Significant investments in broadband and IT infrastructure will be required to achieve 'Digital Bangladesh'. This is a government program to deploy ICT as a tool to alleviate poverty, eliminate the urban-rural digital disparity, establish good governance, and ensure social equity. Digital connectivity is also critical for the "My Village, My Town" initiative to provide quality public services to rural areas. The Ministry of Road Transport and Bridges (MoRTB) is developing a national Intelligent Transport System (ITS) master plan to install ITS along highways. The government's plan to launch 5G services by 2021 depends entirely on the nationwide availability of seamless OFC connectivity. Improved broadband connectivity and ITS will also have substantial benefits for road transport operations of (especially during emergencies) and are a critical enabler of building "Smart Highways".

13. The transport sector faces institutional fragmentation, weak co-ordination and capacity constraints. At the national level, there are five ministries and 21 agencies responsible for the transport sector with overlapping mandates, and conflicts between service provision and regulatory responsibilities. Transport infrastructure projects are most often identified and selected independently along modal lines through separate ministries without a comprehensive, coordinated and continuous planning process. In the absence of a multi-sectoral mechanism or platform that can facilitate an integrated approach to infrastructure development, large transport projects tend to primarily focus on physical investments, with little consideration for their impact on local and regional economies and deepening the benefits through complementary interventions. The road sector lacks a Disaster/Pandemic Response Plan for situations like the COVID-19, and there is a significant risk of disruptions to key highway transportation services and infrastructure in case of emergencies (which can jeopardize the timely delivery of critical food, fuel, and medical supplies).

14. These multifaceted development challenges are amplified in the western region. There is evidence to suggest that the eastern region has increasingly benefited from integration with growth poles, namely Dhaka and Chattogram, in contrast to the more isolated western region¹³. The large rivers crisscrossing the country act as natural boundaries between these two parts of the country by imposing a strong barrier to connectivity. Despite the western region's unique potential for economic prosperity due to its geographic location as the main gateway for Indo-Bangla trade, agglomeration of transport infrastructure has not materialized. This gap in economic development between east and west is further enlarged by a growing digital divide. A review of the volume and growth of mobile data reveals uneven distribution in the access and far greater usage in the eastern region.

15. Transport infrastructure can play a critical role in narrowing the east-west divide. The construction of the Bangabandhu Bridge in 1998 is estimated to have reduced transport costs between the northwest and Dhaka by more

¹³ World Bank, Poverty Assessment for Bangladesh: Creating Opportunities and Bridging the East-West Divide, 2008



than 50 percent and structurally pushed farmers towards high value crops¹⁴. The much-anticipated Padma Bridge is expected to boost the economic integration of southwest Bangladesh with the eastern part of the country. A World Bank study¹⁵ highlighted that, to deepen the benefits of the Padma bridge, the capacity of the primary road network needs to be enhanced to meet higher traffic demand, and complementary investments would be required in secondary and tertiary roads, as well as in basic infrastructure and services, to promote economic opportunities in rural areas.

16. The western region of Bangladesh is an important gateway for regional and international trade but is not well integrated with the rest of the country and region. Three of the six most important trade gateways in Bangladesh—Benapole and Bhomra land ports, and Mongla seaport—are in the southwestern region. The Benapole-Petrapole land border post is the busiest and the most important land port between mainland India and Bangladesh. It accounts for over 50 percent of India’s overland exports, and almost 90 percent of Bangladesh’s. Several transport routes in the western region also have the potential to serve as regional transit corridors, interconnecting India (including the North East Region), Bhutan and Nepal. However, despite its importance, the southwestern region is isolated from the rest of Bangladesh in terms of road connectivity. A defining feature of the southwestern and northwestern regions of Bangladesh is that close to half of tradable goods that these regions produce (measured using freight that each region generates) is traded within them. The COVID-19 pandemic has further highlighted not only the need for enhancing the resilience and efficiency of transport connectivity between the agrarian western region and population centers like Dhaka, but also the need to improve the local food supply chain.

17. An integrated approach over a longer time horizon is required to have meaningful impact. Under the Western Economic Corridor and Regional Enhancement (WeCARE) Program (“the WeCARE Program”), the Government plans to transform a 260 km national highway (Bhomra-Satkhira-Navaron and Jashore-Jhenaidah-Bonpara-Hatikumrul, the “Program Corridor”) in the western region into an “Economic Corridor”. The Program Corridor does not include the Navaron-Jashore section, which is expected to be improved as part of the Bhanga to Benapole corridor improvement under the third Indian Line of Credit. The Program Corridor is an important regional transport route and is an integral part of several South Asian Association for Regional Cooperation (SAARC) Road Corridors and the Asian Highway network. Improvement of this Program Corridor will contribute to strengthening weak links in the road network of the BBIN countries, as envisioned in the Operational Plan of the South Asia Sub-regional Economic Cooperation (SASEC). The 260 km length will be the ‘spine’ of the Economic Corridor and its area of influence will comprise the ten districts of Jashore, Jhenaidah, Magura, Chuadanga, Satkhira, Natore, Shirajganj, Kushtia, Pabna and Meherpur (“Program Districts”). The local impacts of the Program will be enhanced through a network of improved rural roads, markets, and logistics infrastructure that would be connected to the corridor.

18. The World Bank’s support to the WeCARE Program will be implemented through a Multiphase Programmatic Approach (the “MPA program”). The MPA program will comprise of upgrading 110 km of the Program Corridor; and the development of secondary and tertiary roads, growth centers, logistics infrastructure and services, and other economic infrastructure in the Program Districts. It will also support COVID-19 relief and recovery; and strengthen road sector management and institutional capacity. The Asian Infrastructure Investment Bank (AIIB) is expected to complement the WeCARE Program by upgrading 150 km of the Program Corridor through parallel financing.

19. The Program Corridor will be upgraded from the existing two-lane single carriageway to a climate-resilient four lane dual carriageway. Separate service lanes for slow moving vehicles and vulnerable users will be constructed on both sides of the carriageway to improve road safety. OFC will be deployed along the corridor to enhance digital

¹⁴ World Bank, Transport Costs, Comparative Advantage, and Agricultural Development, Evidence from Jamuna Bridge in Bangladesh, 2018

¹⁵ World Bank, Comprehensive Development of the Southwest Region Following Building of Padma Bridge, 2011



connectivity and to facilitate the application of ITS, as well as digital tools for emergency response and business continuity. Investments in local economic infrastructure under the MPA Program will place a strong emphasis on enhancing the efficiency of, and reducing the losses in, local supply chains, thereby enhancing the resilience of local supply chains which is important in the case of natural disasters or pandemics. These investments would result in Wider Economic Benefits (WEBs), such as growth in income and consumption, poverty reduction, and the creation of new jobs.

20. The MPA Program will contribute to employment generation and economic recovery following the evolving COVID-19 pandemic. It will provide immediate social protection and critical livelihoods to the vulnerable rural population in the Program Districts through labor intensive civil works with the potential of generating about 1.3 million days of rural employment in the first 24 months of project implementation. In the longer-term, civil works related to upgrading primary, secondary, and tertiary roads, as well as logistics and other economic infrastructure, are estimated to generate 5-7 million person days of employment under the project. They are also expected to generate significant demand for local materials and services, thereby contributing to the recovery.

21. The MPA Program will serve as a 'development platform' for a multi-sectoral engagement that can facilitate an integrated development approach. Investments in transport and communication systems can improve links between smaller and larger markets and attract investment to secondary cities and towns. Improvements to markets can lead to reduced crop losses, improved efficiency of market operations, public health benefits through better sanitary conditions, and growth in agriculture production through greater access to market opportunities.

22. To enhance development impacts, the MPA Program will explore supporting complementary investments in agriculture, urban infrastructure and public services, and spatially targeted incentives. These may include investments to improve agricultural production technologies and management practices in Program Districts, and the provision of services in designated areas (e.g., special economic zones, SEZs). The initial entry points for this 'development platform' are MPA phase 1 support for: (i) developing "my village my town" master plans to "extend modern urban facilities to every village"; and (ii) sustainable development of Growth Centers, which are the economic lifeline of rural Bangladesh. This integrated economic corridor approach is designed to catalyze the economy of the west and contribute to improving the livelihoods of the over 20 million people living in the Program Districts.

C. Relevance to Higher Level Objectives

23. The WeCARE Program supports key aspects of the Bangladesh's 7th Five Year Plan (7FYP) for FY16-20, titled "Accelerating Growth, Empowering Citizens." The 7FYP places importance on developing a modern transport network to achieve equitable growth and reduce regional imbalance in development. The 7FYP promotes an integrated development strategy for the western region, comprising development of multi-modal transport and logistics infrastructure, and the establishment special economic zones, high-tech industrial parks and information technology parks. The plan's core priorities as it relates to the WeCARE Program interventions are expected to be retained in the 8th Five-Year Plan (2020-2025). Under the working title of "Promoting Prosperity Fostering Inclusiveness", the 8FYP aims to develop infrastructure of a similar level as in upper middle-income countries, and transform rural Bangladesh in terms of information, communication and technology, transport facilities, and modernization of agriculture. The Program is also part of a broader Government regional connectivity plan to upgrade around 1,800 km of regional connectivity roads to develop the country as a regional trade and transit hub.

24. The MPA Program is fully aligned with the World Bank Group's Bangladesh Country Partnership Framework (CPF)



FY2016-2020.¹⁶ It will contribute to all three CPF Focus Areas: Focus Area 1 (Growth and Competitiveness) by upgrading and rehabilitating targeted sections of the primary, secondary and tertiary road network in Western Bangladesh; Focus Area 2 (Social Inclusion) by supporting logistics infrastructure to help stimulate the local economy and expand economic opportunities for the poorer rural communities; and Focus Area 3 (Climate and Environment Management) by providing resilient infrastructure and logistics services to increase the resilience of the population to natural disasters in the Program's influence areas. The new CPF, which is under preparation, will continue to focus on removing chronic impediments to faster growth and job creation, and accelerate poverty reduction, in line with the country's aspiration to become a developed country by 2041. The Bank's interventions under the WeCARE Program are expected to generate WEBs, such as the growth of income and consumption, and the creation of new jobs, and thus contribute to the twin goals of ending extreme poverty and promoting shared prosperity.

25. The MPA Program is also aligned with the World Bank Group's commitment to rapid and flexible response to the COVID-19 pandemic by supporting immediate relief, recovery, and resilience. In terms of relief, the focus will be on providing immediate social protection and livelihoods to vulnerable rural population through labor intensive civil works and on enhancing emergency preparedness, management, and response capacity of the two leading transport agencies in Bangladesh (LGED and RHD) to mitigate risks of COVID-19 and future pandemics. In terms of economic recovery from the aftermath of COVID-19, significant employment opportunities will be generated through large civil works contracts for the national highway and connecting rural roads and markets. In terms of resilience, investments in the transport and logistics systems will strengthen local supply chains and reduce post-harvest losses and logistics costs and will be helpful in responding to pandemics like COVID-19 in future. Building climate resilience into the design of roads and markets will facilitate uninterrupted flow of critical goods and services and will be particularly important if future pandemics coincide with flooding, or other natural disasters.

26. The MPA Program is anchored in the World Bank Group corporate priority to help client countries meet their development and climate objectives (including climate co-benefit targets) by mainstreaming climate resilience in planning and investments in connectivity infrastructure and institutions. It will complement the Climate Adaptation and Resilience for South Asia (CARE) regional project, which aims to contribute to strengthen enabling environment for climate-resilient policies and investments in select sectors and countries in South Asia. In Bangladesh, the road sector would be the focus of the CARE project, the scope of which would include developing CARE to make informed decisions and policies for climate resilience, backed by good quality scientific data; Policy and knowledge interventions for climate risk management; Decision Support Systems (DSS) for Climate Resilience; Sector Guidelines and Advisory Services on Climate Resilient Design & Standards; and Technical support and capacity building to implement climate risk management. The MPA would directly contribute to the development objective of CARE, and benefit from its interventions to enhance climate resilience and adaptation.

27. IDA-Scale-up Facility (SUF) Funding. The MPA program meets the eligibility criteria for funding from IDA-SUF: (i) Bangladesh is listed among SUF Eligible Countries (since FY15); (ii) project (MPA phase 1) interventions are expected to have transformative impact on the economy of western Bangladesh by significantly improving the efficiency, safety, resilience, as well as inclusive transport mobility, logistics, and digital connectivity; (iii) MPA Program investments are expected to generate significant WEBs and the return on investments is estimated to be high; (iv) alignment with the WBG CPF; (v) low risk of debt distress, with total debt stock of 34.9 percent of GDP and the net present value of external debt to GDP of 18.6 percent (based on data of IMF/WB Joint DSA as of June 2019); and (vi) overall country portfolio rating of 3.5 (as of 2018) on a range of 2- 4.5, and a Country Policy Institutional Assessment (CPIA) rating of 3.2 (as of 2018) on a range of 1- 6.

¹⁶ Report No. 103723-BD; March 8, 2016 discussed at the Board on April 5, 2016.



D. Multiphase Programmatic Approach

(i) Rationale for using MPA

28. There are strong reasons for using an MPA compared to several standalone investments:

- a) **Continuity.** Accomplishing comprehensive institutional modernization in the road sector requires a systemic and gradual approach over a longer time period. The MPA sends a strong signal to the Government and development partners on the Bank's support over the long term to address long standing challenges of the western region, particularly in the road sector. The Bank's long-term engagement will also increase the private sector's confidence, lower risks to attract commercial financing and co-financing for the future phases, and thus maximize the Bank's convening power in the sector and region. The MPA Program has already catalyzed financing from other development partners to support the overall WeCARE Program.
- b) **Complexity.** The complex and multidimensional nature of the WeCARE Program, such as integrating the highways and the rural roads network with rural markets, and focusing on improving the value chains of priority crops/products while enhancing road sector management at the national level, requires an extended time horizon where multiple agencies and private sector need to work together to achieve the Program outcomes. Addressing such challenges would not be feasible through standalone investments.
- c) **Flexibility to learn/tailor/adapt.** Compared to standalone projects, the MPA provides a more flexible and adaptive environment to achieve Program goals. The MPA will enable a programmatic engagement that can adapt readily to the context. Each phase, focused on smaller segments of the transport corridor and clusters of rural roads, markets, and agro-logistic interventions, will allow lessons to be more easily applied to the next phase and adjust/introduce new practices and innovations.
- d) **Platform for multi-sectoral engagement.** The MPA will serve as a platform for a multi-sectoral engagement that would be difficult to achieve through standalone projects. This platform will facilitate an integrated approach to the development of the Program's area of influence, including interventions that support the planned development of urban/peri-urban areas under the Government's "Growth Center" program, as well as the emerging "My Village, My town" initiative.
- e) **Sequencing of interventions.** The MPA will allow the government to design the Program in more manageable shorter phases. A phased approach is also aligned with the WeCARE Program design of progressively financing more tertiary infrastructure, as the primary infrastructure is completed. An increased focus on smaller segments of the corridor will improve the quality of monitoring and lower risks of unintended technical shortcomings in design and contracting.
- f) **Risk management.** Phasing Bank support to the WeCARE Program will allow the Bank and the Government to better manage risks, especially those related to the introduction of the Bank's new Environment and Social Framework (ESF).
- g) **Borrower experience.** Transport agencies in Bangladesh have experience in working with the Asian Development Bank's Multi-Tranche Financing Facility (MFF), which is similar to the MPA and reduces the risk in adopting a programmatic approach, establishing a common sector development platform, sustainability of government financing, and reporting requirements.

(ii) Program Results Chain



29. The MPA Program focuses on alleviating three key constraints to the Government of Bangladesh's objective of enhancing regional connectivity and economic development of the Western Region: (i) congested, non-resilient and unsafe road network, resulting in excessively high logistical costs and constraining Bangladesh and the western region from leveraging its strategic geographical position as a trade and transit hub in the region; (ii) lack of proper storage and handling facilities raises product losses in the supply chain (increasing logistics costs) especially for fresh produce¹⁷; and (iii) weak road sector management in terms of planning, implementation, and operation maintenance, as well as, emergency preparedness, management, and response capabilities.

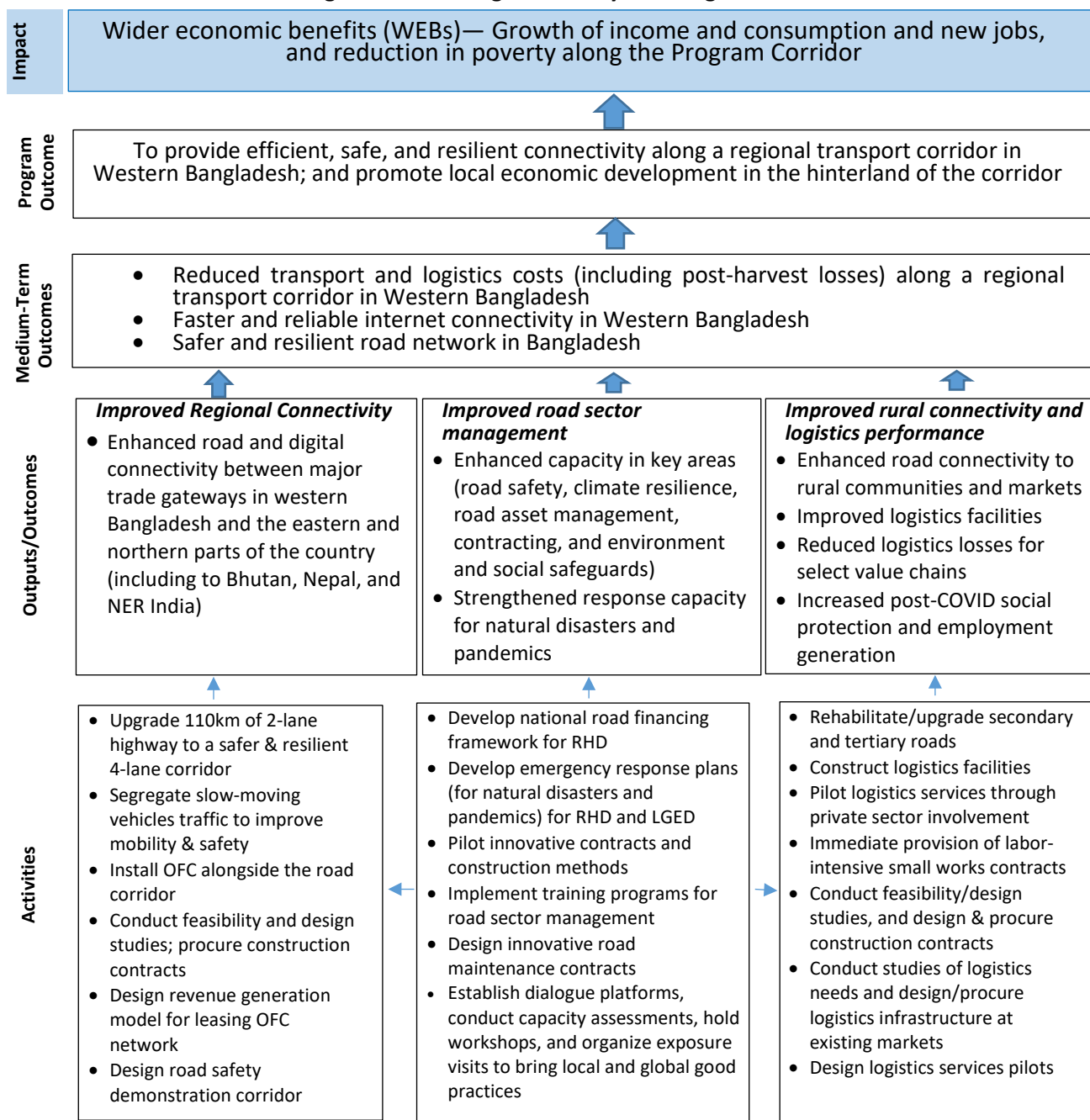
30. The assumption underpinning the MPA Program's Theory of Change (ToC) is that the provision of efficient, safe, resilient, and inclusive transport mobility and logistics (coupled with digital connectivity) will help stimulate the local economy and generate wider economic benefits (WEBs)—such as the growth of income and consumption, poverty reduction, and new jobs. These benefits can become more salient in the event of a natural disaster or pandemic when enabling the seamless movement of necessary supplies is paramount.

31. The achievement of the expected outputs from the MPA Program will contribute to longer-term outcomes. This includes improved transport mobility for passengers and freight, reduced post-harvest losses from farm to sale at markets for select agricultural products, and enhanced road condition across the core road network. Achieving the above outcomes will be difficult without addressing the systemic challenges in the road sector. As such, the MPA will support an ambitious road sector modernization and capacity building plan to address key sector issues, transform current practices, and introduce innovations. The MPA will also strengthen the road sector's capability to respond to crises for natural disasters (like floods and earthquakes) and pandemics (like COVID-19) by strengthening the sector's emergency preparedness, management and response capacity. The MPA Program's Theory of Change illustrates the causal chain of the proposed solutions to achieve the Program Development Objective (PrDO) and contribute to longer-term impacts.

¹⁷ For example, there are substantial post-harvest losses particularly among small farm families in rural areas as a result of limited connectivity, market access and agro-logistic facilities



Figure 1. MPA Program Theory of Change



Critical Assumptions: (a) No significant political shifts during the Program implementation; (b) No serious natural disaster during Program implementation; (c) Timely completion of key pre-construction activities (land acquisition, statutory clearances, etc.); and (d) Sustained ownership of road sector management improvement.



(iii) Program Development Objective (PrDO) with Key Program DO Indicators with Baselines and End Targets

To provide efficient, safe, and resilient connectivity along a regional transport corridor in western Bangladesh; and promote local economic development in the hinterland of the corridor.

PrDO level indicators

- a) Percentage change in the efficiency of transport mobility¹⁸ for passengers and goods on MPA corridor - [Baseline: 0%; Target 10%]
- b) Percentage change in logistics costs for select value chains in Program districts [Baseline: 0%; Target: 5%]
- c) Percentage change in annual fatalities on the corridor [Baseline: 0%; Target 50%]
- d) Share of national and regional highways upgraded to climate resilient standards within Program districts [Baseline: 0%; Target: 20%]
- e) Percentage change in nighttime lights intensity in the vicinity of Program investments [Baseline:0%; Target: 5%]

(iv) Program Framework

32. The World Bank will provide up to US\$1,400 million (MPA envelope) to finance the WeCARE Program. The MPA program will: (i) Upgrade 110 Km of the Program Corridor (Bhomra-Satkhira-Navaron and Jashore-Jhenaidah); (ii) upgrade local economic infrastructure in the form of secondary and tertiary roads and complementary logistics infrastructure and services in the ten Program Districts; (iii) finance road maintenance and strengthen road sector management & institutional capacity; and (iv) support COVID-19 relief and recovery. The MPA program includes four overlapping phases with the same components for phases 1 and 3 – but with different geographic scope and targets. Phase 2 will focus on developing road sector management and institutional capacity, and the provision of road maintenance financing. Phase 4 will focus on promoting local economic development in select districts through the improvement in connectivity/logistics infrastructure. During the implementation of the MPA program, other complementary investments in urban infrastructure, public services, and agriculture management practices will be explored to maximize development impact. The MPA program does not include the Navaron-Jashore section, which is expected to be improved as part of the Bhanga to Benapole corridor improvement under the third Indian Line of Credit¹⁹.

33. The AIIB is expected to provide parallel multi-tranche financing of about US\$900 million to upgrade the remaining 150 km section of the Program Corridor from Jhenaidah to Hatikumrul. The AIIB Phase I is expected to include financing of about US\$330 million for a 57 km section from Jhenaidah to Lalon Shah Bridge, which is likely to be submitted to the AIIB Board by December 2020. While the AIIB project will not be a part of the MPA Program, the World Bank's ESF will be adopted for the assessment, management and monitoring of environmental and social risks and impacts. All other aspects of the investments, inter alia, supervision, procurement, and financial management, will be separate.

34. The following provides a brief description of the scope and investments expected in the Program phases:

¹⁹ Navaron-Jashore is not an Associated Facility for the purposes of the ESF since the viability of the MPA Program is not dependent on this road section and this section will be constructed even without the MPA through the Indian Line of Credit



a) **Phase 1: Upgrading the Jashore- Jhenaidah road section as a smart, resilient and safe highway; and local economic infrastructure**

Scope: This phase will upgrade the Jashore-Jhenaidah national highway (about 48km) from a two-lane single carriageway to a climate-resilient four lane dual carriageway. It will include separate service lanes for slow moving vehicles and vulnerable users on both sides of the carriageway and installation of OFC, Safe Corridor Demonstration Program (SCDP) and deployment of ITS. It will also finance upgrading of priority Upazila, Union, and village roads and complementary logistics infrastructure at rural markets (commonly referred to as growth centers) in the four (4) Program Districts of Jashore, Jhenaidah, Magura, and Chuadanga. In response to the COVID-19 crisis, this phase will foster employment opportunities through labor intensive civil works and development of a “Pandemic Response Plan” for the leading road agencies in Bangladesh. The phase I will also include required trainings/capacity building activities; Strategic Environmental and Social Assessment (SESA); Establishing a Road Transport Sector Integration and Coordination Platform (RTSICP) and operationalizing the Road Maintenance Fund Board Act; and preparatory studies/activities for subsequent MPA phases.

b) **Phase 2: Road Maintenance Financing; and Strengthening Road Sector Management & Institutional Capacity**

Scope: This phase will primarily focus on improving the management and maintenance regime of the primary road network, including the provision of seed funds to reduce the financing gap in the Government of Bangladesh’s maintenance budget and operationalization of the road maintenance fund. Considering the significant infrastructure gaps in the sector, this phase will seek to advance the corporatization agenda, autonomy of agencies and transfer of requisite assets to help them raise commercial financing on their balance sheets, which would represent a significant departure from the current practice of accessing financing through government funds and MDB support. This will help the government to allocate sector financing more efficiently from annual budgeting and increase the role of corporatized SOEs to focus on sub-sector services.

This Phase will include the development of a Transport Sector Master Plan to enhance multi-modal transport integration and reduce institutional fragmentation in planning, implementation and operations; a comprehensive “Business Delivery Process Review”; and introduction and mainstreaming of good industry practices in areas of private sector financing and investment, contracting, road safety, value engineering, asset management, environment and social safeguards, climate resilience in design, construction and highway operations. The phase will also build on the reform efforts under the Bank’s ongoing LGED portfolio, including reforming the maintenance regime of rural economic infrastructure. Training and capacity building activities of the RHD and LGED as well as the industry (e.g. consultants, contractors) will also be financed under this Phase.

c) **Phase 3: Upgrading of Bhomra – Satkhira-Navaron road section as a smart, resilient and safe highway; and local economic infrastructure**

Scope: This phase will upgrade the Bhomra – Satkhira - Navaron national highway (62km) from a two-lane single carriageway to a climate-resilient four lane dual carriageway. It will include separate service lanes for slow moving vehicles and vulnerable users on both sides of the carriageway, installation of OFC, and deployment of ITS. It will also finance priority Upazila, Union, and village roads and complementary logistics infrastructure in the three (3) Program Districts of Jashore, Satkhira and Meherpur. This Phase would comprehensively focus on Maximizing Finance for Development (MFD) approach and help Government



attract alternative source of financing including use of an IDA guarantee, subject to a request from the Government of Bangladesh.

d) **Phase 4: Upgrading of Local Economic Infrastructure**

Scope: This phase will upgrade priority Upazila, Union, and village roads and complementary logistics infrastructure in the four (4) Program Districts of Natore, Shirajganj, Pabna, and Kushtia.



Phase #	Project ID	Sequential or Simultaneous	Phase's Proposed DO*	IPF or PforR	Estimated IBRD Amount (\$ million)	Estimated IDA Amount (\$ million)	Estimated Other (GoB) Amount (\$ million)	Estimated Approval Date	Estimated Environmental & Social Risk Rating
1	P169880 Upgrading the Jashore- Jhenaidah road section as a smart, resilient and safe highway; and local economic infrastructure	Simultaneous	To provide efficient, safe, and resilient connectivity on along a section of a regional transport corridor in western Bangladesh and reduce post-harvest losses in the hinterland of the Section	IPF	0.00	500.00	258.2	2020	High
2	Road Maintenance Financing; and Strengthening Road Sector Management & Institutional Capacity	Simultaneous	To improve road sector management in Bangladesh	IPF	0.00	240.00	10.00	2022	Moderate
3	Upgrading of Bhomra – Satkhira- Navaron road section as a smart, resilient and safe highway; and local economic infrastructure	Simultaneous	To provide efficient, safe and resilient connectivity on along a section of a regional transport corridor in western Bangladesh and improve logistics in the in the hinterland of the Section	IPF	0.00	500.00	240.00	2024	High
4	Upgrading of Local Economic	Simultaneous	To improve logistics in the hinterland of section of a	IPF	0.00	160.00	50.00	2025	Moderate



	Infrastructure		regional transport corridor in western Bangladesh						
Total					0.00	1,400.00	558.20		
Financing Envelope							\$ 1958.20		
Board Approved Financing Envelope							\$1,400.00		

If there are changes in the MPA Program framework, the subsequent phase's PAD will include the original program framework as well as the revised one.

Notes:

- 1) All future Program phases that are classified “high/substantial” ESF risks will be submitted for the approval of the World Bank’s Board of Executive Directors.
- 2) Due to the Program’s expected substantial development impacts, it has garnered significant support from other donors. Notably, AIIB is expected to provide parallel financing of about US\$900m to upgrade 150km of the WeCARE corridor. The government is also expected to provide substantial financial resources (US\$558.2m) for the Program for land acquisition, rehabilitation and resettlement and other expenditures like taxes.



v) Learning Agenda

35. The phased approach to the development of the Program Corridor will allow for an ambitious and adaptive learning agenda across and within phases. This agenda will be used to adjust/introduce new practices and innovations to maximize the economic and social benefits of the MPA Program and can be divided into three broad categories.

36. The first category of the learning agenda relates to the identification and prioritization of investments that are most likely to promote agglomeration economies in the ten Program Districts that constitute the hinterland of the WeCARE Program. The MPA Program will: (i) use an ex-ante prioritization approach, utilizing geospatial modelling, that identifies growth centers and economic hubs that can be improved to stimulate inclusive economic growth; and (ii) design an ex-post impact evaluation that quantifies the socio-economic impacts of the investments, the channels through which these benefits accrue, and identify any bottlenecks that need to be removed to enhance these benefits further. The lessons from the ex-ante and ex-post evaluation of each phase will be applied in subsequent phases to improve the identification/prioritization of the investments to maximize the WEBs generated by the WeCARE Program. The WEBs from the development of the Program Corridor will be validated through an ex-post evaluation.

37. The second category of the learning agenda, as described below, relates to innovations and improvements in the design of investments, their financing, and construction and contracting arrangements.

- a) **Smart Highway.** The MPA Program will set the technical specifications and standard operating procedures of a national “Dig Once” (installing ducts during road construction) policy for the RHD. It would conduct a feasibility assessment before the nationwide deployment of purpose-built OFC along the RHD road networks are adopted as a standard practice to enhance reliable, affordable and good quality broadband internet coverage for cost effective public service delivery platforms.
- b) **Safe Highway.** The MPA Program will pilot a multisectoral road safety intervention²⁰ along the Jashore-Jhenaidah highway section (MPA Phase 1) to develop it as a safe corridor demonstration project (SCDP). The annual fatality rate on this section is alarmingly high at 0.95 per kilometer in 2018. All stakeholders, including the Police, Health, CSOs, the National Road Safety Council (NRSC) and concerned District Road Safety Committees (DRSCs) will be involved in planning, design, implementation, operation and monitoring & evaluation (M&E) of the SCDP.
- c) **Green and Resilient Highway.** The MPA Program will adopt green and climate resilient construction methods and pilot new technologies and alternative (recycled) materials to: (i) optimize life cycle costs by limiting the use of expensive and imported natural aggregates; and (ii) enhance climate resilience of the assets being financed. The capacity of the implementing agencies and industry will also be enhanced through Research and Development & training in these areas. If successful, the learnings from these innovations can be mainstreamed throughout Bangladesh.
- d) **Innovations in contracting.** New contracting approaches will be piloted, including Output and Performance Maintenance Contracts (OPRC), to ensure more stable funding for road maintenance and improve asset

²⁰ The objective is to develop evidence-based, multi-sectoral interventions, including gateway treatments for schools, hospitals, market areas, traffic calming at the interfaces of highways with urban and rural access roads and adequate bus bays, truck lay bays and road safety furniture.



management.

- e) **Attracting Private/commercial financing.** Although a Public–Private Partnership (PPP) regulatory framework exists in the country, the road sector investments are currently financed mostly through Public sources. A Toll Policy (2014) exists but tolls are currently collected only on selected roads which are considered alternative routes (e.g. bridges) and are also quite low. The roads projects currently being financed through PPP are struggling to achieve financial closure due to lack of confidence among investors to guarantee annuity payments and/or service debt. The MPA Program would focus on MFD to help the Government create a sustainable “roads PPP market” to boost confidence among investors and will support the implementation of pilot projects using various forms of private/commercial financing, including World Bank Guarantee instruments. The learnings from these pilots will help GoB replicate and introduce good international practices with respect to using alternative sources of road financing, e.g., tolls, fuel surcharge, across the network.

38. The third category of the learning agenda relates to comprehensive road sector modernization and institutional reforms. The initial MPA phases will support studies and pilots that can be implemented or scaled up in subsequent phases and replicated country wide. Initial interventions may include Transport Sector Governance Review; Development of an Integrated Multi-modal Transport Masterplan; Development of Road Financing Framework and Investment Plan; Development of Road Safety Strategy, Road Construction Industry Capacity Assessment; Performance Monitoring of Consultants and Contractor; Road Sector Value Engineering Study; Strategic Environment and Social Assessments; and Standardization and Promotion of Pre-cast Structure Industry. Based on such studies, and ongoing experience with the Bank’s response to the COVID-19 emergency, the MPA Program will also identify and strengthen emergency preparedness, management, and response capacity of the road sector in case of a natural disaster, crisis or health emergency.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement for the first phase of the MPA Program. To provide efficient, safe, and resilient connectivity along a Section of a regional transport corridor in western Bangladesh and reduce post-harvest losses in the hinterland of the Section

PDO Level Indicators. Achievement of this objective will be measured through the following key indicators:

- a) Percentage change in the efficiency of transport mobility of passengers and goods on project corridor - Baseline: 0%; Target: 11%
- b) Percentage change in post-harvest losses for select value chains in Project Districts - Baseline: 0%; Target: 5%
- c) Percentage change in annual fatalities on project corridor - Baseline: 0%; Target: 50%
- d) Share of national and regional highways upgraded to climate resilient standards within Project Districts - Baseline: 0%; Target: 10%



B. Project (Phase1) Components

Component 1: Upgrading the National Highway Corridor and Enhancing Digital Connectivity (Total Cost: US\$495.1 million; IDA: US\$314.2 million)

39. This component will be implemented by RHD and support the following:

- (a) Upgrading the Section²¹ from a two-lane single carriageway to a climate-resilient four-lane dual carriage way with a service lane on each side;
- (b) (i) supporting the design of a climate-resilient optical fiber cable (OFC) system and intelligent transport system (ITS) for the Program Corridor; and (ii) supporting the installation, and operations and maintenance of the climate-resilient OFC system and the ITS;
- (c) (i) supporting the design of a pilot safe corridor demonstration program (SCDP) for the Section; and (ii) supporting the implementation of the SCDP along the Section, including: (A) implementing road safety countermeasures; (B) providing support for enhancing enforcement of traffic rules, including, *inter alia*: (I) the acquisition of patrol vehicles and motorcycles, breathalyzers and speed control radar guns; and (II) speed enforcement through CCTV cameras linked to control centers, all for the exclusive use of traffic control; (C) providing support for post-crash response and rescue, including the acquisition of ambulances, tow trucks (wreckers), cranes and metal-cutting equipment; and (D) carrying out public awareness campaigns; and
- (d) supporting studies, assessments, surveys, and data collection in relation to, *inter alia*, the feasibility, design, supervision, and technical aspects of the activities listed in (a) to (c) above, with respect to the Program Corridor or Section, as applicable.

Component 2: Upgrading Secondary and Tertiary Roads; and Complementary Logistics Infrastructure and Services (Total Cost: US\$247 million; IDA: US\$171 million)

40. This component will be implemented by LGED and support the following:

- (a) Supporting, in the Project Districts²², (i) the development and upgrading of complementary logistics infrastructure, including, *inter alia*: (A) selected markets and logistics infrastructure for selected agriculture value chains, livestock and fishing; and (B) amenities associated with such selected markets and logistics infrastructure; and (ii) the provision of relevant services; and
- (b) Upgrading around 600 kilometers of selected priority village roads, Upazila roads and Union roads, serving selected markets in the Project Districts, to all weather climate-resilient roads.

Component 3: Project Implementation Support and Sustainability (Total Cost: US\$6.7 million; IDA: US\$5.6 million)

41. This component will be implemented by both RHD and LGED and will support the following:

²¹ "Section" means about 48 kilometers of the national highway N7 connecting the towns/cities of Jashore and Jhenaidah.

²² "Project Districts" means the districts of Jashore, Jhenaidah, Magura, and Chuadanga.



- (a) Providing training and supporting capacity building activities of RHD and LGED, and industry stakeholders on selected priority areas and Project management, including procurement, financial management, and environmental and social aspects;
- (b) Carrying out a Strategic Environmental and Social Assessment;
- (c) Supporting the establishment of a Fiduciary Advisory Consultant Panel (FACP);
- (d) Supporting the establishment of a Road Transport Sector Integration and Coordination Platform (RTSICP), and supporting the implementation of the Road Maintenance Fund Board Act; and
- (e) Providing support for preparatory activities for subsequent MPA Program phases.

Component 4: COVID-19 Relief and Recovery (Total Cost: US\$9.6 million; IDA: US\$9.2 million)

42. This component will be implemented by both RHD and LGED and will support the following:

- (a) Designing and implementing a program to foster employment opportunities for vulnerable local populations, including, on routine maintenance of roads, clearing of water passages, and hygiene-related small works; and as relevant, the provision of working tools and personal protective equipment;
- (b) Supporting the development and dissemination of an emergency response plan for COVID-19 for RHD and LGED; and
- (c) Supporting the provision of necessary upgrades at RHD and LGED offices to ensure business continuity and improve work environment safety.

Component 5: Contingent Emergency Response Component (CERC) (Total Cost: zero)

43. This component will provide immediate response to an Eligible Crisis or Emergency, as needed.

D. Project Beneficiaries

44. **The primary beneficiaries will include road users, consumers of tradable goods and services, owners and employees of firms producing tradable goods and services, and local communities and small holders along the Program Corridor, which extends to 10 districts with a combined population of over 20 million.** Small and medium-size farmers and enterprises who typically suffer from inefficiencies (because of the high unit costs of their shipments) are likely to benefit most from improved market access and facilities. As COVID-19 is expected to place additional strain on the supply chain for food and other essential goods, the benefits from reduced logistics costs and post-harvest losses are expected to be especially heightened. In addition, livelihood created by civil works undertaken by the project will be especially beneficial for the most vulnerable segments of the population which usually work as manual laborers (for example in rural road construction). It is estimated that the civil works under phase 1 of the MPA Program can generate an estimated 5-7 million person days of employment. In addition, phase



1 will generate approximately 1.3 million days of rural employment in 24 months through labor contracting societies to provide much needed livelihood support as immediate relief for the economic hardships posed by COVID-19. Project beneficiaries will also include women and youth, all of whom are expected to have increased access to socioeconomic and job opportunities. Given the regional importance of the Program Corridor, beneficiaries will extend beyond Bangladesh to road users, traders, and consumers from India, and in the longer-term, Nepal, Bhutan, and NER of India.

45. These direct and indirect users will benefit from the efficient transportation, logistics infrastructure and services and trade services to be provided at a lower cost and reach higher level social services in a shorter time. Furthermore, interventions being aimed to make these roads safer will benefit the direct users and communities residing next to these corridors with reduction in loss of lives and injuries due to road crashes. Given the current trends in road traffic deaths and injuries, such measures are expected to significantly benefit the Vulnerable Road Users (VRUs, i.e., pedestrians, cyclists and motorcyclists, who account for around 45 percent of all road fatality victims). In terms of gender analysis, the specific anticipated outcomes for women and socially excluded in the project areas include improved opportunities for skilled employment, and infrastructure design to accommodate their requirements such as, for example, service lanes and crossings to reduce exposure to heavy traffic.

E. Rationale for Bank Involvement and Role of Partners

46. The MPA Program represents a re-engagement for the World Bank with RHD after a 10-year absence from the highway sector. The Bank is uniquely positioned to assist Bangladesh by bringing in good practices that are central to the design and implementation of this MPA Program. Specifically, it will bring the World Bank's knowledge and expertise in efficient contracting approaches and construction methods, innovations in road safety, climate resilience, and digital connectivity.

47. The MPA Program will complement World Bank financing in the area of trade improvement as part of the ongoing Bangladesh Regional Connectivity Project (BRCP). Improved digital connectivity as a result of the WeCARE Program will enhance the operation of the BRCP-financed National Single Window and risk management system, which in turn will reduce border frictions and improve the efficiency of the Program Corridor. The MPA Program leverages investments by other development partners, most notably the AIIB. The Program Corridor also inter-connects with the proposed East-West Highway from Benapole to Bhanga near the Padma Bridge approach road (financed by India Line of Credit, LOC) and the ADB-financed Dhaka–Northwest corridors (SASEC 1 and 2) which is the main gateway to the NER of India, Nepal, and Bhutan.

48. The World Bank will bring global experience on economic corridor development. It will strive to ensure that the benefits of the transport corridor are extended to the local populations through which the corridor passes, thereby generating WEBs.

F. Lessons Learned

49. The MPA Program design is grounded in the findings and recommendations of the report “WEB of Transport Corridors in South Asia”, prepared jointly by the World Bank, the Asian Development Bank, the UK Department for International Development, and the Japan International Cooperation Agency. This report highlights that while infrastructure is the backbone of regional transport connectivity, increasingly important areas are the inclusion of trade facilitation interventions and enablers of local economic opportunities (e.g. promoting the integration of local



producers into global value chains) that can yield WEBs. It also considers the findings of the report, *Moving Forward: Connectivity and Logistics to Sustain Bangladesh's Success*, which identifies improving logistics performance as an important lever to increase Bangladesh's competitiveness and help move the rural economy into high-value agricultural production. The MPA Program therefore focuses on improving logistics efficiency by investing in road and logistics infrastructure and services in an integrated manner. The MPA Program also uses the freight model developed in the report to estimate the WEBs of the Program (see Annex II). Furthermore, detailed traffic counts and origin destination information for freight has been collected to establish the economic rationale for the overall WeCARE Program.

50. The resilience of the Program Corridor has been assessed in order to identify the most critical sections under different flooding scenarios (see Annex III). Information on the critical segments and projected traffic counts on the Program Corridor has been used to identify segments of the Program Corridor that need to be built to a higher climate resilience standard. Vulnerability analysis has also been performed to identify the districts with the most vulnerable roads. The analysis has identified that the secondary and tertiary roads in the districts of Sirajgonj, Natore, Pabna, Kushtia, and Magura, and the Program Corridor sections from Jashore to Jhenaidah, Dasuria to Hatikumrul, and Kushtia to Lalon Shah Bridge need to be built for higher climate resilience.

51. A methodology (using mixed methods approach) has also been developed to support LGED with the prioritization of investments. This prioritization methodology has been tested and used for: (i) rural roads (upzila, union and village roads); (ii) growth centres/rural markets/storage facilities; (iii) complementary logistics infrastructure close to farms and livestock/fishing areas for four Program Districts of phase 1 (Jashore, Jhenaidah, Magura, and Chuadanga); and (iv) value chains that will have a special focus in Phase 1. An ongoing 360-degree gender assessment aims to: understand women's mobility patterns, their use of transport infrastructure and the post-harvest losses of female farmers; develop a roadmap/action plan for gender sensitive transport and logistics infrastructure designs; and design pilot transport service interventions that can be implemented during Phase 1. In this manner, the actions developed to enhance women's mobility and provide them with employment opportunities move the needle and innovate on what is commonly understood to be a gender inclusive approach.

52. Studies have been undertaken on road safety and OFC with the support of the Australian Department of Foreign Affairs and Trade (DFAT). A detailed road safety iRAP assessment has been carried out for the Program Corridor to identify infrastructure and behavioural changes needed to ensure that the MPA Program not only achieves at least three-star rating for all users (including vulnerable users). It will also assist in developing capacity within the country to ensure the sustainability of conducting road safety assessments after the MPA Program is completed. A pre-feasibility assessment for the installation of OFC cables along the Program Corridor was undertaken to facilitate the growth of broadband internet services in the western region and the development of the smart highway concept.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

53. The project will be implemented by the Roads and Highways Department (RHD) and the Local Government



Engineering Department (LGED).²³ The GoB would establish (within three months of effectiveness) and maintain a Project Coordination Committee (PCC). The PCC will: be co-chaired by the Secretary of Ministry of Road Transport and Bridges (RTHD) and Secretary of Local Government Division (LGD), and include representatives from RHD, LGED, RTHD, LGD, ERD, Planning Commission, Implementation Monitoring and Evaluation Division (IMED), Foreign Aided Project Audit Directorate (FAPAD), Bangladesh Land Port Authority (BLPA), Bangladesh Economic Zone Authority (BEZA) and Bangladesh Telecommunication Regulatory Commission (BTRC), and meet at least every six months for the purposes of, *inter alia*, (i) providing strategic and policy direction on all MPA Program activities, (ii) reviewing progress in MPA Program implementation, and (iii) facilitating the coordination of MPA Program activities and addressing obstacles during MPA Program implementation.

54. LGED and RHD, will establish and maintain, a Project Implementation Unit (PIU) in LGED (LGED PIU) and a PIU in RHD ("RHD PIU) respectively, which will: (i) be headed by a full-time Project director, without any additional duties or responsibilities; (ii) be staffed with fulltime technical experts and specialists in, *inter alia*, procurement, financial management, environmental, health and social aspects, and monitoring and evaluation; and (iii) be responsible for the day-to-day implementation of respective Parts of the Project, including preparing financial and Project reports, and Annual Work Plans and Budgets. Each PIU will appoint a procurement specialist, an environmental specialist, and a social development or stakeholder engagement specialist within three months of credit effectiveness.

55. LGED and RHD will establish and maintain, an LGD Project Steering Committee (LGD PSC) and an RTHD Project Steering Committee (RTHD PSC) respectively. Both PSCs will: (i) be chaired by the respective Secretaries, and include the respective chief engineers, the Project director of both LGED and RHD PIUs; and (ii) meet at least every three months for the purposes of, *inter alia*, (i) providing strategic and policy directions for LGED's and RHD's Respective Part of the Project, review progress in the implementation of LGED's and RHD's Respective Part of the Project, and facilitate the coordination of Project activities and address any obstacle during the implementation of Respective Part of the Project.

56. LGED and RHD, will establish and maintain, an LGED Project Implementation Committee (LGED PIC) and an RHD Project Implementation Committee (RHD PIC) respectively. Both PICs will be chaired by the respective chief engineers, and include the Project director of respective PIUs, senior officials and technical experts to provide technical guidance in relation to each implementing agency's respective Part of the Project.

57. RHD will: (i) establish and maintain the Fiduciary Advisory Consultant Panel (FACP) for, *inter alia*, overseeing the fiduciary aspects of the implementation of RHD's part of the project; and (ii) by no later than six months after the Project effectiveness, engage procurement and financial management consultants. The FACP will: (i) report to the Secretary of RTHD through the Chief Engineer of RHD; (ii) meet at intermittent intervals, and at least once in each quarter of the financial year; and (iii) submit a report at least once in each quarter to the Secretary of RTHD and the Bank.

58. RHD, will also establish (within 6 months of effectiveness) and maintain the Road Transport Sector Integration and Coordination Platform (RTSICP) with a mandate, terms of reference, and resources satisfactory to the Bank by no later than six months after credit effectiveness. The RTSICP will: be managed by the MoRTB, with RHD serving as the secretariat, it will include relevant stakeholders. It will facilitate focus group discussions, knowledge

²³ RHD will be the sole implementing agency for component 1 of the Program; LGED will be the sole implementing agency for component 2 of the Program; component 3 and 4 of the Program will be jointly implemented by RHD and LGED (each agency will have specific activities under this component).



exchange workshops and meetings on various transport sector development issues and be responsible for finalizing the scope of Phase 2 of the MPA Program. The RTSICP will also support the implementation of the Road Maintenance Fund Board Act.

59. For the Contingent Emergency Response Component (CERC), GoB will prepare an “Emergency Response Operations Manual” (EROM) acceptable to the Bank, which will constitute a disbursement condition for the CERC. RHD and LGED are expected to be the implementing agencies for the CERC component, unless the EROM specifies otherwise.

B. Results Monitoring and Evaluation Arrangements

60. **RHD and LGED will be responsible for monitoring project progress, outcomes, and result indicators.** The progress and performance of the project will be monitored and evaluated semi-annually against the outcome and output indicators of the Results Framework. It will also include qualitative assessment of project performance with respect to the quality of works, governance and transparency in procurement and contract management, compliance with the commitments related to fiduciary, environmental and social safeguards agreed (e.g., through the Environmental and Social Management Framework, (ESMF and Environmental and Social Commitment Plan, ESCP). The monitoring and evaluation strategy will include the timely conduct of studies and assessments to establish baseline data and progress data, where applicable, with a particular focus on measuring impacts on poverty reduction, shared prosperity and gender equity.

61. **An impact evaluation will be conducted to enable evidence-based investment choices within the MPA Program (shifting the focus from inputs to outcomes and results).** The World Bank will support the development of the design of the Impact Evaluation, while LGED will be responsible for data collection and analysis. The impact evaluation will identify any bottlenecks that need to be removed to enhance these benefits (thus building adaptive learning into the MPA Program).

C. Sustainability

62. **Sustainability is a core objective of the MPA Program.** The long-term nature and the strong emphasis on building institutional capacity, as well as bringing in international good practices in construction, resilience, contracting, and road safety will strengthen the Government’s ability to develop quality, reliable, sustainable, and resilient infrastructure. The MPA Program’s focus on strengthening and institutionalizing better asset management practices in both institutions will not only help to ensure the sustainability of investments under the Program, but also road sector investments country wide.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

Technical analysis

63. **Upgrading National Highway Connectivity.** RHD has completed the detailed design of the Program Corridor, except for the Bhomra-Satkira-Navaron section; some of the designs (e.g. for Jashore-Jhenaidah) prepared in 2015 will be updated. The design standards will be finalized based on analysis of alternatives including ensuring: (i)



harmonization of regional standards, particularly axle load limits; (ii) achieving consistency among the various sections of the Program Corridor; (iii) good industry practices in climate resilience, road safety and greening aspects; (iv) relevance to the local context; and (v) minimizing social and environmental impacts.

64. Climate Resilient Construction: The Program will adopt engineering measures to improve the climate resilience of the road. As the terrain is mostly flat and, much of the corridor runs through flood plains, specific attention will be given to the provision of sufficient cross drainage structures, equalizer pipes and road and bridge heights to drain the increased surface run-off from extreme precipitation and flooding. All contracts will include piloting new technologies and alternative materials (local and recycled) for green and resilient road construction. These pilots will be designed, supervised and monitored by experts, who will involve the Bangladesh Road Research Laboratory (BRRL). A comprehensive Value Engineering Assessment will be carried out as part of the preparation of contracts to optimize costs and achieve value for money. The sections of the Program corridor and Program districts that have been identified to be at a greater risk of flooding will be built to have higher climate resiliency (see Annex 3). This comprehensive set of measures, from the design to construction and maintenance phases, will substantially increase readiness and resilience to natural hazards events of the infrastructure, which would otherwise be damaged during extreme precipitation and flooding or unable to withstand high temperature and salinity.

65. Introducing “dig only once” policy by laying OFC ducts during the road construction. This has a potential of reducing the cost of OFC installation by 70-80 percent. The Program will set standards and specifications for these works, which could then be replicated in the entire RHD network. The MPA Phase 1 will include the design of the climate-resilient OFC system and ITS for the Program Corridor, and support their installation, operations and maintenance. OFC/ITS will be implemented with a resilient sub-surface structure to enhance resilience against heavy rainfall and flooding. This shall include the design, supply, installation, and operations & maintenance (O&M) of two 48-core cables in two separate ducts as part of ITS infrastructure. MPA Phase 1 will also include the development of revenue generation model for leasing the duct to private telecom operators.

66. Mainstreaming Road safety. A safe corridor demonstration program (SCDP) will be piloted on the Jashore-Jhenaidah National Highway, guided by the iRAP assessment of the Program Corridor. Evidence-based, multi-sectoral road safety interventions will be implemented using a “safe system approach” to demonstrate the impact on reducing road crash deaths and injuries. These will ensure a minimum 3-star rating for vulnerable road users. The SCDP will include the segregation of slow-moving vehicles, dividing bi-directional traffic, gateway treatments for schools, hospitals, and market areas; traffic calming at the interfaces of highways with urban and rural access roads; adequate bus bays and truck lay bays; road safety furniture, crash barriers, road marking and signage; and pedestrian crossing facilities and footpaths at market areas/urban locations. The traffic calming measures will also incentivize non-motorized transport in the SMVT lanes due to the increased safety of vulnerable users.

67. Upgrading markets and logistics infrastructure. MPA Phase 1 will develop about 32 selected markets, involving storage, grading, sorting, packaging, collecting and selling facilities for selected agriculture value chains and livestock/fishing; and associated amenities like parking, sheds, piped-water supply, toilets, sanitation, waste management, banking, and real time display of commodity prices using ICT. Specific resilient norms for cyclones/flooding risks will be incorporated in the design and construction, including raised platforms, rainwater harvesting, solar lighting, and on-site shelters for increased resilience and safety of beneficiaries in case of heavy rainfall, cyclone and other climatic events. The developed logistics infrastructure will have resilient superstructure and raised platforms to enhance resilience against heavy rainfall and flooding. An ex-ante prioritization approach, utilizing geospatial modelling, will be used to select growth centers and economic hubs that can be improved to



stimulate inclusive local economic growth. An ongoing gender needs assessment will ensure that the logistics infrastructure and services provided significantly surpass the principles of universal design or good practice, when catering to the specific needs of women.

68. Upgrading rural roads connectivity. About 600 km of priority upazila, union, and village roads serving selected markets will be upgraded during MPA Phase 1. It will include resurfacing and strengthening of the road pavements as well as protection of embankments to ensure that roads are not washed away during heavy rainfall and floods, costing LGED significant resources to bring it back to service. Specific attention will be paid to ensure safety and resilience in design and construction through: (i) the use of cost-efficient alternatives and green and local pavement material able to withstand high temperatures; (ii) the provision of culverts/ditches/cross drainage to address the risk of flooding, based on site-specific hydrological studies results; and (iii) safe provisions for the Vulnerable Road Users (VRUs) and non-motorized transport (NMT), by including traffic calming measures like lateral shift, chicane, realigned intersection, traffic circle, speed hump, speed table, raised crosswalk, raised intersection, corner extension, and chokers. The roads will be selected to enhance the logistics efficiency for select value chains in the selected markets, based on a multi criteria assessment that takes into account the location and area of influence of rural markets²⁴, difference in the levels of poverty and economic development, levels of existing road connectivity, and the potential to enhance economic activity of women within the districts. Employment opportunities will be created for women in the upgrading and development of roads.

69. Enhancing project implementation and sustainability. MPA Phase 1 will include training and capacity building activities of RHD and LGED, and industry stakeholders on selected priority areas, as well as Project management, including procurement, financial management, and environmental and social aspects. Selected priority areas include climate resilience²⁵, gender, labor and working conditions, Occupational and Community Health and Safety, Gender Based Violence (GBV), cultural heritage assessment and impacts management; vulnerable groups and addressing their special needs; biodiversity and wildlife impact management; road safety; contract management; quality assurance; asset management, RoW/access management; travel demand modelling; and ESF. A Strategic Environmental and Social Assessment (SESA) will be carried out to assess the long-term risks and impacts of the WeCARE program, inform the ESIA of roads in the subsequent phases, and assist in developing and implementing a management plan that takes into account environmental and social risks and impacts.

70. Strengthening emergency preparedness for COVID-19. MPA Phase 1 will include the development and dissemination of an emergency response plan for COVID-19 for RHD and LGED, including the development and dissemination of an action plan to enhance emergency preparedness, management, and response capacity of the two leading transport agencies. This plan will include measures to minimize the chances and contain the spread of the COVID-19 due to movement of staff and workers, and sensitization them and local communities regarding what to do if an outbreak occurs and how treatment will be provided. The plan will define procedures for isolation, testing and treatment, including getting adequate supplies of water, food, medicines and medical equipment, and cleaning equipment in the event of an outbreak at LGED and RHD offices and project offices/sites, especially should access to the site become restricted or movements of supplies limited. The plan will be communicated widely (through workshops and group trainings) to RHD and LGED staff, consultants, workers, contractors, sub-contractors, suppliers, adjacent communities, nearby projects/workforces, and local healthcare authorities to make them aware of the preparations that have been made. It will also include a reporting mechanism for

²⁴ Designated as growth centers by the Government of Bangladesh.

²⁵ Strengthen the technical capacity of LGED/RHD to develop risk-informed design as well as maintenance guidelines for the roads, bridges and associated drainage network considering the impact of climate change.



incidents/outbreaks.

71. Supporting COVID-19 relief and recovery. MPA phase 1 will include the immediate provision of labor-intensive small works contracts, such as routine maintenance of roads including repairing shoulders; earthworks; flood control; clearing of water passages around culverts/bridges; market drainage, cleaning, washing and maintaining hygiene; and tree plantation and caretaking. This will provide just-in-time livelihood support to vulnerable people in rural areas and act as stimulus to the local economy. A Labor Contracting Society (LCS)²⁶ model previously used in Bangladesh will be utilized to organize the vulnerable local population into groups that are contracted to carry out such works. These works are estimated to generate approximately 1.3 million days of rural employment in 24 months. Protocols for hygiene and personal safety will be developed to ensure the safety of the employed workers, as well as to stop the outbreak of COVID-19 to nearby communities.

72. Ensuring Business Continuity. MPA phase 1 will include the provision of necessary upgrades at RHD and LGED offices to ensure business continuity and improve work environment safety. It will provide the necessary upgrades to ensure business continuity in response to COVID-19 and future crises. It will include improving digital connectivity between various offices of RHD and LGED and improving the work environment at both agencies. High-speed internet connections and IT services will be provided at RHD and LGED Headquarters, PIUs and field divisions, and additional hygiene measures will be implemented to improve the work environment safety at both agencies.

73. Improving Gender equity. The MPA phase 1 will take a multitude of actions to enhance women's mobility and their role in the provision of transport infrastructure by addressing the societal, institutional, and individual barriers described in section B. These actions are especially important as it may be more difficult for women to regain their livelihoods once the COVID-19 pandemic has subsided. These include:

- a) *Infrastructure prioritization.* The likely benefits to women from the improved infrastructure will be one of the metrics to prioritize investments of Component 2 (see Annex II, Section D).
- b) *Infrastructure design.* The design features of the road, placement/location of bus stops along the highway/feeder roads, access and pedestrian infrastructure will be selected based on a need's assessment for women. This will inform the design of the roads for both component 1a and 2b.
- c) *Female entrepreneurship in rural areas.* The project will provide entrepreneurship opportunities for women at rural markets under Component 2a. The project will allocate a special space for female vendors at markets and will build and maintain functioning bathroom facilities for them. There will be separate toilets for women and men with doors that close properly, disposal bins, and water for hand washing. These actions will address the societal and institutional barriers that women face and are expected to increase female entrepreneurship at these market locations.
- d) *Female employment in the transport sector.* The project will provide employment opportunities to women in rural road rehabilitation. To address the individual barrier of lack of childcare options, that women face to employment, daycare services will be offered at all worksites for civil works under Component 2b; a covered shed will be provided for the children of the workers, with at least one daycare service provider. The bidding document for the civil works will stipulate specific requirements for the design of the day care, as well as, the qualifications of the day care service provider. By allowing women to better balance their household and work responsibilities, the project will make working (and the work environment) more attractive for women and contribute to increasing their labor force participation in the transport sector.

²⁶ A Labor Contracting Society (LCS) is an organized group of men and/or women who are contracted to carry out works for a government agency or project.



Economic/Financial analysis.

74. **Economic analysis has been carried out for the Program Corridor (260 km) and Component 1 of the project (48 km).** Two different approaches were to estimate the net economic benefits that accrue from the Program Corridor. The first approach estimates the Wider Economic Benefits (WEB) that accrue from the Program Corridor, while the second approach uses the traditional approach used for appraising a highway project. In both cases, a discount rate of 12 percent is used. The WEB approach estimates the increase in economic activity, wages, and prices of intermediate and final goods that would result from the development of the Program Corridor. A spatial general equilibrium model was used to estimate these WEBs. Conceptually, these benefits stem from enhanced integration of regions across domestic and foreign markets in India and Bangladesh. In contrast, the second approach estimates the net economic benefits of the development of the Program Corridor based on the benefits that accrue from savings in vehicle operating costs, time, road safety (due to fewer fatalities), and greenhouse gas emissions. The analysis for this approach is reported separately for the various sections of the Program Corridor. Both approaches demonstrate that the Program Corridor and component 1 of project (MPA phase 1) are economically viable.

75. **Results of the Economic analysis under the two approaches.** Under the WEB approach, Bangladesh's welfare (measured using GDP) is estimated to increase by 0.3 percent annually and India's welfare is expected to increase by 0.02 percent annually if the Program Corridor is improved; yielding net present value of benefits of \$9,287 million and an EIRR of 48 percent. These benefits are higher if gains from installing and operating the OFC cable are included. The traditional economic analysis also reveals that the Program, as well as, Phase 1 of the Program are economically viable. In this case, the overall EIRR for the Program Corridor and Program Corridor to be financed under MPA Phase 1 are 15.68 percent and 17.05 percent, respectively. The corresponding net present value of benefits is \$423 million and \$132 million, respectively. Phase 1 is estimated to lead to a net decrease of CO2 emissions of about 1,026,406 tons over the lifecycle of the investment, which is equivalent to 51,320 tons per year. See Annex II for details of the economic analysis under the two approaches.

Table 1: Economic Gains from Program Corridor using Wider Economic Benefits Estimates

Scenarios	Annual Welfare (GDP) Increase	NPV (Million \$)
Program Corridor is built without OFC Cable	0.30%/year	9,287
Program Corridor is built with OFC Cable	0.40%/year	12,966

76. **The secondary and tertiary roads and logistics infrastructure and services to be improved under the Program have not been identified at this stage.** Therefore, economic analysis for the investments under Component two of Program and Phase 1 investments has not been carried out. A framework for evaluating the net economic benefits for Phase 1 investments under Component 2 has been developed. This framework develops a three-step (quantitative) method for the selection of the investments to be financed and presents the methodology to be used to evaluate the economic viability of the identified investments. As much as possible, the Program will take a harmonized approach with ongoing Agriculture sector projects, namely, the National Agricultural Technology Program – Phase II Project (NATP-2 / P149553), the Modern Food Storage Facilities Project (MFSFP / P120583), the Nuton Jibon Livelihood Improvement Project (NJLIP / P149605), and the Livestock and Dairy Development Project (LDDP / P161246). For example, select investments will be identified to assist the existing beneficiaries of the agriculture projects.



B. Fiduciary

Financial Management

77. RHD and LGED have progressed significantly in the management of donor funds; however, there is scope for improvement in public financial management in both RHD and LGED. The Bank's FM assessment found that there is a shortage of professionally qualified FM human resources, a weak internal audit environment, annual financial statements for programs prepared without adhering to international standards, delays in resolving audit observations, and previous history of expenses being declared ineligible. Mitigation measures have been included in the project financial management arrangements, which will be supervised during project implementation

78. The RHD and LGED PIUs will be responsible for compliance with fiduciary requirements. At least one project accountant will be hired at each agency to undertake day to day FM responsibilities, including reporting requirements of both IDA and the Government. Both PIUs will submit separate sets of Interim Unaudited Financial Reports (IUFRs) within 45 days from the end of each calendar quarter.

79. The annual budget will be prepared based on the procurement plan and other relevant annual work plans. These budgets will be monitored periodically to ensure expenditures are in line with the budgets, and to provide input for necessary revisions. RHD will use the reimbursement method of disbursement from the Bank, while the direct payment option will be exercised for high value contracts. The Bank will reimburse eligible expenditures based on satisfactory documentation. In the case of LGED, all four disbursement methods will be available, and the project will follow the Statement of Expenditure (SoE) based disbursement.

80. An internal audit unit will be established at RHD, while LGED already has an internal audit unit that was established under the Bank funded bridge program. In the interim, internal audit of the project will be carried out by an external firm of internal auditors one year before the project mid-term review, with two other audits during the remainder of the project. The Comptroller and Auditor General's office will carry out the annual external audit and submit the reports within six months from the end of each fiscal year. The project director will be responsible to resolve audit observations within 90 days from the receipt of the final reports.

Procurement

81. All goods, works, non-consulting services, and consulting services required for this Project and to be financed out of the proceeds of the IDA credit will be procured in accordance with the World Bank Procurement Regulations for IPF Borrowers²⁷. Procurement will also be subject to the World Bank's Anticorruption Guidelines²⁸. Both RHD and LGED PIUs will have a dedicated procurement focal person, supported by an adequate number of national and international procurement consultants. The Project will use the Systematic Tracking of Exchanges in Procurement (STEP) to plan, record and track procurement transactions and complaint.

82. RHD and LGED have extensive experience of implementing transport projects and have adequate capacity to implement high value contracts. Both the agencies were involved in the government's public procurement reform program to roll-out e-GP in 2013 and are well conversant with GoB's procurement legislation. The Bank has

²⁷ Dated July 1, 2016 and as revised in November 2017 and August 2018 and provisions of the Financing Agreement

²⁸ Dated October 15, 2006, revised in January 2011, and as of July 1, 2016.



identified necessary measures to enhance procurement capacity, including the engagement of fiduciary consultants by RHD to mitigate the risk of delays in procurement evaluation, contract awards and payments to contractors. The consultant would also assist in vetting variations and avoiding cost overruns.

83. A Project Procurement Strategy for Development (PPSD) has been developed and agreed with the Bank for the components to be implemented by RHD and LGED. Both the agencies have prepared Procurement Plans for the duration of the Project. About 93 percent of IDA financing would be utilized for civil works; other procurement categories include consulting services (6 percent) and goods (1 percent). RHD and LGED will also engage consultants (firms and individuals) for associated services, including but surveys, detail design, ESIA, supervision, market organization and management, training and capacity building of stakeholders, and M&E. A market survey of consultants and contractors carried out as part of the PPCS indicates the availability of contractors and consultants locally in the Program Districts for smaller works, in the country, as well as in the region who will be interested in participating in the bidding opportunities envisaged under the project, alongside international bidders and consultants.

84. The PPCS has identified three large works packages for RHD (construction and improvement of the road corridor from Jhenaidah to Jashore), which will follow the Request for Bid method (RFB- without pre-qualification). The feasibility study and preliminary design was conducted in 2015 for these Works Packages will be re-visited by a consulting firm, which will be recruited through the CQS method to develop the detailed design/ BOQ / bid document. The contract is likely to be awarded by mid-2021. The LGED procurement plan consists of about 32 selected markets, logistics infrastructure and associated amenities, and upgrading and development of roads of priority Upazila, Union, and village serving selected markets. Consulting firms will be engaged for the preliminary and detailed designs of the works contracts for the markets and connected roads development. LGED will also have Labor-intensive small works contracts, which will follow the Community-Driven Development (CDD) approach to respond COVID-19 emergency recovery plan. See Annex I for more details.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

85. Jashore-Jhenaidah is an existing road and does not traverse any sensitive habitats, protected areas, natural habitats and critical natural habitats. Key environmental and social risks (E&S) and impacts in road works, anticipated to occur largely during the construction phase and within existing footprints, are: (i) cutting of mature trees along the expanded Right of Way (ROW), which are not connected to any forests; (ii) health and safety of workers and communities within the corridor and along the transport routes of construction supplies, materials and equipment; (iii) settlements exposed to noise, vibration, air pollution and safety risks; (iv) siltation and sedimentation of waterways close to the physical works; (v) land acquisition along the expanded ROW; (vi) physical displacement of houses, mosques, temples, madrasah and graves; (vii) temporary economic displacement of businesses in project areas; (viii) increased risk of GBV and road crashes. The project will mainly employ local labor for unskilled labor requirements, but skilled laborers may come from other parts of the country. Labor influx risks



from skilled laborers and their followers include increased GBV, child labor, criminality, conflict with host communities, and increased resource utilization and extraction.

86. E&S risks and impacts with respect to rural roads and markets and labor-intensive maintenance works for poor communities under the LGED component are mostly construction related. Most sub-projects will be small to medium scale works involving rehabilitation and improvements of existing infrastructure. However, occupational and community health and safety during construction will need close attention given lack of capacity in construction industry to manage these issues.

87. GBV in the form of sexual harassment is the most pervasive form of human rights violation that women and girls are regularly facing in Khulna division. Land acquisition and major civil works involving labor influx may have significant adverse impacts on women and girls in the communities near to the Project area. The labor influx may potentially increase the demand for sex work, sexual abuse, and workplace harassment.

88. The positive impacts of the project are expected to outweigh the negative impacts. The quality of the environment and social conditions would deteriorate along the road corridor in the no project scenario. With the project, road conditions will improve; health and safety will also improve with the separation of SMVT from fast moving vehicles and the implementation of safety design features. Travel time would be reduced, and efficiency gains would be expected to increase goods trade.

89. ESF compliance and risk mitigation. An Environmental and Social Impact Assessment (ESIA) of the Jashore-Jhenaidah Road was conducted and consulted upon during preparation and publicly disclosed prior to appraisal to: assess the environmental and social risks and the impacts of the upgradation works; and to develop measures based on the mitigation hierarchy to manage risks and impacts. The ESIA is based on a preliminary design and has been prepared in accordance with the World Bank Environmental and Social Framework (ESF) and its relevant Environmental and Social Standards (ESSs), as well as with the Government's Environmental Conservation Rules 1997, EIA Guidelines 1997, and other relevant laws and policies. This ESIA will be updated based on the final engineering design after the project is approved by the World Bank.

90. An ESMP has been developed as part of the ESIA to mitigate the Project's environmental and social risks and impacts. It includes mitigation measures, monitoring, capacity building, responsibilities, reporting system and budget. The ESMP provides measures to address GBV at the project level. The ESMP obligates contractors, prior to mobilization, to prepare the C-ESMP, which shall be approved prior to the commencement of construction. The C-ESMP shall include an OHS Plan, a Water and Waste Management Plan, an Influx Management Plan, a Workers Camp Management Plan, a CHS Plan, a Traffic Management and Road Safety Management Plan, a Borrow Area Management Plan, a Material Sourcing Plan and Site Restoration Plan, in accordance with the standards and guidelines of the Government and the World Bank. All such plans will be reviewed and approved by the PIU, RHD and the Bank prior to the commencement of construction. The approved C-ESMP shall be reviewed periodically (but not less than every six months) and updated in a timely manner.

91. For the LGED Component, an ESMF has been prepared, consulted upon and publicly disclosed prior to appraisal. The ESMF provides the process for environmental and social screening, and impact assessment of subprojects under this component, including the preparation of plans to manage environmental and social risks and impacts. Other ESF documents prepared and disclosed for both RHD and LGED include: (i) an RPF to guide the preparation of a RAP for Jashore-Jhenaidah and an RPF for the LGED Component; (ii) an Environmental and Social



Commitment Plan; (iii) a Stakeholder Engagement Plan; and (iv) a Labor Management Procedures.

92. Disclosure of E&S Instruments. The ESMF (LGED) and ESIA for the Jashore-Jhenaidah Road (RHD) have been disclosed by the Bank and the client government as detailed in table 2 below.

Table 2: E&S Disclosure Dates

Sr. No.	Documents	Disclosure by	Disclosure by Client	
		Bank	LGED	RHD
1	LGED ESMF	Feb-4-2020	Feb-10-2020	
2	RHD ESIA	Feb-5-2020		Feb-10-2020

93. A Strategic Environmental and Social Assessment (SESA) will be undertaken. The SESA will be conducted for the entire Program Corridor during the implementation of the project to assess the long term and cumulative risks and impacts of all completed, ongoing and future development in the Program Corridor, inform the ESIAs of roads in the succeeding phases, and assist in developing and implementing a management plan that takes into account environmental and social risks and impacts.

94. RHD will develop a stand-alone GBV action plan as the project's GBV risks have been assessed as substantial. The plan will include a Code of Conduct (CoC) for contractors and subcontractors that will cover GBV risks and relevant service provisions in the bid documents. The action plan will also include a separate grievance redress mechanism with GBV referral pathways and response protocol. A supervision team comprising of social and GBV specialists of the implementing agencies will monitor and support the implementation of the action plan. The action plan will include specific provisions to ensure the safety of, and obtain feedback from, women and girls within the project area. GBV sensitization training for contractors, workers and the affected community will be organized to mitigate the potential risks. For the LGED component, the GBV risk has been rated as "moderate". LGED will also prepare a GBV Action Plan and will include a GBV referral system in its Project GRM.

95. Application of ESF to the AIIB Project. The AIIB-financed section of the Program Corridor is considered an Associated Facility of the MPA Program. E&S assessments, instruments and documents will be prepared in accordance with the ESF and the World Bank will conduct due diligence of these instruments and documents. During implementation, the Government will supervise and monitor E&S risks and impacts of the entire Program Corridor in accordance with the ESF and will ensure that all supervision records and project sites are accessible to both the World Bank and AIIB. The World Bank and AIIB may also conduct joint supervision missions. The ESCP includes both the Government's commitment to apply the ESF to the AIIB-financed works, and to facilitate and support supervision by the World Bank and AIIB. There will be a single Grievance Redressal Mechanism (GRM) covering the Program Corridor.

96. E&S Capacity. A comprehensive E&S capacity assessment of RHD and LGED was conducted by the World Bank during program preparation in line with ESF requirements, and to inform the E&S staffing of the project, the capacity building program to be supported by the project and the overall E&S risk management of the project. The staffing requirements and capacity building program are included in the project design and support and are recorded and agreed in the ESCP. PIUs at RHD and LGED will include an Environmental Specialist, a Social Development Specialist, a Health and Safety Specialist, a Gender Specialist, and a Stakeholder Engagement and Communications Specialist. The Environmental and Social Circle of RHD and the Environmental Unit in LGED will also be supported and



strengthened under the project. Environmental and Social specialists will be a part of the CSC to monitor ESMP implementation and ensure compliance with both World Bank and Government requirements.

97. **Citizen's Engagement (CE).** The Project will engage with stakeholders throughout the project lifetime based on the specific Stakeholders Engagement Plans prepared by RHD and LGED. Extensive consultations have taken place with transport and other business communities and associations, local communities, civil society organizations and relevant government departments during different stages of project preparation and the development of the SEPs for the RHD and LGED components; these consultations will continue during project implementation. The Project plans to conduct satisfaction surveys to track user-satisfaction of the corridor, with specific attention to frequent users (such as transporters and passengers) and as well as local users (e.g., slow moving vehicles) from neighboring communities. Both RHD and LGED have developed a three tier GRM system in their respective Stakeholders' Engagement Plan. The GRMs follow the principle of accessibility for potential users and accountability of the contractors and implementing agencies. The project GRMs include specific protocols for handling grievances on GBV based on the GBV Action Plan. The Project's CE indicator will measure the share of grievances received that are processed within the stipulated service standards.

V. GRIEVANCE REDRESS SERVICES

98. **Communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level grievance redress mechanisms or the World Bank's Grievance Redress Service (GRS).** The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

99. **The overall risk rating for the project is "Substantial".** The most pronounced risk areas, discussed below, are: (i) political and governance; (ii) sector strategies and policies; (iii) Technical Design of Project or Program; (iv) institutional capacity for implementation and sustainability; (v) fiduciary; (vi) environment and social; and (vii) Stakeholder Risks.

100. **Macroeconomic risks – Substantial.** While the magnitude of the impact of COVID-19 on Bangladesh's macroeconomic environment will depend on how the outbreak evolves, a worldwide economic downturn could have a substantial impact on Bangladesh's economic growth, balance of payments and fiscal position. While the economic impact of COVID-19 may constrain fiscal space for infrastructure development, the impact on this project is expected to be manageable, considering project financing will be earmarked to defined activities.

101. **Political and Governance Risk – Substantial.** There have been governance concerns in the highways sector in



the past, which led to the Bank's disengagement from the sector for over a decade. The poor governance structure, high transaction costs, and protracted delays during procurement and implementation of works contribute to the high overall cost of road construction in Bangladesh. Governance problems affect the planning and budgeting of road investment, as well as the performance of staff. Improving competitive contracting procedures, including the expanded use of e-procurement to ICB, are likely to increase the transparency of road works procurement.

102. Sector Strategies and Policies Risk – Substantial. There are policy gaps, which may adversely impact the successful project development outcomes. The MPA Program includes an ambitious sectoral reform component which would help address gaps, such as the lack of a sustainable financing strategy, poor asset management practices, overlapping mandates and institutional fragmentation, etc.

103. Technical Design of Project or Program – Substantial. LGED and RHD have developed significant in-house capacity on technical design for primary, secondary and tertiary roads. Design standards improved under previous World Bank projects with LGED, which also introduced climate-resilience measures. In the case of RHD, a recent risk assessment identified the following technical risks: (i) lack of quality assurance mechanism for designs and works; (ii) inadequate contract management; (iii) cost and time-overruns; and (iv) work-zone and traffic safety. There is a need for updating these standards and bringing in industry practice innovations. These risks will be mitigated by engaging consulting firms with international experience in design, contract management, and quality assurance. The RHD and LGED PIUs will also be supported through extensive training and capacity building activities under Component 3 on selected priority areas and project management.

104. Institutional Capacity for Implementation and Sustainability – Substantial. RHD requires strengthening to address capacity gaps and to bring the agency to international standards. A reorganization and modernization initiative has been completed, leading to improved data collection, management and analysis, creation of a training center, and establishment of Road Safety and Environmental Circles. However, without the support of multilaterals, these departments have struggled to mature, and even sustain their current functions, due to the lack of resources and staff. LGED has long experience of implementing donor-financed projects and has an internal E&S team that provides partial safeguards-related support for certain Government funded activities. The risks will be mitigated through extensive training and capacity building activities under Component 3 on selected priority areas (e.g., road safety, E&S safeguards, etc.). The establishment of the RTSICP will ensure a holistic approach towards tackling transport sector development issues.

105. Fiduciary Risk – Substantial. The key Financial Management risks include a shortage of professionally qualified FM human resources, weak internal audit environment, annual financial statements for programs prepared without adhering to international standards, delays in resolving audit observations, and previous history of declaration of ineligible expenses. The key procurement risks include: (i) RHD's lack of familiarity with World Bank Procurement Regulations; (ii) poor contract administration control and oversight, including timely payment to contractors; (iii) unrealistic associations among firms especially as Joint Venture partners; (iv) procurement delays for high value packages requiring high-level approvals; (v) delays in acquisition of land or wayleaves; and (vi) the impact of the COVID-19 outbreak on construction industry. The corresponding risk management measures are discussed in the Appraisal Summary section, and in greater detail in Annex 1.

106. E&S risk – High. The environmental risk is substantial, while the social risk is high. The ESIA indicated that environmental risks and impacts are largely construction-related, reversible, and confined within the existing footprint of the project, and for which known engineering and housekeeping measures can be developed and



implemented. There are no adverse risks and impacts on natural and critical habitats and other environmentally sensitive areas. Social risk is assessed to be high based on: (i) health & safety of workers and communities along the road corridors where works will be carried out, as well as along the transport routes of construction supplies, materials and equipment; (ii) exposure of the population along the ROW and transport routes to noise, dust, vibrations, air pollution and traffic-related risks; (iii) land acquisition along the ROW; (iv) physical and economic displacements; (v) risks of gender-based violence; and (vi) influx of labor during construction and related issues, such as GBV, child labor, forced labor, and health & safety. The mitigation measures for E&S risks are described in Section D (paragraphs 90-94).

107. Stakeholder Risks – Substantial: The project will involve a broad range of stakeholders at local, regional and national levels. This will not only include the project beneficiary communities at the grassroots level, but also NGOs, mobile phone operators, media, local chambers of commerce, trade bodies and transport associations. The priorities of many of these actors may not always be aligned. In terms of mitigation measures, the social impact assessment will include an extensive mapping of the relevant stakeholders and subsequently, develop a stakeholders' engagement framework/plan. The RTSICP will help build consensus on reform priorities in the transport sector.



VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Bangladesh

Western Economic Corridor and Regional Enhancement Program

Project Development Objective(s)

To provide efficient, safe, and resilient connectivity along a Section of a regional transport corridor in western Bangladesh and reduce post-harvest losses in the hinterland of the Section

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Increased efficiency of transport mobility for passengers and goods			
PrDO: Change in the efficiency of transport mobility of passengers and goods on MPA Corridor (Percentage)		0.00	10.00
PDO: Change in the efficiency of transport mobility of passengers and goods on project corridor (Percentage)		0.00	11.00
PrDO: Change in night time lights intensity in the vicinity of MPA Program investments (Percentage)		0.00	5.00
Reduced post harvest losses in the hinterland of the regional transport corridor section			
PrDO: Change in logistics cost for select value chains in Program Districts (Percentage)		0.00	5.00
PDO: Change in post-harvest losses for select value chains in Project Districts (Percentage)		0.00	5.00



Indicator Name	PBC	Baseline	End Target
Safer Connectivity			
PrDO: Change in annual fatalities on MPA corridor (Percentage)		0.00	50.00
PDO: Change in annual fatalities on project corridor (Percentage)		0.00	50.00
Resilient Connectivity			
PrDO: Share of national and regional highways upgraded to climate resilient standards within Program Districts (Percentage)		0.00	20.00
PDO: Share of national and regional highways upgraded to climate resilient standards within Project Districts (Percentage)		0.00	10.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Upgrading National Highway Corridor and Enhancing Digital Connectivity			
Roads constructed (CRI, Kilometers)		0.00	48.00
Roads constructed - rural (CRI, Kilometers)		0.00	38.00
Roads constructed - non-rural (CRI, Kilometers)		0.00	10.00
Average Vehicle Operating Costs per KM on project corridor (Amount(USD))		0.41	0.33
Average Travel Time taken to traverse project corridor (Minutes)		69.00	59.00
Minimum 3 star rating for vulnerable road users project corridor (Yes/No)		No	Yes
Length of corridor that is upgraded to comply with climate/disaster design standards (Kilometers)		0.00	48.00



Indicator Name	PBC	Baseline	End Target
Value of assets protected from flood risks (Amount(USD))		0.00	313,700,000.00
Length of Optical Fiber Cable duct installed (Kilometers)		0.00	48.00
Upgrading Secondary and Tertiary Roads and Complementary Logistics Infrastructure and Services			
Roads rehabilitated (CRI, Kilometers)		0.00	600.00
Roads rehabilitated - rural (CRI, Kilometers)		0.00	600.00
Roads rehabilitated - non-rural (CRI, Kilometers)		0.00	0.00
Change in transportation costs for select value chains in project districts (Percentage)		0.00	7.00
Rural markets with improved facilities (Number)		0.00	32.00
Share of improved rural markets that include special facilities for female vendors (Percentage)		0.00	100.00
Share of improved rural markets that allocate special selling space for female vendors (Percentage)		0.00	50.00
Change in waterlogging incidents in and around improved rural markets (Percentage)		0.00	90.00
Farmers benefiting from improved rural market facilities (Number)		0.00	10,000.00
Female workers employed in rural roads rehabilitation (Percentage)		13.00	20.00
Share of project work sites with daycare facilities for employees (Percentage)		0.00	100.00
Project Implementation Support and Sustainability			
Direct beneficiaries of project (Number)		0.00	1,000,000.00
Of which females (Number)		0.00	500,000.00
Change in user satisfaction with road condition and markets (Percentage)		0.00	15.00
For females (Percentage)		0.00	15.00



Indicator Name	PBC	Baseline	End Target
Road Transport Sector Integration and Coordination Platform (RTSICP) established (Yes/No)		No	Yes
Action plan to operationalize the Road Maintenance Fund Board Act agreed (Yes/No)		No	Yes
Strategic Environmental and Social Assessment (SESA) completed (Yes/No)		No	Yes
Staff trained on Environmental and Social Framework (Number)		0.00	25.00
Share of grievances received that are processed within the stipulated service standards (Percentage)		0.00	80.00
COVID-19 Relief and Recovery			
Emergency Response Plans for COVID-19 Developed (Number)		0.00	2.00
For LGED (Number)		0.00	1.00
For RHD (Number)		0.00	1.00
Jobs created through labor contracting societies for intensive civil works (Number)		0.00	1,300,000.00
Staff trained on Emergency Response Plan for COVID-19 (Number)		0.00	425.00
Of which staff trained at RHD (Number)		0.00	25.00
Of which staff trained at LGED (Number)		0.00	400.00
Number of transport agency offices with necessary physical upgrades to ensure business continuity in response to COVID-19 and future crises (Number)		0.00	29.00
For RHD (Number)		0.00	5.00
For LGED (Number)		0.00	24.00



Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
PrDO: Change in the efficiency of transport mobility of passengers and goods on MPA Corridor	The indicator is defined as the "Discounted Net Benefits from VOC and VOT Savings due to project / Total Discounted VOC and VOT Cost without Project * 100".	At the start of MPA and closing of each relevant phase of the MPA.	Economic Analysis	Indicator comes from the economic analysis at the appraisal and completion of each phase. Target is set based on economic analysis at appraisal.	RHD
PDO: Change in the efficiency of transport mobility of passengers and goods on project corridor	The indicator is defined as the "Discounted Net Benefits from VOC and VOT Savings due to project / Total Discounted VOC and VOT Cost without Project * 100". It is measured for the 48km highway improved by the project.	At the start and end of project.	Economic Analysis	Indicator comes from the economic analysis at the appraisal and completion of the project. Target is set based on economic analysis at appraisal.	RHD
PrDO: Change in night time lights intensity in the vicinity of MPA Program investments	The indicator will measure local economic development in the hinterland of the corridor using nightlights data.	At the end of each MPA phase.	Nightlights data is available at NOAA. If this remote sensing data is discontinued by the agency then another	The stable lights composite will be used and the sum of nightlights in the vicinity of logistics investments of the Program will be estimated.	LGED



			suitable source of data will be used,		
PrDO: Change in logistics cost for select value chains in Program Districts	The indicator is defined as the change in logistics costs for select value chains. Logistics costs are estimated as the sum of transport, storage and handling costs (and post-harvest losses in the case of fresh produce). It will be measured in the vicinity of improved infrastructure. Value chains for phase 1 have been identified in the relevant PDO indicator.	At the start and end of each relevant MPA phase	Surveys	Surveys will be conducted to collect information on each component of the logistics costs described in the definition. For this purpose, traders, middlemen, logistics service providers, and farmers will be surveyed (as relevant).	RHD and LGED
PDO: Change in post-harvest losses for select value chains in Project Districts	This indicator will measure reduction in post harvest losses in the hinterland of the project (rural markets improved through the project). Selected value chains include - Vegetables: (brinjals, cauliflower, tomatoes); Flora (cut flowers), Fruits (bananas), Fisheries.	At the start, middle, and end of project	Survey	Surveys will be conducted to collect information on average post harvest losses at each relevant segment of the value chain. Surveys will be conducted for farmers, middlemen, and sellers.	LGED
PrDO: Change in annual fatalities on MPA corridor	The indicator will capture the safety of	At the start and end of	Post crash response	Based on data received from post crash	RHD



	transportation. It is measured for the 110km highway improved by the MPA.	each phase of the MPA.	service and Project Progress Report	response service. Baseline is estimated to be 110 fatalities/year.	
PDO: Change in annual fatalities on project corridor	The indicator will capture the safety of transportation on 48 km of highway improved by the project.	Annually	Post crash response service and Project Progress Report	Based on data received from post crash response service. Baseline is estimated to be 48 fatalities/year.	RHD
PrDO: Share of national and regional highways upgraded to climate resilient standards within Program Districts	The indicator will measure the resilience of the primary road network in MPA districts. MPA districts are defined as the districts through which the MPA Corridor passes, namely, Jashore, Jhenaidah, and Satkhira.	Annually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	RHD
PDO: Share of national and regional highways upgraded to climate resilient standards within Project Districts	The indicator will measure the resilience of the primary road network in Project districts. Project districts are defined as the districts through which the Project Corridor passes, namely, Jashore and Jhenaidah.	Annually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	RHD



Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Roads constructed		Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	RHD
Roads constructed - rural		Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	RHD
Roads constructed - non-rural		Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	RHD
Average Vehicle Operating Costs per KM on project corridor	The indicator will measure reduction in vehicle operating costs due to improvement to Project corridor (48km).	At the start and end of project	Economic Analysis	It will be calculated from the output of the Economic Analysis. For baseline, 2021 data is used. For target, economic analysis predictions for 2026 are used.	RHD
Average Travel Time taken to traverse project corridor	The indicator will measure reduction in driving time due to improvement to Project corridor (48km).	At the start and end of project	Speed and delay survey	At least three speed and delay surveys conducted in both directions (on three separate days) and	RHD



				average to be used. The baseline is set using speed delay survey; target is set using economic analysis predictions with -project using year of completion.	
Minimum 3 star rating for vulnerable road users project corridor	The indicator will measure the safety of the designed road. It will be measured for the 48km of highway improved under the project.	At the start and end of project	Engineering Designs and Field Audit.	It will be based on review of the detailed engineering designs and field visit audit that designs have been implemented.	RHD
Length of corridor that is upgraded to comply with climate/disaster design standards	The indicator will measure the climate resilience of the completed sections of the Project corridor.	Annually	Engineering Designs and Field Audit.	It will be based on review of the detailed engineering designs and field visit audit that designs have been implemented.	RHD
Value of assets protected from flood risks	The indicator will measure the investments made that are resilient to flood risks.	Biannually	Engineering designs, Field Audits, and Cost Calculations.	It will be based on review of the detailed engineering designs and field visit audit that designs have been implemented. Value of highway upgrading and OFC installation included.	RHD



Length of Optical Fiber Cable duct installed	The indicator will capture enhanced digital connectivity.	Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	RHD
Roads rehabilitated		Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	LGED
Roads rehabilitated - rural		Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	LGED
Roads rehabilitated - non-rural		Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	LGED
Change in transportation costs for select value chains in project districts	The indicator will measure improvement in the connectivity of farms to rural markets. Selected value chains include - Vegetables: (brinjals, cauliflower, tomatoes); Flora (cut flowers), Fruits (bananas), Fisheries.	At the start, middle, and end of project	Survey	Survey's will be conducted for traders, middlemen and farmers.	LGED



Rural markets with improved facilities	The indicator will measure improvement in logistics facilities at rural markets.	Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	LGED
Share of improved rural markets that include special facilities for female vendors	The indicator captures the share of markets that have special infrastructure facilities for women. It is measured as markets that have separate toilets for women with doors that close properly, disposal bins, and water for hand washing.	Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	LGED
Share of improved rural markets that allocate special selling space for female vendors	The indicator captures the share of markets that have special/designated selling spaces for women (in order to promote female vendors from selling at markets).	Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	LGED
Change in waterlogging incidents in and around improved rural markets	The indicators captures the climate resilience of rural markets. Waterlogging incidents which continue for half day or more, within the market or access roads to markets (within 500m radius from the markets)	At the start, middle, and end of project	Survey	Rural markets being improved for the project will be surveyed	LGED
Farmers benefiting from improved rural market facilities	The indicator will be measure the number of farmer whose produce is	At the middle and end of	Survey	Calculated using population data in the catchment area of	LGED



	sold in the markets improved under the project.	project		market locations that were improved	
Female workers employed in rural roads rehabilitation	The indicator measures female employment in transport infrastructure construction under the project.	Biannually	Project Progress Report	Provision will be made in the bid documents for construction and maintenance. On the ground allocation will be confirmed through surveys by Project Management Consultancy.	LGED
Share of project work sites with daycare facilities for employees	The indicator will measure the availability of female friendly work environment above and beyond standard practice in Bangladesh	Annually	Project Progress Report	Provision will be made in the bid documents for construction and maintenance. On the ground allocation will be confirmed through surveys by Project Management Consultancy.	LGED
Direct beneficiaries of project	The indicator will capture the people who directly benefit from the investments made by the project.	At the start, middle, and end of project	Geo-spatial analysis	Count population living in Upazillas that benefit from the project investments.	LGED and RHD
Of which females	Parent indicator split for females	Same as parent indicator	Same as parent indicator	Parent indicator is split by population distribution males and	Same as parent indicator



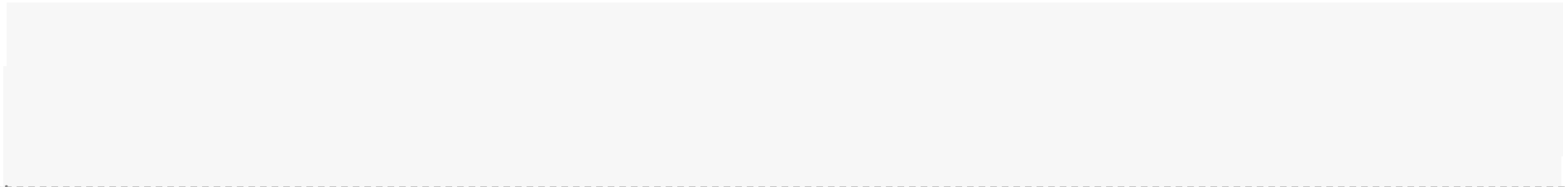
				females	
Change in user satisfaction with road condition and markets	This indicator will measure the satisfaction of road users of the improved investments for both RHD and LGED roads and markets.	At the start, middle, and end of project	Survey	Baseline to be collected before start of civil works, midterm (after 2 years of project implementation), and end line to be collected at the end of project.	LGED and RHD
For females	Same as parent indicator	Same as parent indicator	Same as parent indicator	Same as parent indicator	Same as parent indicator
Road Transport Sector Integration and Coordination Platform (RTSICP) established	The indicator will measure progress on the ground work for road sector management reform.	At the end of project	Project Progress Report	First official meeting of the platform to be considered confirmation that it has been established and is functioning.	RHD
Action plan to operationalize the Road Maintenance Fund Board Act agreed	The indicator measure support for the operationalization of the Road Maintenance Fund Board Act.	At the end of Project	Project Progress Report	Formal endorsement of the action plan by the RHD chief engineer will mark the completion of the action plan.	RHD
Strategic Environmental and Social Assessment (SESA) completed	The indicator captures the completion of a detailed Cumulative Impact Assessment of the Program.	At the end of Project	Project Progress Report	The finalization of the Assessment document will be considered as completion.	RHD



Staff trained on Environmental and Social Framework	The indicator captures the capacity improvement in Environmental and Social Framework implementation for RHD.	Annual	Project Progress Report	The indicator will capture the total number of staff completing the training.	RHD
Share of grievances received that are processed within the stipulated service standards	The indicator measures the functionality of the grievance redress mechanism for the Project. Standards for different type of grievances to be set up as a part of the GRM processing protocols.	Biannually	Project Progress Report	Collated based on GRM reports	RHD and LGED
Emergency Response Plans for COVID-19 Developed	The indicator captures the completion of a detailed action plan for COVID-19 response. RHD and LGED will develop separate plans.	Annually	Project Progress Report	The finalization of the action plan will be considered completion of the action plan for each agency.	RHD and LGED
For LGED	Same as parent indicator	Same as parent indicator	Same as parent indicator	Same as parent indicator	LGED
For RHD	Same as parent indicator	Same as parent indicator	Same as parent indicator	Same as parent indicator	Same as parent indicator
Jobs created through labor contracting societies for intensive civil works	The indicator will measure the provision of labor intensive jobs to provide immediate economic relief to the poor. It will be	Biannually	Project Progress Report	It will be captured from reporting of Project Management Consultancy.	LGED



	measured in number of "labor-days".				
Staff trained on Emergency Response Plan for COVID-19	The indicator captures the capacity improvement in the COVID-19 Emergency Preparedness for RHD and LGED.	Annually	Project Progress Report	The indicator will capture the total number of staff completing the training.	RHD and LGED
Of which staff trained at RHD	Same as parent indicator	Same as parent indicator	Same as parent indicator	Same as parent indicator	RHD
Of which staff trained at LGED	Same as parent indicator	Same as parent indicator	Same as parent indicator	Same as parent indicator	LGED
Number of transport agency offices with necessary physical upgrades to ensure business continuity in response to COVID-19 and future crises	The indicator measure the number of RHD and LGED offices (in HQ and field, and PIUs) with high-speed internet connections and additional hygiene measures (like hand sanitizes, masks, etc).	Biannually	Project Progress Report	Presence of upgrades will be confirmed through surveying the offices by Project Management Consultancy.	RHD and LGED
For RHD	Same as parent indicator (but for RHD offices)	Same as parent indicator	Same as parent indicator	Same as parent indicator	RHD
For LGED	Same as parent indicator (but for RHD offices)	Same as parent indicator	Same as parent indicator	Same as parent indicator	LGED





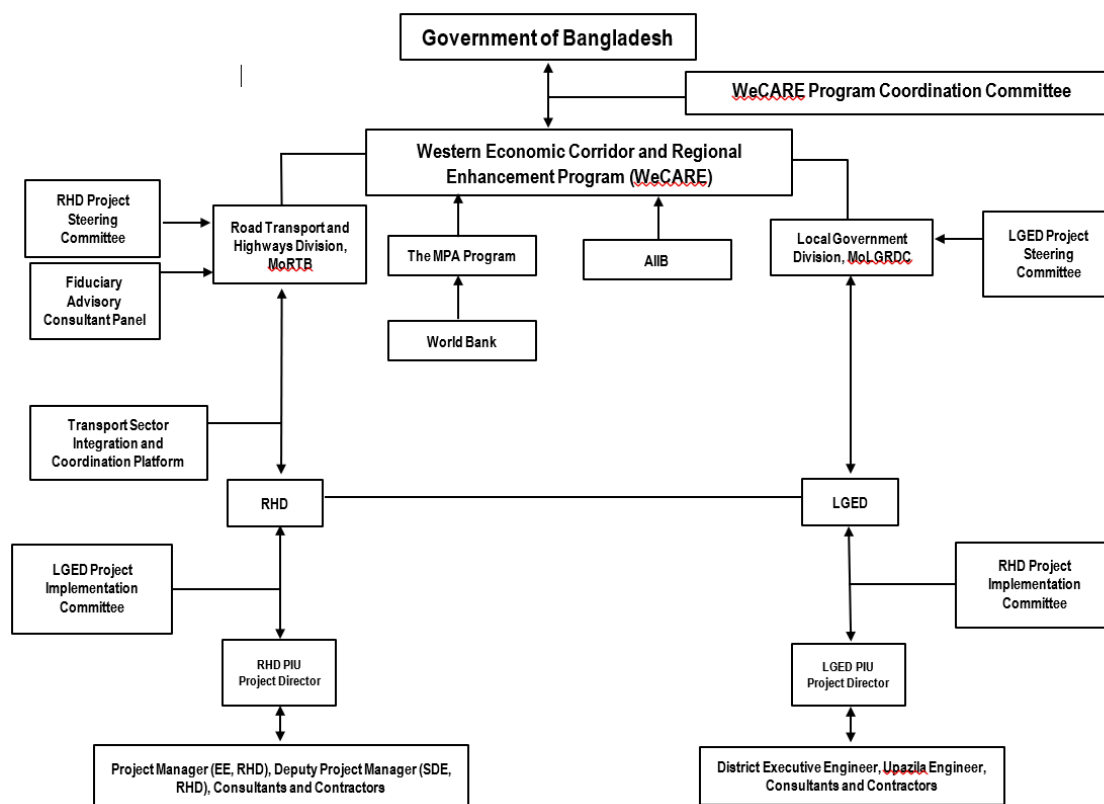
ANNEX I: Implementation Arrangements and Support Plan

COUNTRY: Bangladesh

Western Economic Corridor and Regional Enhancement Program

- Implementation Period.** Five years from the date of effectiveness. The overall WeCARE program will be implemented over 10 years.
- Program oversight will be the responsibility of a WeCARE Program Coordination Committee (PCC).** The committee will be co-chaired by the Secretary of RTHD and the Secretary of LGD, and will include representatives of the RHD, LGED, RTHD, ERD, Planning Commission, IMED, FAPAD, BLPA, BEZA and BTRC. At the project level, RHD and LGED would each establish a Project Steering Committee (PSC) chaired by the respective Secretaries, and a Project Implementation Committee (PIC) headed by the respective Chief Engineers and consisting of officials and technical experts to provide technical guidance to the project. RHD would be represented in the LGED project steering committee, and LGED on the RHD committee. A Fiduciary Advisory Consultant Panel will be established by the RHD, reporting to the Chief Engineer and World Bank.

Figure I-1. Project Institutional Arrangements





3. **Project Implementation Units (PIUs) will be established at RHD and LGED.** The implementation of RHD components will be under the oversight of RHD, which falls under the MoRTB, whereas the LGED components will be under the oversight of LGED, which falls under the MoLGRDC. Each PIU will be headed by a Project Director and supported by Technical Specialists, a Financial Management Specialist, a Procurement Specialist, Social and Environmental Specialists, an Accountant and Administrative Assistants.
4. **Environmental and Social Safeguards.** The Government, through the RHD and LGED, will take the necessary steps so that the Project and relevant activities in relation to Associated Facilities are implemented in accordance with the Environmental and Social Standards (ESSs). RHD and LGED will prepare and submit to the World Bank regular monitoring reports on the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to the implementation of the ESCP, the status of preparation and implementation of E&S documents required under the ESCP, stakeholder engagement activities, and functioning of the grievance mechanism(s). RHD will develop and implement a standalone GBV action plan.
5. **RHD and LGED will each hire the following E&S specialists to support the PIU in implementing the ESCP:** (i) an Environmental Specialist; (ii) a Land Acquisition and Resettlement Specialist; (iii) a Social Development Specialist/Stakeholder Engagement Specialist; (iv) a Gender Specialist; and (v) a Health and Safety Specialist. It will engage a Construction Supervision and Project Implementation Services Consultant (CSPISC) with sufficient E&S staffing. Contractors will be required to have an Environmental and Social Development Specialist and a Health & Safety Specialist.
6. **Capacity Building.** Based on the E&S Capacity Assessment, training will be provided to the relevant target groups, (such as PIU staff, stakeholder community, project workers, consultants, contractors, sub-contractors) in the following areas: (i) Orientation training to staff of RHD on the World Bank ESF and its implementation modality (screening, scoping etc.); (ii) Training to RHD staff on land acquisition and involuntary resettlement, indigenous people, vulnerable and disadvantaged people, Free and Prior Informed Consent (FPIC), ESIA and RAP Occupational health and safety, community health and safety, labor practices, cultural heritage management, traffic and road safety, exposure visits to wildlife areas, natural habitat and biodiversity training course, consultant procurement and contract management, and management of construction Impacts.
7. **Grievance Redressal Mechanism (GRM).** The Project will engage with stakeholders as per the specific Stakeholders Engagement Plans (SEPs) prepared by RHD and LGED, which detail the strategies for engagement with stakeholders. Both RHD and LGED have developed a three tier GRM system to be followed by each implementing agency in the respective SEPs. The project GRMs include specific protocols for handling grievances on GBV based on the GBV Action Plan. In addition, the contractors will prepare a separate GRM for workers. The provision of this GRM and the Code of Conduct will be included in the bid documents and contracts.
8. **Safe Corridor Demonstration Program (SCDP).** The SCDP will be implemented by RHD. The RHD PIU will procure all goods, non-consulting and consulting services related to the SCDP in close consultation with BRTA, Bangladesh Traffic Police and DGHS. Works associated with SCDP would be a part of the main civil work packages. The equipment/goods procured and deployed for use on the SCDP would be owned by the relevant stakeholder department(s). The RHD will execute Memoranda of Understanding on the use of such equipment with each stakeholder department(s). All equipment/goods provided for SCDP activities will be used exclusively for the sole purpose of enforcing road traffic laws and regulations and will not be used for the purposes of enforcement of any non-road traffic related laws or regulations.



9. **Optical Fiber Cable (OFC) and ITS.** Implementation of OFC and ITS activities will be undertaken in close collaboration with BTRC, with technical support from the Design and Supervision consultants.

10. **Contingent Emergency Response Component (CERC).** Following eligible crisis or emergency, the Borrower may request the Bank to re-allocate project funds to support emergency response and reconstruction. This component will draw from the uncommitted loan/credit/grant resources under the project from other project components to cover emergency response. GoB will prepare an “Emergency Response Operations Manual” (EROM) with the provisions for activating and implementing the CERC. No disbursements will be made under the CERC until the conditions set out in the Financing Agreement are met, including the determination of the eligible crisis of emergency, the adequate preparation and disclosure of relevant environmental and social instruments, ensuring that the implementing entities have adequate capacity and resources, and the adoption of the EROM. RHD and LGED are expected to be the implementing agencies for the CERC component, if triggered, unless the EROM specifies otherwise.

11. **COVID-19 Relief and Recovery Component.** Activities under this component would be coordinated with other ongoing initiatives by the GoB or the Bank to explore synergies, including the ongoing Safety Nets for the Poorest (SNSP) Project which supports a government public works program called Employment Generation Program for the Poorest (EGPP) and the COVID-19 Emergency Response and Pandemic Preparedness Project.

Financial Management

12. **Financial Management (FM) Risk Assessment.** An FM risk assessment of the implementing agencies has been conducted by the Bank, which found: a shortage of professionally qualified FM human resources; a weak internal audit environment; annual financial statements for programs being prepared without adhering to international standards; delays in resolving audit observations; and a previous history of expenses being declared ineligible. A set of mitigation measures have been agreed with the Bank, and when they are applied during implementation, would reduce the residual risk to Substantial.

13. **RHD and LGED** have been involved in the government’s procurement reform program and are well-conversant with IDA’s Procurement/Consultant Guidelines and Bangladesh Procurement Laws. RHD’s has a core procurement wing, headed by a Superintending Engineer, and has two distinct Divisions: the Contract Evaluation Division (headed by an Executive Engineer) and the Documentation and Procurement (Civil) Division (headed by an Executive Engineer). LGED has a consistent track record of implementing of government and development partner supported projects and programs. It has over 700 decentralized procuring entities that exercise sub-delegation of financial powers effectively. However, under the project there would be no fund transfer to these entities. The labor-based contracts using LCS are acceptable to the Bank from a financial management perspective.

14. **Institutional Arrangements and Staffing.** RHD and LGED PIUs will also be responsible for compliance with fiduciary requirements. At least one project accountant will be hired in each PIU to discharge the day to day FM responsibilities and reporting requirements of both IDA and the Government.

15. **Planning and Budgeting.** A procurement plan covering all major procurement will be prepared for the Project in close consultation with the Bank. The procurement plan will be updated by the PIUs at least annually to reflect implementation needs, in consultation with the Bank. The annual budget will be prepared based on the procurement plan and other relevant annual work plans. These budgets will be monitored periodically to ensure that expenditures are



in line with budgets, and to provide input for necessary revisions.

16. **Internal Control.** The PIUs will preserve all accounting, procurement and other transaction processing records and documents in accordance with the provisions of the PPA 2006 and Government Financial Rules (GFR). These records must be made readily available on request for audit/investigation/review by the Government and the Bank. All project-related documents must be filed separately to facilitate internal and external audits, as well as reviews by the Bank.

17. **Financial Management Manual.** A financial management manual will be prepared by the implementing entities within three months after credit effectiveness, which will contain references to the Government's financial rules and regulations, along with the requirements of the project.

18. **Funds Flow.** RHD will use the reimbursement method of disbursement from the Bank, while the direct payment option will be exercised for high value contracts. All four disbursement methods will be available to LGED; an advance will be provided to the designated account to be opened in a commercial bank acceptable to IDA, to cover expenses of at least six months. The direct payments option will be applicable for high value contracts, if needed. The Bank will finance all expenses at 100 percent, except for salaries and allowances of civil servants, purchase of vehicles (other than special purpose vehicles), fuel, certain operating costs mentioned in Annex IV, land acquisition, resettlement and other expenses not eligible for IDA financing. For RHD, the Bank will not finance VAT and taxes. For LGED, the Bank will finance taxes, which are estimated to be less than 15 percent of financing. The Bank will also finance special purpose vehicles for SCDP, e.g., patrol vehicles, motorbikes, Tow Trucks, cranes and ambulances.

19. **Financial Management System.** The PIUs will use iBAS++ for accounting and financial reporting purposes in the longer term. Until such time, the project will use an off the shelf accounting software for project accounting and financial reporting. Both PIUs will submit separate sets of Interim Unaudited Financial Reports (IUFRs) within 45 days from the end of each calendar quarter.

20. **Internal Audit.** The Bank would support RHD to build internal audit capacity. Through the bridge program, the Bank is supporting LGED in building its internal audit capacity to international standards. An internal audit consulting firm will be hired to conduct the internal audit of the project and will provide training to RHD internal audit resources. The third phase of internal audit will be carried out by the RHD internal audit office and the consulting firm will play a supervisory role.

21. The internal audit will examine the effectiveness and efficient use of project resources and will conduct an independent appraisal of the workings of the PIUs and other partners in implementation. The key internal audit function will be: (i) ascertaining whether the system of internal checks and controls operating within the organization for preventing errors, fraud and corruption is effective in design as well as in operation; (ii) ensuring the reliability of accounting and other records, as well as ensuring that the accounting methods provide the information necessary for the preparation of financial statements; (iii) determining the extent to which the project entity's assets are safeguarded from any unauthorized use or losses; (iv) undertaking physical verification of assets/goods on a sample basis to opine on the asset management systems; and (v) establishing whether the administrative and financial regulations of the Government and instructions issued by the Treasury, as well as donors' legal requirements, are adhered to

22. **External Audit.** External audits of the Project will be carried out by the Foreign Aided Project Audit Directorate



(FAPAD) of CAG. The annual audit reports will be submitted within six months of the end of the financial year. The audited financial statements will be made available for public disclosure. The Project Directors will be responsible for follow up and taking remedial actions, with assistance from the Financial Management Specialist and the program implementing sections relevant to the audit objections. The PIUs, with the help of the respective ministries, will arrange tripartite meetings to resolve outstanding audit objections within three months from the receipt of audit reports and improve the internal control arrangements to prevent the recurrence of issues that triggered the audit objections.

23. **Outstanding Audit issues.** There are no overdue audit reports or ineligible expenditures under the implementing agencies. However, there are outstanding audit observations on the part of LGED that require resolution. The Bank will take appropriate measures, if the observations are not settled within the agreed timeframe under the country system.

24. **Implementation Support Strategy.** The World Bank will undertake regular semi-annual implementation review missions jointly with the implementation agencies, whose reports will form the basis for the agenda of such reviews to confirm project performance and to resolve areas of concern. The supervision strategy will include alternate arrangements in the event of COVID-19 to use desk reviews and IT/ICT tools for the supervision of fiduciary aspects.

Procurement

25. **Procurement for the project will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers** for Goods, Works, Non-Consulting and Consulting Services, dated July 1, 2016 (revised in November 2017 and August 2018). The Project will be subject to the World Bank's Anticorruption Guidelines, dated October 15, 2006, revised in January 2011, and as of July 1, 2016. The Project will use the Systematic Tracking of Exchanges in Procurement (STEP) to plan, record and track procurement transactions.

26. **Procurement arrangement (Works).** Request for Bids (without Pre-qualification) contract approach has been considered for the work packages for RHD and LGED. Consultants will be engaged by RHD to develop detail design/ BOQ / bid document for works packages. LGED has identified labor-intensive small works contracts, which will follow the Community-Driven Development (CDD) method to respond to the COVID-19 recovery plan. CDD will be applicable for routine maintenance of roads, including repairing shoulders and earthworks (Earth Pavement), flood control and clearing of water passages around culverts/bridges, market drainage, cleaning, washing and maintaining hygiene type labor-intensive small works. LGED already has an adequate number of enlisted 'labor contracting societies (LCS)' in the Upazilas. The PIU will contract with LCS for these types of CDD works. When the PIU uses national open competitive procurement arrangements, as set forth in the Public Procurement Act 2006 and the Public Procurement Rules 2008, such arrangements shall be subject to paragraph 5.4 of the Procurement Regulations of World Bank and the conditions mentioned in the text part of procurement plan in STEP.

27. **Selection of Consulting Service and other procurement categories.** Large value consulting contracts requiring high level of expertise are envisaged for the engineering design, detail design and construction supervision civil works contracts. No major procurement of goods is envisaged. The project includes training and capacity building on procurement of works, goods, non- consulting and consulting services.

28. **Procurement capacity enhancement.** RHD will establish a Fiduciary Advisory Consultants Panel (FACP) consisting of procurement/financial management consultants, with a mandate, terms of reference and resources satisfactory to IDA for, *inter alia*, overseeing the fiduciary aspects of implementing the RHD component. The Panel will: (i) report to the



Secretary, RTHD through the Chief Engineer of RHD; (ii) meet at least in each quarter of a Financial Year; and (iii) submit a report to the Secretary and the World Bank.

29. **Additional risk mitigation measures are:** (i) verification of the recommended bidders' post-qualification information during bid evaluation; (ii) making bidders aware of fraud and corruption issues in writing and/or at pre-bid/proposal meetings and the necessity of declaring any agent in the bidding process, if applicable; (iii) preserving all procurement-related documents to facilitate smooth post procurement reviews; (iv) publishing contract awards in e-GP and on United Nations Development Business online for international contracts; and (v) keeping financial proposals in safe custody.

30. **Special measures for internationally advertised contracts.** The PIU/s will form an evaluation committee to evaluate proposals/applications/bids for international competitive procurement. This committee will have at least 5-7 members, including the local procurement consultant and the international procurement expert. The PIU/s will ensure strict confidentiality of the bid evaluation process and timely completion of the evaluation. The bid/proposal evaluation committee members will evaluate the bids without delegating any task to any other official/staff/person. The World Bank's 'no objection' shall be required on the formation, and for any change in membership, of the bid/proposal evaluation committee.

31. **Implementations Support.** The Bank will provide implementation support at least twice a year. A procurement orientation will be provided at the start of the project to all project related staff, including project directors/coordinators, procurement officials and consultants, FM officials and consultants. The Bank procurement team will organize customized procurement clinics to the project, as needed.

Strategy and Approach for Implementation Support

32. The World Bank will support project implementation based on the risks identified and the mitigation measures proposed in the risk section. The Bank will undertake regular semi-annual implementation support missions, to the extent possible jointly with the AIIB for the purpose of ESF, to assess project performance and address areas of concern. The Bank team will comprise the Task Team Leaders (TTLs) and specialists on all key functional areas, viz., technical, fiduciary management, safeguards and project management.

33. Support will be provided through regular communication and review of documents and semi-annual support reviews, and thematic reviews. The progress and performance of the MPA Program will be monitored and evaluated semi-annually against the outcome and output indicators in the Results Framework. It will include a qualitative assessment of MPA Program's performance with respect to the quality of works, governance and transparency in procurement and contract management, compliance with the commitments related to fiduciary, environmental and social safeguards as agreed (for example, through the Environmental and Social Management Framework, ESMF and Environmental and Social Commitment Plan, ESCP). The monitoring and evaluation strategy will be based on the timely conduct of studies and assessments to establish baselines and progress data, where applicable, with a particular focus on measuring impacts on poverty reduction, shared prosperity and gender.

34. A mid-term review (MTR) will be conducted within 30 months from credit effectiveness. The MTR would assess overall implementation performance and progress towards the achievement of the PDO. Any amendments to the project that may be necessary would be discussed and proposed.



ANNEX II: Economic and Financial Analysis

A. Introduction

1. **The main benefits of the WeCARE Program stem from the increased efficiency in the movement of goods and people across the Program Corridor.** The improvements to the Program Corridor and the complementary interventions supporting logistics and value chains are expected to stimulate the economy and create new jobs. In addition, the support for road asset management, training and capacity development, and road safety, is expected to improve the management of the road network and its quality (including resilience).

2. **Economic analysis was carried out for the Program Corridor (260km), as well as, Component 1 of the project or MPA phase 1 (48km).** In performing this analysis two different approaches were adopted. The first approach estimated the increase in economic activity, wages, and prices of intermediate and final goods that would result from the development of the Program Corridor. In this manner the first approach estimated the WEBs that the Program Corridor would result in and then compares them to the corresponding costs. The second approach estimated the net economic benefits of the development of the Program Corridor based on a more traditional approach to cost and benefits analysis. The secondary and tertiary roads, as well as, logistics infrastructure and services have not been identified at this stage. A framework for evaluating their net economic benefits for phase 1 investments under component 2 is presented below.

B. Estimating Wider Economic Benefits (WEBs) for the Program Corridor

3. **A spatial general equilibrium model was used to estimate the WEBs from the development of the Program Corridor.** These benefits stem from the enhanced integration of regions across domestic and foreign markets in India and Bangladesh. The model assesses how the construction of the Program Corridor in western Bangladesh leads to changes in economic activity, wages, and prices of intermediate and final goods.²⁹

4. **The model comprises of three building blocks: geography, economic activity, and workers.** These building blocks are connected by the prices of goods, land rents and prevailing wages at each location. Consistent with the idea of a general equilibrium, prices and wages adjust to balance supply and demand in each location. Four types of data at the state and district level were used: land size, labor force, wages, and transport costs. The model generates trade linkages across regions and countries given the border time and a matrix of trade costs derived from the transport network while considering all trade linkages between regions in Bangladesh and India.

5. **The following stylized approach was used to develop and calibrate the model:**

- a) **Geography:** Spatially the model accounts for India and Bangladesh and allows for spatial granularity at the state level in India and at the district level in Bangladesh. Each region is characterized by its location, land area, livability and firm productivity. Livability influences where people chose to live. The productivity of firms differs across locations due to factors such as availability of infrastructure and technology. A good transport network allows firms to access cheaper intermediate goods and be more competitive. The transport network connects all locations with each other within and between countries.³⁰

²⁹ As the model estimates are based on large increases in connectivity doing a phase-wise estimation of these benefits is not possible. The model relies on work done by Redding (2015) and follows a growing literature on the spatial impacts of transport. The key assumptions and features of the model are described below (for details of the model please see Herrera Dappe, Lebrand and Van Patten, 2019).

³⁰ The model focuses on India-Bangladesh trade through land border posts and does not consider trade through maritime routes.



- b) Economic Activity: Firms choose the amounts of output and inputs used in production: i.e. labor, capital, and intermediate goods. Firms can buy intermediate goods from other firms located anywhere.
- c) Workers: Workers choose the place they live in their own country. Workers' decisions on where to live and where to work depend on housing costs, wages, and livability across regions.
- d) Transport costs: Transport costs are measured as a function of the travel time to reach other locations from the center of each location. The shortest travel time is used given all the possible routes in the road network.
- e) Trade linkages: The model generates trade linkages between districts of Bangladesh and states of India derived from gravity properties between population centers.
- f) Speeds and times: It was assumed that: (i) improving the Program Corridor increases vehicle speed from 30 km/h to 60 km/h; (ii) Padma bridge takes half an hour to cross; and (iii) border crossing time for trading between Bangladesh and India is 50 hours.
- g) Scenario: Two counterfactual scenarios were considered to estimate the wider economic benefits of the Program Corridor. In the first scenario, the Program Corridor was improved but connectivity at the Padma bridge location was by ferry. In the second scenario, Padma bridge already existed when the Program Corridor is improved. As an additional scenario, the model assessed how the development of a digital corridor (which is assumed to catalyze the WeCARE Program's hinterland) altered the benefits.
- h) Miscellaneous: The model is static and similar gains will be repeated over time.

6. **Economics Gains: The model estimates that 83 percent of Bangladesh's trade is domestic and the rest is with Indian regions.** Similarly, less than 2 percent of India's trade is estimated to be with Bangladesh. The model estimates benefit through the three channels as described below. The first channel is direct while the remaining two channels are indirect.

- a) Channel 1: The improvement of the Program Corridor and the construction of Padma bridge will increase the importance of domestic trade in the direct area of influence.
- b) Channel 2: There are spillovers in the entire country. While the investments take place in a limited number of districts, they affect all districts in Bangladesh.
- c) Channel 3: There are spillovers in neighboring countries. After considering the indirect effects within Bangladesh, the model considers the effects of investments in Bangladesh on trade from and to India.

7. **On the whole, construction of the Program Corridor brings large economic benefits to Bangladesh because of the reduction in travel time and transport costs for freight.** The reduction in transport costs reduces the prices of intermediate and final goods in all states, with some locations experiencing higher reductions than others. Lower prices of final goods increase the purchasing power of consumers, and cheaper input prices make producers more competitive. The locations experiencing the largest decreases in prices become more competitive and attract more workers and increase their economic activity. Reductions in prices, relocation of economic activity and potential increases in wages lead to increases in real aggregate income for the two countries. Cost-benefit analysis for the Program Corridor was carried out using these estimated WEBs/gains, using a discount rate of 12 percent is used, and assuming the life of the Program Corridor to be 20 years after construction is completed, with construction expected to take 5 years.

8. **The Program Corridor was estimated to increase Bangladesh's welfare annually by 0.8 percent and India's welfare by 0.02 percent (the net present value of benefits that accrue from the Program Corridor are \$22,681 million and the EIRR of the investment is 73 percent.).** If instead it is assumed that the Padma bridge has already been developed, then the increase in gains from the development of the Program Corridor are lower but it is still economically



viable. This is so because the Program Corridor's alignment offers an alternate connectivity option for southwestern Bangladesh.³¹ In this scenario, Bangladesh's welfare is estimated to increase by 0.3 percent annually and India's welfare is expected to increase by 0.02 percent annually—the net present value of benefits is \$9,287 million and the EIRR is 48 percent. Installation and operation of the OFC cable along the corridor would increase these economic gains (see table II-1).

Table II-1: Economic Gains from Program Corridor using Wider Economic Benefits Estimates

Scenarios	No Padma bridge	Padma bridge already open
Program Corridor is built without OFC Cable	0.8%/year	0.3%/year
Program Corridor is built with OFC Cable	0.9%/year	0.4%/year

C. Estimating Benefits using Traditional Economic Analysis for the Program Corridor

9. **Traditional cost-benefits analysis was also carried out for the Program Corridor and component 1 of project (MPA phase 1) which is the section Jessore-Jhenaidah.** It accounts for the benefits that accrue from savings in vehicle operating costs (VOC), value of time (VoT), road safety, and greenhouse gas emissions. The standard evaluation software, Highway Development and Management Model (HDM-4), was used to perform the cost-benefit analysis. For each section of the Program Corridor, construction was assumed to take five years. The construction timing of each section, and the section lengths are as follows: Jashore to Jhenaidah (length - 48km; construction timing - years 1 to 5); Bonpara to Hatkamrul (length - 51km; construction timing - years 2 to 6); Jhenaidah to Bonpara (length - 99km; construction timing - years 3 to 7) ; and Navaron to Satkhira to Bhomra (length – about 62km; construction timing - years 3 to 7).

10. The following general assumptions were made for the economic analysis:

- The analysis period is 25 years, with 2021 as the base year. Construction will take place in the first five years and benefits accrue over the remaining 20 years. A salvage value of 30 percent is assumed at the end of 20 years.
- A discount rate of 12 percent.
- The vehicle classification used in the analysis consists of 13 vehicle types—heavy trucks, medium trucks, small trucks, standard buses, minibuses, micro buses, cars (including SUV/jeep), three wheelers, utility vehicles, and non-motorized vehicles.
- To convert financial costs into economic costs a conversion factor of 0.85 is used.
- All prices, costs and benefits are in 2021 US Dollars.
- The Padma bridge will be operational when the Program Corridor construction is completed.

11. The with and without Program Corridor scenarios were defined as follows:

- Under the without-Program scenario, the existing corridor (two lane highway) will be under routine maintenance and repair based on the existing policies. These include stretch resurfacing and pothole repair.

³¹ This result is also borne out by the criticality analysis presented in the Resiliency Assessment.



- b) Under the with-Program scenario, the existing corridor will be upgraded from two lanes to four lanes with separate SMVT lanes in each direction. There will be periodic maintenance and repair of the corridor stretch.

12. **The per unit values for costs and benefits are based on existing reports, evaluations and documents.** These are:
- Estimated average per kilometer economic and financial costs are \$6.3 million and \$5.3 million, respectively.
 - Value of time ranges from \$0.52/hour to \$1.71/hour (it varies by the type of vehicle and differs by working and non-working hours).
 - Road accident savings are assumed to be \$62,669/fatality and \$5,222/injury. These values are derived from a national iRAP assessment.
 - Vehicle operating costs were estimated based on calibration parameters for vehicles and parts prices, maintenance parts and labor costs, and fuel costs.
 - Net GHG emissions were priced at the recommended WBG values to estimate the social cost of carbon (see table II-2). The lowest benefits from Net GHG emissions were estimated by using the 'high' value for years when Net GHG emissions are positive and a 'low' value for years when net GHG emissions are negative.

Table II-2: Social Values of Carbon recommended for the WBG in US\$ per 1 metric tonne of CO2 equivalent (in constant 2014 US\$)

Scenario	2020	2030	2040	2050
Low	40	50	63	78
High	80	100	125	156

13. **The Program Corridor as a whole is characterized by substantial heavy and medium trucks and a large number of buses, both regional and inter district.** North West bound traffic from Dhaka to the Rajshahi Division and vice-versa traverses the Bonpara-Hatikumrul section. Since, Rajshahi is an educational hub in Bangladesh, majority of the traffic in the section is by passenger traffic, mostly including buses. Since the Khulna division is characterized by rice mills, brick kilns and engineering workshops. Freight traffic is highest in the Jashore-Jhenaidah section; this can also be attributed to the presence of a large number of local markets including the Land Ports in the Western Region, Benapole and Bhomra. Overall the Program Corridor has an Average Annual Daily Traffic (AADT) of 3,473, comprising cars (5 percent), motorcycles (14 percent), three-wheelers (17 percent), micron mini and standard buses (14 percent), small medium and heavy trucks (30 percent), non-motorized transport (15 percent) and utility vehicles (5 percent).

14. **The cost-benefit analysis indicates that upgrading the Program Corridor, as well as, Phase 1 are economically viable.** Table II-3 presents the results of the economic evaluation. The overall NPV for the Program Corridor is US\$ 422.7 million and Economic Internal Rate of Return (EIRR) is 15.68 percent. The NPV for Phase 1 is US\$ 131.7 million and the EIRR is 17.05 percent. These estimates are above the 12 percent threshold and demonstrate that the envisioned investments are economically viable.

Table II-3: Economic Analysis with and without GHG Emissions (NPV in Million US Dollars)

Scenarios	NPV	EIRR
<u>VOC and VoT benefits only</u>		
Program Corridor	392.14	15.45%
Phase 1 (Jashore-Jhenaidah)	123.47	16.81%



VOC, VoT, GHG emissions benefits only

Program Corridor	416.12	15.62%
Phase 1 (Jashore-Jhenaidah)	131.52	17.04%

All benefits (VOC, VoT, GHG Emissions, and Road Safety)

Program Corridor	422.71	15.68%
Phase 1 (Jashore-Jhenaidah)	131.66	17.05 %

15. **Sensitivity analysis reveals that the Program Corridor, as well as, the Phase 1 corridor remain viable despite a reasonable increase in costs and decrease in benefits.** Even in the scenario when costs escalate by 15 percent and benefits decline by 15 percent, the EIRR of the Program Corridor is 12.79 percent and the EIRR of Phase 1 is 13.88 percent (see table II-4). These are above the 12 percent threshold.

Table II-4: Sensitivity of Economic Analysis Results (NPV in Million US Dollars)

Sensitivities	Program Corridor		Phase 1 only	
	NPV	EIRR	NPV	EIRR
15% reduction in benefits	226.6	14.09%	81.61	15.29%
15% increase in costs	290	14.39%	101.4	15.53%
15% reduction in benefits and 15% increase in costs	93.87	12.79%	51.3	13.88%

16. **Financial analysis was carried out to assess the financial suitability and sustainability of using public financing for the Program Corridor.** In performing the analysis, only civil works/construction costs were included. Two scenarios were considered (i) public financing; and (ii) private financing (via Public Private Partnership-PPP). Under the public financing it was assumed that most of the debt would be financed by the World Bank and AIIB (at the appropriate repayment terms) and private financing of the debt would be financed through commercial banks. Revenue is computed using the traffic projections for the Program Corridor and estimated toll rates. Toll Rates were estimated using the Bangladesh Toll Policy 2014 and the rates are suitably escalated to update them for the analysis period (the toll was assumed to be revised and increased by 6 percent every three years).

17. **The financial analysis reveals that the Program Corridor is financially sustainable using a public financing formulation rather than private financing (like PPP).** The Program Corridor's toll revenues are not projected to be sufficient to meet its obligations and therefore requires additional support from the Government. This is because toll rates in Bangladesh are substantially lower than in India and the cost of construction is substantially higher due to the high costs of construction materials. Further, the conception and implementation of PPP arrangements in the transport sector are still at a nascent stage in Bangladesh. Hence, a PPP model is not suitable for such a complex Program.

D. Estimating Benefits from Secondary and Tertiary Roads and Logistics Infrastructure and Services

18. **The investments financed through component 2 under Phase 1 have not yet been identified.** Therefore, this section only presents the framework that will be used to select and evaluate the roads and logistics infrastructure under



this component. This component will finance the upgrading of priority Upazila, Union, and village roads in the four Phase 1 Program Districts: Jashore, Jhenaidah, Magura, and Chuadanga.

19. **The prioritization will follow a “market centric” approach, with the priority growth centers/rural markets being identified first and then rural roads (in the catchment area of identified markets) being identified.** The roads and logistics infrastructure and services to be improved/developed will be selected based on a multi criteria assessment and rigorous fieldwork. Improving logistics and road infrastructure and services can reduce post-harvest losses and extend the range perishable products to be traded at the national and international level.

20. **The first step for the prioritization of growth centers/rural markets will be the selection of unions within each district where growth centers/rural markets will be improved.** In order to select the unions, a weighted composite index was created with the following variables³²:

- a) Population Density = [Population of Union as of 2019] / [Area of the Union in sq. km]
- b) Agricultural area as percent of total land area in the union
- c) Average Market Load = [Population of the Union] / [No of Markets in the Union]
- d) Average Road Load = [Population of the Union]/[Total Km of roads in the union]
- e) Share of females engaged in economic activities

21. **The second step will be the selection of specific market locations for improvement within the selected unions.** To select growth centers/markets from within these unions the following two variables will be used: (i) nightlights within 2km in the growth centers; and (ii) population within 4 km radius of the growth centers. These two variables will be given equal weights and growth centers from each upazila will be ranked based on the highest value to the lowest value in the upazila. A select few highest ranked markets will be selected for investments. Indicative investments to be made at growth centers/market locations are included in the description of the component. Select value chains have been selected based on the in-depth analysis of the upzilas of each district.

22. **In the third step, secondary and tertiary roads within the catchment area of these growth centers/markets will be selected for improvement.**³³ To carry out the economic analysis of selected roads, twelve-hour traffic count survey will be conducted on the roads and adjusted to 24 hours after hourly corrections. Average annual daily traffic will be estimated using a seasonal correction. Economic analysis for secondary and tertiary roads is based primarily on vehicle cost savings that accrue from the road improvements and will follow the standard methodology used by LGED. Economic benefits from the improvements to the growth centers/rural markets will be determined based on an approach that measures wastage/losses in select products sold at these locations.

³² Each of the index component will be normalized using min-max method. The weights assigned to each parameter will be based on stakeholder engagement and expert opinions.

³³ In addition, a limited number of broader road network (if needed) will also be selected for improvement.



ANNEX III: Resiliency Assessment of the Program Corridor

A. Introduction

1. **A resiliency assessment of the Program Corridor has been performed to identify the most critical and vulnerable sections of the Program Corridor under different climate hazards (flooding).** For the analysis different counterfactual scenarios were modelled. To model flooding risks, 53 past flood maps were used.³⁴ The critical segments of the Program Corridor which have been identified below will be built to a higher (and more climate resilient) standard. In addition, vulnerability analysis has been performed to identify the districts that would be impacted the most by disruptions of road network due to flooding and have the most vulnerable roads. This has allowed the identification of districts in which the Program Corridor, as well as, secondary and tertiary roads will be built to a higher and more climate resilient standard.
2. **Flood frequency analysis of 53 past flood events reveals that the Sirajgonj district, through which the Program Corridor passes, is one of the ten most often historically flooded districts.** This makes parts of the Corridor from Bonpara to Hatikamrul and secondary/tertiary roads (and logistics investments) particularly susceptible to flooding.
3. **The specific scenarios considered for the resiliency assessment are:** (i) Business as usual (meaning Program Corridor is not improved), Padma bridge is not built; (ii) Business as usual (meaning Program Corridor is not improved), Padma bridge is built; (iii) Program Corridor is built (assumed reduction in transport costs is 20%), Padma bridge is not built; (iv) Program Corridor is built (assumed reduction in transport costs is 20 percent), Padma bridge is built.
4. **Each of these scenarios were evaluated under all the 53 flood events.** The results from the 53 scenarios are aggregated into four indicators: performance under no floods, performance under minimum/least stringent floods, average performance across 53 floods, and performance under worst-case floods. When flooded it was assumed that the travel cost of traversing a segment increases threefold. In this manner the 16 different scenarios were evaluated and vulnerability was assessed relative to the no flooding situation. A summary of the key findings is presented below.
5. **Criticality characterizes the role of a specific road segment (in this case the segments of the Program Corridor) in the transport network.** It captures the relative importance of each segment vis-a-vis other segments (or the network as a whole)³⁵. The metric used to measure criticality is the betweenness centrality, which measures the percentage of the total flows which goes through a specific road segment, and approximates the magnitude of transport activities on each transport segment. Thus, criticality analysis allows for an assessment of the changes in freight flow on the different segments of the Program Corridor across the 53 flood events described above.
6. **Vulnerability refers to the lack of system reliability when exposed to exogenous hazards (in this case flooding).**³⁶ It is an attribute of the entire transport system and is quantified by the level of total losses within the transport system when a specific extreme event like flooding. In other words, vulnerability analysis is used to assess the impact of the

³⁴ Source: Guha-Sapir, D, R Below, and Ph Hoyois. 2016. EM-DAT: The CRED/OFDA International Disaster Database. Brussels, Belgium: Université Catholique de Louvain.

³⁵ For more details on transport network criticality analysis: Jafino, B. A., Kwakkel, J., & Verbraeck, A. (2020). Transport network criticality metrics: a comparative analysis and a guideline for selection. *Transport Reviews*, 40(2), 241-264. doi:10.1080/01441647.2019.1703843.

³⁶ in contrast to criticality which characterizes a single transport segment.



disruptions in the transport network on transport users.³⁷ Vulnerability was measured using: (i) average increase in travel cost and (ii) the worst-case increase in travel cost.³⁸

7. **A Probity assignment technique was used to distribute transport demand on the network.** Based on the transport super-network, socioeconomic data, and an origin-destination matrix, freight flows were assigned to the network as follows. First, 5-shortest paths between a pair of districts were identified while accounting for relative congestion in the network. Second, trips between these districts were allocated to the identified 5-shortest paths, inversely related to the travel cost of these paths. As a result, the path with the lowest cost was allocated the largest number of trips while path with the highest is allocated the smallest number of trips.

B. Criticality Analysis

8. **A criticality assessment was done at the major entry points to the southwestern region of Bangladesh.** There are six major points of entry to the southwestern region of Bangladesh (below and to the left of the Padma/Meghna rivers), namely, (i) the Laloon Shah bridge, (ii) the Padma ferry (where the bridge is being developed), (iii) the Shelaidaha Ferry, (iv) the Daulatdia-Paturia ferry, (v) the Shariatpur Ferry, and (vi) the Bhola-Lakshimpur ferry. Of these six points, without the Padma bridge being built, Lalon Shah was found to have the highest criticality score (4.8 percent). This means that 4.8 percent of all freight flows in Bangladesh were estimated to pass through the Lalon Shah Bridge even without improving the Program Corridor (see table III-1). The opening of the Padma bridge was estimated to induce a shift of freight flows to the bridge itself, but this did not lower the criticality of the Lalon Shah Bridge. This is because Padma bridge crowds in freight from the other four ferry points, but not from the Lalon Shah bridge itself. The development of the Program Corridor increased the criticality of the Program Corridor by 0.6 percentage points (even if Padma bridge was completed), again indicating that the Program Corridor's alignment is not competing directly with Padma bridge for freight. Rather it plays a complementary role. It also demonstrates that improving the Program Corridor would substantially benefit the flow of freight in Western Bangladesh.

9. **Criticality analysis was also done for the Program Corridor itself.** For this, the road was divided into 13 road segments. The three most critical segments were found to be the highway between Jashore to Jhenaidah (N7), Humkuria to Hatikumrul (N507), and Kushtia to Lalon Shah Bridge (N704). If there are no floods, then roughly 5 to 6 percent of all freight flows in Bangladesh was estimated to pass through each of these segments. The improvement of the Program Corridor (depicted by a 20 percent reduction in costs) increased the criticality of these road segments by approximately 1 percentage point.³⁹ However, the greatest percentage point increase in criticality from improving the Program Corridor was observed from Dasuria to Bonpara where before Program Corridor only 3 percent of all freight in Bangladesh passed through the section but after improving the segment through the Program the share was estimated to increase to 5 percent; and from Bonpara to Humkuria where it was estimated to increase from 2 percent to 4 percent due to the Program.⁴⁰ The completion of the Padma bridge only marginally altered the criticality of the Program Corridor. This is so because the completion of Padma diverts traffic from the other ferries that operate in the region (as shown in table III-

³⁷ Following the approach identified in: Jenelius, E., & Mattsson, L.-G. (2015). Road network vulnerability analysis: Conceptualization, implementation and application. *Computers, Environment and Urban Systems*, 49, 136-147. doi:10.1016/j.compenvurbsys.2014.02.003.

³⁸ For the former, we average the service level degradation of a user over the entire 53 disruption scenarios. For the latter, we take the results from a disruption scenario that leads to the largest degradation of the service level.

³⁹ This is not surprising as N7 is the shortest path that connects districts in the southwestern region of Bangladesh and districts in the northwestern region of Bangladesh and is especially critical for connecting Choudanga and Meherpur districts.

⁴⁰ This is because these segments provide connectivity to the Jamuna bridge that links the Eastern and Western regions of Bangladesh.



1). In addition, some of the road segments of the Program Corridor serve as the alignment used by trucks going to the Padma and other ferries connecting the southwestern region to the rest of the country.

10. **Overall, the criticality analysis identified the following road segments of the Program Corridor as the most important (as described above): Jashore to Jhenaidah, Dasuria to Hatikumrul, and Kushtia to Lalon Shah Bridge.** As a result, these segments should be built to a higher and more climate resilient standard.

Table III-1: Criticality of the six bridges or ferries that connect the Southwestern region to the rest of Bangladesh

Entry Point	No Program Corridor		With Program Corridor	
	No Padma Bridge	With Padma Bridge	No Padma Bridge	With Padma Bridge
Lalon Shah bridge	4.8%	4.7%	5.5%	5.3%
Padma ferry/Bridge	2.2%	3.6%	2.0%	3.5%
Shelaidaha Ferry	2.6%	1.5%	2.3%	1.2%
Daulatdia-Paturia ferry	0.4%	0.3%	0.3%	0.3%
Shariatpur Ferry	0.3%	0.2%	0.2%	0.1%
Bhola-Lakshimpur ferry	0.1%	0.1%	0.1%	0.1%
Total:	10.4%	10.4%	10.4%	10.4%

C. Vulnerability Analysis

11. **Vulnerability analysis was conducted at the regional level (treating the Western region as a whole), as well as, at the district level.** The regional level analysis aimed at comparing the overall vulnerability of districts in the western region of Bangladesh with the rest of the country. The district level analysis zoomed further into the western region, observing the variability of vulnerability across districts in this region. The median of the average increase in travel cost across 24 districts in western Bangladesh was estimated to be 18.6 percent and there are districts for which the average increase in travel cost increased as high as almost 40 percent, while other districts only experienced an average increase of about 14 percent. However, most districts in the western region were estimated to experience an average increase of about 15-25 percent. While the development of the Program Corridor does not alter the median of the average increase in travel costs, it is estimated to substantially reduces the incidence of extreme average increase in travel costs.

12. **Some of the Program districts were found to be highly vulnerable to flooding risks.** Specifically, for the Program districts the vulnerability in terms of worst-case user exposure (i.e., increase in travel cost) was estimated to be 149 percent for Sirajgonj, 136% for Natore, 137% for Pabna, 128% for Kushtia, 94% for Jhenaidah, 114% for Jashore, 119% for Shatkhira, 97% for Meherpur, 129% for Magura, and 102for Chuadanga⁴¹. As a result, the roads in the districts of Sirajgonj, Natore, Pabna, Kushtia, and Magura in the Program's corridor should be built to a higher and more climate resilient standard, considering the vulnerability of these districts are higher than the average vulnerability of the western region. Additionally, the vulnerability of these districts indicates the need for developing additional secondary and tertiary road segments that can provide redundancy when the more critical roads in these corridors are disrupted.

⁴¹ These values are taken from the BAU infrastructural scenario



ANNEX IV: Project Cost and Financing

ANNEX IV Project Cost and Financing					
	Component/Sub-Component	Total Cost (US\$ m)	IDA Financing US\$ Million		% IDA Financing*
			LGED	RHD	
1	Upgrading National Highway Corridor and enhancing digital connectivity				
1a	Upgrading a section of the Jashore-Jhenaidah national highway (48 km);	311.7	-	311.7	100%
1b	Installation of OFC and deployment of Intelligent Transportation System (ITS) along the Jashore-Jhenaidah national highway.	2.00	-	2.00	100%
1c	Implementation of a Safe Corridor Demonstration Program (SCDP) along the Jashore-Jhenaidah national highway.	0.50	-	0.50	100%
-	Complementary GoB finance*	180.90	-	-	0%
	Sub-Total	495.10**	-	314.2	-
2	Upgrading secondary and tertiary roads and complementary logistics infrastructure and services				
2a	Development and upgrading complementary logistics infrastructure and services	45.00	45.00	-	100%
2b	Upgrading of secondary and tertiary road network serving selected markets	126.00	126.00	-	100%
-	Complementary GoB finance*	76.00	-	-	0%
	Sub-Total	247.00	171.00	-	-
3	Program Implementation Support and Sustainability				
3a	Training and capacity building;	1.50	1.00	0.50	100%
3b	Strategic Environmental and Social Assessment (SESA);	0.50	-	0.50	100%
3c	Establishing a Fiduciary Advisory Consultant Panel;	0.05	-	0.05	100%
3d	Establishing a Road Transport Sector Integration and Coordination Platform (RTSICP) and operationalizing the Road Maintenance Fund Board Act;	0.05	-	0.05	100%
3e	Preparatory Activities for Subsequent Program Phases.	3.50	1.00	2.50	100%
	Complementary GoB finance for VAT and tax*	1.10	-	-	0%
	Sub-Total	6.70	2.00	3.60	-
4	COVID-19 Relief and Recovery				
4a	Provision of jobs through labor intensive civil work	7.80	7.80	-	100%
4b	Development of an Emergency Response Plan for COVID-19	0.40	0.20	0.20	100%
4c	Physical upgrades to ensure business continuity and Safety	1.00	0.50	0.50	100%
-	Complementary GoB finance for VAT and tax	0.20	-	-	0%
	Sub-Total	9.40	8.50	0.70	-
	Total	758.20	181.50	318.50	-
	Grand Total	758.20	500.00		

* For land acquisition, utility shifting, resettlement, Government staff salary, vehicles, fuel, other consumables, office operation and maintenance and expenditures that cannot be financed as per Country Financing Parameters. Special purpose vehicle as part of the SCDP i.e. patrol vehicle, motorbikes, Tow Trucks, Carnes and Ambulances as included in the procurement plan would be financed by the Bank. VAT and taxes for RHD would be financed 100 percent by GoB while for LGED, Bank would finance taxes estimated to be up to 15 percent of Financing.

** Include costs of sub-component 1d



ANNEX V: WeCARE Program MAP

