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TA-8128 BAN (PPTA): Preparing Coastal Towns Infrastructure Improvement Project

DRAFT FINAL REPORT
VOLUME 2: APPENDICES

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Cover Photographs

Latrine, Amtali Pourashava	Damaged outfall flapgate, Galachipa Pourashava
Possible site for boat landing station, Pirojpur Pourashava	Water supply pond, and pond sand filter unit, Mathbaria Pourashava

This report consists of six volumes:

Volume 1	Main Report
Volume 2	**Appendices**
Volume 3	Project Administration Manual
Volume 4	Annex: Climate Change Assessment and Adaptation Strategy
Volume 5	Annex: Infrastructure, Water Resources
Volume 6	Annex: Financial and Economic Analyses

PREPARING COASTAL TOWNS INFRASTRUCTURE IMPROVEMENT PROJECT
PPTA - TA-8128 BAN

DRAFT FINAL REPORT

VOLUME 2: APPENDICES

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GLOSSARY OF BANGLADESHI TERMS

crore	10 million (= 100 lakh)
ghat	boat landing station
hartal	nationwide strike/demonstration called by opposition parties
khal	drainage ditch/canal
khas, khash	belongs to government (e.g. land)
katcha	poor quality, poorly built
lakh, lac	100,000
madrasha	Islamic college
mahalla	community area
mouza	government-recogized land area
parashad	authority (pourashava)
pourashava	municipality
pucca	good quality, well built, solid
thana	police station
upazila	subdistrict

ACRONYMS

ABD	Asian Development Bank
ADP	annual development plan
ADSL	Associates for Development Services
AIFC	average incremental financial cost
AP	affected person (resettlement)
BBS	Bangladesh Bureau of Statistics
BC	bitumous carpeting
BCCRF	Bangladesh Climate Change Resilience Fund
BDT	Bangladesh Taka
bgl	below ground level
BLS	boat landing station
BMD	Bangladesh Meteorological Department
BMDF	Bangladesh Municipal Development Fund
BMGF	Bill and Melinda Gates Foundation
BRAC	Bangladesh Rural Advancement Committee
BRM	Bangladesh Resident Mission (ADB)
BT	bitumen topped (road)
BUET	Bangladesh University of Engineering and Technology
BWDB	Bangladesh Water Development Board
CAG	Comptroller and Auditor General
CAGR	compounded annual growth rate
CARE	An NGO
CBO	community-based organization
CC	city corporation; cement concrete; climate change
CCA	climate change adaptation
CCF	Climate Change Fund
CCR	climate change resilience
CCRIP	Climate Change Resilient Infrastructure Project
CDIA	Cities Development Initiative for Asia
CDMP	Comprehensive Disaster Management Programme
CDTA	capacity development technical assistance
CEIP	Coastal Embankment Improvement Program
CEP	Coastal Embankment Project
CLTS	Community-Led Total Sanitation
CQS	Consultants' Qualification Selection
CTIIP	Coastal Towns Infrastructure Improvement Project

CUIDG	
DANIDA	Danish International Development Agency
DED	detailed engineering design
DEM	digital elevation models
DEWATS	decentralized wastewater treatment system
DFID	Department for International Development (UK)
DFR	draft final report
DM	disaster management
DMC	developing member country
DMF	design and monitoring framework
DP	development partner
DPHE	Department of Public Health Engineering
DPP	development project proforma
DRM	disaster risk management
DRR	disaster risk reduction
DSCR	debt service coverage ratio
DSK	Dushthya Shasthya Kendra (an NGO)
DSP	deep set pump (in tubewell)
DTIDP	District Towns Infrastructure Development Project
DWASA	Dhaka Water Supply and Sanitation Authority
EA	executing agency
EARF	environmental assessment review framework
EIA	environmental impact analysis
EIRR	economic internal rate of return
EMP	environmental management plan
EOCC	economic opportunity cost of capital
EU	European Union
FAPAD	Foreign Aided Project Audit Directorate
FGD	focus group discussion
FMAQ	financial management assessment questionnaire
forex	foreign exchange
FS	feasibility study
FY	fiscal year (1 July – 30 June)
GBM	Ganges-Brahmaputra-Meghna river basin
GCM	General Circulation Model
GHG	greenhouse gas
GHK	GHK Consulting Limited (ICF GHK)
GIS	geographic information system
GIZ	German Society for International Cooperation
GOB	Government of Bangladesh
HBB	herring bone bond (road)
HH	household
IA	implementing agency
ICB	international competitive bidding
IEC	information-education-communication
IEE	initial environmental examination
IIED	International Institute of Economic Development
IOL	inventory of losses
IPCC	International Panel on Climate Change
IPPF	indigenous peoples planning framework
IT	information technology
IUCN	International Union for Conservation of Nature
IWA	International Water Association

JFPR	Japan Fund for Poverty Reduction
JICA	Japan International Cooperation Agency
KfW	German development funding agency
KPI	key performance indicators
LARP	land acquisition and resettlement plan
LBDT	lakh Bangladesh taka (BDT100,000)
LDRRF	local disaster risk reduction fund
LGD	Local Government Division
LGED	Local Government Engineering Department
LGI	local government institution
LOI	letter of intent
LS	lump sum
l/s, lps	liters per second
MAR	managed aquifer recharge
MBDT	million Bangldesh taka
MCA	multi-criteria analysis
MDG	Millennium Development Goals
M&E	monitoring and evaluation
MFF	Multitranche Financing Facility (ADB)
MHRW	Ministry of Housing and Public Works
MIDP	municipal infrastructure development plan
MIS	management information system
MLD	million liters per day
MLGRDC	Ministry of Local Government, Rural Development, and Cooperatives
MODMR	Ministry of Disaster Management and Relief
MOE	Ministry of Education
MOF	Ministry of Finance
MOU	memorandum of understanding
MSP	Municipal Services Project
MTBF	Medium Term Budget Framework
NAPA	National Adaptation Program of Action
NCB	national competitive bidding
NGO	non-government organization
NIRAPAD	Network for Information, Response and Preparedness Activities on Disaster
NPDM	National Plan for Disaster Management
NPV	net present value
NRW	non-revenue water
OCR	Ordinary Capital Resources (ADB)
ODA	official development assistance
OHT	overhead tank
OJT	on-the-job training
O&M	operation and maintenance
PAM	project administration manual (ADB)
PD	project director
PDA	project design advance
PDP	pourashava development plan
PIU	project implementation unit
PMO	project management office
PMU	project management unit
PPCR	Pilot Program for Climate Resilience
PPMS	project performance management system
PPP	public-private partnership
PPTA	project preparatory technical assistance

PRA	participatory rural appraisal
PSF	pond sand filter
PSU	pourashava sanitation unit
PWD	Public Works Department (datum)
QC	quality control
QCBS	Quality- and Cost-Based Selection
QM	quality management
RAJUK	Rajdhani Unnayan Katripakkha
RCC	reinforced cement concrete
RF	resettlement framework
ROW	right of way
R&R	resettlement and rehabilitation
RRP	report and recommendation of the president (ADB)
RSC	rural sanitation center
SCF	Strategic Climate Fund (ADB)
SDP	sector development plan
SEWTPS	socioeconomic and willingness-to-pay survey
SFYP	(Bangladesh) Sixth Five-Year Plan
SIDA	Swedish International Development Agency
SLR	sea level rise
SPA	social poverty assessment
SPCR	Strategic Program for Climate Resilience (GOB, 2010)
SPEC	Special Project Evaluation Committee
SPS	Safeguard Policy Statement (ADB)
SST	sea surface temperature
STWSSSP	Secondary Towns Water Supply and Sanitation Sector Project
SWM	solid waste management
SWOT	strength-weakness-opportunities-threat (analysis)
SWTP	surface water treatment plant
TA	technical assistance
TNA	training needs assessment
TOR	terms of reference
TOT	training-of-trainers
TRM	tidal river management
UDD	Urban Development Directorate, Ministry of Housing and Public Works
UFW	unaccounted-for water
UGIAP	urban governance improvement action plan
UGIIP	Urban Governance Infrastructure Improvement Project
ULB	urban local body
UNDP	United Nations Development Programme
UNFRA	United Nations Food Relief Agency
UN-HABITAT	United Nations agency for human settlements
UNICEF	United Nations Children's Fund
UP	union parashad
UPPRP	Urban Partnerships for Poverty Reduction Project
USAID	United States Agency for International Development
UTIDP	Upazila Towns Infrastructure Development Project
V	variation (contract)
VRC	vulnerability reduction credit (climate change adaptation)
WACC	weighted average cost of capital
WAPDA	Water and Power Development Authority
WARPO	Water Resources Planning Organization
WASH	water, sanitation and hygiene

watsan	water and sanitation
WB	World Bank
WFPF	Water Financing Partnership Facility (Netherlands Trust Fund)
WHO	World Health Organization
WQ	water quality
WRM	water resources management
WS	water supply
WSP	water service provider
WSP-EAP	Water and Sanitation Program – East Asia Pacific
WSS	water supply and sanitation
WSUP	Water and Sanitation for Urban Poor
WTP	willingness-to-pay
WWTP	wastewater treatment plant

LOCATION MAP

★ **Study town**

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APPENDIX 1: FACT SHEET ON DISASTERS AND CLIMATE CHANGE RELATED DAMAGES IN BANGLADESH'S COASTAL TOWNS

1. Introduction

Bangladesh is situated in the northeastern part of the South Asian monsoon region. The geographical setting of the Bangladesh delta means this area is one of the most vulnerable countries in the world to weather related disasters. Bangladesh annually receives on an average 2286 mm of rainfall. The seasonal distribution shows that over 70% of the rainfall occurs in the monsoon season, and the pre-monsoon season gets about 19% of the annual.

The coastal area is vulnerable to both droughts and floods from cyclones, monsoon flooding and severe inundations of tides. Because the climate is changing, with warmer temperatures and higher rainfall, the environmental and social impacts are worsening. Tropical cyclones are the most severe causes of vulnerability, with damages due to cyclone winds and associated storm surges. Past cyclones have wreaked colossal damage to properties and loss of lives. In the November 1970 cyclone the loss of lives exceeded 300,000 people and in 1991 the death toll reached 133,882. By virtue of recent developments in cyclone monitoring and warning systems and the construction of multi-purpose cyclone shelters, the death count has dropped, but the damages and loss of property in recent events has remained severe.

2. Current Climate Change and Vulnerability

Global warming is causing a rise in surface air temperature, an increase in monsoon rainfall and a rise of sea levels which exacerbates the coastal zone's vulnerability in the areas of environment, ecology, agriculture, health, infrastructure, water supply and sanitation. The coastal zone is prone to tropical cyclones. The other coastal disasters are flooding due to monsoon rainfall, extreme tidal flooding and increase of land inundations due to sea level rise. Current climate trends include an increase of temperature of around 0.75 ^{0}C during the past 50 years and rainfall increases of 5-10% per decade.

3. Overview of Coastal Area Hazards and Implications for Disaster Risk Reduction (DRR)/ Disaster Risk Management (DRM)

An assessment of the hazards coastal towns are exposed to is important in order to prioritize DRR/DRM measures. Broadly speaking, flooding and cyclone winds pose the greatest hazards to human life and property, but droughts can significantly impact livelihoods. Other hazards include river erosion, and earthquakes that may cause tsunamis, a particularly devastating form of inundation. The cause of most natural disasters is a combination of rainfall or lack of it, tidal levels, and cyclones. Climate change may exacerbate the hazard level through increased rainfall, sea level rise, and changes in temperature impacting sea surface temperatures and thus the intensity of storms.

Sea level rise. Sea level rise is expected to lead to inundation of valuable agricultural and urban areas causing higher levels of salinity, intrusion far inland which will become hazardous to the environment, human health and agriculture.

Tropical cyclones. During the period 1961-2011, the number of intense tropical cyclones affecting the Bangladesh coast has increased. These cyclones affected different coastal areas as shown in **Table 1**. The category-wise distribution of tropical cyclones during the period 1961-2010 clearly indicates a trend for more intense cyclones is increasing while the regions faces fewer lower intensity cyclones **(Table 2)**.

Table 1: Distribution of Land-falling Cyclones to the Different Regions of the Coast of Bangladesh and Neighborhood Areas (1961-2010)

Ser. No.	Coastal Region	Number of tropical cyclones hit the coast	% of the total number of tropical cyclones
1	Sundarban coast (Satkhira, Khulna and Bagerhat)	15	26
2	Central coast (Borguna, Potuakhali, Pirozpur, Barisal and Bola and Meghna estuary)	13	23
3	East central coast (Noakhali and Chittagong)	15	26
4	Southeastern coast (Southern Chittagong, Cox's Bazar and Teknaf	14	25
	Total	**57**	**100**

Source: PPTA Consultant.

Table 2: Category-wise Distribution of Tropical Cyclones Affecting Bangladesh According to Saffir-Simpson Classification (1961-2010)

Tropical Cyclone Class	1961-1970	1971-1980	1981-1990	1991-2000	2001-2010	Total
Cyclonic Storms Category-0 62-118 km/hr	3	10	4	6	3	26
Category-1 118-153 km/hr	5	1	4	2	1	13
Category-2 154-177 km/hr	3	1	2	0	1	7
Category-3 178-208 km/hr	3	0	0	3	0	6
Category-4 209-251 km/hr	1	0	0	2	1	4
Category-5 Above 252 km/hr	0	0	0	0	1	1
Total	**15**	**12**	**10**	**13**	**7**	**57**

Note: The classification of Atlantic Hurricanes is found more convenient and useful in describing the intensity levels; as such, this classification has been adopted for this study.
Source: PPTA Consultant.

Floods. Bangladesh is considered a land of rivers. The great rivers Ganges and Brahmaputra originate in the glaciers of the Himalayas and traverse thousands of kilometers before entering Bangladesh. Another big river is Meghna-Surma system that originates in the Shillong Plateau in northeastern India. 92% of the catchment areas of the Ganges, Brahmaputra and Meghna (GBM) and their tributaries lie outside Bangladesh and the water generated over 92% of this area flows through the territory of Bangladesh and discharges in the Bay of Bengal.

The variation of monsoon rainfall causes floods in case of excess rainfall in the catchments and droughts when there is a deficit in rainfall. Generally, 26% of the territory is inundated during the normal years; however, 80% of Bangladesh is vulnerable to flooding. Bangladesh has experienced an increased frequency of severe floods in the last 5 decades **(Table 3)**. The floods of 1987, 1988 and 1998 were very severe not only in terms of depth and area of inundation but also in terms of its duration. The duration of the 1998 flood was about 2 months. Along with other reasons, the high sea level in the monsoon of 1998 may be identified as another factor for the longer duration of the floods. The big floods shattered the national economy and peoples' livelihood. The damage included personal and public assets, infrastructures, dwelling houses and crops and affected the overall environment and ecology.

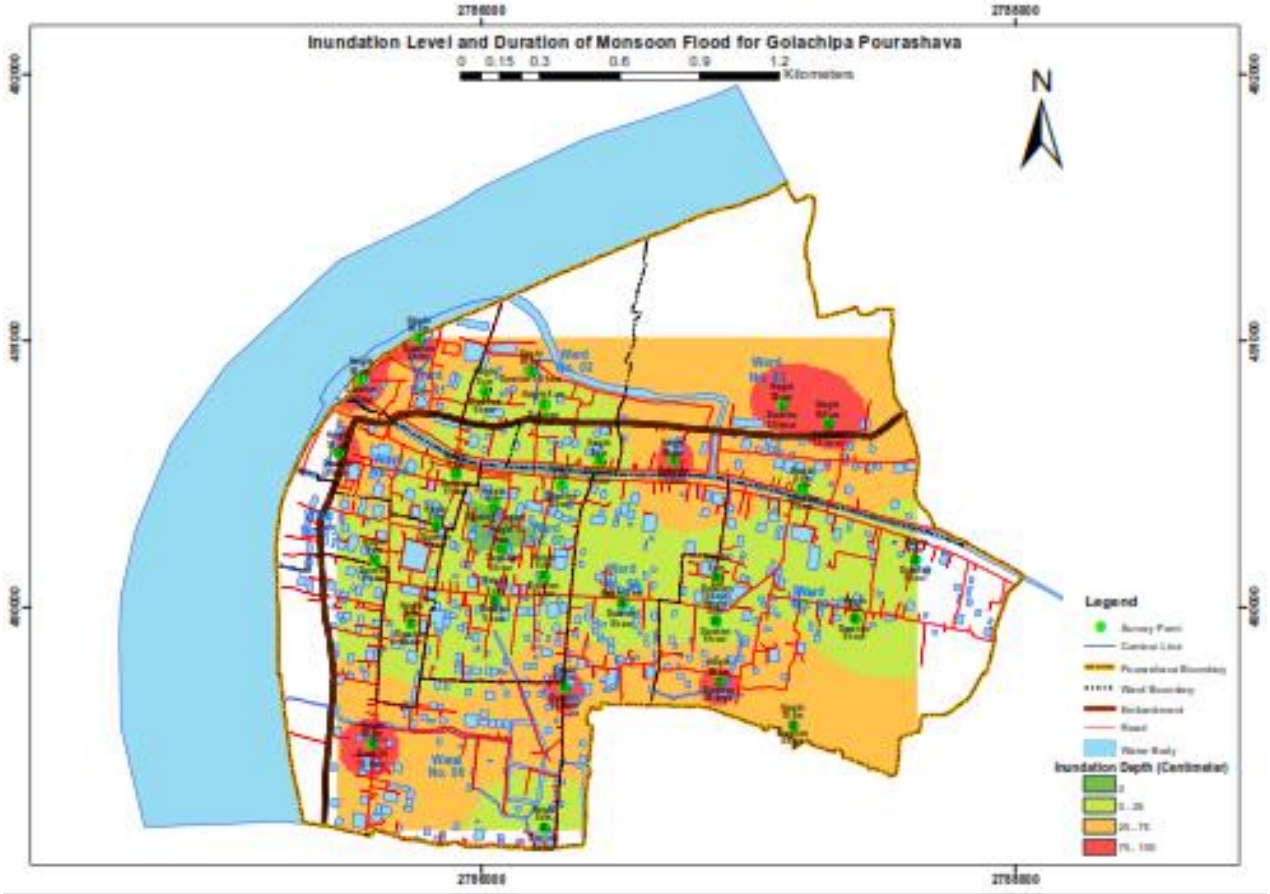
Table 3: Decadal Frequency of Severe Floods (inundation higher than 45,000 km^2) and Severe Droughts

Decade	Frequency of Flood Inundation area > 4,500 km^2	Frequency of Pre-monsoon droughts Rainfall anomaly below 1-SD	Frequency of Monsoon Droughts Rainfall anomaly below 1-SD
1954-1963	1	1	3
1964-1973	0	4	1
1974-1983	1	1	2
1984-1993	2	1	1
1994-2003	1	1	1
2004-2010	2	-	-

Source: PPTA Consultant.

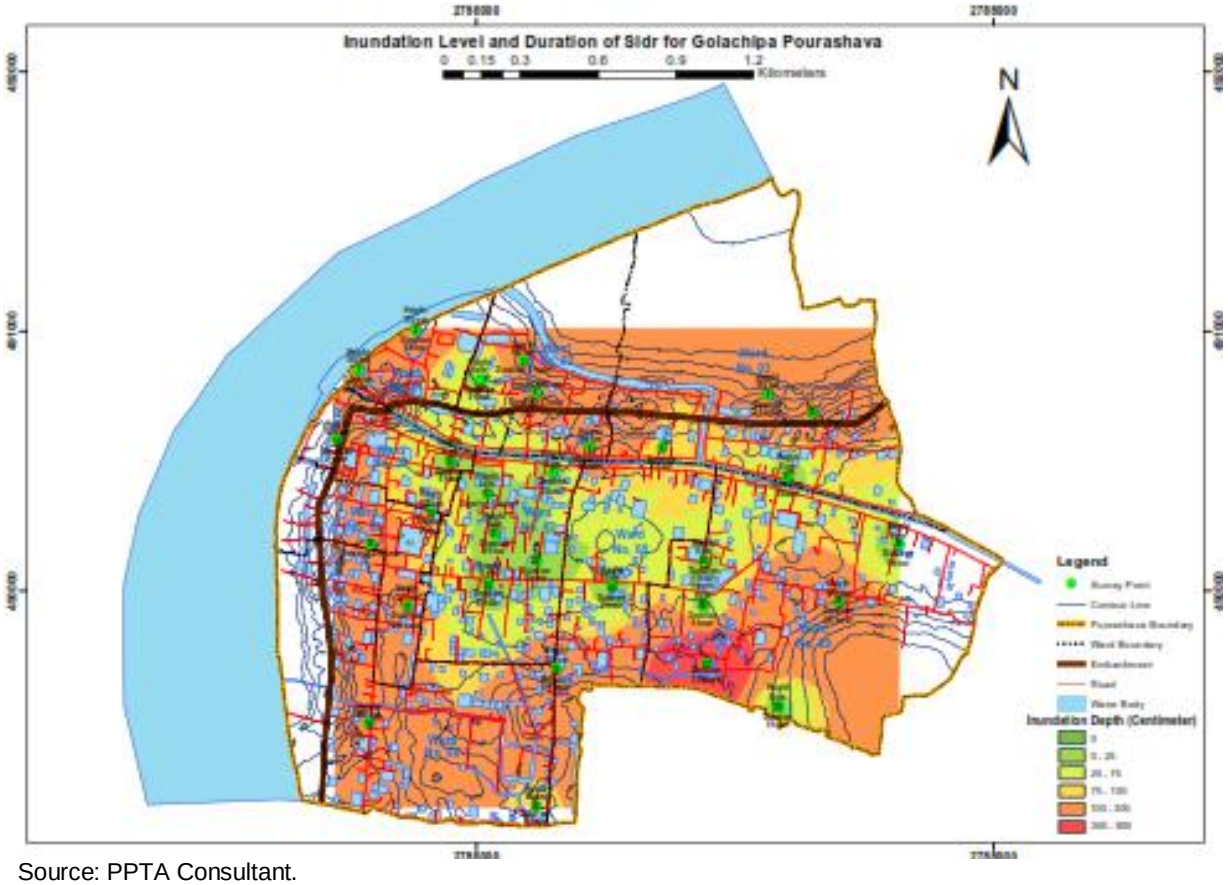
Inundation maps for study towns. The PPTA consulting team has studied the monsoon inundation level and that due to Sidr using the data collected from the field through interviewing people who resides in the locality for long time and experienced Sidr. Since we do not have any monitoring of the flooding over the study towns, these are first hand information that while perhaps not be 100% correct, provides a good view of the situation. The inundation maps of Galachipa for the monsoon in 2012 extreme flooding situation and flooding due to storm surges due to Sidr are shown in **Figures 1 and 2**.

Figure 1: Map of Galachipa Showing Extreme Monsoon Flood Inundation in 2012



Source: PPTA Consultant.

Figure 2: Storm Surge Inundation Map due to Cyclone Sidr for Galachipa Pourashava



Source: PPTA Consultant.

Droughts and heat waves. Droughts are a recurring phenomenon in Bangladesh. A deficit in rainfall for periods of one or more months causes severe droughts. Droughts are more prominent in the pre-monsoon season while monsoon droughts are also common. Table 3 shows the decadal distribution of severe droughts. The severe drought prone areas are located in the central western and south-central-western part of the country, including some western coastal areas. These areas maintain high maximum temperature that occasionally exceeds 40°C in April and May. The droughts affect agriculture, health, surface water, fisheries and the environment. Extensive ground water exploitation has eased the problems to a large extent by meeting the demand for irrigation in the winter and pre-monsoon seasons. The associated phenomenon with droughts is the heat wave characterized by high maximum temperatures predominately in April and May. The heat wave is a silent killer that causes health impacts like heat stroke, dehydration, diarrhoea, and asthmatic and heart problems. It also causes damages to agriculture, water resources and animals. Further analysis could determine if increases in temperature will trigger significant increases in severe heat and drought in the coastal zones.

River erosion. Rivers of Bangladesh are highly dynamic with continuous erosions, but climate change related increases in monsoon season rainfall may exacerbate erosion levels. Hundreds of square kilometers are eroded every year. This makes people homeless and landless and causes extensive suffering to the poor who often find the only land available to them is the marginal land most susceptible to erosion.

Earthquakes and tsunamis with sea level rise. While not climate change induced, earthquakes are highly significant hazards in the northern, central, eastern and southeastern parts Bangladesh. The coastal zone is vulnerable to tsunami originating in or nearby basin of

the Indian Ocean. Climate change impacts the intensity of tsunamis, because of sea level rise.

APPENDIX 2: SUMMARY SECTOR ASSESSMENT - WATER SUPPLY AND OTHER MUNICIPAL INFRASTRUCTURE

Sector Road Map

1. Sector Performance, Problems and Opportunities

Bangladesh has a population of nearly 150.5 million (Census 2011). Whilst the proportion of the population enumerated as urban (19.2%) is modest, Bangladesh is a rapidly urbanizing country, with a projected urban population of over 50% by 2045. Of the total urban population, 60% reside in the four largest cities: Dhaka, Chittagong, Khulna and Rajshahi.

Water supply sector (WSS). Urban water supply is constrained nationally. The urban areas face the biggest challenge in the near future. It is estimated that 95% of the urban population have access to a water supply, of which the coverage by piped water supply is only about 39% and the remaining 32% by handpump tubewell. Thus, a large number of future urban populations will be required to be brought under reliable and safe piped water supply system. Only 30% of households drink tap water and fewer than 20% have their own house connections. Nationally it is estimated there are 7 million tubewells, although the poor often still have no access close to their homes. This supply is compromised through arsenic contamination of wells: an estimated 16% to 25% of all existing wells in Bangladesh are contaminated by arsenic, some seriously. In rural areas an estimated 12 million tubewells have been installed by the Department of Public Health Engineering (DPHE), NGOs and private interests. However arsenic contamination from shallow aquifers remains a significant problem countrywide, with saline intrusion an issue in the coastal area. The present national coverage is about 88%, with the main gap related to arsenic contaminated areas. Situated mainly in a river delta, Bangladesh has exploitable surface water in most parts of the country. For coastal areas, however, river water is often turbid, polluted, and salty, and fluctuates significantly in quantity and quality between wet and dry seasons. In practice groundwater has provided the major source of drinking water and is tapped by shallow and deep wells.

Urban sector. The sector is comprised of numerous sub-sectors, development partners (DP), modalities, and approaches. The performance of the sector has been constrained by a combination of: (i) accelerating, unplanned and uncontrolled urbanization, (ii) severe deficits in urban infrastructure provision and basic service delivery resulting from alarming financial constraints, (iii) planning instruments that are inadequate, lack an implementation-orientation and/or are un-enforced, (iv) a growth in urban poverty and lack of inclusiveness in municipal planning, (v) severe constraints in local government capacity, governance structures and municipal finances, and (vi) weak and fragmented urban sector institutional frameworks at national and local level (including an outdated and inadequate legislative framework). The core opportunities relate to addressing the portfolio of infrastructure deficits (below) and further strengthening of municipal governance and management.

Municipal infrastructure and services

Sanitation. Despite considerable improvements in sanitation coverage**,** urban sanitation coverage and practice remains unsatisfactory. While many households have septic tanks and sanitary latrines, much of the sludge is discharged through open drains into rivers. The use of septic tanks and pit latrines becomes increasingly unsatisfactory as the density of urban development increases, where operation and maintenance is inconvenient and/or impractical, and where older tank design and maintenance are inadequate. In combination this results in wastewater leakage and threatens groundwater contamination, with flows into low-lying areas and open drains without treatment. This situation is exacerbated during periods of high rainfall and flooding posing significant health risks.

Drainage and flood management. Due to its location in the low-lying deltaic floodplains at the convergence of three Himalayan rivers, heavy monsoon rainfall combined with poor drainage often results in periodic flooding. Water logging and drainage congestion are common throughout Bangladesh, exacerbated by a combination of under-design and provision, poor O&M and perennial clogging resulting through inadequate solid waste management systems, open dumping and the unregulated dumping of septic tank fecal sludge. In coastal areas, flood control is achieved through an extensive network of costal polders, with drainage facilitated by 1,347 regulators and 5,932 km of drainage channels.

Solid waste management (SWM). SWM, collection and disposal have not been well managed in Bangladesh. Most urban areas lack comprehensively planned collection systems and suffer from a lack of equipment and resources. Improperly managed dumpsites are normal in most pourashavas. Urban local governments are generally unfamiliar with modern SWM practice (including composting and waste-to-energy) and 3Rs (reduce, recycle and re-use) principles. Hazardous waste such as infectious hospital waste is often handled as domestic municipal waste. The situation is worse in informal housing areas, which rarely have managed collection and disposal systems, such that households often dump their wastes onto open land, watercourses and in the streets. Commercial and industrial operators often illegally dump industrial waste.

Energy. Energy supply is significantly constrained throughout Bangladesh, including the major cities. Power cuts ('brown-outs') are daily, pronounced seasonally with higher temperatures, and are the cause of major urban economic and social disruption. Supplementary generators are used to offset the problem, but these are not affordable or even practical to most residents, and consequently it is the urban poor who are badly affected by the energy constraints.

Urban transport. There is a marked contrast in the characteristics of urban transport between Dhaka, parts of other major cities, and transport in secondary towns. Dhaka is characterized by unsustainable levels of traffic congestion resulting from: (i) rapid motorization and the unrestrained growth and use of private cars, (ii) a weak, under-provisioned, road network, (iii) weak traffic management, (iv) lack of traffic demand management, and (v) negligent development of efficient and effective public transport systems and services. Pedestrian environments are under-provisioned, effectively unregulated, unsafe and very unpleasant. By contrast, transport in secondary towns, whilst also characterized by weak traffic management, poor pedestrian facilities and under-provision in public transport services, is considerably less constrained at present, and does not yet exhibit the rapid growth of private vehicle use and ownership.

Urban poverty. According to the national Household Income and Expenditure Survey (HIES) poverty rates have declined substantially in urban areas since 2005. These falls have contributed disproportionally to the overall national level of poverty reduction that has fallen from 57% in 1991 to 32% in 2010. The comparative figures for urban areas are a reduction in poverty headcount rates (upper poverty line) from 43% in 1991 to 21% in 2010. However, urban poverty remains high. Of the estimated urban population in 2010, 21% were poor according to the upper national poverty line, and there are marked variations between divisions and towns. Of Bangladesh's six administrative divisions, the coastal divisions of Barisal and Khulna record the second and third highest incidence of poverty: 39.4% and 32.1% respectively. Progress in reducing urban poverty levels will likely be compromised by climate change impacts including the exposure of the urban poor settled in areas of high vulnerability areas, and increasing climate induced migration to urban areas.

2. Government's Sector Strategy

Water supply sector. The sector has benefited from significant policy development culminating in sequential sector development plans developed by the Local Governemnt Division. The current 'Sector Development Plan (FY 2011-25) - Water Supply and Sanitation Sector In Bangladesh' (SDP-WSS) provides a strategic framework for planning, implementing, coordinating and monitoring all activities in the WSS sector, with all WSS related national and sectoral policies, strategies and international commitments to be aligned with the SDP. The SDP-WSS sets progressive development targets of water supply and sanitation services during three strategic timeframes (short, medium and long term each of 5 years duration) and treats the rural and urban sub-sectors as distinct. The total level of investment required for moderate service levels and operating efficiencies is BDT 14,655 billion. The Bangladesh Sixth Five-Year Plan (SFYP) (FY 2011-15) reinforces water supply goals through targets for the percentage of population using improved drinking water sources (urban/rural).

Providing access to safe water requires public health engineering that is affordable, accessible and responsive to local communities. Government needs to be able to develop policies and legislation that can provide local government (unions, upazila parishads and WATSAN committees) with the capacity to meet the needs of the users. This requires an understanding of good practice in hydrogeology and geochemistry, with local governments able to manage the decision-making and building and engineering work that will supply the hardware necessary for clean water. To meet WSS challenges reforms are needed to the interrelated area of: (i) institutional and organisational development in service providing agencies (WASAs, DPHE and private operators), and (ii) establishing a regulatory framework.

Urban sector. There is no GOB urban sector plan and this has inevitably resulted in a disjointed and leaderless approach to sector management. The sector is guided through a range of national development policies and strategies with the overall GOB development framework set by the Bangladesh Sixth Five-Year Plan (SFYP) (FY 2011-15). The only attributed 'urban' outcome, indicators and targets recorded by the SFYP is "reduced urban poverty and improved living conditions through better city governance and service improvements" to be measured through: (i) the percentage of city corporations' expenditure raised autonomously, and (ii) the percentage of urban population with regular employment. A National Urban Sector Policy is in draft, but not endorsed. This emphasises the importance of a poverty-centric, multi-dimension and multi-stakeholder approach to sector interventions. The Bangladesh Climate Change Strategy and Action Plan, the main basis for GOB's efforts to combat climate change over a 10-year period, anticipates the challenge of urban climate change adaptation through required infrastructure measures.

There is a wide range of legislation that has a direct and indirect bearing on the sector, though the historical absence of clear, comprehensive and up-to-date law has likely compounded poor urban sector performance. The primary legal framework and mandate for urban local government is set out in the Local Government (City Corporation) Act 2009 and Local Government (Pourashava) Act 2009. A new, comprehensive, Urban and Regional Planning Act has been drafted but not yet passed. In the absence of the enactment planning control (including building and environment) is covered by a number of pieces of legislation the principal of which is the Building Construction Act (1952). The Environment Conservation Act (1995) and regulation and rules arising from it have a bearing on the urban sector. All legislation faces major obstacles in the capacity and willingness of authorities to enforce rules and regulations. Bangladesh urban local government is systemically weak (including the institutional framework, organsational structure and staffing numbers and skill sets).

The GOB budget shows that the revenue expenditure over the 10 years to FY 2011 has

grown at a compound annual growth rate (CAGR) of 14.6%, from BDT227 billion in FY 2002 to BDT771 billion in FY 2011. Capital expenditure through Annual Development Programs (ADP) grew at a CAGR of 10.1% over the same period, from BDT150.5 billion in FY 2002 to BDT358.8 billion in FY 2011. Investment in the urban sector by executing agencies from project aid and GOB funds amounts to BDT 2038 billion (FY 2008 to 2012), with planned investment of BDT 3335.3 billion over the next five years (FY 2013 to 2017).

3. ADB Sector Experience and Assistance Program

Water supply sector. From the mid-2000s GOB policy and SDP-WSS prepared with assistance from DANIDA provided the framework for DP assistance. For the metropolitan cities of (Dhaka, Chittagong and Khulna), an agreement between ADB and the World Bank provided a major boost to the operations of the water supply and sewerage authorities (WASA). An agreement was reached that ADB would fund projects with DWASA in water supply, while the World Bank would concentrate on drainage and sewerage, as well as work in slums, notably improving the water supply. ADB has approved large sector development programs for Dhaka (Dhaka Water Supply Sector Development Program) and Khulna (Khulna Water Supply Project). The World Bank approved the Dhaka Water Supply and Sanitation Project. Other notable DP activity supporting rural water supply, include DFID (Sanitation, Hygiene Education and Water Supply in Bangladesh) and DANIDA (Water Supply and Sanitation Sector Programme Support) supported programs. ADB first supported WSS in secondary towns in 1982. The Secondary Towns Water Supply and Sanitation Sector Project, like the Urban Governance and Infrastructure Improvement Project (UGIIP) 1 and 2 has greater emphasis on governance. The key features are (i) a performance-based approach, (ii) emphasis on tariffs and financial sustainability, (iii) supporting institutional change in pourashavas, and (iv) community management of common infrastructure.

Urban sector. The sector has experienced a steady increase in the level of assistance from ADB and other development partners. Since 2000 there has been increasing efforts to address weaknesses in the investment environment in secondary towns. A core leson from previous project implementation was whilst municipal performance was sufficient to utilise investment funds, it was insufficient to generate sufficient revenues, secure human resources to ensure proper O&M of infrastructure and services or sustain good urban management practices. The Urban Governance and Infrastructure Improvement Project (UGIIP) 1 and 2 have spearheaded these efforts with an emphasis on good governance and incentive based performance systems. A UGIIP innovation was the requirement that town-level and ward-level coordination committees (TLCC and WLCC) be established, a requirement made mandatory under the Local Government (Pourashava) Act (2009), and the requirement to develop a Pourashava Development Plan (PDP). The UGIIP is regarded as a milestone in strengthening the governance and capacity of pourashavas, and the approach has shaped other projects supported by ADB: the Secondary Towns Water Supply and Sanitation Project, the Urban Public and Environmental Health Sector Development Program, and City Region Development Project. Other DPs—the World Bank and JICA—have adopted such approaches in their municipal projects.

The main lessons observed from both sectors are: (i) governance reform is a milestone but the momentum of reform must be sustained, (ii) further improvement in municipal financing (own-source revenue generation) is imperative, (iii*)* local area development plans are critical but need to be implementation-oriented, (iv) performance-based measures are relevant to all municipal support projects and should be adopted as GOB standard practice reflecting that it is now regarded as accepted practice and it has been constructed on a critical mass of experience (involving approximately 80 pourashavas and 6 city corporations), and (v) successfully piloted governance measures provide opportunities for further refinement and application, replication by other DPs and further possibilities for joint cooperation (such as the planned UGIIP-3).

Sector Results Framework (Water Supply and Other Municipal Infrastructure Sector, 2014-2016)

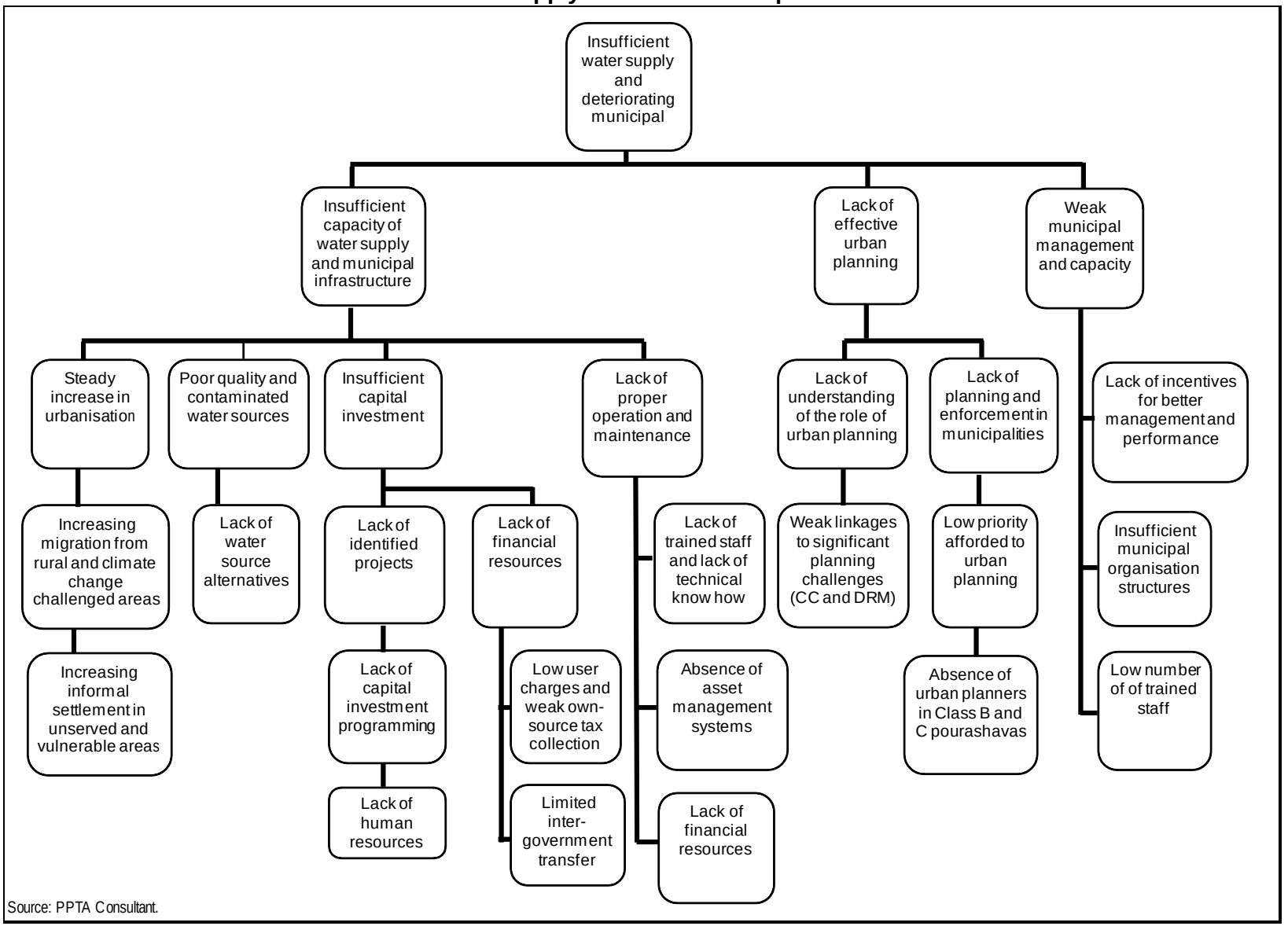
Country Sector Outcomes		Country Sector Outputs		ADB Sector Operations	
Outcomes with ADB Contribution	Indicators with Targets and Baselines	Outputs with ADB Contribution	Indicators with Incremental Targets	Planned and Ongoing ADB Interventions	Main Outputs Expected from ADB Interventions
A. More people having improved water supply and sanitation services	A.1 Urban population using improved drinking water sources. Baseline: 85% (2008). Target: 100% in (2015) A.2 Urban population using improved sanitation facilities increased. Baseline: 55% (2008) Target: 100% (2015)	A. Water supply network and sanitation services expanded, improved and maintained	A.1 Piped water supply systems installed in 148 pourashavas (target148 pourashavas, in 4 phases) A.2 Number of households with improved sanitation facilities increased by 2015	Planned key activity areas Municipal infrastructure (88% of funds) Institutional strengthening and policy reform (12% of funds) Pipeline projects with estimated amounts UGIIP-3 (USD 150 million)	Planned key activity areas Improved municipal infrastructure and services (roads, drains, water supply, sanitation, SWM) Improved governance, municipal capacity, and own-source revenue collection (6 CCs / 47 pourashava)
B. Better access to municipal infrastructure and services in city corporations and pourashavas	B.1 Incidence of serious water logging, Length of road upgraded, urban population using municipal solid waste collection and treatment.	B. Urban environment and municipal infrastructure services expanded, improved and maintained	B.1 6 city corporations and 50 pourashavas with improved urban infrastructure and services through UPEHSDP, CRDP, CTIIP and UGIIP-3 B.2 Disaster warning system Improved in 10 pourashavas (CTIIP)	Ongoing projects with approved amounts CRDP (USD 175 million) STWSSSP (USD 71 million) UGIIP-2 (USD 167.5 million) UPEHSDP (USD 80 million)	PIPELINE PROJECTS Unspecified ONGOING PROJECTS 330 km of rehabilitated water mains / 250km distribution mains replaced / 120 PTW rehabilitated or installed / 47 OHTs rehabilitated or installed / 583 standpipes installed / 900 km / 40 km distribution mains / transmission mains installed /54 km of new drains, 78 km of rehabilitated drains Municipal infrastructure improved UGIAPs and PDPs in 47 pourashavas Six city corporation integrated waste treatment facilities
C. Reduced urban poverty and improved living conditions through better city governance and service improvements	C.1 % of city corporations' expenditure raised autonomously. Baseline: 38.5% (2010) Target: 51% (2015) C.2 % of urban population with regular employment. Baseline: 38.5% (2010) Target: 100% (2015)	C. Municipal government utilizing new and improved urban governance and management systems	C.1 Local government institutions with performance based mechanisms including climate monitoring and evaluation system C.2 Pourashava DRM Plan adopted and Pourashava DRM Committees Active C.3 Community level adaptation financial mechanism In place		

Abbreviations: ADB = Asian Development Bank, CC = City Corporation, CRDP = City Region Development Project, OHT = Over head tank, PDP = Pourashava Development Plan, PTW = Production Tubewell, STWSSP = Secondary Towns Water Supply and Sanitation Sector Project, SWM = Solid Waste Management, UGIAP = Urban Governance Improvement Action Plan - UGIIP = Urban Governance Infrastructure and Improvement Project, UPEHSDP = Urban Public and Environmental Health Sector Development Project, WSS = Water supply and sanitation

Sources: ADB: (2009) 'Urban Sector and Water Supply and Sanitation in Bangladesh: An Exploratory Evaluation of the Programs of ADB and Other Aid Agencies'; (2012) 'Aide memoire of Joint Review Mission for UGIIP-2'; (2010) RRP City Region Development Project; (2010) 'Country Operations Business Plan – Bangladesh 2013-2015'; (2006) 'RRP Secondary Towns Water Supply and Sanitation Sector Project'; (2008) 'RRP Second Urban Governance Infrastructure and Improvement Project (Sector) Project'; (2009) 'RRP Urban Public and Environmental Health Sector Development Project'. GOB (2011) 'Bangladesh Sixth Five-Year Plan: 2011-2015'.

Source: PPTA Consultant.

Problem Tree for Water Supply and Other Municipal Infrastructure Sector



Source: PPTA Consultant.

APPENDIX 3: DEVELOPMENT COORDINATION

1. DEVELOPMENT COORDINATION [URBAN SECTOR]

A. Major Development Partners: Strategic Foci and Key Activities

1. The main urban sector development partners at present are the Asian Development Bank (ADB), the World Bank, the Department for International Development of the United Kingdom (DFID), German financial and technical cooperation through development cooperation through KfW and GIZ respectively, the Japan International Cooperation Agency (JICA), and the United Nations Development Programme (UNDP). **Table 1** records the major development partner projects in the urban sector, categorized by type of investment.

Table 1: Major Development Partners – Urban Sector

Development Partner	Project Name	Duration	Amount (USD million)
	INTEGRATED URBAN DEVELOPMENT		
ADB	Urban Governance and Infrastructure Improvement (Sector) Project 1	2003-2010	60.00
ADB / KfW / GIZ	Urban Governance and Infrastructure Improvement (Sector) Project 2	2008-2014	167.50
ADB / KfW / Sida	City Region Development Project	2011-2016	175.00
ADB	Secondary Towns Infrastructure Development Project I	1990-1996	43.00
	Secondary Towns Infrastructure Development Project II	1995-2003	72.00
CDIA	Khulna Medium Term Infrastructure Investment Plan	2008-2009	Unknown
World Bank	Municipal Services Project	1999-2011	138.60
	Municipal Services Project Additional Financing	2008-2011	25.00
	WATER SUPPLY AND SANITATION		
ADB	Secondary Towns Water Supply and Sanitation Project	2006-2013	71.10
	Strengthening Resilience of Water Sector to Climate Change in Khulna (PATA-42469)	2009-2010	00.60
	Khulna Water Supply Project	2011-2013	75.00
	Dhaka Water Supply Sector Development Program Project	2007-2014	212.70
	Dhaka Water Supply Sector Development Program	2007-2014	50.00
	Second Water Supply and Sanitation Project	1993-2002	43.00
DANIDA	Water Supply and Sanitation Sector Programme Support	2006-2010	12.60
UNICEF / DFID	Sanitation, Hygiene Education and Water Supply in Bangladesh	2007-2011	Unknown
World Bank	Fourth Dhaka Water Supply Project	1996-2002	175.10
	Dhaka Water Supply and Sanitation Project	2008-2017	167.50
	Bangladesh Water Supply Program Project	2004-2010	55.10
	DRAINAGE AND FLOOD PROTECTION		
ADB	Secondary Towns Integrated Flood Protection Project 1	1992-1998	70.00.
	Secondary Towns Integrated Flood Protection Project 2	2006-2010	80.00
	Dhaka Integrated Flood Protection Project	1991-2001	119.80
	Flood Damage Rehabilitation Project	1998-2002	9.00
	Emergency Flood Damage Rehabilitation Project	2005-2007	33.90
	URBAN ENVIRONMENT		
ADB	Urban Public and Environmental Health Sector Development Program	2010-2016	80.00
JICA	Study on Solid Waste Management in Dhaka City 2003-06	2003-2006	Unknown
	Project for Strengthening of Solid Waste Management in Dhaka City, 2007-11	2007-2011	Unknown

Development Partner	Project Name	Duration	Amount (USD million)
	Project for Strengthening of Solid Waste Management in Dhaka City, 2007-14	2007-2014	Unknown
World Bank	Clean Air and Sustainable Environment Project	2009-2014	71.25
	Air Quality Management Project	1997-2000	5.90
	URBAN TRANSPORT		
ADB	Greater Dhaka Sustainable Urban Transport Project	2012-2017	211.00
JICA	Dhaka Urban Transport Network Development Studies (DHUTS)	2009-2010	Unknown
	Dhaka Mass Rapid Transit Development Projects (1)	2012-2024	116.32
World Bank	Dhaka Urban Transport Project	1995-2005	234.00
	URBAN POVERTY		
DFID	Economic Empowerment of the Poorest / Stimulating Households Income for Economic Empowerment	2008-2015	130.00
UN-HABITAT / UNDP	Local Partnerships for Urban Poverty Reduction Project	2000-2007	21.00
DFID (UNDP / UN-HABITAT)	Urban Partnerships for Poverty Reduction Programme	2007-2015	120.00
UNICEF	Environmental Sanitation, Hygiene and Water Supply Project in Slum Areas	1997-2005	02.40
	Urban Basic Services Project	1995-2000	
	Support for Basic Services in Urban Areas Project	2001-2006	
	URBAN HEALTH		
ADB / UNFPA	Urban Primary Health Care Project	1997-2005	60.00
ADB / DFID / Sida / UNFPA	Second Urban Primary Health Care Project	2005-2012	90.00
	DISASTER RISK MANAGEMENT		
ADB	Emergency Disaster Rehabilitation Sector Project	2008-2010	20.90
UNDP (DFID, EU, Sida)	Comprehensive Disaster Management Programme	2003-2009	26.50
	Comprehensive Disaster Management Programme II	2010-2014	51.00
	URBAN MANAGEMENT		
World Bank	Local Governance Support Project	2007-2011	111.50

ADB = Asian Development Bank, DFID = Department for International Development, GIZ = German Technical Cooperation, JICA = Japan International Cooperation Agency; KfW = Kreditanstalt fur Wiederaufbau, Sida = Swedish International Development Agency, UNDP = United Nations Development Programme, UNFPA = United Nations Population Fund, UNICEF = United Nations Children Fund

Source: Consultant's reports and notes; ADB (2009) 'Urban Sector and Water Supply and Sanitation in Bangladesh: An Exploratory Evaluation of the Programs of ADB and Other Aid Agencies' BAN 2009-02, prepared by the Independent Evaluation Department, July 2009.

2. ADB is a major development partner in the sector with a large portfolio covering integrated urban development, water supply and sanitation, and urban environment. ADB's Urban Governance and Infrastructure Improvement (Sector) Project (UGIIP) introduced performance-based allocation of investment funds, which has proved an effective mechanism, and important step forward, in strengthening municipal management and governance. GTZ and Kreditanstalt fur Wiederaufbau (KfW) joined the program to expand UGIIP, resulting in the second UGIIP phase. Performance-based systems have been extended to the Urban Public and Environmental Health Sector Development Program and the City Region Development Project (CRDP). CRDP is being implemented in partnership with KfW.

3. The World Bank is another major development partner in the sector, covering integrated urban development, water supply and sanitation, urban transport, and urban environment. Its Municipal Services Project (MSP) has sought to improve institutional performance of municipalities, though it does not adopt performance-based allocation. UGIIP and MSP have created complementary capacity development support facilities in the Local

Government Engineering Department: respectively the Urban Management Support Unit and Municipal Supports Unit.

4. Other development partners support specific areas. UNDP and DFID have provided substantial support for the reduction of urban poverty with the aim to improve livelihoods and living conditions of the urban poor. JICA has been supporting solid-waste management in Dhaka and conducting a feasibility study for Dhaka's urban transport. Danida concentrates on water supply and sanitation in Dhaka.

B. Institutional Arrangements and Processes for Development Coordination

5. The Economic Relations Division of the Ministry of Finance is in charge of overall coordination of assistance. The Bangladesh Joint Cooperation Strategy (JCS) 2010–2015 was signed in June 2010.[1] In support of the JCS, regular dialogues covering sectors or themes are held with local consultative groups (LCGs). In each sector, LCG working groups contribute to effective and coordinated implementation of national policies, strategies, plans, and programs. The urban-sector LCG is currently co-chaired by the secretary of the Local Government Division and UNDP, while ADB, JICA, the World Bank, and other United Nations agencies are core members.

C. Achievements and Issues

6**.** The JCS covers all development partners and shows the intention of the Government of Bangladesh and the development partners to work together in the spirit of the Paris Declaration and the Accra Agenda for Action. The JCS engenders harmonized and streamlined programs in support of Bangladesh's development plans and strategies by providing a common platform for partnership between all development actors. The LCGs and their working groups are well- established bodies that meet regularly and have proven to be a successful platform for sector dialogue and coordination.

D. Summary and Recommendations

7. It is recommended that the urban-sector LCG remain fully operational and be used as a mechanism for coordinating work in the sector and promoting harmonization and alignment of activities. The urban-sector LCG can promote further harmonization and integration of development cooperation, through partnerships such as co-financing as under UGIIP-2 and CRDP.

[1] Development partner signatories were ADB, Australia, Canada, Denmark, European Union, Germany, the Islamic Development Bank, Japan, the Republic of Korea, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, the United Nations, the United States, and the World Bank.

2. DEVELOPMENT COORDINATION (WATER SUPPLY AND SANITATION)

A. Major Development Partners: Strategic Foci and Key Activities

1. The main water supply and sanitation sector development partners at present are the Asian Development Bank (ADB) and the World Bank. Past major contributors to the sector include the Department of International Development, DANIDA, The Netherlands, UNICEF and Japan International Cooperation Agency (JICA). From the mid-2000s Government of Bangladesh policy and Water Supply and Sanitation Sector Development Plans were prepared with assistance from DANIDA provided the framework for external assistance.[2] **Table 2** shows the major development partner projects (past and current) in both the rural and urban sector.

Table 2: Major Development Partners – Water Supply and Sanitation Sector

Development Partner	Project Name	Duration	Amount (USD million)
ADB	Second Water Supply and Sanitation Project	1993-2002	43.00
	Secondary Towns Water Supply and Sanitation Project	2006-2013	71.10
	Khulna Water Supply Project	2011-2013	75.00
	Dhaka Water Supply Sector Development Program Project	2007-2014	212.70
	Dhaka Water Supply Sector Development Program	2007-2014	50.00
	Khilkhet Water Treatment Plant Project	2013-Unk.	185.00
	Participatory Small-Scale Water Resources Sector Project	2009-2017	55.00
DANIDA	Water Supply, Sanitation, Drainage and Waste Management Project at Pourashava, Thana and Growth Center	1996-2005	30.50
	Rural Water Supply and Sanitation Project at the Coastal Belt	1999-2005	16.90
	Water Supply and Sanitation Sector Programme Support Phase II	2006-2010	Unknown
	Sector Policy Support of the WSS Project	2006-2010	2.90
	Saidabad II Water Treatment Plant (Phase II) Feasibility Studies	2008-2011	1.00
DFID	Rural Hygiene Sanitation and Water Supply Project	2000-2005	27.00
	Sanitation, Hygiene Education and Water Supply in Bangladesh (UNICEF)	2007-2011	50.00
	WaterAid: Advancing Sustainable Environmental Health	2003-2009	17.5
European Commission	Ensuring Water and Sanitation Facilities towards Disaster Risk Reduction	2011-2014	0.73
Government of Japan	Ground Water Investigation and Development of Deep Ground Water Source in Urban and Rural Areas	2013-2019	8.00
IDA	Water Supply Facilities in the Coastal Belt (First Phase)	1998-Unk.	8.13
	Water Supply Facilities in the Coastal Belt (Second Phase)	2004-Unk.	7.64
Italy	Chittagong Water Supply Project Modunaghat	2000-2006	16.50
JICA	Study on Groundwater Development in Deep Aquifers for Safe Drinking	Unknown	Unknown
	Water Supply to Arsenic Affected Areas in Western Bangladesh	1999-2001	3.80
	Feasibility Study on the Extension and Expansion of Mohara Water Treatment Plant in Chittagong	2000-2001	Unknown
	Establishment of DPHE Central Laboratory for Strengthening Water Supply Examination System	2004-2006	4.20
	Integrated Approach for Mitigation of the Arsenic Contamination of Drinking Water in Bangladesh	2001-2002	Unknown
	Sustainable Arsenic Mitigation Under Integrated Local Governemnt System in Jessore	2005-2008	1.90
	Mitigation of Arsenic Contamination (through UNICEF)	2002-Unk	2.00
The Netherlands	18 District Town Water Supply Project	1998-2003	17.00

[2] Sector Development Plan (FY 2011-25) – Water Supply and Sanitation Sector in Bangladesh (November 2011).

Development Partner	Project Name	Duration	Amount (USD million)
	BRAC/Water, Sanitation and Hygiene (WASH) Programme	2006-2010	71.00
UNICEF	Social Mobilisation for Sanitation, Environmental Sanitation, Hygiene	1993-1998	2.85
	Water Supply in Rural Areas of Bangladesh	1996-2005	20.06
	Environmental Sanitation, Hygiene and Water Supply Project in Slum Areas	1997-2005	2.42
	WS Rehabilitation Project for the Flood Affected People in 2004	2005-2006	5.86
World Bank	Bangladesh Arsenic Mitigation Water Supply Project	1998-2006	44.40
	Social Investment Program Project	Unknown	Unknown
	Fourth Dhaka Water Supply Project (with France)	1996-2002	175.10
	Bangladesh Water Supply Program Project	2004-2010	55.10
	Dhaka Water Supply and Sanitation Project	2008-2017	167.50
	Water Management Improvement Project	2007-2015	102.26

ADB = Asian Development Bank, DFID = Department for International Development, IDA = Islamic Development Bank, JICA = Japan International Cooperation Agency, UNICEF = United Nations Children Fund

Source: Consultant's reports and notes; ADB (2009) 'Urban Sector and Water Supply and Sanitation in Bangladesh: An Exploratory Evaluation of the Programs of ADB and Other Aid Agencies' BAN 2009-02, prepared by the Independent Evaluation Department, July 2009.

2. For the big cities of Dhaka and Chittagong, an agreement between the major development partners (ADB and the World Bank) in 2007, provided a major boost to the operations of the water supply and sewerage authorities (WASA). ADB subsequently funded projects in Dhaka and Khulna water supply, with the World Bank focusing on drainage and sewerage). Historically, other major players were the Netherlands, until the early 2000s, and the DANIDA. DANIDA started in 1997 with a DPHE-DANIDA Urban Water Supply and Sanitation Component in its overall WSS program. It implemented water supply and sanitation activities in 53 urban centers in five southern districts.

3. For secondary towns, development partner assistance dates to 1982 with the ADB District Towns Water Supply Project. Subsequent phased water supply and sanitation projects were commenced in 1993 and 2002. A third intervention, the Secondary Towns Water Supply and Sanitation Sector Project was approved late 2006. More complex than its predecessors, like UGIIP-1 and 2 (Development Coordination [Urban Sector])) it has more emphasis on governance through a performance-based approach and an emphasis on tariffs and financial sustainability. The World Bank had no dedicated WSS projects in pourashavas.

4. Water supply for rural areas has generally been combined with sanitation. Since 2000 the World Bank and DFID have undertaken rural water supply and sanitation projects. The World Bank had the Bangladesh Arsenic Mitigation Water Supply Project and its follow-up intervention, the Social Investment Program Project (SIPP), and the Bangladesh Water Supply Program Project which focused on arsenic mitigation and private sector participation in rural water supply. DFID has had similar-sized support to WSS through its co-funding of the Rural Hygiene, Sanitation and Water Supply Project in 37 upazilas, the Advancing Sustainable Environmental Health project in both urban and rural areas, and Sanitation, Hygiene Education and Water Supply in Bangladesh program, which focused on rural sanitation. The Chars Livelihoods Program funded by DFID includes the provision of WSS facilities (shallow tubewells, sanitary latrines) to households living on temporary islands in the Jamuna River. DANIDA has had a suite of projects under a Water and Sanitation Sector Program covering infrastructure, policy reform as well as capacity development. The Hygiene, Sanitation and Water Supply project created a Local Government Support Unit in WSS to help 200 of the 4,800 rural union parishads. The Water and Sanitation and Hygiene Program funded by the Government of the Netherlands supported the achievement of

sanitation targets through sanitation coverage in 150 rural upazilas. Water Aid is implementing a climate change adaptation project focusing on safe water, sanitation and hygiene promotion in coastal districts (Assaasuni Upazilla, Satkhira, 2011-14) and a 'Climate Change Adaptation for Water, Sanitation and Hygiene (2010-13) project.

B. Institutional Arrangements and Processes for Development Coordination

5. The Economic Relations Division of the Ministry of Finance is in charge of overall coordination of assistance. The Bangladesh Joint Cooperation Strategy (JCS 2010–2015 was signed in June 2010.[3] In support of the JCS, regular discussions covering sectors or themes are held with local consultative groups (LCGs). In each sector, LCG working groups contribute to effective and coordinated implementation of national policies, strategies, plans, and programs. The LCG Working Group on Water Supply and Sanitation (WSS-LCG) provides for an interactive and broad communication and information sharing mechanism for over 60 governments, non-government, sector support organizations and all development partners active in the water supply and sanitation sector. It is co-chaired by the Local Government Division and World Bank.

C. Achievements and Issues

6. The JCS covers all development partners and shows the intention of the Government of Bangladesh and the development partners to work together in the spirit of the Paris Declaration and the Accra Agenda for Action. The JCS engenders harmonized and streamlined programs in support of Bangladesh's development plans and strategies by providing a common platform for partnership between all development actors. The LCGs and their working groups are well-established bodies that meet regularly and have proven to be a successful platform for sector dialogue and coordination.

D. Summary and Recommendations

7. It is recommended that the WSS-LCG remains fully operational and be used as a mechanism for coordinating work in the sector and promoting harmonization and alignment of activities. The WSS-LCG 2013 strategic priorities are focused on coordinated monitoring and coordinated action including support for the implementation of the GOB Sector Development Plan.

[3] Development partner signatories were ADB, Australia, Canada, Denmark, European Union, Germany, the Islamic Development Bank, Japan, the Republic of Korea, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, the United Nations, the United States, and the World Bank

APPENDIX 4: CLIMATE CHANGE ASSESSMENT AND ADAPTATION STRATEGY

I. CLIMATE CHANGE

A. Introduction

1. The Coastal Town Infrastructure Improvement Project (CTIIP) will implement the construction of improved basic needs infrastructure in priority towns. Project designs aim to mitigate the effects of disasters caused by natural hazards and climate change. Climate change adaptation will focus primarily on water supply, sanitation and drainage infrastructure, though climate change adaptation will be considered for all project components to the extent possible.

2. The project is included in the Government of Bangladesh's Strategic Program for Climate Resilience (SPCR), prepared under the Pilot Program for Climate Resilience (PPCR). The PPCR is a program under the Strategic Climate Funds (SCF) within the Climate Investment Funds, to pilot and demonstrate ways to mainstream climate resilience in development planning and management. The climate change assessment has been conducted while doing the due diligence for the project for inclusion under SPCR. The project preparatory technical assistance (PPTA) validated the climate assessment and developed an adaptation strategy.

3. There is a general agreement on the broad premise that climate change will occur, and that it will involve a rise in sea level, increased wet season rainfall; and increased temperature. It is impossible to "predict" future climate change, as this change is dependent on global greenhouse gas emissions trends that cannot be known with certainty. Additionally, even if there was certainty in the emissions trends, the science of climate change is limited in the certainty it can provide for different climate variables like temperature and rainfall. As such, it is important to perform project level risk assessments based on uncertainties for the climate outcomes, and determine what is the likely range of possible outcomes for climate, and what this means for project investments.

4. The Coastal Towns Infrastructure Improvement Project (CTIIP) is a mainstream urban sector investment project. Effectively mainstreaming climate change into this project is the challenge of the climate change assessment and adaptation strategy. Ayers et al (2013) provide this definition:

> Mainstreaming of climate change into development and/or development cooperation is the process by which development policies, programmes and projects are (re)designed and (re)organized, and evaluated from the perspective of climate change mitigation and adaptation. It means assessing how they impact on the vulnerability of people (especially the poorest) and the sustainability of development pathways—and taking responsibility to readdress them if necessary. Mainstreaming implies involving all social actors—governments, civil society, industry, and local communities—into the process. Mainstreaming calls for changes in policy as far upstream as possible.[4]

5. "Mainstreaming" climate "is seen as making more sustainable, effective and efficient use of resources than designing and managing policies separately from

[4] Ayers, J.M, et al, 2013. "Mainstreaming climate change adaptation into development: A Case study of Bangladesh," Wiley Interdisciplinary Reviews - Climate Change.

ongoing activities. In theory, mainstreaming should create 'no regrets' opportunities for achieving development that is resilient to current and future climate impacts for the most vulnerable groups, and avoid potential tradeoffs between adaptation and development strategies that could result in mal-adaptation in the future."[5] There are two approaches to mainstreaming:

- A technological approach ("climate proofing, or "mainstreaming minimum", ensuring that projections of climate change impacts are considered in decisions about climate investments); and,
- A vulnerability-based view, where, in addition to climate-proofing, development is deliberately aimed at reducing vulnerability, including "creating an enabling environment by removing existing financial, legal, institutional, and knowledge barriers to adaptation and strengthening the capacity of people and organizations to adapt."[6]

6. Ayers, et al argue for the second approach as superior because it addresses the "adaptation deficit" that needs to be overcome before people can adapt to future climate changes.

7. The strategy for CTIIP is a hybrid of the technological and the vulnerability-based approach to mainstreaming climate change into development activities. While CTIIP acknowledges that vulnerability-based mainstreaming is more robust, it also accepts that this is an aspiration that, owing to institutional constraints, limitations on potential to eliminate all existing financial, legal, and institutional barriers, will only be partially met.

8. However, the strategy for CTIIP is ambitious considering these constraints, and will, in addition to "climate proofing" the infrastructure investments, address these systemic barriers whenever possible, and take as the primary metric "human climate vulnerability", rather than simply assessing investments against climate impact avoidance.

9. This document aims to outline the climate changes facing CTIIP towns, how they change the vulnerabilities of the towns and their infrastructure. It then details the particular vulnerabilities of CTIIP infrastructure, and outlines options for making it climate resilient. It concludes by presenting CTIIP's proposed design adaptations for each sector (water, drainage, etc.), including non-structural interventions, both specific to particular sub-projects, and community wide tools and capacity building measures.

[5] Ibid.

[6] Klein, R.T.J., 2010. Mainstreaming Climate Adaptation into Development: A Policy Dilemma. In Ansohn, A.,
and Pleskovic, B. *Climate Governance and Development.* The World Bank.

B. Definitions

10. The following working definitions are used concerning climate change, and it impacts:[7]

- Climate Resilience: The capacity of a system, structure or entity potentially exposed to climate hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure.
- Climate Proofing: The process of identifying risks to a development project, or any other specified natural or human asset, as a consequence of climate variability and change, and ensuring that those risks are reduced to acceptable levels through long-lasting and environmentally sound, economically viable, and socially acceptable changes implemented at one or more of the following stages in the project cycle: planning, design, construction, operation, and decommissioning.
- Climate Vulnerability: Variations in climatic conditions (average, extreme events, etc.) on time and space scales beyond that of individual weather events, but not persisting for extended periods of, typically, decades or longer (i.e., shorter term). Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability).
- Adaptation (to climate variability and change): Policies, actions, and other initiatives designed to limit the potential adverse impacts arising from climate variability and change (including extreme events), and exploit any positive consequences
- Climatic Impact: The effects that climate change and/or climate variability may have on people, their livelihoods, physical structures and their environment.

C. Current Climate, Climate Trends, and Future Climate Scenarios

1. General Climate of Bangladesh

11. Bangladesh is situated in the heart of the South Asian monsoon region. With the Bay of Bengal and vast Indian Ocean to the south of Bangladesh and huge mountain ranges— Himalayan Mountains and Arakan ranges to the north and east respectively—the country receives very high annual rainfall, about 70-75% of which is concentrated during the monsoon season (June-September). There are four climatic seasons in Bangladesh:

Winter	December-January
Pre-monsoon	March-May
Monsoon	June-September
Post-monsoon	October-November

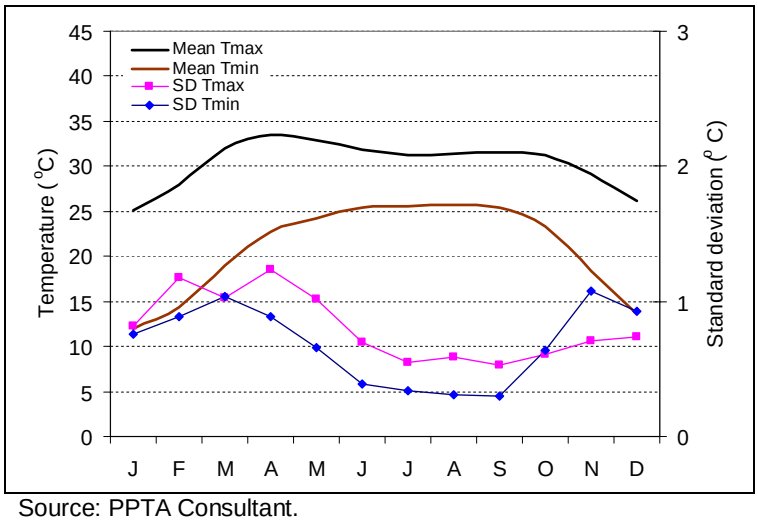
12. The climatology of annual distribution of country-average monthly minimum and maximum temperature is shown on **Figure I.1**. The figure shows high values of maximum temperature from March-October with peak in April (33.5 ^{0}C) and a

[7] Definitions (and broad structure of this document) are taken from ADB, Coastal Climate-Resilient Infrastructure Project - CCRIP (RRP BAN 45084), CLIMATE CHANGE ASSESSMENT AND ADAPTATION STRATEGY, 2012.

secondary peak in September (31.6 ^{0}C). The lowest minimum temperature is obtained in January (12.5 ^{0}C). **Figure I.2** shows the annual pattern of monthly rainfall. This shows that very high rainfall occurs in the monsoon season, 46 times greater than in the winter season.

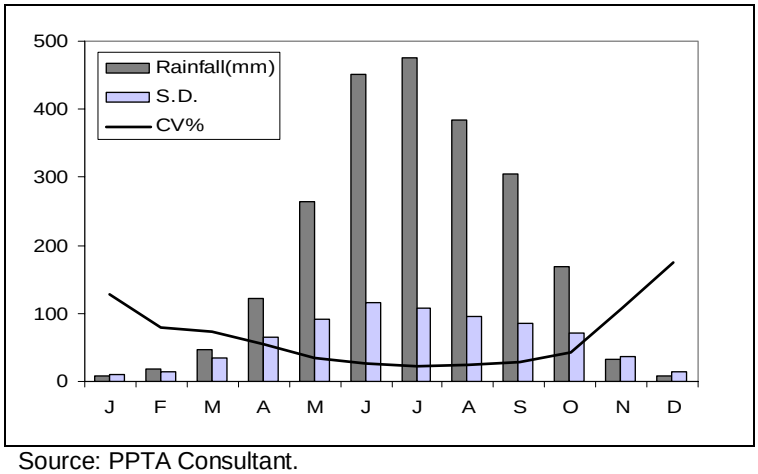
13. Bangladesh annually receives on an average 2286 mm of rainfall, with standard deviation of 286 mm. The seasonal distribution shows that most of the rainfall occurs in the monsoon season amounting to 1616 mm /year which is 70.7% of the annual rainfall. The pre-monsoon season get about 19% of the annual rainfall. The post-monsoon season occupies 9% of the annual rainfall. The winter is relatively dry and receives about 1.5% of the annual rainfall.

Figure I.1: The Climatology of Annual Distribution of Country Average Minimum and Maximum Temperature



Source: PPTA Consultant.

Figure I.2: Annual Distribution of the Climatology of Country Mean Rainfall Based on 1948-2004 Data

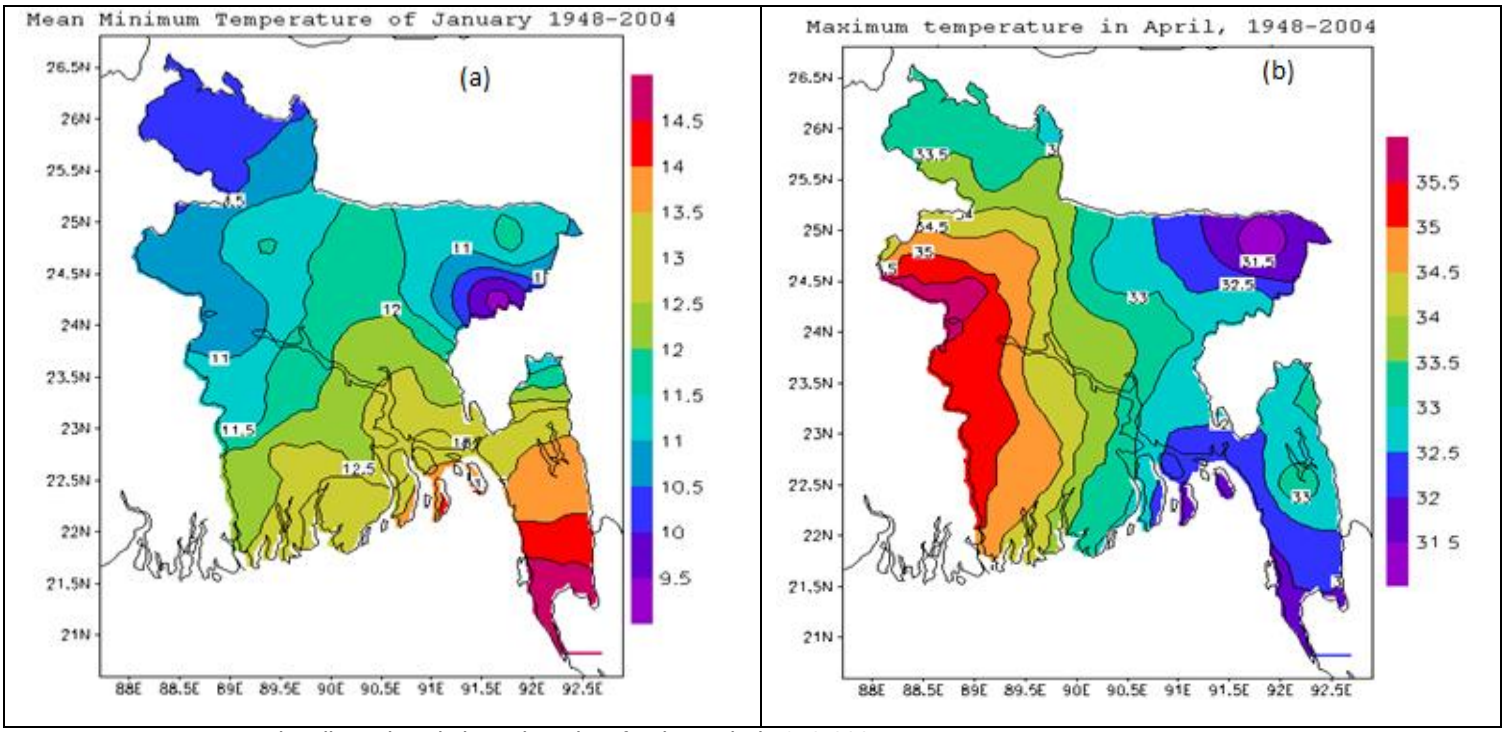


Source: PPTA Consultant.

14. The geographical distribution of minimum temperature of January and maximum temperature of April has been shown in **Figure I.3(a,b)** respectively. The figure of January minimum temperature [Figure-I.3 (a)] shows that winter has relatively low minimum temperature in the northern part of the country and warm temperature in the south-southeastern part. The summer maximum temperature shows that the western and southwestern Bangladesh is warm while the northeastern part is relatively cooler [Figure I.3 (b)].

15. The geographical variation of annual rainfall is shown on **Figure I.4 (a,b)** for the monsoon season and annual respectively. It reveals from the figures that the highest amount of rainfall is obtained in the north-eastern and south-eastern part of Bangladesh amounting to around 2000-2800 in the monsoon season and 3000-4000 mm for the annual. Relatively low rainfall is obtained in central-western Bangladesh which is oriented in the north–south direction. The low rainfall area bulges towards central Bangladesh. The distribution pattern is more or less similar for both annual and monsoon. The geographic distribution of annual rainfall shows that the coastal zone experiences around 2000-3500 mm of rainfall, but it is relatively higher over the southeastern coastal zone and gradually decreases towards the west. Over the areas containing the study towns the annual rainfall is around 2400-3000 mm. The deficit and excess rainfall from normal becomes critical causing droughts and floods.

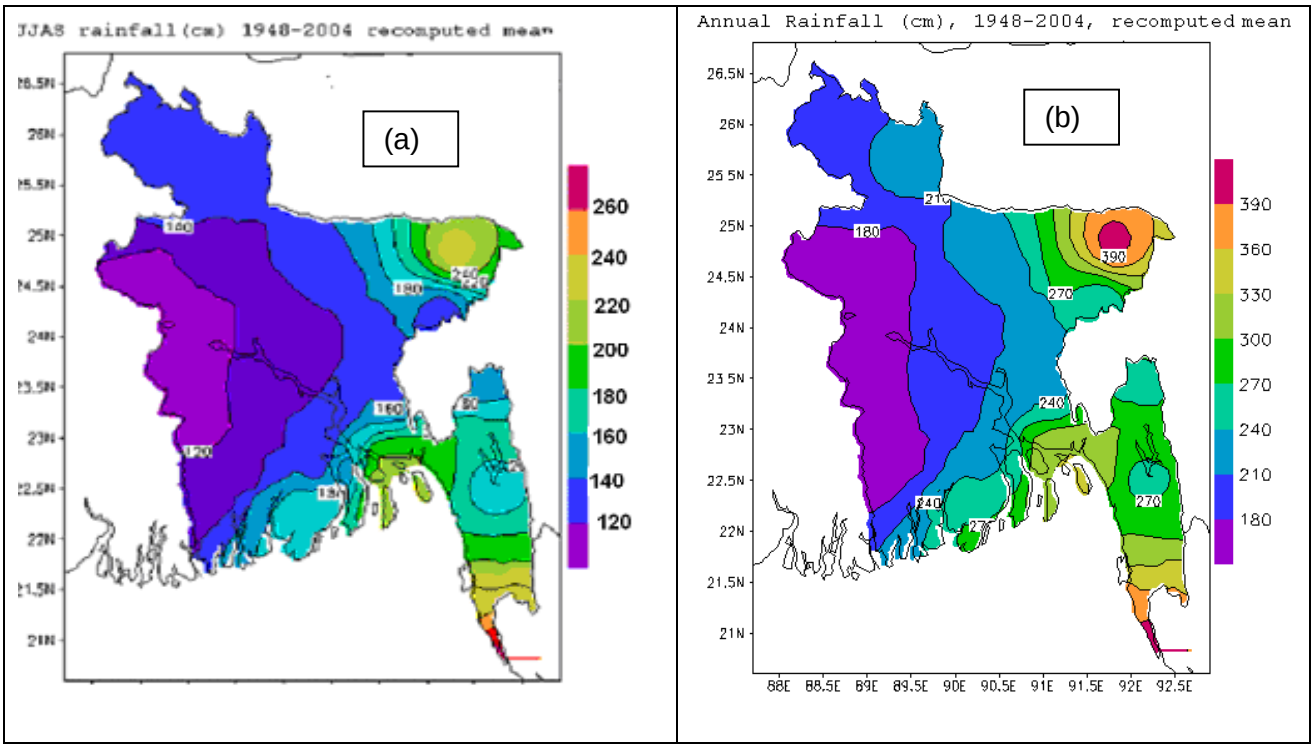
Figure I.3(a): The Geographical Distribution of Minimum Temperature of January (a) and of Maximum Temperature of April



Note: The climatology is based on data for the period 1948-2004.
Source: PPTA Consultant.

Figure I.4 (a,b): Distribution of Monsoon Rainfall (a), and Annual Rainfall (b)

cm



Source: PPTA Consultant.

16. The monsoon depressions, tropical cyclones, and meso-scale heavy rainfall associated with thunderstorms and tornadoes are common disaster events in Bangladesh. The local high intensity rainfall causes flash floods, water-logging, and landslides impacting health, livelihood, resources and environment. The depressions and tropical cyclones form over the Bay of Bengal, move to inland and produce high rainfall. Tropical cyclones are the cause of death for hundreds of thousands of people and animals, and damage to infrastructure, the environment, resources, and livelihoods. The months April-May and October-December are considered the tropical cyclone seasons.

17. The low-lying coastal zone of Bangladesh is highly vulnerable both to the floods at extreme tides during strong monsoon activities, and from tropical cyclones. A total of 58 tropical cyclones have impacted Bangladesh during the period 1961-2010 based on analysis in Quadir and Iqbal (2008) and updated data obtained from the JTWC site. The tropical cyclones have a horizontal dimension of about 1,000-1,500 km. As a result the selected study area experiences impacts from the tropical cyclones that hit the west Bengal coast adjacent to Bangladesh border up to Chittagong and its nearby areas depending on the intensity of the cyclones. From the above data analysis, around 49% of the tropical cyclones.

18. All together 20 tropical cyclones hit Bangladesh during the period of 1991-2010. Among them the cyclone of April 29 1991 that hit the coast of Noakhali-Chittagon was category-4 in intensity. About 134,000 people lost their lives due to the strong winds (250 km/hr) causing high storm surges (8 meters). The cyclone Sidr which hit the Patuakhali-Borguna coast reached category-5 intensity with maximum wind speeds of 254 km / hr and is the strongest tropical cyclone of the century.

19. The PPTA team has shown that the frequency of cyclone categories 1 and 2 has decreased from 1991 to 2010, while the frequency of categories 4 and 5 has increased. Before 1991 there was no category-5 cyclone in Bangladesh. Thus the tropical cyclone and storm surge hazard has grown in Bangladesh. The study indicates that Bangladesh on average gets 1.14 tropical cyclones per year. The study also shows that the low intensity tropical cyclone is decreasing, with simultaneous increase of the category 3-4 cyclones. **Table I.1** shows the probability of tropical cyclone occurrence in Bangladesh.

Table I.1: Probability of Different Categories of Cyclones affecting Bangladesh (1961-2010)

Intensity Level	Probability/decade	Probability/year
Category-0 (62-117 km/hr)	5.2	0.52
Category-1 (118-153 km/hr)	2.5	0.26
Category-2 (154-177 km/hr)	1.4	0.14
Category-3 (178-251 km/hr)	1.2	0.12
Category-4(209-51km/hr)	0.8	0.08
Category-5 (v>251 km/hr)	0.2	0.02
Total	11.4	1.14

Source: PPTA Consultant.

2. Current Climate Change and Future Projections

20. This climate change study of the coastal zone shows that the temperature trends for most of the stations are within 0.15-0.2 ^{0}C/decade. The monsoon rainfall trends concentrate around the range 4.0-8.6% /decade over the areas covering the study towns.

21. The projection of the climate scenarios for the time horizon from 2010-2065 with interval of 10 years has been made based on the IPCC AR4 models. The projections were reconstructed and adjusted after Tanner et al., 2007.[8] The scenarios are shown in **Table I.2 (a,b)**.

Table I.2 (a): New Scenarios of Temperature (^{0}C) of Bangladesh for Future at 10-year Intervals, with 2000 as the Base Year

GHG Scenario	YEAR	2010	2020	2030	2040	2050	2060	2065
A2	Annual	0.49	0.95	1.42	1.89	2.35	2.82	3.05
	DJF	0.73	1.40	2.07	2.74	3.41	4.08	4.42
	JJA	0.58	1.08	1.50	1.84	2.10	2.28	2.34
B1	Annual	0.51	0.98	1.38	1.71	1.98	2.18	2.26
	DJF	0.92	1.66	2.23	2.64	2.89	2.98	3.00
	JJA	0.59	1.05	1.41	1.67	1.81	1.85	1.83

(reconstructed after Tanner, et al. 2007 using expert judgment).

[8] Tanner T.M., Hassan A, Islam KMN, Conway, D, Mechler R, Ahmed AU, and Alam, M, 2007. ORCHID: Piloting Climate Risk Screening in DFID Bangladesh. Detail Research Report. Institute of Development Studies, University of Sussex, UK.

Table I.2(b): Scenarios of Future Rainfall (%) over the Study Area at 10-year Intervals, with 2000 as the Base Year

GHG Scenario		2010	2020	2030	2040	2050	2060	2065
A2	Annual	3.54	6.87	9.87	12.53	14.86	16.86	17.74
	Winter	19.34	34.91	47.16	56.09	61.70	63.99	63.89
	JJA	4.63	9.05	13.47	17.89	22.32	26.74	28.95
B1	Annual	1.5	4.2	8.0	12.9	19.0	26.2	30.2
	Winter	29.2	47.2	52.0	43.6	22.0	-12.8	-35.2
	JJA	7.4	13.7	18.7	22.4	24.7	25.7	25.7

(reconstructed after Tanner et al. 2007 using expert judgment following the current climate change).

22. The projections in Table I.2 (a) suggest that the annual temperature will increase by 1.3 ^{0}C by 2030 and by between 2 and 2.35 by 2050. This temperature increase will increase the evaporation rate. Further, in this warmer environment, the per capita water demand for household use, animal consumption and irrigation for agriculture will increase. The levels human discomfort due to heat will worsen in the warm season and the attacks of some diseases like heat stroke, lung diseases/ asthma, heart attacks and stomach and kidney disorder, rashes, etc. will be higher in numbers causing more suffering and higher casualties.

23. The monsoon rainfall is projected to increase by 9-13.7% by 2030 and 22-25.7% in 2050 [Table I.2(b)]. This table depicts that more intense monsoon floods are expected to occur in the future increasing damage and loss.

24. Sea level rise projections were derived from International Panel on Climate Change (IPCC) projections with a local adjustment of subsidence at the rate of 3 mm/year for the land surface (Khan et al. 2008) and very low rate of deposition of sediment (assumed rate of 1mm/year within polder). The towns not protected by polders (Pirojpur, for example) have low sedimentation rates, because the concreted surfaces within the towns are not able to hold sediment. Thus, considering IPCC projections and local effect, the SLR projection for 2030 is 21 cm and for 2050 39.4 cm.

25. The above projections are consistent with earlier findings, and findings of CDTA and CEIP projections, except for the sea level rise (SLR) projections. The study of NAPA and CDTA has adopted 32 cm by 2050. However, CEIP has considered SLR of 50 cm by 2050, but no detail commentary is available on this high figure. The CCRIP study has taken 7 mm/year of sea level rise (a conservative assumption) but also considered 3 mm/year land subsidence.

II. INFRASTRUCTURE VULNERABILITY IN COASTAL TOWNS OF BANGLADESH

A. Climate Impacts

26. The study towns—Amtoli, Galachipa, Mothbaria and Pirojpur—are situated in the most vulnerable zone of the coast, being exposed to tropical cyclones, storm surges, sea level rise and strong astronomical tides. The towns experienced severe damages in past cyclones that hit the south central coast and its neighbourhood coastal zone. Besides, these towns are subjected to severe risks of flooding due to

heavy monsoon rainfall from tropical storms, monsoon depressions and convective activities associated with monsoon troughs. The anticipated high sea levels will pose problems for drainage of the flood water in the future, as the tidal level may go so high due to sea level rise that there is a chance that the lowest tide in the monsoon season may remain at higher level compared to the bed of the drainage system—resulting in long term inundation of large area of the towns.

27. Current and future climate will impact the infrastructure, environment, ecology, agriculture, water supply, sanitation and livelihood of the people of the areas covering the selected coastal towns. The increase in temperature has the potential to cause material expansion resulting in damages to concrete structures such as buildings, bridges, and culverts and bitumen seals to roads, which are susceptible to softening unless higher temperature resistant construction materials are used. The expansion and contraction due to high fluctuation of temperature may affect life of the structures. Floods resulting from increased rainfall, cyclones and storm surges have the potential to damage roads, embankments, water supply, sanitation, markets, housing and drainage structures. SLR will increase the potential risks.

28. The enhanced salinity is also hazardous to metal and concrete structures, in addition to its impacts on fresh water supply, agriculture, environment and ecology. The salinity causes lowering of lives of the metalic structures. The heath impact of human intake of saline water with salinity contents above tolerance levels causes health hazards to the people, especially for pregnant women. Thus, the increase of salinity in the coastal zone is a serious problem in broader perspectives.

29. The increase of future severity of storms will increase the potential storm surge related damage as well as causing additional erosion damage from the over-topping of roads and embankments. High winds associated with storm events have the potential to damage lives, plants, buildings, agriculture, and fisheries as well as cause secondary damage from trees and other debris. Wind-driven wave action can have a significant erosive effect on exposed road embankments, bridges and sanitation systems.

30. PPTA findings show that the intensity of tropical cyclones will increase with the rise of sea surface temperature (SST). As a result, the probability of higher category cyclones would increase in 2040-2050 (Table I.1).

31. The probability/year of different categories of tropical cyclones was extrapolated using the future scenarios of tropical cyclone intensity of different categories relative to the statistics of the decade 1991-2000, which was a relatively normal year in terms of the distribution of tropical cyclone intensity. The results of the future cyclone probability estimate are given in **Table II.1.** The results show that the transition occurs from low intensity cyclones to high intensity once the probability of category-5 cyclones are seen to be high in 2040-2050 when the probability of category-0 cyclone are seen to come down to 0.1.

32. Considering the above, the climate consultants have identified some specific impacts on the project infrastructures of the study towns with some highlights on possible adaptation. The guidance provided in the report of ADB TA7902-BAN (2012) and the data collected from the field trips were used for developing **Table II.2**.

33. The vulnerability of infrastructure due to monsoon and tidal flooding and cyclone impacts over the project area increase significantly. Table II.2 highlights the impacts and adaptation approaches to provide preliminary guidance in developing climate resilient infrastructure designs for the study towns.

Table II.1: Projection of Probability of Tropical Cyclone Probability for the Future for Different Intensity Levels

Projection of probability of tropical cyclone incidence for future				
Categories	**2011-2020**	**2021-2030**	**2030-2040**	**2040-2050**
Tropical Cyclonic storms Cat-0 (62-117 km/hr)	0.4	0.4	0.2	0.1
Cat-1 (118-153 km/hr)	0.2	0.1	0.2	0.2
cat-2 (154-177 km/hr)	0.2	0.1	0.1	0.2
Cat-3 (178-207 km/hr)	0.2	0.1	0.2	0.2
Cat-4 (208-251 km/hr)	0.2	0.4	0.4	0.3
Cat-5 km/hr (speed>250 km/hr)	0.1	0.2	0.2	0.3

Source: PPTA Consultant.

Table II.2: Town Specific Climate Change and Adaptation (User Friendly Output for Climate Resilience)

Pirojpur, Mathbaria, Amtali and Galachipa Pourashavas			
Climate element	**Status of change**	**Impacts**	**Recommended adaptation**
Temeprature	Current change: 0.4^0 C during last 50 years Future: 1.4^0C by 2030 and 2.5^0 C by 2050	Infrastructure damaged by long exposure to heat, new concrete structures weakened due to poor curing.	Materials and design to be selected suitable for resilience of high temperature. Placing and curing of concrete requires more water.
		Surface water is rapidly evaporated affecting household water supplies and garden irrigation. Due to heat, overall per capita water needs will increase. Agriculture and fisheries suffer due to rise of temperature and greater salinity.	Water supply projects should include future increased demands in addition to that due to increase of population and future development. Rainwater harvesting needs to be encouraged and suitable design may be prescribed for this purpose including making arrangements for rainwater preservation and use for domestic application. Reserve ponds may be digged to preserve rainwater for community use.
		High temperature affects health due to heat stroke, dehydration and facilitates diseases like diarrhea, asthma and heart and kidney failure.	Building design criteria should consider suitable factors to keep interiors cooler. Green coverage should be developed over suitable areas of the towns, so that there is a shielding against the incoming solar radiations which may to some extent provide comfort the people from heat.
Rainfall	Current trend: 25 cm in last 50 years Wetter monsoon rainfall with future scenarios: Increase of 13.5-19% in 2030 Increase of 22-25% in 2050 Increase of 27% in 2060	Floods impacting infrastructures	Increased and more intensive rainfall will cause more floods inundating roads and yards, market places and other important areas. It is recommended that the infrastructure is built that the floods do not damage them or the water supply plants, reservoirs, pipe lines are not affected.
		Reduced drainage channel size causes flooding	Larger, steeper or lined drains will be required to discharge excess storm water. The CTIIP towns' topography does not lend itself to steeper drainage with complex pumping or water management arrnagnements. Land avilability for larger drains is also an issue. Keep drains free from waste and siltation.
		Sanitation is damaged due to flood	Sanitation systems should be made climate resilient; especially should be installed above the flood level.
		Sludge and solid waste management is affected	Sludge drying areas and solid waste landfills must be above flood inundation level or protected with embankments or linings to avoid .
		Roads damaged due to	Ensure road is cambered as designed. Use concrete

Pirojpur, Mathbaria, Amtali and Galachipa Pourashavas			
Climate element	**Status of change**	**Impacts**	**Recommended adaptation**
		more flooding and overtopping.	surfaced roads. Better compaction and use of stronger materials for road bases. Build more culverts and drainage for road base. .
Sea Level Rise (SLR) Increase of Tidal Level	Current SLR: 4-6 mm/year	Infrastructure is heavily damaged	The infrastructure might be needed to be raised if they are not well protected by the embankment.
	Projection in 2030: 21 cm reference to land inside polders. Projection in 2050: 39 cm reference to land inside polders. Tidal Level will also increase due to SLR	Embankments also damaged by increased erosion induced by leaching and overtopping of water.	Raise and strengthen embankments. The embankments need to be protected from sea side through plantation of trees and by other means of ecological and engineering measures. The areas which are not protected by polders may require sidewalls for tide and surge protection.
		Housing is severely damaged Inundate more areas by extreme high tides.	Housing should be of clustering types and be so designed that they are above the flood / surge level on higher plinth above extreme monsoon flood level on compacted soil with concreted perimeter case. The ground floor may be kept open for freely passing of the storm surge flow; the building materials are to be so chosen that the structure is able to sustain strong cyclone winds and thrust of storm surges. The extra protection due to sea level rise is to be undertaken. Climate and flood resilient Building Codes should be developed.
		Water resources / supply sector is severely affected by storm	Ponds, installation site of deep tube wells, reservoirs and distribution lines should be made climate resilient considering the projected of sea level rise;
		Sanitation	The sanitation system is to be made climate resilient considering sea level rise.
		Sludge management Solid waste dumping	Sludge disposal should be made in designated site with appropriate structure so that the tidal water and storm surges do not affect the system due to climate change enhanced sea level. The climate resilience is to be considered for solid waste dumping stations considering extra floods and storm surges in future climate.
Tropical Cyclones and surges	Tropical cyclone intensity will rise and the destruction will be severe due to wind and surges. The tropical cyclones may have wind up to 275km/hr in the future.	All structural items as mentioned above are affected.	Extra precaution is to be taken because of higher surge levels and higher winds of the future cyclones. The mangrove forests (green belt) may be developed outside the embankment and in the new islands as a protection measure against the impacts of tropical cyclones Strengthen the tropical cyclone and storm surge forecasting and warning system. Strengthen the relief and rehabilitation measures and take care for the injured people Water supply and sanitation system are to be made climate resilient considering higher sea level and higher storm surges. Infrastructure are to be made climate resilient
		Large areas innundate with deep flooding and surges creating hazards to people, livestock and infrastructure.	Build more cyclone shelters with appropriate designs including emergency water and power supplies, toilets, better approach roads and shelter for animals. The refuge or Killas should be constructed near the shelters for sheltering the livestocks
Salinity impacts	The 5ppt line will move further inland affecting the pourashavas of Amtali and Galachipa in 2050 and all these pourashavas and	Badly impacts on the steel / metallic structures through rusting and reduces lives of such structures where metals are used. Salinity induced by floods	Designs should consider this impact for undertaking the adaptation measures. This aspect is important because salinity can affect all

Pirojpur, Mathbaria, Amtali and Galachipa Pourashavas			
Climate element	**Status of change**	**Impacts**	**Recommended adaptation**
	Mothbaria will come under this 5 ppt line in 2100.	affects the material bonding of the contrete structures causing damages to such structures. . Adverse Impacts on Agriculture Adverse impacts on human health like hyper tension, heart diseases, asthma, strokes skin diseases. It is especially of concern for pregnant women as a cause of pre-eclamsia, early delivery and swelling legs.	sorts of concrete structures. It recommended raising the areas where the buildings will be constructed, so that the monsoon flood does not affect the structures of the house. Agricultural land should be protected from the intrusion of saline water at high tides and storm surges by polders. Should take appropriate engineering actions to reduce the salinity level of surface and ground water. The ground water monitoring system should be developed and ground water recharging plants needs to be developed in the appropriate areas.

Source: PPTA Consultant.

B. Climate Impact Assumptions

34. The Coastal Town Infrastructure Improvement Project (CTIIP) has provided annual time series climate outputs for sea level rise (including subsidence and sedimentation), temperature, monsoon season rainfall, and probability of cyclones of different intensities.

35. The temperature, rainfall and sea level rise (SLR) projections are based on the IPCC AR4 projections. The subsidence of the delta over the coastal zone has been assumed to be 3 mm/year over the coastal zone. And an assumption of sedimentation levels of 1 mm/rate within the polders has been made for calculation of net sea level rise. It is important to note that a town not protected by polder will have very low sedimentation because the concreted areas of the town do not accumulate significant levels of sediment. Thus the team applies the same assumption for both poldered and unpoldered towns. The Bangladesh National Adaptation Programme of Action (NAPA) (2005) assumed a sea level rise of 32 cm by 2050 while CEIP (2011) has considered 50 cm of SLR for the same time frame. Neither of these studies provided any background documentation supporting how they arrived at these figures. CTIIP has arrived at net SLR (SLR for global warming (IPCC) + subsidence – sedimentation) of 39.4 cm. The coastal towns are vulnerable to additional inundation due to sea level rise, higher storm surges from more intense tropical cyclones and from higher sea levels. Thus damages to roads, infrastructure, housing and other buildings, water supply and sanitation will increase, without climate adaptation.

36. CTIIP has also provided its engineers with a mandate to use a 25 year project life but to design with consideration to relevant climate outputs out to 2050, especially where siting decisions are being made that will likely result in an infrastructure “footprint” extending well beyond 25 years.

C. Infrastructure and the systemic vulnerability of coastal towns

37. CCRIP's Climate Assessment and Adaptation Strategy notes that the in-service performance and hence the vulnerability of infrastructure to climatic impacts, may be considered to be a function of a series of impacting factors; collectively known as the "Infrastructure Environment."[9] Infrastructure environment factors include:

- Construction materials,
- Climate,
- Surface and sub-surface hydrology,
- Terrain,
- Sub-grade and foundation conditions, and,
- Level of use for infrastructure.

38. Other factors may come into play depending on the sub-project type and design, but in general these factors determine the level of vulnerability of the infrastructure, and thus are also critical to consider in project design.

39. But also critical is an assessment of what - besides the infrastructure - in vulnerable, from an outcome-based perspective. In other words, looking at coastal towns, what physical, economic, social and other aspects of the town are vulnerable, and how?

40. The CTIIP PPTA identified the key coastal town "assets" and performed a broad-based vulnerability assessment, considering in particular how the CTIIP interventions in water supply, roads, drainage and flood control, and urban planning both are vulnerable, but also how appropriate sub-project design could alter and improve the vulnerability outcomes for coastal towns.

41. The result of this inventory is summarized in **Table II.3**. Vulnerability tables for each sector are in Volume V, Chapter IV: Costs and Benefits of Climate Resilience Measures. Note that this assessment also considers the extent to which these vulnerabilities can be articulated in economic, monetary terms (cost: benefit analyses), or at least quantified, and if not quantifiable, it is important to still note the vulnerability and its significance.

42. It is interesting to note that relatively few impacts could not be quantified, and even if not monetized for CTIIP's cost: benefit analyses, an economic value could be assigned to the vulnerabilities, by going beyond market prices and employing a variety of approaches including revealed preference, stated preference, and benefit transfer approaches.[10] Some of the few non-quantified vulnerabilities include, impacts of climate change on river/canal transport. It is important, however, to indicate that just because there is a way to quantify (and monetize) vulnerability of most assets, including, for instance, religious and recreational assets like playing fields and mosques by considering loss of activity (number using playing fields or attending religious ceremonies), this does not necessarily reflect the full value of the asset.

[9] CCRIP, p. 12.

[10] See Vardakoulias, O., (2013), New Economics Foundation, "Valuing the environment in economics," *Economics in policy-making briefing* for a summary of alternative approaches to placing economic value on environmental assets, that may apply to the broad set of coastal town assets.

TABLE II.3: COASTAL TOWN ASSETS, THEIR VULNERABILITIES TO CLIMATE CHANGE, AND HOW WE CAN ASSESS THEM

Coastal Town Assets		Vulnerabilities	Can we Quantify Impacts?	Residual we cannot quantify	Rough Estimate of Asset Value of Residual	Can we Monetize?	Issues
Income, population and health	People's lives	Storm accidents/ disease/heat	Yes	NA	nil	No	
	People's health	Storm accidents/ disease/disability	Yes	If not clear cyclone event difficult to quantify	Very minor	Yes, possibly lost income and health costs	
	Wages	Lost to storms, flooding and sickness	Yes (most especially of the urban poor / slum dwellers)	Minor so will not quantify	Very minor	Yes, lost income	Need average incomes. Based on average loses through flooding (Khulna), SIDR PDNA
	Housing	Siting of assets. Loss and damage from cyclone winds and all flooding	Yes, especially katcha housing	Minor so will not quantify	Very minor	Yes, cost of damage to physical assets	Need asset values. Based on average loses through flooding (Khulna), SIDR PDNA. Need baseline data on wind damage
	Recreational assets	Siting of assets. Damage and loss of assets and activity	Yes, damage to physical assets	Minor so will not quantify	Very minor	No	Requires inventory/stock data, asset valuation for different classes of use/building, and damage (or proxy) estimates
	Religious assets	Siting of assets. Damage and loss of assets and activity	Yes, damage to physical assets	Loss of activity	Minor	Yes	Requires inventory/stock data, asset valuation and damage (or proxy) estimates
Infrastructure & services Energy, water and sanitation, drainage	Water supply	Loss of power/ electricity supply Flooding of facilities Contamination of water supply by salinity and dirty water	Yes	NA	Nil	Yes (cost of lost or damaged assets)	Requires asset inventory, valuation for facilities, and damage (or proxy) estimates

Coastal Town Assets		Vulnerabilities	Can we Quantify Impacts?	Residual we cannot quantify	Rough Estimate of Asset Value of Residual	Can we Monetize?	Issues
	Storm and waste water services	Flooded drains and submerged drains and associated infrastructure, e.g. pumping stations Backlogging of stagnant water Damage to properties and sanitation facilities. Economic, financial, social, governance, health, education, etc., losses owing to lack of access (to schools, markets, etc.) during flood periods. More complex and financially demanding infrastructure to operate and maintain. Human resources at risk during flooding events	Yes, some, e.g. extent of flooded areas and frequency of flooding; losses to infrastructure, properties, assets, businesses, etc., can be measured, and damage to sanitation facilities Possible to quantify lack of access to schools or markets.	Cannot easily quantify – social, governance, health, education impacts, etc.	Major – because of nr of & breadth of affected sectors, especially long-term, but very difficult to quantify	Yes Some	During certain times of the year the low tide river levels will be higher than drain inverts, and it will be impossible for the towns to be drained by gravity Situation will become more severe with time. Data have to be collected and recorded, be reliable and easily accessible
	Solid waste	Siting and managing dumps and transfer systems	Yes (damage to physical assets – secondary transfer, (sanitary) landfill)	NA	Nil	Not yet	Coastal towns do not have operational SWM systems
	Electricity	Siting of critical assets. Storm induced disruption to supply, heat induced increase in demand and load shedding	Yes, damage to physical assets (sub-stations, pylons and poles)	Impact of loss of energy supply on other activities	Relatively minor	Yes (cost of lost or damaged assets)	Requires inventory/stock data, asset value, and damage (or proxy) estimates.
	Fuels	Siting of storage assets. Disruption of supply, environmental impacts if released	Yes, could change demand and access	Loss of productivity	Relatively minor	Yes (cost of lost or damaged assets)	Requires inventory/stock data, asset value, and damage (or proxy) estimates

Coastal Town Assets		Vulnerabilities	Can we Quantify Impacts?	Residual we cannot quantify	Rough Estimate of Asset Value of Residual	Can we Monetize?	Issues
Transport	Roads and footpaths	Damage/loss of asset and loss of activity	As per roads sub-project	Can quantify all	NA	Yes	Requires asset value, and damage (or proxy) estimates and transport activity value. As per roads use road damage approach in CDTA report
	Rivers/canals	Loss of transport activity	Probably not	N/a	N/a	N/a	
	Boat Landings	Damage/loss of asset and loss of activity	Yes	NA	Nil	No	Requires asset value, and damage (or proxy) estimates and river transport activity value
	Bus deports	Damage/loss of asset and loss of activity	Yes			Yes	Requires asset value, and damage (or proxy) estimates and bus activity value
	Vehicles	Damage and loss of activity	Yes, but tangential link to spatial land use planning	N/a	N/a	N/a	
Land, agriculture and ecosystems	Farms	Loss of agricultural land for urban development. Siting of critical assets (storage)	Yes. Damage to physical assets (storage). Loss of livelihoods and income from conversion of agriculture land to other uses. Indirect in that farm land in 'safe' areas may be required for new development	Reduction of food security	Minor	Yes, where storage facilities exist.	Requires asset value, and damage (or proxy) estimates.
	Fisheries	Damage and loss of productivity storms, flooding, droughts	Not applicable	NA	Nil	NA	
	Forests	Damage to forests, indirect ecosystem losses owing to storms, drought, floods, salinity	Maybe, loss of natural embankment protection and increased vulnerability arising there from	NA	Nil	Probably not	
	Indigenous Species	Loss of wildlife from storms, floods, salinity	Not applicable	NA	Nil	NA	

Coastal Town Assets		Vulnerabilities	Can we Quantify Impacts?	Residual we cannot quantify	Rough Estimate of Asset Value of Residual	Can we Monetize?	Issues
Industry and Commerce	Buildings	Loss and damage from cyclone winds and all flooding	Yes	N/a	Nil	NA	Requires inventory/stock data, asset valuation for different classes of buildings, and damage (or proxy) estimates
	Other commercial assets/inventories	Loss and damage from cyclone winds and all flooding	Yes	NA	Nil	Yes, for damage to assets	Composite of critical facilities/assets above?
	Commercial income	Loss of income from lost access to business	Yes	NA	NA	Yes, but complex to calculate	Economic activity lost for period when critical assets (WS, electricity, roads etc) are down

Source: PPTA Consultant.

D. CTIIP Project Vulnerabilities

1. Municipal Infrastructure

43. **Roads.** The major effects of climate change on roads infrastructure are described in the table below:

Table II.4: Climate impacts on roads

No.	Climate Change Effect	Effect on Roads
1	Temperature rise: 0.7-1.6^{0}C by 2030 and 1.2-2.4^0 C by 2050	• Infrastructure damaged by contraction and expansion due to long exposure to heat, new concrete structures weakened due to poor curing. • In case of bituminous carpeting road, road materials will loss bonding and be damaged due to heat.
2	Rainfall: Current trend: 25 cm in last 50 years. Wetter monsoon rainfall with future scenarios: 2030 with increase of 10-12%, 2050 with increase of 22-24%	• Roads damaged due to more flooding and overtopping. • Erosion of embankment faces; • Pavement edge failure;
3	Sea Level Rise (SLR): Current SLR: 4-6 mm/year. SLR in 2030: 21 cm reference surface to land inside polder SLR in 2050: 39 cm relative to land surface inside polder.	• Roads damaged due to more flooding and inundation. • Erosion of embankment faces; • Pavement edge failure;
4	Tropical Cyclone : Intensity 0f cyclone and storm surge will increase.	• Roads and infrastructures damaged due to storm surge inundation;

44. **Bridges.** The major effects of climate change on bridge infrastructure are described in the table below:

Table II.5: Climate impacts on bridges

No.	Climate Change Effect	Effect on Bridge
1	Rainfall: Current trend: 25 cm in last 50 years. Wetter monsoon rainfall with future scenarios: 2030 with increase of 10-12%, 2050 with increase of 22-24%	• Bridge approaches damaged due to more flooding and overtopping.
2	Sea Level Rise (SLR): Current SLR: 4-6 mm/year. SLR in 2030: 21 cm reference surface to land inside polder SLR in 2050: 39 cm relative to land surface inside polder.	• Due to inundation of bridge deck slab, the materials of expansion-joint and girder-base decayed and loss durability.
3	Tropical Cyclone: Intensity 0f cyclone and storm surge will increase.	• Minor infrastructures like railing of bridge damaged due to heavy wind with surges. • Side of approaches damaged due to storm surge inundation.

45. **Cyclone shelters.** The major effects of climate change on cyclone shelter are described in the table below:

Table II.6: Climate impacts on cyclone shelters

No.	Climate Change Effect	Effect on Bridge
1	Rainfall: Current trend: 25 cm in last 50 years. Wetter monsoon rainfall with future scenarios: 2030 with increase of 10-12%, 2050 with increase of 22-24%	• The floor of cyclone shelters can be inundated by flooding due to extreme rainfall.
2	Sea Level Rise (SLR): Current SLR: 4-6 mm/year. SLR in 2030: 21 cm reference surface to land inside polder SLR in 2050: 39 cm relative to land surface inside polder.	• The floor of cyclone shelters can be inundated by flooding with sea level rise.
3	Tropical Cyclone: Intensity 0f cyclone and storm surge will increase.	• The floor of cyclone shelter can be flooded by storm surge. • The super structure can be damaged due to strong wind.

2. Drainage and Flood Control

46. The main effects of climate change on drainage and flood control infrastructure and services are described in **Table II.7**.

47. Other factors that will have a possible effect on drainage and flood control infrastructure and services are described in **Table II.8**.

Table II.7: Possible Actions to Mitigate against Projected Effects of Climate Change on Drainage and Flood Control Infrastructure and Improve Climate Resilience

No.	Climate change effect	Projected effects on drainage and flood control
1	Increased rainfall quantity & runoff: up to as much as 27% in individual events by 2050 up to 8% overall by 2050	▪ Increased runoff volumes: o during individual storms o overall during season • Increased river and tidal levels, due to increased runoff volumes (see also (2)) • Increased frequency, area, depth and duration of flooding where: o local drain capacity is insufficient due to: ▪ under-design ▪ encroachments o local drain capacity is sufficient but is reduced by: ▪ inadequate capacity downstream, including encroachments, outfall vents ▪ adverse water levels downstream, due flooding, river and/or sea-level rise ((2) also) ▪ poor maintenance ▪ unsuitable operation, e.g. irrigation water ▪ blockage during operation o flooding in an adjacent catchment flows into the area, adding to local runoff to be disposed of
2	Sea level rise (SLR) up to almost 40 cm by 2050 relative to levels	• Low and high tide, river & *khal* levels rise: o reducing efficiency of present channels, culverts, outfall vents, etc. as:

No.	Climate change effect	Projected effects on drainage and flood control
	inside polder[11]: 29 cm SLR 10 cm land settlement	▪ discharge capacities reduce (hydraulic gradients reduce) ▪ operating/discharge times decrease (as river and tide levels increase) o preventing discharge if tide levels rise above in polder-levels – may be short, medium or long-term depending on local situation, e.g. low land, tidal status – springs, neaps, season, special events, etc., e.g. river levels are at highest during monsoon o increasing tidal flooding (as levels rise above channel banks, primary flood defences, etc.) o increasing possible flooding due to storm surges (will depend on tide level, plus defence levels, storm intensity, path, etc.) • River dimensions, alignments and/or sedimentation change as energy levels change, most likely contributing to the above effects • Increased flood frequency, area, depth, duration
3	Increased frequency of severe cyclones	Increased frequency of flooding due to storm surge: very local, i.e. adjacent to storm & surge location short-term, but scale, etc., according to storm characteristics, location, etc., increasing in frequency, depth, area, etc., as sea levels and storm intensities rise Damage to infrastructure, due to wind and/or waves Will worsen any existing flooding attributable to: increased rainfall - wide-scale, and potentially significant - medium/long-term, especially if locality is already flooded sea level rise

Source: PPTA Consultant.

Table II.8: Actions to Mitigate against Other Factors that may affect Drainage/Flood Control Infrastructure and Climate Resilience

No.	Impact Factor	Effect
1	Construction materials' quality	Locally available natural materials are not highly resilient. o fine soft sand, may be contaminated by salt o locally produced bricks generally non-uniform non-engineering quality o local aggregate for concrete made from broken bricks, variable size, shape quality and durability o water may be saline Sharp sand and stone aggregate have to be imported.
2	Flat topography	• Channel and drain gradients may have to be steeper than the natural gradients, increasing frequency and duration of localised flooding during adverse conditions.
3	Rising temperatures	• Placing concrete and using cement mortar will not be possible during very high temperatures. • Curing will require more water to reduce heat gain and counter water loss. • Runoff containing high proportions of wastewater may become septic more quickly, attacking non-sulphate resisting concrete and cement mortar.

[11] CDTA estimates vary from 32 cm by 2050 and 88 cm by 2100 (Revised DFR, Annex II) to 0.1 m for the Baleswa and Kocha rivers at Projpur and 0.2.m for the Payra and Ramnabad rivers at Amtali and Galachipa respectively by 2046-55 (Revised DFR, Annex IV).

No.	Impact Factor	Effect
4	Runoff	• May contain domestic wastewater, which may become septic if it cannot be disposed of within a reasonable time, attacking concrete and mortar.
5	Flooding	• Drains may be submerged for longer periods of time, weakening low grade materials and construction, supporting soils, etc. • Risk of infrastructure 'floating' during sudden changes in water levels (surface water levels reduce rapidly but groundwater levels remain high)

Source: PPTA Consultant.

3. Water Supply and Sanitation

48. The major effects of climate change on water supply and sanitation infrastructure and services are described in **Table II.9**:

Table II.9: Climate impacts on water supply and sanitation

No.	Climate Change Effect	Effect on Water Supply and Sanitation
1	Temperature rise: 0.6-1.4^{0}C by 2030 and 1.2-2.4^0 C by 2050	• Surface water is rapidly evaporated affecting household water supplies and irrigation. The open water bodies will be dried up and dependence on piped water supply will increase. • Due to heat, overall per capita water needs will increase as the consumers will drink more water and have both and wash repeatedly.
2	Rainfall: Current trend: 25 cm in last 50 years Wetter monsoon rainfall with future scenarios: 2030 with increase of 1-5%, 2050 with increase of 5-8%	• Increased and more intensive rainfall will cause more floods inundating water supply infrastructure such as production tube well, pump house etc. • Sanitation infrastructures such as toilet, septic tank, soak well, pits will be inundated and the contents may come out causing health hazards.
3	Sea Level Rise (SLR): Current SLR: 4-6 mm/year Projection in 2030: 11-21 cm with reference to land inside polders. Tidal Level will also increase due to SLR.	• Water supply infrastructure such as production tube well, pump house etc. will be inundated. • Sanitation infrastructure such as toilets, septic tanks, soak wells, pits will be inundated.
4	Tropical Cyclone: Intensity will rise and the destruction will be severe due to wind and surges.	• Water supply over head tank and other superstructures will be damaged/ collapsed due to cyclone/storm surge.

III. ADAPTATION

49. As outlined in CCRIP, there are three general options that may be undertaken in the urban infrastructure environment to address climate change:

- Engineering (structural),
- Non-engineering (soft, or non-structural such as capacity building, improved maintenance, or providing technical tools or community awareness), and

- Do nothing.

50. As noted in the introduction, CTIIP, is an infrastructure project, and will budget a majority of incremental costs of climate change investment to infrastructure, but activities will also include considerable efforts in softer areas, such as knowledge generation and capacity building. Investments will include:

  - Assessing how infrastructure investments will be "climate proofed" (= mainstreaming minimum),
  - Assessing how the "adaptation deficit" can be overcome in both reducing hard infrastructure deficits (e.g., inadequate sanitation that makes some communities more vulnerable) and policy, legal, financial and institutional deficits (e.g., lack of local capacity and finance to plan and manage for disaster risks, etc.).

51. The other aspect to adaptation is considering the vulnerabilities, and, based in part of cost: benefit analyses, determining if interventions are justified. If not, then "do nothing" may be appropriate.

52. CRRIP outlines some general options, including general infrastructure climate strengthening, rehabilitation of current designs, or polder-protected or partially protected climate resilience.

53. The first two technical options are self-explanatory. The third issue is related to general infrastructure interventions that result in protection, not just of a particular structure, but for all assets within a polder or benefitting, for instance, from improved drainage.

54. The CTIIP does not have a mandate to improve embankments, but it may undertake improved drainage and flood control, and thus this strategy is undertaken. Other than that, the other way that CTIIP is able to support broad-based protection of the coastal communities is through a series of non-structural interventions, including community awareness raising of disaster risk, encourage climate resilient land use planning and building codes, improved local level disaster risk management, and implementation of a revolving climate adaptation fund, managed locally.

A. Infrastructure: Climate Resilience Options and Measures Proposed by CTIIP

1. Municipal Infrastructure

55. **Roads.** The key proposed climate resilience measures associated with roads interventions are:

- road level rise as required;
- increase of bitumen carpeting (BC) thickness;
- ensure proper compaction;
- prefer cement concrete (CC) pavement where there are threats of inundation;
- provision of temperature reinforcement in CC pavement to minimize expansion and contraction;
- provision of hard shoulder along the pavement where there are threats of inundation;
- construction of cross-drains as required;
- guide wall to protect erosion and sliding in case of CC road;
- turf and tree plantation along the roads.

56. CC roads will be damaged due to expansion and contraction with temperature fluctuation. Providing temperature reinforcement in the concrete pavement may protect against this threat.

57. In the case of a bituminous carpeting road, the road material will lose bonding and be damaged due to heat. This can be avoided by selecting CC pavement in place of bituminous pavement in case of new road construction.

58. Roads will be damaged by more flooding and overtopping due to extreme rainfall. This can be avoided by raising the road level. It is suggested to raise the road level by 600 mm above normal flood level. Sea level rise is another threat to the road as it may cause damage to the road by inundation. Therefore, road level will be further raised by 200mm. (Note: for some inside roads it may not be possible to raise them in practice; instead it is advised to raise gradually by overlaying base course during the time of maintenance after every few years).

59. Tropical cyclones and storm surges may cause of damage to roads and road structures like culverts, cross-drains, etc. The bitumen road cannot withstand if it is under water for a certain period of time. These kinds of threats can be avoided by constructing CC pavement instead of bituminous pavement.

60. Provision of hard shoulders for BC roads, brick masonry guide wall for BC road will be constructed along the road alignment, turfing on embankment slope and tree plantation if possible along the road embankment will be done in order to protect the road from tropical cyclones and storm surges.

61. **Bridges.** The key proposed climate resilience measures associated with bridges interventions are:

- maintain rise of deck slab of bridge and pile length needed to be increased;
- ensure proper compaction and hard shoulder in approaches;
- guide wall at tow of approaches to protect erosion of approaches.

62. Approach roads of bridges will be damaged due to extreme rainfall and storm surge inundation. This can be protected by providing proper compaction, hard shoulder and guide-wall at tow of approaches.

63. Inundation of bridges can be avoided by considering future sea levels appropriately.

64. Bridge piles need to be increased at the top and be designed as required.

65. **Cyclone shelters.** The key proposed climate resilience measures associated with cyclone shelters interventions are:

- ensure ground floor open, .i.e. free from any partition walls;
- arrangement of shelter on 1st and 2nd during cyclonic disaster;
- considered wind speed 260 km/hour for designing of the cyclone shelter building;
- ensure best quality items like doors, windows and utilities for defense against wind and storms.

66. The floor should be free from any partition wall for hindrance of water flow in ground floor. This will eliminate the thrust from flooding water on structures.

2. Drainage and Flood Control

67. Possible actions to mitigate against the main projected effects of climate change on drainage and flood control infrastructure and services are described in **Table III.1**.

68. Two incremental stages have been adopted for costing purposes:

(i) Design to the current best practice standard and in line with the current LGED guidelines[12] for a 25-year design period.
(ii) Design as (i) but taking account of the projected climate change impacts up to 2050.[13]

69. Possible actions to mitigate against other factors that will affect drainage and flood control infrastructure and climate resilience are described in **Table III.2**.

Table III.1: Possible Actions to Mitigate against Projected Effects of Climate Change on Drainage and Flood Control Infrastructure and Improve Climate Resilience

No.	Climate Change Effect	Possible Mitigating Actions
1	Increased rainfall quantity & runoff	- increase infrastructure capacity, e.g. channels, bridges, culverts, regulating structures, outfall vents, etc. (levels to take account of sea level rise) - create capacity to detain runoff as necessary, e.g. ponds, open spaces, channels, *khals*, etc. - isolate/protect vulnerable catchments and sub-catchments, to reduce flooding from adjacent catchments, especially if large in area and volume and impacts are less serious, e.g. agricultural land - actively managing runoff and discharges, according to needs, adverse impacts, etc. - improve O&M, organisational capacity, resource allocation, etc. - work with relevant stakeholders to manage water use and flood discharges more effectively - improve collection and disposal of solid waste - control encroachments - improve public behaviour through active and prolonged information, education and communication campaigns to reduce uncontrolled solid waste disposal, encroachments, damage to infrastructure, unregulated development in key areas, etc., supported by enforcement.
2	Sea level rise (SLR)	- raise existing flood defences to requisite levels and building new flood defences on unprotected tidal channels and *khals* - improve drainage infrastructure and detention capacity as required (see (1)) - improve O&M, organisational capacity, resource allocation, etc. - work with relevant stakeholders, e.g. BWDB, landowners, water user groups, farmers associations, etc., to ensure their actions contribute as required.

[12] Urban Drainage Manual, May 1998.
[13] The projected rainfall intensity for a 1:10 year design storm by 2050 is only about 1% greater than the intensity for the same storm in 2030. It is therefore considered more cost-effective to plan and develop infrastructure for 2050 immediately than develop it in two stages.

No.	Climate Change Effect	Possible Mitigating Actions
3	Increased frequency of severe cyclones	- enhance flood defence levels and strengthen to the requisite levels according to location, etc., e.g. urban areas should have higher and stronger levels of protection than rural areas - improve infrastructure and detention capacity and protecting/isolating catchments as appropriate (see (1)) - improve O&M of defences and drainage, organisational capacity, resource allocation, etc., - work with relevant stakeholders, e.g. BWDB, etc., to ensure their actions contribute as best possible.

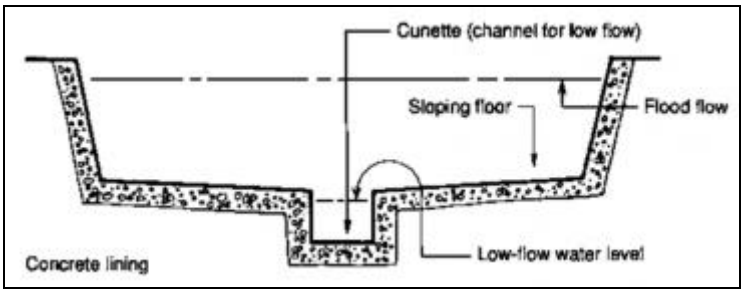
Source: PPTA Consultant.

Table III.2: Actions to Mitigate against Other Factors that may affect Drainage/Flood Control Infrastructure and Climate Resilience

No.	Impact Factor	Mitigating action
1	Construction materials' quality	- Choose most durable materials possible, even if higher cost, e.g. concrete, high quality bricks. - Monitor and control construction quality
2	Flat topography	- Shorten drainage routes - Avoid downstream constrictions, etc. - Retain and upgrade existing natural drainage routes and channels. - Maximise runoff and water-level regulation, and detention capacity; regulate land development as required. - Consider short to medium-term pumping, using mobile/emergency pumps wherever appropriate.
3	Rising temperatures	- Execute works during most favourable times of year and day. - Monitor and control preparing, placing and curing concrete and mortar, to ensure placement, etc., during most favourable times. - Use plain high-quality un-rendered brickwork and high quality cement mortar in preference to rendered low-grade bricks - Use sulphate resisting cement in vulnerable locations (higher heat gain during curing) or cement containing fly-ash (less heat gain, so preferred).
4	Runoff	- Require separate arrangements for disposal of faecally-contaminated wastewater. - Use trapezoidal section drains with small low-flow section (cunette) for low flows **(Figure III.1)** - Line drains to achieve higher discharge velocities without increasing risk of scour, etc.
5	Flooding	- Choose durable materials, preferably concrete or high quality bricks - Ensure high quality construction - Consider short to medium-term pumping (mobile/emergency pumps) - Check and design against possible floating in various operating scenarios (hydrostatic pressure).

Source: PPTA Consultant.

Figure III.1: Trapezoidal Drainage Channel with Low-level Section for Low Volume Flows



Source: WHO

3. Water and Sanitation

70. The key proposed climate resilience measures associated with water supply and sanitation interventions are:

- increased water demand due to temperature rise;
- measures will be taken to protect water supply infrastructure such as production tube well, pump house etc. from flooding due to intensive rainfall;
- sanitation structures will be implemented above flood level;
- superstructures will be strong to cope with cyclone;
- proposed surface water treatment plant (SWTP) plant will be protected from cyclone /storm surge;
- water storage provision for emergency use;
- emergency power back up.

71. Water supply projects should include future increased demands for temperature rise, in addition to that due to increase of population and future development. For water demand projections, a 15% increased water demand due to temperature rise prediction (1.2-2.4^0 C by 2050) will be taken into account.

72. Measures will be taken to protect water supply infrastructure such as production tube wells, pump houses, etc. from flooding due to intensive rainfall. It is recommended to keep the upper well casing of tube well 1.5 m extended from the ground so that floodwater cannot move inside the well. The pump house will be constructed above flood level.

73. Sanitation systems should be installed above the flood level, for climate resilience.

74. The cyclonic strong wind will be taken into account during detailed design of the structures such as overhead tanks, pump houses, etc. to make them strong enough to withstand cyclones and to be climate resilient.

75. The proposed SWTP (at Mathbaria) will be protected from cyclones, storm surges, etc. An earthen embankment of height 4.0m above mean sea level with CC block pitching, will be constructed along the boundary of the compound. The width of the embankment crest will be 3 m, and the outside slope and inside slope will be 1:2 and 1:1 respectively.

76. River and pond water gets saline during cyclones and storm surges. A ground reservoir of capacity 2,000 m^3 is proposed for the provision of water storage for emergency use after big cyclone /storm surges.

77. Provision for power backup (generator) to keep the water supply operational if the

normal power supply gets interrupted/stopped from the National Grid during cyclones/storms.

B. Nonstructural Measures: Climate Resilience Options and Measures Proposed by CTIIP

78. For the purposes of this project, non-structural measures mean all activities besides hard capital investment. Measures will be divided between those that provide community/town-wide benefits in reducing climate vulnerabilities, and those that are associated with particular infrastructure investments.

1. Integrating Non-Structural Measures in Subproject Designs

79. The integration of the knowledge, services, resources, monitoring and policy/planning in with specific projects is critical if the measures are to be grounded in reality and provide value added for the projects.

80. The sector (water and sanitation, drainage, etc.) and process (governance, social, etc.) experts from the CTIIP PPTA project identified relevant non-structural measures to accompany the infrastructure investments. As the CTIIP is a mainstream urban sector investment project, it is important that capacity building focus on working with the institutions and individuals directly responsible for managing infrastructure and services. As staff turnover can be an issue, the capacity building needs to be sustainable, meaning a plan needs to be taken seriously by the institutions involved for how new staff learn and act on past knowledge and practices. Much capacity building can deteriorate without management support and resources. As these are identified as deficient at the pourashava level, this is one of the greatest risks.

81. As such, for each subproject identified, the design considers the above issues and come up with appropriate, project specific non-structural needs, and determine if these are subproject specific or if they can be serviced by more central activities. For instance, a water supply project may need to integrate operations with early warning systems or flood inundation monitoring, or it may be something undertaken and managed directly by staff involved in water supply operations. Conversely, some centralized non-structural activities may need to tap subproject staff to secure data or require monitoring reports at regular intervals.

82. **Table III.3** identifies and specifies the non-structural interventions that go along with the infrastructure investments. Further details of these interventions are found in **Volume I Section 5: Proposed Infrastructure Subprojects**.

Table III.3: Nonstructural Measures by Sector and Subproject

Nonstructural Measures by Sector and Subproject		
Infrastructure Project	**What is/are the Non-Structural Intervention(s)?**	**What Resources are Required? (Financial/Human/Policy/ Regulation/Capacity)**
Water: - Groundwater extraction	Maintain pumps.	Operating costs, operator and inspector, monitoring reporting, training on monitoring, etc.
- Surface water extraction	Maintain pumps and treatment facilities, ensure supply of chemicals.	Operating costs, operator and inspector, monitoring reporting, training on monitoring, etc.

Nonstructural Measures by Sector and Subproject		
Infrastructure Project	**What is/are the Non-Structural Intervention(s)?**	**What Resources are Required? (Financial/Human/Policy/ Regulation/Capacity)**
Sanitation	Maintenance of facilities, de-sludging of septic tanks services.	Operating costs, operator and inspector, monitoring reporting, training on monitoring, etc.
Storm water drainage: - Drains	Keeping drains clear. Do not throw garbage into drains. Raise awareness. Land use development planning. Prevent encroachments, IEC programmes on solid waste management and land use development.	Training/capacity/finance, human resources, regulation.
- Flood control	Agree and implement arrangements to minimize impacts of demand for irrigation water on urban flooding. Strengthen sluice management committees, make accountable to statutory bodies. Develop and implement differentiated flood management plans, according to needs and priorities. IEC programmes on flood management. Consider in zoning/ land use plans, polder development plans.	Human resources, trainging/capacity, finance, regulation (byelaws), policies.
Roads	Driving to enhance fuel efficiency.	Capacity
Cyclone Shelters	Raise awareness on use and upkeep. Practice drills (school children, other institutions or groups).	Include upkeep in DRM TOR. Incremental maintenance funding from DRM funds. Use CSOs for drills with DRM oversight.
Boat Landings	Raise awareness on climate change issues. Training of boat staff in cyclone safety. Planning for new boat landings.	Capacity
Slum Improvement	Community participation in planning, design, construction and operation. Raise cyclone safety and health, and hygiene and awareness.	Financial/Policy/Regulation/Capacity
Overall	Green construction techniques, e.g. - use “green” materials; - minimize concrete use; - use human labor rather than machines where possible (also has poverty alleviation/ social benefits).	Financial/Human

2. General, Community/Town-Wide Nonstructural Measures

83. Investments in infrastructure are not sustainable if they are not supported by a combination of methodical and continuous management and maintenance. Broader physical and institutional contexts also support or threaten a project's capacity to provide sustained service delivery. Hence CTIIP subprojects need to be supported by capacity building, ancillary investment in "soft" and non-structural measures and capital, and policies and management commitment to sustain operations and maintenance under good practices, and sometimes new and sustained financial resources. Climate changes pose additional risks to infrastructure investments and may demand additional non-structural measures, either from the onset or as climatic changes emerge over time.

84. It is important to consider non-structural climate vulnerability reduction measures in coastal towns as fitting within a broader framework of national and international mechanisms. These mechanisms, defined broadly, include financial resources, policy frameworks such as legislation and regulation, research and know-how, incentives for change, and systems of accountability will be important for the resilience and sustainability of the project. New and emerging resources and approaches need to be embraced, promoted and supported if they can address uncertainties or barriers to the investment's sustainability and climate resilience. The following are some key resources the project shall, where appropriate, integrate and leverage into project design and implementation.

85. **Financial resources, mechanisms, and incentives:** CTIIP's sustainability and long-term climate resilience depends on resources throughout the operational life of each subproject. This includes supporting the additional capital and operational expenses of infrastructure-based municipal investment and systems, and resources to minimize and cover the public costs of climate-related loss and damage.

86. There are a number of international financing mechanisms available to support projects that enhance climate resilience. The project financing plan includes funding from the Pilot Project for Climate Resilience (PPCR). PPCR covers the incremental costs of projects to be "climate proofed." As such, the aim is to "mainstream" climate adaptation into the broader development framework. The climate adaptation strategy section in this report discusses PPCR in further detail and how incremental costs will be calculated for project designs. [14]

87. New domestic and international financing mechanisms may be tapped in the future. The Bangladesh Climate Change Trust Fund (BCCTF) is funded by the government and could possibly be an option for sustained resourcing for CTIIP projects and capacity building; as could the multi-donor funded Bangladesh Climate Change Resilience Fund (BCCRF) that may provide grant support to civil society and private sector to, among other things, create "grassroots mechanisms" for community resilience. The proposed Local Disaster Risk Reduction Fund (LDRRF) managed by the Comprehensive Disaster Management Programme (CDMP) is another potential source of funds.LDRRF proposes to encourage sustainable investments by incorporating a trust fund to manage on-going upkeep. The poor upkeep of existing infrastructure (including, for instance, encroachments on canals by footpaths, houses, dams to create fishponds, and garbage disposal) is often a greater cause of climate vulnerability than the absence of infrastructure. As such, mechanisms like that proposed for the LDRRF that offer revenue for operations and maintenance can play a crucial role.

88. Beyond having the resources to maintain infrastructure, creating a financial incentive to sustain climate vulnerability reduction is the ultimate aim. There are also initiatives

[14] See CDTA, 2013, Final Report, page 18.

underway promoting instruments that credit outcome based climate vulnerability reduction. With public or private demand for these instruments, they could provide CTIIP investments with a future revenue stream to incentivize and support robust operations and maintenance of infrastructure projects.

89. For some CTIIP interventions, local level self-funding may be the most sustainable strategy. Efficiency and sustainability in water supply infrastructure can be brought about with robust financial management and monitoring of water supply which is presently a weakness in the pilot pourashavas.

90. An important component of climate resilience and disaster risk management is supporting community-based adaptation projects. As noted by Heltberg et. al, "support for adaptation should play to the strengths of community-based approaches, in particular local grounding. Small community-based projects are a viable means of supporting adaptation … although some regions may need to build the capacity of potential providers.[15] They note that grounding in local socioeconomic and climatic realities; use of local knowledge; and synergies between adaptation and development. Adaptation funding regimes should seek to exploit and promote these strengths, and communities should be involved in identifying local causes of vulnerability and in devising responses.[16]

91. Locally managed funds have been successful in serving as a route to pro-poor urban development, having channelled tens of millions of dollars to low-income neighborhood groups, providing accountability and decision-making power to often marginalized people. Development funds at the town-level can be jointly managed by communities and the pourashava in order to facilitate collaboration and capacity building.[17]

92. Funding community level climate adaptation measures using locally managed funds is a relevant approach. The IIED is currently working to provide local finance though such a fund in north Kenya.[18] Community level adaptation is an important tool requiring local level resources to be efficient, effective, and sustainable.

93. CTIIP shall design and work with local communities to set up and provide seed funding for "pro-poor community managed adaptation funds."

94. **Policies:** The Government of Bangladesh has been actively promoting climate adaptation and disaster risk management through a number of policy instruments that the CTIIP should leverage and promote.

95. The recently passed Disaster Management Act, discussed further in the next section, is encouraging a variety of policy changes that may improve the sustainability of CTIIP subprojects. The Act encourages greater attention to comprehensive disaster management over disaster response. A draft National Disaster Management Policy has been formulated, and, in addition to proposals for a disaster management fund, the Act specifically gives local disaster management committees additional authority.

96. Interviews with Pourashava officials and community organizations (see **Section VI, Volume 5**) demonstrated that local level disaster risk management is largely inactive and local level cyclone preparedness is limited primarily to disaster warning, without resources

[15] Heltberg, R., et al, (2010) Community-based Adaptation: Lessons from the Development Marketplace 2009 on Adaptation to Climate Change, Social Dimensions of Climate Change Program, Paper No. 122/June 2010.

[16] See Asian Coalition for Housing Rights (ACHR), Housing by People in Asia, No. 17, November 2007, and andUN HABITAT, Housing the Poor in Asian Cities (2008), Quick Guides for Policymakers, 5, for further information and strategies for housing finance for the poor, that may apply to community based climate adaptation finance.

[17] Mitlin, D., 2013, Locally managed funds: a route to pro-poor urban development, IIED Briefing, May 2013.

[18] Ibid.

going to awareness raising and disaster risk reduction. Pourashava officials and officials at the Comprehensive Disaster Management Programme (CDMP) acknowledge this.

97. The central government in recent consultations has identified improved local level disaster management as a priority. The CDMP is undertaking work enhance local capacity, through training on use of the Local Government Self Assessment tool to identify gaps in local urban risk reduction. Further details are noted in the following section.

98. **Urban Planning:** Urban planning is another important tool—between policy and management—that can guide climate adaptation. There are four relevant planning functions:

1. Controlling land use by preventing development in areas of high risk and in areas that exacerbate levels of risk,
2. Promoting, directing and facilitating development in areas of least risk and that are compatible with a climate resilient urban development strategy,
3. Allocating and reserving sufficient land for critical climate resilient infrastructure (such as water supply, drainage and roads) including sufficient rights-of-way and land availability, and
4. Identifying, on a continual basis, priority capital investments (for both new infrastructure and rehabilitation of existing infrastructure, and including 'natural' eco-systems infrastructure).

99. Chapter VII analyzes the status of planning in the pilot cities, and details further how the above four functions could result in more climate resilient Pourashavas. One specific recommendation to note is to develop 'Climate Change Adaptation Building Standards'. While these would not have legal force, developed on the basis of local knowledge of the five coastal towns, these could provide a short, user-friendly and straightforward guide to ensuring adaptation measures on individual sites and buildings. The PPTA performed a cost:benefit analysis of this option and found favourable returns on the costs imposed by such standards (see **Volume 7: Economic and Financial Analyses**). Adopting climate resilient building codes also resulted in the largest quantity of estimated vulnerability reduction credits of all options assessed.

100. **Technical Tools for Climate Preparedness:** As noted in the field survey report (**Volume 5, Section V**), before Cyclone Sidr many residents either did not receive warning or if they did ignored it, as they thought is might be a false alarm. A priority should be strengthening the monitoring and warning system to improve the prediction systems for weather, rainfall and cyclones and floods improve the warning and preparedness to effective and trust worthy level.

101. For the development of improved vulnerability assessments and local level adaptation plans and projects, research is needed to downscale the future prediction from the GCMs using high resolution dynamical models, such as PRECIS to local level scenarios at required time horizon. Climate investigators should have free access to the high-resolution model data generated in the national institutes. A climate database of the results containing future scenarios of the downscaled climate parameters needs to be generated and archived and be made easily available to the development projects engaged in developing climate resilience. In fact, this task is of utmost interest for the nation for implementing large number of projects dealing climate resilience.

102. An important recommendation from the CDTA report is the importance of setting up a system of monitoring flood inundation patterns during extreme rainfall events to make more reliable estimates of flood prone areas.

103. The project provides emphasis of mapping of the monsoon flood inundation,

inundation level due storm surges by Cyclone Sidr and extreme tidal inundations are required to be performed as baseline scenarios of these disasters, which needs to be followed by inundation mapping at 2050 for the selected towns. The GIS technology and availability of up to date DEM would ensure the quality of the results of the baseline study and future scenarios.

104. The damage and losses assessment for the changed climate scenarios in 2050 and further for the study pourashavas is an important task to be performed.

105. **Community Level Awareness Building, Especially for Poorer and Marginalized Groups:** Specific support in raising awareness and building capacity to adapt to climate change and disaster risk management is lacking for the most vulnerable communities (slums, those outside the embankments, and possibly women, children, elderly, and disabled). The community survey and community hazard mapping instigated by CTIIP clearly indicated that:

> "Vulnerable communities had lower quality of housing: most damage occurred to the poorest quality housing (wood/tin).
> Poor communities (slums) higher vulnerability: they have poorer housing, and for our survey and mapping were more likely to be in hazard prone areas, such as outside of embankments.
> Individual and household coping mechanisms, such as savings, were scarcer and more fragile for poorer communities.
> Warning systems in poorer communities appeared weaker, with fewer reporting early warning, and often warnings were ignored."

106. While many of the above set of non-structural measures will service all subprojects that CTIIP supports in a "centralized" way, the integration of the knowledge, services, resources, monitoring and policy/planning in with specific projects is critical if the measures are to be grounded in reality and provide value added for the projects.

107. Furthermore, it is clear that the fishing community faces particular vulnerability to cyclones. This was supported by interviews of fishermen who were impacted during Cyclone Sidr. In addition, the vulnerability of the fishing community and the need for improved warning systems for this community were issues raised by the Director General of the Bangladesh Department of Disaster Management. Establishing an improved a warning system for coastal area fishermen is thus another priority non-structural issue for CTIIP.

108. To address the lack of community knowledge and awareness of climate change and climate-related hazards, the CTIIP will develop a comprehensive community based community awareness program in each town, develop a fishing community warning system, and establish community based hazard mapping an planning, that can not only help identify climate vulnerabilities, but also options to redress these, that in turn could be funded by the locally managed climate funds discussed above.

109. **Disaster Preparedness Capacity Building:** Interviews with pourashava officials and community organizations (see Volume 5, section V, Community Perceptions of Climate Change and Disaster Risk in Study Pourashavas) demonstrated that local level disaster risk management is largely inactive and local level cyclone preparedness is limited primarily to disaster warning, without resources going to awareness raising and disaster risk reduction. Pourashava officials and officials at the Comprehensive Disaster Management Programme (CDMP) acknowledge this, and none of the four pilot towns have active Pourashava Disaster Management Committees. The central government in recent consultations has identified improved local level disaster management as a priority.

110. The Bangladesh Department of Disaster Management Director General noted that

organization of these committees was the responsibility of pourashava civil servants (Secretaries) who had many mandates and were rotated between towns on a regular basis.

111. Creating an active, resourced and effective Pourashava Disaster Management Committee (PDMC) is a key element in making local level disaster management a reality.

112. The CTIIP shall support the PDMCs through a program of capacity building, including providing the often rotated civil servants and local officials with orientation tools, and providing technical support to the committees to give them know-how and advice on options to guide local level disaster management.

3. Implementing Non-Structural Measures

113. As described above, non-structural measures related to climate adaptation are found in the subproject designs, in the urban planning program of activities (see Chapter 8, Volume 1), and specific climate and disaster management measures are integrated into a package of activities as outlined in **Table III.4**.

Figure III.4: Overview of the Climate Change and Disaster Preparedness Technical Assistance Component

Objective: Strengthen Pourashava and community level preparedness for climate change, in all CTIIP towns			
Component A	**Component B**	**Component C**	**Component D**
Climate and disaster technical tools to inform adaptation and DRM decision making	**Community-level awareness raising and warning systems for climate hazards and resilience options,** especially for the poor and marginalized	**Disaster preparedness** through support for Pourashava level Disaster Risk Management Committees	Resource pro-poor, community level adaptation through **locally managed climate resilience funds**
Outputs Downscaled climate model outputs Improved tropical cyclone projections Flood inundation monitoring and mapping Cyclone and flood loss and damage assessments/tools	**Outputs** Community awareness raising events Fishing community early warning system Community DRM hazard mapping and planning	**Outputs** Orientation system for new civil servants/officials Technical support for DRM Committees	**Outputs** Funds Design/Management Plans Locally managed funds for each subject pourashava

Source: PPTA Consultant.

114. While the training of experts, officials, and the community is important, it is far from sufficient. Considerable technical expertise and sustainable resourcing of Bangladesh/pourashava or central ministry expertise will be required, along with financial resources to fund the creation of modeling, monitoring, and evaluation infrastructure. Commitment by government offices to provide staff and implement policies to enable the above non-structural measures is also important, and a key component of the capacity building work will be working through how the above big issues can be “mainstreamed” into government policy. This may only be done if both the policy and the internal/external incentive regime are put in place.

APPENDIX 5: INRASTRUCTURE SELECTION CRITERIA

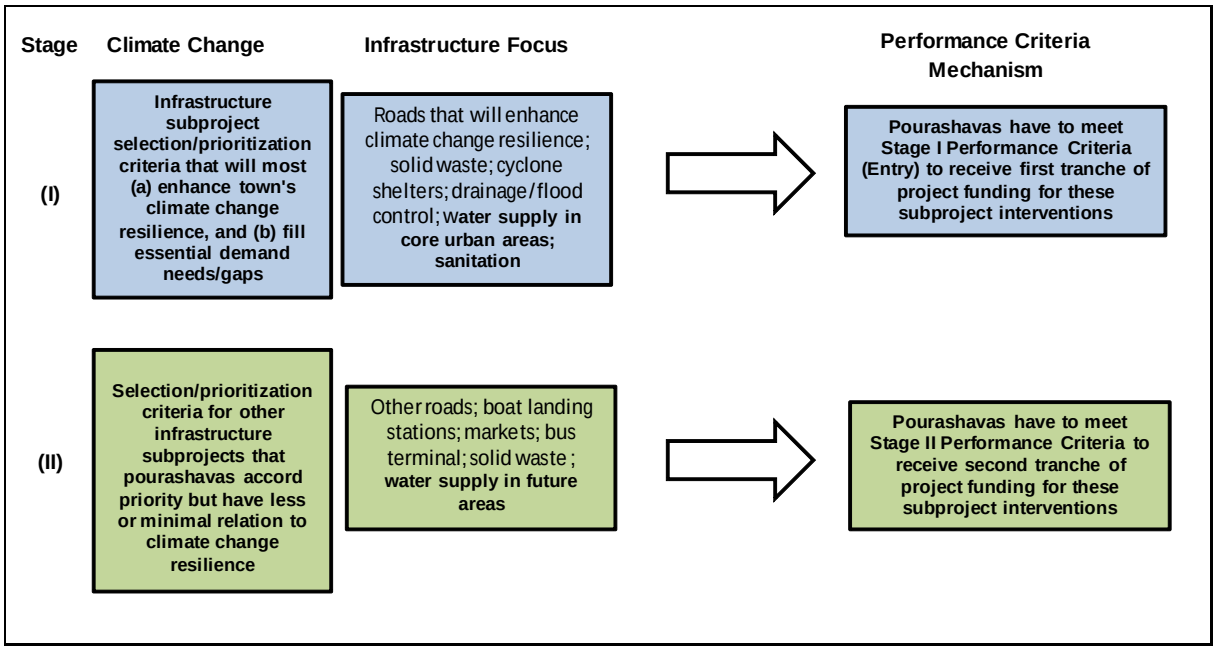
A. INTRODUCTION

Subprojects under Coastal Towns Infrastructure Improvement Project (CTIIP) will be selected based on their contribution to building resilience (i.e., reducing exposure and sensitivity) to future climate change and natural disasters.

Resilience in this context is defined as the capacity of a town to reduce damages and quickly recover from future climate related or disaster events. This is achieved by reducing a town's exposure and sensitivity through investments in climate resilient infrastructure and building human capacity to adequately plan and respond.

Release of project funds to the pourashavas will be administered under a 2-stage process known as the Performance Criteria Mechanism, whereby the project pourashavas have to meet certain institutional capacity and governance criteria to receive funding. Infrastructure subprojects therefore need to be divided between Stage I funding and Stage II funding (Figure 1).

Figure 1: Infrastructure Subproject Selection with Relation to Performance Criteria Mechanism



In accordance with the ADB Interim Mission (5-13 May 2013) Aide Memoire, investments under Performance Criteria Stage I will include those infrastructure components considered critical for building climate change resilience such as: (i) water supply for existing core urban areas, (ii) sanitation, (iii) drainage and flood control, (iv) solid waste management, (v) cyclone shelters, and (vi) roads, bridges and culverts which will enhance climate change resilience through improved connectivity and access to emergency services in the event of disasters caused by natural hazards.

Investments under Performance Criteria Stage II will include: (i) water supply for future planned development areas; (ii) other priority roads, bridges, and culverts, (iii) boat landing stations, (iv) markets, (v) bus terminals, and (vi) solid waste management.

The criteria categories to be considered are:

(i) Technical criteria.
(ii) Economic criteria (EIRR >12%).
(iii) Social criteria.
(iv) Environmental criteria.
(v) Financial and institutional criteria (for O&M).

B. TECHNICAL CRITERIA

I. General

i. The subproject will cover those services that are critical for basic human need but vulnerable due to climate change.
ii. The subproject which will help reducing damages through construction of protective infrastructure.
iii. The subproject will be aligned with Master Plan findings to the extent possible[19] and any subsequent changes thereafter, with priority given to strengthening and optimum utilization of the existing system.
iv. The subproject will be technically sound and preliminary design will have been prepared. The subproject will be designed and executed in accordance with relevant engineering standards.

II. Sector Specific

1. Roads

For Stage I investments, the selection of roads will consider the following considerations:

(i) Roads leading to existing and planned cyclone shelters, or any other establishment used as a shelter during disasters.
(ii) Roads used for key public safety and health care facilities for post-disaster response.
(iii) Roads which are critical for emergency evacuation during disaster.
(iv) Access roads for emergency services, and provision of post-disaster recovery and reconstruction goods (relief workers, food, medical supplies, etc.).
(v) Roads contributing to flood defences for vulnerable areas.
(vi) Roads that are frequently inundated due to floods.
(vii) Roads serving slum areas.

For Stage II investments, the selection of roads will consider the following considerations:

(i) Roads that pass through densely populated, commercial areas.
(ii) Roads leading to boat landing stations, bus terminals, public transport facilities.
(iii) Roads that connect to other main urban centers.
(iv) Roads that have existing drainage and culverts.

[19] It should be noted that no consideration is given to climate change resilience in the Master Plans. Since climate change resilience is an overriding theme of CTIIP, subprojects which have a strong climate change resilience element but are not included in the Master Plan may be selected for CTIIP.

If the cost of the proposed subprojects exceeds the total budget available it is expected that the scope will be prioritized based on the criteria outlined in “Key Design Parameters and prioritization criteria (Attachment, Table 1).

2. Bridges

Subprojects for bridges will usually include the repair, reconstruction, upgrading or relocation of existing bridges. If justified, new bridges can also be included. Considerations should be:

(i) Bridges are part of the roads which are selected for Stage 1 investment and critical for emergency evacuation during disasters.
(ii) Physical condition and type of existing bridge.
(iii) Number of population that will be served by the proposed bridge.
(iv) Type and quantity of vehicles that will be served by the proposed bridge.
(v) Economic growth will be enhanced by the bridge.

If the cost of the proposed subprojects exceeds the total budget available it is expected that the scope will be prioritized based on the criteria outlined in “Key Design Parameters and prioritization criteria (Attachment, Table 2).

3. Cyclone Shelters

Selection criteria:

(i) The site for cyclone shelter should be in the area vulnerable to cyclone damage.
(ii) The site should be located within or very close to the locality.
(iii) The site must be prioritized in educational, institutional or commercially let compound where the concerned authority has no objection.
(iv) The site should be selected in the area where significant numbers of population live.
(v) The site has no or minimal land acquisition requirement.

If necessary, the scope can be prioritized based on the criteria outlined in “Key Design Parameters and prioritization criteria (Attachment, Table 3).

4. Boat Landing Stations (BLS)

Selection criteria:

(i) Existing landings are deficient;
(ii) The embankment is generally suitable for a BLS and does not require substantial protection;
(iii) The BLS will not encroach into existing shipping or boat lanes;
(iv) The site has access to a main road;
(v) For passenger BLSs, minibus access is possible;
(vi) For cargo BLSs, truck access is possible.

If necessary, the scope can be prioritized based on the criteria outlined in “Key Design Parameters and prioritization criteria (Attachment, Table 4).

5. Markets

Selection criteria:

(i) The market has economical potential which earns significant revenue.
(ii) The connectivity (road, river etc) is easy and sufficient.
(iii) The site possesses sufficient land for providing sanitation facilities.
(iv) Revenue will be increased after improvement.
(v) The site has no or minimal land acquisition requirement.

If necessary, the scope can be prioritized based on the criteria outlined in “Key Design Parameters and prioritization criteria (Attachment, Table 5).

6. Bus /Truck Terminal

Selection criteria:

(i) The bus/truck terminal has is economical potential which earns significant revenue.
(ii) The site should have sufficient land for future development.
(iii) The site must be far from core town area.
(iv) Revenue will be increased after improvement/new construction.
(v) Land for the terminal should have no dispute and no or minimal land acquisition requirement.

7. Solid Waste Landfill Sites

Site selection criteria:

(i) Locate at least 500 meters from any dwelling and at least 2 km distance from any urban area and, in locations where no urban expansion is expected in the next 20 years, so that people are not affected by odour or other nuisance from the site;
(ii) Not cause any pollution to surface or ground water;
(iii) Locate at least 500 meters from any water course and avoid areas which flood regularly.
(iv) Locate landfills at sites where there is no risk of flooding or other hazards that might impair functioning of the site and present a risk of damage to the site or its environs;
(v) Have a groundwater table at least 3 meters deep with the direction of drainage checked to ensure that leachate will not pollute the water table;
(vi) Not be located in, or impact upon, environmentally sensitive areas, such as coastlines, wetlands or forests;
(vii) Have suitable impervious soil such as clay;
(viii) Be on non-agricultural land.
(ix) The site should have no or minimal land acquisition requirement.
(x) Have good quality road access to minimize vehicle wear and tear;
(xi) Have sufficient cover material;
(xii) No land ownership or acquisition problems;
(xiii) Minimize haulage distance;
(xiv) Have a potential for re-use.

If necessary, the scope can be prioritized based on the criteria outlined in “Key Design Parameters and prioritization criteria (Attachment, Table 6).

8. Drainage and Flood Control

Drainage and flood control works will be under Stage I, and there will not be any Stage 2 subprojects, i.e. that do not contribute directly to climate-resilience. This is because all the drainage and flood control subprojects implemented under the Project will mitigate the effects of climate change for the beneficiaries and their communities, and thus contribute to their climate resilience.

Eligible subprojects will comprise repair and upgrading or construction of the following drainage infrastructure which will help reduce damages from flooding and storm surge, provided it is or will be the responsibility of the pourashava only[20]:

(i) Main drains.
(ii) Side drains
(iii) Outfalls and associated structures, etc.
(iv) Minor embankments[21]
(v) Pumping stations, pumps and power back to meet emergency climate change adoption need.

As required, works to existing Main Drains and Side Drains will include one or more of:

(i) cleaning, dredging, re-excavation, realignment, removing encroachments, channel widening,
(ii) bed and/or embankment lining, raising wall or embankment levels, repairing or providing drain covers,
(iii) reconstructing or constructing retaining structures, culverts, bridges[22],
(iv) improving outfalls and control structures,
(v) repair or construction of maintenance access.

As appropriate, structures may be 'hard', i.e. concrete, steel, etc., or 'soft', i.e. flexible. The latter will mainly comprise earth-based structures, protected or reinforced by vegetation, geotextile, timber, etc.

No river training works will be included under the project.

Where appropriate subprojects may be implemented outside of polders, e.g. to serve slum communities settled on newly deposited land, etc. However, this infrastructure will not be protected against the effects of storms, and should not be prohibitively expensive to replace if and when they are lost because of a storm, erosion, etc.

If the cost of the proposed subprojects exceeds the total budget available it is expected that the scope will be prioritized based on the criteria outlined in "Key Design Parameters and prioritization criteria (Attachment, Table 1) to prioritize those that will result in the greatest benefits, especially with respect to their contribution to climate change resilience, etc., even if they are not the least-cost. However, all subprojects will be reviewed to ensure this is achieved, and they will all contribute effectively to mitigation of the effects of climate change, such as such as sea level rise and increased rainfall.

[20] BWDB is responsible for other key flood defence infrastructure that is important for achieving the climate-resilient communities envisaged by the Project. These mainly comprise river embankments and associated structures, e.g. outfalls, flood etc.

[21] To subdivide existing catchments/polders - where feasible, the main objective being to reduce impacts in important areas by retention of floodwater and controlled discharge from areas where the impacts are less serious. ,

[22] Any culverts, bridges, etc., required as part of a road improvement subproject will be designed to meet the requirements of the drainage and flood control system but will be financed through road subproject.

9. Water Supply

a) Demand for new or improved piped water supply:

Priority areas for Stage I would be:

(i) Unserved (or underserved) core urban areas.
(ii) Slum areas.

Priority areas for Stage II would be:

(iii) Economically important future urban development areas.

b) Design considerations:

(i) Water quality meets government drinking water quality standards.
(ii) 24-hour supply.
(iii) 100% metered household connections
(iv) Shared connections in slum areas as appropriate.

c) Water source:

(i) Groundwater is the preferred source if water quality meets Bangladesh drinking water standards, and there is sufficient abstraction potential.
(ii) Surface water source when the groundwater source is saline.
(iii) If surface water, river salinity throughout the year must be within the Bangladesh water quality limits.

e) Climate change considerations:

(i) Location of abstraction points.
(ii) Structural protection of facilities from future floods.
(iii) Locate WTP at sites where there is no risk of flooding or other hazards that might impair functioning of the plant or present a risk of damage to the plant or its environs;
(iv) Additional storage for supplying during any disaster/ crisis
(v) Standalone power back up for treatment plants or pumping stations

d) Environmental/resettlement considerations

(i) Avoid using water sources that may be polluted by upstream users;
(ii) Avoid water-use conflicts by not abstracting water that is used for other purposes (e.g. irrigation);
(iii) Locate pipelines within the right of way (ROW) of other linear structures (roads, irrigation canals) as far as possible, to reduce the acquisition of new land;
(iv) Ensure that pipeline routes do not require the acquisition of land from individuals in amounts that are a significant proportion of their total land holding (>10%).

10. Sanitation

a) Demand for sanitation facilities:

(i) Public toilets in strategic locations such as bus terminals, recreation areas, commercial centers.
(ii) School toilets where nonexistent or existing facilities are inadequate/inappropriate.

(iii) Community latrines for slum/ low-income areas.

b) Collection and treatment of septage:

(i) Desludging equipment.
(ii) Septage treatment plant (land required, less than for solid waste landfill).
(iii) Biogas.

c) Climate change considerations

(i) To avoid risk of flooding or other hazards, the plinth of the toilets should be kept more than 0.8 m from the ground level (GL).
(ii) To avoid contamination during flood the sludge tank should be placed, preferable above the GL
(iii) Onsite treatment of sludge will be provided with the toilets

c) Environmental considerations

(i) Ensure that the site selection for the septic tank or any other treatment method proposed is not close to water intake or water usage points, or areas prone to flooding or water logging;
(ii) Ensure no immediate downstream drinking water intakes.

C. ECONOMIC CRITERIA

The sub-project should have an economic internal rate of return of at least 12% or it should be the least-cost technical option of providing the particular service.

D. SOCIAL CRITERIA

The subproject will, to the extent possible, not require land acquisition or resettlement (which includes the displacement of squatters or encroachers from the rights of way). The subprojects which entail involuntary resettlement will be avoided; and government land will be preferred for creating new infrastructure or laying pipes or drainage channels.

If land acquisition or involuntary resettlement is required for a subproject, a Resettlement Plan will be prepared and implemented in accordance with applicable laws and regulations of the State Government, ADB's Safeguard Policy and the agreed Resettlement Framework).

If any indigenous peoples/scheduled tribes are likely to be affected significantly by a subproject, an Indigenous People Development Plan will be prepared and implemented in accordance with the ADB's Safeguard Policy and the agreed Indigenous People's Development Framework.

E. ENVIRONMENTAL CRITERIA

The subprojects will comply with environmental requirements specified in ADB's Safeguard Policy and those specified in Country's environmental regulations, including legislations and standards. The subprojects in or near environmentally sensitive locations, including sites with national or international designation for nature conservation, cultural heritage, or any such reason, will be avoided. Environmental assessment of individual subprojects will be carried out and mitigation measures identified during the assessment will be implemented in accordance with Environmental Assessment and Review Framework.

F. FINANCIAL AND INSTITUTIONAL CRITERIA

Sub-projects must demonstrate financial and institutional sustainability; this will be demonstrated by a 5-year horizon plan. The plan must address O&M cost, sources of funds i.e, State support and user charges, O&M staffing needs and service level targets agreed with the urban local bodies.

ATTACHMENT: KEY DESIGN PARAMETERS AND PRIORITIZATION CRITERIA

Table 1: Scoring Matrix (Weight) for Prioritization of Selected Roads

Criterion	Weight Max. score)	Indicator	Score Range
Stage I (first)			
1. Road connects existing and planned cyclone shelters directly (beside road), and other infrastructure used as shelters during disasters.	10	Yes No	10 5
2. Road connects key public safety and health care facilities for post-disaster response.	10	High Moderate Minimum	10 6 3
3. Road can be used for emergency services and provision of post-disaster recovery and reconstruction goods.	10	High Moderate Minimum	10 6 3
4. Road will contribute to flood defences for vulnerable area and slums.	10	High Moderate Minimum	10 6 3
5. Occurrence inundation occurs due to floods.	10	Once a year More than once a year	10 5
Total=	**50**		
Stage II (second)			
1. Road passes through (i) densely populated and/or (ii) commercial areas.	10	High (both) Moderate (singe)	10 6
2. Road connects bus terminals, public transport facilities	10	High Moderate	10 6
3. Road connects to other main urban centers.	10	High Moderate	10 6
4. Roads that have existing drainage and culverts.	10	High Moderate	10 6
Total=	**40**		

Table 2: Scoring Matrix (Weight) for Prioritization of Selected Bridges

	Criterion	Weight (Max. score)	Indicator	Score Range
1.	Existing physical condition and type of bridge.	20	Damaged bridge	20
			Bridge for non-motorized vehicles.	15
			Foot-bridge with sleepers	10
			Wooden or bamboo bridge	5
2.	Population that will be served by the proposed bridge.	10	High	10
			Significant	6
3.	Possible numbers of vehicles that will use the bridge.	10	High	10
			Significant	6
4.	Economic growth will be increased by the bridge.	10	High	10
			Significant	6
	Total =	**50**		

Note: If the total score is greater than 25, the bridge subproject will be included in Stage I implementation.

Table 3: Scoring Matrix (Weight) for Prioritization of Selected Cyclone Shelters

	Criterion	Weight (Max. score)	Indicator	Score Range
1.	Distance of existing cyclone shelter from proposed cyclone shelter.	10	None /over 1 km	10
			Over 500 m	5
			Within 500 m	0
2.	Substantial amount of people living outside the embankment will be served.	5	Yes	05
			No	0
3.	Location of proposed cyclone shelter with respect of locality.	10	Within 250m	10
			Between 250m to 500m	6
4.	Site has multipurpose use potential.	15	Yes	15
			No	0
5	Land acquisition	10	No	10
			Yes	0
	Total =	**50**		

Table 4: Scoring Matrix (Weight) for Prioritization of Selected Boat Landing Stations

Criterion	Weight (Max. score)	Indicator	Score Range
1. Condition of proposed site for Boat Landing Station (BLS).	10	Existing site with damaged / no infrastructure New site.	10 5
2. Road connectivity with the proposed BLS..	10	High Moderate	10 5
3. The feature of the river for sustainability of the BLS.	10	Suitable Moderately so	10 5
4. The BLS will be used for passengers and /or goods.	10	Multipurpose. Single-purpose.	10 5
Total =	**40**		

Table 5: Scoring Matrix (Weight) for Prioritization of Selected Markets

Criterion	Weight (Max. score)	Indicator	Score Range
1. Condition of proposed site for Market.	10	Existing site with damaged / no infrastructure New site.	10 5
2. Road connectivity with the site.	10	Well connected Poor connected	10 5
3. The site has sufficient land for providing sanitation facilities.	10	Yes No	10 0
4. The market will be used for multi-purpose business.	10	Multipurpose. Single-purpose.	10 5
5. Land acquisition	10	No Yes	10 5
Total =	**50**		

Table 6: Scoring Matrix (Weight) for Selection of Solid Waste Landfill Sites

Criterion – Proposed site is	Weight (Max. score)	Indicator	Score Range
1. located at least 500m from dwellings and water courses	15	Yes No	15 0
2. in an area that is not flooded regularly	10	Yes No, but can be protected by a bund No, and can't be protected	10 5 -10
3. has a water table depth greater than 2m below land surface	10	Yes No, but a double lining is possible No, as water table is too high	10 5 -10
4. has existing vehicle access	5	Yes No	5 0
5. has cover material is available	5	Yes No	5 0
6. not on agricultural land	5	Yes No	5 0
7. owned by government and land acquisition not required	10	Yes No	10 0
Total =	**60**	**Score of 40 to be selected**	

Table 7: Screening Matrix for Drainage and Flood Control Subprojects

No.	Criteria	Maximum weighted score	Impact, change, etc.	Score
1.	% of urban households (HHs) directly benefitting	20	>75% 50-75% 25-49% 5-25% <5%	20 15 10 5 0
2.	Financial benefits – reduction in scale & frequency of damage and repairs to physical assets, e.g. key services & infrastructure, properties, cultural & social assets, etc.	14	<75% 50-75% 25-49% 5-25% <5%	14 11 7 3 0
3.	Economic benefits – reduction in scale & frequency of economic and trading losses to individual livelihoods, commerce, businesses, agriculture, etc.	12	<75% 50-75% 25-49% 5-25% <5%	12 9 6 2 0
4.	Social benefits – reduction in scale & frequency of negative impacts on living practices/lifestyles, health, education, access to essential &, emergency services, socio-cultural facilities, poor, women & children, etc.	10	<75% 50-75% 25-49% 5-25% <5%	10 7 4 2 0
5.	Contribution to climate change resilience of pourashava	16	major, wide-scale significant moderate limited, localized none	16 12 8 3 0
6.	Per HH capital cost	6	< $50 per HH $50-$100 > $100 per HH	6 3 0
7.	O&M requirements: resources & skills, scale, frequency, cost, etc.	10	limited resources & skills, small-scale, infrequent, etc. moderate resources & skills, scale, frequency, etc. major resources & skills, large-scale, frequent, etc.	10 5 0
8.	Compatibility with Pourashava master plan/CDTA	3	compatible not compatible	3 0
9.	Scale & duration of resettlement required: loss of dwelling, business, land, temporary, permanent	9	>20 HHs, etc., or, if more, only temporarily affected 21-200 HHs, etc., or, if more, mostly temporarily affected >200 HHs, etc., permanently affected	9 4 0
Maximum total score		**100**		

APPENDIX 6: TOWN SELECTION CRITERIA

Town Selection Criteria – Step 1: Basic Eligibility Criteria for Entry

(Revised 17 July 2013)

No.	Zila (District)	Pourashava (Municipality)	*Criterion 1:* Total Population	Total Population Score: '> 30,000 = 9 25,000-30,000=6 20,000<25,000=3 < 20,000 = 0	Area (km^2)	*Criterion 2:* Population Density ($/km^2$)	Population Density Score '> 4,000 = 8 3,000-4,000 = 6 2,000<3,000=4 < 2,000 = 2	*Criterion 3:* Fund Allocation from Other Infrastructure Allocation over Last 5 Years (completed/ ongoing/upcoming projects) (BDT crore)	Other Allocation Score: <BDT 10 crore=8 BDT10-20 crore=5 BDT20-30 crore=2 BDT>30 crore=0	Total Score (Max. 25)	Ranking
1	**2**	**3**	**4**	5	**6**	**7**	**8**	**9**	**10**	**11**	**12**
			Data Source: BBS, 2011 Census		Data Source: Population Census, 2001			Data Source: LGED			
Barisal Division											
1	Barguna	1. Barguna	32,235	9	15.58	2,069	4	32.11	0	**13**	
		2. Betagi	10,204	0	4.10	2,489	4	7.35	8	**12**	
		3. Patharghata	17,177	0	13.11	1,310	2	6.48	8	**10**	
2	Barisal	1. Bakerganj	15,418	0	6.22	2,479	4	6.76	8	**12**	
		2. Banari Para	10,366	0	1.81	5,727	8	6.06	8	**16**	**IV**
		3. Gaumadi	42,438	9	16.78	2,529	4	6.42	8	**21**	**I**
		4. Mhendiganj	30,067	9	14.96	2,010	4	7.52	8	**21**	**I**
		5. Muladi	20,490	3	7.11*	2,882	4	6.47	8	**15**	**V**
3	Bhola	1. Bhola	47,477	9	22.66	2,095	4	28.85	2	**15**	**V**
		2. Burhanuddin	11,090	0	3.27	3,391	6	7.62	8	**14**	
		3. Char Fasson	19,595	0	5.95	3,293	6	24.42	2	**8**	
		4. Daulat Khan	15,128	0	2.60	7,564	8	7.4	8	**16**	**IV**
		5. Lalmohan	19,322	0	6.55	2,950	4	6.72	8	**12**	

No.	Zila (District)	Pourashava (Municipality)	*Criterion 1:* Total Population	Total Population Score: '> 30,000 = 9 25,000-30,000=6 20,000<25,000=3 < 20,000 = 0	Area (km^2)	*Criterion 2:* Population Density ($/km^2$)	Population Density Score '> 4,000 = 8 3,000-4,000 = 6 2,000<3,000=4 < 2,000 = 2	*Criterion 3:* Fund Allocation from Other Infrastructure Allocation over Last 5 Years (completed/ ongoing/upcoming projects) (BDT crore)	Other Allocation Score: <BDT 10 crore=8 BDT10-20 crore=5 BDT20-30 crore=2 BDT>30 crore=0	Total Score (Max. 25)	Ranking
1	**2**	**3**	**4**	5	**6**	**7**	**8**	**9**	**10**	**11**	**12**
4	Jhalokati	1. Jhalokati	54,029	9	16.07	3,362	6	28.48	2	**17**	**III**
		2. Nalchity	20,379	3	24.16	844	2	6.98	8	**13**	
5	Patuakhali	1. Bauphal	11,435	0	7.85*	1,457	2	6.11	8	**10**	
		2. Kalapara	17,332	0	3.75	4,622	8	12.36	5	**13**	
		3. Kuakata	9,177	0	5.11	1,796	2	10.3	5	**7**	
		4. Patuakhali	65,000	9	27.03	2,405	4	22.84	2	**15**	**V**
6	Pirojpur	1. Swarupkati	20,019	3	4.98	4,020	8	7.76	8	**19**	**II**
Dhaka Division											
7	Gopalganj	1. Gopalgonj	51,346	9	14.38	3,571	6	50.45	0	**15**	**V**
		2. Kotalipara	5,808	0	2.05	2,833	4	2.36	8	**12**	
		3. Muksudpur	19,710	0	16.77	1,175	2	6.51	8	**10**	
		4. Tungipara	8,596	0	2.10	4,093	8	2.28	8	**16**	**IV**
8	Shariatpur	1. Bhedarganj	8,169	0	2.75	2,971	4	10.43	5	**9**	
		2. Damudya	14,242	0	7.09	2,009	4	8.86	8	**12**	
		3. Naria	22,773	3	9.49	2,400	4	14.12	5	**12**	
		4. Shariatpur	49,535	9	25.50	1,943	2	40.07	0	**11**	
		5. Zanjira	21,251	3	13.18	1,612	2	10.02	5	**10**	
Khulna Division											
9	Bagerhat	1. Bagerhat	49,073	9	7.24	6,778	8	37.89	0	**17**	**III**
		2. Mongla	39,837	9	19.40	2,053	4	24.59	2	**15**	**V**
		3. Morrelganj	21,741	3	6.00	3,624	6	10.46	5	**14**	

No.	Zila (District)	Pourashava (Municipality)	*Criterion 1:* Total Population	Total Population Score: '> 30,000 = 9 25,000-30,000=6 20,000<25,000=3 < 20,000 = 0	Area (km^2)	*Criterion 2:* Population Density ($/km^2$)	Population Density Score '> 4,000 = 8 3,000-4,000 = 6 2,000<3,000=4 < 2,000 = 2	*Criterion 3:* Fund Allocation from Other Infrastructure Allocation over Last 5 Years (completed/ ongoing/upcoming projects) (BDT crore)	Other Allocation Score: <BDT 10 crore=8 BDT10-20 crore=5 BDT20-30 crore=2 BDT>30 crore=0	Total Score (Max. 25)	Ranking
1	**2**	**3**	**4**	5	**6**	**7**	**8**	**9**	**10**	**11**	**12**
10	Khulna	1. Chalna (formerly Dacope)	14,188	0	22.00**	645	2	7.35	8	**10**	
		2. Paikgachha	16,017	0	2.52	6,356	8	5.46	8	**16**	**IV**
11	Satkhira	1. Kalaroa	27,250	6	14.54	1,874	2	4.68	8	**16**	**IV**
		2. Satkhira	113,322	9	36.45	3,109	6	38.15	0	**15**	**V**
		Total=36									

Note: * Area of Upazila Headquarters. ** Area of Dacope Upazila Headquarters, which is Chalna (sea port).

Town Selection Criteria – Step 2: Vulnerability Ranking Criteria

(Revised 7 July 2013)

No.	District	Pourashava	*Criterion 1:* Location of Town, whether in 'Exposed" or 'Interior' Zones	Location Score: Exposed=6, Interior=3	*Criterion 2:* Poverty – Proportion of Population below Upper Poverty Line (Head Count Rate - HCR)	Poverty Score: HCR <0.20=0 0.20-0.36=1 0.36-0.48=2 0.48-0.60=3 >0.60=4	*Criterion 3:* Water Salinity	Water Salinity Score: Salinity >1 ppt=4 <1 ppt=2	*Criterion 4:* Exposure to Storm Surges 2050	Exposure to Storm Surges 2050 Score: >6m=6 >3m=4 >1m=2	*Criterion 5:* Coastal Embankment (Existing/ Ongoing/ Planned)	Coastal Embankment Score: There is Existing/ Ongoing/ Planned Embankment=5 There is none =0	Total Score (Max. 25)	Ranking
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			Data Source: Map of Coastal Zone of Bangladesh, Coastal Development Strategy, Ministry of Water Resources, 2006		Data Source: Updating Poverty Maps of Bangladesh, 2009, World Bank and UN World Food Programme		Data Source: CEGIS – Map: Susceptible to Different Natural Hazards in Bangladesh		Data Source: IWM – Map: Storm Surge Inundation Depth Very High Risk Area (2050)		Data Source: BWDB database			
Barisal Division														
1	Barguna	1. Barguna	Exposed	6	>0.6	4	>1 ppt	4	>3m	4	Polder, CEIP-1	5	23	I
		2. Betagi	Interior	3	0.48-0.60	3	<1 ppt	2	>3m	4	Polder	5	17	VI
		3. Patharghata	Exposed	6	0.48-0.60	3	>1 ppt	4	>3m	4	Polder, CEIP-1	5	22	II
2	Barisal	1. Bakerganj	Interior	3	>0.6	4	<1 ppt	2	>1m	2	None	0	11	
		2. Banari Para	Interior	3	0.48-0.60	3	<1 ppt	2	>1m	2	None	0	10	
		3. Gaumadi	Interior	3	0.48-0.60	3	<1 ppt	2	>1m	2	None	0	10	
		4. Mehendiganj	Interior	3	>0.6	4	<1 ppt	2	>3m	4	None	0	13	
		5. Muladi	Interior	3	>0.6	4	<1 ppt	2	>3m	4	None	0	13	
3	Bhola	1. Bhola	Exposed	6	0.36-0.48	2	<1 ppt	2	>3m	4	Polder	5	19	IV
		2. Burhanuddin	Exposed	6	0.36-0.48	2	<1 ppt	2	>3m	4	Polder	5	19	IV
		3. Char Fasson	Exposed	6	0.48-0.60	3	>1 ppt	4	>3m	4	Polder	5	22	II
		4. Daulat Khan	Exposed	6	0.48-0.60	3	<1 ppt	2	>3m	4	Polder	5	20	III
		5. Lalmohan	Exposed	6	0.36-0.48	2	>1 ppt	4	>3m	4	None	0	16	

No.	District	Pourashava	*Criterion 1:* Location of Town, whether in 'Exposed" or 'Interior' Zones	Location Score: Exposed=6, Interior=3	*Criterion 2:* Poverty – Proportion of Population below Upper Poverty Line (Head Count Rate - HCR)	Poverty Score: HCR <0.20=0 0.20-0.36=1 0.36-0.48=2 0.48-0.60=3 >0.60=4	*Criterion 3:* Water Salinity	Water Salinity Score: Salinity >1 ppt=4 <1 ppt=2	*Criterion 4:* Exposure to Storm Surges 2050	Exposure to Storm Surges 2050 Score: >6m=6 >3m=4 >1m=2	*Criterion 5:* Coastal Embankment (Existing/ Ongoing/ Planned)	Coastal Embankment Score: There is Existing/ Ongoing/ Planned Embankment=5 There is none =0	Total Score (Max. 25)	Ranking
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4	Jhalokati	1. Jhalokati	Interior	3	0.48-0.60	3	<1 ppt	2	>1m	2	None	0	10	
		2. Nalchity	Interior	3	>0.60	4	<1 ppt	2	>1m	2	None	0	11	
5	Patuakhali	1. Bauphal	Interior	3	>0.60	4	<1 ppt	2	>3m	4	None	0	13	
		2. Kalapara	Exposed	6	>0.60	4	>1 ppt	4	>3m	4	Polder	5	23	I
		3. Kuakata	Exposed	6	>0.60	4	>1 ppt	4	>3m	4	None	0	18	V
		4. Patuakhali	Interior	3	0.36-0.48		<1 ppt	2	>3m	4	Polder	5	16	
6	Pirojpur	1. Swarupkati	Interior	3	<0.20	0	<1 ppt	2	>1m	2	None	0	7	
Dhaka Division														
7	Gopalganj	1. Gopalgonj	Interior	3	0.36-0.48	2	<1 ppt	2	>1m	2	None	0	9	
		2. Kotalipara	Interior	3	0.36-0.48	2	<1 ppt	2	>1m	2	None	0	9	
		3. Muksudpur	Interior	3	0.36-0.48	2	<1 ppt	2	>1m	2	None	0	9	
		4. Tungipara	Interior	3	0.36-0.48	2	<1 ppt	2	>1m	2	None	0	9	
8	Shariatpur	1. Bhedarganj/ Vedarganj	Interior	3	0.36-0.48	2	<1 ppt	2	>3m	4	None	0	11	
		2. Damudya	Interior	3	0.20-.0.36	1	<1 ppt	2	>3m	4	None	0	10	
		3. Naria	Interior	3	0.20-.0.36	1	<1 ppt	2	>1m	2	None	0	8	
		4. Shariatpur	Interior	3	0.20-.0.36	1	<1 ppt	2	>1m	2	None	0	8	
		5. Zanjira/ Jajira	Interior	3	0.20-.0.36	1	<1 ppt	2	>1m	2	None	0	4	
Khulna Division														
9	Bagerhat	1. Bagerhat	Interior	3	0.36-0.48	2	>1 ppt	4	>1m	2	Polder, CEIP-1	5	16	
		2. Mongla	Exposed	6	>0.60	4	>1 ppt	4	>1m	2	None	0	16	
		3. Morrelganj	Exposed	6	>0.60	4	>1 ppt	4	>3m	4	None	0	18	V
10	Khulna	1. Chalna (formerly Dacope)	Exposed	6	>0.60	4	>1 ppt	4	>1m	2	Polder, CEIP-1	5	10	

No.	District	Pourashava	*Criterion 1:* Location of Town, whether in 'Exposed" or 'Interior' Zones	Location Score: Exposed=6, Interior=3	*Criterion 2:* Poverty – Proportion of Population below Upper Poverty Line (Head Count Rate - HCR)	Poverty Score: HCR <0.20=0 0.20-0.36=1 0.36-0.48=2 0.48-0.60=3 >0.60=4	*Criterion 3:* Water Salinity	Water Salinity Score: Salinity >1 ppt=4 <1 ppt=2	*Criterion 4:* Exposure to Storm Surges 2050	Exposure to Storm Surges 2050 Score: >6m=6 >3m=4 >1m=2	*Criterion 5:* Coastal Embankment (Existing/ Ongoing/ Planned)	Coastal Embankment Score: There is Existing/ Ongoing/ Planned Embankment=5 There is none =0	Total Score (Max. 25)	Ranking
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		2. Paikgachha	Interior	3	0.48-0.60	3	>1 ppt	4	>1m	2	Polder, CEIP-1	5	17	VI
11	Satkhira	1. Kalaroa	Interior	3	0.48-0.60	3	>1 ppt	4	>1m	2	Polder	5	17	VI
		2. Satkhira	Interior	3	0.36-0.48	2	>1 ppt	4	>1m	2	Polder	5	16	

Town Selection Ranking– Step 1 and Step 2 Combined
(17 July 2013)

No.	District	Pourashava	Step 1 Total Score (Max. 25)	Step 2 Total Score (Max. 25)	Steps 1 and 2 Total Score (Max. 50)	Overall Ranking
1	2	3	5	4	6	7
Barisal Division						
1	Barguna	1. Barguna	13	23	**36**	**I**
		2. Betagi	12	17	**29**	
		3. Patharghata	10	22	**32**	**IV**
2	Barisal	1. Bakerganj	12	11	**23**	
		2. Banari Para	16	10	**26**	
		3. Gaumadi	21	10	**31**	
		4. Mehendiganj	21	13	**34**	**II**
		5. Muladi	15	13	**28**	
3	Bhola	1. Bhola	15	19	**34**	**II**
		2. Burhanuddin	14	19	**33**	**III**
		3. Char Fasson	8	22	**30**	
		4. Daulat Khan	16	20	**36**	**I**
		5. Lalmohan	12	16	**28**	
4	Jhalokati	1. Jhalokati	17	10	**27**	
		2. Nalchity	13	11	**24**	
5	Patuakhali	1. Bauphal	10	13	**23**	
		2. Kalapara	13	23	**36**	**I**
		3. Kuakata	7	18	**25**	
		4. Patuakhali	15	16	**31**	
6	Pirojpur	1. Swarupkati	19	7	**26**	
Dhaka Division						
7	Gopalganj	1. Gopalgonj	15	9	**24**	
		2. Kotalipara	12	9	**21**	
		3. Muksudpur	10	9	**19**	
		4. Tungipara	16	9	**25**	
8	Shariatpur	1. Bhedarganj/ Vedarganj	9	11	**20**	
		2. Damudya	12	10	**22**	
		3. Naria	12	8	**20**	
		4. Shariatpur	11	8	**19**	
		5. Zanjira/ Jajira	10	4	**14**	
Khulna Division						
9	Bagerhat	1. Bagerhat	17	16	**33**	**III**
		2. Mongla	15	16	**31**	
		3. Morrelganj	14	18	**32**	**IV**
10	Khulna	1. Chalna (formerly Dacope)	10	10	**20**	
		2. Paikgachha	16	17	**33**	**III**
11	Satkhira	1. Kalaroa	16	17	**33**	**III**
		2. Satkhira	15	16	**31**	

APPENDIX 7: PERFORMANCE CRITERIA

Instructions:

I. Towns wishing to access Stage I and Stage II investments need to fulfill relevant performance criteria below. For Stage I, a town must fulfill the criteria within 6 months of commencement of capacity building support.[23]
II. For Stage II, a town must fulfill the criteria within 1.5 years of the completion of Stage I
III. A performance evaluation committee will be formulated in LGED to assess compliance with the criteria.
IV. Towns, both Batch 1 and Batch 2, will receive capacity support from consultants.
V. A signed Partnership Agreement submitted to the PMU is a pre-condition for entry to Stage I.

STAGE I

	Activity	Performance Indicators	Capacity Support[24]	Score
A. Strengthened Climate-Disaster Resilience				
A.1	Establish Standing Committee (SC) for Disaster Management as per Section 3, Chapter 2, Article 55 of Local Govt. (Pourashava) Act, 2009	• Submit copy of draft resolution by *pourashava* with list of members and TOR. The TOR to clarify role of SC and *pourashava* in disaster management, early warning systems, and emergency/evacuation planning. • Submit copy of draft public announcement.	• Help *pourashava* in preparing resolution. • Prepare the TOR of the committee and help organize first meeting and prepare and disclose minutes. • Ensure active participation of women and poor.	1 point
B. Strengthened Citizen Participation and Social Accountability				
B.1	Establish Town-level Coordination Committee (TLCC) and Ward Level Coordination Committee (WLCC)	• Submit copy of official notice establishing TLCC and WLCC with TOR. • Submit copy of minutes prepared which were publicly disclosed.	• Prepare the TOR of the committee in consultation with *pourashava* and help organize first meeting and prepare and disclose minutes. • Ensure active participation of women and poor.	1 point
B.2	Establish Grievance Redress Cell (GRM)	• Submit copy of official notice establishing a grievance redress cell with membership and procedures. • Photo of complaint drop box in *pourashava* office.	• Prepare the procedures of the GRM in consultation with *pourashava*, and help establish drop box. • Provide guidance in effectively addressing grievances as per procedures.	1 point

[23] For Batch 1 towns, mobile support capacity teams were mobilized on 16 June 2013. Compliance with Stage I is required by 16 December 2013.
[24] Batch 1 towns receive support from mobile support teams under PPTA. Batch 2 towns will receive capacity support under the loan.

	Activity	Performance Indicators	Capacity Support[24]	Score
			• Help *pourashava* notify public of GRC.	
B.3	Participatory Budget Process	• Municipal budget discussed in TLCC meeting. • Submit copy of minutes prepared which were publicly disclosed.	• Help organize first meeting and help prepare and disclose minutes. • Ensure active participation of women and poor.	1 point
B.4	Poverty Reduction Action Plan (PRAP)	• Initiate preparation of PRAP with budget requirement and source of fund • Submit report to PMU outlining activities taken to prepare and finalize PRAP.	• Prepare PRAP in consultative process including budget requirement and source of fund to be adopted by council and available to public. • Prepare and submit report to PMU.	1 point
B.5	Gender Action Plan (GAP)	• Initiate preparation of GAP with budget requirement and source of fund • Submit report to PMU outlining activities taken to prepare and finalize GAP.	• Prepare GAP in consultative process including budget requirement and source of fund to be adopted by council and available to public. • Prepare and submit report to PMU.	1 point
C. Improved Municipal Planning, Service Delivery, and O&M				
C.1	Establish a dedicated pourashava Water Supply and Sanitation Section (PWSSS) separate from Engineering Section	Submit copy of draft resolution from *pourashava* establishing a separate (stand-alone) PWSSS with clear organogram and TOR.	• Help *pourashava* in preparing resolution. • Assist and advise the *pourashava* in establishing the PWSSS in consultation with DPHE and LGD.	1 point
C.2	Annual O&M Plan	• Initiate preparation of Annual O&M Plan with budget requirement and source of fund • Submit report to PMU outlining activities taken to prepare and finalize O&M Plan.	• Prepare O&M Plan including budget requirement and source of fund to be adopted by council and available to public. • Prepare and submit report to PMU.	1 point
D. Strengthened Municipal Financial Management				
D.1	Computerization of financial accounts and billing	• Submit copy of resolution in *pourashava* to establish a computerized accounting system • Submit assessment report of existing situation with action plan for achieving full computerization.	• Help pourashava adopt a resolution. • Submit assessment report of existing situation, with TOR, budget, procurement requirements, and time-bound action plan for achieving full computerization.	1 point

STAGE II

	Activity	Performance Indicators	Capacity Support[25]	Score
A. Strengthened Climate-Disaster Resilience				
A.1	Standing Committee (SC) for Disaster Management operating as per TOR.	• Submit copy of official resolution establishing the SC. • Meets at least twice a year and functioning effectively as per TOR. • Meetings publicly announced with active participation of women and poor. • Minutes prepared and publicly disclosed. • Submit copy of public announcement for meeting • Submit copy of meeting minutes prepared which were publicly disclosed.	Help SC organize meetings and prepare minutes.	1 point
B. Strengthened Citizen Participation and Social Accountability				
B.1	Town-level Coordination Committee (TLCC) and Ward Level Coordination Committee (WLCC) functioning effectively	• Meets at least quarterly and functioning effectively as per TOR. • Meetings publicly announced with active participation of women and poor. • Minutes prepared and publicly disclosed. • Submit copy of public announcement for meeting • Submit copy of meeting minutes prepared which were publicly disclosed.	Help SC organize meetings and prepare minutes.	1 point
B.2	Grievance Redress Cell (GRM) functioning effectively	• GRC receives and addresses complaints/grievances as per procedures • Submit report to PMU summarizing complaints received, measures to resolve, and status of complaint.	• Facilitate GRC in receiving and addressing complaints as per procedures. • Assist in preparing report.	1 point
B.3	Participatory Budget Process functioning effectively	• Budget discussed in TLCC meeting • Minutes prepared and publicly disclosed. • Submit copy of public announcement for meeting • Submit copy of meeting minutes prepared which were publicly disclosed.	Assist in announcing the meeting.	1 point
B.4	Poverty Reduction Action Plan (PRAP)	• Submit copy of officially endorsed PRAP supported with budget and clear fund source identified.	Prepare PRAP including budget requirement and source of fund to be adopted by council and available to	1 point

[25] Batch I towns receive capacity support from mobile support teams (MST) under PPTA. Batch II towns will receive capacity support under the loan.

	Activity	Performance Indicators	Capacity Support[25]	Score
			public.	
B.5	Gender Action Plan (GAP)	• Submit copy of officially endorsed GAP supported with budget and clear fund source identified.	Prepare GAP including budget requirement and source of fund to be adopted by council and available to public.	1 point
C. Improved Municipal Planning, Service Delivery, and O&M				
C.1	*Pourashava* Water Supply and Sanitation Section (PWSSS) functioning effectively	• Submit copy of approved resolution establishing PWSSS • PWSSS fully staffed as per organogram. Submit list of names for each position. • Separate account for water supply established (ring fenced). Submit copy of account statement. • Tariff rate set to cover O&M and portion of future investment and adjusted for inflation. • Submit copy of approved resolution declaring tariff. • Tariff collection at least 90%	• Assist and advise the *pourashava* in establishing the PWSSS in consultation with DPHE. • Prepare TOR and avoid overlap with other engineering sections of *pourashava*. • Support in filling vacancies. • Provide capacity support to staff and in tariff setting.	1 point
C.2	Annual O&M Plan	Submit copy of Annual O&M Plan with clear O&M budget and fund source identified.	Prepare O&M Plan including budget requirement and source of fund to be adopted by council and available to public.	1 point
D. Strengthened Municipal Financial Management				
D.1	Financial statements	• Submit copy of audited financial statements of *pourashava*	Help *pourashava* with audited financial statements	1 point
D.2	Computerization of financial accounts and billing	• Computerized accounting and billing system established. • 100% invoices issued and computer-generated tax-billing reports generated and made public • Submit report summarizing actions taken.	• Help *pourashava* adopt resolution, prepare condition assessment report, procurement requirements. • Help prepare report.	1 point
D.3	Property and tax assessment carried out regularly	• Property and tax assessment carried out regularly. • Submit official report to PMU outlining efforts and achievements made.	Guide *pourashava* in conducting property assessments and prepare report.	1 point
D.4	Increased tax collection	• Collection rate of at least 80%. • Submit official report to PMU	Guide *pourashavas* improving tax collection and prepare report	1 point
D.5	Non-tax revenue source management	• All non-tax revenue sources to be identified and taken into account and increase is at least equal to the official inflation rate • Submit official report.	Guide *pourashavas* in improving non-tax revenue and prepare report	1 point

	Activity	Performance Indicators	Capacity Support[25]	Score
D.6	Settlement of outstanding bills, especially services to GOB	• Outstanding service bills (3 months and over) especially GOB/service providers to be settled. • Submit official report to PMU	Guide *pourashavas* in improving non-paying bills and prepare report.	1 point

APPENDIX 8: DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact Improved access to and delivery of climate resilient municipal services in project pourashavas, and reduction of the occurrence of water-related diseases, with reduced exposure to climate extremes.	By end of project in 2020: ▪ Economic activity increased. ▪ Pourashavas more resilient to climate change as shown by number of people supported by PPCR to cope with effects of CC (PPCR Indicator A1.3). ▪ Change in damage/losses ($) from extreme climate events (PPCR Indicator A1.2). ▪ Climate resilient land use and building construction in practice.	▪ Bangladesh demographic and health surveys (BDHS). ▪ BBS data. ▪ Tax collection/revenue records. ▪ Post Disaster Needs Assessment Reports. ▪ Quarterly review of building permits/infrastructure development by standing committee on planning, citizen services and development.	Assumptions ▪ Municipal finances support increasing demand for urban basic services. ▪ Proper O&M system is implemented ▪ Climate change related impacts are within predicted levels. Risks ▪ Improved infrastructure may not be utilized properly, reducing the impact
Outcome Provision of more accessible, reliable and climate-improved services to the population of the project pourashavas.	By end of project in 2020: ▪ Urban Roads and Bridges: Proportion of climate-resilient roads increased from 0% in 2013 to 17%. ▪ Cyclone shelters: Capacity increased from 10% of population in 2013 by 10% to 20%. ▪ Solid waste management: Population with collected solid waste increased from 60% in 2013 to 90%. ▪ Revenue from Boat landings increased by 25%. ▪ Drainage: Duration of backed up/ stagnant water bodies reduced from up to 30 days in 2013 to less than 3 days. ▪ Piped Water Supply: average service coverage increased from 39% at present to at least 60% of households within project pourashavas. ▪ Sanitation: Coverage of public toilets increased from <1.0 per 1,000 HH in 2013 to at least 1.0 per 1,000 HH. ▪ Disaster Risk Management Integrated into Pourashava (PPCR Indicator B1). ▪ Climate/DRM Community - Level Finance Mechanism in place (PPCR Indicators B4 and B5) In place (PPCR Indicators B4 and B5). ▪ Urban Planning: climate resilient master plans revised and adopted for each participating pourashava.	▪ Pourashava records. ▪ Project-specific evaluation surveys ▪ Poursahava DRM plans formulated and adopted. ▪ Finance mechanism funds dispersal records. ▪ Master plans revised and incorporating climate resilience and adaptation measures.	Assumptions ▪ Sustained and sufficient revenue is generated. ▪ Quality of current raw water sources does not deteriorate. ▪ Project is supported by national, divisional and district governments Risks ▪ Tariff and charges required for O&M are not affordable or socially acceptable. ▪ Operation of new infrastructure is technically not sustainable due to limited human resources.
Outputs 1. Improved municipal infrastructure with climate-resilient designs in project pourashavas	Batch 1 Pourashavas (4 no.) Municipal infrastructure (all 4 pourashavas) ▪ 50 km of urban roads improved. ▪ 60,000 no. beneficiaries from road improvements (PPCR indicator A1.3) ▪ 5 no. bridges (80m) upgraded/built. ▪ 12 no. boat landing stations	▪ Records of pourashavas. ▪ Quarterly progress and completion reports by LGED. ▪ Periodic project monitoring, during implementation	Assumptions ▪ Raw water sources have sufficient dependable yields ▪ Commitment of municipalities is sustained. ▪ Water tariffs are adjusted to cover appropriate costs. ▪ Sufficient budget will be made available for operation

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	▪ 11 no. cyclone shelters ▪ 9 no. solid waste transfer stations and 4 no. landfills Drainage and flood control (all 4 pourashavas) ▪ 44.12 km existing drainage lines improved ▪ 5.10 km new drainage lines ▪ 5 no. culverts ▪ HHs in climate vulnerable hotspots (BPL and FHHs among them) report a 50% reduction in the impact of flooding on their lives (PPCR indicator A1.3). Piped Water Supply (no facilities are proposed for Pirojpur) ▪ 4 no. production wells, pump houses, electrical and mechanical equipment (Amtali, Galachipa) ▪ 1 no. SWTP, intake structure, earthworks, electrical & mechanical equipment (Mathbaria) ▪ 3 no. overhead tanks (Amtali, Galachipa, Mathbaria). ▪ 114 km transmission and distribution pipes installed or upgraded (Amtali, Galachipa, Mathbaria) ▪ 7,260 no. service connections (Amtali, Galachipa, Mathbaria). ▪ 10,890 no. of households with new or improved water supply (Amtali, Galachipa, Mathbaria), including all low income HHs (FHHs among them) in project coverage areas (PPCR indicator A1.4) Sanitation (no facilities are proposed for Pirojpur) ▪ 16 no. public toilets ▪ 10 no. school latrine facilities ▪ 26 no. community toilets ▪ 260 no. households with new or improved sanitation, through implementation of community latrines (PPCR indicator A1.3) ▪ Water and sanitation user groups formed and functional at all locations where community facilities provided		and maintenance of facilities ▪ Uptake of provided information by stakeholders and translated into actions ▪ Cost of physical improvements by households is affordable. Risks ▪ Beneficiaries are not willing or cannot afford to connect to the water supply systems. ▪ Political issues. ▪ Change in the elected officials may affect infrastructure development priorities.
2. Strengthened local governance and institutional capacity for sustainable service delivery, urban planning and disaster risk management	Administrative ▪ MIS introduced in each town ▪ Active TLCCs and WLCCs in each town (at least 30% women participation) ▪ 100 staff in the project pourashavas trained (with 10% women trainees) ▪ Climate Monitoring and Evaluation System in place at pourashava level (PPCR Indicator B2, B3, B5) ▪ Pourashavas adequately staffed with technical, professional and O&M personnel (of which 10% are women) Financial ▪ Performance criteria mechanism is being applied to decide future	▪ Quarterly progress and completion reports by LGED. ▪ Urban planning training and briefing curriculum, training reports and post-training evaluations.	Assumptions ▪ Key municipal officials receiving necessary skills training remain in their positions. ▪ Public participation reflects all segments of community.

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	investment strategy. ▪ Holding tax revenue increased at least by 5% each year in all project towns. ▪ Computerized accounting and tax records introduced. ▪ Community level financing mechanism in place and funding community level adaptation (PPCR Indicator B2, B4, B5). ▪ Adequate budget provision for O&M for all infrastructure, including that built under the project. Technical ▪ Effective O&M is practiced for all infrastructure, including that built under the project. ▪ Water safety plans are being implemented. ▪ Improved downscaled climate outputs and seasonal/long term weather forecasting at local level (PPCR Indicator B3). ▪ Applied research on flood inundation patterns and maps in each Pourashava (PPCR Indicator B3). ▪ Pourashava development plans that incorporate climate change considerations developed in project towns (PPCR Indicator B1, B2, B3). ▪ Active Pourashava Disaster Management Committees. ▪ Urban Planners present in each pourashava, with key pourashava officials, elected representatives and TLCC/WLCC members trained and/or briefed in urban planning.		
3. Awareness raising and behavioral change in community-based climate change adaptation and disaster preparedness, water conservation and hygiene activities.	▪ Disaster reduction and management plans are in place (PPCR Indicator B1, B2, B3, B5) ▪ Pourashava Disaster Risk Management Committees functional (PPCR Indicator B2) ▪ Early warning systems informed by community hazard maps and analysis are in place and cover vulnerable communities (PPCR B1, B2, B3, B5) ▪ Campaigns on climate change adaptation, disaster risk preparedness and WASH are carried out annually in project pourashavas (PPCR Indicator A1.3, B1, B2, B3). 50% participants in all awareness campaigns are women ▪ Gender action plan is being implemented, with adequate resources. ▪ Water conservation plans are being implemented. ▪ Hygiene measures are widely practiced.	▪ Quarterly progress and completion reports by LGED. ▪ Management plans. ▪ Disaster Management Committee Minutes.	
4. Project management and administration support	▪ Project management system is operational with PMU established in LGED, and PIUs established in each	▪ Quarterly progress and completion reports by LGED	Risks ▪ PIUs low capacity for procurement and project

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	project town ▪ Project is implemented on time and within budget ▪ Strengthened and functional Gender Units in all 4 pourashavas		management.
Activities with Milestones Output 1. Improved municipal infrastructure with climate-resilient design in coastal towns 1.1 Mobilization of detailed design consultants under PDA (Q3 2013) 1.2 Bid documents issued for Batch 1 towns (Q3 2014) 1.3 Mobilization of PMSC team to support PMU and PIUs under loan (Q2 2014) 1.4 Mobilization of Institutional Strengthening and Awareness Building TA team (Q2 2014) 1.5 Implementation of civil works in Batch 1 towns (Q4 2014 – Q4 2017) 1.6 For Batch 2 towns, identification of priority infrastructure interventions, and feasibility study and detailed design, conducted by PDA consultants (Q4 2013 – Q2 2015) 1.7 Bid documents issued for Batch 2 pourashavas (Q3 2015) 1.8 Implementation of civil works for Batch 2 pourashavas (Q4 2015 – Q4 2019) Output 2. Strengthened governance and capacity for sustainable service delivery and urban planning 2.1 Strengthening of financial, technical, and institutional capacity to comply with performance criteria, conducted by mobile capacity building teams under PPTA for Batch 1 pourashavas (Q2 2013 – Q1 2014) 2.2 Mobilization of ISABC team (Q4 2013) 2.3 Assistance to Batch 2 towns to comply with performance criteria, by PMSC team (Q2 2015-Q2 2016) 2.4 Strengthening of financial, technical, and institutional capacity improvement by ISABC team for Batch 2 towns (Q1 2015 – Q4 2016) Output 3. Awareness Raising and Behavioral Change 3.1 Mobilization of NGO awareness raising team (Q4 2013) 3.2 Design of awareness and behavioral change campaigns (Q1-Q3 2014) 3.2 Implementation of awareness and behavioral change campaigns in project towns (Q4 2014 - Q4 2018) Output 4. Project management and administration support 4.1. PMU and PIUs established (Q1 2014) 4.2. Project performance management system developed with baseline surveys (Q1 –Q4 2014) 4.3 Monitoring and reporting (Q2 2014-Q2 2020)		Inputs Loan and Grant Total: $115.6 million ADB: $52.0 million ADB SCF: $40.5 million Government: $23.1 million	
ADB=Asian Development Bank, BBS=Bangladesh Bureau of Statistics, BDHS=Bangladesh demographic health surveys, BPL=below poverty line, FHH=female headed households, GIS=Geographic Information Systems, HH=household, ISABC=Institutional Strengthening and Awareness Building Consultant, LGED=Local Government and Engineering Department, MIS=management information systems; O&M=operation and maintenance, PDA=project design advance, PIU=project implementation unit, PMSC=Project Management and Supervision Consultant, PMU=project management unit, SCF=Strategic Climate Fund, SWTP=surface water treatment plant, TLCC=town level coordination committee; WASH=water/sanitation/hygiene, WLCC=ward level coordination committees. Source: PPTA Consultant			

APPENDIX 9: PROCUREMENT PLAN

Table 2(a): Summary of Goods and Works Contracts within First 18 months of CTIIP

Table 2(b)(i): Goods Contracts Within First 18 months of CTIIP

Table 2(b)(ii): Tentative Estimate for Goods Contracts Within First 18 months of CTIIP

Table 2(c): Works Contracts within First 18 months of CTIIP

Table 2(a): Summary of Goods and Works Contracts Within First 18 months of CTIIP

Summary of Procurement Plan for Goods and Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)

Category	Total No. of Packages	Maximum No. of Contracts (Lots*[1])	Total Estimated Value of Contracts (USD in million)	Comments
Goods	**7**	**7**	**1.27**	Note*2: * Exact value of each contract package yet to be decided subject to availability of adequate fund. A tentative cost estimate for goods is attached.
Works Part-1 (Amtali Pourashava)	7	10	4.65	All NCB contracts.
Works Part-2 (Galachipa Pourashava)	8	12	7.33	All NCB contracts.
Works Part-3 (Mathbaria Pourashava)	8	11	8.84	Includes 1 ICB contract of value USD 3.97 m.
Works Part-4 (Pirojpur Pourashava)	9	14	10.49	All NCB contracts.
Works - Sub-Total	32	47	**31.31**	
			32.59	
Grand Total	**39**	**54**	10.49	

Note[1]*: The procurement plan for civil works includes 12 packages having 2 or 3 lots. Each lot in a package may be seperately awarded to different bidders. However, if a bidder wins all lots in a package, only one contract will be signed for the package.*

Table 2(b)(i): Goods Contracts Within First 18 months of CTIIP

Procurement Plan for Goods Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
	Goods					
1	**CTIIP/G-01:** Procurement of furniture, air-coolers etc. for project offices (PMU, PIUs).	*	1	NCB	N/A	--
2	**CTIIP/G-02:** Procurement of office equipment; such as: Laptops, Desktop Computers with Printers, Scanners, UPS & other accessories, Multimedia Projectors, Photocopier Machines, Fax Machines etc. for PMU & PIUs	*	1	NCB	N/A	--
3	**CTIIP/G-03:** Procurement of cross country vehicles - twin cabin pick-ups for field inspection (2500+/- c.c., dual AC, all auto etc.)	*	1	NCB	N/A	--
4	**CTIIP/G-04:** Procurement of four stroke motor cycles for field officials (100+/- c.c.).	*	1	NCB	N/A	--
5	**CTIIP/G-05:** Procurement of (a) truck mounted desludging eqipment, (b) drainage maintenance equipment, (c) Push cart / hand trolley, rickshaw van for SWM etc. for batch-1 target towns.	*	1	NCB	N/A	--
6	**CTIIP/G-06:** Procurement of (a) equipment, spare parts & chemicals for four costal zonal laboratories of DPHE (Khulna, Barisal, Noakhali & Gopalgonj) - 4 sets; and (b) water quality testing kits including setting up of field laboratories in batch-1 pourashavas - 4 sets	*	1	NCB	N/A	--
7	**CTIIP/G-07:** Procurement of Tools & equipment for supervision / monitoring / quality control - 6 sets	*	1	NCB	N/A	--
	Total for Goods	*	7	--	--	--
	Note[2]*: * Exact value of each contract package yet to be decided subject to availability of adequate fund. A tentative cost estimate for goods is attached.*					

Table 2(b)(ii): Tentative Estimate for Goods Contracts Within First 18 months of CTIIP

Tentative Estimate for Procurement of Goods Under CTIIP For Initial 18 Months Period												
Sl. No.	**General Description**	**Unit**	**For PMU (LGED HQ)**	**For PIU (DPHE HQ)**	**For Amtali**	**For Galachipa**	**For Mathbaria**	**For Pirojpur**	**Total Quantity**	**Unit Price (BDT in million)**	**Total Price (BDT in million)**	**Total Price (USD in million)**
	As Included For Water & Sanitation Cost Estimates											
1	Desktop Computers (Type-I) including software, scanner & printer	sets	-	-	2	2	2	-	6	0.100	0.600	0.008
2	Water quality testing kits including setting up of field laboratory in Pourashavas	sets	-	-	1	1	1	-	3	0.050	0.150	0.002
3	Field Inspection vehicles - Motorcycles	nos.	-	-	2	2	2	-	6	0.100	0.600	0.008
4	Field Inspection vehicles - Pick-up trucks	nos.	-	-	1	1	1	-	3	5.000	15.000	0.192
5	Truck mounted desludging eqipment	sets	-	-	1	1	1	-	3	6.000	18.000	0.231
	As Included For Solid Waste Management Cost Estimates											
6	Ricksha –Van for waste collection & transportation	sets	-	-	5	5	5	6	21	0.025	0.525	0.007
7	Push Cart /hand trolley for primary collection from pourashava houeholds	sets	-	-	10	10	10	15	45	0.010	0.450	0.006
	As Included For Drainage & Flood Control Cost Estimates											
8	Drainage maintenance equipment	sets	-	-	1	1	1	1	4	0.655	2.620	0.034
	As per DPHE's Cost Estimates for Lab Equipment											

Tentative Estimate for Procurement of Goods Under CTIIP For Initial 18 Months Period												
Sl. No.	**General Description**	**Unit**	**For PMU (LGED HQ)**	**For PIU (DPHE HQ)**	**For Amtali**	**For Galachipa**	**For Mathbaria**	**For Pirojpur**	**Total Quantity**	**Unit Price (BDT in million)**	**Total Price (BDT in million)**	**Total Price (USD in million)**
9	Equipments, Spare Parts & Chemicals For Four costal Zonal Laboratories (Khulna, Barishal, Noakhali & Gopalgonj)	sets	-	4	-	-	-	-	4	7.455	29.820	0.382
	Sub-Total-1 :	-	**0**	**4**	**23**	**23**	**23**	**22**	**95**	**-**	**67.765**	**0.870**
	To be Included in Incremental Administration Cost Estimates											
10	Office Furniture including Computer Desks, Executive Tables, Chairs, Air-coolers etc.	sets	1	1	1	1	1	1	6	0.350	2.100	0.027
11	Laptops including software	sets	2	1	1	1	1	1	7	0.100	0.700	0.009
12	Desktop Computers (Type-II) including software, modem & internet enabled SIM, scanner & printer	sets	5	2	1	1	1	3	13	0.100	1.300	0.017
13	Multimedia Projectors including display screen & accessories	sets	1	0	1	1	1	1	5	0.100	0.500	0.006
14	Heavy Duty Photocopy Machine including accessories	sets	2	1	2	2	2	2	11	0.300	3.300	0.042
15	Fax Machine including accessories	sets	1	1	1	1	1	-	5	0.015	0.075	0.001
16	Field Inspection vehicles - Pick-up trucks	nos.	2	1	-	-	-	1	4	5.000	20.000	0.256

Tentative Estimate for Procurement of Goods Under CTIIP For Initial 18 Months Period												
Sl. No.	**General Description**	**Unit**	**For PMU (LGED HQ)**	**For PIU (DPHE HQ)**	**For Amtali**	**For Galachipa**	**For Mathbaria**	**For Pirojpur**	**Total Quantity**	**Unit Price (BDT in million)**	**Total Price (BDT in million)**	**Total Price (USD in million)**
17	Field Inspection vehicles - Motorcycles	nos.	2	-	-	-	-	2	4	0.100	0.400	0.005
18	Tools & equipment for supervision / monitoring / quality control; such as: Theodolite / Leveling instrument etc. to ensure proper alignment of roads, pipe networks etc.	sets	1	1	1	1	1	1	6	0.500	3.000	0.038
	Sub-Total-2 :	-	**17**	**8**	**8**	**8**	**8**	**12**	**61**	**-**	**31.375**	**0.401**
	Grand Total :	**-**	**17**	**12**	**31**	**31**	**31**	**34**	**156**	**-**	**99.140**	**1.271**

Table 2(c): Works Contracts Within First 18 months of CTIIP

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
	Works-Part-1 (Amtali Pourashava)					
A1	**CTIIP/Amtali/Shelter/W-01 (Lot-1):** Construction of Disaster Shelter Amtali Bandar Hosainia Fajil Madrasa in Ward no. 4: BDT 25.0 m **CTIIP/Amtali/Shelter/W-01 (Lot-2):** Construction of Disaster Shelter at Achal Int. Ideal Reg. Primary School in Ward no. 1 : BDT 25.0 m **CTIIP/Amtali/Shelter/W-01 (Lot-3):** Construction of Disaster Shelter at Basuki Non-Govt. Primary School in Ward no. 8 : BDT 25.0 m	0.962	3	NCB	N/A	Bidding sequence*-1(a)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
A2	**CTIIP/Amtali/Drain/W-02:** **(a)** (PD-01) Re-excavation of Khal from R&H culvert to canal junction along Ferry Ghat Rd (Length 290 m, Ward no. 7) : BDT 1.16 m; **(b)** (NSD-02) Re-excavation of Khal connecting Lake to proposed RCC box culvert (NSD-01 in Ward no.6) (Length 122 m, Ward no. 6) : BDT 3.05 m; **(c)** (SD-06) Re-excavation of Khal from the side of Nazrul Rd to connect the proposed sluice gate (NSG-03 in Ward no. 5) including lining with CC blocks (Length 260 m, Ward no. 6) : BDT 6.47 m; **(d)** (PD-08) Re-excavation of pond at the intake of PSG-03 in Ward no. 5 to be used as collection of wastewater from nearby settlements (L= 201 m, W= 49 m, Ward no. 5) : BDT 0.81 m; **(e)** (SD-09) Re-excavation of Khal along west side of Zilla Parisad Rd, L =1500' (Length 457 m, Ward no. 6) : BDT 1.83 m; **(f)** (SD-19) Re-excavation of Khal at East Kalibari to connect between two separated channels for flow continuity (Length 27.4 m, Ward no. 2) : BDT 0.11 m; **(g)** (SD-22) Re-excavation of Khal at the North side of Dhiren Tahshilder's House.from Zilla Parishad Road to Amtoli lake (Length 122 m, Ward no. 7) : BDT 3.05 m; **(h)** (NSD-13) Re-excavation of Khal from AKS School Chowrasta to Khontakata to connect SD12 to the Amtoli Lake (Length 152 m, Ward no. 2) : BDT 1.05 m; **(i)** (SD-14) Re-excavation of Khal from AKS School Chowrasta to Khontakata to connect the existing borrow pits to work as channel (Length 198 m, Ward no. 2) : BDT 0.8 m; and **(j)** (NSD-20) Excavation of new lined earthen Khal (channel) from Bokulgacha Mohila College Rd. to Kalibari Khal to connect main road to Khal outfall (Length 183 m, Ward no. 2) : BDT 4.57 m.	0.294	1	NCB	N/A	Bidding sequence*-1(b)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
A3	**CTIIP/Amtali/Drain/W-03:** **(a)** (NPD-01) Construction of RCC box culvert with gate on lakeside & weir to regulate water (Length 152 m, Ward no. 4, 2) : BDT 8.85 m; **(b)** (NSD-01) Construction of RCC box culvert (W=1.5m x H=2.1 m x L= 12.2m, Ward no. 6) : BDT 0.71 m; **(c)** (NSD-07) Construction of RCC box culvert to connect the SD-06 in Ward no.6 to the proposed sluice gate & adjacent to the existing road crossing culvert (W=2.75m x H=2.75m x L= 12.2m, Ward no. 6 & 5) : BDT 0.71 m; **(d)** (NSD-15) Construction of RCC box culvert at Khontakata to facilitate drainage flow through roadside drain in government land at Khontakata (W=1.52m x H=1.83m x L= 9.14m, Ward no. 2 & 3) : BDT 0.53 m; **(e)** (SD-16) Construction of RCC box culvert replacing existing pipe culvert at Khontakata Mazar Rd to connect two water bodies on both sides of road (W=1.52m x H=1.83m x L= 21.1m, Ward no. 3) : BDT 1.24 m; **(f)** (SD-18) Construction of RCC box culvert replacing existing pipe culvert at Khontakata Rd to connect outfall to Amtali Khal (W=1.52m x H=1.52m x L= 6.1m, Ward no. 3) : BDT 1.2 m; **(g)** (SD-23) Construction of RCC box culvert at main road to connect NSD-20 to open land on south side through crossing of the main road (W=1.22m x H=1.22m x L= 12.2m, Ward no. 2) : BDT 0.707 m; **(h)** (SD-21) Rehabilitation gated RCC culvert on R&H road at Nutan Bazar Chowrasta (Gate Length 35.1 m, Ward no. 7) : BDT 1.42 m; **(i)** (SD-10) Construction of RCC drain at old mango market including connection to the existing brick drain to outfall canal (Length 122 m, Ward no. 4) : BDT 1.83 m; **(j)** (SD-11) Construction of RCC drain from Rashid Sakar's House to Shahnaj's House to connect the existing RCC 2'6" x 4'6" drain from Rashid Sarkar's House to Kalibari Sluice Gate (Length 76.2 m, Ward no. 4 & 1) : BDT 3.2 m; and **(k)** (SD-17) Construction of RCC rectangular open drain at Khontekata Lake/ Jhiler Par to connect the existing water body to the road culvert SD-18 (Length 76.2 m, Ward no. 3) : BDT 1.14 m.	0.276	1	NCB	N/A	Bidding sequence*-2(a)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
A4	**CTIIP/Amtali/W&S/W-04:** **(a)** Supply & Installation of 2 (two) production tube wells (submersible type, Capacity 100 m3/hr each) including supply and installation of generators for power backup for existing and new tube wells : BDT 25.0 m; and **(b)** Construction of RCC Overhead Tank (OHT) (Capacity 500m3, Height 25 m): BDT 22.0 m.	0.603	1	NCB	N/A	Bidding sequence*-2(b)
A5	**CTIIP/Amtali/W&S/W-05:** **(a)** Supply and laying out of 100mm, 150mm, 200mm & 250mm diameter water transmission & distribution main pipelines buried into ground within the core area of the pourashava including ancillary works elements; such as replacement of 5 Km long existing 50 mm pipelines, installation of bulk water meters in the main lines etc. (Total 36.5 Km) : BDT 54.87 m; **(b)** Supply and laying out of 13mm, 20mm, 25mm & 50mm diameter service pipelines buried into ground for water distribution within the core area of the pourashava including ancillary works elements; such as replacement of existing service lines, supply and installation of water meters in the lines etc. (Total 1560 new connections, and replacement of 400 nos. existing connections) : BDT 16.65 m; **(c)** Supply and installation of hand operated deep tube wells in extended areas (Total 30 nos., Approx. Depth 300 m) : BDT 3.0 m; and **(d)** Construction of public toilets (4 nos.) and community latrines (10 nos.) in various locations in the pourashava : BDT 5.06 m.	1.02	1	NCB	N/A	Bidding sequence*-2(c)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
A6	**CTIIP/Amtali/Road/W-06 (Lot-1):** **(a)** Improvement of Sabujbag Selim's house to R&H road via TNT & College Mosque (Length 1,000 m, Ward no. 5 & 6) : BDT 12.4 m; **(b)** Improvement of Zilla Parishad road to Ferry Ghat road via TNT Office (Length 600 m, Ward no. 5 & 6) : BDT 10.2 m; and **(c)** Improvement of Zilla Parishad Road to Muktizodda School via Mofij Talukder House (Length 430 m, Ward no. 5 & 6) : BDT 8.0 m. **CTIIP/Amtali/Road/W-06 (Lot-2):** **(a)** Improvement of Wapda road to Kamal Sangbadik's house via houses of Mostofa Commissioner and Firoj (Length 1,100 m, Ward no. 8) : BDT 14.9 m; and **(b)** Improvement of road from sluice-gate to Locha Bottola (Length 2,500 m, Ward no. 8 & 9) : BDT 20.2 m.	0.842	2	NCB	N/A	Bidding sequence*-3(a) (Implementation of road works should commence after completion of drainage schemes & water pipelines)
A7	**CTIIP/Amtali/Road/W-07:** **(a)** Improvement of road from R&H BC road near AK Schhol to Bandh Ghat Chowrasta via Al Helal Moore (Length 1,500 m, Ward no. 2 , 4 & 6) ; BDT 33.3 m ; **(b)** Improvement of Mazar road to ATEO Kashem Mia's house via Lekerparpar (Length 1,000 m, Ward no. 3) : BDT 12.2 m; and **(c)** Improvement of road from Pourashava near Jogen Singh's kouse to Bandth of Ward # 1 & 4 (Length 250 m, Ward no. 1 & 4) : BDT 5.4 m.	0.653	1	NCB	N/A	Bidding sequence*-3(b) (Implementation of road works should commence after completion of drainage schemes & water pipelines)
	Sub-Total for Amtali Works	4.650	10			

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
	Works-Part-2 (Galachipa Pourashava)					
G1	**CTIIP/Gala/Shelter/W-01 (Lot-1):** Construction of Disaster Shelter at the back side of 40-Barrack Abasan in Ward no.-1: BDT 25.0 m **CTIIP/Gala/Shelter/W-01 (Lot-2):** Construction of Disaster Shelter besides Sarshina Khanka and Hafezia Madrasa in Ward no.-3 : BDT 25.0 m **CTIIP/Gala/Shelter/W-01 (Lot-3):** Construction of Disaster Shelter at Galachipa Degree College compound in Ward no. 9 : BDT 25.0 m	0.962	3	NCB	N/A	Bidding sequence*-1(a)
G2	**CTIIP/Gala/W&S/W-02:** **(a)** Supply & Installation of 2 (two) production tube wells (submersible type, Capacity 100 m3/hr each) including supply and installation of generators for power backup for existing and new tube wells : BDT 25.0 m; and **(b)** Construction of RCC Overhead Tank (OHT) (Capacity 500m3, Height 25 m): BDT 22.0 m.	0.603	1	NCB	N/A	Bidding sequence*-2(a)
G3	**CTIIP/Gala/W&S/W-03:** **(a)** Supply and laying out of 100mm, 150mm & 200mm diameter water transmission & distribution main pipelines buried into ground within the core area of the pourashava including ancillary works elements; such as replacement of 4 Km long existing 50 mm pipelines, installation of bulk water meters in the main lines etc. (Total 29.0 Km) : BDT 39.96 m; **(b)** Supply and laying out of 13mm, 20mm, 25mm & 50mm diameter service pipelines buried into ground for water distribution within the core area of the pourashava including ancillary works elements; such as replacement of existing service lines, supply and installation of water meters in the lines etc. (Total 2500 new connections, and replacement of 600 nos. existing connections) : BDT 26.57 m; and **(c)** Construction of public toilets (6 nos.), school latrines (3 nos.) and community latrines (8 nos.) in various locations in the pourashava : BDT 8.05 m.	0.956	1	NCB	N/A	Bidding sequence*-3(a)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
G4	**CTIIP/Gala/Drain/W-04:** **(a)** (PD-04) Re-excavation of Galachipa Khal from Thana Moore to Textile School including lining with CC blocks (Length 2,485 m, Ward no. 1, 2, 3, 4, 7 & 8): BDT 62.13 m; and **(b)** (PD-02) Re-excavation of Arambag & Heliport Khal (Length 305 m, Ward no. 6): BDT 1.22 m.	0.812	1	NCB	N/A	Bidding sequence*-1(b)
G5	**CTIIP/Gala/Drain/W-05 (Lot-1):** **(a)** (NPD-02) Construction of RCC open U-drain from Sub-Registry Office to Kabikha Road (Length 1,366 m, Ward no. 8, 7 & 6) : BDT 41.0 m; **(b)** (NPD-03) Construction of RCC box culvert at Registry Office Moore (roundabout) to connect NP-02 to Galachipa Khal (W=1.5m x H=1.8 m x L= 40.2m, Ward no. 8) : BDT 1.2 m; and **(c)** (NSD-14) Construction of RCC U-drain covered with slabs from Dr. Alamin's house to Jasim house canal (Length 293 m, Ward no. 8 & 9) : BDT 7.32 m. **CTIIP/Gala/Drain/W-05 (Lot-2):** **(a)** (NPD-05) Construction of RCC U-drain covered with slab from Cinema Hall Moore to Asad Manjil Lane (Length 523.2 m, Ward no. 5 & 6) : BDT 15.69 m; and **(b)** (NPD-01) Construction of RCC open U-drain from Thana Complex to Puran Piadabari to connect the existing & proposed sluice gates on country side (Length 1,460 m, Ward no. 4, 5 & 6) : BDT 43.78 m	1.397	2	NCB	N/A	Bidding sequence*-2(b)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
G6	**CTIIP/Gala/Drain/W-06:** **(a)** (NPD-04) Construction of RCC open U-drain from Sohrab Mia's House to Cinema Hall Moore (Length 350.6 m, Ward no. 5, 6 & 7) : BDT 10.5 m; **(b)** (NSD-01) Construction of RCC U-drain covered with slab from Thana Moore to Textile School (Length 2,484 m, Ward no. 4, 7 & 9) : BDT 49.66 m; **(c)** (NSD-03) Construction of RCC open U-drain from Muktijhoddha Parshad Moore to WAPDA Drain (Length 250 m, Ward no. 5) : BDT 5.6 m; **(d)** (NSD-04) Construction of RCC open U-drain from Mustafa Enterprise Moore to WAPDA Main Drain (Length 274.4 m, Ward no.5 & 6): BDT 5.5 m; **(e)** (NSD-10) Construction of RCC open U-drain from Samir Pal's house to Sohrab Mia canal (Length 366 m, Ward no. 7) : BDT 7.3 m; **(f)** (NSD-13) Construction of RCC covered U-drain from Veterinary Hospital to Galachipa canal via football ground (Length 183 m, Ward no. 2) : BDT 3.66 m; and **(g)** (NSD-15) Construction of RCC U-drain covered with slabs from Delwar Matbar's house to canal via Chunnu Molla's house (Length 168 m, Ward no. 3): BDT 4.2 m.	1.108	1	NCB	N/A	Bidding sequence*-2(c)
G7	**CTIIP/Gala/Road/W-07:** **(a)** Improvement of Sabujbag Selim's house to R&H road by bituminous carpeting via TNT & College Mosque (Length 1,000 m, Ward no. 5 & 6) : BDT 12.4 m; and **(b)** Improvement of main road from R&H BC road near AK School to Bandh Ghat Chowrasta by bituminous carpeting via Al Helal Moore including road widening (Length 1,500 m, Ward no. 2 , 4 & 6) : BDT 33.3 m.	0.586	1	NCB	N/A	Bidding sequence*-3(b) (Implementation of road works should commence after completion of drainage schemes & water pipelines)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
G8	**CTIIP/Gala/Road/W-08 (Lot-1):** **(a)** Improvement of Wapda road by RCC up to Kamal Sangbadik's house via house of Mostofa Commissioner and Firoj (Length 1,100 m, Ward no. 8) : BDT 14.9 m; **(b)** Improvement of road by RCC from Pourashava near Jogen Singh's kouse to Bandth of Ward # 1 & 4 (Length 250 m, Ward no. 1 & 4) : BDT 5.4 m; and **(c)** Improvement of road from sluice-gate to Locha Bottola by bituminous carpeting (Length 2,500 m, Ward no. 8 & 9) : BDT 20.2 m. **CTIIP/Gala/Road/W-08 (Lot-2):** **(a)** Improvement of Zilla Parishad road by RCC up to Ferry Ghat road via TNT Office (Length 600 m, Ward no. 5 & 6) : BDT 10.2 m; **(b)** Improvement of Zilla Parishad Road by RCC up to Muktizodda School via Mofij Talukder's House (Length 430 m, Ward no. 5 & 6) : BDT 8.0 m; and **(c)** Improvement of Mazar road by RCC up to ATEO Kashem Mia's house via Lekerparpar (Length 1,000 m, Ward no. 3) : BDT 12.2 m.	0.909	2	NCB	N/A	Bidding sequence*-3(c) (Implementation of road works should commence after completion of drainage schemes & water pipelines)
	Sub-Total for Galachipa Works	7.333	12			
	Works-Part-3 (Mathbaria Pourashava)					
M1	**CTIIP/Mat/Shelter/W-01:** Construction of Disaster Shelter at Mahiuddin Ahamed Girls' Degree College compound in Ward no.2: BDT 25.0 m	0.321	1	NCB	N/A	Bidding sequence*-1(a)
M2	**CTIIP/Mat/Drain/W-02:** **(a)** (SD-01) Re-excavation of Basi Rum Khal from Mominia Madrasha to Skider Bari including side protection with CC blocks (Length 1,050 m, Ward no. 1 & 2) : BDT 26.25 m; and **(b)** (SC-03) Re-excavation of Tushkhali Khal from Baharatala to Pourashava End including 175m side protection with CC block (Length 1,700 m, Ward no. 1) : BDT 10.48 m.	0.471	1	NCB	N/A	Bidding sequence*-1(b)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
M3	**CTIIP/Mat/Drain/W-03:** **(a)** (SC-02) Re-excavation of Boyratala Khal from Dakkhin Bondor Sluice to Baheratola including 100m side protection with CC blocks (Length 1,700 m, Ward no. 4, 2, 5 & 1) : BDT 8.9 m; **(b)** (SC-04) Re-excavation of Shafa Khal from Baharatala to Jomadder Bari including 150m side protection with CC block (Length 2,200 m, Ward no. 5 & 1) : BDT 11.95 m; and **(c)** (PC-02) Re-excavation of Mirukhali Khal from Dakkhim Bondor Sluice to Gopal Bori House including 200m side protection with CC block (Length 2,500 m, Ward no. 2,4,7 & 8) : BDT 14.2 m.	0.449	1	NCB	N/A	Bidding sequence*-2(a)
M4	**CTIIP/Mat/Drain/W-04 (Lot-1):** (SD-02) Construction of RCC covered drain from Graveyard culvert to Ismail's House (Length 750 m, Ward no. 7, 6 &5) : BDT 30.0 m. **CTIIP/Mat/Drain/W-04 (Lot-2):** (SD-03) Construction of RCC covered drain from A. Halim Jalim Jamadder's House to Pourashava End (Length 900 m, Ward no. 5) : BDT 36.0 m. **CTIIP/Mat/Drain/W-04 (Lot-3):** (SD-05) Construction of RCC covered drain from Shafa Boaratola to Milon Mia's House including re-excavation and 50m CC block lining of outfall canal (Length 700 m, Ward no. 5) : BDT 29.25 m.	1.221	3	NCB	N/A	Bidding sequence*-2(b)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
M5	**CTIIP/Mat/W&S/W-05:** **(a)** Construction of Surface Water Treatment Plant (Capacity 300 m3/hr) including sedimentation pond, intakes at the river and the pond : BDT 131.0 m; **(b)** Construction of protection works around SWTP compound (800 m) : BDT 8.0 m; **(c)** Construction of office building (1 no.) : BDT 2.5 m; **(d)** Re-sectioning of intake Khal (3,000 m): BDT 1.5 m; **(e)** Construction of RCC Overhead Tank (OHT) including necessary connections with transmission main and outlet, and supply and installation of generators for power backup (Capacity 680m3, Height 25 m): BDT 27.8 m; **(f)** Construction of on-ground RCC reservoir including necessary connections from intake to the outlet, and other ancilliary works elements (Capacity 2000m3): BDT 60.0 m; and **(g)** Supply and laying out of 100mm, 150mm, 200mm & 250mm diameter water transmission & distribution main pipelines buried into ground within the core area of the pourashava including ancillary works elements; such as, installation of bulk water meters in the main lines etc. (Total 49.0 Km) : BDT 79.1 m;	3.973	1	ICB	N/A	Bidding sequence*-2(c) (It will require longer period from IFB to Award)
M6	**CTIIP/Mat/W&S/W-06:** **(a)** Supply and laying out of 13mm, 20mm, 25mm & 50mm diameter service pipelines buried into ground for water distribution within the core area of the pourashava including ancillary works elements; such as, supply and installation of water meters in the lines etc. (Total 3,200 new connections) : BDT 31.663 m; **(b)** Exploratory drilling for search of potable water at differect locations within the pourashava: (Total 10 nos.) BDT 1.5 m; and **(c)** Construction of public toilets (6 nos.), school latrines (7 nos.) and community latrines (8 nos.) in various locations in the pourashava : BDT 10.81 m.	0.564	1	NCB	N/A	Bidding sequence*-2(d)

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M7	**CTIIP/Mat/Road/W-07:** Improvement of road from Land Office to Mollik Bari's house Via Sadar road (Length 3,500 m, Ward no. 2 & 4) : BDT 51.0 m.	0.654	1	NCB	N/A	Bidding sequence*-3(a) (Implementation of road works should commence after completion of drainage schemes & water pipelines)
M8	**CTIIP/Mat/Road/W-08 (Lot-1):** **(a)** Improvement of road from Mathbaria- Masua road to Mathbaria- Tuskhali khal via Women's college (Length 800 m, Ward no. 2) ; BDT 12.5 m; and **(b)** Construction of Bridge over Masua Khal near Govt. Hospital. Connecting R&H and WAPDA roads (Length 42 m, Ward no. 2 & 3) : BDT 25.2 m. **CTIIP/Mat/Road/W-08 (Lot-2):** **(a)** Improvement of R&H road to Bairatala Khal via Vatenary hospital (Length 600 m, Ward no. 5) : BDT 9.3 m; **(b)** Improvement of road from Bairatala to Mistri bari via (Shafa road) end of Pourashava (Length 1,900 m, Ward no. 5) : BDT 25.5 m; and **(c)** Improvement of road from R&H road to Govt. College via New Market (Length 1,200 m, Ward no. 7) : BDT 20.0 m.	1.186	2	NCB	N/A	Bidding sequence*-3(b) (Implementation of road works should commence after completion of drainage schemes & water pipelines)
	Sub-Total for Mathbaria Works	8.839	11			
	<u>Works-Part-4 (Pirojpur Pourashava)</u>					
P1	**CTIIP/Piroj/Shelter/W-01 (Lot-1):** Construction of Disaster Shelter at- (a) Adrashapara Secondary School in Ward no. 5; and (b) Moidho Namajpur Govt. Primary School in Ward no. 6: BDT 50.0 m **CTIIP/Piroj/Shelter/W-01 (Lot-2):** Construction of Disaster Shelter at - (a) Khamkata Govt. Primary School in Ward no. 8; and (b) Moidho Dumuritala Govt. Primary School in Ward no. 9 :	1.282	2	NCB	N/A	Bidding sequence*-1(a)

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Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
	BDT 50.0 m 1.282					
P2	**CTIIP/Piroj/Drain/W-02:** **(a)** (PD-01) Re-excavation of Damudar Khal from Bowlesher river up to Borokhalishakhali Bridge including 200 m side protection with CC blocks (Length 4,000 m, Ward no. 4, 5, 7, 2, 3, 8 & 9) : BDT 21.0 m; **(b)** (SD-02) Re-excavation of (a) Pirojpur Parerhat Varani Khal from Damuder Khal to Parerhat Khal near Barapul and (b) Malaria Pule to Primary School (Mashid Bari) including 180 m side protection with CC blocks (Length 3,100 m, Ward no. 5, 6, 7 & 8): BDT 16.9 m; **(c)** (PD-02) Re-excavation of Chan Mari Khal from Bowlesher River to Sarder Bari field including 158 m side protection with CC blocks (Length 1,580 m, Ward no. 5): BDT 10.27 m; **(d)** (SD-05) Re-excavation of Fire Service Khal (Machempur Kisnagur) from Damuder Khal to Stadium compound including 152 m side protection with CC blocks (Length 1,522 m, Ward no. 8): BDT 9.8 m; and **(e)** (SD-07) Re-excavation of Dhup Pasa Khal from Damuder Khal to Krisna Nagur Field including 150 m side protection with CC blocks (Length 1,500 m, Ward no. 8 & 9): BDT 9.75 m.	0.868	1	NCB	N/A	Bidding sequence*-1(b)

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Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
P3	**CTIIP/Piroj/Drain/W-03:** **(a)** (SD-04) Re-excavation of (a) Sikarpur Khal from Damuder Khal to Water Supply Compound; (b) Sikder Bari to Sheikh Bari; and (c) Sikder Bari Culvart to Huque driver's house including 210 m side protection with CC blocks (Length 2,000 m, Ward no. 4): BDT 13.65 m; **(b)** (SD-06) Re-excavation of Side of Primary Teacher's Training Institute Khal from Damuder khal to Police Line including 174 m side protection with CC blocks (Length 1,736 m, Ward no. 2 & 4): BDT 11.28 m; and **(c)**(SD-08) Re-excavation of Khal from HBN Bricks to East side of Mr. Muklasur Rahman's house via Madu Mia`s Mill including 300 m side protection with CC blocks (Length 3,000 m, Ward no. 4): BDT 82.5 m.	1.377	1	NCB	N/A	Bidding sequence*-1(c)
P4	**CTIIP/Piroj/Drain/W-04:** **(a)** (SD-03) Construction of RCC covered U-drain from Pal Para Khal from Damuder khal to Mr. Kabil's House (Length 1,500 m, Ward no. 4): BDT 37.5 m; **(b)** (SD-08) Construction of RCC open drain from West Sikarpur Kacha drain from Chilla Khal to Cfitala near Mr. Abu Mia's house via Babo Dulal Ghoos (Length 600 m, Ward no. 4): BDT 18.0 m; **(c)** (SD-06) Construction of RCC open drain from Modda Rasta Kacha drain from Chan Mari Khal to Maddo Rasta via Mr. Farruk Sarder's house (Length 500 m, Ward no. 5): BDT 15.0 m; **(d)** (SD-07) Construction of RCC open drain from Primary Education Office Drain from Existing RCC drain to Mr. Delower's house (Length 250 m, Ward no. 5): BDT 7.5 m; and **(e)** (SD-11) Construction of RCC open drain from Adorshapara drain from Bolesher river to east side of Sultan Mia`s house (Length 500 m, Ward no. 5): BDT 15.0 m.	1.192	1	NCB	N/A	Bidding sequence*-2(a)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
P5	**CTIIP/Piroj/Drain/W-05:** **(a)** (SD-04) Construction of RCC covered U-drain from Gazi Bari Khal from Damuder Khal (near barring gate) to S.K. Jalil Mia`s House (Length 1,736 m, Ward no. 7): BDT 40.0 m; **(b)** (SD-09) Construction of RCC open drain from Damuder Khal to Mr. Haque Mia's house, side of S.P house (Length 500 m, Ward no. 7): BDT 15.0 m; **(c)** (SD-10) Construction of RCC open drain from Pirojpur – Paraerhat Varani Khal to Maddo Mushid house north side of Bypass (Length 160 m, Ward no. 7): BDT 4.8 m; **(d)** (PD-12) Construction of RCC open drain from Murshid Bari Khal from Pirojpur –Parerhat Varani Khal to Mr. Alam's house (Length 500 m, Ward no. 7): BDT 15.0 m; and **(e)** (SD-13) Construction of RCC open drain from Khumuria Asrom Bari road side drain to Balasher river, (Length 600 m, Ward no. 7): BDT 18.0 m.	1.19	1	NCB	N/A	Bidding sequence*-2(b)
P6	**CTIIP/Piroj/Road/W-06 (Lot-1):** **(a)** Improvement of Narkahli road from Baro Khalisha khali road to Jalil Sk house via Narkhali Govt. Primary School (Length 3,000 m, Ward no. 3) : BDT 26.0 m; and **(b)** Improvement of Narkahli Mallik bari to Molla bari and Kalam Sk house (Length 2,000 m, Ward no. 3) : BDT 19.7 m. **CTIIP/Piroj/Road/W-06 (Lot-2):** **(a)** Improvement of Baneshwar pur - Kumirmara road from Baneshwarpur Govt. P/School to RHD road via Kumirmara Govt. P/School (Length 1,800 m, Ward no. 9) : BDT 17.5 m; and **(b)** Improvement of Ranipur Branch road from Ranipur BC Road Pourashava last part to Bekutia-RHD road via Sorab Hossain master's house (Length 900 m, Ward no. 9) : BDT 9.7 m.	0.935	2	NCB	N/A	Bidding sequence*-3(a)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
P7	**CTIIP/Piroj/Road/W-07 (Lot-1):** **(a)** Improvement of Masimpur main road by bituminous carpeting from R&H road Sargicare (in front) towards Yasin Khal Pul towards west side of Jubo Unnayan to bypass road (Length 2100 m, Ward no. 8): BDT 15.6 m; **(b)** Improvement of Masimpur Varani khal road from Baro Pul to Molla Bari Pul at east side (Length 2000 m, Ward no. 8) : BDT 13.3 m; **(c)** Re-construction of bridge near Shakil Khan's house on Masimpur main road as stated in (a) above (Bridge Length 8.00 m, Ward no. 8) : BDT 4.0 m; and **(d)** Re-construction of bridge near ex-Councillor Shajahan Sk's house on Masimpur Varani Khal road as stated in (b) above (Bridge Length 10.00 m, Ward no. 8) : BDT 5.0 m. **CTIIP/Piroj/Road/W-07 (Lot-2):** **(a)** Improvement of Vijora road from R&H road (near Vijora Govt. Primary School) to Mathkhola via Modho Namajpur Govt.P/School (Length 4,000 m, Ward no. 6) : BDT 35.5 m; **(b)** Re-construction of bridge near Kuddus Mia's house on Vijora road as stated in (a) above (Bridge Length 10.00 m, Ward no. 6) : BDT 5.0 m; and **(c)** Re-construction of bridge near Feroj Howladar's house on Vijora road as stated in **(c)** above (Bridge Length 10.00 m, Ward no. 6) : BDT 5.0 m.	1.069	2	NCB	N/A	Bidding sequence*-3(b)

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
P8	**CTIIP/Piroj/Road/W-08 (Lot-1):** **(a)** Improvement of Balaka Club to Sargicare hospital via Modho Pirojpur Govt. P /School (Masid bari road) (Length 1,500 m, Ward no. 7) : BDT 14.2 m; **(b)** Improvement of Sadhona Bridge to Shaik Bari Mosque via Basontopul (Length 1,000 m, Ward no. 5) : BDT 11.8 m; and **(c)** Improvement of Apar circular Branch road, Moddo road from Shahid Bidhan road to bypass road (Length 1,100 m, Ward no. 5) : BDT 18.5 m. **CTIIP/Piroj/Road/W-08 (Lot-2):** **(a)** Improvement of South Sikarpur Muslimpara road (Length 1,500 m, Ward no. 4) : BDT 24.5 m; and **(b)** Improvement of West Sikarpur road from Palpara –Razarhat road near Amjed Bekari to Jaydebi tala with Maddo Sikarpur road in front of Uttarpara Govt. Primary School (Length 2,700 m, Ward no. 4) : BDT 31.7 m.	1.291	2	NCB	N/A	Bidding sequence*-4(a)
P9	**CTIIP/Piroj/Road/W-09 (Lot-1):** **(a)** Improvement of Jhatokati road Sahebpara road to Sunil Dakua's house (Left side canal) (Length 1,200 m, Ward no. 2) : BDT 9.8 m; **(b)** Improvement of Pirojpur -Nazirpur R&H road to Police line via Kanak Thakur's house (Length 2,000 m, Ward no. 2) : BDT 19.5 m; and **(c)** Improvement of Vijora road, from R&H road (near Boropul) to Vijora Krinhnachura via Skdar bari (Length 2,500 m, Ward no. 6) : BDT 24.4 m. **CTIIP/Piroj/Road/W-09 (Lot-2):** **(a)** Improvement of Muktarkati road from Pirojpur -Nazirpur road to Nima bridge via water supply road (Length 4,200 m, Ward no. 1 & 4) : BDT 39.4 m; and **(b)** Improvement of Brammonkati road from Pirojpur –Nazirpur BC road to Mozahar Mia's house via Misu Councillor's house (Length 700 m, Ward no. 1) : BDT 7.4 m.	1.288	2	NCB	N/A	Bidding sequence*-4(b)
	Sub-Total for Pirojpur Works	**10.492**	**14**			

Procurement Plan for Works Under CTIIP For Initial 18 Months Period (Preliminary Draft)						
Sl. No.	**General Description**	**Value of Contracts (cumulative) million USD**	**Number of Contracts**	**Procurement Method**	**Domestic Preference Applicable**	**Comments**
Note:Due to lack of past experience of the pourashavas to deal with high valued contracts, staggering of the implementation schedule has been proposed by commencing bidding process of the lower value contracts (shown as lots in a package) during earlier months of the project; and gradually going for procurement process of higher value contracts (lots/ packages). For such staggering purpose, it is assumed that each NCB bidding procedure (invitation to bids to contract award) is completed within a quarter (3 months) or less. Thus, suggested Bidding Sequence-1 means bidding proceedure completed within first 3 months of the project, Bidding Sequence-2 means bidding proceedure completed within first 3 to 6 months period of the project, and so on.						

APPENDIX 10: TERMS OF REFERENCE FOR PROJECT IMPLEMENTATION TECHNICAL ASSISTANCE PACKAGES

Terms of reference for the consultant and NGO teams are outlined in Appendix E of Volume 3 (Project Administration Manual).

APPENDIX 11: COUNTRY ECONOMIC INDICATORS

1. Recent Trends in Current and Capital Expenditure

1. A study of the country budget of GOB shows that the revenue expenditure over the last 10 years period till FY 2013 has grown at a CAGR of 16.3 percent, from BDT284 billion in FY 2002 to BDT1106 billion in FY 2013 **(Table 1)**.

2. Capital expenditure through Annual Development Programs (ADP) grew at a CAGR of 13.0 percent over the last 10 years till FY 2013, from BDT190 billion in FY 2002 to BDT571 billion in FY 2013.

3. Investments made in the urban sector for the last five years by the executing agencies from project aid and GOB fund is shown in Table 2.

4. The Bangladesh Municipal Development Fund (BMDF) is a grant-loan mix financing to pourashavas, 85% is grant and 15% is loan, for the development of infrastructure.

5. An understanding has been given by DPHE that about 85% of urban investment would be on account of water supply and the rest, 15%, would be for sanitation and hygiene purposes.

6. Based on data for 2012-2013, LGED investment has been allocated among rural, urban and others at the ratio of 73%, 20% and 7% respectively.

7. The investment plan in the sector for the next five years by the executing agencies is shown in Table 3.

8. The country's external debt outstanding was US$22.1 billion as at end of FY 2012 and constituted about 42.7% of the country's GDP at constant prices. [26]

[26] Economic Review 2013.

Table 1: Government of Bangladesh - Macro Economic Indicators

Particulars	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	CAGR
						Tk Billion					
GDP at current price	3329.7	3707.1	4157.3	4724.8	5458.2	6148	6943.2	7967	9181.4	10379.7	13.5%
GDP at constant price	2519.7	2669.7	2846.7	3029.7	3217.3	3402	3608.4	3848.9	4088.7	4335.2	6.2%
Growth of GDP at constant price (in %)	6.27%	5.95%	6.63%	6.43%	6.19%	5.74%	6.07%	6.67%	6.23%	6.03%	
Population (million)	135.2	137	138.8	140.6	142.4	144.2	146.1	149.7	151.6	153.6	1.4%
Per Capital GDP (Tk) at current price	24,628	27,059	29,952	33,605	38,330	42,635	47,524	53,220	60,563	67,576	11.9%
Total Revenue	254	392	448.7	494.7	605.4	691.8	794.9	951.8	1170.3	1396.7	20.9%
- Tax Revenue	183	319.5	361.8	392.5	480.1	555.3	639.6	790.5	947.5	1122.6	22.3%
- NBR Tax Revenue	170.5	305	344.6	374.8	459.7	530	610	756	905.2	1072.1	22.7%
- Non NBR Tax Revenue	12.5	14.5	17.2	17.7	20.4	25.3	29.6	34.5	42.3	50.5	16.8%
- Non Tax Revenue	71	72.5	86.9	102.2	125.3	136.5	155.3	161.3	222.8	274.1	16.2%
Total Expenditure	493.7	556.3	610.2	668.4	936.1	941.4	1105.2	1298.8	1566.5	1887.01	16.1%
- Revenue Expenditure (non development)	283.9	333.2	366.2	454.1	574.3	671.2	687.1	832.4	1011.1	1106.31	16.3%
- Annual Development Program	190	205	215	179.2	225	230	285	358.8	410	571.2	13.0%
- Other Expenditure	19.8	18.1	29	35.1	136.8	40.2	133.1	107.6	145.4	209.5	30.0%
Budget Balance (except grants)	-239.7	-164.3	-161.5	-173.7	-330.7	-249.6	-310.3	-347	-396.2	-490.31	8.3%
Budget Balance (including grants)	-113	-137.9	-137.1	-152.1	-286.8	-200.3	-273	-306	-413.2	-456.7	16.8%

Source: Government of Bangladesh.

Table 2: Investments in Sector over Last Five Years

MBDT

Executing Agency	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
BMDF Financing to PS	**179.200**	**68.000**	**110.400**	**1,979.000**	**969.800**
DPHE: (GoB + P. Aid)					
Rural	1,334.970	1,781.100	1,673.505	2,761.101	3,054.960
Urban	1,631.630	2,176.900	2,045.395	3,374.678	3,733.840
Total DPHE	**2,966.600**	**3,958.000**	**3,718.900**	**6,135.779**	**6,788.800**
LGED (GoB + P. Aid)					
Rural	23,026.828	28,613.226	28,346.265	31,760.986	37,427.600
Urban	6.308.720	7,839.240	7,766.100	8,701.640	9,504.900
Others	2,208.052	2,743.734	2,718.135	3,045.574	3,792.000
Total LGED	**31,543.600**	**39,196.200**	**38,830.500**	**43,508.200**	**50,724.500**

Sources: BMDF, DPHE, LGED.

Table 3: Investment Plan in Sector for Next Five Years

MBDT

Executing Agency	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
BMDF Financing Plan	**1,287.000**	**2,067.000**	**1,989.00**	**1,404.000**	**1,053.000**
DPHE: (GoB + P. Aid)					
Rural	3,472.758	5,330.115	5,836.500	6,246.000	5,886.000
Urban	4,244.482	6,514.585	7,133.500	7,634.000	7,194.000
Total DPHE	**7,717.240**	**11,844.700**	**12,970.000**	**13,880.000**	**13,080.000**
LGED (GoB + P. Aid)					
Rural	37,589.160	73,139.357	40,050.501	43,580.927	49,115.057
Urban	10,298.400	20,038.180	10,972.740	11,939.980	13,456.180
Others	3,604.440	7,013.363	3,840.459	4,178.993	4,709.663
Total LGED	**51,492.000**	**100,190.900**	**54,863.700**	**59,699.900**	**67,280.900**

Sources: BMDF, DPHE, LGED.

2. Type and Composition of Expenditures

9. The composition of Annual Development Program (capital expenditures) in respect of 10 major sectors for the last three financial years is given in **Table 4**.

Table 4: Composition of Annual Development Program

Sector / Department	% to total national budget		
	FY 2011	FY 2012	FY 2013
Local Government Division	22	20	20
Power	14	16	14
Primary and Mass Education	9	8	8
Health and Family Welfar	8	8	7
Roads and Railways	13	10	11
Education	5	5	5
Water Resources	4	3	4
Industries	3	1	3
Energy and Minerals	3	2	3

Source: GOB Finance Department.

APPENDIX 12: FINANCIAL ANALYSIS

1. INTRODUCTION AND METHODOLOGY

1. The Project finances basic urban services improvement in the selected four pourashavas in Batch 1 and more towns to be selected based on selection criteria for the project in Bangladesh. Financial requirement for urban development in the eight Project Pourashavas is estimated to be $115 million over the next five to six years. This financial analysis appraises the financial sustainability and viability of the Project investments for Batch 1 four towns. The financial analysis was prepared in accordance with Asian Development Bank (ADB) Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB (July 2005).

2. Financial sustainability and viability analysis of the Project assesses the ability of each sector to meet future costs including capital expenditure, operation & maintenance (O&M), debt services, depreciation and re-investment margins if appropriate on a present value basis. A financial discounted cash flow (DCF) analysis has been conducted in real terms to determine the weighted average cost of capital (WACC), financial internal rate of return (FIRR), financial net present value (FNPV) and average incremental financial cost (AIFC) where applicable, to assess the financial viability of each subproject and the incremental tariff required. For non-revenue generating sectors, economic analysis and justification are required, and the financial analysis focuses on the Government's financial capacity to meet recurrent costs of the sector. Financial projections for the Project Pourashavas were conducted to assess the pourashava's overall financial capacity to meet their responsibilities in providing urban services including those assisted under the this Project.

2. DISCOUNTED CASH FLOW (DCF) ANALYSIS AND SUBPROJECT VIABILITY

3. DCF analysis was undertaken in real terms using constant 2013 prices, to compute the FIRR, FNPV and AIFC. The DCF analysis follows standard ADB methodology. The analysis was conducted on a with- and without- Project basis by estimating incremental costs and revenues over a 20-year period. The subproject capital costs, operation and maintenance (O&M) costs were derived from the engineer's estimates, including (i) capital expenditures under the Project including physical contingencies and tax/duties, (ii) O&M expenditures, and (iii) additional capital expenditures to repair and rehabilitate the assets created under the Project. The revenue projections, including (i) user charges from domestic and non-domestic customers and (ii) connection fees from new customers for water supply, user charges for sanitation and solid waste are based on a projected number of consumers and an assumed user charge or fee revision schedule. User charge revision is proposed to recover the full O&M cost. The FNPV and AIFC were computed based on WACC, and FIRR was compared to the WACC. The FIRR is computed in real terms over 20-year period, including all capital and operating cash flow, and physical but not price contingencies. Interest and other financing charges during construction are not included in the costs. The residual value of physical assets is assumed to equal its remaining book or depreciated value at the end of the evaluation period.

4. The WACC calculation considers various funding sources and their terms, incorporating the re-lending arrangements between the Government and the Pourashavas. The cost of loan funds, for revenue earning sub-projects, is set at 4%. 13.2% is assumed in nominal terms as the cost of contributions from the Government and 10% is assumed in nominal terms as the cost of equity from Pourashavas. The domestic long-term inflation of

6% is assumed to convert the nominal rates into the real rates. For all the foreign exchange funding, the US dollar inflation rate of 0.8% is assumed. The WACC of 3.09% was computed for the Project in real terms.

3. REVENUE EARNING PROJECTS

3.1 Water Supply

5. The water supply subprojects will provide incremental water supply to meet water demand increase assuming that 90% of total population is connected to piped water supply by end of Project. Project revenues are based on the water tariff charged on the water supplied by the Subproject, taking into account the water demand assessment, the number of connections, the gradually reduced non-revenue water (NRW). User charge revision is proposed to satisfy the Project's objective to recover the full O&M cost for the whole water supply system. The proposal on user charges for water supply includes: (i) introduction of volumetric tariff; and (iii) in subsequent years there would be a need to increase tariff by 5% (Galachipa) 15%(Mathbaria) to 25% (Amtali) every four years from FY 2022. The connection fee for new customers is assumed at BDT. 1500 (Galachipa and Mathbaria) to BDT 5000 (Amtali) per connection.

6. Under the above mentioned major assumptions, FIRRs are computed for the water supply subprojects in the all three Pourashavas including cost of climate resilience measures. Table **1** shows summary results of the financial analysis. The FIRRs in the base case for water supply subprojects are estimated at 3.3% to 6.2%. FIRRs for water supply subprojects in the Pourashavas are estimated to exceed the WACC of 3.09%. A sensitivity analysis was also conducted under various assumptions. The FIRRs are relatively more sensitive to changes in incremental revenues for all the subprojects.

7. Under the above mentioned major assumptions, FIRRs are computed for the water supply subprojects in the all three Pourashavas in without cost of climate resilience measures as well. Table **2** shows summary results of the financial analysis. The FIRRs in the base case for water supply subprojects are estimated at 3.5% to 7.1%. FIRRs for water supply subprojects in the Pourashavas are estimated to exceed the WACC of 3.09%. A sensitivity analysis was also conducted under various assumptions. The FIRRs are relatively more sensitive to changes in incremental revenues for all the subprojects.

Table 1: Summary of Financial Evaluation – Water Supply with CCR

	Amtali		Galachipa		Mathbaria	
	FIRR (%)	**SI**	**FIRR(%)**	**SI**	**FIRR (%)**	**SI**
Base Case	4.8		6.2		3.3	
Capital Cost +10%	4.3	1.1	5.5	1.3	2.7	2.1
O&M Cost +10%	4.4	0.9	6.0	0.3	3.1	0.4
Revenues -10%	3.8	2.5	5.2	1.9	2.5	3.1
Worst Case	3.0		4.3		1.8	
One Year Delay	4.5		6.0		3.0	
WACC	3.09					

Source: PPTA consultant analysis.

Table 2: Summary of Financial Evaluation – Water Supply without CCR

	Amtali		Galachipa		Mathbaria	
	FIRR(%)	SI	FIRR(%)	SI	FIRR(%)	SI
Base Case	7.1		7.4		3.5	
Capital Cost +10%	6.4	1.0	6.7	1.1	2.9	1.9
O&M Cost +10%	7.0	0.2	7.3	0.2	3.4	0.4
Revenues -10%	6.2	1.4	6.5	1.5	2.7	2.8
Worst Case	5.5		5.6		2.1	
One Year Delay	6.9		7.3		3.2	
WACC	3.09					

Source: PPTA consultant analysis.

3.2 Sanitation

8. Under sanitation, among the items, financial analysis have been carried out for investment in de-sludge machine and public toilets combined as those will generate direct income. Each public toilet has 4 toilets. The fee for using toilet per person is Tk. 2 and 50 persons can use a toilet in a day with 300 days in a year. Analysis is done considering economic life 20 years. The fee for each time de-sludge is Tk. 1,200. The machine can be used 5 times in a day for 300 days in a year.

9. The O&M costs estimated to be 5% of the capital cost.

10. Based on the said parameters the FIRR of the sub-project with cost climate for climate resilience measures so calculated have been found to exceed the rate of cost of capital and hence financially feasible. Summary results are given in Table 3.

11. Based on the said parameters the FIRR of the sub-project without cost climate for climate resilience measures so calculated have been found to exceed the rate of cost of capital and hence financially feasible. Summary results are given in **Table 4**.

Table 3: Summary of Financial Evaluation – Sanitation with CCR

	Amtali		Galachipa		Mathbaria	
	FIRR(%)	SI	FIRR(%)	SI	FIRR(%)	SI
Base Case	19.9		18.8		18.8	
Capital Cost +10%	18.2	0.8	17.2	0.9	17.2	0.9
O&M Cost +10%	19.5	0.2	18.4	0.2	18.4	0.2
Revenues -10%	17.7	1.1	16.6	1.1	16.6	1.1
Worst Case	15.7		14.7		14.7	
One Year Delay	19.8		18.6		18.6	
WACC	3.09					

Source: PPTA consultant analysis

Table 4: Summary of Financial Evaluation – Sanitation Without CCR

	Amtali		Galachipa		Mathbaria	
	FIRR(%)	SI	FIRR(%)	SI	FIRR(%)	SI
Base Case	17.8		17.0		17.0	
Capital Cost +10%	16.2	0.9	15.5	0.9	15.5	0.9
O&M Cost +10%	17.4	0.2	16.6	0.2	16.6	0.2
Revenues -10%	15.7	1.2	14.9	1.2	14.9	1.2
Worst Case	13.9		13.2		13.2	
One Year Delay	17.6		16.8		16.8	
WACC	3.09					

Source: PPTA consultant analysis.

3.3 Solid Waste

12. It is assessed that the households covered under the solid waste management would pay @ Tk. 5 per month.

13. The O&M costs estimated to be 10% of the capital cost.

14. Based on the said parameters the FIRR of the sub-project with cost climate for climate resilience measures so calculated have been found to exceed the rate of cost of capital and hence financially feasible. Summary results are given in Table 5.

15. For all the above mentioned subprojects the FIRR is more than the WACC. Sensitivity analysis shows FIRRs are generally robust and relatively sensitive to changes in revenues. For all the above subprojects and overall systems in the four pourashavas, the total projections demonstrate that they are sustainable as the revenue account will be in surplus.

Table 5: Summary of Financial Evaluation – Solid Waste with CCR

	Amtali		Galachipa		Mathbaria		Pirojpur	
	FIRR(%)	SI	FIRR(%)	SI	FIRR(%)	SI	FIRR(%)	SI
Base Case	66.5		78.5		72.5		81.6	
Capital Cost +10%	61.8	0.7	73.2	0.7	67.5	0.7	76.0	0.7
O&M Cost +10%	65.9	0.1	78.0	0.1	72.2	0.1	81.1	0.1
Revenues -10%	60.8	0.9	72.1	0.8	66.7	0.8	74.9	0.8
Worst Case	56.0		66.6		61.8		69.3	
One Year Delay	66.5		78.5		72.5		81.6	
WACC	3.09							

Source: PPTA consultant analysis.

4. NON-REVENUE EARNING PROJECTS

16. For non-revenue-generating sectors—drainage, roads, bridges and cyclone shelters—the analysis focused on the capacity of the Project Pourashavas to sustain the assets created under the Project by providing financial resources for maintenance and debt service, if any. Financial projections of cash flow were made over a 20-year period for the Project Pourashavas, incorporating the impact of the subprojects as well as the proposed

reform. For the four Project Pourashavas, the financial projections show that the Project Pourashavas can absorb the investment in appraised subprojects, as they are expected to have a revenue account surplus and a positive close balance for the revenue account.

5. FINANCIAL PERFORMANCE OF POURASHAVAS

17. An analysis of financial performance of the Project Pourashavas for the FY2012 highlights generally weak financial positions of the urban local bodies (ULB). The analysis shows that: (i) though the pourashavas were able to generate own revenues to meet their revenue expenditure, they lack the capacity to generate funds for development projects and are in turn dependent heavily on central government for funds mostly in the form of grants; (ii) revenue expenditure has increased at the average annual rate of 0.9% in Pirojpur to 26.3% in Galachipa, compared to the average revenue income growth rate of nil in Pirojpur to 26.1% in Amtali. The single largest receipt in tax income used to come from property tax and accounted for 6.6% in Amtali to 35.2% in Mathbaria of total revenue income. **Table 6** presents summarized financial performance of the four Project Pourashavas in FY2012. The historic financial statements of the 4 Pourashavas are presented in **Annex 1**. As the collection performance for property tax has been low – for example, 17.5 % in Galachipa, the actual potential of the property tax has never been materialized. The other receipts in own revenue income include income from by-laws, income from municipal property rentals, investment income, fines, etc.

Table 6: Summary Financial Performance of Project Pourashavas in 2012

	Amtali	Galachipa	Mathbaria	Pirojpur
RESOURCE MOBILISATION				
Per Capita Income (BDT)	833.0	669.1	1,308.1	604.5
Sources of Funds				
Share of Own Sources in Total Revenue Income (%)	98.7	98.6	99.0	99.2%
Share of Property Tax in Total Revenue Income (%)	6.6	7.3	35.1	16.2
Share of Revenue Grants & Subsidies in Total Revenue Income (%)	1.3	1.4	1.0	0.8
Growth in Revenue Income (%)	26.1	19.0	14.6	-ve
Growth in Own Sources - Revenue Income (%)	27.2	19.7	28.1	11.3
FUND APPLICATION				
Per Capita Expenditure (BDT)	758.9	532.4	1,292.6	603.9
Share of Establishment Expenditure in Total Revenue Expenditure (%)	68.6	78.1	74.2	76.4
Share of O&M Expenditure in Total Revenue Expenditure (%)(%)	31.4	21.9	25.8	23.6
Share of Establishment Expenditure to Total Revenue Income (%)	62.5	62.2	73.3	76.3
Growth in Establishment Expenditure (%)	28.8	20.5	25.2	13.6
Growth in O&M Expenditure (%)	43.3	25.4	28.7	8.7
Growth in Total Revenue Expenditure (%)	25.7	26.3	13.3	0.9
Performance Indicators				
Operating Ratio	0.9	0.8	1.0	1.0
Property Tax Collection Efficiency (%)	75.5	17.5	63.2	43.4
Water charges - Collection Efficiency (%)	95.7	95.8	0.0	86.4

Source: Consultant Analysis.

6. FINANCIAL PROJECTIONS OF POURASHAVAS

18. Financial projections of cash flow for the four Project Pourashavas are conducted through 20 years. The projections for the Batch 1 four Project Pourashavas demonstrate that the Pourashavas from their operating surplus can sustain the non-revenue generating subprojects by maintaining the assets, providing the improved services and meeting the debt service payment obligations to the National Government. Financial Projection statements for the four Pourashavas are given in **Annex 2**.

7. TARIFF AND COST RECOVERY MECHANISM

19. **User Charges and Cost Recovery Mechanism**. The current tariff level can recover only the direct O&M costs on average in the two Project Pourashavas. Revision in existing tariff will be the first important step towards full O&M cost recovery. The Government is required to monitor costs and revenues for all the schemes and adjust tariff gradually to cover the full O&M costs of the schemes assisted under the Project. The Government's water policy stipulates that (water) rates shall be prescribed from time to time to move towards covering at least the annual maintenance and operation charges and part of the fixed costs within a specified time frame. In consistence with this policy statement the institutional and financial improvement action plan under the Project requires 100% full O&M cost recovery of water supply and other revenue earning operations for each of the Project Pourashavas within the period of the Project implementation. Under the Project, rationalization of tariff is proposed in which the target of introduction of volumetric tariffs is set for full O&M cost recovery for each Project Pourashavas. This combined with increase service coverage and collection efficiency, set at no less than 85% coupled with the NRW reduction through rehabilitation of distribution network, will help Government to minimize the required increases in tariff to meet the important target of full O&M cost recovery.

20. According to the financial analysis and projections, to achieve full O&M cost recovery, a volumetric tariff rate of BDT. 10 (in case of Mathbaria 12 BDT per KL) and BDT. 20 per KL (in case of Mathbaria 24 BDT per KL) for domestic and non-domestic, i.e., commercial and industrial consumers will be introduced by the end of this project period in 2016. Where there is already volumetric tariff for water (Amtali, Galachipa and Pirojpur), the same will be extended to news areas of pourashavas proposed to be covered under the Project. Subsequent to this, tariff increases have been proposed from FY 2022 at the rate of 5% (Galachipa), 15% (Mathbaria) and 25% (Amtali) every four years. In addition to the proposed tariff increase, the program for UFW reduction, combined with optimal O&M, will help to improve cost recovery perspective for the water supply sector. **Table 7** presents proposed average water tariff levels required in the four Project Pourashavas.

Table 7: Proposed Average Water Tariff, Sanitation Fees, Solid Waste Charge Levels

	Amtali	**Galachipa**	**Mathbaria**	**Pirojpur**
Water (BDT/KL)	10.0	10.0	12.0	8.5 (present)
Sanitation	100.0	100.0	100.0	Not applicable
Solid Waste (Taka per month per HH)	5.0	5.0	5.0	5.0

8. AFFORDABILITY ANALYSIS

21. Affordability analysis for water supply, sanitation and solid waste management services was conducted by estimating percentages of utility bills in the average monthly household income. In the year of the Project completion (2016), average water bill is expected to reach to about BDT. 72 (Amtali), BDT 83 (Galachipa) and BDT 117 (Mathbaria) per month per household; BDT 100 per year per household for sanitation in all pourashavase and BDT. 5 per month for SWM in all pourashavas. Total utility bills including water supply, sanitation and solid waste management services in terms of percentages of monthly household income are around 0.2% to 2.2% (Amtali), 0.3% to 1.9% (Galachipa), 0.4% to 2.0% (Mathbaria) respectively, which are found generally affordable. **Table 8** provides the details of affordability in three pourashavas.

Table 8: Affordability - Water Tariff, Sanitation, Solid Waste Charge - % to HH Income

Income Group	Yearly Income HH	Amtali BDT yearly total utility bill per HH		Galachipa BDT yearly total utility bill per HH		Mathbaria BDT yearly total utility bill per HH	
	BDT	BDT	%	BDT	%	BDT	%
HIG	4,80,000	1,037	0.2%	1,295	0.3%	2,061	0.4%
MIG	2,40,000	1,140	0.5%	1,244	0.5%	1,744	0.7%
LIG	1,50,000	882	0.6%	1,140	0.8%	1,427	1.0%
BPL/Poor	48,000	1,037	2.2%	934	1.9%	984	2.0%

Source: Consultant Analysis

ANNEX 1

1. Amtali Pourashava financial performance

Taka Million

Head of Accounts	Actual 2007-08	2008-09	2009-10	2010-11	2011-12
Recurring Income					
Holding tax- current	0.6	0.6	0.4	0.6	0.8
Holding tax- arrears					
Immovable property transfer fee	0.4	0.4	0.7	0.9	1.9
Professional license/ fees	0.3	0.4	0.4	0.5	0.6
Income from properties	3.0	3.1	4.0	2.1	6.6
Water User Charges	1.0	1.6	2.5	2.8	4.0
Others	0.2	0.1	0.3	0.1	0.2
Total Recurring Income	**5.4**	**6.1**	**8.4**	**6.9**	**14.2**
GoB Revenue / Other Grant	0.3	0.2	0.2	0.2	0.2
Additional Income _UGIIP					
Total Income	**5.7**	**6.3**	**8.6**	**7.2**	**14.4**
Expenditure					
Establishment cost					
Honoraria	0.3	0.3	0.3	3.0	0.8
Salaries and allowances	1.3	1.7	2.1	2.7	3.7
General administration	0.8	1.0	1.9	1.3	2.2
Electricity	0.1	0.1	0.1	0.1	0.1
Other costs and disbursements	2.2	1.7	1.4	0.4	3.8
Water Operation Maintenance	0.6	1.2	1.7	2.1	2.6
Total Operating Expenses	**5.3**	**6.0**	**7.5**	**9.6**	**13.1**
Revenue Surplus (deficit)	0.4	0.4	1.1	-2.5	1.3
Operating Ratio	***0.9***	***0.9***	***0.9***	***1.3***	***0.9***

Source: Pourashave financial statements.

2. Galachipa Pourashava financial performance

Taka Million

	Actual				
Head of Accounts	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**
Recurring Income					
Holding tax- current					
Holding tax- arrears					
Total Collection - Holding Tax	0.5	0.9	0.6	0.8	0.9
Immovable property transfer fee	0.4	0.5	0.4	1.1	1.6
Professional license/ fees	0.6	0.3	0.4	0.4	0.4
Income from properties	3.4	2.7	2.2	4.1	6.7
Water User Charges	1.7	1.9	2.5	3.0	4.0
Others	0.2	0.2	0.2	0.3	0.2
Total Recurring Income	**6.7**	**6.5**	**6.3**	**9.6**	**13.8**
GoB Revenue / Other Grant	0.2	0.2	0.2	0.2	0.2
Additional Income _UGIIP					
Total Income	7.0	6.7	6.4	9.9	14.0
Expenditure					
Establishment cost					
Honoraria	0.2	0.2	0.2	0.2	1.0
Salaries and allowances	1.7	1.7	2.4	3.5	3.1
General administration	0.6	0.6	0.6	1.0	1.1
Electricity	0.0	0.0	0.0	0.0	0.0
Other costs and disbursements	0.8	1.4	2.4	2.5	3.2
Water operation maintenance	1.1	1.6	1.9	4.7	2.8
Total Operating Expenses	**4.4**	**5.4**	**7.4**	**11.9**	**11.3**
Revenue Surplus (deficit)	2.6	1.3	-1.0	-2.0	2.7
Operating Ratio	***0.6***	***0.8***	***1.2***	***1.2***	***0.8***

Source: Pourashave financial statements.

3. Pirojpur Pourashava financial performance

Taka Million

Head of Accounts	Actual 2007-08	2008-09	2009-10	2010-11	2011-12
Recurring Income					
Holding tax- current					
Holding tax- arrears					
Total Collection - Holding Tax	6.0	4.2	4.7	5.1	5.9
Immovable property transfer fee	2.5	3.2	3.9	7.0	10.5
Professional license/ fees	2.5	2.0	2.6	2.7	3.8
Income from properties	4.5	2.5	3.5	3.4	3.4
Water User Charges	7.9	10.5	8.8	9.7	12.3
Others	0.3	0.3	0.3	0.2	0.4
Total Recurring Income	**23.7**	**22.7**	**23.7**	**28.0**	**36.4**
GoB Revenue / Other Grant	13.0	0.5	0.4	0.2	0.3
Additional Income _UGIIP					
Total Income	**36.8**	**23.2**	**24.1**	**28.3**	**36.7**
Expenditure					
Establishment cost					
Honoraria	0.3	0.1	0.2	0.1	0.4
Salaries and allowances	7.5	6.9	8.0	9.1	11.0
General administration	1.7	2.1	2.8	3.4	4.4
Electricity	1.4	0.6	0.4	0.4	0.4
Other costs and disbursements	14.0	2.5	2.8	3.4	4.5
Water operation maintenance	7.8	11.3	7.7	8.2	12.5
Total Operating Expenses	**38.0**	**32.0**	**26.8**	**26.7**	**36.6**
Revenue Surplus (deficit)	-1.2	-8.8	-2.6	1.6	0.0
Operating Ratio	***1.0***	***1.4***	***1.1***	***0.9***	***1.0***

Source: Pourashave financial statements.

4. Mathbaria Pourashava financial performance

Taka Million

Head of Accounts	Actual 2007-08	2008-09	2009-10	2010-11	2011-12
Recurring Income					
Holding tax- current					
Holding tax- arrears					
Total Collection - Holding Tax	2.1	2.6	1.3	2.7	8.4
Immovable property transfer fee	1.2	1.7	2.2	3.0	5.7
Professional license/ fees	0.8	0.7	0.6	1.1	1.6
Income from properties	4.5	6.1	6.3	8.7	7.4
Others	0.2	0.2	0.7	0.2	0.6
Total Recurring Income	**8.8**	**11.3**	**11.1**	**15.7**	**23.8**
GoB Revenue / Other Grant	5.1	0.2	0.3	0.3	0.2
Additional Income – UGIIP					
Total Income	**13.9**	**11.5**	**11.3**	**16.0**	**24.0**
Expenditure					
Establishment cost					
Honoraria	0.3	0.3	0.2	2.3	1.7
Salaries and allowances	3.5	4.2	4.4	6.2	11.1
General administration	2.2	1.5	0.5	1.1	1.8
Electricity	0.2	0.0	0.2	0.1	0.6
Other costs and disbursements	8.3	4.9	5.4	6.0	8.6
O&M of UGIIP Projects					
Total Operating Expenses	**19.2**	**14.6**	**16.8**	**19.0**	**24.8**
Revenue Surplus (deficit)	-5.3	-3.1	-5.5	-3.0	-0.8
Operating Ratio	***1.4***	***1.3***	***1.5***	***1.2***	***1.0***

Source: Pourashave financial statements.

ANNEX 2

Amtali Pourashava												
Particulars	Actual	Projections in BDT Million										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2021-22	2025-26	2028-29	2031-32	2032-33
A. Amtali Pourashava (Revenue Account)												
Opening Balance		**5.1**	**10.4**	**16.6**	**23.4**	**30.9**	**39.3**	**82.4**	**147.1**	**216.7**	**311.7**	**350.6**
Revenue Income												
Tax Revenue	0.8	0.6	0.9	1.0	1.1	1.2	1.2	1.4	1.9	2.2	2.6	2.7
Non Tax Revenue	13.4	14.8	16.3	18.1	20.0	22.1	24.4	36.4	54.3	73.3	98.9	109.4
Grants & Contribution	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4
Total- Revenue Income	**14.4**	**15.6**	**17.5**	**19.3**	**21.2**	**23.5**	**25.8**	**38.0**	**56.4**	**75.8**	**101.9**	**112.4**
Revenue Expenditure												
Salaries & Allowances	6.6	7.3	8.0	8.8	9.7	10.7	11.8	17.2	25.2	33.6	44.7	49.1
Operation and Maintenance	2.7	3.0	3.3	3.6	4.0	4.4	4.8	7.0	10.3	13.7	18.3	20.1
Debt Servicing												
Total- Revenue Expenditure	**9.4**	**10.3**	**11.3**	**12.5**	**13.7**	**15.1**	**16.6**	**24.3**	**35.5**	**47.3**	**62.9**	**69.2**
Revenue Surplus /(Deficit)	5.1	5.3	6.2	6.8	7.5	8.4	9.2	13.7	20.9	28.5	39.0	43.2
Closing Balance	**5.1**	**10.4**	**16.6**	**23.4**	**30.9**	**39.3**	**48.5**	**96.1**	**168.0**	**245.2**	**350.6**	**393.8**

Amtali Pourashava												
Particulars	Actual	Projections in BDT Million										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2021-22	2025-26	2028-29	2031-32	2032-33
B. Amtali Pourashava (CTIIP Account) WITH CCR												
Opening Balance				(5.5)	(18.7)	(31.3)	(31.4)	(81.2)	(136.9)	(185.1)	(241.5)	(258.1)
Sources of Fund												
Debt Drawdown			5.5	13.4	12.7							
Govt. Grant			19.3	47.0	44.3							
Subsidy												
- Equity												
- Debt Servicing								1.7	1.7	1.7	1.6	1.6
Water Supply												
- Income -Existing												
- Income - Incremental						5.3	5.6	8.8	10.1	14.2	19.9	20.4
-New Connection Fees				0.2	0.1	9.3	0.8	0.6	0.6	0.6	0.8	0.8
Public Toilets						2.3	2.3	2.5	2.7	2.9	3.1	3.1
Solid Waste						0.2	0.2	0.3	0.3	0.3	0.3	0.3
Total- Inflow			**24.8**	**60.6**	**57.1**	**17.1**	**9.0**	**13.9**	**15.3**	**19.7**	**25.7**	**26.2**
Disposition of Funds												
Equity Drawdown			2.8	6.7	6.3							
Project Capex			27.5	67.1	63.3							
Water Supply, Sanitation and Solid waste												
- Debt - Principal								1.6	1.6	1.6	1.6	1.6
- Debt - Interest								0.1	0.1	0.1	0.1	0.1
Water Supply												
- Expenditure - Existing												
- Expenditure - Incremental						8.9	9.4	11.5	13.8	15.8	17.9	18.6
Drainage						0.4	0.4	0.6	0.7	2.2	2.7	2.8
Roads												
Bridges						0.6	0.6	0.8	1.0	1.2	1.4	1.5
Sanitation						0.0	0.0	0.0	0.0	0.1	0.1	0.1
Solid Waste						6.9	9.4	11.5	13.8	15.8	17.9	18.6
Cyclone Shelters						0.3	0.3	0.4	0.5	0.6	0.7	0.8
Total- Outflow			**30.3**	**73.9**	**69.6**	**17.2**	**20.2**	**26.5**	**31.6**	**37.3**	**42.3**	**44.1**
Closing Balance			(5.5)	(18.7)	(31.3)	(31.4)	(42.7)	(93.8)	(153.1)	(202.7)	(258.1)	(276.0)
Cumulative Closing Balance	**5.1**	**10.4**	**11.1**	**4.6**	(0.4)	**7.9**	**5.8**	**2.3**	**14.9**	**42.5**	**92.5**	**117.8**

Galachipa Pourashava												
Particulars	Actual	Projections in BDT Million										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2021-22	2025-26	2028-29	2031-32	2032-33
A. Galachipa Pourashava (Revenue Account)												
Opening Balance		**5.9**	**11.8**	**18.1**	**24.5**	**31.0**	**37.8**	**65.0**	**91.2**	**107.7**	**118.2**	**119.8**
Revenue Income												
Tax Revenue	0.9	0.7	1.0	1.0	1.1	1.3	1.2	1.5	2.0	2.4	2.8	2.9
Non Tax Revenue	12.9	13.9	14.9	15.9	17.1	18.3	19.6	26.0	34.5	42.6	52.8	56.7
Grants & Contribution	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4
Total- Revenue Income	**14.0**	**14.7**	**16.1**	**17.2**	**18.4**	**19.8**	**21.1**	**27.7**	**36.7**	**45.3**	**56.0**	**60.0**
Revenue Expenditure												
Salaries & Allowances	5.3	5.8	6.4	7.0	7.7	8.5	9.3	13.6	20.0	26.6	35.4	38.9
Operation and Maintenance	2.8	3.1	3.4	3.8	4.1	4.6	5.0	7.3	10.8	14.3	19.1	21.0
Debt Servicing												
Total- Revenue Expenditure	**8.1**	**8.9**	**9.8**	**10.8**	**11.8**	**13.0**	**14.3**	**21.0**	**30.7**	**40.9**	**54.4**	**59.9**
Revenue Surplus /(Deficit)	5.9	5.8	6.3	6.4	6.6	6.8	6.8	6.7	6.0	4.4	1.5	0.1
Closing Balance	**5.9**	**11.8**	**18.1**	**24.5**	**31.0**	**37.8**	**44.5**	**71.8**	**97.3**	**112.2**	**119.8**	**119.9**

Particulars	Actual	Projections in BDT Million										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2021-22	2025-26	2028-29	2031-32	2032-33
B. Galachipa Pourashava (CTIIP Account) with Climate Resilient Measures												
Opening Balance				**(5.1)**	**(18.2)**	**(30.4)**	**(27.4)**	**(23.6)**	**(18.9)**	**(15.9)**	**(14.6)**	**(14.1)**
Sources of Fund												
Debt Drawdown			5.1	13.1	12.2							
Govt. Grant			17.9	45.9	42.8							
Subsidy												
- Equity												
- Debt Servicing								1.4	1.4	1.4	1.3	1.3
Water Supply												
- Income -Existing	1.6	1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
- Income - Incremental						7.2	7.7	11.0	12.1	13.7	15.5	15.7
-New Connection Fees				0.1	0.0	2.2	0.5	0.6	0.2	0.2	0.2	0.2
Public Toilets						2.5	2.6	2.8	3.0	3.2	3.4	3.5
Solid Waste						0.3	0.3	0.3	0.4	0.4	0.4	0.4
Total- Inflow			**23.1**	**59.2**	**55.1**	**12.2**	**11.1**	**16.1**	**17.0**	**18.8**	**20.8**	**21.1**
Disposition of Funds												
Equity Drawdown			2.6	6.6	6.1							
Project Capex			25.6	65.6	61.2							
Water Supply, Sanitation and Solid waste												
- Debt - Principal								1.3	1.3	1.3	1.3	1.3
- Debt - Interest								0.1	0.1	0.1	0.0	0.0
Water Supply												
- Expenditure - Existing	2.8	2.9	3.1	3.2	3.4	7.1	4.0	4.9	5.8	6.6	7.5	7.8
- Expenditure - Incremental						3.5	3.6	4.4	5.3	6.1	6.9	7.2
Drainage						2.0	2.2	2.7	3.4	2.9	3.5	3.7
Roads												
Bridges						0.7	0.8	1.0	1.3	1.5	1.8	1.9
Sanitation						0.0	0.0	0.0	0.0	0.0	0.1	0.1
Solid Waste						2.7	3.5	4.1	4.8	5.4	6.0	6.3
Cyclone Shelters						0.3	0.3	0.4	0.5	0.6	0.7	0.8
Total- Outflow			**28.2**	**72.2**	**67.3**	**9.2**	**10.4**	**14.1**	**16.8**	**17.9**	**20.3**	**21.2**
Net Cash Flow			(5.1)	(13.0)	(12.2)	2.9	0.7	2.0	0.2	0.8	0.5	(0.1)
Govt Subsidy for Tariff												
Net Cash Flow (after subsidy			(5.1)	(13.0)	(12.2)	2.9	0.7	2.0	0.2	0.8	0.5	(0.1)
Closing Balance			**(5.1)**	**(18.2)**	**(30.4)**	**(27.4)**	**(26.7)**	**(21.6)**	**(18.7)**	**(15.1)**	**(14.1)**	**(14.3)**
Cumulative Closing Balance	**5.9**	**11.8**	**12.9**	**6.3**	**0.7**	**10.3**	**17.8**	**50.1**	**78.6**	**97.1**	**105.6**	**105.6**

Mathbaria Pourashava												
Particulars	Actual	Projections in BDT Million										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2021-22	2025-26	2028-29	2031-32	2032-33
A. Mathbaria Pourashava (Revenue Account)												
Opening Balance		**8.9**	**15.8**	**25.8**	**36.4**	**47.8**	**60.6**	**116.5**	**188.1**	**256.8**	**342.2**	**376.2**
Revenue Income												
Tax Revenue	8.4	6.3	9.4	9.9	10.6	12.0	11.8	14.0	18.9	22.4	26.6	27.3
Non Tax Revenue	15.4	16.9	18.6	20.6	22.7	25.0	27.5	40.7	60.2	80.9	108.8	125.2
Grants & Contribution	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total- Revenue Income	**24.0**	**23.5**	**28.3**	**30.7**	**33.5**	**37.2**	**39.5**	**54.9**	**79.4**	**103.5**	**135.6**	**152.7**
Revenue Expenditure												
Salaries & Allowances	14.6	16.0	17.6	19.4	21.3	23.4	25.8	37.8	55.3	73.6	97.9	107.7
Operation and Maintenance	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.4	2.1	2.8	3.7	4.1
Debt Servicing												
Total- Revenue Expenditure	**15.1**	**16.6**	**18.3**	**20.1**	**22.1**	**24.3**	**26.8**	**39.2**	**57.4**	**76.4**	**101.7**	**111.8**
Revenue Surplus /(Deficit)	8.9	6.9	10.0	10.6	11.4	12.9	12.8	15.7	22.0	27.2	34.0	40.9
Closing Balance	**8.9**	**15.8**	**25.8**	**36.4**	**47.8**	**60.6**	**73.4**	**132.2**	**210.0**	**284.0**	**376.2**	**417.1**

Particulars	Actual	Projections in BDT Million										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2021-22	2025-26	2028-29	2031-32	2032-33
B. Mathbaria Pourashava (CTIIP Account) with Climate Resilient Measures												
Opening Balance				(15.7)	(50.3)	(84.0)	(74.3)	(58.8)	(42.7)	(34.6)	(31.6)	(28.4)
Sources of Fund												
Debt Drawdown			15.7	34.6	33.7							
Govt. Grant			54.9	121.2	118.0							
Subsidy												
- Equity												
- Debt Servicing								7.5	6.7	6.1	5.5	5.4
Water Supply												
- Income -Existing												
- Income - Incremental						14.7	15.3	19.5	20.3	23.9	29.1	29.4
-New Connection Fees						4.6	0.5	0.1	0.1	0.1	0.1	0.1
Public Toilets						2.5	2.6	2.8	3.0	3.2	3.4	3.5
Solid Waste						0.3	0.3	0.3	0.3	0.3	0.3	0.4
Total- Inflow			**70.6**	**155.9**	**151.7**	**22.1**	**18.6**	**30.1**	**30.4**	**33.6**	**38.5**	**38.7**
Disposition of Funds												
Equity Drawdown			7.8	17.3	16.9							
Project Capex			78.4	173.2	168.5							
Water Supply, Sanitation, Solid Waste												
- Debt - Principal								4.2	4.2	4.2	4.2	4.2
- Debt - Interest								3.3	2.5	1.9	1.3	1.2
Water Supply												
- Expenditure - Existing												
- Expenditure - Incremental						5.7	6.0	7.3	8.8	10.1	11.4	11.9
Drainage						1.2	1.3	1.6	2.0	3.7	4.4	4.7
Roads						0.0	0.0	0.0	0.0	0.1	0.1	0.1
Bridges						0.9	0.9	1.2	1.5	1.8	2.1	2.3
Sanitation						0.0	0.0	0.0	0.0	0.1	0.1	0.1
Solid Waste						4.4	6.0	7.3	8.8	10.1	11.4	11.9
Cyclone Shelters						0.1	0.1	0.1	0.2	0.2	0.2	0.3
Total- Outflow			**86.3**	**190.5**	**185.4**	**12.4**	**14.4**	**25.1**	**28.1**	**32.1**	**35.3**	**36.5**
Closing Balance			**(15.7)**	**(50.3)**	**(84.0)**	**(74.3)**	**(70.1)**	**(53.8)**	**(40.5)**	**(33.0)**	**(28.4)**	**(26.3)**
Cumulative Closing Balance	**8.9**	**15.8**	**10.1**	**(13.9)**	**(36.2)**	**(13.6)**	**3.3**	**78.4**	**169.6**	**250.9**	**347.8**	**390.8**

Pirojpur Pourashava												
Particulars	Actual	Projections in BDT Million										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2021-22	2025-26	2028-29	2031-32	2032-33
A. Pirojpur Pourashava (Revenue Account)												
Opening Balance		**8.0**	**14.6**	**23.4**	**32.6**	**42.4**	**53.3**	**100.9**	**162.8**	**223.4**	**300.8**	**331.9**
Revenue Income												
Tax Revenue	5.9	4.5	6.6	7.0	7.5	8.4	8.3	9.9	13.3	15.8	18.7	19.2
Non Tax Revenue	30.4	33.1	35.9	39.1	42.6	46.4	50.6	71.8	102.7	134.7	177.2	194.2
Grants & Contribution	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total- Revenue Income	**36.7**	**37.8**	**42.9**	**46.4**	**50.3**	**55.1**	**59.1**	**82.0**	**116.3**	**150.8**	**196.2**	**213.7**
Revenue Expenditure												
Salaries & Allowances	15.8	17.3	19.1	21.0	23.1	25.4	27.9	40.9	59.9	79.7	106.1	116.7
Operation and Maintenance	12.9	13.9	15.0	16.2	17.4	18.8	20.3	27.5	37.3	46.9	58.9	63.6
Debt Servicing												
Total- Revenue Expenditure	**28.7**	**31.2**	**34.1**	**37.2**	**40.5**	**44.2**	**48.2**	**68.4**	**97.2**	**126.6**	**165.0**	**180.3**
Revenue Surplus /(Deficit)	8.0	6.6	8.8	9.2	9.8	10.9	10.9	13.6	19.1	24.2	31.2	33.4
Closing Balance	**8.0**	**14.6**	**23.4**	**32.6**	**42.4**	**53.3**	**64.2**	**114.5**	**181.9**	**247.6**	**331.9**	**365.3**

Particulars	Actual	Projections in BDT Million										
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2021-22	2025-26	2028-29	2031-32	2032-33
B. Pirojpur Pourashava (CTIIP Account) with Climate Resilience Measures												
Opening Balance						**(0.1)**	**(4.4)**	**(24.6)**	**(50.5)**	**(76.5)**	**(108.9)**	**(121.0)**
Sources of Fund												
Debt Drawdown					0.1							
Govt. Grant					0.2							
Subsidy												
- Equity												
- Debt Servicing								0.0	0.0	0.0	0.0	0.0
Solid Waste						0.4	0.4	0.5	0.5	0.5	0.6	0.6
Total- Inflow					**0.3**	**0.4**	**0.4**	**0.5**	**0.5**	**0.5**	**0.6**	**0.6**
Disposition of Funds												
Equity Drawdown					0.0							
Project Capex					0.3							
Solid Waste												
- Debt - Principal								0.0	0.0	0.0	0.0	0.0
- Debt - Interest								0.0	0.0	0.0	0.0	0.0
Drainage						3.68	3.90	4.92	6.21	8.53	10.16	10.77
Roads						0.0	0.02	0.03	0.04	0.04	0.05	0.06
Bridges						0.6	0.69	0.87	1.09	1.30	1.55	1.64
Solid Waste												
Cyclone Shelters						0.4	0.44	0.56	0.70	0.84	0.99	1.05
Total- Outflow					**0.4**	**4.7**	**5.0**	**6.3**	**8.0**	**10.7**	**12.7**	**13.5**
Net Cash Flow					(0.1)	(4.3)	(4.6)	(5.9)	(7.5)	(10.1)	(12.1)	(12.9)
Govt Subsidy for Tariff												
Net Cash Flow (after subsidy					(0.1)	(4.3)	(4.6)	(5.9)	(7.5)	(10.1)	(12.1)	(12.9)
Closing Balance					**(0.1)**	**(4.4)**	**(9.0)**	**(30.5)**	**(58.0)**	**(86.6)**	**(121.0)**	**(133.9)**
Cumulative Closing Balance	**8.0**	**14.6**	**23.4**	**32.6**	**42.3**	**48.9**	**55.2**	**84.0**	**123.9**	**161.0**	**210.9**	**231.4**

APPENDIX 13: ECONOMIC ANALYSIS

1. INTRODUCTION AND METHODOLOGY

1. Bangladesh has a population of nearly 150 million (Census 2011).[27] Whilst the urban population is modest by proportion—estimated to be around 28% of the total population—Bangladesh is a rapidly urbanizing country.[28] Of the total urban population, 60% reside in the four largest cities: Dhaka, Chittagong, Khulna and Rajshahi. United Nations projections indicate that 50% or more of the population will be classified as urban by around the year 2045.[29] In general terms this rapid urbanization has occurred because of: i) natural increases in the urban population, ii) territorial expansion of the urban areas and reclassification of rural areas as urban, and iii) considerable rural-to-urban migration.

2. The Government's rapid growth in economic activities, in particular, in the tertiary sector has centered around Dhaka and resulted in uneven economic development within the country. Coastal lags behind in economic growth, urban infrastructure development, and poverty reduction. Recognizing the importance of urbanization to economic growth, the Government of Bangladesh (GoB) has emphasized on urban development in Coastal towns through various national as well foreign aided programs.

3. Investments made in the urban sector for the last five years by the executing agencies from project aid and GOB fund is shown in **Table 1**.

4. The Bangladesh Municipal Development Fund (BMDF) is a grant-loan mix financing to pourashavas, 85% is grant and 15% is loan, for the development of infrastructure.

5. An understanding has been given by DPHE that about 85% of urban investment would be on account of water supply and the rest, 15%, would be for sanitation and hygiene purposes.

Table 1: Investments in Sector over Last Five Years (Million US $)

Executing Agency	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
BMDF Financing to PS	2.3	0.9	1.4	25.4	12.4
DPHE: (GoB + P. Aid)	0	0	0	0.00	0
Rural	17.1	22.8	21.5	35.4	39.2
Urban	20.9	27.9	26.2	43.3	47.9
Total DPHE	38.03	50.74	47.68	78.66	87.04
LGED (GoB + P. Aid)					
Rural	295.2	366.8	363.4	407.2	479.8
Urban	80.9	100.5	99.6	111.6	121.9
Others	28.3	35.2	34.8	39.0	48.6
Total LGED	**404.4**	**502.5**	**497.8**	**557.8**	**650.3**

Sources: BMDF, DPHE, LGED.

[27] We are unable to verify an accurate estimate of the % of urban population based on the Census 2011; only enumerated unadjusted figures are publicly accessible. The 2011 enumerated 149,772,364 million, an average growth rate of 1.37% and an average population density of 1015 per person per Km sq. The total enumerated urban population as a % of total population was 19.2%, much lower than widely used estimates. (Source BBS Census 2011).

[28] ' World Urbanisation Prospects: The 2011 Revision' records a total population of 150,494,000 and a total urban population of 42,698,000 (28.4%), United Nations, Department of Economic and Social Affairs, Population Division.

[29] United Nations, Department of Economic and Social Affairs, Population Division.

6. Based on data for 2012-2013, LGED investment has been allocated among rural, urban and others at the ratio of 73%, 20% and 7% respectively.

7. The investment plan in the sector for the next five years by the executing agencies is shown in **Table 2**.

Table 2: Investment Plan in Sector for Next Five Years – Million US $

Executing Agency	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
BMDF Financing Plan	16.5	26.5	25.5	18.0	13.5
DPHE: (GoB + P. Aid)	0	0	0	0	0
Rural	44.5	68.3	74.8	80.1	75.5
Urban	54.4	83.5	91.5	97.9	92.2
Total DPHE	98.94	151.86	166.28	177.95	167.69
LGED (GoB + P. Aid)					
Rural	481.9	937.7	513.5	558.7	629.7
Urban	132.0	256.9	140.7	153.1	172.5
Others	46.2	89.9	49.2	53.6	60.4
Total LGED	**660.2**	**1,284.5**	**703.4**	**765.4**	**862.6**

Sources: BMDF, DPHE, LGED.

2. ECONOMIC ANALYSIS OF PROJECT

8. A detailed economic analysis of the Batch 1 towns' subprojects under Project was conducted and the salient features of the analysis are summarized below in this Appendix. As this Project is formulated as sector lending, the economic analysis follows ADB's Technical Note Series No.14 (2005), Assessing Aid for a Sector Development Plan: Economic Analysis of a Sector Loan.

9. **Rationale for Government Involvement**. The government intervention under Project is limited to basic urban services where (i) there is natural monopoly in the sector; (ii) the services provided are public good; and (iii) integrated and coordinated management by the government is required due to externality and interdependence of these sectors. Where technically and commercially feasible, private sector participation will be promoted. The government involvement in basic urban services is also in line with the urban sector development plans and programs that the government is pursuing.

10. **Goals of the Project**. The goals of Project are to increase economic potential through development of basic urban infrastructure in the selected Pourashavas of the Country. Under Batch 1, 4 Pourashavas were strategically selected to maximize the Project's contribution to balanced economic growth potential. The 4 selected Pourashavas are a mix of small and medium sized cities and towns.

11. **Sector Development Plan**. Project will cover part of the 10-year period financing requirements in the selected 4 Pourashavas. Each Pourashava has identified infrastructure gaps, develops and the Project prioritizes options to close the gaps, proposes subprojects in each urban sub-sector, and recommends an institutional and financial mechanism to sustain the improved service delivery.

12. **Associated Economic Policies**. Promoting urban development is a national policy of Bangaldesh. The Country has already taken up initiatives under national urban agenda to advance priority projects and governance reforms. Tariff and user charge reform is part of Project. Some of the pourashavas are already implementing volumetric water tariff in selected areas wherein piped water supply exists. This is a critical step towards financial

sustainability.

13. **Government Capacity**. The Government, through its nodal agency LGED acting as the executing agency, is fully capable of executing Project. LGED has implemented and is still handling several externally aided projects, such as two ADB-assisted projects and two World Bank-assisted projects in urban development in addition to centrally sponsored schemes. LGED has developed adequate capacity in managing projects, having learned from experiences in implementing other externally funded projects.

14. **Government Commitment**. The government commitment to support urban development is firm, as demonstrated by increased budgetary allocation to the sector. From FY2008-09 to FY2012-13, national development expenditures on water, sanitation and urban development have grown by a CAGR of 12.6 percent.

3. ECONOMIC ANALYSIS OF SUBPROJECTS

15. Economic analysis has been conducted for all the Batch 1 towns' subprojects under Project in accordance with the ADB's Guidelines, including Guidelines for the Economic Analysis of the Projects and Guidelines for the Economic Analysis of Water Supply Projects. The subproject life is assumed to be 20 years with salvage values. The analysis is based on domestic numeraire in April 2013 constant prices. The shadow wage factor of 0.94 and the shadow exchange factor of 1.07 are applied to convert financial values to economic values. The population growth in each town is projected based on historical trend. Parameters assumed are drawn from socio economic surveys , public statistics, field surveys, and discussions with experts.

16. Analysis has been carried out in following scenarios:

a. Present situation –without project;
b. Project investment without Climate Resilience Measures (CCR) and
c. Project investment With Climate Resilience Measures (CCR)

17. For subprojects with quantifiable economic benefits and costs, economic internal rate of return (EIRR) was calculated and then compared to the economic opportunity cost of capital estimated at 12%.

18. All the subprojects have been designed on least cost option basis as described in the technical section of the DFR.

19. Detailed subproject economic analysis for various subprojects are presented below.

3.1 Water Supply Subprojects

20. A summary of the EIRR as well as the sensitivity analysis results is included in **Table 3**.

Table 3: EIRR and Sensitivity Results of Project Pourashavas – With CCR

Sub-project	Base	Capital Cost +20%	O&M Cost +20%	Benefit -20%	Worst Case	One Year Delay
Amtali	17.7%	14.9%	17.1%	14.8%	12.0%	17.4%
Galachipa	14.0%	11.6%	13.7%	11.8%	9.5%	13.8%
Mathbaria	15.3%	12.6%	15.2%	13.0%	10.5%	15.1%

Source: PPTA consultant analysis

A. Water Supply - Amtali

21. **Demand and Rationale**. Due to limited supply and distribution capacity, the service coverage of piped water supply remains at 39%, with 1296 household connections. In areas of the city, where there is no piped water supply households have to resort to alternative water sources such as public stand posts, tanker supply, and bottled water. With the project, the coverage will reach 60%, 3,212 households and the consumption will increase to 100 lpcd for the connected households.

22. **Willingness-to-pay**. According to the socioeconomic survey, most of the households prefer house connections and the mean willingness to pay for improved water supply services is at BDT 226 per month.[30] The proposed volumetric water tariff is same as the existing one of BDT 10 per kiloliter for domestic and BDT 20 per kiloliter for non-domestic consumers, upon project completion in 2016, with periodic revisions in real terms of 25% from FY 2022 every five years.

23. **Valuation of Benefits**. The subproject will increase the water available for distribution sufficient to fill the current demand gap up to 100 lpcd and to allow for 3,836 additional household connections. The accounted economic benefits are from resource cost savings on the non-incremental water consumption by switching from alternative sources to piped water. The resource cost savings include labor costs to fetch water from public stand posts,[31] cost to install storage tank,[32] cost to boil water for drinking purpose,[33] and cost of water purchased from private vendor.[34] The estimated EIRR in base case is 17.7%, above opportunity cost of capital at 12%. The result is acceptable against downside risks, including 20% increase in capital expenditure, 20% increase in operation cost, 20% decrease in benefit, and one year delay in completion.

B. Water Supply - Galachipa

24. **Demand and Rationale**. Due to limited supply and distribution capacity, the service coverage of piped water supply remains at 39%, with 2,050 household connections. In areas of the city, where there is no piped water supply households have to resort to alternative water sources such as public stand posts, tanker supply, and bottled water. With the project, the coverage will reach 80%, 4,672 households, and the consumption will increase to 100 lpcd for the connected households.

25. **Willingness-to-pay**. According to the socioeconomic survey, most of the households prefer house connections and the mean willingness to pay for improved water supply services is at BDT 156.8 per month.[35] The proposed volumetric water tariff is same as the existing one of BDT 10 per kiloliter, upon project completion in 2016, with periodic revisions in real terms of 5% from FY 2022 every five years.

26. **Valuation of Benefits**. The subproject will increase the water available for distribution sufficient to fill the current demand gap up to 100 lpcd and to allow for 2,672 additional household connections. The accounted economic benefits are from resource cost savings on

[30] In May 2013 price. Source: Socioeconomic survey conducted in 2013
[31] Assumed a household spends 18 minutes per day for fetching water as per socioeconomic survey report. The time spent is valuated at wage rate of unskilled labor at BDT 375 per day.
[32] The cost of storage tank, including operation and maintenance,is assumed at BDT 1,042 as per Source: socioeconomic survey
[33] Assuming 5 minutes work of unskilled labour per day among other costs. Other monthly cost for purification per HH BDT 129 Source: socioeconomic survey
[34] The cost of water purchased from private vender is assumed at BDT. 100/m^3. Source – physical enquires
[35] In May 2013 price. Source: Socioeconomic survey conducted in 2013.

the non-incremental water consumption by switching from alternative sources to piped water. The resource cost savings include labor costs to fetch water from public stand posts[36], cost to install storage tank[37], cost to boil water for drinking purpose[38], and cost of water purchased from private vendor[39]. The estimated EIRR in base case is 14.0%, above opportunity cost of capital at 12%. The result is acceptable against downside risks, including 20% increase in capital expenditure, 20% increase in operation cost, 20% decrease in benefit, and one year delay in completion.

C. Water Supply - Mathbaria

27. **Demand and Rationale**. Due to limited supply and distribution capacity, the service coverage of piped water supply remains at 0%, with no household connections. In city, households have to resort to alternative water sources such as public stand posts, tanker supply, and bottled water. With the project, the coverage will reach 80%, 4,000 households, and the consumption will increase to 100 lpcd for the connected households.

28. **Willingness-to-pay**. According to the socioeconomic survey, most of the households prefer house connections and the mean willingness to pay for improved water supply services is at BDT 186.5 per month.[40] The proposed volumetric water tariff is BDT 12 per kiloliter, upon project completion in 2016, with periodic revisions in real terms of 15% from FY FY2022 every five years.

29. **Valuation of Benefits**. The subproject will increase the water available for distribution sufficient to fill the current demand gap up to 100 lpcd and to allow for 4,000 additional household connections. The accounted economic benefits are from resource cost savings on the non-incremental water consumption by switching from alternative sources to piped water. The resource cost savings include labor costs to fetch water from public stand posts,[41] cost to install storage tank,[42] cost to boil water for drinking purpose,[43] and cost of water purchased from private vendor.[44] The estimated EIRR in base case is 15.3%, above opportunity cost of capital at 12%. The result is acceptable against downside risks, including 20% increase in capital expenditure, 20% increase in operation cost, 20% decrease in benefit, and one year delay in completion.

30. In case of the Project investment without CCR measures it is estimated that only 80% of the resource cost savings – labour cost to fetch water and cost of water purchased from private vendor will accrue. The EIRRs have been estimated accordingly and given in **Table 4**.

[36] Assumed a household spend 14 minutes per day for fetching water as per socioeconomic survey report. The time spent is valuated at wage rate of unskilled labor at BDT 375 per day.
[37] The cost of storage tank, including operation and maintenance, is assumed at BDT 2,320, Source: socioeconomic survey
[38] Assuming nil minute work of unskilled labour per day among other costs as socio economic survey did not indicate this. Other monthly cost for purification per HH BDT nil, Source: socioeconomic survey
[39] The cost of water purchased from private vender is assumed at BDT. 100/m3. Source: socioeconomic survey
[40] In May 2013 price. Source: Socioeconomic survey conducted in 2013
[41] Assumed a household spend 25.6 minutes per day for fetching water. The time spent is valuated at wage rate of unskilled labor at BDT 375 per day.
[42] The cost of storage tank, including operation and maintenance, is assumed at BDT 3,463 based on Source: socioeconomic survey
[43] Assuming nil minutes work of unskilled labour per day among other costs. Other monthly cost for purification per HH BDT nil Source: socioeconomic survey
[44] The cost of water purchased from private vender is assumed at BDT. 237/m3. Source: socioeconomic survey

Table 4: EIRR and Sensitivity Results of Project Pourashavas – Without CCR

Sub-project	Base	Capital Cost +20%	O&M Cost +20%	Benefit -20%	Worst Case	One Year Delay
Amtali	16.0%	13.5%	15.8%	14.0%	11.7%	15.8%
Galachipa	14.2%	11.9%	14.1%	12.2%	10.0%	14.1%
Mathbaria	17.1%	14.3%	16.9%	14.6%	12.0%	16.9%

Source: PPTA consultant analysis.

3.2 Drainage Subprojects

31. A summary of the EIRR as well as the sensitivity analysis results is included in **Table 5**. Summary of economic benefits ascertained is given in **Table 6**.

Table 5: Drainage EIRR and Sensitivity Results of Project Pourashavas – With CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit-20%	One Year Delay
Amtali	49.3	28.1	23.8	28.0	22.7	18.9	28.1
Galachipa	206.8	23.9	20.1	23.8	19.2	15.8	23.8
Pirojpur	768.5	45.9	39.2	45.8	37.8	32.1	45.9
Mathbaria	288.6	39.8	33.9	39.7	32.6	27.6	39.7
Total / Average	**1313.3**	**36.3**	**30.9**	**29.7**	**29.8**	**25.1**	**36.3**

Source: PPTA consultant analysis.

Table 6: Summary of Drainage Benefits - NPV (Tk Million) with CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Saved Properties Damage Benefit	59.8	101.7	425.2	152.9
Saved Loss of Income	8.1	177.9	154.7	146.1
Saved Medical Cost Benefit	0.6	15.2	16.2	7.1
Agricultural Loss	12.6	27.3	309.1	21.0
Saved business Income	3.0	110.3	91.9	70.6
Saved Road Damage	5.2	5.2	38.8	15.5
Total	**89.3**	**437.5**	**1036.0**	**413.3**

Source: PPTA consultant analysis.

A. Drainage - Amtali

32. 2.731 kilometers of drain are proposed under the subproject. This will benefit 680 number of properties, 239 households' loss of income and savings in medical cost, loss of business income, 0.3 square kilometers of agricultural land crop loss and 2.0 kilometers of roads from damage to flooding.

33. **Valuation of Benefits**. Properties damage benefits have been assessed based on the construction cost,[45] repair cost[46] and clean up costs[47] of the properties[48] likely to be affected in floods in without project situation. Projected inundation levels affecting different types of properties, commercial, public, katcha, pakka and semi pakka, are considered in the technical design of the project. Average area[49] of different types of properties estimated based on the available data in two pourashavas. Damage benefit and repair benefit have been estimated on five percent of properties projected to get inundated greater than 0.25 m. Clean up cost benefit have been estimated on all properties expected to get inundated. Saved income[50] loss benefit has been estimated on the number of households likely to be affected due to number of days of flooding. Saved medical cost benefit has been estimated based on the average expenditure on treatment[51] for waterborne diseases per household on the number of households likely to be affected due to flooding. Loss of business income has been estimated based on household expenditure[52] spent on purchases from markets and percentage of households unable to access market place due to floods. Agricultural crop loss due to flooding has been estimated on area of land,[53] average yield[54] and market price of crop.[55] Saved road damage benefit has been assessed on the kilometers[56] of road likely to be affected due to floods and the repair cost[57] thereof. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[58]

B. Drainage - Galachipa

34. 10.28 kilometers of drain are proposed under the subproject. This will benefit 2018 number of properties, 2,287 households' loss of income and savings in medical cost, loss of business income, 0.65 square kilometers of agricultural land crop loss and 2.0 kilometers of roads from damage to flooding.

35. **Valuation of Benefits**. Properties damage benefits have been assessed based on the construction cost,[59] repair cost[60] and clean up costs[61] of the properties[62] likely to be

[45] BDT 1200 per square foot, BDT 1600 per square foot and BDT 2000 per square foot for katcha, semi-pakka and pakka house. Source CDTA DFR
[46] Repair cost – 6% of construction cost. Source CDTA DFR
[47] BDT 2,000, BDT 5,000 and BDT 9,000 cleanup cost for LIG, MIG and HIG. Source CDTA DFR
[48] Number of properties likely to be affected as per projected inundation levels given in Table below

Depth	Commercial	Public	Katcha	Pacca	Semi Pucca
< 0.25m inundation	42	22	170	16	63
> 0.25m inundation	48	26	199	19	75

[49] Commercial buildings– 93 square meters; Public buildings – 46 square meters; Katch houses – 9 square meters; Pacca houses – 70 square meters and Semi pacca houses – 28 square meters
[50] Average household income for Amtali BDT 13,841; average number of days of flooding – 11.4 days; affected households 239; Source: Socioeconomic survey report
[51] BDT 1,097 monthly expenditure on treatment;
[52] Monthly household expenditure – BDT 9,606 – 70% of which is assumed to spent in market purchases. 45.50% of households are unable to access market on 11.4 days of flooding; source socioeconomic survey report
[53] 0.3 square kilometre of agricultural land is likely to be affected due to flooding; source technical estimate
[54] Average yield assumed to be 1.5 tonne per acre; source technical estimate
[55] Average support price assumed to be BDT 17,500 per tonne – source – market / Government enquiries
[56] 2.0 kilometers likely to be affected – as per technical estimate
[57] Repair cost – 4 lakh BDT – as per technical estimate
[58] Average GDP growth rate of GoB is 6 per cent per annum
[59] BDT 1200 per square foot, BDT 1600 per square foot and BDT 2000 per square foot for katcha, semi-pakka and pakka house. Source CDTA DFR
[60] Repair cost – 6% of construction cost. Source CDTA DFR
[61] BDT 2,000, BDT 5,000 and BDT 9,000 cleanup cost for LIG, MIG and HIG. Source CDTA DFR
[62] Number of properties likely to be affected as per projected inundation levels given in Table below

affected in floods in without project situation. Projected inundation levels affecting different types of properties, commercial, public, katcha, pakka and semi pakka, are considered in the technical design of the project. Average area[63] of different types of properties estimated based on the available data in two pourashavas. Damage benefit and repair benefit have been estimated on five percent of properties projected to get inundated greater than 0.25 m. Clean up cost benefit have been estimated on all properties expected to get inundated. Saved income[64] loss benefit has been estimated on the number of households likely to be affected due to number of days of flooding. Saved medical cost benefit has been estimated based on the average expenditure on treatment[65] for waterborne diseases per household on the number of households likely to be affected due to flooding. Loss of business income has been estimated based on household expenditure[66] spent on purchases from markets and percentage of households unable to access market place due to floods. Agricultural crop loss due to flooding has been estimated on area of land,[67] average yield[68] and market price of crop.[69] Saved road damage benefit has been assessed on the kilometers[70] of road likely to be affected due to floods and the repair cost[71] thereof. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[72]

C. Drainage - Pirojpur

36. 24.78 kilometers of drain are proposed under the subproject. This will benefit 8,906 number of properties, 10,670 households' loss of income and savings in medical cost, loss of business income, 7.37 square kilometers of agricultural land crop loss and 15 kilometers of roads from damage to flooding.

37. **Valuation of Benefits**. Properties damage benefits have been assessed based on the construction cost,[73] repair cost[74] and clean up costs[75] of the properties[76] likely to be

Depth	Commercial	Public	Katcha	Pacca	Semi Pucca
< 0.25m inundation	173	63	798	109	292
> 0.25m inundation	39	28	335	38	120
>0.75m inundation	2	2	13	2	4

[63] Commercial buildings– 93 square meters; Public buildings – 46 square meters; Katch houses – 9 square meters; Pacca houses – 70 square meters and Semi pacca houses – 28 square meters
[64] Average household income for Galachipa BDT 13,167; average number of days of flooding – 27.4 days; affected households 2287; Source: Socioeconomic survey report
[65] BDT 1,126 monthly expenditure on treatment;
[66] Monthly household expenditure – BDT 11,834 – 70% of which is assumed to spent in market purchases. 87.9% of households are unable to access market on 27.4 days of flooding; source socioeconomic survey report
[67] 0.65 square kilometre of agricultural land is likely to be affected due to flooding; source technical estimate
[68] Average yield assumed to be 1.5 tonne per acre; source technical estimate
[69] Average support price assumed to be BDT 17,500 per tonne – source – market / Government enquiries
[70] 2 kilometers likely to be affected – as per technical estimate
[71] Repair cost – 4 lakh BDT – as per technical estimate
[72] Average GDP growth rate of GoB is 6 per cent per annum
[73] BDT 1200 per square foot, BDT 1600 per square foot and BDT 2000 per square foot for katcha, semi-pakka and pakka house. Source CDTA DFR
[74] Repair cost – 6% of construction cost. Source CDTA DFR
[75] BDT 2,000, BDT 5,000 and BDT 9,000 cleanup cost for LIG, MIG and HIG. Source CDTA DFR
[76] Number of properties likely to be affected as per projected inundation levels given in Table below

Depth	Commercial	Public	Katcha	Pacca	Semi Pucca
< 0.25m inundation	532	951	4231	524	795
> 0.25m inundation	158	250	1102	143	220
>0.75m inundation	0	0	0	0	0

affected in floods in without project situation. Projected inundation levels affecting different types of properties, commercial, public, katcha, pakka and semi pakka, are considered in the technical design of the project. Average area[77] of different types of properties estimated based on the available data in two pourashavas. Damage benefit and repair benefit have been estimated on five percent of properties projected to get inundated greater than 0.25 m. Clean up cost benefit have been estimated on all properties expected to get inundated. Saved income[78] loss benefit has been estimated on the number of households likely to be affected due to number of days of flooding. Saved medical cost benefit has been estimated based on the average expenditure on treatment[79] for waterborne diseases per household on the number of households likely to be affected due to flooding. Loss of business income has been estimated based on household expenditure[80] spent on purchases from markets and percentage of households unable to access market place due to floods. Agricultural crop loss due to flooding has been estimated on area of land[81], average yield[82] and market price of crop.[83] Saved road damage benefit has been assessed on the kilometers[84] of road likely to be affected due to floods and the repair cost[85] thereof. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[86]

D. Drainage - Mathbaria

38. 10.8 kilometers of drain are proposed under the subproject. This will benefit 1840 number of properties, 861 households' loss of income and' savings in medical cost, loss of business income, 0.5 square kilometers of agricultural land crop loss and 6 kilometers of roads from damage to flooding.

39. **Valuation of Benefits**. Properties damage benefits have been assessed based on the construction cost,[87] repair cost[88] and clean up costs[89] of the properties[90] likely to be affected in floods in without project situation. Projected inundation levels affecting different types of properties, commercial, public, katcha, pakka and semi pakka, are considered in the technical design of the project. Average area[91] of different types of properties estimated based on the available data in two pourashavas. Damage benefit and repair benefit have been estimated on five percent of properties projected to get inundated greater than 0.25 m.

[77] Commercial buildings– 93 square meters; Public buildings – 46 square meters; Katch houses – 9 square meters; Pakka houses – 70 square meters and Semi pakka houses – 28 square meters

[78] Average household income for Pirojpur BDT 14,620; average number of days of flooding – 4.6 days; affected households 10670; Source: Socioeconomic survey report

[79] BDT 1,533 monthly expenditure on treatment;

[80] Monthly household expenditure – BDT 12,874 – 70% of which is assumed to spent in market purchases. 93.50% of households are unable to access market on 4.6 days of flooding; source socioeconomic survey report

[81] 7.37 square kilometre of agricultural land is likely to be affected due to flooding; source technical estimate

[82] Average yield assumed to be 1.5 tonne per acre; source technical estimate

[83] Average support price assumed to be BDT 17,500 per tonne – source – market / Government enquiries

[84] 15 kilometers likely to be affected – as per technical estimate

[85] Repair cost – 4 lakh BDT – as per technical estimate

[86] Average GDP growth rate of GoB is 6 per cent per annum

[87] BDT 1200 per square foot, BDT 1600 per square foot and BDT 2000 per square foot for katcha, semi-pakka and pakka house. Source CDTA DFR

[88] Repair cost – 6% of construction cost. Source CDTA DFR

[89] BDT 2,000, BDT 5,000 and BDT 9,000 cleanup cost for LIG, MIG and HIG. Source CDTA DFR

[90] Number of properties likely to be affected as per projected inundation levels given in Table below

Depth	Commercial	Public	Katcha	Pacca	Semi Pucca
< 0.25m inundation	90	43	424	46	154
> 0.25m inundation	129	61	605	66	220

[91] Commercial buildings– 93 square meters; Public buildings – 46 square meters; Katch houses – 9 square meters; Pakka houses – 70 square meters and Semi pakka houses – 28 square meters.

Clean up cost benefit have been estimated on all properties expected to get inundated. Saved income[92] loss benefit has been estimated on the number of households likely to be affected due to number of days of flooding. Saved medical cost benefit has been estimated based on the average expenditure on treatment[93] for waterborne diseases per household on the number of households likely to be affected due to flooding. Loss of business income has been estimated based on household expenditure[94] spent on purchases from markets and percentage of households unable to access market place due to floods. Agricultural crop loss due to flooding has been estimated on area of land[95], average yield[96] and market price of crop[97]. Saved road damage benefit has been assessed on the kilometers[98] of road likely to be affected due to floods and the repair cost[99] thereof. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period[100].

40. In case of the Project investment without CCR measures it is estimated that only 75% of the property damages benefit and 80% of road damages benefit are likely to be achieved The EIRRs have been estimated accordingly and given in **Table 7**. Corresponding economic benefits ascertained is given in **Table 8**.

Table 7: Drainage EIRR & Sensitivity Results of Project Pourashavas – Without CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit- 20%	One Year Delay
Amtali	41.0	28.5	24.1	28.4	23.1	19.2	28.4
Galachipa	171.5	23.8	19.9	23.7	19.1	15.7	23.7
Pirojpur	689.6	48.4	41.4	48.3	39.9	33.9	48.4
Mathbaria	257.8	42.0	35.8	41.9	34.5	29.2	41.9
Total / Average	**1159.9**	**37.8**	**32.1**	**30.9**	**31.0**	**26.1**	**37.7**

Source: PPTA consultant analysis.

Table 8: DrainageSummary of Benefits - NPV (Tk Million) without CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Saved Properties Damage Benefit	44.6	83.4	356.7	122.9
Saved Loss of Income	8.1	177.9	154.7	149.3
Saved Medical Cost Benefit	0.6	15.2	16.2	7.3
Agricultural Loss	12.6	27.3	309.1	21.0
Saved business Income	3.0	57.1	44.7	48.0
Saved Road Damage	4.1	3.9	29.1	11.6
Total	**73.1**	**364.7**	**910.6**	**360.2**

Source: PPTA consultant analysis.

[92] Average household income for Mathbaia BDT 21,744; average number of days of flooding – 36.2 days; affected households 861; Source: Socioeconomic survey report
[93] BDT 1,061 monthly expenditure on treatment;
[94] Monthly household expenditure – BDT 17,554 – 70% of which is assumed to spent in market purchases. 68.40% of households are unable to access market on 11.4 days of flooding; source socioeconomic survey report
[95] 0.5 square kilometre of agricultural land is likely to be affected due to flooding; source technical estimate
[96] Average yield assumed to be 1.5 tonne per acre; source technical estimate
[97] Average support price assumed to be BDT 17,500 per tonne – source – market / Government enquiries
[98] 6 kilometers likely to be affected – as per technical estimate
[99] Repair cost – 4 lakh BDT – as per technical estimate
[100] Average GDP growth rate of GoB is 6 per cent per annum

3.3 Sanitation Subprojects

41. A summary of the EIRR as well as the sensitivity analysis results is included in **Table 9**. Summary of economic benefits ascertained is given in **Table 10**.

Table 9: Sanitation EIRR and Sensitivity Results of Project Pourashavas – With CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit-20%	One Year Delay
Amtali	16.2	16.0	13.3	40.3	11.7	8.6	15.8
Galachipa	27.6	22.4	19.0	21.6	17.4	13.8	22.3
Pirojpur	22.0	20.3	17.2	19.5	15.6	12.2	20.2
Mathbaria	39.5	26.9	23.0	26.1	21.3	17.4	26.8
Total / Average	**105.4**	**22.1**	**18.8**	**17.2**	**18.1**	**13.6**	**22.0**

Source: PPTA consultant analysis.

Table 10: Summary of Benefits - NPV (Tk Million) with CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Saved Income Loss	4.1	5.7	NA	11.2
Saved Medical Cost	12.1	21.9	NA	28.3
Total Benefits	**16.2**	**27.6**		**39.5**

Source: PPTA consultant analysis.

A. Sanitation - Amtali

42. Construction of 10 community latrines, four public toilets and procurement of.one desludge equipment is proposed under this subproject. This subproject will benefit 455 households in a day.

43. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[101] loss saved and second is saved medical costs[102] due to number of days of sickness[103] caused due to improper or inadequate sanitation. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[104]

B. Sanitation - Galachipa

44. Construction of eight community latrines, three school latrines, six public toilets and procurement of.one desludge equipment is proposed under this subproject. This subproject will benefit 800 households in a day.

45. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[105] loss saved and second is saved medical costs[106] due to number of days

[101] Monthly household income BDT 13,841; source- socioeconomic survey
[102] Monthly household expenditure on health – BDT 1,097, 30% of this attributed to sanitation; source- socioeconomic survey
[103] 2.5 days per year for each household: ; source- socioeconomic survey
[104] Average GDP growth rate of GoB is 6 per cent per annum
[105] Monthly household income BDT 13,167 in Galachipa; source- socioeconomic survey.

of sickness[107] caused due to improper or inadequate sanitation. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[108]

C. Sanitation - Mathbaria

46. Construction of eight community latrines, six school latrines, six public toilets and procurement of.one desludge equipment is proposed under this subproject. This subproject will benefit 1,100 households in a day.

47. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[109] loss saved and second is saved medical costs[110] due to number of days of sickness[111] caused due to improper or inadequate sanitation. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[112]

48. In case of the Project investment without CCR measures it is estimated that only 85% of the saved medical cost benefit is likely to be achieved The EIRRs have been estimated accordingly and given in the following **Table 11**. Summary of benefits ascertained is given in **Table 12**.

Table 11: Sanitation EIRR & Sensitivity Results of Project Pourashavas – Without CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit- 20%	One Year Delay
Amtali	14.4	15.3	12.6	14.5	11.2	10.9	15.1
Galachipa	24.3	21.6	18.3	20.9	16.9	13.4	21.5
Pirojpur	NA	NA					
Mathbaria	35.3	26.6	22.7	25.9	21.2	17.2	26.5
Total / Average	**93.2**	**21.5**	**17.4**	**13.4**	**13.9**	**12.9**	**17.0**

Source: PPTA consultant analysis.

Table 12: Summary of Benefits - NPV (Tk Million) without CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Saved Income Loss	4.1	5.7	3.4	11.2
Saved Medical Cost	10.3	18.6	NA	24.1
Total	**14.4**	**24.3**		**35.3**

Source: PPTA consultant analysis.

[106] Monthly household expenditure on health – BDT 1,126, 30% of this attributed to sanitation in Galachipa; source- socioeconomic survey
[107] 2.1 days per year for each household: ; source- socioeconomic survey
[108] Average GDP growth rate of GoB is 6 per cent per annum
[109] Monthly household income BDT 21,744 in Mathbaria; source- socioeconomic survey
[110] Monthly household expenditure on health – BDT 1,061, 30% of this attributed to sanitation in Mathbaria; source- socioeconomic survey
[111] 2 days per year for each household in Mathbaria: ; source- socioeconomic survey
[112] Average GDP growth rate of GoB is 6 per cent per annum.

3.4 Road Subprojects

49. A summary of the EIRR as well as the sensitivity analysis results is included in **Table 13**. Summary of benefits ascertained is given in **Table 14**.

Table 13: Road EIRR and Sensitivity Results of Project Pourashavas – With CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit-20%	One Year Delay
Amtali	181.8	20.6	17.3	20.4	16.3	13.2	20.5
Galachipa	162.1	20.9	17.4	20.7	16.5	13.3	20.8
Pirojpur	541.1	21.4	18.0	21.3	17.1	16.1	21.3
Mathbaria	181.1	20.3	17.0	20.1	16.1	15.2	20.2

Source: PPTA consultant analysis.

Table 14: Summary of Benefits - NPV (Tk Million) with CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Saved Properties Damage	55.5	78.4	123.6	43.1
Vehicle Operating Cost Savings	49.5	12.7	140.0	49.0
Time Savings	76.9	71.1	277.5	88.9
Total	181.8	162.1	541.1	181.1

Source: PPTA consultant analysis.

A. Roads - Amtali

50. Construction of 8.38 kilometers of road is proposed under this subproject.

51. **Valuation of Benefits**. In the absence of traffic count / surveys, the number of vehicles in the pourashava has been based upon to estimate the number of vehicles[113] in the subproject areas. Two flow benefits are envisaged under this subproject. First is the vehicle operating cost savings [114] and second is saved time cost[115] due to lesser time taken for commuting on the improved project roads. In addition to this, the climate resilience measures will ensure that there is prevention of road damage[116] due to floods. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period[117].

[113] Number of vehicles per day on project roads has been assumed to be 83 four wheeler, 150 baby taxi, 900 two wheeler, 113 bus and 75 trucks in Amtali

[114] Savings in vehicle operating cost has been assumed at BDT 10 per vehicle for car, BDT 4 per vehicle for baby taxi, BDT 1.5 per vehicle for two wheeler, BDT 13 per vehicle for bus and BDT 16 per vehicle for truck

[115] Savings in time assumed to be 5 minutes and earnings per kilometre assumed to be BDT 14 based on a average monthly HH income of BDT 13,841 in Amtali as per socioeconomic survey

[116] In the initial five years 5% per year, followed by 4% per year for next five years, then 3% per year for the next five years and 2% per year thereafter, of project roads are expected to be affected. Damage benefits based on the 2013 estimated construction cost duly increased by 2 per cent real increase every year.

[117] Average GDP growth rate of GoB is 6 per cent per annum

B. Roads - Galachipa

52. Construction of 7 kilometers of road is proposed under this subproject.

53. **Valuation of Benefits**. In the absence of traffic count / surveys, the number of vehicles in the pourashava has been based upon to estimate the number of vehicles[118] in the subproject areas. Two flow benefits are envisaged under this subproject. First is the vehicle operating cost savings[119] and second is saved time cost[120] due to lesser time taken for commuting on the improved project roads. In addition to this, the climate resilience measures will ensure that there is prevention of road damage[121] due to floods. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[122]

C. Roads - Pirojpur

54. Construction of 34.2 kilometers of road is proposed under this subproject.

55. **Valuation of Benefits**. In the absence of traffic count / surveys, the number of vehicles in the pourashava has been based upon to estimate the number of vehicles[123] in the subproject areas. Two flow benefits are envisaged under this subproject. First is the vehicle operating cost savings[124] and second is saved time cost[125] due to lesser time taken for commuting on the improved project roads. In addition to this, the climate resilience measures will ensure that there is prevention of road damage[126] due to floods. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[127]

D. Roads - Mathbaria

56. Construction of 8 kilometers of road is proposed under this subproject.

Valuation of Benefits. In the absence of traffic count / surveys, the number of vehicles in the pourashava has been based upon to estimate the number of vehicles[128] in the subproject areas. Two flow benefits are envisaged under this subproject. First is the vehicle operating cost savings [129] and second is saved time cost[130] due to lesser time taken for commuting on

[118] Number of vehicles per day on project roads has been assumed to be 45 four wheeler, 64 baby taxi, 300 two wheeler, 2 bus and 20 trucks in Galachipa
[119] Savings in vehicle operating cost has been assumed at BDT 10 per vehicle for car, BDT 4 per vehicle for baby taxi, BDT 1.5 per vehicle for two wheeler, BDT 13 per vehicle for bus and BDT 16 per vehicle for truck
[120] Savings in time assumed to be 5 minutes and earnings per kilometre assumed to be BDT 13 based on a average monthly HH income of BDT 13,167 in Galachipa as per socioeconomic survey
[121] In the initial five years 5% per year, followed by 4% per year for next five years, then 3% per year for the next five years and 2% per year thereafter, of project roads are expected to be affected. Damage benefits based on the 2013 estimated construction cost duly increased by 2 per cent real increase every year.
[122] Average GDP growth rate of GoB is 6 per cent per annum
[123] Number of vehicles per day on project roads has been assumed to be 70 four wheeler, 28 baby taxi, 665 two wheeler, 88 bus and 70 trucks in Pirojpur
[124] Savings in vehicle operating cost has been assumed at BDT 10 per vehicle for car, BDT 4 per vehicle for baby taxi, BDT 1.5 per vehicle for two wheeler, BDT 13 per vehicle for bus and BDT 16 per vehicle for truck
[125] Savings in time assumed to be 5 minutes and earnings per kilometre assumed to be BDT 15 based on a average monthly HH income of BDT 14,620 in Pirojpur as per socioeconomic survey
[126] In the initial five years 5% per year, followed by 4% per year for next five years, then 3% per year for the next five years and 2% per year thereafter, of project roads are expected to be affected. Damage benefits based on the 2013 estimated construction cost duly increased by 2 per cent real increase every year.
[127] Average GDP growth rate of GoB is 6 per cent per annum
[128] Number of vehicles per day on project roads has been assumed to be 10 four wheeler, 88 baby taxi, 2000 two wheeler, 100 bus and 60 trucks in Mathbaria
[129] Savings in vehicle operating cost has been assumed at BDT 10 per vehicle for car, BDT 4 per vehicle for baby taxi, BDT 1.5 per vehicle for two wheeler, BDT 13 per vehicle for bus and BDT 16 per vehicle for truck

the improved project roads. In addition to this, the climate resilience measures will ensure that there is prevention of road damage[131] due to floods. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[132]

57. In case of the Project investment without CCR measures it is estimated that only road damage benefit is will not be achieved The EIRRs have been estimated accordingly and given in **Table 15**. Summary of economic benefits ascertained given in **Table 16**.

Table 15: EIRR and Sensitivity Results of Project Pourashavas – Without CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit-20%	One Year Delay
Amtali	135.3	17.9	14.9	17.6	14.1	11.3	17.7
Galachipa	93.6	13.6	11.1	13.4	10.3	9.6	13.4
Pirojpur	439.5	21.1	17.8	20.9	16.9	16.0	21.0
Mathbaria	145.6	18.7	15.7	18.4	14.8	13.9	18.5

Source: PPTA consultant analysis.

Table 16: Roads Summary of Benefits - NPV (Tk Million) without CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Saved Properties Damage	0.0	0.0	0.0	0.0
Vehicle Operating Cost Savings	53.0	14.1	147.3	51.8
Time Savings	82.3	79.4	292.3	93.9
Total	**135.3**	**93.6**	**439.5**	**145.6**

Source: PPTA consultant analysis.

3.5 Bridge Subprojects

58. A summary of the EIRR as well as the sensitivity analysis results is included in **Table 17**. Summary of economic benefits ascertained is given in **Table 18**.

Table 17: Bridges EIRR and Sensitivity Results of Project Pourashavas – With CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit-20%	One Year Delay
Amtali	NA	NA					
Galachipa	NA	NA					
Pirojpur	31.7	22.6	19.2	22.6	18.4	15.4	22.5
Mathbaria	41.2	22.2	18.8	22.2	18.1	15.1	22.1

Source: PPTA consultant analysis

[130] Savings in time assumed to be 5 minutes and earnings per kilometre assumed to be BDT 22 based on a average monthly HH income of BDT 21,744 in Mathbaria as per socioeconomic survey

[131] In the initial five years 5% per year, followed by 4% per year for next five years, then 3% per year for the next five years and 2% per year thereafter, of project roads are expected to be affected. Damage benefits based on the 2013 estimated construction cost duly increased by 2 per cent real increase every year.

[132] Average GDP growth rate of GoB is 6 per cent per annum

Table 18: Bridges Summary of Benefits - NPV (Tk Million) with CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Vehicle Operating Cost Savings	NA	NA	0.1	0.2
Time Savings	NA	NA	31.6	41.0
Total			**31.7**	**41.2**

Source: PPTA consultant analysis

A. Bridges - Pirojpur

59. Construction of four bridges is proposed under this subproject.

60. **Valuation of Benefits**. Number and category of vehicles[133] which will use these bridges has been estimated. Two flow benefits are envisaged under this subproject. First is the vehicle operating cost savings[134] and second is saved time cost[135] due to lesser time taken for commuting on the new bridges. At present automated vehicles are not able to cross over as the existing bridges are not designed as such and cannot take their load. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[136]

B. Bridges - Mathbaria

61. Construction of one bridge is proposed under this subproject.

62. **Valuation of Benefits**. Number and category of vehicles[137] which will use these bridges has been estimated. Two flow benefits are envisaged under this subproject. First is the vehicle operating cost savings[138] and second is saved time cost[139] due to lesser time taken for commuting on the new bridges. At present automated vehicles are not able to cross over as the existing bridges are not designed as such and cannot take their load.

63. In case of the Project investment without CCR measures it is estimated that only 75% of the both the benefits, vehicle operating costs and time savings, is likely to be achieved The EIRRs have been estimated accordingly and given in the **Table 19**. Summary of economic benefits ascertained is given in **Table 20**.

[133] Number of vehicles per day on Pirojpur project bridges has been assumed to be 5 four wheeler, 75 baby taxi and 150 two wheeler
[134] Savings in vehicle operating cost has been assumed at BDT 10 per vehicle for car, BDT 4 per vehicle for baby taxi and BDT 1.5 per vehicle for two wheeler
[135] Savings in time assumed to be 9 minutes and earnings per kilometre assumed to be BDT 15 based on a average monthly HH income of BDT 14,620 in Pirojpur as per socioeconomic survey
[136] Average GDP growth rate of GoB is 6 per cent per annum
[137] Number of vehicles per day on Mathbaria project bridges has been assumed to be 20 four wheeler, 200 baby taxi and 250 two wheeler
[138] Savings in vehicle operating cost has been assumed at BDT 10 per vehicle for car, BDT 4 per vehicle for baby taxi and BDT 1.5 per vehicle for two wheeler
[139] Savings in time assumed to be 8.5 minutes and earnings per kilometre assumed to be BDT 22 based on a average monthly HH income of BDT 21,744 in Pirojpur as per socioeconomic survey

Table 19: Bridges EIRR and Sensitivity Results of Project Pourashavas – Without CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit- 20%	One Year Delay
Amtali	NA	NA					
Galachipa	NA	NA					
Pirojpur	19.8	15.9	13.1	15.9	12.5	10.1	15.7
Mathbaria	25.7	15.6	12.9	15.6	12.3	9.9	15.4

Source: PPTA consultant analysis.

Table 20: Bridges Summary of Benefits - NPV (Tk Million) with CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Vehicle Operating Cost Savings	NA	NA	0.1	0.1
Time Savings	NA	NA	19.8	25.6
Total			**19.8**	**25.7**

Source: PPTA consultant analysis.

3.6 Solid Waste Subprojects

64. A summary of the EIRR as well as the sensitivity analysis results is included in **Table 21**. Summary of economic benefits ascertained is given in **Table 22**.

Table 21: Solid Waste EIRR and Sensitivity Results of Pourashavas – With CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit- 20%	One Year Delay
Amtali	1.4	60.7	52.7	59.6	49.9	42.1	60.7
Galachipa	1.7	70.1	61.0	69.0	58.0	49.3	70.1
Pirojpur	2.7	82.6	72.1	81.6	68.9	59.0	82.6
Mathbaria	2.1	84.7	74.0	83.7	70.7	60.6	84.7
Total / Average	**7.8**	**75.4**	**65.8**	**62.6**	**63.8**	**53.4**	**75.4**

Source: PPTA consultant analysis

Table 22: Solid Waste Summary of Benefits - NPV (Tk Million) with CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Saved Loss of Income	1.1	1.3	2.0	1.8
Saved Medical Cost	0.3	0.4	0.7	0.3
Total	**1.4**	**1.7**	**2.7**	**2.1**

Source: PPTA consultant analysis

A. Solid Waste - Amtali

65. Provision of solid waste collection equipments is proposed in this subproject. This subproject will benefit the entire pourashava.

66. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[140] loss saved and second is saved medical costs[141] due to number of days of sickness[142] caused due to improper or inadequate sanitation. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[143]

B. Solid Waste - Galachipa

67. Provision of solid waste collection equipments is proposed in this subproject. This subproject will benefit the entire pourashava.

68. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[144] loss saved and second is saved medical costs[145] due to number of days of sickness[146] caused due to improper or inadequate sanitation. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[147]

C. Solid Waste - Pirojpur

69. Provision of solid waste collection equipments is proposed in this subproject. This subproject will benefit the entire pourashava.

70. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[148] loss saved and second is saved medical costs[149] due to number of days of sickness[150] caused due to improper or inadequate sanitation. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period[151].

D. Solid Waste - Pirojpur

71. Provision of solid waste collection equipment is proposed in this subproject. This subproject will benefit the entire pourashava.

72. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[152] loss saved and second is saved medical costs[153] due to number of

[140] Monthly household income BDT 13,841 in Amtali; source- socioeconomic survey
[141] Monthly household expenditure on health – BDT 1,097, 1% of this attributed to solid waste in Amtali; source- socioeconomic survey
[142] 0.1 minute per day solid waste collection time saved for each household in Amtali
[143] Average GDP growth rate of GoB is 6 per cent per annum
[144] Monthly household income BDT 13,167 in Galachipa; source- socioeconomic survey
[145] Monthly household expenditure on health – BDT 1,126, 1% of this attributed to solid waste in Galachipa; source- socioeconomic survey
[146] 0.1 minute per day solid waste collection time saved for each household in Galachipa
[147] Average GDP growth rate of GoB is 6 per cent per annum
[148] Monthly household income BDT 14,620 in Pirojpur; source- socioeconomic survey
[149] Monthly household expenditure on health – BDT 1,533, 1% of this attributed to solid waste in Pirojpur; source- socioeconomic survey
[150] 0.1 minute per day solid waste collection time saved for each household in Pirojpur
[151] Average GDP growth rate of GoB is 6 per cent per annum
[152] Monthly household income BDT 21,744 in Mathbaria; source- socioeconomic survey.

days of sickness[154] caused due to improper or inadequate sanitation. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[155]

73. In case of the Project investment without CCR measures it it is estimated that there will be no change as only equipments are being provided under the Project.

3.7 Cyclone Shelters Subprojects

74. A summary of the EIRR as well as the sensitivity analysis results is included in **Table 23**. Summary of economic benefit ascertained is given in **Table 24**.

Table 23: Cyclone Shelter EIRR and Sensitivity Results of Pourashavas – With CCR

Town	Net Present Value	EIRR Base	Sensitivity (%)				
	Taka/Ml.	(%)	Capital Cost + 20%	O&M Cost +20%	Economic Benefit - 20%	Cost +20% & Benefit- 20%	One Year Delay
Amtali	90.7	16.5	13.7	16.4	13.0	10.5	16.3
Galachipa	94.0	17.1	14.2	17.1	13.6	11.0	16.9
Pirojpur	141.6	19.3	16.2	19.2	15.5	12.7	19.1
Mathbaria	69.9	35.0	30.1	35.0	29.0	24.8	35.0

Source: PPTA consultant analysis

Table 24: Cyclone Shelters Summary of Benefits - NPV (Tk Million) with CCR

	Amtali	Galachipa	Pirojpur	Mathbaria
Saved Loss of Income	84.0	86.6	128.2	66.7
Saved Medical Cost	6.7	7.4	13.4	3.3
Total	90.7	94.0	141.6	69.9

Source: PPTA consultant analysis.

A. Cyclone Shelters - Amtali

75. Provision of three cyclone shelters each with a capacity of 1200 persons is proposed in this subproject. This subproject will benefit about 3600 persons.

76. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[156] loss saved and second is saved medical costs[157] due to number of days of sickness[158] caused due to improper or inadequate sanitation. As per the technical experts forecast and simulation two cyclones are expected to occur due to climate change. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[159]

[153] Monthly household expenditure on health – BDT 1,061, 1% of this attributed to solid waste in Mathbaria; source- socioeconomic survey
[154] 0.1 minute per day solid waste collection time saved for each household in Mathbaria
[155] Average GDP growth rate of GoB is 6 per cent per annum
[156] Monthly household income BDT 13,841 in Amtali; source- socioeconomic survey;
[157] Saved expenditure on health – BDT 1,097 per household.,
[158] 15 days' loss of income is assumed to be saved 1800 household in Amtali
[159] Average GDP growth rate of GoB is 6 per cent per annum.

B. Cyclone Shelters - Galachipa

77. Provision of three cyclone shelters each with a capacity of 1300 persons is proposed in this subproject. This subproject will benefit about 3900 persons.

78. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[160] loss saved and second is saved medical costs[161] due to number of days of sickness[162] caused due to improper or inadequate sanitation. As per the technical experts forecast and simulation two cyclones are expected to occur due to climate change. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[163]

C. Cyclone Shelters - Pirojpur

79. Provision of four cyclone shelters each with a capacity of 1300 persons is proposed in this subproject. This subproject will benefit about 5200 persons.

80. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[164] loss saved and second is saved medical costs[165] due to number of days of sickness[166] caused due to improper or inadequate sanitation. As per the technical experts forecast and simulation two cyclones are expected to occur due to climate change. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[167]

D. Cyclone Shelters - Mathbaria

81. Provision of one cyclone shelters each with a capacity of 2000 persons is proposed in this subproject. This subproject will benefit about 2000 persons.

82. **Valuation of Benefits**. Two benefits are envisaged under this subproject. First is the benefit of income[168] loss saved and second is saved medical costs[169] due to number of days of sickness[170] caused due to improper or inadequate sanitation. As per the technical experts forecast and simulation two cyclones are expected to occur due to climate change. Benefits are adjusted for real GDP growth rate of 2 per cent per annum over the analysis period.[171]

83. In case of the Project investment without CCR measures it it is estimated that there will be no change under the Project.

3.8 Conclusion

84. All the sub-projects' base economic internal rate of return is above the economic opportunity cost of capital – 12%. Sensitivity analysis also showed robust results. Thus all the sub-projects of Batch 1 towns, as discussed in above paragraphs, are economically viable.

[160] Monthly household income BDT 13,167 in Galachipa; source- socioeconomic survey;
[161] Saved expenditure on health – BDT 1,126 per household.,
[162] 15 days' loss of income is assumed to be saved 1900 household in Galachipa
[163] Average GDP growth rate of GoB is 6 per cent per annum
[164] Monthly household income BDT 14,620 in Pirojpur; source- socioeconomic survey;
[165] Saved expenditure on health – BDT 1,533 per household.
[166] 15 days' loss of income is assumed to be saved 2200 household in Pirojpur
[167] Average GDP growth rate of GoB is 6 per cent per annum
[168] Monthly household income BDT 21,744 in Mathbaria; source- socioeconomic survey;
[169] Saved expenditure on health – BDT 1,061 per household.,
[170] 15 days' loss of income is assumed to be saved 1800 household in Mathbaria
[171] Average GDP growth rate of GoB is 6 per cent per annum.

APPENDIX 14: SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

Social and resettlement data not yet complete. SPRSS will be submitted later.

APPENDIX 15: GENDER ACTION PLAN

COASTAL TOWNS INFRASTRUCTURE IMPROVEMENT PROJECT: GENDER ACTION PLAN – BATCH 1 TOWNS

Activities	Indicators and Targets	Responsibility	Time
Output 1 : Improved municipal infrastructure (with climate resilient designs in project)			
1.1 Collect information on socio-economic and health condition and existing water supply, sanitation, and hygiene practices among low income communities in the 4 project towns	• Conduct poverty mapping to get detailed information on the socio-economic condition of the poor and vulnerable groups and prevalent sanitation and hygiene practices.	PMU NGO	Year 1
1.2 Identify poor, vulnerable, and women-headed households who need free connections to water supply services, and subsidies on user fees for water, sanitation and solid waste Construct a gender-sensitive (pro-women-headed households) and pro-poor schedule of tariffs for water supply and sanitation services	• Identify poor and vulnerable households per ward, with particular focus on the vulnerable living in disaster-prone areas, with the help of ward-level resource persons (eminent citizens/ residents, local NGOs/CBOs, and ward councilors, at least 30% women) • Gather sex-disaggregated socio-economic information on poor and vulnerable households at the launch of project and post-implementation, to analyse gender benefits • Gender sensitive and pro-poor schedule of tariffs for water and sanitation services constructed and implemented	PMU Pourashavas PMSC NGO	Year 1 Throughout project Year 3
1.3 Consult poor, vulnerable and unserved community members on common facility locations (cyclone shelters, common water points/hand deep tubewells, community toilets etc.) and their designs	• At least 50% of participants in community consultations are women (for identification of location preferences for common facilities and use local knowledge for climate resilient design inputs). All consultations are documented in progress reports. • Public/community toilets built at locations perceived safe by women, in consultation with them and managed in women-user friendly manner.	PMU PMSC NGO	Year 1 Year 1 and Years 5-6
1.4 Mobilize NGO to form water and sanitation user groups in low -income communities provided common facilities under project, with emphasis on women's role in managing water and sanitation. Mobilize communities in low- income areas where common water (30 hand deep tubewells in Amtali) and sanitation facilities (26 units of community toilets) provided, to form water and sanitation user groups.	• NGOs with specified qualifications and experience are recruited. • Water and sanitation user groups are formed in all under-served settlements provided common water and sanitation facilities, with women comprising 50% of their executive committee members. • Women have leadership roles in 100% of the water and sanitation user groups formed under the project.	PMU Pourashavas NGO	Year 1 Years 1 and 2
1.5 Motivate groups to undertake O&M of common water facilities (30 hand deep tubewells) and community toilets (26 units). Make the groups responsible for collection of tariffs/user charges from the consumers Select men and women for O&M training	• Women make up 30% of trainees (water and sanitation user group members) in O&M and account keeping. • Women make up 30% of water user groups accountants • Water user groups are registered with the relevant unit(s) in the municipalities for technical support.	Pourashavas NGO	Year 3 onwards

Activities	Indicators and Targets	Responsibility	Time
Link water and sanitation user groups to the municipalities for institutional sustainability and technical support.			
1.6 Employ affected persons and persons from (local) low income households in project-related construction work (total estimated labour days from project: 1.5 million) Ensure equal wages for equal work for women and men Orient the PMU, contractors, and workers in core labor standards and norms. Rehabilitate APs (male and female) facing permanent loss of livelihood as a result of project (e.g. people involved in manual desludging, any other)	• 0.45 million labour days for women (30% of total workers) employed in construction work (skilled and unskilled labour) • Relevant clauses will be included in the bidding documents on core labour standards and equal wage for women. • Male and female labourers and employees are provided with standard safety and security measures at work. • 100% male and female APs facing permanent loss of livelihood or their household member trained for alternate, sustainable livelihoods and given preference in project-related employment	• LGED • DPHE • PMU, • PIU • Contractors • NGO	Years 2-4 (implementation period)
Output 2: Strengthened local governance and institutional capacity for sustainable service delivery, urban planning and disaster risk management			
2.1 Train and build capacity of at least 100 staff of the 4 municipalities	• Women comprise 10% of trainees	LGED, DPHE ISABC	Years 1-4
2.2 Employ women in operation and maintenance work	• Women comprise 10% of operation and maintenance staff in municipalities	Pourashavas	Year 4 onwards
2.3 Introduce governance reforms in the municipalities with targets for women in staff recruitment	• Women make up at least 10% technical and professional staff in engineering, urban planning and disaster risk management spheres	LGED DPHE Pourashavas	Throughout the project
Output 3: Awareness raising and behavioural change in climate change adaptation and disaster preparedness, water conservation and hygiene activities			
3.1 Design and implement community focused awareness campaign on climate adaptation and disaster-preparedness through NGO, targeting vulnerable communities (number of vulnerable people living in disaster-prone wards/areas in the 4 towns).	• Women comprise at least 50% of participants in awareness activities • Local women's groups trained in climate change adaptation in household and community, disseminate and continue campaign	PMU Pourashavas NGO	Years 1-4
3.2 Design and implement a water sanitation and hygiene (WASH) program across the 4 towns, with particular emphasis on 41 slums/ low income areas having an estimated 22440 (17.7%) population, through NGO Involve eminent citizens, local NGOs/CBOs, ward councillors etc.in wards across 4 towns in campaign	• Women comprise at least 50% of participants in WASH-related awareness activities. • 30% of eminent citizens / community representatives involved in WASH campaign are women	PMU Pourashavas NGO	Years 1-4
3.3. Track behaviour change impact and climate resilience impact post awareness campaigns	• Structured FGDs conducted to record behavior change and climate resilience impacts on men and women, after a year	PMU PMSC Pourashavas NGO	Year 1 (baseline) Year 5 (impacts)

Activities	Indicators and Targets	Responsibility	Time
Output 4: Project management and administrative support			
4.1 Recruit women in technical (engineering, urban planning etc.) and project management and coordination positions for project implementation.	Women (20% of total, xx number) employed in PMU, PIUs, PMSC, and ISABC	LGED, DPHE PMU, PIUs PMSC, ISABC	Year 1; continue throughout project
4.2 Conduct gender-sensitivity workshops for all project staff of PMU, PIUs, PMSC and ISABC	• Capacity of all project staff of PMU, PIU, PMSC and ISABC built on gender-sensitive project management and implementation	LGED DPHE PMU, PIUs ISABC PMSC	Year 1
4.3 Incorporate gender indicators into regular project progress monitoring	• Project monitoring formats developed with gender indicators and populated with sex-disaggregated data	PMU PMSC NGO	Thoughout project
4.4 Gender Units of each pourashava (mandatory for each municipality as per GoB directive) strengthened	• Gender Units in the 4 pourashavas trained and strengthened in collection, analysis and reporting of sex-disaggregated data, through capacity building, training and handholding	PMU ISABC PMSC	Throughout project

Abbreviations: DPHE= Department of Public Health Engineering, ISABC= Institutional Strengthening and Awareness Building Consultant, PIU=Project Implementation Unit, PMSC= Project Management Supervision Consultants, PMU=Project Management Unit, LGED=Local Government Engineering Department

Note:
1. In the context of CTIIP, vulnerable households are defined as (a) households living in low-lying, river bank or disaster-prone wards, slums or *kash* land (government land encroached by the poor who live in clusters on such lands) within the project municipalities, and (b) households with socio-economic vulnerability e.g. poor households, women-headed households, disabled, and elderly.
2. Women headed households are defined as those where women are the Chief Wage Earners.
3. The draft GAP will need to be strengthened with baseline data on (1) present number of technical and professional staff in municipalities and break-up by gender, and present no. of staff involved in O&M activities in the pourashavas by gender. Using the baseline data, targets set in GAP to be finalised at final report stage. The GAP will then be updated with the estimated numbers of technical, professional and O&M jobs for women in the municipalities.

APPENDIX 16: INITIAL ENVIRONMENTAL EXAMINATION

To be submitted later.

APPENDIX 17: ENVIRONMENTAL ASSESSMENT AND REVIEW FRAMEWORK

Environmental Assessment and Review Framework

July 2013

BAN: Coastal Towns Infrastructure Improvement Project

Prepared by Local Government Engineering Department, Government of Bangladesh, for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 01 July 2013)

Currency unit	–	Taka (Tk)
Tk.1.00	=	$0.01286
$1.00	=	Tk. 77.76

ABBREVIATIONS

ADB	–	Asian Development Bank
AP	–	affected person
DoE	–	Department of Environment
DPHE	–	Department of Public Health Engineering
EARF	–	environmental assessment and review framework
ECA	–	Environmental Conservation Act
ECC	–	environmental clearance certificate
ECR	–	Environmental Conservation Rules
EIA	–	environmental impact assessment
EMP	–	environmental management plan
ETP	–	effluent treatment plant
GRC	–	grievance redressal committee
GRM	–	grievance redress Mechanism
IEE	–	initial environmental examination
LCC	–	location clearance certificate
LGED	–	Local Government Engineering Department
MLGRDC	–	Ministry of Local Government, Rural Development, and Cooperatives
O&M	–	operations and maintenance
PMU	–	project management unit
PPTA	–	project preparatory technical assistance
REA	–	rapid environmental assessment
RP	–	resettlement plan
SPS	–	Safeguard Policy Statement
ToR	–	terms of reference

NOTE

In this report, "$" refers to US dollars.

This environmental assessment and review framework is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

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I. INTRODUCTION

A. Overview

1. The Coastal Towns Infrastructure Improvement Project is a key infrastructure initiative of the Government of Bangladesh. The project consists of four components (i) improved climate-resilient municipal infrastructure, (ii) strengthened governance and institutional capacity, (iii) enhanced public awareness, behavior change, and community-based climate adaptation, and (iv) project management support. The impact of the project will be improved climate change resilience and natural disaster preparedness in coastal towns. The outcome of the project will be improved access to climate-disaster resilient municipal services, including (i) municipal infrastructure such as drainage, cyclone shelters, urban roads, bridges, culverts, solid waste management, bus terminals, slum improvements, boat landings, and markets, (ii) water supply, and (iii) sanitation. The project is to be implemented in 6 years from 2014 to 2020.

2. The project uses a sector lending approach, and in accordance with ADB's Safeguard Policy Statement (SPS, 2009), requires the preparation of an environmental assessment and review framework (EARF).

B. Purpose of EARF

3. The environmental assessment and review framework (EARF) aims to provide guidance on safeguard screening, assessment, institutional arrangements, and processes to be followed for components of the project, where design takes place after Board approval. The subproject selection will be in accordance with the environmental project selection criteria as outlined in this EARF. The borrower will agree with ADB on screening and categorization, environmental assessment, preparation and implementation, monitoring, and updating existing safeguard plans for the subprojects to facilitate compliance with the requirements specified in ADB Safeguard Policy Statement (SPS, 2009) and government rules and laws. The IEEs prepared as part of the Project Preparation Study outlined mitigation measures for some minor potential negative environmental impacts, and monitoring plans for both construction and post-project maintenance phases, and it is expected that the EARF will support the integration of these measures and practices in the project design.

4. This EARF (i) describes the project and its components; (ii) explains the general anticipated environmental impacts and mitigation measures for the subprojects which will be financed under the project after ADB Board approval; (iii) specifies the requirements that will be followed in relation to screening and categorization, assessment, and planning, including arrangements for meaningful consultation with affected people and other stakeholders and information disclosure requirements; (iv) assesses the capability of the project proponents to implement national laws and ADB's requirements, and identifies needs for capacity building; (v) specifies implementation procedures, institutional arrangements, and capacity development requirements; and (vi) specifies monitoring and reporting requirements.

5. The EARF ensures that all subprojects, in the entirety of their project cycle, will not deteriorate or interfere with the environmental sensitivity of a project area, but rather improve environmental quality.

C. Environmental Categorization

6. The scope of the project includes nine infrastructure categories: (i) roads, bridges and culverts, (ii) solid waste management, (iii) cyclone shelters, (iv) boat landing stations, (v) markets, and (vi) bus terminals, (vii) drainage and flood control, (viii) water supply, and (ix) sanitation.

7. As part of the project preparatory technical assistance (PPTA 8128-BAN), environmental assessment for 4 towns[172] was conducted and six initial environmental examination reports (IEEs) with environmental management plans (EMPs)[173] were prepared in accordance with requirements of SPS. The IEEs concluded that the project will have only small-scale, localized impacts on the environment which are readily mitigated. The potential adverse environmental impacts are mainly related to the construction period, which can be minimized by the mitigating measures and environmentally sound engineering and construction practices. Therefore, the project has been classified into environmental category B. It is likely that future subprojects will seek to replicate the sample subprojects in other town areas thus are expected to be category B due to the low-impact nature of such works. No category A type of works (with significant impacts) will be considered.

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. Environmental Legislation

8. Implementation of all subprojects will be governed by the environmental acts, rules, policies, and regulations of the Government of Bangladesh. These regulations impose restrictions on the activities to minimize/mitigate likely impacts on the environment. Many of these are cross-sectoral and several of them are directly related to environmental issues. The most important of these are the Environment Conservation Act, 1995 (ECA, 1995), and the Environment Conservation Rules (ECR, 1997).

9. In addition to the Environmental Conservation Act and Rules, there are a number of other policies, plans and strategies which deal with the water sector, coastal areas, and climate change. These are the Forest Act 1927 (last modified 30th April 2000); National Water Policy, 1999; Coastal Zone Policy, 2005; Coastal Development Strategy, 2006; Bangladesh Climate Change Strategy and Action Plan, 2009; and National Safe Drinking Water Supply and Sanitation Policy of 1998. Appendix 1 provides salient features and applicability of the legislations and Table 1 presents specific requirements for the project. Appendix 2 provides the environmental standards for air, surface water, groundwater, drinking water, emissions, noise and vehicular exhaust.

Table 1: Applicable Government of Bangladesh Environmental Legislations

	Legislation	Requirements for the Project
1.	Environmental Conservation Act of 1995 and amendments in 2000, 2002 and 2010 [174]	- Restriction on operation and process, which can be continued or cannot be initiated in the ecologically critical areas - Regulation on vehicles emitting smoke harmful to the environment

[172] The 4 towns include Amtali, Galachipa, Mathbaria, and Pirojpur.
[173] IEEs prepared for (i) <town><component>, (ii)…
[174] *ECA Amendment 2000* focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures both for fines and imprisonment and the authority to take cognizance of offences. *ECA Amendment 2002* elaborates restrictions on polluting automobiles; restrictions on the sale, production of environmentally harmful items like polythene bags; assistance from law

	Legislation	Requirements for the Project
		- Remedial measures for injuries to ecosystems - Standards for quality of air, water, noise and soil for different areas for various purposes and limits for discharging and emitting waste - Environmental guidelines
2.	Environmental Conservation Rules of 1997 and amendments in 2002 and 2003	- Environmental clearances - Compliance to environmental quality standards
3.	Forest Act of 1927 and amendments (2000)	- Clearance for any felling, extraction, and transport of forest produce
4.	Bangladesh Climate Change Strategy and Action Plan of 2009	- Ensure existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructures (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change. - enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change
5.	National Water Policy of1999	- EIA for water development projects and increase surface water flow - Pre-screening of IEEs/EIAs for water sector projects by WARPO, in advance of submission to DOE for final clearance. - Augmentation for dry season water flow - Awareness-raising in consumptive use of surface and groundwater for irrigation - Structural and non-structural mitigation (early warning and flood proofing)
6.	National Safe Drinking Water Supply and Sanitation Policy of 1998	- Pourasavhas and WASAs will take actions to prevent wastage of water. In addition they will take necessary steps to increase public awareness to prevent misuse of water. - Sanitation systems shall be self- sufficient and self- sustaining. - Pourasavhas shall be responsible for solid waste collection, disposal and their management. DOE shall be consulted on solid waste management. - Where WASAs exists, they shall be responsible for sewerage and storm water drainage systems.
7.	Bangladesh Labor Law of 2006	- Compliance to the provisions on employment standards, occupational safety and health, welfare and social protection, labor relations and social dialogue, and enforcement - Prohibition of employment of children and adolescent

enforcement agencies for environmental actions; break up of punitive measures; and authority to try environmental cases. In *ECA Amendment 2010,* no individual or institution (government or semi-government/non-government/self-governing can cut any hill or hillock; fill-up or changed any remarked water body however in case of national interest; the mentioned activities can be done after getting clearance from respective the departments.

B. Government of Bangladesh Environmental Assessment Procedures

10. Under the ECR 1997 industrial units and projects are classified into four categories according to "their site and impact on the environment", and each category (green, orange-A, orange-B and red) requires a different level of environmental assessment as a prerequisite for granting the ECC that allows the project to proceed. The ECA indicates that all industrial units or projects must obtain a Location Clearance Certificate (LCC) and Environmental Clearance Certificate (ECC) from the Department of Environment (DoE).

11. Schedule 1 of the law provides a classification for industrial projects and types of development that are common in Bangladesh. Table 2 indicates that subproject components that are likely to be classified in green, orange or red categories. The likely categorization of the other components not mentioned is deduced from similar developments that are mentioned and from their likely impacts.

Table 2: Likely Government of Bangladesh Classification of Subproject Components

	Subproject	Component	Equivalent in Schedule I of ECR	DoE Classification
1.	Roads, bridges and culverts	Road provisions (include new road, road resurfacing, roadside footpath, roadside drains, road signs, road/pavement markings, intersection improvement, or high mast lighting)	Construction, re-construction and extension of road (feeder road, local road)	Orange – B
		Bridges	Construction, re-construction and extension of bridge (length below 100 meters)	Orange – B
			Construction, re-construction and extension of bridge (length above 100 meters)	Red
		Culverts	No similar facility	Orange – B (because impacts likely to be similar to roads and bridges less than 100 m)
2.	Solid waste management	Community storage bins	No similar facility	Green (because bins and STS are small and unlikely to have major impacts)
		Secondary transfer station		
		Waste disposal (includes sanitary landfill, composting site, or access road)	Land-filling by industrial, household and commercial wastes	Red
3.	Cyclone shelters	New or refurbishment of cyclone shelters	Hotel, multi-storied commercial and apartment building	Orange – B
4.	Boat landing stations	New or refurbishment of boat landing stations	Engineering works (up to 10 hundred thousand Taka capital	Orange – B
5.	Markets	New or refurbishment of markets		
6.	Bus terminals	New or refurbishment of bus terminals		
7.	Drainage and flood control	Primary network (includes domestic connections or primary drains)	Engineering works (up to 10 hundred thousand Taka capital	Red
		Secondary network (includes secondary drains)		
		Tertiary network (includes main drains and drainage outfalls)		
8.	Water supply	Source augmentation (includes tube wells, surface water intake, overhead or ground reservoir, pumps and	Engineering works (up to 10 hundred thousand Taka capital	Red

	Subproject	Component	Equivalent in Schedule I of ECR	DoE Classification
		pump house, water treatment plant [WTP] or chlorination facility)		
		Water transmission (includes pumping main, overhead reservoir, or pumps and pump houses)	Water, power and gas distribution line laying/relaying/extension.	Red
		Network improvements (include ring main, distribution/ carrier mains, bulk valves and flow meter, household connections or household meters)		
9.	Sanitation	Toilet facilities	Public toilet	Orange – B

12. Rule 7 of the ECR indicates that the application for ECC must be made to the relevant DoE Divisional Officer, and the application will include the following:

13. Green category projects:

(i) Completed Application for ECC, and the appropriate fee, (shown in Schedule 13);
(ii) General information about the project;
(iii) Exact description of the raw materials to be used and the product to be manufactured (where relevant); and
(iv) No objection certificate from the local authority.

14. Orange A category projects:

(i) Same requirements as Green Category projects, plus the following:
(ii) Process flow diagram;
(iii) Layout plan (showing location of effluent treatment plant [ETP]);
(iv) Effluent discharge arrangement; and
(v) Outlines of the plan for relocation and rehabilitation (if applicable).

15. Orange B category projects:

(i) Completed Application for ECC, and the appropriate fee;
(ii) Report on the feasibility of the project;
(iii) Report on the IEE for the project, plus Process Flow Diagram, and in the case of an industrial project: layout plan (showing ETP), and ETP design;
(iv) Report on the environmental management plan (EMP);
(v) No objection certificate from the local authority;
(vi) Emergency plan relating to adverse environmental impact and plan for mitigation of the effect of pollution; and
(vii) Outline of the relocation and rehabilitation plan (where applicable).

16. Red category projects:

(i) Same requirements as Orange Category B, except that Item 3 (IEE) is amended to read as follows:
(ii) Report on the IEE for the project, and Terms of Reference for the EIA; or EIA report prepared on the basis of ToR previously approved by DoE, plus (in the case of an industrial project): layout plan showing location of ETP, process flow diagram, design and time schedule of the ETP.

17. Under the ECR DoE has 60 days to respond to receipt of the ECC application for a Red Category project and 30 days for an Orange-B Category Project.

C. Institutional Capacity

18. Local Government Engineering Department (LGED) is responsible for preparation of environmental assessment report and monitoring of safeguards issues for (i) roads, bridges and culverts, (ii) solid waste management, (iii) cyclone shelters, (iv) boat landing stations, (v) markets, and (vi) bus terminals, and (vii) drainage and flood control components. While the Department of Public Health Engineering (DPHE) will be responsible for preparation of environmental assessment report and monitoring of safeguards issues for water supply and sanitation. The LGED will also be responsible for providing support and guidance to pourashavas concerning performance criteria and pourashava development planning.

19. LGED and DPHE have successfully ensured environmental management and monitoring under ongoing locally and foreign funded infrastructure improvement projects in Bangladesh. However, responsibility for environmental monitoring is generally fragmented and overlapping between different units within the two agencies, and there does not appear to be a unified database or consistent monitoring and reporting procedures.

20. The executing and implementing agencies of the project require capacity building measures for (i) a better understanding of the project-related environmental issues; and (ii) to strengthen their role in implementation of mitigation measures and subsequent monitoring. Trainings and awareness workshops are included in the project. The primary focus of the trainings and workshops are to enable staff to conduct impact assessments and carry out environmental monitoring and implement the EMPs. After participating in such activities, the participants will be able to make environmental assessments for subsequent subprojects, conduct monitoring of EMPs, understand government and ADB requirements for environmental assessment, management, and monitoring (short- and long-term), and incorporate environmental features into future project designs, specifications, and tender/contract documents and carry out necessary checks and balances during project implementation.

III. ANTICIPATED ENVIRONMENTAL IMPACTS

21. Preliminary lists of projects have been identified and environmental impacts during design, pre-construction, construction, and operation will be reviewed and assessed for each project. During project construction and implementation, impacts on the physical environment such as water, air, soil, and noise, and on the biological environment, like flora and fauna and socioeconomic environment, will be carefully assessed by the project environmental specialists.

22. As the projects will be of small scale and often involve improvement or rehabilitation of the existing system and facilities, it is anticipated that impacts will be temporary and of short duration. In such cases, mitigation measures, i.e. control of air, dust pollution, checking of water and noise pollution, and protection of biological environment can address adverse impacts. Other measures, such as preparation and implementation of traffic management plans during pipe-laying, will also be done in coordination with the consultant teams, local police, contractors, and the public. Occupational safety measures and other health and hygienic conditions, including careful handling of public utilities along with social aspects, will be considered, and impacts and mitigation measures elaborated on in the EMPs.

23. Anticipated environmental impacts for the assessed project are provided in the IEE report. For subsequent subprojects to be funded by the project, anticipated impacts during

design, construction, and operation are identified in Appendix 3.

IV. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS AND/OR COMPONENTS

A. Environmental Guidelines for Project Selection

24. **Climate Change Resilient Infrastructure.** The project will mainstream climate risk reduction into policy formulation and infrastructure development. A key feature is climate proofing and disaster resilient designs to ensure that infrastructure are less vulnerable to floods, storm surge, landslides and impacts of other extreme weather events. Main activities include preparing a climate change resilient infrastructure management plan, a climate vulnerability mapping of the coastal town areas (with a focus on the project areas) as well as designing and introducing adaptation strategies to improve flood and drought management.

25. The following criteria will be used for excluding sites which might have significant negative environmental impacts:

(i) Ecologically sensitive area such as reserved forests critical wetlands etc.;
(ii) Potential for disrupting the life and property of the indigenous or tribal population;
(iii) Need for significant amount of land acquisition and resultant compensation; and
(iv) Encroachment on cultural features like places of worship, cultural heritage sites, graves/cemeteries, historical monuments etc.; (no such encroachments are envisaged)

26. Guidelines for project selection in Table 2 provide further guidance to avoid or minimize adverse impacts during the identification and finalization of subprojects.

Table 2: Environmental Criteria for Subproject Selection

	Components	Environmental Selection Guidelines	Remarks
1.	Overall selection guideline (applicable to all components)	(i) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(ii) Avoid land acquisition and involuntary resettlement including impacts on vulnerable persons.	See resettlement framework
		(iii) Avoid involuntary resettlement by prioritizing rehabilitation over new construction, using vacant government land where possible, and taking all possible measures in design and selection of site or alignment to avoid resettlement impacts.	See resettlement framework
		(iv) Avoid where possible, and minimize to extent feasible, facilities in locations with social conflicts.	See resettlement framework
		(v) Avoid where possible locations in protected areas, including notified reserved forests or biodiversity conservation hotspots (wetlands, national reserves, forest reserves, and sanctuaries).	Approval from concerned authority if unavoidable
		(vi) Avoid where possible locations that will result in destruction/disturbance to historical and cultural places/values.	Provide for the use of “chance find” procedures in the EMP that include a pre-approved management and conservation

	Components	Environmental Selection Guidelines	Remarks
		Consult the Department of Archaeology regarding the archaeological potential of proposed sites to ensure that these are located in areas where there is a low risk of chance finds.	approach for materials that may be discovered during project implementation.
		(vii) Avoid tree-cutting where possible. Retain mature roadside trees which are important/valuable or historically significant. If any trees have to be removed, plant two new trees for every one that is lost.	Approval from Forest Department
		(viii) Ensure all planning and design interventions and decisions are made in consultation with local communities and include women. Reflect inputs from public consultation and disclosure for site selection.	All consultations should be documented and concerns expressed by public addressed in IEEs.
2.	Roads, bridges and culverts	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs where feasible.	
		(iv) Develop road improvement schemes (road widening, bridge construction, etc) only where the need is clearly demonstrated by appropriate traffic and hazard studies.	
		(v) Prioritize the widening of existing roads over construction of new roads and conduct widening within the existing ROW to avoid the need to acquire new land	
		(vi) New roads or widening of existing roads involving land acquisition and/or resettlement shall not be included in the program, except as otherwise accepted by ADB and subject to compliance requirements under ADB's SPS (2009)	
		(vii) Include the provision of new or improved drainage to remove the increased runoff caused by increasing the road surface area	
		(viii) Include tree planting alongside roads to provide a natural barrier to noise and visual impacts, and include additional man-made barriers if necessary	
3.	Solid waste management	(i) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(ii) Ensure small (secondary) transfer stations are not located within 30m of residences, schools, places of worship (such as churches, temples or mosques), and historical and cultural places.	
		(iii) Ensure all new landfills and secondary transfer stations are not constructed in areas where the groundwater table is less than 2 meters	Special design measures to be adopted if this cannot be adhered to.

	Components	Environmental Selection Guidelines	Remarks
		below ground level.	
		(iv) Locate all new landfills at least 250 m from habitation, sensitive receptors, shops, or any other premises used by people, thus establishing a buffer zone to reduce the effects of noise and dust and the visual appearance of the site.	Distance restriction may be reviewed depending on site availability, buffer zone planning, and water treatment technology.
		(v) Locate all new facilities/buildings at sites where there is no risk of flooding or other hazards that might impair functioning of, or present a risk of damage to the facilities, or their environs.	Flood statistics data of the project area needs to be reviewed. Location restriction may be reviewed depending on site availability, and flood or other hazards control planning.
		(vi) Ensure no landfills are constructed within or near water supply wells, and at least 500m of any down gradient wells.	Permission from regulatory agency needed if landfill is to be site within this restricted area.
		(vii) Ensure a buffer zone is provided around the landfill with the distance agreed upon with the regulatory agencies	
		(viii) Ensure designs and operations of new landfills are done as per norms of modern sanitary facilities and to include all essential elements necessary to prevent environmental pollution and to ensure safe handling of waste during construction and operation.	Landfills to include the following: liner system to prevent leachate, leachate collection system and control facility, gas collection system, final cover system, surface water drainage system, environmental monitoring system for air, water, soil, odor, and gas. Operations and maintenance manual (O&M) shall include closure and post-closure plan.
		(ix) Ensure any new landfill include waste sorting and composting facilities. Ensure O&M manuals include methods of recycling and composting.	
		(x) Ensure any contaminated excavate found during civil works is safely handled and disposed of at suitable sites engineered for handling contaminated soils, etc. These sites are to be identified and agreed upon with the DoE before commencement of civil works.	
		(xi) Ensure appropriate training will be provided for pourashava staffs regarding the operations and maintenance of the facilities.	
4.	Cyclone shelters	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs where feasible.	
		(iv) Ensure cyclone shelters are provided with potable water supply and sanitation facilities combined with improvements in wastewater and drainage to deal with the increased discharge of domestic wastewater. Ensure that water and waste disposal in constructed facilities are designed to national and international standards.	
5.	Boat landing stations	(i) Only projects proposed or requested by the relevant agencies shall be	

	Components	Environmental Selection Guidelines	Remarks
		considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs where feasible.	
		(iv) Develop boat landing stations only where the need is clearly demonstrated by appropriate traffic and hazard studies.	
6.	Markets	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs where feasible.	
		(iv) Ensure markets are provided with improvements in solid waste management, wastewater, and drainage to deal with increased generation of waste materials and discharge of wastewater. Ensure that waste and wastewater disposal in constructed markets are designed to national and international standards.	
7.	Bus terminals	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs where feasible.	
		(iv) Develop bus terminals only where the need is clearly demonstrated by appropriate demand, traffic and hazard studies.	
8.	Drainage and flood control	(i) Only projects proposed or requested by the relevant agencies shall be considered for implementation.	
		(ii) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(iii) Projects shall involve improvements within the boundary of existing facilities only. Where new facilities are required, these shall be sited on vacant government land and ROWs where feasible.	
		(iv) Include measures to ensure the safe disposal of canal dredge without causing an environmental hazard.	

	Components	Environmental Selection Guidelines	Remarks
9.	Water supply	(i) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF
		(ii)) Utilize water sources at sustainable levels of abstraction only (i.e. without significant reductions in the quantity or quality of the source overall).	
		(iii) Avoid using water sources that may be polluted by upstream users.	
		(iv) Avoid water-use conflicts by not abstracting water that is used for other purposes (e.g. irrigation).	
		(v) Locate all new facilities/buildings at sites where there is no risk of flooding or other hazards that might impair functioning of, or present a risk of damage to water treatment plants, tanks/reservoirs, or their environs.	Flood statistics data of the project area needs to be reviewed. Location restriction may be reviewed depending on site availability, and flood or other hazards control planning.
		(vi) Locate all new facilities/buildings at least 100 m from houses, shops, or any other premises used by people, thus establishing a buffer zone to reduce the effects of noise and dust and the visual appearance of the site.	Distance restriction may be reviewed depending on site availability, buffer zone planning, and water treatment technology.
		(vii) Locate pipelines within road right-of-way (ROW) as far as possible, to reduce the acquisition of new land. Ensure that pipeline routes do not require the acquisition of land from private owners in amounts that are a significant proportion of their total land holding (>10%).	See resettlement framework
		(viii) Ensure sufficient access to water treatment plant, pumping stations, and reservoirs/tanks for operations and maintenance activities.	
		(ix) Ensure that communities who relinquish land needed for pipelines or other facilities are provided with an improved water supply as part of the scheme.	
		(x) Avoid all usage of pipes that are manufactured from asbestos concrete.	
		(xi) Ensure water to be supplied to consumers will meet national drinking water standards at all times.	
		(xi) Ensure that improvements in the water supply system are combined with improvements in wastewater and drainage to deal with the increased discharge of domestic wastewater.	
		(xii) Ensure appropriate training will be provided to pourashava staffs on the operations and maintenance of the facilities.	
		(xiii) Ensure sludge management facilities are included in the water treatment plant. Include design measures and follow guidelines to ensure the safe disposal of sludge without causing an environmental hazard, and if possible to promote its safe and beneficial use as an agricultural fertilizer.	
10.	Sanitation	(i) Comply with all requirements of relevant national and local laws, rules, and guidelines.	See Section II of this EARF

	Components	Environmental Selection Guidelines	Remarks
		(ii) Ensure sanitation facilities are provided with electric power and water supply. Ensure that water and waste disposal in constructed facilities are designed to national and international standards.	
		(iii) Ensure no immediate downstream drinking water intakes	Survey downstream users and treat water to meet relevant standards considered safe to public.
		(ii) Locate sewage treatment plants (STP) preferably 50 m from any inhabited areas, in locations where no urban expansion is expected in the next 20 years, so that people are not affected by odor or other nuisance from the STP.	Distance restriction may be reviewed depending on the technology adopted for the treatment of wastewater, site plant availability, and buffer zone planning.
		(iii) Locate at sites where there is a suitable means of disposal for the treated wastewater effluent.	
		(iv) Locate STP where there is no risk of flooding or other hazards that might impair operations and present a risk of damage to the facilities or its environs.	Flood statistics data of the project area needs to be reviewed. Location restriction may be reviewed depending on site availability, and flood or other hazards control planning.
		(v) Avoid locating sewage pumping stations and wet wells within 50 m of any inhabited areas, and within 100 m of sensitive sites such as hospitals, schools, temples, etc. to minimize nuisance impacts from odor, rodents, etc.	Distance restriction may be reviewed depending on the technology adopted, suitable land availability, and buffer zone planning.
		(vi) Include design measures and follow guidelines to ensure the safe disposal of sewage sludge without causing an environmental hazard, and if possible to promote its safe and beneficial use as an agricultural fertilizer.	Any sludge reuse shall be to improve soil properties and sustain soil fertility and avoid any contamination risks.
		(vii) Ensure sufficient access to STP and pumping stations for operations and maintenance activities.	
		(viii) Ensure appropriate training will be provided to pourashava staffs on the operations and maintenance of the facilities.	

B. Environmental Assessment Procedures for Projects

1. Screening and Classification/Categorization

27. As soon as sufficient information on a subproject is available, the Project Management and Supervision Consultant (PMSC) environment safeguards specialist will conduct screening to determine the works' environmental category by completing ADB's rapid environmental assessment (REA) checklists in Appendix 4 and submitting this for review to the Project Management Unit (PMU), which will determine if the component would require environmental assessment and/or environmental clearance as per national requirements. If required, PMU will contact DoE for necessary endorsement and issuance of terms of reference for the environmental impact assessment study.

28. PMU will submit completed REA checklist to ADB for review. To ensure that the project meets ADB's environmental safeguard requirements, as stipulated in the SPS 2009, projects will be screened, and the level of environmental assessment required (EIA/IEE) will be determined. It is anticipated that most eligible projects will fall into either category B or C,

as projects will be of small scale and often involve improvement or rehabilitation of the existing system/facilities. While category C projects will not require an environmental assessment, environmental implications will be reviewed.

2. Preparation of Environmental Assessment Report

29. Environmental assessment documents prepared under the project will, to the extent possible, meet both ADB and Government of Bangladesh requirements in order to streamline the environmental procedures required by both ADB and government.

30. For projects projected to have potentially significant adverse environmental impacts (categorized as A), an EIA will be prepared. For projects with some adverse environmental impacts, but which are expected to be less significant than those of category A projects, an IEE is required. Appendix 1 of ADB's SPS, 2009 provides the specific outlines and contents to be followed while preparing EIAs/IEEs. Appendix 5 provides the outline of an ADB EIA or IEE report. Also, the IEEs prepared during project preparation provide a good sample which can be followed for preparation of environmental assessments in subsequent subprojects.

31. Issues regarding natural and critical habitats will be covered in the EIA/IEE report. In case of subprojects located within buffer zone of protected areas, a review of management plans and consultation with concerned management staff of the protected area, local communities, and key stakeholders will be undertaken. Pollution prevention for conservation of resources, particularly technology for management of process wastes, occupational health safety and community health safety, will be addressed. The EIA/IEE will also reflect meaningful consultation and disclosure process with a provision for grievance redress mechanism.

32. ADB requires that an EMP must be developed as part of the EIAs/IEEs. EMPs will outline specific mitigation measures, environmental monitoring requirements, and related institutional arrangements, including budget requirements for implementation. Where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the project is designed, constructed, and operated in compliance with applicable laws and regulations and meets the requirements specified in this document. The level of detail and complexity of the environmental planning documents and the priority of the identified measures and actions will be commensurate with the project's impacts and risks. Key considerations include mitigation of potential adverse impacts to the level of "no significant harm to third parties," the "polluter pays" principle, the precautionary approach, and adaptive management.

33. If some residual impacts are likely to remain significant after mitigation, the EMP will also include appropriate compensatory measures (offset) that aim to ensure that the project does not cause significant net degradation to the environment. Such measures may relate, for instance, to conservation of habitat and biodiversity, preservation of ambient conditions, and greenhouse gas emissions. Monetary compensation in lieu of offset is acceptable in exceptional circumstances, provided that the compensation is used to provide environmental benefits of the same nature and is commensurate with the project's residual impact.

34. All EIAs/IEEs will be conducted and EMPs prepared prior to the award of construction contracts. The bid documents will include the requirement to incorporate necessary resources to implement the EMP. The EMP will form part of the contract document, and, if required, will need to be further updated during the construction phase of a subproject.

3. Environmental Audit of Existing Facilities

35. For subprojects involving facilities and/or business activities that already exist or are under construction, the implementing agencies will undertake an environment audit, including on-site assessment, to identify past or present concerns related to impacts on the environment. The objective of the compliance audit is to determine whether actions were in accordance with ADB's safeguard principles and requirements for borrowers/clients, and to identify and plan appropriate measures to address outstanding compliance issues. Where noncompliance is identified, a corrective action plan agreed on by ADB and the implementing agencies will be prepared. The plan will define necessary remedial actions, the budget for such actions, and the time frame for resolution of noncompliance. The audit report (including corrective action plan, if any) will be made available to the public in accordance with the information disclosure requirements of ADB SPS, 2009. For environment category A projects involving facilities and/or business activities that already exist or are under construction, the implementing agency will submit the audit report to ADB to disclose on ADB's website. If a project involves an upgrade or expansion of existing facilities that has potential impacts on the environment, the requirements for environmental assessments and planning specified in ADB SPS, 2009 will apply in addition to compliance audit.

C. Review of Environmental Assessment Reports

36. EIAs/IEEs will be reviewed initially by PMU. In the case where an environmental clearance is required, the EIAs/IEEs are to be forwarded to the DoE for approval.

37. LGED will forward the EIAs/IEEs for ADB's review. ADB will review draft final reports of: (i) IEEs of any subprojects that have been updated due to changes in design; and (ii) EIAs or IEEs of any new subproject classified as Category A or B.

38. For subproject processing, the steps to be followed are shown in Table 3. It is the responsibility of the executing and implementing agencies to ensure subprojects are consistent with the legal framework, whether national or municipal/local. Compliance is required in all stages of the project including design, construction, and operation and maintenance. Stricter requirements apply in case the result of ADB's classification is different from that of the government's ECR 1997.

Table 3: Environmental Procedures for Project Processing

Project Stage	ADB Procedure	Government of Bangladesh Procedure
Subproject identification	REA checklist	Categorization according to schedule and general/specific conditions in the government's ECR 1997
	Categorization (A/B/C): PMU to review the REA checklists and reconfirm the categorization	ECC application involves the completion and submission of an application form available from the DoE website. This provides basic information on the project, such as the location, construction program, raw materials, water use, etc. The proponent is also required to submit an application fee prescribed in Schedule 13 of the Rules, plus various supporting documents.
Detailed design	EIA/IEE	- DoE to issue scoping and terms of reference (TOR) for the EIA/IEE
	For projects involving facilities and/or business activities that already exist or are under construction, the borrower/client will undertake an	- Preparation of draft EIA/IEE as per TOR

Project Stage	ADB Procedure	Government of Bangladesh Procedure
	environment and/or social compliance audit, including on-site assessment, to identify past or present concerns related to impacts on the environment, and involuntary resettlement. Where non-compliance is identified, a corrective action plan agreed on by ADB and the borrower/client will be prepared.[175]	
	Public consultation will be carried out in a manner commensurate with the impacts of affected communities. The consultation process and its results are to be documented and reflected in the EIA/IEE.	There is no mention of public consultation and disclosure in the ECR, so the requirements for these activities will also be clarified with DoE. Given the importance attached to these issues by ADB, it is likely that activities conducted to comply with ADB policy may satisfy DoE requirements.
	Disclosure: For category A: Disclosure on ADB's website of a draft full EIA (including the draft EMP) at least 120 days prior to the ADB Board consideration, and/or EARF before project appraisal where applicable; the final EIA; updated EIAs and corrective action plans; and environmental monitoring reports. For category B: Disclosure on ADB's website of the final IEE; updated IEEs and corrective action plans; and environmental monitoring reports. In addition, for all categories, environmental information will be in an accessible place and in a form or language understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.	
	Mitigation measures specified in EIA/IEE study incorporated in project design	Mitigation measures specified in EIA/IEE study incorporated in project design
	Identify and incorporate environmental mitigation and monitoring measures (including the EMP) into bid/contract documents.	
Appraisal	EMP and other environmental covenants are incorporated into the facility framework agreement, loan/project agreement, and project administration memorandum (PAM)	
Approval	ADB to review and clear EIA/IEE prior to approval and issuance of tender documents during detailed design stage. Complete EIA/IEE disclosed to public	Determination of ECC Application. Within 15 days (green), 30 days (Orange) and 60 days (red) of receipt of the application and accompanying documents, DoE will issue the Location Clearance Certificate (LCC), or will reject the application giving reasons for its decision.
Contract award	Obtain necessary environmental clearances, consents, and no-objection certificates (NOCs) prior to contract award. Implementation of EMP including monitoring plans based on EIA/IEE findings to be incorporated into civil works contracts.	On receipt of the LCC the proponent is permitted to undertake land preparation and install machinery, but he/she must then submit the EIA report and apply for the ECC. Within a further 60 day period DoE will approve the EIA and issue the ECC or reject the application with reasons. Once the ECC is granted, construction work may begin.

[175] The plan will define necessary remedial actions, the budget for such actions, and the time frame for resolution of noncompliance. The audit report (including corrective action plan, if any) will be made available to the public in accordance with the information disclosure requirements of the Safeguard Requirements 1–3.

Project Stage	ADB Procedure	Government of Bangladesh Procedure
Implementation	Submission of semi-annual monitoring report to ADB including corrective action plan where non-compliance is identified.	Post Environmental Clearance Monitoring. There is no requirement for post ECC monitoring or reporting in the Environmental Conservation Rules, but this may be stipulated by DoE as a condition of ECC approval. Certificate Renewal. For orange and red category projects the ECC must be renewed every year, for which the fee is 25% of the original application.

V. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

A. Public Consultation and Information Disclosure

39. Meaningful stakeholder consultation and participation is part of the project preparation and implementation strategy. A consultation and participation program has been prepared for the project and will be implemented with the assistance of consultants, a nongovernment organization (NGO), and media contractors. By addressing stakeholder needs, there is greater awareness of the benefits and "ownership" of the project among stakeholders, which in turn contribute to sustainability. The consultation process during the project preparation has solicited inputs from a wide range of stakeholders, including government officials, NGOs, residents of the 4 towns, marginalized/vulnerable beneficiary groups, and project-affected persons (APs).

40. Consultation, participation, and disclosure will ensure that information is provided and feedback on proposed project design is sought early, right from the project preparation phase, so that the views/preferences of stakeholders including potential beneficiaries and affected people can be adequately considered in project design, and continue at each stage of project preparation, processing, and implementation. Project-affected persons will be consulted at various stages in the project cycle to ensure: (i) incorporation of views/concerns of APs on compensation/resettlement assistance and environmental impacts and mitigation measures; (ii) inclusion of vulnerable groups in project benefits; (iii) identification of help required by APs during rehabilitation, if any; and (iv) avoidance of potential conflicts for smooth project implementation. It will also provide adequate opportunities for consultation and participation to all stakeholders and inclusion of the poor, vulnerable, marginalized, and project-affected persons in the project process. Relevant information about any major changes to project scope will be shared with beneficiaries, affected persons, vulnerable groups, and other stakeholders.

41. A variety of approaches can be adopted. At minimum, stakeholders will be consulted regarding the scope of the environmental and social impact study before work commences, and they will be informed of the likely impacts of the project and proposed mitigation once the draft EIA/IEE and resettlement plan reports are prepared. The reports will record the views of stakeholders and indicate how these have been taken into account in project development. Consultations will be held with a special focus on vulnerable groups.

42. The key stakeholders to be consulted during project preparation, EMP implementation, and project implementation include:

(i) beneficiaries;
(ii) elected representatives, community leaders, religious leaders, and representatives of community-based organizations;

(iii) local NGOs;
(iv) local government and relevant government agency representatives, including local authorities responsible for land acquisition, protection, and conservation of forests and environment, archaeological sites, religious sites, and other relevant government departments;
(v) residents, shopkeepers, and business people who live and work alongside the roads where pipes will be laid and near sites where facilities will be built; custodians, and users of socially and culturally important buildings;
(vi) PMU staff and consultants; and
(v) ADB and the Government of Sri Lanka.

B. Information Disclosure

43. Information is disclosed through public consultation and making relevant documents public locations. The following documents will be submitted to ADB for disclosure on its website:

(i) For category A projects:
  (a) draft EIA (including the draft EMP) at least 120 days prior to management approval of the periodic financing request report;
  (b) final EIA;
  (c) a new or updated EIA and corrective action plan prepared during project implementation, if any;
  (d) environmental monitoring reports; and
  (e) for projects involving facilities and/or business activities that already exist or are under construction, environmental audit report.
(ii) For category B projects:
  (a) final IEE;
  (b) a new or updated IEE and corrective action plan prepared during project implementation, if any; and
  (c) environmental monitoring reports.

44. LGED will send written endorsement to ADB for disclosing these documents on ADB's website. LGED will also provide relevant safeguards information in a timely manner, in an accessible place and in a form and languages understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.

C. Grievance Redress Mechanism

45. A project-specific grievance redress mechanism (GRM) will be established to receive, evaluate, and facilitate the resolution of AP's concerns, complaints, and grievances about the social and environmental performance at the level of the project. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project.

46. **Common GRM.** A common GRM will be in place for social, environmental, or any other grievances related to the project; the resettlement plans (RPs) and IEEs will follow the grievance redress mechanism described below, which is developed in consultation with key stakeholders. The GRM will provide an accessible and trusted platform for receiving and facilitating resolution of affected persons' grievances related to the project. The multi-tier GRM for the project is outlined below, each tier having time-bound schedules and with responsible persons identified to address grievances and seek appropriate persons' advice at each stage, as required.

47. Pourashava-wide public awareness campaigns will ensure that awareness on grievance redress procedures is generated through the campaign, using electronic, radio, and print media. The implementing NGO will ensure that poor and vulnerable households are made aware of grievance redress procedures and entitlements, and will help ensure that their grievances are addressed.

48. APs will have the flexibility of conveying grievances/suggestions by dropping grievance redress/suggestion forms in complaints/suggestion boxes or through telephone hotlines at accessible locations, by e-mail, by post, or by writing in a complaints register in pourashava offices. Appendix 6 has the sample grievance registration form. Careful documentation of the name of the complainant, date of receipt of the complaint, address/contact details of the person, location of the problem area, and how the problem was resolved will be undertaken. The PMU safeguard officer will be responsible for timely grievance redressal on environmental and social safeguards issues and for registration of grievances, related disclosure, and communication with the aggrieved party.

49. **Grievance redress process.** In case of grievances that are immediate and urgent in the perception of the complainant, the contractor and supervision personnel from PMSC on-site will provide the most easily accessible contact for quick resolution of grievances. Contact phone numbers and names of the PMU safeguards officers, PMSC environmental and social safeguards specialists, and contractors will be posted at all constructions sites in visible locations. The contractors and PMSC and/or the project NGO can immediately resolve issues on-site in consultation with each other, and will be required to do so within 7 days of receipt of a complaint/grievance. If required, the assistance of PMU safeguards officers will be sought, for resolution of the issue by any one or all of them jointly.

50. All grievances that cannot be redressed within 7 days at field level will be jointly reviewed by the PMU safeguards officer and concerned PMSC environment/social safeguards specialists, who will attempt to resolve them within 15 days, enlisting the assistance of the local representative of DoE and other concerned stakeholders, as required.

51. The project director will refer major issues to the grievance redressal committee (GRC)[176], which will resolve them within 30 days, and very major issues that are beyond the jurisdictional authority of the GRC or those that have the potential to cause social conflicts or environmental damage will be referred directly to the project steering committee (PSC)[177]. Grievances which the GRC is unable to resolve within 30 days will also be referred to the PSC. All paperwork (details of grievances) needs to be completed by the PMU safeguards officer and circulated to the respective GRC and PSC members at least a week in advance of the scheduled meetings. All decisions taken by the GRC and PRC will be communicated to the APs by the PMU safeguards officer.

52. Despite the project GRM, an aggrieved person shall have access to the country's legal system at any stage, and accessing the country's legal system can run parallel to

[176] The grievance redress committee (GRC) will have the following as members: LGED as chairperson, DPHE as co-chairperson, PMU project director, PMU social development/safeguards officer as the convener, project public relations officer, director of the project NGO, PIUs, representatives of APs, community-based organizations (CBOs), and eminent citizens. The GRC must have at least two women members.

[177] The project steering committee (PRC) responsible for grievance redress will have the following as members: Secretary, Local Government Department, as chair; Chief Engineer, LGED; Chief Engineer, DPHE; Project Director, member secretary; General Economic Division, Planning Commission; Physical Planning, Water Supply and Housing (PPWS&H) Sector, Planning Commission; Representative of Implementation, Monitoring, and Evaluation Division of the Ministry of Planning; Representative of Economic Relations Division and Finance Division of the Ministry of Finance; Representative of Ministry of Environment and Forest (Climate Change Unit); Representative of Bangladesh Water Development Board (BWDB); Urban Development Directorate; Disaster Management Bureau; representatives of pourashavas (mayor, engineer, secretary/ chief executive officer, LGD engineer, DPHE engineer) and special invitees to advise the committee on technical issues.

accessing the GRM, and is not dependent on the negative outcome of the GRM.

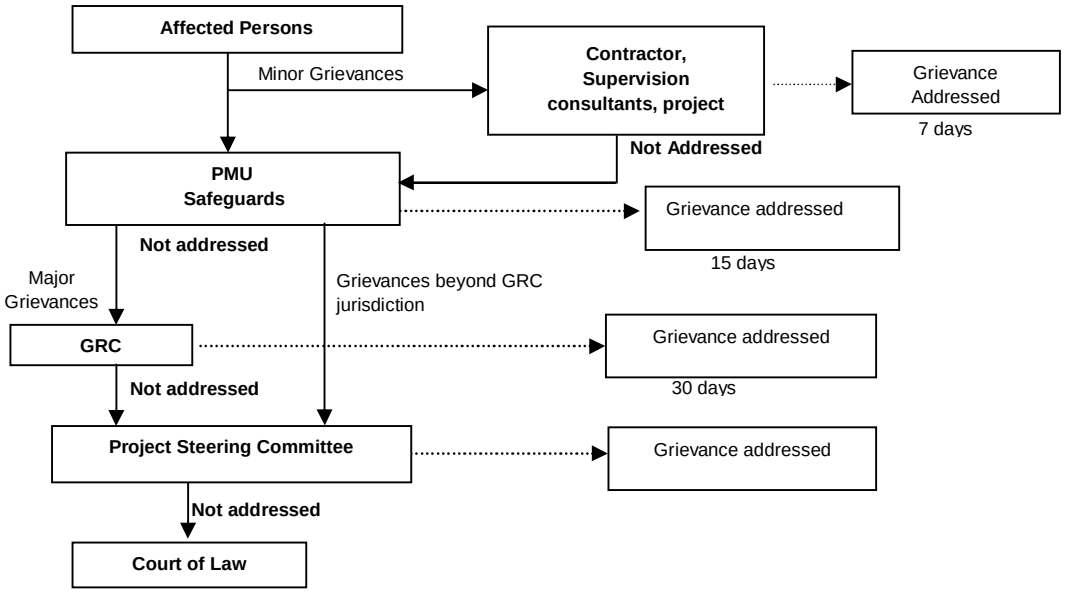
53. **Composition of GRC.** The GRC will have the project director, PMU safeguards officers (convener), PMSC environment and social safeguards specialists, representatives of affected persons, community-based organizations (CBOs), and eminent citizens as members. The GRC must have at least two women members. The local representative of DoE and concerned town officers may be invited to GRC meetings as and when required. Presence of at least five members, including one AP/civil society representative, is necessary for resolutions to be passed.

54. **Recordkeeping.** Records will be kept by PMU of all grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the PMU office, town office, and on the web, as well as reported in monitoring reports submitted to ADB on a semi-annual basis.

55. **Periodic review and documentation of lessons learned.** The PMU safeguard officers will periodically review the functioning of the GRM and record information on the effectiveness of the mechanism, especially on the project's ability to prevent and address grievances.

56. **Costs.** All costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) will be borne by the concerned PMU; cost estimates for grievance redress are included in resettlement cost estimates.

Figure 1: Grievance Redress Process



VI. INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

57. **Program steering committee.** The PSC will be the apex decision-making body for the project. The PSC will meet quarterly, review progress, provide policy guidance, resolve interagency issues that impede program progress, and advice on necessary action, particularly with respect to scope and cost, and the reform agenda of the investment program, and facilitate interagency coordination. The PSC will be responsible for (i) providing sanctions and approvals under the investment program; (ii) making all important decisions on the investment program implementation; and (iii) ensuring timely investment program implementation.

A. Implementation Arrangements

58. **Executing agencies**. LGED will be the Executing Agency (EA) for the project, and DPHE will be a co-executing agency. Overall coordination of the project, and the primary point of contact with ADB, will be provided by a Project Director (PD) from LGED who will head a Project Management Unit (PMU) in LGED. There will be three Deputy Project Directors (DPD) in the PMU: two from LGED (one for municipal infrastructure, and one for governance and institutional capacity building), and one from DPHE.

59. In addition, because flood protection and disposal of flood waters are key for climate change resilience there will be a need for good coordination with the Bangladesh Water Development Board (BWDB), to ensure that embankments and outfall structures are completed to required standards and are adequately maintained. This coordination will be based on the existing memorandum of understanding (MOU) between LGED and BWDB.

60. **Implementing agencies.** The participating pourashavas will be the Implementing Agencies (IA), and establish a Project Implementation Unit (PIU) within the pourashava structure. Local LGED and DPHE offices will be involved in the functioning of the PIUs to provide technical support. BWDB, if necessary, will provide technical support as per the MOU. The PIUs will (i) be responsible for land acquisition; (ii) take necessary action for obtaining rights of way; (iii) plan, implement and monitor public relations activities, gender mainstreaming initiatives and community participation activities; (iv) disseminate information related to the investment project to the public and media; (v) ensure compliance with loan covenants concerning safeguards measures; and (vi) facilitate implementation of safeguards plans, and prepare required reports.

61. **Project steering committee.** An inter-ministerial project steering committee (PRC) at national level, chaired by the Secretary LGD, will provide overall policy guidance to the project. The committee will include key government stakeholders, including local government representatives from the participating pourashavas.[178]

62. **Project management unit.** The PMU will (i) liaise and correspond with ADB on all issues related to the investment plan; (ii) facilitate the establishment of PIUs in the

[178] The PRC will have the following as members: Secretary, Local Government Department, as chair; Chief Engineer, LGED; Chief Engineer, DPHE; Project Director, member secretary; General Economic Division, Planning Commission; Physical Planning, Water Supply and Housing (PPWS&H) Sector, Planning Commission; Representative of Implementation, Monitoring, and Evaluation Division of the Ministry of Planning; Representative of Economic Relations Division and Finance Division of the Ministry of Finance; Representative of Ministry of Environment and Forest (Climate Change Unit); Representative of Bangladesh Water Development Board (BWDB); Urban Development Directorate; Disaster Management Bureau; representatives of pourashavas (mayor, engineer, secretary/ chief executive officer, LGD engineer, DPHE engineer) and special invitees to advise the committee on technical issues.

participating pourashavas; (iii) coordinate overall project implementation among PIUs; (iv) prepare and submit periodic progress reports to ADB; (v) establish, maintain and update the investment plan performance monitoring system; and (vi) assist PIUs with compliance of performance criteria..

63. The PMU will be responsible for implementing and monitoring safeguards compliance activities, public relations activities, gender mainstreaming activities, and community participation activities. The PMU will have a safeguards officer, who will be responsible for environmental and social safeguards functions. The environmental-related responsibilities of the PMU safeguards officer are to:

(i) Ensure that the EARF provisions are observed, such as ensuring that works are selected according to the environmental criteria for project selection;
(ii) Review and approve project IEEs and EMPs;
(iii) Confirm existing IEE and EMP are updated based on detailed designs;
(iv) Confirm whether the EMP is included in bidding documents and civil works contracts;
(v) Provide oversight on environmental management aspects of the project and ensure EMP is implemented by contractors;
(vi) Establish a system to monitor environmental safeguards of the project, including monitoring the indicators set out in the monitoring plan of the EMP;
(vii) Facilitate and confirm overall compliance with all government rules and regulations regarding site and environmental clearances as well as any other environmental requirements, as relevant;
(viii) Review, monitor, and evaluate the effectiveness with which the EMP is implemented, and recommend necessary corrective actions to be taken as necessary;
(ix) Consolidate monthly environmental monitoring reports from PMSC and submit semi- annual monitoring reports to ADB. The monitoring report will focus on the progress of implementation of the IEE and RP, issues encountered and measures adopted, follow-up actions required, if any, as well as status of compliance with relevant loan covenants.
(x) Ensure timely disclosure of final IEE/EMP in locations and form accessible to the public; and
(xi) Address any grievances brought about through the GRM in a timely manner.

64. **Project management and supervision consultants.** PMSC will be engaged to work closely with and advise the PMU, to be involved in project supervision including construction. The PMSC will have an environment safeguards specialist and a resettlement specialist. The outline terms of reference of the PMSC environment safeguards specialist is attached as Appendix 7. He/she will:

(i) Ensure design and location of works are selected according to the environmental criteria for project selection;
(ii) Prepare project IEEs and EMPs;
(iii) Conduct environmental compliance audit of existing facilities as per Item F, Appendix 6 of ADB SPS, 2009;
(iv) Update the IEE/EMP during detailed design stage;
(v) Include EMP in bidding documents and civil works contracts;
(vi) Ensure all requisite government approvals are in place to allow implementation, and that these are renewed in a timely fashion where required;
(vii) Oversee implementation of EMP during construction, including environmental monitoring of contractors;

(viii) Take corrective actions when necessary to ensure no environmental impacts;
(ix) Review monthly reports by contractors and submit monthly environmental monitoring reports to the PMU; and
(x) Assist in addressing any grievances brought about through the GRM in a timely manner as per IEEs.

65. **Contractor.** The contractor will have an environment supervisor to (i) coordinate with PMSC on updating the IEE/EMP based on detailed designs, and (ii) ensure implementation of EMP during civil works.

66. **NGO.** The project NGO, which will be responsible for formation of water user groups in tenement gardens, will also help the PMU/PMSC ensure poor and vulnerable affected persons in tenement gardens are identified and receive benefits of the project and any entitlements. The NGO will collect and analyze data as required to help the PMSC/PMU monitor impacts on the poor and vulnerable. The NGO will (i) put forth grievances of affected persons/vulnerable groups in tenement gardens to the PMU/PMSC and GRC; (ii) generate awareness among affected persons/vulnerable groups about opportunities for employment in project-related activities, rights, entitlements, and grievance redress process, and help them make informed choices; (iii) assist the PMU in providing assistance to affected persons in tenement gardens, if required/applicable; (iv) participate in public meetings and consultations as and when required; (v) document lessons learned each year; (vi) identify follow-up actions to ensure sustainability of water user groups formed; (vii) follow-up on WASH program[179]; (viii) follow-up on key messages of awareness campaign among tenement garden communities; and (ix) analyze and report on gender impacts of project interventions. The success of NGO inputs will largely depend on their liaison with affected persons and other concerned government agencies.

B. Institutional Capacity Development Program

67. The PMSC environmental safeguards specialists will be responsible for trainings on environmental awareness and management in accordance with both ADB and government requirements. Specific modules customized for the available skill set will be devised after assessing the capabilities of the target participants and the requirements of the project. Typical modules would be as follows: (i) sensitization; (ii) introduction to environment and environmental considerations in water supply and wastewater projects; (iii) review of IEEs and integration into the project detailed design; (iv) improved coordination within nodal departments; and (v) monitoring and reporting system. The contractors will be required to conduct environmental awareness and orientation of workers prior to deployment to work sites. The proposed training project along with the frequency of sessions is presented in Table 4.

Table 4: Training Program for Environmental Management

Description	Contents	Schedule	Participants
Pre-construction stage			
Orientation workshop	**Module 1 – Orientation** - ADB Safeguards Policy Statement - Government of Bangladesh Environmental Laws and Regulations	1 day	LGED, DPHE, PMU, and PIUs officials involved in the project implementation

[179] Water, sanitation, and hygiene program

Description	Contents	Schedule	Participants
	Module 2 – Environmental Assessment Process - ADB environmental process, identification of impacts and mitigation measures, formulation of an environmental management plan (EMP), implementation, and monitoring requirements - Review of environmental assessment report to comply with ADB requirements - Incorporation of EMP into the project design and contracts		
Construction stage			
Orientation program/ workshop for contractors and supervisory staff	- Roles and responsibilities of officials/contractors/consultants towards protection of environment - Environmental issues during construction - Implementation of EMP - Monitoring of EMP implementation - Reporting requirements	1 day	PMU PIUs Contractors
Experiences and best practices sharing	- Experiences on EMP implementation – issues and challenges - Best practices followed	1 day on a regular period to be determined by PMU, PIUs, and PMSC	PMU PIUs Contractors

C. Staffing Requirement and Budget

68. Costs required for implementing the EARF will cover the following activities:

(i) Conducting environmental assessments of new subprojects, preparing and submitting reports and public consultation and disclosure;
(ii) Application for Environmental Clearance; and
(iii) Implementation of EMP and long-term surveys.

69. For budgeting purposes it is assumed that all new subprojects will be classified by ADB as Category B (requiring IEE), and that the report will also be deemed satisfactory by DoE. Some subprojects may require a simpler environmental review, but this is discounted for budgeting purposes. LGED and DPHE will aim to produce a single document that is acceptable to both ADB and DoE to avoid duplication of effort, and the documents produced by the PPTA will be used as a guide.

70. Each of the IEEs prepared to date involved approximately two weeks of effort by an experienced environmental specialist, conducting the following activities: (i) site visit to assess environmental conditions and potential impacts of the scheme; (ii) liaison with the city corporation and others to obtain any environmental/social data that might be available locally (e.g. population figures, designated sites, etc); (iii) consultation with the local community to inform them about the scheme and identify their views and concerns; (iv) assessment of impacts and development of mitigation; and (v) desk study and report preparation.

71. The infrastructure involved in each scheme is generally straightforward and will take between three and nine months to build. Environmental monitoring during construction will also be straightforward and will involve periodic site observations and interviews with workers and others, plus checks of reports and other documents. This will be conducted by a national environmental management specialist of the management and supervision consultant as well

as assisted by the PMU environment officer. The environmental management specialist of the management and supervision consultant will prepare EIAs, IEEs, or environmental reviews for new subprojects. The budget therefore includes the full cost of the Environmental Specialist.

72. The cost of mitigation measures and surveys during construction stage will be incorporated into the contractor's costs, which will be binding on him for implementation. The surveys will be conducted by the contractors.

73. The operation phase mitigation measures are again of good operating practices, which will be the responsibility of the PIUs. All monitoring during the operation and maintenance phase will be conducted by LGED and DPHE, therefore, there are no additional costs.

74. The indicative costs of EARF implementation are shown in Table 5.

Table 5: Indicative Cost of EARF Implementation

Component	Description	Number	Cost Per Unit (USD)	Cost (USD)	Source of Funds
A. Consultants Costs					
PMSC Environmental Safeguards Specialist	Responsible for environmental safeguards of the project	24 person months (spread over entire project implementation period)	$4,000	$96,000	Remuneration and budget for travel covered in the PMSC contract
B. Administrative Costs					
Legislation, permits, and agreements	Permit for excavation, tree-cutting permits, etc	Lump sum	$1,000	$1,000	These consents are to be obtained by contractor at his own expense.
	Environmental assessment and environmental clearances as per ECA and ECR requirements	Lump sum	$50,000	$50,000	LGED DPD cost for municipal infrastructures
	Obtaining right of way clearances with related national agencies.	Lump sum	$50,000	$50,000	DPHE cost for water supply and sanitation
C. Environmental Monitoring Costs					
Baseline monitoring prior to construction	During detailed design stage to establish existing environmental conditions	Lump sum	$10,000	$10,000	Included in the detailed design contract
	Before start of construction works	1 sample each for noise, ambient air quality, receiving/adjacent body of water	$1,000 per subproject	$20,000	Contractor's cost
Monitoring during construction	Sampling sites near sensitive areas (schools, hospitals, places of worship, historical/cultural areas)	Portable noise meters	Contractor's liability	Not applicable	Contractor's cost
D. Other Costs					
Public consultations and	Information disclosure and consultations during preconstruction and	As per requirement	Lump sum	$500,000	Covered under PMSC contracts,

Component	Description	Number	Cost Per Unit (USD)	Cost (USD)	Source of Funds
information disclosure	construction phase, including public awareness campaign through media				NGO and media packages
Capacity building	(i) Orientation workshop for officials involved in the project implementation on ADB Safeguards Policy Statement, Government of Bangladesh environmental laws and regulations, and environmental assessment process; (ii) induction course contractors, preparing them on EMP implementation and environmental monitoring requirements related to mitigation measures; and taking immediate action to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of implementation; and (iii) lessons learned information sharing	Module 1 – immediately upon engagement of the PMSC environmental safeguards specialist Module 2 – prior to award of civil works contracts (twice a year for 4 years) Module 3 – prior to start of Phase 2 and upon completion of the project	Module 1 - $500 Module 2 - $200 Module 3 - $500	$4,700	Covered under Institutional Strengthening and Awareness Building contract
GRM implementation	Costs involved in resolving complaints (meetings, consultations, communication, and reporting/information dissemination)	Lump sum	Part of administration cost of PMUs	As per PMU budget	PMU cost
Any unanticipated impact due to project implementation	Mitigation of any unanticipated impact arising during construction phase and defect liability period	Lump sum	Contractor's liability	As per insurance requirement	Contractor's insurance

VII. MONITORING AND REPORTING

75. PMU will monitor and measure the progress of EMP implementation. The monitoring activities will correspond with the project's risks and impacts, and will be identified in the EIAs/IEEs for the projects. In addition to recording information on the work and deviation of work components from original scope PMU, PIUs, and PMSC will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome.

76. PMSC will submit monthly monitoring and implementation reports to PMU, who will take follow-up actions, if necessary. PMU will submit semi-annual monitoring reports to ADB. The suggested monitoring report format is in Appendix 8. Subproject budgets will reflect the costs of monitoring and reporting requirements. For projects likely to have significant adverse environmental impacts during operation, reporting will continue at the minimum on an annual basis. Monitoring reports will be posted in a location accessible to the public.

77. For projects likely to have significant adverse environmental impacts, LGED and DPHE will retain qualified and experienced external experts to verify its monitoring information. LGED and DPHE will document monitoring results, identify the necessary corrective actions, reflect them in a corrective action plan, and for each quarter, will study the compliance with the action plan developed in the previous quarter. Compliance with loan covenants will be screened by the Local Government Division (LGD) of the Ministry of Local Government, Rural Development, and Cooperatives (MLGRDC).

78. ADB will review project performance against the MLGRDC's commitments as agreed in the legal documents. The extent of ADB's monitoring and supervision activities will be commensurate with the project's risks and impacts. Monitoring and supervising of social and environmental safeguards will be integrated into the project performance management system. ADB will monitor projects on an ongoing basis until a project completion report is issued. ADB will carry out the following monitoring actions to supervise project implementation:

(i) conduct periodic site visits for projects with adverse environmental or social impacts;
(ii) conduct supervision missions with detailed review by ADB's safeguard specialists/officers or consultants for projects with significant adverse social or environmental impacts;
(iii) review the periodic monitoring reports submitted by EAs to ensure that adverse impacts and risks are mitigated, as planned and as agreed with ADB;
(iv) work with EAs to rectify to the extent possible any failures to comply with their safeguard commitments, as covenanted in the legal agreements, and exercise remedies to re-establish compliance as appropriate; and
(v) prepare a project completion report that assesses whether the objective and desired outcomes of the safeguard plans have been achieved, taking into account the baseline conditions and the results of monitoring.

APPENDIX 1: RELEVANT GOVERNMENT OF BANGLADESH ENVIRONMENTAL LEGISLATIONS

	Legislation	Description	Regulatory Body	Applicable Requirements for the Project
	Environmental Conservation Act of 1995 and amendments in 2000, 2002 and 2010 [180]	- Provide, amongst others items, standards and guidelines for: (i) categorization of industries and development projects, (ii) requirement for undertaking IEE and EIA, as well as formulating an EMP according to categories of industries/development projects/activities, (iii) procedure for obtaining environmental clearance; and (iv) environmental quality standards for air, surface water, groundwater, drinking water, industrial effluents, emissions, noise and vehicular exhaust - Specify which activities are permissible and which restricted in ecologically critical areas[181]	Department of Environment (DOE) under the Ministry of Environment and Forest (MoEF)	- Restriction on operation and process, which can be continued or cannot be initiated in the ecologically critical areas - Regulation on vehicles emitting smoke harmful to the environment - Remedial measures for injuries to ecosystems - Standards for quality of air, water, noise and soil for different areas for various purposes - Standard limit for discharging and emitting waste - Environmental guidelines
	Environmental Conservation Rules of 1997 and amendments in 2002 and 2003			- Environmental clearances - Compliance to environmental quality standards
	Forest Act of 1927 and amendments (2000)	- Emphasis is on the protection of reserved forest: (i) all rights or claims over forestlands have been settled at the time of the reservation and prohibits the grant of any new rights of any kind to individuals or communities; (ii) any activity within the forest reserves is prohibited, unless permitted by the Forest Department; (iii) most of the violations may result in court cases; and (iv) empowers the Forest Department to regulate the use of water-courses	Forest Department	- Clearance for any felling, extraction, and transport of forest produce

[180] *ECA Amendment 2000* focuses on ascertaining responsibility for compensation in cases of damage to ecosystems, increased provision of punitive measures both for fines and imprisonment and the authority to take cognizance of offences. *ECA Amendment 2002* elaborates restrictions on polluting automobiles; restrictions on the sale, production of environmentally harmful items like polythene bags; assistance from law enforcement agencies for environmental actions; break up of punitive measures; and authority to try environmental cases. In *ECA Amendment 2010,* no individual or institution (government or semi-government/non-government/self-governing can cut any hill or hillock; fill-up or changed any remarked water body however in case of national interest; the mentioned activities can be done after getting clearance from respective the departments.

[181] Sunderban, Cox's Bazar-Tekhnaf Sea Shore, Saint Martin Island, Sonadia Island,Hakaluki Haor, Yanguar Haor, Marzat Baor and Gulshan-Baridhara Lake

	Legislation	Description	Regulatory Body	Applicable Requirements for the Project
		within Reserve Forests.		
	Bangladesh Climate Change Strategy and Action Plan of 2009	- A comprehensive strategy to address climate change challenges built around the following six themes: (i) food security, social protection and health; (ii) comprehensive disaster management; (iii) infrastructure; (iv) research and knowledge management; (v) mitigation and low carbon development; and (vi) Capacity building and Institutional strengthening	Climate Change Unit of MoEF	- Ensure existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructures (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change. - enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change
	National Water Policy of1999	- All agencies and departments entrusted with water resource management responsibilities (regulation, planning, construction, operation and maintenance) will have to enhance environmental amenities and ensure that environmental resources are protected and restored while executing their activities. The policy has several clauses related to the protection and conservation of the natural environment to ensure sustainable development.	Water Resources Planning Organization (WARPO) under the National Water Resources Council of the Ministry of Water Resources	- EIA for water development projects and increase surface water flow - Pre-screening of IEEs/EIAs for water sector projects by WARPO, in advance of submission to DOE for final clearance. - Augmentation for dry season water flow - Awareness-raising in consumptive use of surface and groundwater for irrigation - Structural and non-structural mitigation (early warning and flood proofing)
	National Safe Drinking Water Supply and Sanitation Policy of 1998	- Basic framework for the improvement of public health quality and to ensure an improved environment, together with a set of broad sectoral action guidelines.	Department of Public Health Engineering (DPHE)	- Pourasabhas and WASAs will take actions to prevent wastage of water. In addition they will take necessary steps to increase public awareness to prevent misuse of water. - Sanitation systems shall be self- sufficient and self- sustaining.

	Legislation	Description	Regulatory Body	Applicable Requirements for the Project
				- Pourasabhas shall be responsible for solid waste collection, disposal and their management. DOE shall be consulted on solid waste management. - Where WASAs exists, they shall be responsible for sewerage and storm water drainage systems.

APPENDIX 2: ENVIRONMENTAL STANDARDS AND APPLICATION FEES

The standards for air, water, sound, odor and other components of the environment applicable to the project shall be determined in accordance with the standards specified in Schedules 2, 3, 4, 5, 6, and 8 of ECR, 1997.

	Standards	**ECR, 1997 (Rule 12)** http://www.moef.gov.bd/html/laws/env_law/178-189.pdf
1.	Air	Schedule 2
2.	Inland surface water	Schedule 3
	Drinking water	
3.	Sound	Schedule 4
4.	Sound Originating from Motor Vehicles or Mechanized Vessels	Schedule 5
5.	Emission from Motor Vehicles	Schedule 6
7.	Odor	Schedule 8

The standard limits of discharge of liquid waste and gaseous emissions applicable to the project shall be determined in accordance with the standards specified in Schedule 9 and 10

	Environmental Component	**ECR, 1997 (Rule 13)** http://www.moef.gov.bd/html/laws/env_law/178-189.pdf
1.	Sewage Discharge	Schedule 9
2.	Waste from Industrial Units or Projects Waste (see discharge to inland surface water and irrigated land)	Schedule 10

The fees for issuance of environmental clearance certificate and its renewal shall be payable in accordance with Schedule 13. The fees for analysis of samples of water, liquid waste, air and sound and also the information or data derived from such analysis are described in Schedule 14.

	Fees	**ECR, 1997 (Rule 14 and 15)** http://www.moef.gov.bd/html/laws/env_law/178-189.pdf
1.	Environmental clearance certificate or renewal	Schedule 13
2.	Supplying various analytical information or data or test results of samples of water, effluent, air and sound	Schedule 14

APPENDIX 3: ANTICIPATED ENVIRONMENTAL IMPACTS DUE TO PROJECT IMPLEMENTATION

Impact Field	Anticipated Impact on the Environment
Design phase	
Environmental clearances	EC, consents, and permits are required (Section II of the EARF) in order to implement the project. If not pursued on time, this can delay the project. Necessary environmental clearances and permits have to be obtained and must follow the guidelines issued by the authorities.
Construction phase	
Air quality	Emissions from construction vehicles, equipment, and machinery used for excavation and construction, resulting in dust and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons
Surface water quality	Mobilization of settled silt materials, runoff from stockpiled materials, and chemical contamination from fuels and lubricants during construction works can contaminate downstream surface water quality.
Noise levels	Increase in noise level due to earth-moving and excavation equipment and the transportation of equipment, materials, and people. Operation of heavy equipment and machines in the nighttime can cause nuisance to the surrounding environment/ people.
Ecological resources	Felling of the trees affects terrestrial ecological balance.
Sources of materials	Extraction of materials can disrupt natural land contours and vegetation, resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and waterlogging, and water pollution.
Existing infrastructure, facilities and utilities	Telephone lines, electric poles and wires, and water pipes (old) existing within right-of-way (ROW) require shifting without disruption to services. Health risk due to closure of existing water supply, such as community tanks, water stations, and privately-owned small water pipes
Construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Locations may cause encroachment/impact either directly or indirectly on adjacent environments. It may also include impacts on the people who might lose their homes or livelihoods due to the project activities. Temporary air and noise pollution from machine operation, and water pollution from storage and use of fuels, oils, solvents, and lubricants. This may cause conflict with residents and problem of waste disposal and disruptions to residents.
Construction waste	Excavation works, cleaning of drainages and trenching will produce additional amounts of waste soil. Accumulation of debris waste materials and stockpiling can cause environmental visual pollution.
Social and cultural resources	Sites of social/cultural importance (schools, hospitals, religious places, tourism sites) may be disturbed by noise, dust, vibration, and impeded access. Ground disturbance can uncover and damage archaeological and historical remains.
Landscape and aesthetics	Solid wastes as well as excess construction materials create unacceptable aesthetic conditions.
Traffic	Traffic flow will be disrupted if routes for delivery of construction materials and temporary blockages during construction activities are not planned and coordinated.
Accessibility	Traffic problems and conflicts in ROW. Roads, people, and businesses may be disturbed by repeated trenching.
Income	Impede the access of residents and customers to nearby shops. Shops may lose business temporarily.
Occupational health and safety	Occupational hazards which can arise during construction (e.g., trenching, falling objects, etc.).
Community health and safety	Community hazards can arise during construction (e.g., open trenches, air quality, noise, falling objects, etc.). Trenching on concrete roads using pneumatic drills will cause noise and air pollution. Traffic accidents and vehicle collision with pedestrians during material and waste transportation
Post-construction phase	
Clean-up operations, restoration and rehabilitation	Impacts on social or sensitive receptors when post-construction requirements are not undertaken, e.g. proper closure of camp, disposal of solid waste, and restoration of land after project construction.
Operation and maintenance phase	
Environmental Clearance Certificate renewal	For orange and red category projects the ECC must be renewed every year, for which the fee is 25% of the original application.

Impact Field	Anticipated Impact on the Environment
General maintenance	Maintenance activities may cause disturbance to sensitive receptors, dust, and increase in noise level.
Economic development	Impediments to residents and businesses during routine maintenance
Biodiversity fauna and flora	The proposed development is situated within an existing built-up area where the wastewater infrastructures already exist. No areas of ecological diversity occur within the project location. Due to the nature and locality of the project, there is unlikely to any significant impacts on biodiversity within the area during maintenance works. The use of fertilizers and herbicides in maintenance of newly planted trees, landscape and vegetation may, however, affect the environment.
Health and safety	Danger of operations and maintenance-related injuries Safety of workers and general public must be ensured. Poor waste management practices and unhygienic conditions at the improved facilities can breed diseases. Standing water due to inadequate storm water drainage systems and inadequate waste management practices pose a health hazard by providing breeding grounds for disease vectors such as mosquitoes, flies, and rats.
Solid waste	Solid waste residuals which may be generated during operations and maintenance activities. Sludge will be generated from water treatment plants.
Hazardous chemicals	Water treatment involves the use of chemicals for coagulation, disinfection, and water conditioning.

APPENDIX 4: RAPID ENVIRONMENTAL ASSESSMENT CHECKLISTS

APPENDIX 5: OUTLINE OF AN ADB EIA OR IEE

1. The generic table of contents of an ADB IEE or EIA report is provided below[182]. The difference between the IEE and ADB is the scope of the assessment. The order of dominance of the different sections may vary slightly depending on the assessment context.

A. Executive summary. This section describes concisely the critical facts, significant findings, and recommended actions.

B. Policy, legal, and administrative framework. This section discusses the national and local legal and institutional framework within which the environmental assessment is conducted. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the project. This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

D. Description of the environment (baseline data). This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

E. Anticipated environmental impacts and mitigation measures. This section (i) predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media), and physical cultural resources in the project's area of influence, in quantitative terms, to the extent possible; (ii) identifies mitigation measures and any residual negative impacts that cannot be mitigated; (iii) explores opportunities for enhancement; (iv) identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and (v) examines global, transboundary, and cumulative impacts as appropriate.

F. Analysis of alternatives. This section examines alternatives to the proposed project site, technology, design, and operation—including the no project alternative—in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed, and justifies recommended emission levels and approaches to pollution prevention and abatement.

G. Information disclosure, consultation, and participation. This section (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders; (ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, and the poor; and (iii) describes the planned information disclosure

[182] Directly from Footnote 1, Annex 1 to Appendix 1.

measures (including the type of information to be disseminated and the method of dissemination), and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

H. Grievance redress mechanism. This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

I. Environmental management plan. This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

(i) Mitigation:

a. identifies and summarizes anticipated significant adverse environmental impacts and risks;

b. describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and

c. provides links to any other mitigation plans (for example, for involuntary resettlement, or emergency response) required for the project.

(ii) Monitoring:

a. describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits, and definition of thresholds that will signal the need for corrective actions; and

b. describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

(iii) Implementation arrangements:

a. specifies the implementation schedule showing phasing and coordination with overall project implementation;

b. describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance projects, training projects, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and

c. estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.

(iv) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

J. Conclusion and recommendation. This section provides the conclusions drawn from the assessment and provides recommendations.

APPENDIX 6: SAMPLE GRIEVANCE REGISTRATION FORM

(To be available in Bangla and English)

The _____Project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.
Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date	**Place of Registration**				
Contact Information/Personal Details					
Name		**Gender**	* Male * Female	**Age**	
Home Address					
Place					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where, and how) of your grievance below: If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of Official Registering Grievance)	
Mode of Communication: Note/Letter E-mail Verbal/Telephonic	
Reviewed by: (Names/Positions of Officials Reviewing Grievance)	
Action Taken:	
Whether Action Taken Disclosed:	Yes No
Means of Disclosure:	

APPENDIX 7: OUTLINE TERMS OF REFERENCE OF THE PMSC ENVIRONMENTAL SAFEGUARDS SPECIALIST

The environmental safeguards specialist will inspect and investigate source of pollution to protect the public and environment and ensure conformance with local environmental regulatory laws and policies. He/she will also responsible for the following:

(i) Prepare initial environmental evaluation (IEE) or environmental impact assessment (EIA) following the standard format and providing required details.
(ii) Ensure environmental management plans (EMPs) are included in the bid documents;
(iii) Conduct environmental compliance audit of existing facilities as per Item F, Appendix 6 of ADB SPS, 2009;
(iv) Organize an orientation workshop for the Project Management Unit (PMU), Project Implementation Units (PIUs), and staff involved in the project implementation on ADB Safeguards Policy Statement, Government of Bangladesh environmental laws and regulations, and environmental assessment process;
(v) Organize an induction course for the training of contractors preparing them on EMP implementation, environmental monitoring requirements related to mitigation measures; and taking immediate actions to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of implementation.
(vi) Ensure compliance with all government rules and regulations regarding site and environmental clearances as well as any other environmental requirements (e.g., Locational Clearance Certificate, Environmental Compliance Certificate and as relevant, tree-cutting permits, use of non-explosive/chemical blasting agents for rock breaking, etc.);
(vii) Assist PMU and PIUs to document and develop good practice construction guidelines to assist the contractors in implementing the provisions of IEE.
(viii) Provide occupational health and safety training for contractors' personnel before commencement of civil works;
(ix) Review the contractors' Environmental Implementation Plans to ensure compliance with the IEE/EMP.
(x) Oversee implementation of the EMP during construction including environmental, health and safety monitoring of contractors;
(xi) Coordinate with the PMU, PIU, PSMC Resettlement Specialist, NGO, and contractors on mitigation measures involving the community and affected persons and ensure that environmental concerns and suggestions are incorporated and implemented in the project;
(xii) During the construction phase, monitor and ensure compliance of EMPs by contractors as well as any other environmental issues. Take corrective actions when necessary to ensure no environmental impacts;
(xiii) Review site specific environmental enhancement/mitigation designs, compliance reports by contractors, submit monthly environmental monitoring reports to the PMU with copy to the PIU, and advice the same on corrective actions;
(xiv) Assist PMU in finalizing monitoring reports for submission to ADB on quarterly basis;
(xv) Assist in addressing any grievances brought about through the Grievance Redress Mechanism in a timely manner as per the IEEs.

The environmental safeguards specialist must have a degree, preferably with Master's in civil/ environmental engineering/ management/ science and at least 10 years' solid experience in environmental engineering and monitoring related areas. He will also have at least 3 solid years of experience in administering ADB environmental safeguards and guidelines. Experiences with international organizations shall be an added advantage.

APPENDIX 8: RECOMMENDED OUTLINE FOR SEMI-ANNUAL REPORTING

A. Component and Status of Implementation

Package	Physical Completion (%)	Date of Award	Expected Date of Completion

B. Environmental Permits and Status of Compliance/Approvals

Particulars	Date Obtained	Conditions Provided in the Permit	Compliance/Remarks

C. Field Visits, Ocular Inspections, and Trainings conducted

Field Visits/ Ocular Inspections	**Date**	**Site Visited**	**Persons Met**	**Remarks**
Training	**Date**	**Location**	**Nature of Training**	**Participants**

D. Environmental Management Plan Implementation

Particulars	Compliance (Yes/No)	Particulars of Noncompliance	Actions Required
Prior to commencement of civil works			
(mitigation measure 1)			
(mitigation measure 2)			
(mitigation measure …)			
Construction phase			
(mitigation measure 1)			
(mitigation measure 2)			
(mitigation measure …)			
Occupational Health and Safety			
Social Impacts			
Others			

E. Grievance Redressal

Date of Grievance	Details	Nature of Grievance	Action taken

F. Critical Issues for Immediate Actions and Recommendations

Issues/Deviations for Immediate Actions	Corrective Actions to be taken

F. Status of Corrective Actions for Past Critical Issues

Issues/Deviations Reported for Immediate Actions	Corrective Actions Taken	Remarks/Status

Period covered: from _____ to _____

Prepared by: _____

Checked and verified by:_____

APPENDIX 18: RESETTLEMENT PLAN

To be submitted later.

APPENDIX 19: RESETTLEMENT FRAMEWORK

To be submitted later.

APPENDIX 20: RISK ASSESSMENT AND RISK MANAGEMENT PLAN

SUMMARY RISK ASSESSMENT MATRIX

Risks Identified	High Risk	Medium Risk	Low Risk
Policies			
▪ Key National Water Policy and National Water Management Plan actions continue to delay: o Designation of flood risk zones (NWP 4.2(p)) o District & upazila towns provided with reasonable degree of protection against flood. (NWP 4.2(p)) o Peripheral embankment protection of urban areas (NWMP Vol 5)	✓		
• GOB's continuous support to the decentralization and devolution process of decision-making and financial independence of pourashavas		✓	
Urban planning			
• Mathbaria may remain without a finalised urban plan for a substantial period of CTIIP first stage (since it has not yet received the survey report)	✓		
• Poor development control (based on master plans) undercuts efforts in climate resilience	✓		
• Unlawful development continues and accelerates in line with urbanization	✓		
• A lack of political will for implementing urban planning measures renders technical assistance and capacity building ineffective	✓		
• The absence of an urban planner and/or understanding of urban planning amongst pourashava representatives and officials, renders CTIIP (UP) implementation unfeasible	✓		
• New building control administrative systems at the district level are implemented, with responsibility for control and enforcement removed from the pourashava		✓	
Institutional, governance			
• Level of ownership by the government and participating pourashavas for undertaking national level policy reforms and governance improvement program respectively		✓	
• Partnerships and integration with government institutions and civil society where complementary actions are required			✓
• Pourashavas' commitments to citizens' participation in planning and customer orientation			✓
• Pourashavas' commitments to institutional change and financial reforms, with particular emphasis on cost recovery and long-term sustainability of the assets/services (new as well as the old ones)		✓	
• Transfer of key officials to other non-project pourashavas	✓		
• Mainstreaming the affairs of climate change resilient in the pourashava	✓		
• Introduction/increase of tariffs, implementation of			✓

Risks Identified	High Risk	Medium Risk	Low Risk
increases in holding (property) tax reassessment and reforms of holding tax and non-holding taxes in order to achieve cost recovery within a reasonable timeframe			
• Effective implementation of performance criteria in time so as to move into the next stage			✓
• Staff in PIU have project management experience but have no previous experience of ADB procedures			✓
• All accounts staff of all Pourashavas requires further training in UFMS of LGED. To be extended by LGED			✓
Technical, O&M:			
▪ Complementary primary flood defense infrastructure absent or inadequate, e.g. embankments incomplete, not raised to 2050 levels, sluice vents under capacity	✓		
▪ Complementary water management systems unsuitable, e.g. ineffective flood management systems, sluices and vents operated only for farming/irrigation interests	✓		
▪ Poor planning and/or implementation of other infrastructure affects efficient and effective drainage		✓	
▪ Encroachments reduce/remove retention capacity of water bodies, reduce/remove channel capacity, prevent/restrict O&M		✓	
▪ Local stakeholders restrict improvement works on existing infrastructure, e.g. retro-fitting cross drains to roads		✓	
▪ Climate change effects more severe than predicted		✓	
▪ Civil works structures may not be built to standard		✓	
▪ Revenue/funds insufficient for effective O&M			✓
▪ Insufficient human and/or material resources for O&M		✓	
Social			
▪ Tariff and charges required for O&M are not affordable or socially acceptable.			✓
• Ensuring citizen participation and social accountability		✓	
Project management			
• Active coordination with the Bangladesh Water Development Board (BWDB) for improvement works to flood embankments and facilities, to adequately protect CTIIP infrastructure investments from tidal and storm surges		✓	
• Delays in implementation due to slow progress		✓	
• Lack of suitably qualified personnel in the pourashavas and at the PMU which may eventually lead to weak implementation and low sustainability of subprojects at pourashava levels, especially because of weak O&M		✓	

RISK MANAGEMENT PLAN

Major Assessed Risks	Proposals for Action	Indicators
Policies		
▪ Key National Water Policy and National Water Management Plan actions continue to delay: o Designation of flood risk zones (NWP 4.2(p)) o District & upazila towns provided with reasonable degree of protection against flood. (NWP 4.2(p)) o Peripheral embankment protection of urban areas (NWMP Vol 5)	▪ Pourashavas and LGED lobby at national level for implementation of relevant policies and plans	▪ Completion/ implementation of Key National Water Policy and National Water Management Plan actions continue to delay
Urban planning		
• Mathbaria may remain without a finalised urban plan for a substantial period of CTIIP first stage (since it has not yet received the survey report)	• LGED to ensure that survey and plan development work is accelerated and finalised for Mathbaria to proceed from stage I to stage II	• Completion of master plan documents
• Poor development control (based on master plans) undercuts efforts in climate resilience	• Institutional Strengthening and Awareness Builing Consultant (ISABC) team to help ensure systems are made more transparent and accountable, supported by training and briefing sessions for both elected representatives and pourashava staff • Activation of the Pourashava Standing Committee on Town Planning, Citizen Services and Development for the review of building permits (and land use clearance once activated), which is a performance criteria for progression from stage I to stage II	• ISABC reports
• Unlawful development continues and accelerates in line with urbanization	• Assistance from CTIIP to introduce, test and adapt measures to improve enforcement	• Project monitoring and evaluation
• A lack of political will for implementing urban planning measures renders technical assistance and capacity building ineffective	• Shared learning, training and briefing events, together with the involvement of TLCC/WLCC in the planning process, to ensure that the scope for peer 'persuasion' and demonstration is optimised	• Project monitoring and evaluation
• The absence of an urban planner and/or understanding of urban planning amongst pourashava representatives and officials, renders CTIIP (UP) implementation unfeasible	• Vacant urban planner posts for Class A pourashavas to be filled, and measures for a planning officer to be mobilized for Class B pourashavas	• Filling of posts

Major Assessed Risks	Proposals for Action	Indicators
Institutional, governance		
• Transfer of key officials to other non-project pourashavas	• Curtailment of this practice during project implementation, regulated by the Ministry of Local Government, Rural Development and Cooperatives.	• Project monitoring and evaluation
• Mainstreaming the affairs of climate change resilient in the pourashava	• Effective activation of standing committees on disaster management; impart training on this issue to dedicated officials of the pourashavas	• Project monitoring and evaluation
Technical (flood protection):		
▪ Complementary primary flood defense infrastructure absent or inadequate, e.g. embankments incomplete, not raised to 2050 levels, sluice vents under capacity	▪ Select subprojects where a) existing complementary infrastructure is adequate, b) plans to upgrade it are underway c) impacts of not improving it are minimal ▪ Strengthen pourashava and LGED relations with key bodies, e.g. BWDB, Roads & Highways Dept., for complementary upgrading	• Project monitoring and evaluation
▪ Complementary water management systems unsuitable, e.g. ineffective flood management systems, sluices and vents operated only for farming/irrigation interests	▪ Strengthen pourashava & LGED's relations with key bodies to develop/improve flood management system, e.g. BWDB, farmers/Water Users Groups, Union Councils, etc	• Project monitoring and evaluation

ADDITIONAL APPENDICES

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APPENDIX A.1: TERMS OF REFERENCE FOR CONSULTANTS

A. PROJECT DESCRIPTION

1. The project takes an integrated approach to urban environmental improvement in vulnerable coastal towns of Bangladesh which suffer deficits in basic urban services and are severely at risk to the impacts of climate change. The project will provide climate resilient municipal infrastructure with key investments in water supply, sanitation, drainage, urban roads and bridges, solid waste management, slum improvements, and transport facilities. The project will strengthen local governance and capacity for sustainable service delivery and urban planning as well as improve natural disaster preparedness.[183] The Local Government Engineering Department (LGED), with extensive experience in managing Asian Development Bank (ADB) urban projects, will be the Executing Agency for the Project.[184] Pourashavas (secondary towns) and/or city corporations will be the implementing agencies. A project steering committee, chaired by Secretary LGD, will include key government stakeholders to provide overall guidance during the PPTA.[185]

2. The expected impact of the project will be improved access to municipal services in coastal towns including (i) water supply, (ii) sanitation, (iii) drainage, (iv) urban roads and bridges, (v) solid waste management, (vi) slum improvements, and (vii) transport facilities (i.e., boat landings). The outcome will be populations in coastal towns with more reliable and climate-resilient services. The outputs will be: (i) improved municipal infrastructure with climate-resilient designs; (ii) strengthened local governance and capacity for sustainable service delivery and urban planning; (iii) awareness raising and behavioral change in climate change adaptation and disaster risk preparedness, water conservation, and hygiene activities; and (iv) project management and administration support. The project design will target women and the poor.

3. Climate resilient designs will focus primarily on water supply, sanitation, and drainage subsectors. Climate resilient infrastructure in coastal towns would result in the following: (i) surface and/or groundwater sources complying with government saline standards, (ii) less water logging and flooding, (iii) less environmental pollution from wastewater discharged out of flood prone areas, etc.

B. OBJECTIVE

4. The outcome of the project preparatory technical assistance (PPTA) for the *BAN: Preparing the Coastal Towns Infrastructure Improvement Project* will be a feasibility study and a project design with preliminary engineering that the government and ADB have agreed upon. The consultants will propose the project design for the ensuing project including rationale, financing and institutional arrangements, detailed costs and benefits, feasibility study of subprojects, pro-poor and gender features, governance strengthening, operation and maintenance arrangements, and conduct safeguards assessments in close consultation with relevant stakeholders including the government, development partners, project communities, and ADB. A key feature of the TA will be to incorporate the recommendations from the ongoing CDTA 7890 *Strengthening the Resilience of the Urban Water Supply,*

[183] A project preparatory technical assistance (PPTA), and project design advance (PDA) to support project readiness are proposed.

[184] LGED is the Executing Agency for six completed and three ongoing ADB urban sector projects.

[185] Steering Committee membership will include LGED, Department of Public Health Engineering, Ministry of Environment and Forests (Climate Change Unit), representatives of project towns, Urban Development Directorate, Disaster Management Bureau, Bangladesh Water Development Board, Economic Relations Division and Finance Division of the Ministry of Finance, and Planning Commission

Drainage, and Sanitation to Climate Change in Coastal Towns, as well as lessons learned from other relevant urban work, including the ADB supported Urban Governance Infrastructure Improvement Project (UGIIP) and Secondary Towns Water Supply Project. The consultants will be expected to coordinate closely with the consultant team hired under the CDTA 7890 to ensure their recommendations for climate resilience are incorporated into the feasibility study, and project and preliminary engineering designs (both hard and soft components). The PPTA consultant team will agree on a reporting format and contents with ADB. The team is expected to work closely with the Local Government Engineering Department (LGED), the executing agency, in enhancing project readiness and contribute to smooth start-up of the ensuing loan, as well as work closely with the detailed design consultants funded under a Project Design Advance (PDA), who will overlap with the PPTA in undertaking advanced preparatory actions such as detailed design work, safeguards finalization, and bidding document preparation.[186] Consultants will be recruited for a period of eight months to fulfill the TOR. [187]

C. SCOPE

5. The TA will require about 82 person-months of consulting services (26 international and 56 national). Consulting services for this assignment will be engaged by an international consulting firm in association with national consulting firm(s) for a total of 67 person-months of consulting services (20 international and 47 national). ADB will recruit an additional six consultants on an individual basis for a total of 15 person months (6 international and 9 national). A team of consultants will be recruited under one package using the quality- and cost-based method of selection with a standard quality-cost ratio of 80:20. All consultants, including the firm and individuals, will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* (2010, as amended from time to time). A simplified technical proposal will be used for the selection of a firm. The individual consultants will be engaged to undertake safeguards due diligence, provide technical inputs, and enhance project readiness. Individual consultants will report to directly to ADB, however their schedule will be synchronized with firm's schedule and outputs, and they will be required to work and coordinate closely with the team leader and relevant experts of the firm. Individual hires include one groundwater specialist (2PM) and two international specialists in the safeguards disciplines (1 Environmental Specialist for 2 PM, and 1 Resettlement Specialist for 2 PM), who will lead the safeguard assessments and document preparation in close coordination with their national counterparts hired under the firm. Three national consultants will be hired individually, including a Project Management Expert (3PM), Development Project Proforma (DPP) Expert (3PM), and a Procurement Expert (3PM), to guide and assist in smooth and timely PPTA implementation in close coordination with key government stakeholders. Office space for consultants will provided in the LGED headquarters building in Dhaka, and monthly progress meetings with LGED will be required to encourage open discussion and provide clear and regular status updates of the TA. Work plans and schedules will be shared with ADB and LGED. The terms of reference (TOR) for the firm's consulting services will include, but not be limited to, the following:

1. Specific Tasks of Consultants

6. **Institutional arrangements.** Consultants will: (i) undertake technical, procurement and management capacity assessment of the executing agency, project towns, and other key organizations involved in the project; (ii) propose measures to develop and strengthen

[186] A project design advance may be utilized to finance advanced project formulation and detailed design. The detailed design consultants recruited under the PDA will overlap towards the middle to end of the PPTA to ensure information and data transfer towards preparation of detailed designs. There will be no duplication of efforts between the consultants, and each consultant will be recruited to carry out and complete their TORs as contracted.

[187] At the end of the PPTA all the equipment procured under the TA will be handed over to the LGED.

institutional capacity in these areas, if required, of the organizations assessed to ensure smooth project implementation and sustainability, with special attention to long-term management arrangements of the facilities proposed to be developed under the project, (iii) propose an effective and workable institutional arrangement for the project, including mechanisms to enhance coordination and coherence among different organizations at the central and municipal levels and possible involvement of non-government organizations (NGOs) and community participation; and (iv) propose appropriate modality for investment and operation and maintenance (O&M) of the facilities to be constructed.[188]

7. **Financial arrangements.** Consultants will: (i) review and assess current fiscal transfer level and mechanism from the central government to project towns; (ii) undertake a financial management assessment of the executing agency and project towns and based on such assessment provide the design of the fund flow mechanism of the ensuing project; (iii) assess debt repayment capacity and potential for revenue enhancement in the project towns , including examination of revenues and expenditures in the recent 5 years and estimated 20 years projection, (iv) prepare a financial improvement plan for each municipality; (v) propose appropriate financial arrangements with special attention to tariffs and financial sustainability for the project towns; (vi) provide project-specific information such as the level of investment and O&M requirements for each municipality for their analyses of financial sustainability; and (vii) recommend innovative contract packaging to minimize delays and maximize efficiency. *ADB's Financial Management and Analysis of Projects* (2005) and ADB's Financial Management Assessment Questionnaire should be utilized.

8. **Subproject feasibility study and preliminary engineering designs.** Consultants will carry out the following:

(i) **Review and analyze past and existing studies** relevant to all the subprojects to be supported by the ensuing project. This includes a thorough review of past and ongoing ADB urban projects in Bangladesh,[189] as well as work done by the GOB (on its own budget) and with other development partners (World Bank, JICA, DANIDA, UNDP, GIZ, IUCN) working in the urban, water, sanitation, drainage, municipal infrastructure and climate adaptation sectors, particularly in *pourashavas and/or city corporations* and coastal areas of the country.[190] Based on this review, the consultants will collect current good practices, lessons learned, problems, bottlenecks, and impediments to improvement on a sub-sector level, which may include (but not limited to) such issues as climate impacts, vulnerability and adaptation assessment (structural and non-structural adaptation), water availability, quality, non-revenue water, tariff level and financial sustainability, O&M arrangements, contract packaging, cost-recovery, urban poor and access to services, willingness to pay, water pollution, water logging, flooding, sanitation practices, wastewater treatment, urban planning (including by-laws, building codes, land use, etc.), governance, community awareness, and participation (e.g., participatory climate risk mapping).

(ii) **Prepare sector development plan**. If a sector lending modality is selected, undertake sector analysis for urban development in the country and coastal areas (which includes relevant subsectors) and prepare a medium or long-term sector/subsector development plan (for which the project will contribute) and

[188] The ADB lending modality will be one of the following options: project modality, sector modality, or MFF modality, and should be clearly recommended and justified as part of the inception report. This decision should be made in consultation with ADB.

[189] The ADB Urban Governance Infrastructure Improvement Project (UGIIP) and Secondary Towns Water Supply Project should be referred to.

[190] The consultants will review work under the World Bank and JICA to utilize existing data from their urban and water sector activities, and to adopt lessons learned, including ongoing government initiatives in the urban sector.

summary of assistance from development partners outlining existing and proposed interventions in relevant sub-sectors.[191] The sector development plan should be closely linked to the government's policies related to the urban sector and subsectors related to the project. The sector analysis is a comprehensive assessment which covers the factors that affect performance, including the policy, institutional, legal, and regulatory frameworks; recent trends in current and capital expenditures; the type and composition of the expenditures; the respective roles of the public and private sectors and their relationships; pricing policy; the sustainability of investments; and the possibility of intrasectoral resource allocation. Such analysis also needs to address social dimensions, environmental considerations, and issues of good governance in sector management. Where feasible, the analysis needs to establish well-defined indicators and benchmarks of sector performance that can be monitored throughout implementation of the sector project, and serve as a basis for assessing performance and also for operations evaluation.

(iii) **Prepare feasibility studies for each candidate subproject**. The consultants will select the project towns amongst the list of candidate towns[192] provided by the government, and agree on a subproject selection criteria for identifying and selecting subprojects for further feasibility study.[193] The feasibility study would include preliminary engineering designs, detailed cost estimates, incremental costs and benefits associated with climate adaptation, financing plan, economic and financial analysis, arrangements for O&M, sector analysis and strategy (related to ii), institutional and governance strengthening, long range urban planning, pro-poor and gender approaches, community participation, awareness building and behavior change activities, disaster risk management and preparedness (e.g., early warning systems, etc.), social and environmental safeguards assessments, and other non-structural measures to increase resilience and sustainability of project investments. All components, both hard and soft measures, will incorporate principles of climate resilience. Develop subproject selection criteria to be implemented in project towns.[194] Outputs of the socioeconomic surveys, including willingness-to-pay surveys for water supply and sanitation subprojects, will be incorporated in the design of subprojects. Wherever applicable, identify several options, evaluate pros and cons of each option taking into account investment and O&M requirements, and propose the most viable option. Conduct economic analyses of subprojects, including estimation of economic internal rate of returns (EIRRs), in accordance with ADB's Guidelines, including *Guidelines for the Economic Analysis of Projects*[195] and *Guidelines for the Economic Analysis of Water*

[191] Sector lending is particularly appropriate when a large number of subprojects (the term "subprojects" refers to projects that make up a sector loan) in the sector or subsector are to be financed. A sector loan is expected to improve sector policies and strengthen institutional capacity. Consultants would be required to prepare the "sector and/or subsector analysis" and "development coordination" in accordance with the forms provided by ADB.

[192] A list of candidate project towns include: Perojpur, Nolcity, Gournadi, Galachipa, Amtali, Daulatkhan, Ramgati, Hatiya, Chhagalniya, Patiya, Teknaf, Bhola and Patuakhali. The list to be re-confirmed by LGED during inception stage.

[193] Depending on the number of towns selected (which will largely depend on the amount of investment required for each town), either all the towns and subprojects would be subject to feasibility study, or only a sample. If a sample is taken up, the feasibility studies of non-sample subprojects would be taken up by the detailed design consultants under the PDA, guided by subproject selection criteria developed under the PPTA. The number of towns will be decided during the inception stage of the project with guidance provided by ADB and LGED.

[194] Consistent with the sector modality approach, the team will prepare subproject selection criteria to guide subproject design in those towns which are selected for support under the investment project. Subproject selection criteria is required when a larger number of towns are selected for investments but are too many to conduct detailed feasibility study and due diligence under the limited time and resources of a PPTA.

[195] http://www.adb.org/Publications/title.asp?id=G&s=0&wp=6&ps=25

Supply Projects.[196] Undertake financial analyses of subprojects, including estimation of financial internal rate of returns (FIRRs), in accordance with ADB's Guidelines, including *Financial Management and Analysis of Projects* (2005).[197] Prepare a detailed cost estimate in accordance with ADB's Guidelines, including *Financial Management and Analysis of Projects* (2005). For non-revenue earning subprojects, a least-cost analysis will be undertaken.

(iv) **Prepare environmental and social safeguard documents** in accordance with ADB's Safeguard Policy Statement (SPS, 2009) and the country's legal requirements. Assess government policies, experiences, institutions, and the legal framework for environmental assessment, involuntary resettlement and indigenous peoples to address any gaps with ADB's SPS. First develop (a) environmental assessment and review framework, (b) resettlement framework, and (c) indigenous peoples planning framework, if applicable (depending on the lending modality),[198] to facilitate agreement of key safeguard requirements with the government and project towns. Then draft (d) environmental impact assessment and/or initial environmental examinations, (e) resettlement plans, and (f) indigenous peoples plan, as appropriate for the project and each subproject. (c) and (f) may be combined with (b) and (e) respectively, if potential impacts on indigenous peoples are confined to impacts related to land acquisition and resettlement.[199] All safeguard documents are to be conducted in meaningful consultation with project affected persons and communities and documented as part of the safeguard documents.

(v) **Prepare a project design.** The project designs should consider (a) how each subproject will incorporate climate change adaptations (CCA) and disaster risk reductions (DRR) to ensure structural components such as water supply, drainage, sanitation, other municipal infrastructure, and non-structural components such as urban planning, early warning systems, capacity strengthening, awareness building, and behavior change ensure climate resilience. The consultant team will assess the current infrastructure deficit then work closely with the CDTA team to identify the additional CCA and DRR requirements; (b) how greenhouse gas emissions will be reduced through such measures as adopting energy-efficient options for water supply; (c) innovative approaches for sanitation, both hard and soft solutions, where appropriate and its feasibility within the local context (e.g., decentralized systems, awareness campaigns, etc.); and (d) local adaptation and community participation.

(vi) **Prepare subproject selection criteria.** If sector loan approach is taken, formulate relevant technical, financial, and economic criteria for selection and appraisal of subprojects, including social and environmental criteria, under the sector loan approach in coordination with the government, adapting criteria from similar ongoing development/ADB projects in Bangladesh.

(vii) **Review current urban planning mechanisms in the projec**t **municipalities** in light of better medium- to long-term urban planning and enforcement of necessary regulations and bylaws, and identify ways to strengthen urban planning in project towns, including recommendations to introduce climate-resilience into master planning and/or implementation/enforcement of the approved master plans. Ensure that the location of proposed infrastructure

[196] http://www.adb.org/Documents/Guidelines/Water_Supply_Projects/default.asp

[197] http://www.adb.org/documents/guidelines/financial/default.asp

[198] Safeguard frameworks (EARF, RF, IPPF) are required for sector and MFF modalities, or if certain project locations are not identified at the time of project feasibility planning.

[199] Safeguard assessment and document preparation will be led by the two international safeguard specialists recruited individually by ADB and who will work in close coordination with the national safeguard experts under the firm. Drafting and finalization of the safeguard documents will be led by the international specialists, and data collection, local consultations, and drafting selected sections, etc. will be done by national experts under the firm.

under the project is consistent with any existing urban and land-use planning of the municipalities, and propose measures to improve planned and organized development. The consultants will propose measures to fill gaps in urban planning and develop specific interventions to strengthen urban planning with climate resilience under the project.

(viii) **Review governance in project towns** and propose measures to fill gaps and strengthen local management capacity within the project design, considering lessons learned and good practices in performance criteria for governance reforms based on ongoing ADB and World Bank projects in municipal governance improvement. While the objective of the PPTA, and investment project is to make vulnerable coastal towns more climate-resilient, improvement of governance in these towns should not be left out in order to ensure coherence with the approach in other government/ADB interventions and sustainability of assets built by the project. The consultants will develop a similar set of performance criteria in the PPTA, and provide capacity development to towns for meeting performance criteria.[200]

(ix) **Conduct extensive stakeholder and local community consultations** and participatory planning exercises to be incorporated into the design of the subprojects. All proposed project design features, both hard and soft components, should be made in consultation with relevant stakeholders, including (but not limited to) the executing and implementing agencies, and other relevant government agencies, and adequate consultation with local beneficiaries and NGO's when deemed appropriate.

9. **Design and monitoring framework (DMF).** Consultants will develop a DMF outlining impact, outcome, outputs, assumptions, risks and key activities with clear links to performance targets and indicators, and identifying risks and assumptions.

10. **Risk assessment.** Consultants will undertake risk assessment covering the areas of public financial management, procurement, and corruption pertaining to the project and propose a risk management plan.

11. **Procurement plan.** Consultants will propose contract packaging in the form of a procurement plan, considering the size and nature of subprojects in accordance with *ADB's Procurement Guidelines* (2010, as amended from time to time). Consultants will be responsible for the following: (i) assess the EA's procurement capacity, (ii) build capacity of the EA by providing training; (iii) perform an assessment/survey for both international and national markets for the relevant sector for anticipated NCB/ICBs; and (iv) define sensible procurement packaging based on the market assessment. To facilitate the preparation of an effective procurement plan for the ensuing loan/grant project, in addition to undertaking (or updating) capacity assessment of the EA, the consultant will examine the national and/or international market capacity in the relevant sectors, suggest technically and economically sound procurement packaging, and identify, whenever possible, at least three or more suitable suppliers / manufacturers / contractors for each anticipated ICB or NCB procurement package under the project. Such identification is purely for the purpose of a preliminary market capacity assessment and does not represent in any way ADB's endorsement on or preference to any suppliers/manufacturers mentioned in the consultant's report. The consultant is required to include a similar disclaimer in its report. The consultant is also required to include a relationship disclosure statement if the consultant is affiliated to any of the potential suppliers/manufacturers/contractors identified in the report. If other procurement modes are recommended for inclusion in the procurement plan such as, for example, LIB or

[200] Capacity development would be done by relevant team experts during either visits to project towns or through workshop approach. The team will select the most appropriate and effective method for training and awareness building.

direct procurement, the consultant should provide reasoned justification for such recommendations. This approach also applies to the framing of consultant recruitment packages. The consultant will share the conclusions of such market survey findings, the results of the EA capacity assessment, the proposed cost estimates for all procurement (including consulting services) packages, and the indicative procurement plan (including proposed prior and post review thresholds for goods, works and consulting services), with ADB's procurement division concerned. Depending on comments received from ADB, the consultant may be required to participate in tripartite discussions between ADB (both sector and procurement divisions) and, as necessary, the EA and take comments received into account in finalization of the indicative procurement plan and other deliverables.

12. **Scope of consulting services during project implementation.**[201] Consultants will: (i) assess the requirements of consulting services during project implementation (which may include project management, construction supervision, governance and capacity development, to be provided by consultants or nongovernment organizations, if required); (ii) propose the terms of reference, required expertise (international and national), inputs, and budget; and (iii) incorporate the proposal in the overall project cost estimates.

13. **Cost estimates and financing plan.** Consultants will prepare a detailed implementation schedule, item-wise and total cost estimates using the ADB-standard price and physical contingencies, and detailed financing and disbursement plans, in a format agreeable to ADB. The economists will work closely with the climate specialists and engineers to assess and quantify and separately document the incremental costs and benefits of climate adaption of the proposed infrastructure. In order to do this, the consultant team will assess the current infrastructure deficit then identify the additional CCA requirements and associated costs.

14. **Other important matters.** The consultants must (i) work closely with the CDTA 7890 team to incorporate climate adaptation recommendations into PPTA designs of both hard and soft components; (ii) work closely with the detailed design team mobilized under the Project Design Advance to ensure feasibility plans are reflected into detailed designs; (iii) consult government and non-government stakeholders, communities, and development partners in developing and finalizing designs and proposals; (vi) explore pro-poor and gender sensitive approaches in all work of the PPTA and project design including hard and soft components; and (v) review past and ongoing similar projects financed by ADB and other development partners and reflect lessons in the project design. It is important that the consultants will review and build upon existing reports, in particular those produced under other ADB urban sector projects, as well as other donors, such as World Bank and JICA, etc.

D. TERMS OF REFERENCE FOR TEAM MEMBERS

15. All the team members will work under the overall guidance and supervision of the team leader. The deputy team leader will support the team leader in ensuring timely, high quality, and effective inputs. Individually recruited consultants by ADB will report directly to the ADB project officer, however, all consultants (individuals and firm) will be expected to work together and closely coordinate work plans, outputs, and schedules. Tasks of each expert will include, but not be limited to, the following:

[201] The detailed design consultants may be recruited under a Project Design Advance (PDA) and mobilized during the final stages of the PPTA. During this time, the PPTA team is to work closely with the detailed design team to ensure findings and relevant reports of the feasibility studies are adequately reflected and incorporated into detailed design work.

Table: Summary of Consulting Services Requirement

Positions	Person-Months Required
International	
1. Water Supply and Sanitation Specialist (Team Leader)	7.0
2. Climate Change Adaptation Specialist	3.0
3. Drainage and Flood Control Engineer	3.0
4. Urban Planning Specialist	2.0
5. Municipal Infrastructure Specialist	2.0
6. Project Economist & Financial Specialist	2.0
7. Procurement Specialist	1.0
8. Groundwater Specialist (individually recruited by ADB)	2.0
9. Environmental Safeguard Specialist (individually recruited by ADB)	2.0
10. Social Safeguard Expert (individually recruited by ADB)	2.0
National	
1. Water Supply and Sanitation Engineer (Deputy Team Leader)	8.0
2. Climate Change Adaptation Expert	4.0
3. Drainage and Flood Control Engineer	5.0
4. Municipal Infrastructure Expert	4.0
5. Hydrogeologist	4.0
6. Urban Planning Expert	3.0
7. Institutional and Governance Expert	3.0
8. Project Economist & Financial Expert	4.0
9. Environmental Safeguard Expert	4.0
10. Social Safeguard Expert	4.0
11. Social, Gender, and Community Participation Expert	4.0
12. Project Management Expert (individually recruited by ADB)	3.0
13. Development Project Proforma Expert (individually recruited by ADB)	3.0
14. Procurement Expert (individually recruited by ADB)	3.0

Source: ADB estimates.

International Specialists

(i) **Water Supply and Sanitation Specialist/Team Leader (7 person-months)** will oversee the tasks described in paras 3-12. The team leader will be an experienced water supply and sanitation engineer with demonstrated experience in leading ADB project preparatory technical assistance in similar projects. As the team leader, in close coordination with the deputy team leader, he/she will lead the TA, and is responsible for overall management and supervision of the study team and quality control of all deliverables. He/she will ensure that all tasks in the TOR are performed, and will coordinate with government counterparts and ADB project officer, and prepare a comprehensive, high quality feasibility study with preliminary engineering designs, and project proposal acceptable to ADB and the government in a format suitable for ADB loan processing. As a water supply and sanitation expert, he/she will be required to (in coordination with other team members) (i) review current status of water supply and sanitation availability, lead necessary feasibility study and make recommendations for improving water availability from groundwater or surface water sources, and propose appropriate sanitation improvements, and assess demands for improvement with consideration to climate change adaptation; (iii) incorporate climate resilience into water supply and sanitation components, where applicable; (iv) estimate costing of relevant components including incremental cost for climate adaptation in water supply and sanitation; (v) propose an institutional and implementation framework for operation and maintenance with special attention to tariffs and financial sustainability; and (vi) propose a appropriate procurement plan for the water supply and sanitation components. The team leader will have at least 15 years of international experiences in water supply and sanitation planning and design work

in projects, including in Asia, with a postgraduate degree in civil engineering or related degree. Experiences on working as team leader for complex donor-funded projects, especially those related to climate change adaptation, are highly desirable.

(ii) **Climate Change Adaptation Specialist (3 person-months)** will assist the team leader in incorporating climate resilience into designs under the project, as indicated in para 6. He/she will be responsible for (i) assisting the team leader while closely coordinating with CDTA 7890 team and team members (team leader, engineers, urban planner, governance, and environmental specialists) in identification and incorporation of climate change adaptation features into the project design of both hard and soft components; (ii) working closely with the project economist to assess and quantify the incremental costs and benefits of climate adaptation in the project design, and (iii) undertake participatory climate risk mapping in project communities where necessary. The international consultant will have at least 15 years of international experiences in climate change and infrastructure, with preference given to those with experience in water supply and sanitation planning and design. He/she will have a postgraduate degree in civil engineering, climate change, or related field. Experiences in working on donor-funded projects in Asia is highly desirable. He/she will supervise the national climate change expert on the team.

(iii) **Drainage and Flood Control Engineer (3 person-months)** will assist the team leader in preparing drainage and flood control feasibility study and preliminary engineering designs incorporating climate resilience into designs under the project, as indicated in para 6. The expert will be responsible for (i) leading technical analysis and preparation of necessary feasibility study and preliminary designs of drainage and flooding components in project towns, (ii) identification of priority investment projects in drainage and flood control including design, costs, capacity, and operation and maintenance arrangements, (iii) work closely with the climate change specialist of the team to examine and incorporate the results of the CDTA 7890 into drainage and flood control components, and (iv) propose an appropriate procurement plan for the drainage and flood control components. He/she will be an experienced engineer with qualifications and specialization in drainage and flood control infrastructure development with at least 15 years of experience in designing and implementing drainage and flood control projects, with a postgraduate degree in flood or civil engineering, and experience in working on donor-funded projects. He/she will also supervise the national drainage expert on the team.

(iv) **Urban Planning Specialist (2 person-month**) will assist the team leader in preparing master plans incorporating climate and natural disaster resilience as indicated in para 6. The consultant will be an experienced consultant with qualifications and specialization in urban planning including land use, master planning for cities and secondary towns utilizing GIS technology, and natural disaster planning. The specialist will (i) assess the existing urban planning process and relevant plans and regulations within secondary towns of Bangladesh; (ii) identify gaps in urban planning and institutional capacity and propose measures to fill these gaps in close collaboration with stakeholders; (iii) assist in preparation of climate-resilient master plans (incorporating the results of the relevant studies in the CDTA 7890) and/or implementation/enforcement of approved master plans; (iv) assist the municipal infrastructure engineer in identifying components in solid waste management and/or urban roads consistent with plans in the project towns, and (v) identify gaps in natural disaster readiness, and propose measures to address gaps, such as early warning systems, etc. He/she will also assist other engineers in designing subprojects in an integrated manner. He/she will be an experienced urban planner with qualifications and specialization in land use and master plan development with at

least 15 years of experience in designing and implementing urban plans, with a postgraduate degree in urban or regional planning, civil engineering, or related degree, and experience in working on donor-funded projects in Asia. He/she will also provide supervision support to the national urban planning specialist and municipal infrastructure specialist on the team.

(v) **Municipal Infrastructure Specialist (2 person-months)** will assist team leader to undertake the related tasks in para 6 with respect to preparing feasibility study and preliminary engineering designs for municipal infrastructure and facilities other than water supply and sanitation, sanitation and drainage, focusing rather on solid waste management, urban roads, slum improvements, and transport facilities (e.g., boat landings). He/she will supervise the national municipal infrastructure on the team. He/she should have at least 15 years of experience in designing and managing municipal infrastructure and a post-graduate degree in civil engineering or related field with experience with experience in donor funded projects.

(vi) **Project Economist & Financial Specialist (2 person-months)** will assist the team leader in assessing and quantifiying detailed costs and benefits of the project, and prepare economic and financial assessments, as indicated in paras 5,6, and 11. He/she will: (i) undertake a detailed economic and financial analysis of the subprojects in accordance with ADB guidelines; (iii) work closely with climate specialists and engineers to assess and quantify the incremental costs and benefits of climate change adaptation and disaster risk reduction under the project; (iii) prepare the project's item-wise detailed budget, total cost estimates, and investment plan based on the subproject design cost estimates in a format acceptable to ADB. He/she will have at least 15 years of experience in project economic and financial analyses, and a post-graduate degree in economics and finance field with experience in working on donor-funded projects. He/she will also supervise the national project economist and financial expert specialist on the team.

(vii) **Procurement Specialist (1 person month)** will lead the preparation of the procurement plan and work closely with the national procurement expert hired individually by ADB, with particular attention to para 9 above. The specialist will primarily be responsible for: (i) assessing procurement capacity of EA and IAs; (ii) performing an assessment/survey for both international and national markets for the relevant sector for anticipated NCB/ICBs; (iii) defining a sensible procurement packaging based on the market assessment; and (iv) finalizing the procurement plan in ADB template format. He/she will have at least 15 years of experience in procurement, and a post-graduate degree in business, finance, or related field, with experiences in working on donor-funded projects.

National Experts

(i) **Water Supply and Sanitation Expert/Deputy Team Leader (8 person-months)** will assist the team leader in supervising the delivery of all tasks in the TOR and coordinating with government counterparts and ADB project officer towards the preparation of a comprehensive, high quality feasibility study and project proposal acceptable to ADB and the government. He/she will undertake the tasks in para 6 with respect to water supply and sanitation subprojects, and will assist the international water supply and sanitation expert to accomplish all the tasks under his/her responsibility. He/she will have at least 12 years of experiences in designing and managing water supply and sanitation projects, a post-graduate degree in water supply or sanitary engineering with experience in donor funded projects. Preference given to those with climate change experience.

(ii) **Climate Change Adaptation Expert (4 person-months)** will assist the international climate change expert to examine and incorporate the results of the

CDTA 7890 into project designs, both hard and soft components. He/she will undertake the tasks in para 6 with respect to climate change. He/she will have at least 10 years of experience in climate change, and a post-graduate degree in civil engineering or related fields with experience in donor funded projects.

(iii) **Drainage and Flood Control Engineer (5 person-months)** will work closely with the international drainage and flood control engineer, and climate change specialists of the team to undertake the related tasks in para 6, and incorporate climate resilience into project designs for drainage and flood control components. He/she will have at least 12 years of experiences in drainage and flood management work, and a postgraduate degree in civil engineering or related fields with experience in donor funded projects.

(iv) **Municipal Infrastructure Expert (4 person-months)** will work closely with the international municipal infrastructure specialist to undertake the related tasks in para 6 with respect to municipal infrastructure and facilities other than water supply and sanitation, sanitation and drainage, focusing rather on solid waste management, urban roads, slum improvements, and transport facilities. He/she should have at least 12 years of experience in designing and managing municipal infrastructure such as urban roads, solid waste, boat landings, etc., preparation of land use and master plans, and a post-graduate degree in civil engineering with experience in urban planning with experience in donor funded projects.

(v) **Hydrogeologist (4 person-months)** will work closely with the international water supply specialist and climate change specialist to undertake the related tasks in para 6 with respect to planning water supplies in project towns. The expert will undertake hydrogeological study pertaining to groundwater sources as pertains to drinking water with particular attention to salinity issues, and assess the potential of future abstraction of groundwater in the vicinity of project coastal towns. He/she should have at least 12 years of experiences in hydrogeolocial studies and a post-graduate degree in hydrology, geology, or related field with experience in hydrological modeling and experience in donor funded projects. He/she will work with the international groundwater specialist (individually recruited by ADB).

(vi) **Urban Planning Expert (3 person-months)** will assist the international urban planning specialist to undertake the related tasks in para 6 with respect to urban planning. He/she should have at least 12 years of experiences in preparing land use, master plans, and experience in natural disaster risk management planning, with a post-graduate degree in urban/regional planning or civil engineering with experience in urban planning and experience in donor funded projects. He/she should be fully familiar with the government requirements for preparing master and land use planning related documents.

(vii) **Institutional and Governance Expert (3 person-months)** will undertake the related tasks in para 6. He/she will have at least 12 years of experiences in institutional strengthening and local governance improvement, and a post-graduate degree in management, business administration, urban planning, or related fields with experience in donor funded projects. He/she will be responsible for (i) reviewing, assessing, and identifying lessons from other ADB and World Bank supported governance improvement projects, and incorporating lessons (financial, institutional, administrative, etc.) into the project design, (ii) designing a clear and comprehensive mechanism for governance improvement under the project with consideration to performance-based mechanism (if found appropriate), (iii) identifying capacity gaps to improve governance; and (vi) providing capacity development to towns for meeting performance criteria with other relevant team members.

(viii) **Project Economist & Financial Expert (4 person-months)** will assist the international economist in accomplishing the tasks under his/her responsibility; his/her work will include economic and financial analyses of subprojects and item-wise and total cost estimates as stated in paras 5, 6, and 11. He/she will have at

least 12 years of experiences on project economic analyses, and a postgraduate degree in economics with experience in donor funded projects.

(ix) **Environmental Safeguards Expert (4 person-months)** will assist the international environmental specialist (individually recruited by ADB) in accomplishing the tasks under his/her responsibility. He/she will assist in data collection, meaningful consultations with project-affected people and other works for helping in drafting the environment safeguard documents. He/she should have at least 10 years of experience in environmental management or environmental impact assessment, and a post-graduate degree in environmental engineering or related fields, with previous experience in donor-funded project.

(x) **Social Safeguards Expert (4 person-months)** will assist the international social safeguard specialist (individually recruited by ADB) in accomplishing the tasks under his/her responsibility. He/she will assist in undertaking socioeconomic surveys and data collection, conduct meaningful consultations with project-affected people for drafting the social safeguard documents, including Resettlement Plans and Indigenous Peoples Plans, if necessary. He/she should have at least 10 years of experience in social safeguards work or social and community development, and a post-graduate degree in social science, anthropology or related fields, with previous experience in donor-funded project.

(xi) **Social, Gender, and Community Participation Expert (4 person-months)** will (i) prepare a gender analysis and assess social, gender, and poverty impacts of the project; (ii) conduct or where recent data is available, collect necessary socio-economic, sex disaggregated baseline surveys for each project town; (ii) include pro-poor and gender features into the project design and monitoring framework; (iii) prepare a Gender Action Plan, and a Consultation and Participation Plan with sex disaggregated monitoring indicators; (iv) lead all community consultations in project towns, and (v) assist in participatory climate risk mapping with relevant team members. He/she should have at least 10 years of experience in social development, gender and pro-poor work or including community development, and a post-graduate degree in social science, anthropology or related fields, with previous experience in donor-funded project.

E. REPORTING

16. The consultants will make necessary inputs to the team leader for his/her submission of the required reports to ADB and the government. The team leader will ensure coherent, high quality reporting, in clear and professional format. The following reports will be submitted to ADB: (i) inception report within 3 weeks of mobilization of team leader; (iii) interim project report within 12 weeks from the mobilization of the team leader; (ii) draft final project report within 25 weeks from the mobilization of the team leader; ADB and the government will provide written comments within 2 weeks from the receipt of the report; (iii) final project report after receiving the comments on the draft project report from the government and ADB within 30 weeks from the mobilization of the team leader. Tripartite meetings will be organized among the government, consultants and ADB after the submission of the interim project report and draft final project report, and at other occasions as required.

17. The Consultants will assist the executing agency in organizing the workshops at least three times, after the submission of inception, interim and draft final project reports. Workshop participants will include government agencies, project municipalities, development partners, and other relevant stakeholders. The project framework, approach, key themes, geographic target areas, preliminary ideas on the project design, and time table will be shared at the first workshop (inception workshop). Results of analyses and assessments undertaken, remaining work, and timetable will be shared at the second workshop (interim

workshop). The draft project design including proposed financial and institutional arrangements, implementation schedule, and results of subproject feasibility studies and preliminary engineering designs will be presented at the third workshop (final workshop) to obtain feedback from the participants. In each stage, workshops will be held at the central level and at a convenient location for project municipalities to participate in order to disseminate the project proposal and obtain feedback. Given the strong emphasis on a participatory planning approach for project design formulation, the consultants will also assist the project municipalities in organizing public consultation meetings with communities and any project affected persons to discuss the draft safeguard reports, pro-poor approaches, and overall project design.

F. OVERLAP WITH CDTA AND PDA DESIGN CONSULTANTS

18. The PPTA consultants will overlap with the CDTA 7890 consultant team, as well as the PDA detailed design consultants to facilitate information transfer in project planning, design, and implementation. The team leader will lead efforts in knowledge and data transfer between teams, and ensure full cooperation of team members.

G. INDIVIDUALLY HIRED CONSULTANTS

19. ADB will separately recruit an additional six consultants on an individual basis for a total of 15 person months (6 international and 9 national). Although the individual consultants will report directly to the ADB project officer, the individual consultants and consulting firm will be expected to work closely together for coordinating work plans and outputs during the PPTA. Work plans and schedules will be shared with ADB and LGED. The TORs for the individual consulting services will include, but not be limited to, the following:

International Specialists

(i) **Groundwater Specialist (2 person-months)** will assess groundwater potential for water supplies in project coastal towns and incorporate climate resilience into designs under the project, as indicated in para 6. He/she will be responsible for (i) assessing the potential of future abstraction of groundwater in the vicinity of project towns with attention to salinity (ii) assisting the team leader while closely coordinating with CDTA team in identification and incorporation of climate change adaptation features into the project design for groundwater components with special attention to salinity; and (iii) working closely with the project economist to assess and quantify the incremental costs and benefits of climate adaptation in the project design for groundwater components. The international consultant will have at least 15 years of international experiences in groundwater assessments, design, and planning, with preference given to those with experience in developing countries and coastal areas, with a postgraduate degree in hydrogeology, or related field, and experience in working on donor-funded projects in Asia. He/she will also work closely with the national hydrogeologist on the team.

(ii) **Environmental Specialist (2 person-months)** will oversee the environmental safeguard related tasks described in para 6. The environmental specialist will (i) assess the potential environmental impacts of the proposed project, including physical, ecological, and social environments; (ii) conduct a comprehensive appraisal of the environmental impact of the project activities in line with the ADB's Safeguard Policy Statement (2009); and (iii) finalize all environmental safeguard related documents for the project acceptable to ADB.

(iii) **Social Safeguard Specialist (Resettlement) (2 person-months)** will oversee the social safeguard related tasks described in para 6. The social safeguard

specialist will (i) assess the potential resettlement impacts of the proposed project, including those on vulnerable persons; (ii) conduct a comprehensive appraisal of the resettlement and indigenous people's impact of the project activities in line with the ADB's Safeguard Policy Statement (2009); and (iii) finalize all social safeguard related documents for the project acceptable to ADB.

National Specialists

(i) **Project Management Expert (3 person-months)** will (i) ensure smooth coordination between project team and all government stakeholders, (ii) assist in preparing TORs for consulting packages, and (iii) assist in transfer of knowledge between PPTA and PDA consultants.

(ii) **Development Project Proforma Specialist (3 person-months)** will (i) assist the government in preparing the government's DPP in close coordination with government stakeholders and project team; and (ii) ensure coordination between the TA team's recommendations and DPP preparation in timely manner.

(iii) **Procurement Specialist (3 person-months)** will be responsible for assisting international procurement expert in the firm. He/she will (i) assess the EA's procurement capacity, (ii) help build capacity of the EA by providing training; (iii) and help prepare and finalize procurement plan in close coordination with the international expert in the consulting firm.

APPENDIX A.2: DOCUMENTS COLLECTED DURING PPTA

No.	Author(s)	Date	*Title*	Format	Remarks
Urban Planning, Governance, Institutional, Capacity Building					
1.	Mohammad Ghulam Murtaza	2002	*Urban Governance in Bangladesh*	Hardcopy	
2.	Program Development Office for Integrated Coastal Zone Management Plan (PDO-ICZMP)	Dec 2003	*Delineation of the Coastal Zone* *Working Paper WP005*	PDF	
3.	Urban Management Studies, Technical University of Berlin	Sep 2009	*Improving Governance in Secondary Cities in Bangladesh*	pdf	For GTZ
4.	Md. Ghulam Murtaza & Md. Ashraful	21 Feb 2012	*Urbanization in the South-Western Region of Bangladesh*	Hardcopy	
5.	Power and Participation Research Centre (PPRC)	Dec 2012	*Bangladesh Urban Dynamics*	Hardcopy	
6.	?	?	*Table: Important provisions of different Acts, Policies and Rules relevant for Pourashava Master Plan/Land Use Plan*	Word	
7.	Ministry of Planning	?	*Draft Report of Integrating DRR in Land Use Planning by UDD; Survey Report of Amtoli by UTIDP; Mid-term Evaluation of BMD*		
8.	BMB Mott MacDonald & Engineering & Planning Consultants Limited	30 Jun 2012	*Technical Assisstance for Extended Municipal Capacity Building Program and Preparation of Municipal Servies Project-II* *Preparaing Frameworks for for Municiapl Development Interventions (Module A)* *(Revised Final) Combined Urban Infrastructure Development Guidelines*	pdf	
Master Plans of Study Pourashavas					
1.	Sheltech Consultants (Pvt.) Ltd.	Mar 2012	*Government of the People's Republic of Bangladesh* *Local Government Engineering Department (LGED)* *Upazila Towns Infrastructure Development Plan* *Preparation of Master Plan for Amtali Paurashava (under Package # 11: Barisal Region)* *Interim Report*	Hard copy	
2.	Sheltech Consultants (Pvt.) Ltd.	Oct 2012	*Government of the People's Republic of Bangladesh* *Local Government Engineering Department (LGED)* *Preparation of Master Plan for Pirojpur Paurahava under DTIDP, LGED–Package # S-04*	Hard copy	

No.	Author(s)	Date	*Title*	Format	Remarks
			Draft Master Plan		
3.	Sheltech Consultants (Pvt.) Ltd.	Nov 2012	*Government of the People's Republic of Bangladesh* *Local Government Engineering Department (LGED)* *Upazila Towns Infrastructure Development Plan* *Preparation of Master Plan for Galachipa Paurashava (under Package # 11: Barisal Region)* *Interim Report*	Hard copy	
4.	Sheltech Consultants (Pvt.) Ltd.	Dec 2012	*Government of the People's Republic of Bangladesh* *Local Government Engineering Department (LGED)* *Preparation of Master Plan for Galachipa Paurashava under UTIDP. LGED Survey Report* *Galachipa Paurashava (Package # 11, Barisal Region)*	Hard copy	
5.	Sheltech Consultants (Pvt.) Ltd.	Dec 2012	*Preparation of Master Plan for Paurahavas under District Towns Infrastructure Development Project (DTIDP) – Package # S-04* *Patuakhali Paurashava* *Final Master Plan Report*	Hard copy	
Financial, Funding					
1.	Khurshid-Ul-Alam, Financial & Institutional Capacity Evaluation Consultant Dr. A K M Abul Kalam, Urban Planning Expert Consultant Dr. S M Atiqul Islam, Civil Engineering Expert Consultant	May 2009	*DIRECTOR GENERAL* *LOCAL GOVERNMENT AND COMMUNICATION SECTOR* *IMPLEMENTATION, MONITORING AND EVALUATION DIVISION (IMED), MINISTRY OF PLANNING* *GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH* *Workshop Paper Mid-Term Evaluation on Bangladesh Municipal Development Fund*	Word	
2.	?	?	*Bangladesh Municipal Development Fund – Executive Summary*	Word	
3.	?	?	*BMDF Mid-Term Evaluation Appendices*	Word	
4.	James Alm, Wolffensohn Center for Development at Brookings	May 2010	*Working Paper 19* *Municipal Finance of Urban Infrastructure – Knowns and Unknowns*	pdf	
5.	Rebel Group International B,V. The Netherlands	Feb 2013	*Urban Public and Environmental Health Sector Development Project (UPEHSDP)* *Package B: Financial Management and Municipal Finance Consultancy (FMMFC)* *Final Report – Recommendations on Performance Based Targeted Grant Framework/Mechnaism*	pdf	
Climate Change, Adaptation, Resilience					
1.	World Bank – South Asia Region, Sustainable Development Department, Agriculture and Rural Development Unit	1 Feb 2010	*Implications of Climate Change for Fresh Groundwater Resources in Coastal Aquifers in Bangladesh*	pdf file	
2.	ADB	2013	*Investing in Resilience – Ensuring a Disaster-Resistant Future*	pdf	
3.	A.H.M Rizaul Haq	?	*Climate Change in Coastal Region of Bangladesh*	ppt	Presentation
4.	Ministry of Environment and Forests,	Sep	*Bangladesh Climate Change Strategy and Action Plan 2008*	pdf	

No.	Author(s)	Date	*Title*	Format	Remarks
	Government of the People's Republic of Bangladesh	2008			
5.	HFA Monitor	2012	*Bangladesh: National progress report on the implementation of the Hyogo Framework for Action (2011 - 2013 - Interim*, 31 October 2012, downloaded 11 February 2013 at http://www.preventionweb.net/english/countries/asia/bgd/		
6.	ADB		*The Pilot Program for Climate Resiliene (PPCR)* *CambodiaGreater Mekong AreaSouithern Economic Corridor Towns Development Project* *Summary Climate Resilient Measures Overview*	pdf	
7.	ADB	29 Jun 2011	*Pilot Program for Climate Resiliene (PPCR)* *Summary - Project/Program Approval Request* *Greater Mekong AreaSouithern Economic Corridor Towns Development Project*	pdf	
8.	Participatory Research and Development Initiative (PRDI)	?	*Campaign Brief 6: Increasing Salinity Theatens Productivity of Bangladesh*	pdf	
9.	Ahsan Uddin Ahmed, Climate Change Cell, Department of Environment, Comprehensive Disaster Management Programme, Government of the People's Republic of Bangladesh	Jul 2006	*Bangladesh: Climate Change Impacts and Vulnerability – A Synthesis*	pdf	
10.	Anwar Ali, Space Research and Remote Sensing Organization (SPARRSO), Bangladesh	27 Aug 1999	*Climate Research Vol, 12* *Climate Change Impacts and Adaptation Assessment in Bangladesh*	pdf	
11.	Jessica M. Ayers, IIED; Saleemul Huq, IIED; Arif M. Faisal, Asian Development Bank; Tanveer Hussain, Former Secretary, Bangladesh Secretariat; Monirul Qadir Mirza, University of Toronto	2012	*Wiley Interdisciplinary Reviews Climate Change* *Article type: Overview* *Mainstreaming climate change adaptation into development: A Case study of Bangladesh*	Word	
12.	World Bank – Environment, Climate Change and Water Resources Department, South Asia Region	Jun 2011	*India: Vulnerability of Kolkata Municial Area to Increased Precipitation in a Changing Climate*	pdf	Report No. 53282-IN
13.	Jeb Brugmann	2011	*Financing the Resilient City*	pdf	
14.	World Bank – Potsdam Institute for Climate Impact Research and Climate Analysis	Nov 2012	*Turn Down The Heat: Why a 4^{o}C Warmer World Must be Avoided*	pdf	
15.	World Bank, with ADB and JICA	2010	*Climate Risks and Adaptation in AsianCoastal Megacities – A Synthesis Report*	PDF	
16.	The World Bank Development Research Group, Environment and Energy Team (Susmita Dasgupta et. al)	Apr 2010	*Policy Reasearch Working paper 5280* *Vulnerability of Bangladesh to Cyclones in a Changing Climate: Potential Damages and Adaptive Cost*	PDF	
17.	Susmita Dasgupta et. al.	Jan	*Cyclones in a Changing Climate: The Case of Bangladesh*	PDF	

No.	Author(s)	Date	*Title*	Format	Remarks
		2011			
18.	ADB	Mar 2013	*Climate Action South Asia* *The Economics of Climate Change in South Asia adaptation and Impact Assessment*	PDF	
19.	Bangladesh Development Research Center (BDRC)	Jan 2013	*Consequences of Climate Change and Gender Vulnerability: Bangladesh Perspective*	PDF	
Disaster Management, Reduction					
1.	ADB	May 2004	*Disaster Emergency Assistance Policy*	PDF	
2.	ADPC (Asian Disaster Preparedness Center)	2005	*A Primer: Disaster Risk Management in Asia*, downloaded 11 February 2013 at http://www.adpc.net/udrm/primer/pdf/primer_volume1.pdf		
3.	People's Republic of Bangladesh		*"Towards a Post-2015 Framework for Disaster Risk Reduction," Position Paper, Draft 11 February 2013. Disseminated 11 February via email by Solution Exchange from Mohammad Abdul Wazed, Director General, Department of Disaster Management, MoDMR at* http://www.solutionexchange-un.net/repository/bd/cdrr/cr26-res1-en.docx		
4.	3CD	2006	*Bangladesh Disaster Risk Management Profile, 3CD City Profile Series - Current Working Document, downloaded 11 February 2013 at* http://emi.pdc.org/cities/CP_Dhaka-July2006.pdf		
5.	NIRAPAD (Network for Information, Response and Preparedness Activities on Disaster)		*"Disaster Clinic," presentation downloaded 11 February 2013 at* http://www.solutionexchange-un.net/repository/bd/cdrr/update27-res1-en.pptx		
6.	ADB	Dec 2006	*Technical Assistance Consultant's Report* *Project Number: 38625 (TA 4562)* *Bangladesh: Early Warning Systems Study – Final Report* *(Financed from the Netherlands T.A. Grant)*	pdf	
7.	CARE Bangladesh	Jul 2009	*Shouhardo Program – Disaster Preparedness Thematic Study*	pdf	
8.	Disaster Management Bureau, Disaster Management & Relief Division, Government of the People's Republic of Bangladesh	Apr 2010	*National Plan for Disaster Management 2010-2015*	pdf	
9.	Urban Development Directorate	2012	*Integrating Disaster Risk Reduction in Land-use Planning, Bangladesh*	Word	Funded by ADPC

No.	Author(s)	Date	*Title*	Format	Remarks
10.	Kirsten Luxbacher (Consultant, World resources Institute), Abu Mostafa Kamal Uddin (UNDP)	2012?	*World Resources Report: Bangladesh's Comprehensive approach to Disaster Management*	pdf	
11.	The World Bank – Editors: Abhas K Jha, Todd W Miner, and Zuzana Stanton-Geddes	2013	*Directions in Development – Environment and Sustainable Development Building Urban Resilience – Principles, Tools, and Practice*	pdf	
12.	Government of Bangladesh	Apr 2008	*Cyclone Sidr in Bangladesh* *Damage, Loss and Needs Assessment for disaster Recovery and Reconstruction*	PDF	
Government of Bangladesh (GOP) Publications					
1.	Local Government Division, Ministry of Local Government, Rural Development and Cooperatives	Nov 2011	*Sector Development Plan(FY 2011-2025)* *Water Supply and Sanitation Sector in Bangladesh*		
2.	Ministry of Local Government, Rural Development & Cooperatives, Local Government Division, Local Government Engineering Department	Oct 2012	*Technical Assistance Project Proposal (TPP) (Recast) for Project Preparatory Technical Assistance (PPTA) Project for Coastal Towns Infrastructure Improvement Project (CTIIP) (Financed by Asian Development Bank) (SPEC meeting held at 30 September 2012)*	Softcopy (various), hardcopy	
3.	Ministry of Water Resources, People's Republic of Bangladesh	?	*National Water Policy*	PDF	
Asian Development Bank Publications					
1.	ADB	May 2004	*Disaster Emergency Assistance Policy*	PDF	
2.	ADB	6 Aug 2008	• *Operations Manual- Bank Policies (BP): Multi Tranche Financing Faciltiy* • *Operations Manual - Operational Procedures (OP): Multi Tranche Financing Faciltiy*	PDF	
3.	ADB	Jul 05	*Financial Management and Analysis of Projects*	PDF	
4.	ADB Economics and Research Department	Dec 2007	*Good Practices for Estimating Reliable Willingness-to-Pay Values in the Water Supply and Sanitation Sector (ERD Technical Note No. 23)*	PDF	
5.	ADB	May 2002	*Handbook for Integrating Risk Analysis in the Economic Analysis of Projects*	PDF	
6.	ADB Economics and Development Resource Center	Feb 1997	*Guidelines for the Economic Analysis of Projects*	PDF	
7.	ADB	6 Dec 2010	➢ *Operations Manual Operational Policies (OP): Key Gender Considerations in Project Design* ➢ *Operations Manual Operational Policies (OP): Project Gender Action Plan Format* ➢ *Guidelines for Gender Mainstreaming Categories of ADB Projects* ➢ *Project Framework* ➢ *Gender Framework for MFF*	PDF	

No.	Author(s)	Date	*Title*	Format	Remarks
			➢ *Summary Gender Analysis and Action Plan* ➢ *Gender Action Plan: Project 1*		
8.	ADB	1998	*Summary of the Handbook on Resettlement: A Guide to Good Practice*	PDF	
9.	ADB	2007	*Handbook on Social Analysis: A Working Document*	PDF	
10.	ADB	2011	*Handbook of Style and Usage*	PDF	Formatting of reports
11.	ADB	May 2008	*Guidelines for Implementing ADB's Second Goverance and Anticorruption Action Plan(GACAP II)*	PDF	
12.	Independent Evaluation Department, ADB	2011	*Learning lessons – Urban Water Supply Sector*	PDF	
13.	ADB	2013	*Investing in Resilience – Ensuring a Disaster-Resistant Future*	pdf	
TA and Project Reports					
1.	ADB	Dec 2003	*PPA: BAN 24096* *Project Performance audit Report on the Secondary Towns Integrated Flood Protection Project (Loan 1202-BAM[SF])*	PDF	
2.	ADB	Nov 2004	*RRP: BAN 26427* *Report and Recommendation of the President to the Board of Irectors on a Proposed Loan to the People's Republic of Bangladesh for the Secondary Towns Integrated Flood Protection Project Phase II*	PDF	
3.	GHD in association with Sodev Consult, ASCI	Feb 2008	*Project Number: 40559; Second Urban Governance and Infrastructure Improvement (Sector) Project TA No. 4863-BAN* *Final Report*	Hardcopy & pdf	
4.	ADB	Oct 2008	*Report and Recommendation of the President to the Board of Irectors, Project Number 40559 Proposed Loan* *People's Republic of Bangladesh: Second Urban Governance and Infrastructure Improvement (Sector) Project*	Hardcopy & pdf	
5.	ADB	Oct 2008	*Report and Recommendation of the President to the Board of Irectors, Project Number 40559 Proposed Loan* *People's Republic of Bangladesh: Second Urban Governance and Infrastructure Improvement (Sector) Project* *Supplementary Appendix A: Rangpur – Pourashava Development Plan*	pdf	
6.	ADB	Oct 2008	*Report and Recommendation of the President to the Board of Irectors, Project Number 40559 Proposed Loan* *People's Republic of Bangladesh: Second Urban Governance and Infrastructure Improvement (Sector) Project* *Supplementary Appendix F: Financial Management Assessment*	pdf	
7.	?	May 2010	*City Region Development Project ADB TA-7231 BAN* *Proposals Report*	pdf	
8.	?	Sep 2010	*City Region Development Project ADB TA-7231 BAN* *Final Report*	pdf	

No.	Author(s)	Date	*Title*	Format	Remarks
9.	Institute of Water Modelling (Bangladesh), Alterra (Netherlands)	Aug 2010	*Technical Assistance Consultant's Report: Project Number 42469-01: Bangladesh: Strengthening the Resilience of the Water Sector in Khulna to Climate Change*	pdf	Financed by CCF
10.	ADB	Post Aug 2011	*Technical Assistance Completion Report:TA-7179 BAN: Strengthening the Resilience of the Water Sector in Khulna to Climate Change*	pdf	Financed by CCF
11.	ADB	Aug 2011	*Technical Assistance Report: Project Number 4506: Capacity Development Technical Assistance (CDTA) People's Republic of Bangladesh: Climate Change Capacity Building and Knowledge Management*	pdf	Financed by SCF
12.	AECOM Asia Co. Ltd.	12 Mar 2012	*ADB TA-7902 BAN: Climate Resilient Infrastructure Improvement in Coastal Zone Project-1: PPTA Consultancy for Climate Resilient Infra Improvement in Coastal Zone Project (45084-001) Inception Report - Final*	Hardcopy	
13.	AECOM Asia Company Limited, Hong Kong, in association with Associates for International Development, Bangladesh; BCL Associates Limited, Bangladesh; BETS Consulting Services Limited, Bangl;adesh; and Development Design Consultants Limited, Bangladesh	15 Sep 2012	*Coastal Climate Resilient Infrastructure Project (formerly Climate Resilient Infrastructure Improvement in Coastal Zone Project) TA 790- BAN Final Report (Rev. 6), Volume I: Main Report Volume II: Annexures*	pdf hardcopy of Vol. II	For kfw, ADB, IFAD
14.	ADB	Sep 2012	*RRP BAN 45084: Coastal Climate-Resilient Infrastructure Project; Project No. 45084-002 Proposed Loan and Proposed Administration of Loan and Grant Peoples's Republic of Bangladesh: Coastal Climate-Resilient Infrastructure Project*	pdf	
15.	ADB	17 Jan 2013	*Project Data Sheet Coastal Climate-Resilient Infrastructure Project; Project No. 45084-002*	pdf	
16.	ADB	Mar 2012	*Concept Paper: Project Number 44212 People's Republic of Bangladesh: Coastal Towns Infrastructure Improvement Project*	Hardcopy, Word	
17.	ADB	Mar 2012	*Aide Memoire of the PPTA: Project Number 44212 People's Republic of Bangladesh: Coastal Towns Infrastructure Improvement Project*	Hardcopy, Word	
18.	AECOM	Apr 2012	*CDTA 7890-BAN (Strengthening the Resilience of the Urban Water Supply, Drainage, and Sanitation to Climate Change in Coastal Towns) Final Inception Report*	Softcopy (pdf)	Financed by JFPR
19.	AECOM	Oct 2012	*CDTA 7890-BAN (Strengthening the Resilience of the Urban Water Supply, Drainage, and Sanitation to Climate Change in Coastal Towns) Interim Report*	Softcopy (pdf)	
20.	AECOM	26 Jun	*CDTA 7890-BAN (Strengthening the Resilience of the Urban Water Supply,*	Softcopy	

No.	Author(s)	Date	*Title*	Format	Remarks
		2013	*Drainage, and Sanitation to Climate Change in Coastal Towns)* *Final Report consisting of:* • *Volume 1 - Main Report* • *Annex I – Current Climate and Projected Changes* • *Annex II – Hydrodynamic Modeling* • *Annex III – Groundwater: Current Situation and Future in Coastal Zone* • *Annex IV – Urban Drainage Modeling for Three selected Coastal Towns of Bangladesh Considering Climate Change* • *Annex V – Drainage and Flood Management* • *Annex VI – Water Supply* • *Annex VII – Sanitation* • *Annex VIII – Implications for Public Health* • *Annex IX – Social and Financial Analysis*	(PDF)	
21.		Mar 2006	*ADB TA BAN-4345* *Secondary Towns Water Supply and Sanitation Project* *Supplementary Appendix C3* *Pirojpur Pourashava* *Subproject Appraisal*	hard copy	
22.	ADB	Sep 2006	*People's Republic of Bangladesh: Secondary Towns Water Supply and Sanitation Project Report and Recommendation of the President to the Board of Directors, Project Number 36297 Proposed Loan* • *RRP Main Text* • *Supplementary Appendices A-J*	pdf	
23.	Indus Associated Consultants (Pvt.) Ltd., Lahore, Pakistan *in association with* Modern Engineers Planners & Consultants Ltd., Dhaka, Bangladesh	Oct 2012	*SECONDARY TOWNS WATER SUPPLY & SANITATION SECTOR PROJECT* *ADB LOAN 2265 BAN (SF) & OFID LOAN NO. 1111P* *ANNUAL PROJECT PERFORMANCE MONITORING AND EVALUATION (PPME) REPORT* *(2nd PPME Report from July 2011 to June 2012 Period)*	Word	
24.	Halcrow Group Limited in association wih BCL Associates Ltd, Dhaka	Dec 2012	*TA 7641-BAN Strengthening Regional Planning and Governance* *Final Report, Volume 1: Main Report*	pdf	
25.	Halcrow Group Limited in association wih BCL Associates Ltd, Dhaka	Dec 2012	*TA 7641-BAN Strengthening Regional Planning and Governance* *Final Report, Volume 2: Component A: Proposed Town Improvement (Amendment) Act*	pdf	
26.	Halcrow Group Limited in association wih BCL Associates Ltd, Dhaka	Dec 2012	*TA 7641-BAN Strengthening Regional Planning and Governance* *Final Report, Volume 3: Organisationl Development and Capacity Building*	pdf	
Urban Infrastructure, Engineering, Water Supply					
1.	Isah Mohammed Abbass	?	*THE OPERATION AND MAINTENANCE OF RURAL INFRASTRUCTURE FOR A SUSTAINABLE RURAL DEVELOPMENT IN NIGERIA*	Word	

No.	Author(s)	Date	*Title*	Format	Remarks
2.	Marjana Sijanec Zavrl & Mine Tanac Zeren	14 Sep 2010	*Sustainability of Urban Infrastructures*	pdf	Sustainability publication
3.	Institute of Water Modelling, in joint venture with BETS, BCL	Jan 2011	*Government of the People's Republic of Bangladesh* *Ministry of local Government, Rural Development & Cooperatives, Local Government Division, Department of Public Health Engineering* *Groundwater Management and Feasisibility Study for 148 Pourashavas having no Piped Water Supply* *Component 1: Mathematical Modelling for Safe Drinking Water Source Identification* *Final Report – Volume 3 of 4* *Mathbaria Pourashava (Pirojpur District) Water Supply Sytem Development*	Hard copy	
4.	Institute of Water Modelling, Dhaka	Jun 2012	*Engineering Survey and Study, Morphological & Hydrological Study with Mathematical Modelling for Rehabilitation of Bhutiar Beel and Barnal-Salimpur-Kolabashukhali Flood Control & Drainage Project in Khulna District* *Final Report, Main Report*	pdf	First 3 pages only
5.	MITN-Bangladesh, Centre for Water Supply and Waste Management, BUET, Dhaka, Bangladesh	Jun 2003	*Water Supply & Sanitation: Rural and Low Income Urban Communities*	Hard copy	JICA funded
6.	Tokyo Engineeringh Consultants, Co., Ltd.; Kokusai Kogyo Co., Ltd	Sep 2012	*Data Collection Survey on Water Supply Sector in Local Municipalities in Bangladesh*	Hard copy	
7.	Japan International Cooperation Agency	Sep 2012	*Pourashava Databook for Water Supply Sector in Bangladesh*	Hard copy	
8.	The Local Government Division, Ministry of Local Government Rural Development and Cooperatives, and The Water and Sanitation Program World Bank Dhaka Office	Jan 2013	*Bangladesh Water Utilities Data Book 2010-2011* *Benchmarking for Improving Water Supply Delivery*		
Sanitation					
1.	DRDO-FICC		*Brochure on Bio-Digester based Eco-Friendly Saniattion Technology*		
2.	Go Green Solutions Pvt. Ltd.		*Bio-Digester Technology Developed by Defense Research & Development Organization (DRDO)*		
3.	David M Robbins	Dec 2007	*Septage Management Guide for Local Governments* *A step-by-step practical guide to developing effective septage management programs for cities and municipalities*	pdf	
4.	USAID	Jan 2008	*Operations Manual on the Rules and Regulations Governing Domestic Sludge and Septage*	pdf	
5.	Bremen Overseas Reasearch and Development association (BORDA), Water Engineering and Development Centre (WEDC)	2009	*Decentralised Wastewater Treatment Systems (DEWATS) and Sanitation in Developming Countries – A Proactical Guide*	pdf	

No.	Author(s)	Date	*Title*	Format	Remarks
6.	David M Robbins	2011?	*Developing Guidance Policies for the Management of Decentralized Wastewater Teatment Systyems (DEWATS) by Local Governments*	pdf	
7.	David Robbins, Linda Strande, Julian Doczi	Dec 2012	*Sludge Management in Developing Countries: experiences from the Philippines*	pdf	
8.	Md. Nazul Hasan	Feb 2013	*Communication to David Robbins concerning toilet wastetreatment unit for City Corporation of Kustia City, Bangladesh*	Word	
Geology, Groundwater, Water Resources					
1.	Sirajur Rahman Khan, Md Badrul Islam	Dec 2008	*Holocene Stratigraphy of the Lower Ganges-Brahmaputra River Delta in Banglades* *(in Frontiers of Earth Science in China: Volume 2, Number 4, December 2008)*	pdf	
2.	Bangladesh Bureau of Statistics, Planning Division, Ministry of Planning; Unicef	22 Mar 2011	*Bangladdesh National Drinking water quality Survey of 2009*	PDF	
3.	IWM (for Bangladesh Water Development Board)	Sep 2012	*Technical Report Ii* *Package 1: Mathmatical Modeling Study (Groundwater and Surface Water) to assess Upazila Wise Surface Water and Groundwater Resources and Changes in Groundwater Level Distribution due to Withdrawal of Groundwater in the Selected Rivers of the Study Area* *Package 2: Modelling Study on Saline Water Intrusion to assess Salinity Intrusion, Salinity Level, Sea Level Rise due to Climate Change, Movement of Salinity and Development of Management Information System* *Under The Climate Change Trust Fund (CCTF)Project, Ministry of Environment and Forest ' Establishment of Monitoring Network and Mathematical Model Study to Assess Salinity Instrusion in Groundwater in the Coastal area of Bangladesh due to Climate Change'*	PDF	
4.	P. Ravenscroft, J.M. McArthur, M.A. Hoque (in Science of the Total Environment journal)	Feb 2013	*Stable groundwater quality in deep aquifers in Southern Bangladesh: The case against sustainable abstraction*	PDF	
Flood Embankments, Flood control, Drainage					
1.	International Development Association	29 May 2013	*Project Appraisal Report on a Proposed Credit in the Amount of SDR248.6 Million (US$375 Million Equivalent) from IDA Resources and Proposed Grant in the Amount of US$25 Million from the Pilot Program for Climate Resilience (PPCR) to the People's Republic of Bangladesh for a Coastal Embankment Improvement Project Phase-I*	PDF	
Social, Poverty					
1.	World Bank, UN World Food Progrmme	2009	*Updating Poverty maps of Bangladesh*	PDF	

APPENDIX A.3: NOTES ON INTERIM WORKSHOP, AND KEY MEETINGS DURING PERIOD TO DRAFT FINAL REPORT

Preparing Coastal Towns Infrastructure Improvement Project PPTA (TA-8128 BAN)

REPORT ON INTERIM WORKSHOP

LGED MAIN BUILDING, LEVEL 4 CONFERENCE ROOM
AGARGAON, DHAKA 1207

7 MAY 2013

EXECUTIVE SUMMARY

The Interim Workshop for Preparing Coastal Towns Infrastructure Improvement Project PPTA (TA-8128 BAN) was held in Dhaka on 11 7 May 2013, with representatives from LGED and other government agencies, pourashava officials from the four towns being studied under the PPTA, and the ADB mission.

The main aims of the workshop were to (i) present and discuss the work carried out to date, particularly progress on climate change adaptation resilience, and the scope, prioritization and locations of proposed infrastructure interventions, (ii) present and discuss the work plan for the duration of the remainder of the PPTA; and (iii) to obtain feedback and clarification on key issues.

The following key points arose from the workshop:

1. Infrastructure sites need to be fixed and any land acquisition process should start without delay.
2. Proposed subproject lists are to be screened out following selection/prioritization criteria to get shorter priority lists, as resources are limited.
3. Pourashava mayors said some revisions will be made to the priority infrastructure lists, but they want to know what are the investment limits.
4. Since desludging trucks are being proposed, then sludge/septage treatment facilities are also needed.
5. On-lending (for revenue generating infrastructure) and on-granting (for non-revenue generating infrastructure) of project funds from central government to the pourashavas needs to be considered.
6. Mayors are advised to provide services based on cost recovery (not free), and encourage the participation of service receivers.

A. GENERAL INFORMATION

I. Title of Activity:

Interim Workshop on Preparing Coastal Towns Infrastructure Improvement Project PPTA (TA-8128 BAN).

II. Venue and Date:

LGED Main Building, Level 4 Conference Room, Agargaon, Dhaka 1207.

7 May 2013.

III. Summary of Participants:

Organization	No. Persons
Planning Commission	1
Local Government Division	1
LGED	59
DPHE	1
ADB	2
ADB staff consultant	1
Embassy of Japan	1
JICA	1
Pourashava officials	20
Local government engineers	2
PPTA consultant team	11
PPTA support staff	2
Total	102

A full list of participants and their contact details is shown in Appendix 1.

IV. Objectives of Workshop

The main aims of the workshop were to (i) present and discuss the work carried out to date, particularly progress on climate change adaptation resilience, and the scope, prioritization and locations of proposed infrastructure interventions, (ii) present and discuss the work plan for the duration of the remainder of the PPTA; and (iii) to obtain feedback and clarification on key issues.

V. Schedule of Activities

1. Opening session 09:45-10:40am.
2. Working session 11:00am – 1.35pm.

The detailed program of activities is shown in Appendix 2.

VI. Methodology

In order to reach the expected objectives, various methods were used such as:

- Presentations and handouts.
- Plenary discussion.

B. OPENING SESSION: PRESENTATIONS AND SPEECHES

Welcome address from Mr. Abul Bashar, Project Director CTIIP.

Presentation # 1: Overall PPTA Progress by Roger Jackson, Consultant Team Leader/ Water Supply and Sanitation Specialist.

Speech by Mr. Sobajima Hiroto, Second Secretary, Japan Embassy.

Speech by Mr. Ron Slangen, ADB Project officer for PCTIIP.

Speech by Mr. Wahudir Rahman, Chief Engineer, LGED.

C. WORKING SESSION: PRESENTATIONS AND DISCUSSIONS

Chaired by Mr. Swapan Kumar Sarker, Director General, Local Government Division, Ministry of Local Government, Rural Development, and Cooperatives.

Presentation # 2
Climate Adaptation and the CTIIP
By Karl Schultz, International Climate Change Adaptation Specialist
And Dr. Dewan Abdul Quadir, National Climate Change Adaptation Expert

Presentation #3
Water Supply and Sanitation Interventions in the Study Pourashavas
By Engr. Zahangir Alam, PPTA Watsan Engineer/ Deputy Team Leader

Presentation #4
Proposed Drainage and Flood Control Infrastructure Interventions
By Engr.Shah Muhammad Muhibbullah, Drainage and Flood Control Engineer

Comments by SE (UMU), LGED Mr. Md. Nurullah (before leaving):

- Proposed infrastructure interventions should be included in Pourashava Development Plan.
- It is hoped that ADB and Japan can expand the project to cover the whole coastal area.
- There is no solid waste household collection system in the pourashavas, this needs to be included.
- Informal settlements need to be upgraded, to receive services.
- There should be a drainage master plan.
- There are other municipal infrastructures such as slaughter houses.
- The same governance improvement mechanism modality as developed for UGIIP should be adopted.
- There needs to be good community participation for climate change adaptation and disaster risk management.
- Stated the necessity of Ward Councilors' Offices with Community Center.
- Master plans are deficient.
- Ensured community participation for finding their needs.

Presentation #5

Other Infrastructure

By Engr.Syed Nesar Ahammed, National Municipal Infrastructure Engineer

Plenary Discussion

Comments made by	Points	Response
Mr. Ron Slanger, ADB	• If any infrastructure needs land acquisition, the sites need to be fixed and the acquisition process to start without delay. • Proposed list is to be screened out following criteria to get a shorter priority list, as resources are limited. • For water supply proposals in informal settlement areas, why are only hand pumps being proposed—why not piped supply, like in some other projects? • Many of the criteria for drainage prioritization matrix have the same weighting score (9). This needs to be clarified and adjusted as necessary.	• Most informal settlements are outside polder embankments. Also, hand tubewells are more appropriate for rural areas.
Mr. Rafiuddin Ahmed, Mayor of Mathbaria Pourashava	• Priority (list) of sub-projects will be revised and accommodated if the budget is declared. • A revised list has been given to Nesar.	
Mr. Habibur Rahman, Mayor of Pirojpur Pourashava	• Priority III is proposed as priority I. • The priority list needs to be revised some extent.	
Mr. Hazi Abdul Wahab Khalifa, Mayor of Galachipa Pourashava	• Priority I needs to be revised some extent. • A revised list has been given to Nesar	
Mr. Md. Motiar Rahman, Mayor of Amtali Pourashava	• Wanted to know the total budget and amount for Priority one / first time.	
Mr. Abul Bashar, Project Director CTIIP	• Mayors want to know the investment limit for their pourashava. • This will be decided during this ADB mission.	
Mr. Ron Slanger, ADB	• There are financial resource limitations, and more screening and prioritization will have to be done to be within investment budgets. • Mathbaria has a high priority for water supply, whereas for Pirojpur the high priority is for drainage improvement. • Advised to select revenue generation subprojects. • Advised to take remaining sub-projects from unloaded /self source.	•
PD (Southern Bangladesh Infrastructure Improvement Project, LGED). Mr. Nur Mohammed	• No variation is observed from the presentation in case of infrastructure design based on climate change resilience. • Road inventory does not mention the information of canal beside the road. • Consultant should decide the best suitable type of roads such as CC, RCC or BC in the coastal area. • Lining should be adopted instead of canal excavation.	

Comments made by	Points	Response
	• Waste disposal in water body needs to be prohibited as the water will be the source for water supply system. • Mechanism of solid waste management activities is not mentioned in the presentation. • BC pavement with side protection works is more costly than RCC road. He has estimations as an example.	
PD (UPPRP) Mr. Rahid	• Type of tree (for road side) should be selected as suitable for the coastal area. • Raising (0.4m) of road appears to be high which should be selected considering adjacent houses/establishments. • Type of road such as CC, RCC or BC should be selected as per technical consideration. • Open drain is to be considered for avoiding drainage congestion. • Provision of women should be ensured in markets (may be women traders).	
PD, Project of LGED, Mr. Selim	• Requested to include other Pourashavas, namely Kalapara, Betagi, Baufal, Bakegonj, Kuakata, etc., under CTIIP as they are situated in coastal region, • He asked why not some infrastructures like landscape, bus-terminal, school-latrine are not included for all (four) Pourashavas. • Advised for inclusion other municipal infrastructures like street light, park, slaughter house for each Pourashava under this project. • Construction equipments are to be given from this project to Pourashava.	
PD (CRIIP), Mr. Lutfar	• Advised to follow CEIP climate model (not IPCC model). • The impact of climate change on roads, markets, etc. is absent in the presentation. • CRIIP should be studied and all designs based on climate change resilience. • Need to prepare climate resilient infrastructure designs, and for subprojects to satisfy EIRR (12%). • There are three cost options: (i) no consideration given to climate, (ii) based on existing climate, and (iii) incorporating climate change. • Generally if people can afford their own handpump tubewell, that is the preferred choice rather than a piped supply. • How source of water is selected whether it will be surface water or ground water. • Supply system is intermittent or 24-hour based, not mentioned in presentation. • Since desludging trucks are being proposed, then sludge/septage treatment facilities are also needed. • Infrastructure interventions should follow the master plans.	
SE, LGED	• Type of road should be selected considering climate change resilience. • Design life should be considered for reasonable (long) period.	
Ms. Mahamuda,	• Land use plan should be considered for	

Comments made by	Points	Response
AC, Planning Commission	implementation of infrastructures. • Coordination should be adopted with BWDB. • Advised for accommodation with the Delta Plan Project.	
Mr. Abul Bashar, Project Director CTIIP	• Small meetings will be arranged to follow up on key issues.	
ACE, LGED Mr. Abul Kalam Azad	• Advised to arrange meeting with all PDs and Consultants for sharing ideas.	
Mr. Bhuiyan, DPHE	• Water supply overhead tanks.	
Mr. Ron Slanger, ADB	• Another issue is on-lending (for revenue generating infrastructure) and on-granting (for non-revenue generating infrastructure) of project funds from central government to the pourashavas.	
DG, LGD Mr. Sawpan Kumar Sarker	• Salinity of water source may change in future which should be considered for design. • The quantity for water supply items should be finalized on basis of the investment. • Criteria should be finalized by sharing with other consultants of LGED. • Advised to all Mayors to provide services based on return of money (not free). Participation should be ensured of the service receivers.	

The workshop closed at 1.35pm.

APPENDIX 1: LIST OF PARTICIPANTS AND CONTACT DETAILS

Sl. No.	Name of Officer/Staff	Designation	Contact Details (Email/Phone)
Planning Commission			
1.	Mahbuba Hasin.	Asstt. Chief Planning.	01818539691
Local Government Division, Ministry of Local Government, Rural Development, and Cooperatives			
2.	Swapan Kumar Sarker	Director General, Local Government Division,	01713041531
LGED			
3.	Md. Wahidur Rahman.	Chief Engineer LGED	880-2-9124027
4.	Abul Kalam Azad	ACE	
5.	Md. Abul Bashar	PD CTIIP, LGED	Off: 88 02 8143120 Mob: 01675 466238
6.	Md. Al Amin Faisal	Sr, AE, PSB, LGED	0182 1647 702
7.	Md. Nurullah	SE (UMU), LGED	01711383935
8.	Nur Mohammed	PD (Southern Bangladesh Infrastructure Improvement Project, LGED)	01715314448
9.	A. Rashid Khan.	PDUPPRP	-
10.	SM Salim	PD, UCRIIP.	01199863570
11.	Lutfar Rahman.	PD CCRIP	-
12.	Ms. Sultana Rebeka Akhtar	Sr. AE, RRMP, LGED	
13.	Md. Habibur Rahman.	Addl.C.E	01713068921
14.	Md. Azaz Mondal	XEN	0171 119 6735
15.	Sayyad Ahmed.	XEN PSB	01732821515
16.	Md. Abdul Jabber.	Imam LGED.	01716227800
17.	M. Mamtaz Haider.	Sr, Socio-Economist PSSWRSP LGED	01556324632
18.	Salma Shahid.	LGED, EE (PMDE)	01715224977
19.	Sushanto Kumar.	LGED.	01711887526
20.	Md. Dkdur Rahman.	XEN, PMF.	01711397171
21.	Md. Bazlul Rahman.	PD GBP.	01713210070
22.	Md. Ahsan Habib.	PD, CRDP	
23.	M. A Rahim.	PD, RAARIP.	01749970744
24.	Md. Allah Hafiz.	PD, UCRGCP	01711981763
25.	S. M Nazrul Islam.	M & E Officer CRDP.	01711365345
26.	Khandaker Alinoor.	PD IARP.	01711464466
27.	Muzibur Kalam.	PD ECRRP.	01711274547
28.	Md. Abul Kalam	Addl. CE	00171133450
29.	Md. Anower Hossain.	SE (PMTL)	01711384252
30.	Md.Motiar Rahaman	DPD UGIIP II	01715701937
31.	Shyama Prosad Adhikari.	Addl. CE LGED.	01726946962
32.	Al-Mamun.	DS ERD	01552453061
33.	Md. Shafiqul Islam.	DPD DTIDP.	01728641403
34.	Md. Abdul Quader.	SE. LGED.	00008152579
35.	Syed Shahriar Amin.	Urban Pllaner UTIDP, LGED.	01819696444
36.	Md. Abul Hossain.	PD, INPIDP.	01711546625
37.	Md. Moshlah Uddin.	PD. UDIDP.	01713039791
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39.	Mollah Rabiul Islam.	A.E.	01942454921
40.	Hasan Kabir Kashru.	PD, ER.	01711883628
41.	Nayeem N. Naz.	Sr. AE. SSWRDP	01710956258
42.	Quazi Md. Fazlul Haque.	Senior Planner, UDD.	01711033800
43.	Kawsar Mostafa Khan.	Asstt Chief.	01932683727
44.	Md. Hamidul Haque.	Sr, AE, CRDP.	01711404652
45.	Md. Mominul.	AE. HQ. CDSP.	01724510222
46.	Md. Faidul Islam.	AE. HQ.	01712185281
47.	Rabindra Nath Barman.	Deputi Chief.	01819421363
48.	Md. Abdul Malek Sarker.	PD, UZRDP.	-
49.	Md. Mohsin.	SE.	01711544881

50.	Ahmed Ali.	AE. RRMAIDP.	01711149943
51.	Md. Harul or Rashid.	XEN. (Planning)	01711447243
52.	Md. Tariqul Islam.	SAE	01715799623
53.	Md. Rahmat Ullah.	O/A	01710395232
54.	Md. Ataur Rahman.	PSB ACCTT.	01711283190
55.	Md. Hafiziur.	PSB MLSS.	01778032021
56.	Rehena.	PSB MLSS.	-
57.	A. Baten Sarker.	SAE (QC)	01716330230
58.	K.M A Liqul Islam.	SAE (QC)	01746112344
59.	Hosneara Begum.	SAE (QC)	01916589908
60.	Md. Tariquzzaman.	Sr. AE (QC)	01711319413
61.	Md. Khorshed Alam.	A.E (QC)	01714688856
DPHE			
62.	Mohammed Shamsul Huq Bhuiyan	Executive Engineer, Survey, Investigation (SIR) Division, DPHE	Off: 9343370 Mob: 01715 034573
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63.	Mr. Ron Slangen.	ADB Project Officer PPTA	rslangen@adb.com
64.	Elma Morsheda.	Project Office BRM	01819290711
ADB-recruited Consultant			
65.	Mohammed Zulyaminayn	Procurement Specialist	Off: 880 1712 252037 Mob: 0171 225 2037

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JICA			
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Pourashavas			
68.	Md. Motiar Rahman	Mayor of Amtali Pourashava	01713138966
69.	Bidhan Chandra Samadder.	VE Amtali Barguna.	01712739754
70.	Md. Mizanuzzaman.	AE Amtoli Pourashava.	01714765685
71.	Amal Krishna Shaha.	Secretary Amtoli Pourashava.	01717478494
72.	A. K. M Riaz Uddin Mazumder.	Water Super Amtoli Pourashava.	01740874231
73.	Md. Rezaul Kabir.	SAE DPHE, Amtoli.	01718736486
74.	Hazi Abdul Wahaf Khalifa.	Mayor of Galachipa Pourashava	01819053428
75.	Md. Hazi Abdul Akonda.	Galachipa Pourashava.	01819053428
76.	H. M. Solayman.	A.E Galachipa Pourashava.	01712919131
77.	Md. Mozzamal Haque.	S. A. E Galacipa Pourashava.	01716422418
78.	Md. Abu Awal.	SAE & Water Super Galachipa Pourashava.	01725133023
79.	Md. Saifur Rahman Khan.	Secretary Galachipa Pourashava	01730972927
80.	Mr. Habibur Rahman	Mayor of Pirojpur Pourashava	
81.	Md. Abdul Hai.	XEN. LGED Pirojpur.	01740944500
82.	Md. Bani Amin.	Secretary Pirojpur. (Paurashava)	01940417385
83.	Amal Krishna Bhcake.	A. E Pirojpur Pourashava.	01716887355
84.	M. Abu Hanif.	XEN Pirojpur Pourashava.	01715044969
85.	Mr. Rafiuddin Ahmed	Mayor of Mathbaria Pourashava	
86.	Abu Hanif Gazi.	SAE, PHE, Mathbaria.	01745620007
87.	Md. Harun - or - Rashid.	SEC Mathbaria.	01716373051
Local Government Engineers			
88.	Md. Atiqur	Upazilla Engr.	01933234022
89.	Mr. Solayman.	Upazilla Engr.	01911143142
PPTA Team			
90.	Mr. Roger S. Jackson	Team Leader (PPTA)	rsjwca@yahoo.com
91.	Engr. Md Zahangir Alam	Watsan Engineer/ Deputy Team Leader	01720356772
92.	Karl Shultz	Climate Change Adaptation Specialist	01775105547
93.	Dr. D. A Quadir	Climate Change Adaptation Expert	01717265102
94.	S. M. Muhibbullah	Drainage and Flood Control Engineer	01711618020
95.	Syed Nesar Ahmed	Municipal Infrastructure Expert	01711131448
96.	Mohammed Abdul Matin.	Hydrogeologist	mamatin12345@gmail.com
97.	Dr. A. K. M Abul Kalam.	Urban Planning Expert	01720039503
98.	Prof. Dr. Md. Ghalum Murtaza	Institutional and Governance Expert	01711483279
99.	Mr. Hamidur Rashid.	Project Economist/ Financial Expert	001711563058
100.	M. Hasan Chowdhury	Office Secretary/ Admin	01912327613
101.	Rahmat Alam	Office Boy	01710395232

APPENDIX 2: ACTUAL WORKSHOP PROGRAM

09:30 – 10:00am	Arrival and registration	
Opening Session		
09:50	Recitation from the Holy Quran	Pesh Iman, LGED mosque
09:50 – 09:55	Welcome address	Abul Bashar, Project Director
09:55 – 10:20	Overview of PPTA progress	Roger Jackson, PPTA Team Leader/ Watsan Specialist
10:20 – 10:25	Speech	Mr. Sobajima Hiroto, Second Secretary, Japan Embassy
10:25 – 10:30	Speech	Ron Slangen, ADB Project Officer
10:30 – 10:40	Speech and opening	Mr. Md. Wahidur Rahman, Chief Engineer, LGED
10:40 – 11:00	**Tea Break**	
Working Session – Chaired by Mr. Swapan Kumar Sarker, Director General, Local Government Division, Ministry of Local Government, Rural Development, and Cooperatives		
11:00 – 11:30	Briefing on climate change and resilience work	Karl Schultz, International Climate Change and Adaptation Specialist, and Dr. Dewan Abdul Quadir, National Climate Change and Adaptation Expert
11:30 – 11:50	Briefing on scope and locations of proposed water supply interventions	Engr. Zahangir Alam, PPTA Watsan Engineer/ Deputy Team Leader
11:50 – 12:00	Briefing on scope and locations of proposed drainage and flood control interventions	Engr.Shah Muhammad Muhibbullah, PPTA Drainage and Flood Control Engineer
12:00 – 12:10	Comments, observations	XEN?
12:10 – 12:20	Briefing on scope and locations of proposed municipal infrastructure interventions	Engr. Syed Nesar Ahammed, PPTA Municipal Infrastructure Expert
12:20 – 13:35pm	Open discussion	All participants
13:35	**Lunch**	

NOTES ON INTERIM MISSION KICKOFF MEETING: 6 MAY 2013

Date : Monday, 6 May 2013, 2.10-4.45pm
Place : The Westin Dhaka, Gulshan 2, Dhaka
Purpose : Kickoff meeting (Interim Mission)
Participants :

No.	Name	Designation	Phone No.	E-mail Address
LGED				
1.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
2.	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
3.	Ms. Sultana Rebeka Akhtar	LGED		sra1277@yahoo.com
ADB				
4.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
PPTA Consultant				
5.	Roger S Jackson (RJ)	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
6.	Engr. Md Zahangir Alam (ZA)	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com

Points Arising:

Topic	Points	Attention/ Action
1. Possible co-financiers	• Ron met with potential co-financiers yesterday (5 May): Swedish, French, KfW (German). • Swedish have a problem with timing, but the French and KfW are very interested in CTIIP.	
2. Project Design Advance (PDA)	• PDA is part of CTIIP implementation arrangements, and funding of $3.5 million for PDA is from ADB loan of $52 million. • There will be 3 consultant teams supporting the project, and one will be for PDA. • PDA is already included in the government's TPP (Technical Assistance Project Proposal) document. • PDA period is for 60 months (5 years), the duration of the project. However, PDA consultants will only initially be recruited for period until 30 Jun 2014, subject to extension—in the unlikely event that the project will not be approved. • PDA consultants will focus on the 4 Phase I towns. • Ron will send the TOR for the PDA consultants once approved in the next few days.	Ron
3. Project implementation arrangements, and project readiness	• EA is LGED, with DPHE as co-agency. • There will Project Director in LGED PMU, a Deputy Project Director (DPD) from DPHE (for water supply and sanitation) and 2 DPDs from LGED, 1 for capacity building and 1 for drainage and other infrastructure. • PIUs will be in pourashavas. • Ron asked if LGED can submit proposals for PMU and PIU staffing, using guidance from UGIIP. • Technical staff could include LGED engineers at district or lower level. • CTIIP will need government's DPP (Development Project Proforma). • ADB-recruited DPP Specialist is Mr. Sarker, but he needs to register with ADB's CMS (Consultant Management System).	LGED
4. Cost estimates and financing	• Costs for Priority I subprojects for the 4 towns are too high for project budget, need to decide on investment ceilings per town, and prioritize further with the pourashavas to concentrate on infrastructure that will make the towns more climate resilient. • PD suggested having cost ceilings depending on pourashava class and whether district capital, e.g.:	

	➢ Class A, district (zila) head – 40 ➢ Class A, upazila – 30 ➢ Class B, upazila – 20. • UGIIP ceilings were BDT250 million for Class A pourashavas and BDT200 million for Class B. • PPTA team should propose cost ceilings. • Ron and PD reiterated that flood protection embankments should not be included in CTIIP scope, since this type of infrastructure is the responsibility of BWDB.	Zahingir, Muhibbullah, Nesar
5. Town selection criteria for Phase II	• ADB has proposed simplified town selection criteria, with screening steps. First step assesses total population, population density, and whether town has received significant external assistance in urban and climate change sectors, say above a benchmark amount. • Roger has started on this process, and will circulate matrix with progress to date. There are 36 pourashavas in the 11 districts suggested for geographic coverage. • Larger towns are to be preferred. KfW supports this.	Roger
6. Gates Foundation	• An MOU is needed between Gates Foundation and government, to facilitate the work of the sanitation specialist from Gates Foundation. • Ron will contact Dr. Roshan from Gates Foundation to arrange this.	Ron

NOTES ON BRAINSTORMING SESSIONS WITH RON: 8 MAY 2013

SESSION 1

Date : Wednesday, 8 May 2013, 10.00am-4.00pm
Place : Flat B-2, Queensgate, Road 48, Gulshan 2, Dhaka
Purpose : Brainstorming session to discussion investment ceilings per pourashava, town selection criteria, and performance criteria
Participants :

No.	Name	Designation	Phone No.	E-mail Address
ADB				
1.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
PPTA Consultant				
2.	Roger S Jackson (RJ)	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
3.	Engr. Md Zahangir Alam (ZA)	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com
4.	S. M. Muhibbullah.	Drainage and Flood Control Engineer	01711618020	
5.	Syed Nesar Ahmed.	Municipal Infrastructure Expert	01711131448	
6.	Dr. A. K. M Abul Kalam.	Urban Planning Expert	01720039503	
7.	Prof. Dr. Md. Ghalum Murtaza	Institutional and Governance Expert	01711483279	
8.	Mr. Hamidur Rashid.	Project Economist/ Financial Expert	001711563058	
9.	M. Hasan Chowdhury	Office Secretary/ Admin	01912327613	

Points Arising:

Topic	Points	Attention/ Action
1. Processing schedule	• DFR submission depends on whether ADB board approval is scheduled for 2013 or 2014. If former, submission should be 3 July, if latter, maybe 2 more weeks could be given. • Ron plans to be in Bangladesh last week June/ first week July.	
2. Project financing	• AFD (French Development Agency) interested to provide $30 million for CTIIP, due to climate change emphasis of project.	
3. Investment ceilings per town	• Main factors to be considered are infrastructure deficit, climate change adaptation, and raw water source (surface water or groundwater). • 3 categories of towns: district town class A (e.g. Pirojpur), class A pourashava (e.g. Mathbaria, Galachipa), and class B pourshava (e.g. Amtali). • Infrastructure types divided into 2 priority categories, based on performance criteria stages: 1. Stage I, entry (highest priority): water supply, sanitation, drainage and flood control, and cyclone shelters. 2. Stage II, performance criteria compliance to access further funding: roads/bridges/culverts, boat landing stations, markets, bus terminal, solid waste. • For proposed cost ceilings, see attached table. • To be presented and discussed with PD and DPHE focal person	

	tomorrow.	
4. Town selection criteria	• Criteria discussed and revised.	
5. Performance criteria	• Ghulam needs to urgently meet PD UGIIP-2 (Mr. Shafiqul Islam Akand), if possible tomorrow, to find out weaknesses of UGIIP performance criteria, and adapt to CTIIP. • Once revised performance criteria have been drafted, need to present to PD Bashar LGED, when Bruce is here at end of May. • Performance criteria will be needed by the capacity building mobile support teams.	Roger to request Mr Bashar to contact PD UGIIP-2 to arrange meeting for Ghulam

SESSION 2

Date : Wednesday, 8 May 2013, 4.00-6.30pm
Place : Flat B-2, Queensgate, Road 48, Gulshan 2, Dhaka
Purpose : Presentation on safeguards team's findings, and discussion
Participants :

No.	Name	Designation	Phone No.	E-mail Address
ADB				
1.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
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4.	S. M. Muhibbullah.	Drainage and Flood Control Engineer	01711618020	
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6.	Ms. Ninette Ramirez	ADB-recruited Environmental Safeguards Specialist	01781791397	ninette.ramirez@gmail.com
7.	Md. Yasin Mozumber	Environmental Yasin Mozumber		yasin_afroza@yahoo.com
8.	Ms. Saswati Belliappa	ADB-recruited Resettlement Safeguards Specialist		
9.	Ms Shireen Akhter	Social, Gender, Community Participation Expert	01715199572	akshireen@gmail.com
10.	Quddus	Resettlement Safeguards Expert		
11.	M. Hasan Chowdhury	Office Secretary/ Admin	01912327613	

Points Arising:

- Presentation of various issues concerning proposed infrastructure sites/locations, from field visit, with the engineers.
- Outline of follow-up activities to prepare safeguards documents.
- Resettlement survey could be done by DATASEARCH through an amendment to their existing contract for the socioeconomic and willingness-to-pay survey.

Proposed Investment Ceilings per Pourashava Type

Infrastructure Type	Zila (District) Town Class A		Non Zila Class A Town		Class B Town	
Water supply source	**Surface water**	**Groundwater**	**Surface water**	**Groundwater**	**Surface water**	**Groundwater**
	$ million	**$ million**	**$ million**	**$ million**	**$ million**	**$ million**
Phase I Town Example	**Pirojpur**		**Mathbaria**	**Galachipa**		**Amtali**
Stage I Priority Infrastructure						
Water supply - surface water	5.0		4.5		4.0	
Water supply - groundwater		1.5		1.5		2.5
Sanitation	0.2	0.2	0.2	0.2	0.2	0.2
Drainage and flood control	3.0	3.0	2.0	2.0	1.0	1.0
Cyclone shelter	1.0	1.0	1.0	1.0	1.0	1.0
Subtotal	**9.2**	**5.7**	**7.7**	**5.7**	**6.2**	**3.7**
Stage II Priority Infrastructure (compliance with Stage II performance criteria to access funds)						
Roads, bridges, culverts	3.0	3.0	2.0	2.0	2.0	2.0
Boat landing station	0.1	0.1	0.1	0.1	0.1	0.1
Markets	0.2	0.2	0.2	0.2	0.2	0.2
Bus terminal	0.0	0.0	0.1	0.1	0.1	0.1
Solid waste	0.2	0.2	0.1	0.1	0.1	0.1
Subtotal	**3.5**	**3.5**	**2.5**	**2.5**	**2.5**	**2.5**
Total	**12.7**	**9.2**	**10.2**	**8.2**	**8.7**	**6.2**

Note: Preliminary climate change adaptation incremental costs are included in these estimates.

NOTES ON DISCUSSIONS WITH RON: 9 MAY 2013

Date : Thursday, 9 May 2013, before and after meeting with LGED and DPHE in afternoon
Place : Flat B-2, Queensgate, Road 48, Gulshan 2, Dhaka
Purpose : Discussion on processing schedule and other issues
Participants :

No.	Name	Designation	Phone No.	E-mail Address
ADB				
1.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
PPTA Consultant				
2.	Roger S Jackson (RJ)	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
3.	Engr. Md Zahangir Alam (ZA)	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com

Points Arising:

- Processing schedule:
  - Ron will visit Bangladesh from about 24 Jun to 7 Jul, and will have meetings with us on 1-2 Jul.
  - DFR submission 11 Jul
  - ADB fact-finding mission 18 Jul – 1 Aug.
- PAM to be included in DFR.
- Outline TOR for implementation consultants need to be prepared, for PAM. But ask GHK to check with ADB about status for being included in future tenders for implementation project.
- Project title should be changed to reflect emphasis on climate change adaptation.
- Climate change features need to be included in infrastructure designs.
- Master plans: how to make them more implementation orientated and climate resilient.
- Ron will send TOR for PDA consultants.
- No need to revise Interim Report.
- Meetings:
  - Sat, 11 May @ 11.00am at LGED to review draft aide memoire
  - Mon, 13 May @ 10.00am pre wrap-up meeting with CE, the @ 3.00pm wrap up meeting with LGD Secretary.

NOTES ON MEETING WITH RON, LGED AND DPHE: 9 MAY 2013

Date : Thursday, 9 May 2013, 3.00-5.30pm
Place : Flat B-2, Queensgate, Road 48, Gulshan 2, Dhaka
Purpose : Discussion on processing schedule and other issues
Participants :

No.	Name	Designation	Phone No.	E-mail Address
ADB				
1.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
2.	M. Rafique Islam	ADB BRM		
PPTA Consultant				
3.	Roger S Jackson (RJ)	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
4.	Engr. Md Zahangir Alam (ZA)	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com
LGED				
5.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
6.	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
7.	Ms. Sultana Rebeka Akhtar	LGED		sra1277@yahoo.com
DPHE				
8.	Mohammed Shamsul Huq Bhuiyan	Executive Engineer, Survey, investigation (SIR) Division	Off: 9343370 Mob: 01715-034573	shamsulhuqbhuiyan@gmail.com

Agenda:

Presentation and discussion on:

- Investment ceilings per pourashava.
- Town selection criteria for Phase II.

Meeting notes with Mr. Shafiqul Islam Akand, PD, UGIIP2 on 9 May 2013

Experiences of UGIAP, UGIIP2

- UGIAP of UGIIP2 is too big/long for compliance by the project Pourashavas
- It should be shorten, comprehensive and contextual to the project
- It is an instrument/tool of ensuring governance at the Pourashava level in line with the relevant project's aim, goal, objectives and outputs/deliverables
- Too much areas of activities, activities, tasks included in the UGIAP would be difficult for the PIUS/Pourashavas to implement those

UGIAP/Performance Criteria (PC) for Climate Change (CC) related Project

- Standing Committee (SC) of the Pourashavas/PIUs on disaster management should be activated inserting issues concerning CC (awareness, advocacy, etc. etc.)
- Creating window concerning CC in the TLCC of the project Pourashavas
- Creation/filling-in post of the Urban Planners at the Pourashava level to take care issues concerning compliance to land use/master plan proposals and building set back rules and regulation
- Strict adherence to the national building code (NBC)proposals in providing building planning permission in the jurisdiction of the project Pourashavas

Drivers of Formulating UGIAP/PC for CTIIP

- The Local Government (Pourashava) Act, 2009
- CTIIP's aim, goal, objectives and activities
- Lessons learnt from the previous UGIAPs practiced by ADB funded project of LGED

Challenges

- Need dynamic leadership of the Mayor for implementation of PC/UGIAP
- Required man-power for effective implementation of PC/UGIAP at the Pourashava level
- Creation of the Town Planning Cell at the Pourashava level

NOTES ON MEETING TO REVIEW DRAFT AIDE MEMOIRE: 11 MAY 2013

Date : Saturday, 11 May 2013, 11.00am-2.00pm
Place : PD Bashar's office, Level 2, RDEC Building, LGED, Dhaka
Purpose : To review ADB Interim Mission draft aide memoire
Participants :

No.	Name	Designation	Phone No.	E-mail Address
LGED				
1.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
2.	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
3.	Ms. Sultana Rebeka Akhtar	LGED		sra1277@yahoo.com
ADB				
4.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
5.	Ms. Elma Morsheda	Project Officer (Urban Infrastructure), BRM	+88 02 815 6000/6016 01819240711	emorsheda@adb.org
PPTA Consultant				
6.	Roger S Jackson (RJ)	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
7.	Engr. Md Zahangir Alam (ZA)	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com

Points Arising:

- PPTA consultants need to review/revise subproject component selection and prioritization criteria to emphasize enhancement of climate change resilience.
- Subproject components that will most enhance climate change resilience will have highest priority and receive funding under Stage I of performance criteria mechanism (entry stage).
- Subproject components that have less scope for enhancing climate change resilience but are still accorded priority by the pourashavas will have to meet Stage II of the performance criteria to receive funding.
- Performance criteria (using UGIIP as a basis) need to be designed to include adequate provisions for pourashava institutional/staffing capability and financial/absorptive capacity.
- Investment ceilings are a secondary consideration, but reasonable levels need to be arrived at with the pourashavas (but lower than in the Interim Report).
- The aim is to complete a second round of consultations with the pourashavas to revise the subproject prioritizations in line with the above approach by the end of May.
- Final ADB review mission (Ron) scheduled for 1-7 July 2013.
- Draft Final Report to be submitted by 11 July.
- Draft Development Project Proforma (DPP) by 15 July.
- Fact-finding mission scheduled for 21 July – 1 August.
- Reporting of capacity building mobile support teams (MST) will be separate, and not form part of the outputs/deliverables of the original/core PPTA.

NOTES ON MEETING TO REVIEW DRAFT AIDE MEMOIRE WITH LGED CHIEF ENGINEER: 13 MAY 2013

Date : Monday, 13 May 2013, 09.30-10.50am
Place : Meeting room, Level 5 LGED Main Building, Dhaka
Purpose : To review ADB Interim Mission draft aide memoire
Participants :

No.	Name	Designation	Phone No.	E-mail Address
LGED				
1.	Md. Wahidur Rahman.	Chief ENGR		
2.	Md. Habibur Rahman.	Addl.C.E	01713068921	
3.	Md. Abdur Rashid Miah.	Asstt. CE	01711167109	
4.	Iftedhar Ahmed.	SE (Planning)	00009127158	
5.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
6.	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
7.	Ms. Sultana Rebeka Akhtar	LGED		sra1277@yahoo.com
8.				
9.				
ADB				
10.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
11.	Ms. Elma Morsheda	Project Officer (Urban Infrastructure), BRM	+88 02 815 6000/6016 01819240711	emorsheda@adb.org
12.	M. Rafique Islam	ADB BRM		
PPTA Consultant				
13.	Roger S Jackson (RJ)	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
14.	Engr. Md Zahangir Alam (ZA)	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com

Points Arising:

- PIUs will be headed by the Pourashava Mayors.
- With existing financing budget from ADB and SCF (Strategic Climate Fund), 8 towns (4 in Phase I, and 4 in Phase II) could be covered, based on preliminary cost estimates on infrastructure priority I. Further towns, under Phase III, would require $56-66 million from other funding sources (co-financiers, government).
- ADB Board approval for the project is now scheduled for Q1 2014.
- Flood inundation (duration of flooding) should be added to the town selection step 2 criteria. Data source is BUET.

NOTES ON MEETING WITH STEERING COMMITTEE: 13 MAY 2013

Date : Monday, 13 May 2013, 4.00-4.30pm
Place : Room 601, Building 7, Bangladesh Secretariat
Purpose : ADB mission wrap-up
Participants :

No.	Name	Designation	Phone No.	E-mail Address
Government				
1.	Swapan Kumer Sarker (Chairman)	LGD		skslgd@gmail.com
2.	Md. Wahidur Rahman	Chief Engineer, LGED	880-2-9124027	ce@lged.gov.bd wahid113@yahoo.com
3.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
4.	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
5.	Md. Shamsul Haque Bhuiyan	DPHE focal person	01715034573 01937585034	shamsulhuqbhuiyan@gmail.com
6.	Others			
ADB				
7.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
8.	Ms. Elma Morsheda	Project Officer (Urban Infrastructure), BRM	+88 02 815 6000/6016 01819240711	emorsheda@adb.org
PPTA Consultant				
9.	Roger S Jackson (RJ)	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
10.	Engr. Md Zahangir Alam (ZA)	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com
11.	M. Hasan Chowdhury.	Secretary PPTA	01912327613	
12.	Mr. Rahmat Alam	O/A	01710395232	

Points Arising:

- Names of towns for Phase II and Phase III should be included in the DFR.
- Pourashavas should take responsibility for the investments.

NOTES ON MEETING WITH PROJECT DIRECTOR: 15 MAY 2013

Date : Wednesday, 15 May2013, 3.30-4.30pm
Place : Project Director's office, LGED, Agargaon, Dhaka 1207
Purpose : Progress with infrastructure subproject selection criteria
Participants :

No.	Name	Designation	Contact No.	E-mail Address
1	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
2	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
3	Roger S Jackson (RJ)	Team Leader PPTA	01778189942	rsjwca@yahoo.co.uk
4	Engr. Md Zahangir Alam (ZA)	Deputy Team Leader PPTA	01720356772	lkdetector@yahoo.com
5	Paul Dean	Drainage and Flood Control Engineer (I)	0177 90 03535	pdean653@aol.com

Points Arising:

- PD reviewed revised criteria prepared to date (for water supply, sanitation, roads) and said these were in line with his way of thinking. He, however, felt that solid waste management should be in Stage I because of the impact on drainage.
- PD suggested that there should be a weekly meeting with him, preferably on Thursdays, or, if not possible, on Sundays.
- Roger said Ron wants to know whether final workshop for PCTIIP should be held during his final review mission 1-7 July or during fact-finding mission 11-25 August. PD expressed no preference.
- In TPP there is provision for a Planning Mission workshop. This is scheduled for 20 June.

NOTES ON MEETING WITH PROJECT DIRECTOR: 16 MAY 2013

Date : Thursday, 16 May2013, 11.30-11.50am
Place : Project Director's office, LGED, Agargaon, Dhaka 1207
Purpose : Responses to ADB Interim aide memoire
Participants :

No.	Name	Designation	Contact No.	E-mail Address
1	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
2	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
3	Roger S Jackson (RJ)	Team Leader PPTA	01778189942	rsjwca@yahoo.co.uk
4	Engr. Md Zahangir Alam (ZA)	Deputy Team Leader PPTA	01720356772	lkdetector@yahoo.com

Points Arising:

- Town selection criteria as outlined in Appendix 3 of ADB Interim Mission aide memoire needs to be revised to allow a greater range of scoring so that final scores are more sequential (10, 9, 8, etc) and not so blocky as at present (10, 7, 4, etc).
- This revision can be incorporated in LGED's reply to the aide memoire.

Meeting notes with Muhammad Shamsul Huq Bhuiyan, Executive Engineer, DPHE, Dhaka on 20 May 2013

Presentation and discussions on PC/UGIAP broad outlined by the consultant

- Stage I (priority 1:$ 5 - $ 9 million): Water supply, sanitation, drainage, cyclone shelters, roads and bridges: Criteria
    - People participation: activation of TLCC and WLCC emphasizing issues of climate change (CC) in terms of advocacy, early warning, community participation
    - Administrative transparency: activation of Standing Committee of the project Pourashavas on Disaster addressing issues concerning CC, filling up of the posts of DPHE at the Upazila/district level and water section of the project Pourashava, training/orientation to the personal of the water section of the project Pourashavas
    - Financial sustainability and accountability: water tariff collection efficiency, holding tax collection efficiency at least 50% and gradual increment
    - Establishment of TP section: filling up the post of Urban Planner, strict adherence to National Building Code , 2009, building permission following the proposals of land use /master plan
    - Town WATSAN committee is established with at least 10% women members

- Stage II (priority 2: $2.5 - $3.5 million): other roads, bridges and culverts, boat landing stations, markets, bus terminals and solid waste management: Criteria

    - People participation: activation of TLCC/WLCC emphasizing issues of climate change (CC) in terms of advocacy, early warning, community participation
    - Administrative transparency: activation of Standing Committee of the project Pourashavas on Disaster addressing issues concerning CC, filling up of the posts of DPHE at the Upazila/district level and water section of the project Pourashava, training/orientation to the personal of the water section of the project Pourashavas
    - Financial sustainability and accountability: water tariff collection efficiency, holding tax collection efficiency at least 50% and gradual increment
    - Establishment of TP section: filling up the post of Urban Planner, strict adherence to National Building Code , 2009, building permission following the proposals of land use /master plan
    - Town WATSAN committee is established with at least 10% women members

    ++++++++++ +++++++++ +++++++++++++++

    - Computerization of Tax and accounting system
    - Computerization of water tariff and billing system
    - Payment of arrear electricity and telephone bills
    - Reassessment of holding taxes

Observations made by Mr. Bhuiyan

- PC as proposed/practiced in STWSSSP could be replicated at the project Pourashava levels in the case of CTIIP with certain modifications relevant to the issues concerning climate change
- The compliance of PC is applicable in the case of the project Pourashavas under CTIIP
- DPHE will confirm that all the key posts of the offices at the levels of district headquarters (Perojpur)and the Upazila headquarters (Amtali, Matbaria and Golachipa)under CTIIP are

filled in so that they can provide support services to the project Pourashavas during the installation and maintenance periods of water supply sub-projects.

- DPHE as line agency will be a member of TLCC at the Pourashava levels.

Provision of Data/Information by DPHE

- The organogram of the offices of DPHE at the levels of district headquarters (Perojpur)and the Upazila headquarters (Amtali, Matbaria and Golachipa)
- Status of the vacancy of the posts both officers and staff at the levels of district headquarters (Perojpur)and the Upazila headquarters (Amtali, Matbaria and Golachipa)
- Status of involvement of NGOs in sanitation in the project Pourashavas
- Status of formation/activation of WATSAN committee in the project Pourashavas
- GO/circular about the formation and terms of references of WATSAN committee

Concluding Observations

- Useful discussion held, well briefed by Mr. Bhuiyan about the formulation of PC/UGIAP for CTIIP
- PC will be complied by the project Pourashavas

NOTES ON MEETING WITH DPHE: 22 MAY 2013

Date : Wednesday, 22 May 2013, 3.00-3.35pm
Place : Mr. Wali Ullah's office, Level 5, Department of Public Health Engineering (DPHE), Dhaka
Purpose : Clarification on DPHE comments on ADB interim mission's draft aide memoire re implementation arrangements for CTIIP
Participants :

No.	Name	Designation	Phone No.	E-mail Address
DPHE				
1.	Engr. Md. Wali Ullah	Superintending Engineer, Feasibility Study and Design Circle	Off: 880-2-9350165 Mob: 01712-138202	wullah01@yahoo.com wullah@dphe.gov.bd
2.	Engr. Mohammad Golam Muktadir	Executive Engineer, Planning Division	Off: (02) 9343362 Mob: 01552-384505	miltonbuet@yahoo.com gmuktadir@dphe.gov.bd
3.	Shamsul Huq Bhuiyan	DPHE focal person	01715034573 01937585034	shamsulhuqbhuiyan@gmail.com
PPTA Consultant				
4.	Roger S Jackson (RJ)	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk

Points Arising:

- Since water supply will be a major component of CTIIP DPHE consider that they cannot just be a technical partner agency to LGED as mentioned in the ADB Interim Mission aide memoire, and should be an Executing Agency alongside LGED, with its role and responsibilities clearly specified. For example, for UGIIP-3 both LGED and DPHE are joint EAs.
- The proposed implementing structure would be a Project Director in LGED through which loan funding would be channeled, and two Deputy Project Directors, one for DPHE to oversee water and sanitation components, and one for LGED to oversee other municipal infrastructure.
- Two development project pro-formas (DPP) would be needed, one for each EA.
- Mr. Wali Ullah said his office will be vacated in about 10-15 days time, and the PCTIIP PPTA consultants could use this office space thereafter. He hopes the consultants will spend more time at the DPHE office to facilitate sharing of information.

NOTES ON MEETING WITH PROJECT DIRECTOR: 11 JUNE 2013

Date : Tuesday, 11June, 10.30am-1.00pm
Place : Project Director's office, LGED, Agargaon, Dhaka 1207
Purpose : Progress with infrastructure subproject selection criteria
Participants :

No.	Name	Designation	Contact No.	E-mail Address
1	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
2	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
3	Roger S Jackson	Team Leader PPTA	01778189942	rsjwca@yahoo.co.uk
4	Engr. Md Zahangir Alam	Deputy Team Leader PPTA	01720356772	lkdetector@yahoo.com

Points Arising:

1. Planning Commission seminar on (Climate Resilient Infrastructure Planning, Design and Operation Considerations" (20 June):
   - PPTA Consultant will advance cash for the workshop up to BDT600,000.
   - Mohibul (PPTA Office Manager) will administer the cash.
   - PPTA Consultant will be reimbursed from ADB/LGED funding arrangement for the workshop.
   - Japan Embassy and Japan Fund for Poverty Reduction should be clearly visible on the banner.
2. Meeting with BWDB:
   - Contact person in BWDB is Sarafat Khan, Director Planning.
   - PD will contact Elma of BRM to arrange meeting.
   - Meeting with the Secondary Towns Flood Control Project is not necessary since its project area is northern Bangladesh only (does not cover the coastal area).
3. Ron's final review mission (30 June – 7 July):
   - Mission will consist of Ron, Vivian Castro (Urban Development Specialist) and Elma (BRM).
   - The objectives of the mission were discussed.
   - PD would like to have a full day meeting with the PPTA team on Saturday, 22 June, for the consultants to present current progress/status for the main topics for discussion, to prepare for the mission.
   - Meetings with the mission are scheduled for 30 June, 4 July and 7 July.
4. Draft project implementation schedule for CTIIP:
   - Draft project implementation schedule was discussed, including scheduling of consultant teams, performance criteria compliance, infrastructure interventions, etc.
   - Revised version will be sent to Ron/ADB and PD.
   - Roger suggested to use the term 'batch' for towns rather than 'phase', to avoid confusion with performance criteria 'stages', since both phase and stage imply timelines.
5. Roger's short break:
   - Roger informed the PD that he plans to take a short break (15-18 June) to meet his family in Bangkok.
6. Groundwater data:
   - Dr. Jay Punthakey, who arrived in Bangladesh on 10 June for his second field input, and Matin joined the meeting to brief the PD on the groundwater data collection requirements.
   - Jay and Matin will visit JICA office with a letter from the PD.

NOTES ON MEETING WITH PROJECT DIRECTOR: 22 JUNE 2013

Date : Saturday, 22June, 09.40am-1.00pm
Place : Project Director's office area, Level 2 RDEC Building, LGED, Agargaon, Dhaka 1207
Purpose : To prepare for ADB final review mission
Participants :

No.	Name	Designation	Phone No.	E-mail Address
1.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
2.	Ms. Sultana Rebeka Akhtar	LGED	01711 301895	sra1277@yahoo.com
3.	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
4.	Roger S Jackson	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
5.	Engr. Md Zahangir Alam	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com
6.	Paul Dean	Drainage and Flood Control Engineer (I)	0177 90 03535	pdean653@aol.com
7.	Engr. Shah Md. Muhibbullah	Drainage and Flood Control Engineer	01711618020	shahmuhibbullah@gmail.com
8.	Engr. Syed Nesar Ahammed	Municipal Infrastructure Expert	01711 131448	nesarjob@yahoo.com
9.	Dr. Dewan Abdul Quadir	Climate Change Adaptation Expert (N)	02-9668027, 01717265102	dquadir@yahoo.com
10.	Dr Mohammad Ghulam Murtaza	Institutional and Governance Expert	02-9124226, 01711483275	smgmurtaza@gmail.com
11.	P. Krishnan	Project Economist/ Financial Specialist (I)	01778122086	padmanabhan.krishnan@gmail.com
12.	Muhammad Hamidur Rashid	Project Economist/ Financial Expert	02-9570983, 01711 563058	mhrofchr@gmail.com
13.	Dr. AKM Abul Kalam	Urban Planning Expert (N)	01720039503	akmakalam@gmail.com
14.	Mohammad Abdul Matin	Hydrogeologist	02-911 2018 01711 960 930	mamatin@bangla.net; mamatin12345@gmail.com

Agenda:

Topic	Presenter
Introduction	Abul Bashar (PD)
Overall project planning and approach, components, performance criteria mechanism, project implementation schedule	Roger
Proposed municipal infrastructure interventions	Nesar
Proposed drainage and flood control interventions	Paul, Muhibbullah
Proposed water supply and sanitation interventions	Zahangir
Lunch	
PPTA capacity building activities (mobile support teams - MST)	Md. Sayedur Rahman Khan (MST focal person)

Points Arising:

1. A DPP specialist, Mr. Md. Akhtaruzzaman Khan, has already started.

2. Infrastructure sequence in our reports should be municipal infrastructure/ drainage and flood control/ water supply and sanitation.
3. UGIIP-2 did capacity building work in Pirojpur.
4. For Pirojpur water supply, surface water treatment plant currently being constructed will be sufficient for the core area for the next 10 years. For CTIIP, water supply interventions will be confined to the area of the Kocha River; the following components are proposed:
   - 50-60 hand tubewells, since there are pockets of fresh groundwater;
   - Rainwater harvesting on houses;
   - Reservoir tank to collect rainwater, and water treated by pond sand filter; land will need to be acquired.
5. Town selection criteria for Batch 2: PD said if we use the same criteria as UGIIP, we will end up with the same towns. CTIIP should include towns that have not received any assistance. He recommends that the long-listed towns are first screened whether they have received significant assistance from other projects/donors over the last 5 years. Rebeka will try and provide additional information on this, including the funding amounts.

NOTES ON MEETING WITH LGED OFFICIALS: 23 JUNE 2013

Date : Sunday, 23 June, 12.00am-1.00pm
Place : ACE (Urban Management & Training)'s conference room, Level 7 RDEC Building, LGED, Agargaon, Dhaka 1207
Purpose : Flood protection issues, need for meeting with BWDB
Participants :

Sl. No.	Name of Officer/Staff	Designation	Contact Details (Email/Phone)
LGED			
1.	Shyama Prosad Adhikari	Addl. CE (Urban Management & Training) LGED.	01726946962 (mob.) 8802 9128446 (off.)
2.	Md. Abul Kalam Azad	ACE (Planning & Design)	8802-8158626 (off.) 88-01711 332550 (mob.)
3.	Md. Abul Bashar	PD CTIIP, LGED	Off: 88 02 8143120 Mob: 01675 466238
4.	Md. Nurullah	SE (UMU), LGED	880 2 8159379 01711383935
5.	AKM Lutfar Rahman	PD CCRIP	88 02 8117935 (off.) 88 01715 004370 (cell)
PPTA Consultant			
6.	Roger S Jackson	Team Leader/ Watsan Specialist	01778189942
7.	Paul Dean	Drainage and Flood Control Engineer (I)	0177 90 03535

Points Arising:

1. Mr. Luftar mentioned that World Bank is funding 17 polders and Netherlands 9 polders, total 26 polders. He has no details on these polders.
2. District level working committees for coordination between agencies are generally running well.
3. LGED has/is worked/working with BWDB on many projects, on an informal basis. Formal inter-agency coordination is more difficult.
4. Roger was asked to send a letter to PD to request a meeting with BWDB for Paula and ADB mission.

NOTES ON ADB REVIEW MISSION KICK-OFF MEETING: 30 JUNE 2013 (revised)

Date : Sunday, 30 June 2013, 10.05am - 2.15pm
Place : Flat B-2, Queensgate, Road 48, Gulshan 2, Dhaka
Purpose : Discussion on key issues for Draft Final Report
Participants :

No.	Name	Designation	Phone No.	E-mail Address
ADB				
1.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
2.	Ms. Vivian Castro	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 4331	vcastro@adb.org
3.	Dr. Jehangir (Jay) F Punthakey	ADB-recruited Groundwater Specialist (Director Ecoseal)	+61 410 172 300 +612 9880 8900 0168 804 3310	eco@ecoseal.com
4.	Mohammed Zulyaminayn	ADB-recruited Procurement Specialist	01712252037	zulyamin@gmail.com
5.	Md. Akhtaruzzaman Khan	ADB-recruited DPP Specialist	mob: 01925783495	
PPTA Consultant				
6.	Roger S Jackson	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
7.	Engr. Md Zahangir Alam	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com
8.	Engr. Shah Md. Muhibbullah	Drainage and Flood Control Engineer	01711618020	shahmuhibbullah@gmail.com
9.	Engr. Syed Nesar Ahammed	Municipal Infrastructure Expert	01711 131448	nesarjob@yahoo.com
10.	Dr. Dewan Abdul Quadir	Climate Change Adaptation Expert (N)	02-9668027, 01717265102	dquadir@yahoo.com
11.	P. Krishnan	Project Economist/ Financial Specialist (I)	01778122086	padmanabhan.krishnan@gmail.com
12.	Muhammad Hamidur Rashid	Project Economist/ Financial Expert	02-9570983, 01711 563058	mhrofchr@gmail.com
13.	Ms Shireen Akhter	Social, Gender, Community Participation Expert	01715199572	akshireen@gmail.com
14.	Dr. AKM Abul Kalam	Urban Planning Expert (N)	01720039503	akmakalam@gmail.com
15.	Dr Mohammad Ghulam Murtaza	Institutional and Governance Expert	02-9124226, 01711483275	smgmurtaza@gmail.com
16.	Quddus	Resettlement Safeguards Expert	0191 764 808	maq1967@yahoo.com
17.	Md. Yasin Mozumber	Environmental Expert	01711 665408	yasin_afroza@yahoo.com
LGED				
18.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
19.	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
20.	Ms. Sultana Rebeka Akhtar	LGED	01711301895	sra1277@yahoo.com
DPHE				
21.	Mohammed Shamsul Huq Bhuiyan	Executive Engineer, Survey, investigation (SIR) Division	Off: 9343370 Mob: 01715-034573	shamsulhuqbhuiyan@gmail.com

Agenda:

1. Confirmation of mission schedule.
2. Discussion on key issues.

Points Arising:

1. Confirmation of Mission Schedule

1 July 2013, Monday ·
Khulna sanitation workshop – Ron Slangen & Vivian Castro
3:00pm-4:00pm AfD meeting with Secretary, LGD and Chief Engineer, LGED (Norio Saito, ADB, to participate on Mission's behalf)

2 July 2013, Tuesday ·
Khulna sanitation workshop (Ron & Vivian)

3 July 2013, Wednesday
9:00am-12:00pm - Tripartite Portfolio Review Meeting (Ron & Vivian)
1:00pm - Meet with Mr. Iftekhar Ahmed, Superintending Engineer, Planning, LGED (Ron & Vivian)
3:00pm-4:00pm - ADB meeting with KfW (Ron & Vivian)

4 July 2013, Thursday
9:00am-12:00pm - Meeting with PPTA consultants, including MSTs
1:00pm-5:00pm - Meeting with BWDB (Muhibbullah to arrange time and venue), ERD (External Resource Division, Ministry of Finance), World Bank (tbc)
· Meeting with DPHE(tbc)

5 July 2013, Friday ·
Prepare Aide Memoire

6 July 2013, Saturday
10:00am-12:00pm - Pre-wrap up meeting with LGED, DPHE, and PPTA consultants

7 July 2013, Sunday ·
10.00am: Pre-wrap up meeting with Chief Engineer, LGED
· 3.00pm: Wrap-up meeting with Secretary, LGD
Departure of Ron Slangen and Vivian Castro

2. Discussion on Key Issues

Topic	Points	Attention/ Action
1. PPTA implementation schedule	• TA draft final report should be submitted on 14 July 2013. Items which require lengthy preparation such as safeguards documents and PPCR application documents could be submitted later. • ADB, LGED, DPHE will send comments to PPTA team by 2 August. • PPTA should send responses by 16 August. • ADB loan fact finding will be scheduled for 25 August - 8 September 2013. The following PPTA team members should participate: Roger, Krishnan, Ninette, Saswati, Zahangir, Zulyamin,	Roger to check with Karl re any issues

	Khan; if possible, other national consultants should be on call.	
2. Town selection criteria for Batch 2	• LGED's concern is how to have greater equitability in the selection process, so that towns that have so far not received much or any assistance from other infrastructure projects can be included in the project. • After much discussion it was decided that the towns would be ranked on the basis of the following criteria, for which complete data are available: ➢ Step 1 (basic eligibility criteria for entry**)**: - population size, - population density, ➢ Step 2 (vulnerability criteria): - exposure (whether town is in "exposed" or "interior" zone), - piped water supply coverage, - overlap with CEIP-1. • Highest weight (score 10) should be given to exposure, lowest to overlap with CEIP-1. • Explanatory notes should be added on weighting justification. • Long list of towns with ranking should be completed by 4 July 2013.	All Roger
3. Data for groundwater	• Jay gave a briefing on the status of collecting groundwater data and update on aquifer mapping. • Arsenic is not an issue in deep aquifers. • Exploratory drilling is needed for towns such as Mathbaria to determine whether there is fresh water below current depth of existing wells (>300m depth). • Network of 250 observation wells is needed for regular monitoring of water level and salinity. Capacity building is required. • Sea level rise will increase the salinity of rivers and shallow groundwater. • Managed aquifer recharge could be an option for greater sustainability of supplies.	
4. Scope, costs and financing plan	• If possible there should only be additional 2 consultancy packages, besides PDA consultants, for greater efficiency and to reduce administrative procedures: (i) project management and supervision consultant team, and (ii) institutional strengthening and awareness building consultant team. Related activities should be bundled into the same package. • There is interest for co-financing from AfD, KfW and European Development Bank, mainly because of the climate change element. • Roger outlined activities to refine scope of subprojects since interim mission: revision of subproject component selection criteria to reflect climate change resilience, second round of consultations with pourashavas to finalize priorities, preliminary design, and costing. • Krishnan showed summary costs for the Batch 1 towns. Ron asked for a more detailed table, in USD, divided per town and infrastructure interventions per performance criteria stage. • Pirojpur water supply: Zahangir will visit the pourashava to confirm or otherwise that no intervention is needed under CTIIP.	Krishnan Zahangir
5. Procurement	• Zulyamin gave a briefing on results of market sounding, capacity assessment, and indicative packaging for first 18 months of project. • Contracts will not exceed USD1.00 million (about BDT7.8 crore).	

NOTES ON MEETING WITH BANGLADESH WATER DEVELOPMENT BOARD: 4 JULY2013

Date : Thursday, 4 July 2013, 4.20am - 5.00pm
Place : Mr. Islam's office, 2nd Floor, WAPDA Building, Motijeel, Dhaka
Purpose : To discuss coordination with CTIIP and provision of any data
Participants :

No.	Name	Designation	Phone No.	E-mail Address
ADB				
1.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
2.	Ms. Elma Morsheda	Project Officer (Urban Infrastructure), BRM	+88 02 815 6000/6016 01819240711	emorsheda@adb.org
BWDB				
3.	Engr. Zahirul Islam	Chief Planning	Off.: 9560957 Mob.: 01711 847522	cplanbwdb2012@gmail.com
4.	Md. Sarafat Hossain Khan	Project Director DIFPP & Project Coordinator CEIP-I	Landline.: +88-02-9332086 Mob.: +88-01715-038519	sarafat.khan@gmail.com
LGED				
5.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
PPTA Consultant				
6.	Roger S Jackson	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk

Points Arising:

- Ron outlined need for coordination with CTIIP and vulnerability of project towns if not adequately protected by flood defence embankments/polders.
- BWDB are happy to coordinate with LGED, Mr. Khan would be the focal person.
- There are 139 existing polders, softcopy of database will be sent to Ron.
- 17 polders are planned under CEIP-I. There will be more CEIP phases, areas of activity will be guided by needs and climate events.
- Mr. Khan: For CEIP-I, land subsidence of 12 mm/year is assumed, based on Dhaka University Geological Department.

NOTES ON MEETING WITH ADB REVIEW MISSION: 6 JULY 2013

Date : Saturday, 6 July 2013, 10.20am - 3.20pm
Place : PD's meeting area, Level 2 RDEC Building, LGED, Dhaka
Purpose : Review of draft aide memoire and discussion on key issues
Participants :

No.	Name	Designation	Phone No.	E-mail Address
ADB				
1.	Ron H Slangen	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 6270	rslangen@adb.org
2.	Ms. Vivian Castro	Urban Development Specialist, Urban Development and Water Division, South Asia Department	+63 2 632 4331	vcastro@adb.org
3.	Mohammed Zulyaminayn	ADB-recruited Procurement Specialist	01712252037	zulyamin@gmail.com
PPTA Consultant				
4.	Roger S Jackson	Team Leader/ Watsan Specialist	01778189942	rsjwca@yahoo.co.uk
5.	Engr. Md Zahangir Alam	Watsan Engineer/ Deputy Team Leader	01720356772	z_alam63@yahoo.com
6.	Engr. Syed Nesar Ahammed	Municipal Infrastructure Expert	01711 131448	nesarjob@yahoo.com
7.	Dr. Dewan Abdul Quadir	Climate Change Adaptation Expert (N)	02-9668027, 01717265102	dquadir@yahoo.com
8.	P. Krishnan	Project Economist/ Financial Specialist (I)	01778122086	padmanabhan.krishnan@gmail.com
9.	Muhammad Hamidur Rashid	Project Economist/ Financial Expert	02-9570983, 01711 563058	mhrofchr@gmail.com
10.	Dr. AKM Abul Kalam	Urban Planning Expert (N)	01720039503	akmakalam@gmail.com
11.	Dr Mohammad Ghulam Murtaza	Institutional and Governance Expert	02-9124226, 01711483275	smgmurtaza@gmail.com
12.	Quddus	Resettlement Safeguards Expert	0191 764 808	maq1967@yahoo.com
LGED				
13.	Md. Abul Bashar	Project Director (PD), LGED	88 02 8143120 01675 466238	mdabulbashar@gmail.com abashar_qc@yahoo.com
14.	Md. Al Amin Faisal	LGED	0182 1647 702	faisal.lged@gmail.com
15.	Ms. Sultana Rebeka Akhtar	LGED	01711301895	sra1277@yahoo.com
DPHE				
16.	Mohammed Shamsul Huq Bhuiyan	Executive Engineer, Survey, investigation (SIR) Division	Off: 9343370 Mob: 01715-034573	shamsulhuqbhuiyan@gmail.com
UGIIP-3 Consultants				
17.	Vincent Rotge	Team Leader		vincent.rotge@wanadoo.fr
18.		Deputy Team Leader		

Points Arising:

Topic	Points	Attention/ Action
1. Project scope	• The project consists of four components (i) improved climate-resilient municipal infrastructure, (ii) strengthened governance and institutional capacity, (iii) enhanced public awareness, behavior change, and community-based climate adaptation, and (iv) project	

	management support. The *impact* of the project will be improved climate change resilience and natural disaster preparedness in coastal towns. The *outcome* of the project will be improved access to climate-disaster resilient municipal services, including (i) municipal infrastructure such as drainage, cyclone shelters, urban roads, bridges, culverts, solid waste management, bus terminals, slum improvements, boat landings, and markets, (ii) water supply, and (iii) sanitation.	
2. PPTA implementation arrangements	• DPHE is now referred to as the co-executing agency for CTIIP • There will be 2 deputy project directors from LGED, and 1 from DPHE • .Project implementation period is now 6 years (Jun 2014 to Jun 2020), in line with UGIIP and other ADB projects. • Loan effectiveness: Jun 2014	
3. Phased investment approach	• The project uses a sector lending modality to support a phased investment approach similar to UGIIP. This allows the project to accommodate more towns beyond the four studied under the PPTA (e.g., Batch I, Batch II, etc.), as well as to accommodate a performance-based allocation approach with investments linked to improved governance (planning, budgeting, financial management, citizen participation). The number of towns covered under the project will depend on the level of investment demand in each town and available financing. Each town can access two stages of investment upon fulfilling performance criteria for each stage. Stage 1 (priority) investments are those which build climate-disaster resilience and fulfill gaps in basic services (drainage, water supply, sanitation, cyclone shelters, emergency roads/bridges/culverts, solid waste management); while Stage 2 investments - bus terminals, slum improvement, markets, boat landings, water supply (non-core), urban roads/bridges/culverts (non-critical) - are not related to climate-disaster resilience but related to general local economic development.[202] For Stage 2 investments, the town is entitled up to $1.0 million in project financing as a lump sum amount.	
4. Town selection criteria for Batch 2	• Agreement was reach on the step 1 (basic entry eligibility) and step 2 (vulnerability criteria) and weighting: ➢ Step 1 (max. score 25): (i) Population (weight 9) (ii) Population density (8) (iii) Fund allocation from Other Infrastructure Allocation over Last 5 Years (8) ➢ Step 2 (max. score 25): (i) Location in “exposed” or “interior” areas (weight 6) (ii) Poverty (4) (iii) Water salinity (4) (iv) Exposure to storm surges 2050 (6) (v) Coastal embankments (5).	
5. Performance criteria	• Stage 1 performance criteria for Batch I towns is expected to be fulfilled by December 2013. Stage 2 performance criteria for Batch I towns is expected to be fulfilled within 1.5 years by June 2015. The same timeframe will be applied to Batch II towns, etc. A performance evaluation committee will need to be formulated in LGED, as done under UGIIP, to evaluate performance of towns. As a Stage I performance criteria, each town will be required to sign a partnership agreement with LGED committing them to governance and institutional reforms under the performance criteria. The partnership agreement will be endorsed by the TLCC and WLCC and ratified through a council resolution and signed by the mayor.	
6. Project Design	• Ron insisted that PDA consultants are mobilized by Nov/Dec 2013,	

[202] All infrastructure under the project, regardless of which stage, will consider climate change adaptation.

<table>
<tr><td>Advance consultants</td><td>not Feb 2014 as proposed by LGED (not acceptable to ADB).</td><td></td></tr>
<tr><td>7. Mobile support teams</td><td>• Inception Report is due 10 July.</td><td>Sayedur Rahman Khan</td></tr>
<tr><td>8. Infrastructure cost estimates</td><td>• Costs estimates to be reduced as agreed last Thursday.
• Roads which are the responsibility for the Roads and Highways Department should be taken out, for Mathbaria.</td><td></td></tr>
<tr><td>9. Consultant teams for project implementation</td><td>• 3 teams are envisaged:
(i) Project Management and Supervision Consultant
(ii) Institutional Strengthening and awareness Building Consultant
(iii) NGO for community awareness raising and outreach.
• Cost breakdown to be adjusted.</td><td>Roger</td></tr>
<tr><td>10. Procurement</td><td>• The PPTA team held a workshop with local contractors to determine contractor capacity and shows that local construction firms can manage up to $1.25 million sized contracts. The Mission advised the PPTA team to explore the interest and potential of contractors in other large cities of Bangladesh, and regional (e.g., Indian, China, etc.) firms to bid for ICB contracts. It was found that pourashavas do not have experience managing contracts which are larger than $0.375 million, and require capacity support. A procurement plan for the first 18 months of project implementation will be submitted as part of the draft PPTA Final Report.</td><td>Suresh

Suresh, Zulyamin</td></tr>
<tr><td>11. Management Support Unit, LGED</td><td>• The Mission requested the PPTA team to meet and discuss with the Municipal Support Unit (MSU) in LGED to identify areas where the project can support the MSU.</td><td>Roger, Ghulam</td></tr>
<tr><td>12. PPTA schedule</td><td>• The draft PPTA Final Report will be submitted by 19 July 2013, exclusive of maps, draft safeguard documents (RPs, IEEs, frameworks) which will be submitted by 31 July 2013.
• Roger: However, every effort will be made to submit the draft final report earlier if possible.
• A PPTA final workshop is scheduled for 25 August 2013.</td><td></td></tr>
<tr><td>13. ADB loan processing schedule</td><td>• ADB will field a loan fact finding mission (final appraisal) from 25 August – 8 September 2013, at which time the ADB and the government will agree on the final project design, scope, costs, financing plan, and all related project documentation for ADB management approval and government DPP processing.</td><td></td></tr>
<tr><td>14. Key milestones</td><td>
<table>
<tr><th></th><th>Action</th><th>Responsibility</th><th>Date</th></tr>
<tr><td>1.</td><td>Draft TA final report</td><td>PPTA consultants</td><td>19 July 2013</td></tr>
<tr><td>2.</td><td>Draft DPP</td><td>PPTA consultants</td><td>19 July 2013</td></tr>
<tr><td>3.</td><td>Final TA workshop</td><td>LGED/DPHE</td><td>25 August 2013</td></tr>
<tr><td>4.</td><td>Loan fact finding mission/Final DPP</td><td>ADB</td><td>24 August – 8 September 2013</td></tr>
<tr><td>5.</td><td>Issue EOIs for 3 consultant packages</td><td>LGED</td><td>12 September 2013</td></tr>
<tr><td>6.</td><td>ADB Management Review/LGD approval of DPP</td><td>ADB</td><td>2 October 2013</td></tr>
<tr><td>7.</td><td>Loan Negotiations/PC approval of DPP</td><td>ADB/ERD</td><td>29 October 2013</td></tr>
<tr><td>8.</td><td>Mobilization of PDA consultants</td><td>LGED</td><td>November 2013</td></tr>
<tr><td>9.</td><td>ADB Board Approval</td><td>ADB</td><td>31 January 2014</td></tr>
<tr><td>10.</td><td>Mobilization of 3 consultant packages</td><td>LGED</td><td>April 2014</td></tr>
<tr><td>11.</td><td>First contracts awarded</td><td>LGED</td><td>June 2014</td></tr>
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</td><td></td></tr>
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APPENDIX A.4: COMMENTS ON INTERIM REPORT

COMBINED ADB COMMENTS ON THE INTERIM REPORT

1A. Comments from Mr. Ron Slangen, Urban Development Specialist (Project Officer for PPTA) – Batch 1 (received 16 May 2013)

Paragraph/ Section	Comment (ADB)	ADB Officer (Comment No.)	Response (PPTA Consultant)
Table of Contents			
Appendices 7.2 to 7.4	What about Summary profile for Mothbaria	Ron (1)	Summary profiles are based on available master plan reports. Master plan documents are not yet available for Mathbaria.
Executive Summary			
Section 5	I'm concerned that this section on climate change does not even mention CDTA7890, while the TOR explicitly states linking the CDTA findings to PPTA. Therefore, it is not clear how the PPTA integrated CDTA into the feasibility study and project design.	Ron (3)	We shall cite CDTA7890 more explicitly where we have used its findings.
56	How do these compare with the CDTA and recently approved ADB coastal resilience project? We want to avoid big discrepancy between assumptions and maintain consistency to extent possible.	Ron (4)	As noted, CDTA climate projections were inconsistent with all other projections; the CTIIP results are in line with projections like the ADB coastal resilience project. We can add a discussion in the DFR on this if you like.
60	Please elaborate the reason for this statement.	Ron (5)	[Assuming statement is regarding why not all vulnerabilities/impacts can be quantified]: For instance, the vulnerability of a sacred space cannot be quantified, and while we may quantify the number of lives impacted by climate change, we may not choose to place an economic value on these lives at risk. We shall add this sentence to DFR executive summary.
62	Rather than creating new plans, is it possible to integrate DRM into existing plans?	Ron (6)	There are two requirements. One is integrating DRM into spatial/physical plans (addressing the scale, nature and location of new development, use protection, siting of critical facilities and the spatial relationship between uses). The second is the need to have systems and procedures (a management system) that manages and responds to risk. There are, of course, relationships between the two but they are different
64	Is there any training program available in the country, either in government or development partners, on urban planning? E.g., World Bank?	Ron (7)	LGED UMSU/MSU provide training as and when necessary to staff and representatives of local governments and NILG (but the latter is weak in terms of urban sector focused training). CRDP is providing some urban planning training for RAJUK (KDA, and pourashavas). Professional bodies, such as Bangladesh Institute of Planners (BIP) provide training on GIS on regular basis. Once needs are identified in detail, demand can be matched with supply (training providers).
69	Were the pourashavas also made aware of this point? We need to carefully manage	Ron (8, 9)	Yes. Noted.

Paragraph/ Section	Comment (ADB)	ADB Officer (Comment No.)	Response (PPTA Consultant)
	expectations. Please state this selection criteria in text or appendix to understand screening and selection process.		Infrastructure subproject selection criteria have been revised to present to and discuss with the pourashavas to optimize the scope of infrastructure interventions.
70	However, we need to reduce the scope to fit within the financing envelope and to match absorptive capacity of the towns. Absorptive capacity is directly linked to the town's ability to raise revenue to operate and maintain the facilities, esp. revenue generating infrastructure (i.e., water) wherein they will also need to pay back the on-lent loan from the government.	Ron (10)	Noted.
Tab. ES.1	How do the PPTA scope and costs compare to those prepared under CDTA for these towns?	Ron (11)	Similar for Amtali and Galachipa. For Pirojpur main differences are for water supply (CDTA proposes groundwater, PPTA proposes surface water system because deep groundwater is saline,– surface water system is higher cost) and drainage/ flood control (PPTA proposes reinforced concrete cement covered drains, higher cost than CDTA).
Tab.ES.2	It's not clear if all costs consider climate change, or just drainage. Please clarify.	Ron (13)	Costs include preliminary climate change adaptation features where mentioned.
73	Is data also available for Pirojpur and Mothbaria? What percent of town's finances come from grants and non-tax revenue? Need a clear break down of revenue sources for each town including tax, non tax, and grants.	Ron (14, 15)	Yes, figures are available for all four towns. Lower and upper ranges have been given. Details are provided in Table 9.4. Government revenue grants are negligible, at around 2% of total revenue income across all four pourashavas
74	Explain how own revenue can be so high in case of Galachipa (97%) while collection efficiency is so low (17.5%)? This does not match up. Findings are not equally presented for all 4 towns, e.g., info for 'own revenue' is only for Galachipa and Mathbaria, and not for Amtali and Pirojpur, while info on'collection efficiency for property tax' is only for Pirojpur and Galachipa, and not for Amtali and Mathbaria. Please clarify.	Ron (16, 17)	As the Pourashava follow cash based accounting system, revenues collected represent the own revenue of Pourashava. As mentioned in previous point the revenue grants from GoB is very low. Hence the own revenue percentage is more. In the executive summary, the findings are given in a range of lower and upper percentages / figures. More details are given in Section 9.2 of the Report. In case all four towns data are required in the Executive Summary, it will be done in DFR.
76	UGIIP advocated accrual based systems, but is cash based promoted by LGED? What is the official position of LGED – accrual or cash based systems? This needs more clarification based on detail review of municipal finances to explain why the towns have weak financial situations. The main point is to identify how the towns can improve municipal finances and revenue to support O&M and any on-lent loans under CTIIP to gauge their absorptive capacity.	Ron (18, 19)	As per present information and knowledge GoB as well as LGED follow Cash Based Accounting system.
80	Prepare an organogram for PMU and PIUs with staffing and roles and responsibilities.	Ron (20)	We will prepare this in consultation with LGED.
81	List project steering committee members.	Ron (21)	OK.
83	Specify which requirements from the Act will be adopted under the performance mechanism.	Ron (22)	The Local Government (Pourashava) Act, 2009 will be adopted in preparing the performance mechanism for the CTIIP

Paragraph/ Section	Comment (ADB)	ADB Officer (Comment No.)	Response (PPTA Consultant)
88	Will need to carefully cost these two consultant packages out. This package should also include construction supervision - rename as Project Management and Supervision Consultants (PMSC). Suggest the following title - Institutional Strengthening and Awareness Building Consultants (ISABC).	Ron (23-25)	Noted, thank you.
89	To the extent possible, procurement packaging should maximize the size and therefore reduce the number of the packages to encourage implementation efficiency and attract higher quality firms. Bidding and construction of works for a particular geographical region could be programmed at one time in the project, rather than in a piecemeal manner throughout the project period. Separate civil works may compromise lots within a bid package, if potential bidders may not have sufficient capacity or qualifications to undertake the entire package. PPTA consultants are advised to consider this approach as well as initiate procurement capacity assessment of the EAs and IAs.	Ron (26)	Noted.
96	Is this referring to an urban SDP or WSS SDP, as I thought there was no SDP for urban development? Please clarify.	Ron (27)	Refers to Sector Development Programme Water And Sanitation Sector In Bangladesh; Ministry of Local Government, Rural Development & Cooperatives Local Government Division, Unit for Policy Implementation (UPI), Dec 2005.
99	Please specify what these are.	Ron (29)	Infrastructure subproject selection criteria have been revised to present to and discuss with the pourashavas.
100	What is the basis these costs? We need to provide accurate cost estimates to avoid future cost overruns or high price bids which are beyond the budget estimates, as seen in other Bangladesh infrastructure projects. Please focus on priority infrastructure – those which would make the town resilient to climate change in key vulnerable sectors. Also, we want to avoid a 'Christmas tree" approach wherein investments are spread too thin amongst various types of infrastructure, resulting in multiple procurement contracts and less development impact.	Ron (30, 31)	See Section 7.4, Main Report. Noted.
102	Good. What is the status and timeframe for finalizing these assessments and the scope, costs, etc.	Ron (32)	The target is by 9 June.
Main Report			
34	Any pre-FS level findings for Patuakhali?	Ron (34)	We did some preliminary assessments for Patuakhali, but at a meeting with PD on 2 Apr we were requested not mention the town in the Interim Report – presumably for changing political reasons.
Fig. 1.4	Map quality is poor. Is it possible to get better quality project related maps?	Ron (35)	Noted, we will revise the map.

Paragraph/ Section	Comment (ADB)	ADB Officer (Comment No.)	Response (PPTA Consultant)
Section 2.1.2	Please note that the government recently established a new Urban Development Wing in LGD in May 2013.	Ron (37)	Noted, thank you.
67	Has PPTA met with the Disaster Management Bureau? They are part of Steering Committee, but they should be informed of the project, and incorporate their views.	(Ron (39)	Yes, the Climate Change Adaptation Specialist met with the Director General of the Dept. of Disaster Management on 7 April 2013 (see page 55, Vol. 2, Interim Report).
68, 69	How are points in paras. 68-69 incorporated into CTIIP design?	Ron (40)	These are built into both the components on urban planning that will seek to strengthen the climate resilience of both plans (CC/DRM sensitivity) and planning, and CC/DRR including improved seasonal and short-term disaster forecasting and coordination systems, vulnerability assessments and supporting DRM committees.
70	What is the status of NUSP?	Ron (41)	It remains in draft. It has been passed back from the Cabinet office to the Secretary, LGD for making changes / modifications.
	Any additional information on this (contents, status, timeframe, which ministry)?	Ron (42)	It was drafted by a 'Committee on Local Governments' in 2006. It was convened by Prof. Nazrul Islam (CUS) with representatives from LGED, UDD, BUET. The draft was translated into Bengali by Bangladesh Institute of Planners (BIP) in 2011 and was modified by the Bangladesh Urban Forum (BUF) in its launching ceremony in December 2011 for submission to the MLGRDC. The Minister of LGRDC is the Chairman and Minister of Housing and Public Works is the Co-chairman of the Standing Committee of BUF in which professional bodies and important organizations in urban research are members.
	Do you have copies of Urban Management Policy Statements (1994 and 1999) to share with ADB?	Ron (43)	We have 1995 and will reference. Please provide 1999.
78	Where are the main thrusts of this cyclone shelter policy and how is CTIIP consistent with this?	Ron (46)	The policy underlines the need for cyclone shelters in the coastal towns and in the coastal zone. It emphasizes the preference for multipurpose shelters in order to make best use of resources. It also suggests elevating infrastructure, such as roads and embankments, for additional refuge during emergencies.
81	Is the 'local authority' a pourashava in the case of secondary towns (outside City Corporations)?	Ron (47)	Yes, 'local authority' under the Act refers to both city corporations and pourashavas. There are two types of local government / authority - urban (city corporation and pourashava) and rural (general administrative units- Zila (district), Upazila (Sub-district) and Union).
92	What type of investments?	Ron (48)	LGED investment in Urban Sector as given in Table 2.3.
Tab. 2.5	Was UDD consulted? They are part of the steering committee.	Ron (49)	Yes. This is supplemented by the Urban Planning Expert's previous earlier discussions with UDD on the application of DRR in land use planning. The study on DRR was undertaken by UDD with financial support of ADPC. The report provides a

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			general framework on DRR in land use planning (and the UDD recommendations will be referenced).
99	Please provide more info on this review process – when did it start, who initiated, and what is the proposed organogram and relevance to urban planning.	Ron (50)	The process was initiated mid 2011 by LGD based on a decision of an inter-ministerial steering meeting of UGIIP-2. A 5-member committee was appointed August 2011 to prepare a proposed new organogram. A new Town Planning Department is proposed consisting of: (a) IT Section, (b) Planning Section (master plan and building control) and (c) Beautification and recreational section. A significant increase in personnel is proposed (23). It is not yet approved.
104	What do you mean by this? A regional approach for managing WSS amongst a number of pourashavas? Please clarify.	Ron (51)	This refers to the economies of scale of shared utilities (between pourashavas in close proximity) to ensure commercial viability where individual pourashavas are too small to support PPPs.
	Please explain why success was limited and whether any lessons apply to CTIIP approach for WSS in pourashavas.	Ron (52)	We will attempt to follow-up.
106	Please carefully prepare cost estimates using most updated schedule of rates for materials, etc., as we want to avoid future cost overruns or high price bids beyond the cost estimates. There is bad experience in other ADB projects in Bangladesh where the cost estimates under PPTA were too low resulting in cost overruns during implementation.	Ron (53)	Noted, but the issue is often the schedules of rates (SoR) themselves are not updated to reflect construction inflation. Hence, approved estimates are under-budgeted.
110	Under CTIIP, we need to develop an on-lending arrangement considering current government and other donor practices (namely World Bank's MSP and BMDF programs, and maybe JICA also has experience) so as to harmonize. Please propose a scheme for CTIIP considering the above, and experience from UGIIP and STWSSP. UGIIP had 50:50 for WS, and 100% grant for non revenue.	Ron (54)	Noted, and will be done.
116	Any overlap with CTIIP? (STIDP 1)	Ron (55)	No. Will double check.
117	Any overlap with CTIIP? (STIDP 2)	Ron (56)	No. Will double check.
119	Any overlap with CTIIP? (UGIIP)	Ron (57, 58)	No. Will double check.
	Any link with CTIIP?	Ron (59)	The links are more oriented to the processes, methods and lessons learned and how these can inform CTIIP addressed in later paras.
120	What about Class B and C pourashavas?	Ron (60)	The performance criteria set out will be applicable for all classes of the Pourashavas.
	Provide more information on PDPs – how they are prepared, the contents, timeframe for PDPs, and how these differ from master plans, and how this relates to CTIIP.	Ron (61)	The PDPs are prepared by the Facilitator of UGIIP with the assistance and cooperation of Pourashavas. The document contains a detailed list of infrastructure with a development plan, but without detailed surveys and plan maps on physical conditions as in the Master Plan. This is mainly a project document unlike the Master Plan, which is the legal document

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			for long-term development. The MIDP was a similar document by UGIIP before the PDPs. Master Plan is prepared by the GOB fund appointing consultant for a minimum period of eighteen months to two years under the current practice by UDD and LGED. The on-going Master Plan project of LGED has taken much longer than two years. The Master Plan is primarily based on detailed field surveys on several aspects, e.g. socio-economic, topography, physical features, land use, transportation and traffic, drainage and environment. The Master plan reports are accompanied by different kinds of plan maps, phase-wise development proposals and directions of plan implementation. All plan maps are prepared using GIS tools for future use by the Pourashavas. The Master Plan is prepared for 20 years and is the legal document necessary under the Pourashava Act, 2009.
122	Even if it is mandated in the Act? How to address this issue to sustain TLCCs? Even if it is mandated in the Act?	Ron (62)	Yes, it is mandatory to form TLCC in the Pourashava and there is directives from the LGD how to form TLCC and ToR of TLCC. The activities of the TLCC can be sustained through holding quarterly meetings regularly. The decisions of the TLCC should be monitored and followed by the UGIAP implementation committee that would be formed by the participating Pourashavas.
126 (ii)	Is LGD taking any actions in this regard?	Ron (63)	LGD is fully aware about this and is instructing the Pourashava to generate their resources.
126 (iii)	What is difference between MIDP and PDP? I thought UGIIP only supported PDPs. Please clarify.	Ron (64)	Answered in paragraph 120 (Ron 61) above.
	Who prepares a PDP, ADB loan consultants?	Ron (65)	Answered in paragraph 120 (Ron 61) above.
	Are there any efforts in this regards?	Ron (66)	Answered in paragraph 120 (Ron 61) above.
132	What is the role and capacity of the MSU in LGED?	Ron (69)	MSU in LGED is engaged in building municipal capacity in the form of proving training, installation computers, providing software on tax and accounting, water tariff, trade licenses, non-motorized vehicles, etc.
134	Any overlap with CTIIP?	Ron (70)	UGIIP-2 participants on CTIIP long-list include Barguna, Bhola, Jhalakathi, Kolapara, Patuakhali, Lalmohan, Gopalganj and Satkhira
Tab. 2.9	Comprehensive Disaster Management Programme II - Any lessons learned for CTIIP?	Ron (71)	CTIIP's climate team met with the CDMP II project manager and urban risk reduction specialist. They highlighted a number of issues that impact the effectiveness of climate-related DRR, including the challenges of administering such projects when two separate groups are involved, those with primarily a climate change mandate, and those with a disaster risk

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			management mandate. In the middle levels of Bangladesh's bureaucracy this is particularly challenging. A second challenge is while national level implementation can be fairly effective, it is more challenging at the local levels and there is perceived to be a lack of accountability.
156	Any role for NGOs in CTIIP?	Ron (72)	Yet to be studied.
170	Are water safety plans part of CTIIP?	Ron (73)	Yes.
212	What the feasibility of PLC under CTIIP? What is the experience from STWSSP?	Ron (74)	Yet to be studied.
	Is there scope under CTIIP for regional utility?	Ron (75)	Yet to be studied.
	What is the potential for this model in CTIIP?	Ron (76)	Yet to be studied.
216 (c)	How is water quality monitoring going to be done in CTIIP towns?	Ron (77)	A mini water quality testing lab. will be established in Pourashavas and water quality monitoring will be done by them. Necessary training will be provided to the relevant Pourashava staffs.
250	Has there been any consultations with the PSU for CTIIP?	Ron (78)	Similar consultation will be done for CTIIP.
251	What about in pourashavas?	Ron (79)	For Pourashava WATSAN committee, will be headed by the Mayor of the respective participating Pourashava.
Tab. 2.10	Any lessons learned from "Ensuring Water and Sanitation Facilities towards Disaster Risk Reduction"?	Ron (80)	Documentation has been requested from EU/Concern Universal.
263	This list may not be relevant anymore. Need to first finalize the selection criteria, then select on this basis. And we need to select larger towns. Once selection criteria are finalized (as part of the interim review mission AM), please develop long list with LGED.	Ron (81)	Noted, this is being carried out in cooperation with LGED. .
272	- Criteria need to be objective with reliable, easily available data sources to facilitate town selection process by EA. - Let's have entry criteria first, based on population size and density (at a minimum). Those towns meeting the basic entry criteria could then be screened and ranked further. - Most towns are low lying. May not be much difference. - Is there a quantitative difference between towns? Or all are hit. - Data source? - Let's carefully think and discuss on this during mission. What is our objective for this criterion? Once this is known, we can better define it – e.g., threshold of external funding assistance and timing of these investments in each town's priority sectors. - Or planned embankments - Protection against river flooding and/or storm surges? Please clarify. - This is related to performance criteria	Ron (83-97)	Noted. The town selection criteria are being revised and simplified in cooperation with LGED.

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	which is separate. Let's not mix. Delete. - This is related to performance criteria which is separate. Let's not mix. Delete. - Data source? - Do most towns have similar growth rates? - Data source? - This is related to performance criteria which is separate. Let's not mix. Delete. - Level of resettlement could be a final screening criterion after ranking is done.		
Tab. 3.2 Overall project design/ guiding principles	How to address weaknesses/issues of PDP identified in other sections of this report. How does CTIIP involve the beneficiaries in the planning process to build ownership? Please include.	Ron (99, 100)	
Tab. 3.2 Urban planning, master plans	Not clear. Please clarify this point. Are these new plans, or improving existing plans? It may be better to make existing plans climate resilient than create new ones. Please clarify.	Ron (101, 102)	There are two issues related to the capacity of pourashavas to plan in CC/DRM. (1) the master plans developed under GOB support. These are traditional land use instruments that can be revised (as necessary) on the basis of a vulnerability assessment. A list of projects is identified for implementation in the first five years of the Master Plan period. But on balance these plans will remain deficient as a method for identifying and bringing forward investments on an on-going basis due to a lack of prioritization, and the absence of a link to available funds and on-going O&M. This is a critical gap and it needs to be bridged (a matter that the UGIIP MIDP/PDP tried to address). (2) Experience suggests that shorter-range investment plans are the best way of trying to plug this gap – these should be far more operational, quicker to develop, more responsive to changing needs, based on financial capacity. It is not proposed that there is a separate CC plan or strategy, given the size of the towns this is best integrated in the master plan – but rather an investment instrument that can be used to prioritize investments (including CC/DRM)
Tab. 3.2 Capacity of pourashava local governments	What O&M model as described earlier in the report will apply to CTIIP?	Ron (103)	Technical units in the pourashavas to operate and maintain water supply systems will follow standard O&M practices according to DPHE guidelines.
Tab. 3.2 Physical works	Did this exist in UGIIP, if so, is this allocation higher?	Ron (104)	There is no mandatory requirement on this allocation in UGIIP…But is being practiced that about 5 -10% of the ADP allocation.
Tab. 3.2 Community participation	How will NGO's be engaged in CTIIP? Engaged separately through CQS or through subcontracting through a bigger firm? Explain where funds come from and mechanism for this proposal.	Ron (105, 106)	For awareness campaigns. Both could be considered, depending on local situation. We recommend PPCR fund community adaptation funds, following a model used by the Asian Coalition for Community Action Program (see www.achr.net). VRCs require a counterparty to fund payment; this

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			could be PPCR.
Tab. 4.1	Table 7.7 says the population of Mathbaria is only around 18, 000	Ron (107)	Figure for Mathbaria pourashava in the table is incorrect. Correct figure is 18,375 (BBS 2011 census).
302	Please ensure the findings on gender are included as part of the gender analysis.	Ron (108)	OK.
Chap. 5	Please also refer to the Climate Change appendix of the RRP for the ADB BAN-coastal climate resilience project, and to ensure similar contents, as the same will be included for CTIIP. Also, if the PPTA international climate specialist is taking different approach or using different findings than CDTA, this should be made clear and justified. There is very limited mention of CDTA 7890 in Section 5, which is not consistent with the TOR of the PPTA, and understandings reached with PPTA team during discussions. There are only a few references to the CDTA (Table 5.7, paras 262 and 383). Please include a clear stand-alone subsection detailing the relevant findings of the CDTA and how these were incorporated into the PPTA. Incorporation of CDTA findings in PPTA needs clarification and strengthening.	Ron (109, 110)	Noted.
307	Ambitious meaning not realistic?	Ron (111)	To be determined. However, considering how we are being ambitious, the consequences of being ambitious and not achieving all aims is still likely to be much better than not trying at all.
Section 5.1.4	Credits? Is this related to UNFCC mechanism? The project should only promote those mechanisms which the country is officially signed onto.	Ron (112)	VRCs, like voluntary carbon market "Verified Emission Reductions", are not an instrument that is a party to the UNFCCC. However, like VERs, VRCs may serve to be a useful metric and incentive regime. The DFR shall remove any reference to VRCs as a legal instrument and shall remove a promotion of the VRCs, and limit itself to measuring "vulnerability reduction" potential of the proposed CTIIP measures as an analytical tool for the cost: benefit analysis. Other parties may or may not employ the tool but the measurements shall be useful in evaluating vulnerability reduction.
313	Not clear what you mean. For a town to generate tax revenues it is not linked to national policy change. It's related to municipal financial management, local capacity and local political willingness.	Ron (113)	We suggest we remove this paragraph as it appears to be too confusing.
314	Meaning you should take advantage of CDTA, which is part of the TOR, and this is not evident in Section 5.	Ron (114)	We do take advantage of the CDTA and will make it clearer when/where we do so.
316	Seems like self-promotion as the international PPTA climate specialist is the founder and Executive Director, and would surely benefit from this proposal. May not be appropriate	Ron (116)	Will remove all reference to Higher Ground Foundation and refocus simply as an approach to quantify vulnerability reduction - as an analytical tool.
317	Costing very important. Economic analysis requires a comprehensive description of the	Ron (117)	Noted. Will be done as per discussions with

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	calculation of the costs and especially of the benefits of the investment project. Please see comments of Mr. Benoit which were sent by email on 3 May to Roger and Krishnan.		Benoit.
Tab. 5.13	Is this consistent with CDTA?	Ron (118)	No. Reference email sent to Ron and noted by Ron on 12 June.
Tab. 5.14	This table needs strengthening. These are very generic statements and need much more detailed measures. Especially for project costing purposes, and cost-benefit analysis.	Ron (119)	Note revised version prepared with much help by Bruce P. Also note that work undertaken by engineers/planners at this phase gets into quantified impacts and adaptation measures, and will be part of the climate adaptation strategy.
Temperature	Temperature - Provide specific recommendations on materials and design. Temperature - Very general. Need more specific adaptations.	Ron (120, 121)	Reference will be made to the engineering chapters for the actual CC resilience measures, for consistency. This will be done in DFR using consultation with the engineers.
Sea level rise – water resources	Salinity not even mentioned. This is a major impact, and needs attention. Climate specialist must work closely with Groundwater Specialist. Does not seem to reflect inputs from Jay Punthakey.	Ron (122)	A section is under preparation for salinity impacts on the study pourashava.
Sea level rise – sanitation	There is no value addition of this statement. Please be more specific.	Ron (123)	Sanitation facilities need to be raised to be above future flood levels. The value addition of that will be mentioned in the DFR.
362	What are the implications of this on the economic analysis? Can we still have robust economic costing done?	Ron (125)	The DFR will have an “inventory” that includes vulnerabilities that the projects will mitigate that may not be quantified, or if quantified, not monetized. We can do economic costing, it’s just that some of the benefits of the project will not be monetized but still noted. This is not at all unique to this project, or to development projects overall. Just important to acknowledge and it is an aim to try and identify those that are not monetized.
Tab. 5.15	- No resources for storm water drainage identified in last column. Please clarify. - What is green driving? - Resources?	Ron (126-128)	Will be included in DFR. Driving to enhance fuel efficiency and thus lower carbon emissions. If a recommended action , will articulate in DFR table.
Section 6.4.4	What is the willingness of the 4 towns to implement such recommendations? If CTIIP were to finance TA to support these recommendations in urban planning, what is the interest (and appetite) of selected towns to effect (and sustain) these changes.	Ron (129)	The recommendations have been built out of the detailed discussions with the pourashavas and tempered by lesson learnt from other DP interventions. In brief: • Personnel – all towns reported a lack of capacity and considered a mix of training/sensitization as useful in supporting the development of urban planning (which is new to all 4). An Urban Planner in the team seems to be crucial for effectiveness. • Development control – ‘room for improvement’ is recognized in all 4 towns with TLCC/WLCC and citizen awareness as identified as a useful way forward. Repeated structural/building disasters in Bangladesh underline that transparency and accountability in building regulation should be critical (not optional) in

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			infrastructure/urban development and planning projects. • Plans – all 4 towns consider vulnerability assessments as important. There is recognition of the gap in planning for investments. • GIS – all 4 expressed considerable interest. • Sustainability will be conditioned by a range of factors – but political leadership and drive will be key – together with the effectiveness in implementation and demonstrating good practice.
492	Please indicate timeframe of recommendations - whether these are short, medium, or long-term in view.	Ron (130)	These should be initiated in the short term (year 1) through elaboration and design of TA components and implemented in years 1 and 2 with follow-up support through the project lifecycle. We are detailing phasing in the run up to DFR submission.
Tab. 7.1	- Apart from BWDB, does LGED also do stormwater drainage? Please confirm. - If boat landings are constructed under CTIIP, who will manage and maintain – BIWTA or pourashava. We should only support those assets which will be maintained by Pourashava.	Ron (131, 132)	Yes, the subprojects to be implemented by the project will be those that are the responsibility of LGED/ Pourashavas. Noted. Pourashavas would have control and contract out operation.
505	Please refer to CDTA where relevant.	Ron (134)	
Section 7.2.4	Please refer to Climate Change appendix of BAN-coastal climate resilience project which outlines in detail the climate adaptation measures for roads in coastal areas of Bangladesh. Please include as relevant in this section.	Ron (135)	Noted, thank you. This section and table was developed by referring to the CCRP's Annex as well as other documents. Refer to footnotes 188 & 189 plus Paras. 512 & 513.
Tab. 7.4	Again, please cross check this with the Climate Change appendix shared with you from the other ADB BAN- coastal climate resilient project, which has an entire detailed section on roads and climate change adaptation measures in coastal areas of Bangladesh. CTIIP measures on roads should be consistent.	Ron (136)	Noted, thank you. This section and table was developed by referring to the CCRP's Annex as well as other documents. Refer to footnotes 188 & 189 plus Paras. 512 & 513.
Section 7.2.5	The BAN- coastal climate resilient project also invested in cyclone shelters. Please cross-check with the Climate Change appendix which has an entire detailed section on cyclone shelters and climate change adaptation measures in coastal areas of Bangladesh. CTIIP measures on cyclone shelters should be consistent.	Ron (137)	Noted, thank you. This section and table was developed by referring to the CCRP's Annex as well as other documents. Refer to footnotes 188 & 189 plus Paras. 512 & 513.
517	Cross check with climate change appendix of BAN-coastal climate resilient project.	Ron (138)	Noted, thank you. We have referred to the relevant appendix in this report.
Section 7.2.6	Are boat landings owned and maintained by the pourashava or a central government agency (i.e., BIWTA)?	Ron (139)	Yet to be studied.
522	Why? It seems SWM is not an issue. This section needs much strengthening to give better understanding on why the CTIIP should invest in SWM in the pourashavas.	Ron (140)	Noted. key issue is disposal site identification.
525	Are the mayors supportive of slum upgrading works located on public lands?	Ron (141)	Yes.

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Tab. 7.8	Table 7.7 says the population of Mathbaria is only around 18, 000. Please clarify and check for consistency.	Ron (142)	Figure for Mathbaria pourashava in the table is incorrect. Correct figure is 18,375 (BBS 2011 census).
Photo. 7.3	This photo clearly shows the vulnerability of the slums in coastal areas. Are there any adaptation measures proposed for these poor populations?	Ron (143)	The embankments should be extended (BWDB responsibility). We recommend improved cyclone shelters, improved disaster warning and a community based adaptation fund to help, along with improved latrines etc.
Tab. 7.10	Should be explained to pourashavas.	Ron (146)	Noted.
	Not only does it not conflict, but also is consistent with Master Plan. If not in master plan, this would need justification. Please clarify.	Ron (147)	To the extent possible, infrastructure subprojects proposed for CTIIP should be consistent with master plan (MP) recommendations. However, MPs are not climate change proofed and thus additional infrastructure not included in the MP may be required for resilience.
	So a consultation workshop, rather than a planning document, is the basis for approving a subproject? Please clarify. Also, PDP is not proposed for CTIIP? Please clarify.	Ron (148)	Infrastructure subprojects for CTIIP are selected through discussions with pourashavas with reference to revised selection criteria, and scoring matrix for prioritization where required.
	Not clear what is meant by 'small scale and type of interventions'. Based on preliminary costs, the investments are quite large. For example, Mathbaria requires a SWTP, which is not a small scale intervention. Please clarify your position, and explain how CTIIP will ensure investments are based on demand, and not political wish list.	Ron (149)	Infrastructure subprojects for CTIIP are selected through discussions with pourashavas with reference to revised selection criteria, and scoring matrix for prioritization where required.
Section 7.3.2	The criteria need to be stated more clearly and in user friendly format to facilitate subproject selection during project implementation. Phase I towns also need to satisfy the criteria. It should be more of a checklist format, for example: Criteria for selecting water supply projects include the following: Water quantity and quality will meet government drinking water quality standards as follows: A sanitation subproject will be selected from the communities identified for water supply, according to the following criteria: etc.	Ron (150)	Noted. Revised and simplified selection criteria have been prepared, for review by LGED and ADB.
A. Water Supply	Please also get Jay Punthankey's inputs on selection criteria related to groundwater supply and quality, esp. related to determining sustainable yields for deep aquifer systems.	Ron (151)	Noted.
528 a)	Please define the criteria clearly and in a way which the EA can simply apply the criteria. What about unserved, unconnected areas? Please clarify.	Ron (152, 153)	Addressed in revised selection criteria. Unserved/unconnected areas are the parts of Pourashava presently not connected to the existing piped water supply.
528 b)	Please state more clearly and in more user friendly (implementation) manner – e.g., Groundwater: Must meet government drinking water quality standards for saline and arsenic. (source: available	Ron (154)	Addressed in revised selection criteria.

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	DPHE/BWSDB/WARPO data, or based on test bore holes), and demonstrate a sustainable yield for X years (please consult Jay). Surface water: Must meet government drinking water quality standards and only after it is determined that groundwater is not potable due to saline or arsenic contamination.		
528 c)	Needs to be stated more clearly – e.g.,population is identified as a slum by the TLCC or WLCC and water is identified in the poverty reduction action plans.	Ron (155)	Addressed in revised selection criteria.
B. Sanitation	What about the operation and maintenance model for public toilets (i.e., fee system) to ensure sustainability. Please reflect inputs of GF expert for sanitation components.	Ron (156)	Noted.
529 b)	Needs to be stated more clearly – e.g.,population is identified as a slum by the TLCC or WLCC and sanitation is identified in the poverty reduction action plans.	Ron (157)	Addressed in revised selection criteria.
537	Oddly worded. You mean drainage of highest priority should be characterized by the following criteria: x, y, z…	Ron (158)	Yes.
F. Cyclone Shelters	Cross check with Climate Change appendix of BAN-coastal climate resilience project	Ron (159)	Noted, thank you. We have referred to the relevant appendix in this report.
554	Need to further screen priority list to reduce scope.	Ron (160)	Noted. Further consultations with the pourshavas to achieve this are planned.
556	Latest schedule?	Ron (161)	Yes.
747	Any issue of salinity intrusion during dry season which would affect water quality. What about under future climate change scenario? This would affect intake location.	Ron (162)	Further consultation and study will be carried out to address the issues.
752	Any land acquisition for the transmission pipe?	Ron (163)	Land acquisition for the transmission pipe will not be required.

1B. Comments from Mr. Ron Slangen, Urban Development Specialist (Project Officer for PPTA) – Batch 2 (received 20 May 2013)

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Main Report			
806	Is this division agreeable with both DPHE and LGED? Is this division agreeable with both DPHE and LGED?	Ron (1)	In principle, DPHE and LGED should be agreeable on matter of division of the subject work.
815 (v)	As per the Act? What is the official title of this staff?	Ron (2)	No Act on this. At present, there is no post in any classes of the Pourashava who is supposed to take the problems and issues concerning climate change.
Tab. 9.3	Please explain any user charge measures for services including how charges were incorporated in the demand and rate of return analysis.	Ron (3)	Noted. Will do as suggested.
Section 9.2.1	• Please include more analysis with clearer findings on the financial and institutional sustainability of towns. For example,	(Ron (4)	Noted. Will do as suggested.

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	financial sustainability assessment of revenue-generating projects, fiscal impact of the project should be considered for revenue and especially non-revenue generating projects, and how will towns support O&M. ADB supports minimal use of financial subsidies, but where it occurs, clear justification needs to be established. • For fiscal impacts, evaluate impact of the project on the capital and recurrent budgets, and identify and evaluate the source of funds to meet net fiscal requirements. • Assessment of institutional sustainability should focus on identifying the functions, structure, and capacity of the towns.		Noted, will do. Will be studied.
Tab. 9.4	Evaluate the financial sustainability of the project, both with and without subsidy.	Ron (5)	Noted, will do.
853	Missing data. Will this be filled in?	Ron (6)	Yes.
Tab. 9.8	Please fill in blanks.	Ron (7)	OK.
Section 11.2	• Please provide clear institutional capacity building program under CTIIP with clear indicators. • Please prepare detailed TOR for institutional capacity building and public awareness consulting firm. Climate change, urban planning, disaster reduction, hygiene, water safety plans, etc., should form components.	Ron (8)	Will be studied. Noted.
Fig. 13.1	• No need for PDA. This will be absorbed into the investment project implementation arrangements. • All consultants recruited and managed by PMU but will be supporting at local level. Where will consultant's office be – in PMU, PIU or neither.	Ron (9)	Noted, thank you. Office in Dhaka, for project management support, and in project area (Barisal?) for technical and capacity building support
Section 13.4	Needs finalization based on mission discussions.	Ron (10)	Noted.
Tab. 13.4	Please include the key indicators sent by email on 20 May. Only include core PPCR indicators.	Ron (11)	OK.
Section 13.6	Two additional packages: 1. Project Management and Supervision consultants 2. Institutional Capacity Building and Public Awareness consultants	Ron (12)	Noted, thank you.
Tab. 14.1	• Please justify why low. Financial recovery is critical, and I'm not clear on financial capacity of towns to support O&M of investments. • Are connection fees included in the project costs?	Ron (14, 15)	Without mitigation measures the Risk will be High. Yes. Connection fees included in the project costs.
Section 14.6.1	Are these consistent with BAN-Coastal Climate Resilient Infrastructure Project, and CDTA? We need to ensure consistency in the scenarios and projections. Please clarify.	Ron (16)	CDTA climate projections are not consistent with the earlier findings. Some of the results belonging to CDTA are contradictory among each other and did not come up with any specific decision on which of the projections are more logical and to be used for the project. PPTA results are more or less consistent with BAN-CCRIP.

Paragraph/ Section	Comment (ADB)	ADB Officer (Comment No.)	Response (PPTA Consultant)
986	Can these (master plans) be modified during project implementation?	Ron (17)	Before the Master Plans are gazetted by the government, any changes can be made and resubmitted. After that if there are mistakes in information can be taken care of by the Pourashava. For major modification, the pourashava needs to proceed following the review process. The DRM measures are more related to building codes for making the infrastructure disaster resilient. This does not make any changes to land use. So there is no conflict.

2. Comments from Mr. Saugata Dasgupta (SD), Urban Specialist, India Resident Mission

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
Executive Summary			
8	Project scope, line 1: Replace “need” with municipal	SD (1)	OK.
12	line 1: insert “implementation of ” after “during the”	SD (2)	OK.
13	Complete the second sentence after “ during first phase of the Project.” And rewrite the next sentence as “The subprojects of the remaining towns during subsequent phases will be prepared by the executing agencies of the project using the subproject selection criteria and techniques developed during the first phase as a model.”	SD (3)	OK.
28	Solid Waste Management: Please mention that there is no secured or engineering landfill site in most of the towns.	SD (4)	OK.
35	Please mention the service level target for urban water supply (quantity of potable water to be supplied per capita per day) in Bangladesh.	SD (5)	OK.
55	Please mention how intensity of rainfall has changed (more concentrated) and its impact.	SD (6)	OK. The rainfall intensity is presumably increasing, but cannot be confirmed as hourly observation is not captured in Bangladesh. The overall rainfall is increasing and the impacts will be discussed in DFR.
59	Please develop climate change adaptation strategy based on the following: (i) modeling climate change scenarios-vulnerability assessment due to climate change- damage assessment- identification of adaptation measures to reduce damage.	SD (7)	Yes, this is the plan.
64	Please consider introducing GIS based property tax mapping and billing and collection system. GIS base map will also help the Pourashavas in better planning, land use control and infrastructure development.	SD (8)	Yes agreed. This will be part of a TA component.
74	Give a statement about the revenue vs expenditure of individual Pourashavas.	SD (9)	Already done. Please see Section 9.
75	Does Amtali’s water supply system is revenue surplus system and that of Pirojpur recover 98%	SD (10)	Yes, these can be demonstrated as pilot for 24-hour supply.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	of O&M cost? Then these schemes can be demonstrated as pilot for 24x7 water supply system? Please review.		
76	Please identify and address the issues in developing acceptable project accounting requirement and agency accounting system separately.	SD (11)	Will discuss with PD and LGED, and follow UGIIP 2 model.
80	Please consider involvement (as a technical support) of local LGED and DPHE in the functioning of PIUs. Please mention that PIUs will do all the procurement for works contracts and release payment.	SD (12)	We will consult with PD on these issues.
81	Will it be effective to form division/district level steering committee for better co-ordination at the field level. Add a para. about the procurement approval process.	SD (13, 14)	We will consult with PD on these issues.
102	Add "vulnerability to climate change " as one of the key factors.	SD (15)	Noted, thank you.
Main Report			
13	Need more discussion and the baseline data before finalizing the impact statement and its indicators.	SD (16)	Noted.
37	Include "procurement capacity assessment report" and "Financial management assessment reports' of LGED and Pourashava's of Phase 1 towns.	SD (17)	OK.
51	"Lack of adequate resources" is also a major constraint.	SD (18)	Noted, thank you.
53	Please indicate the average service level in the major cities and towns.	SD (19)	According to Water Supply and Sanitation Sector Development Plan 2011-2015, coverage of piped water systems in pourashavas is about 40% (range 0-60%), mostly in town centers. Supply is 2-12 hours/day, 75 lpcd (but only 45 lpcd after unaccounted-for-water of 40%). Handpump tubewells are the main water source in non-piped areas, but are also in piped areas because of the unreliable piped supply. Combined water supply coverage by piped systems and handpump TWs is 85%. Maintenance of water supply systems is poor – many systems fail within 3-4 years of operation.
54	Please highlight that there is no scientific waste water treatment exist (on site or centralize). As a result the traditional natural water sources (ponds, lakes) are getting polluted and resulting huge environmental cost. The scientific treatment of sludge is a major challenge.	SD (20)	Noted.
55	Obstruction of natural drainage channel due to development activities is also a major reason for flooding.	SD (21)	Noted.
63	Does Bangladesh have any service level target for water supply and sanitation.	SD (22)	Based on the Watsan Sector Development Plan (SDP) 2011-2025, coverage and service levels would gradually improve during three 5-year

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
			terms of the SDP: <u>In the short term (2011-15):</u> • 100% population would be provided with water supply through either piped water supply and tubewells or other water points. • Chittagong, Dhaka and Khulna would have 70-90% piped water supply coverage (up from the present 40-83% coverage). • Piped water supply coverage of the city corporations will be 70-80% (up from present 40%). • Piped water supply coverage of large pourashavas will be 70% (up from present 40%). • Piped water supply coverage of small pourashavas will be 50% (up from present 30%). • In rural areas, water supply would still be predominantly tubewell-based, with some increase in piped water systems but, importantly, the access to arsenic mitigation technologies would be ensured. • 100% population would be provided with sanitation facilities ranging from sewerage systems to pit latrines. • In Dhaka sewerage system coverage would be increased from present 35% to 50%, and a sewerage system would be initiated in Chittagong. <u>In the medium term (2016-2020):</u> • Chittagong, Dhaka and Khulna would have 100% coverage by piped water supply. • Piped water supply coverage of the city corporations will be 100%. • Piped water supply coverage of large pourashavas will be 80%. • Piped water supply coverage of small pourashavas will be 70%. • Piped water supply will be introduced in 40% of urban centers and about 5-10% of villages would have piped water supply. • Sewerage coverage will be 55% in Dhaka, 10% in Chittagong. • Innovative off-site sanitation technologies like small-bore sewerage systems with treatment facilities and decentralized sewerage treatment plants would be introduced on a limited scale in Khulna and other city corporations. • Rural areas will see an increase in using advanced sanitation options, about 10% use of septic tanks. <u>In the long term (2021-2025):</u> • Piped water supply coverage of large pourashavas will be 90%.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
			• Piped water supply coverage of small pourashavas will be 85%. • Piped water supply coverage in urban centers will be 40% and rural areas will be 10-20%. • Sewerage coverage will be increased to 60% in Dhaka, 30% in Chittagong, 25% in Khulna and 10% in city corporations. • Sewerage systems would be introduced to the large pourashavas covering about 10% of the population.
86	Please indicate the basic standards prescribed by Environmental Conservation Rules, 1997 for drinking water.	SD (23)	Noted. This will be referenced in the DFR.
96	If the master plan and the land use plan preparation is the responsibilities of the MHPW, do we need to discuss the urban planning issues with them and what will be the role of LGED.	SD (24)	• Yes, this is being done. The Local Government Act (2009) mandates pourashavas to prepare master plans, and this has been undertaken on their behalf through consulting teams contracted by LGED (all 4 towns) and UDD (MHPW – for Galachipa). [Galachipa has 2 master plans prepared]. UDD has limited capacity to prepare Master Plans for a large number of pourashavas and thus LGED has filled the gap. • The authority for approval and gazetting Master Plans (so they become statutory planning instruments) lies under current provisions with MHPW. LGED is trying to arrange gazette notification for plans prepared under its guidance. • Setting up an Urban Planning Wing at the pourashava will strengthen pourashava's capacity for planned development. This is in active consideration by LGD.
99	Please provide a table showing the parameters and their value for categorization of Pourashava	SD (25)	Noted. It will be included.
126	Please also include few lessons learnt related to implementation of urban infrastructure projects in Bangladesh.	SD (26)	Noted. The Barisal City Corporation in last five years implemented some infrastructure with its own initiative. Some roads are widened providing footpaths and drains in busy commercial areas. Ponds and parks are improved environmentally. In Sylhet, river front has been protected with concrete wall near the Kent bridge in front of the Circuit house. The area is also beautified as a recreational space along the River Surma. These are appreciated by local people.
140	Any quantification of improvement target	SD (27)	Yes. % of population using improved drinking water (urban): baseline (2009) 93.3%, target (2015) 100%. % of population using improved sanitation (urban): baseline (2009) 53.5%, target (2015) 100% (Vol.1, p.243)
174	Elaborate the urban water supply situation (coverage, level of supply) in the coastal areas of Bangladesh and more particularly project	SD (28)	Of 40 pourashavas in the coastal region, 23 have a piped water supply system and the remaining 17 have no piped

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	districts w.r.t. national average.		system. For the pourashavas that have a piped system, the average coverage (% of population served) is 39%, ranging 2-74%. Nationally, the coverage of piped water systems in pourashavas is about 40%
272	Please simplify the town selection criteria considering the email communication of Ron dated 30 April; and add factors of infrastructure deficiencies and club the factor of vulnerability to climate change and natural disaster. • Mandatory criteria (Pass or fail): (i) population size (more than 20,000), (ii) population density (more than 500/sq.km), (iii) Town should be under any of the following coastal district: Bagerhat, Barguna, Barisal, Bhola, Gopalganj, Jhalokati, Khulna, Patuakhali, Perojpur, Satkhira, and Shariatpur • Avoid using "external assistance criteria" i.e. have not received external assistance from international donors for urban or disaster risk reduction projects valued over Tk50 million since 2005"- else Perojpur will not be eligible. GoB/LGED need to have some amount of discretionary power. • Scoring criteria: (i) infrastructure deficiencies, and (ii) vulnerability to climate change and disaster	SD (29)	Town selection criteria process has been revised according to these guidelines.
274, Tab. 3.2	Please strengthen the lesson learned portion of Project Implementation considering the following: • Identify the delays in the internal decision making process of LGED/ Pourashavas under the ongoing projects, reasons for those and how those can be addressed. • Staffing in PIUs for effective supervision of contracts and procurement whether keeping provision and resources in the loan for recruiting qualified counterpart staff of Pourashava on contractual basis/ or any other way will help addressing the staffing issue in PIUs, • Please elaborate, the procurement approval process being followed under ongoing the projects for procuring goods and works contracts; and how the approval process can be streamlined so that all contracts can be award the within the bid validity period of 120 days. • How the construction supervision can be strengthened to ensure completion of works in time as well as maintaining quality standards. • Please elaborate the contractors'/ suppliers' payment procedure under the ongoing projects; and how the approval process can be streamlined so that the payments to the contractor/ supplier can be made the within	SD (30)	- Because of following the formalities, there are delays in taking decisions of the on-going projects. And these can be straightened following time-frame for each level decision making.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	the time stipulated in the contract agreement. • Please consider ADB organized procurement and disbursement training program for PMU and PIUs staff. • Does any subproject under Phase 1 towns require land acquisition, if so please propose advance actions, LGED can initiate to expedite process, • For each subproject please prepare an inventory of site clearance activities.		- Yes, there will be some land acquisition, mainly for Mathbaria water treatment plant.
Tab. 5.14	Please also consider the following as adaptation strategy : • For water supply: consider additional storage facility, generator power back up during emergency (after cyclone or severe flood), change in intake points for salinity (Pirojpur). For Sanitation: on-site treatment of sludge.	SD (31)	Noted.
Tab. 5.15	The non-structural measures indicated are very generic. Please consider use of specific non-structural measures: Training to GOB, LGED and Pourashavas' staff; awareness campaign for conservation of water, disaster preparedness and environmental protection; incentivize the Pourashavas to make different disaster management committee functional and improve current disaster management system; development of climate resilient building design guidelines, land use planning and zoning; early warning system; protective plantation, evacuation planning and change in practices.	SD (32)	This table is for sector/subproject issues going along with specific infrastructure investments. Measures will be provided by engineers and also are noted in text for DRR and general/social issues.
394	Please note that influence of one project on embedded institutional and governance issues are limited. We can suggest changes required in govt policy and or internal/ external incentive regime or structural changes, but our assumption should be that those will not be materialized in the short term.	SD (33)	Noted.
500, Tab. 7.2	• Population Projection Please mention the method to be used for population projection • Water Demand Calculation: Please add the following: supply hours, minimum residual head at the end and peak factor for distribution network. • Please also include the targeted potable water quality standards • Please include in the design criteria key adaptation parameters: additional storage facility (how much % of normal requirements), generator based power back for duration, pipe materials. • Please note that these design standards will be adopted for all water supply schemes under the project. Prioritization should not be part of design standards. Prioritization exercise is integral part of preliminary design of the subprojects not "design standards" or "subproject selection criteria".	SD (34)	Noted, thank you.
501	Please develop design standards for "Sanitation" • Toilet size considering the usage, toilet seat/	SD (35)	Noted, thank you.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	person, sludge treatment etc.		
503	Please include following design standards for "Drainage" • Return Period. • Design intensity of rainfall • Runoff co-efficient • Design period for civil structure • The drainage structure will be designed for which consideration e.g High tide + rainfall • Adaptation criteria: increase in size of conduits (%), pumping arrangements.	SD (36)	These are being confirmed now and will be included in DFR
514	Please include in design standards for "Road and Bridges"" • Details of subgrade/ pavements for different types of roads, including drainage layer • Key geometric parameters.	SD (37)	
517	Please develop design standards for "Cyclone shelter" • Floor area/ 100 peoples, toilet seat/ 100 people • Key structural engineering parameters	SD (38)	
523	Please develop design standards for "SWM" • Average daily waste generated/ household • Collection equipment/ vehicle per 1000 household • transportation vehicle per 1000 household • land field size per 1000 household • Key layers of land fill cell to avoid ground water contamination	SD (39)	
526	Please make subproject selection criteria simple for ease of implementation (A sample is in Attachment 1). Prioritization exercise is integral part of preliminary design of the subprojects, not subproject selection criteria".	SD (40)	Infrastructure subproject selection criteria have been revised and simplified.
Section 7.5	For all subproject assessment please report the following: - Design consideration of Priority 1, Priority 2 and Priority 3 - Private land acquisition requirement of each subproject - Water Supply (Target-Priority 1) i. Present and targeted coverage (both population and %) ii. Present and targeted HH connections (no.) iii. Current and targeted potable water production(MLD) iv. Current and targeted storage capacity(ML) v. Current and targeted level of service(lpcd) vi. Current and targeted supply hours(hrs) vii. Current and targeted distribution network(km) viii. Current and targeted transmission network(km) ix. Climate Change adaptation measures- use of climate resilient material and technology, structural measures, additional storage, power back up, change in intake location (Pirojpur) - Sanitation (Target-Priority 1) i. Number of people with no toilet facilities (open defecation)	SD (41)	Noted, thank you. Open defecation is insignificant in the study pourashavas.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	ii. Targeted beneficiaries of individual toilets, public toilets and community toilets (population iii. Targeted number of toilets-Private, public and community (no.) iv. Current and targeted sludge handling process v. Climate Change adaptation measures- use of climate resilient material and onsite treatment technology, sludge disposal facilities, structural measures.		
	- Drainage (Target-Priority 1) i. Number of people will be benefited from the subproject (no.) ii. Catchment area with improved drainage facilities (sq. km) iii. Length of canal and open drain rehabilitated (Km) iv. Length of drain laid or constructed (Km) v. Summarize key findings of modeling vi. Climate Change adaptation measures- use of climate resilient material, use of flap gate, pumping arrangements for critical drainage outlets,		Will be included in DFR.
	- Roads and bridges (Target-Priority 1) i. Number of people will be benefited from the subproject (no.) ii. Current and targeted road network(km) iii. Length of road rehabilitated or upgraded (Km) iv. Number of bridges and culvert constructed(no.) v. Climate Change adaptation measures- use of climate resilient material, improved geometric profile, subgrades/ pavements with drainage layers. vi. Length of road side drain constructed - Cyclone shelter (Target-Priority 1) i. Number of people likely to be benefited from the subproject (no) ii. Cyclone shelter constructed (no) iii. Area of the cyclone shelter upgraded and or constructed (sq m) iv. Climate Change adaptation measures- use of climate resilient material, improved layout of the buildings		Included in Table 7.4.
634, 635	Why the % of the HH without toilet facilities are not consistent (3.18% in para 634 and 50.9% in para 635)	SD (42)	We will further check and verify the information.
751	Why can't we consider the intake at the river itself.	SD (43)	To reduce investment and to avoid huge amount of permanent power consumption due to head loss in long transmission pipelines.
Section 8.3	Study Pourashavas: Please provide current staff strength and financial control mechanism of each Pourashavas	SD (44)	These data will be collected from field visit.
Section 8.4	Procurement Capacity Assessment (PCA): The questioner needs to be filled up by the procurement experts of PPTA consultants in consultation with LGED and Pourashavas. Based on the outcome prepare PCA report.	SD (45)	Procurement capacity assessment survey has been completed, and a report will be prepared for inclusion in the DFR.
870	What about accounting policies and procedures	SD (46)	

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	of Pourashavas		
875	Please elaborate the contractor payment procedure followed by LGED and Pourashavas under external aided projects	SD (47)	This assessment was specifically for LGED (PMU). For LGED and Pourashavas summary assessment given in Table 9.8 and detailed assessment in Annex 9.2.
Section 13.2	Please prepare the project implementation organization as per Attachment 2.	SD (48)	OK, thank you.
Chap. 14	Please carry out the risk assessment of project implementation also and suggest mitigation measures.	SD (49)	OK.

Attachment 1

Sample Subproject Selection/eligibility Criteria

1. **Selection of Component:** The facility will support the towns in developing basic urban services: (i) water supply, (ii) sewerage and drainage, (iii) solid waste management (iv) urban transport and (v) other urban/ municipal infrastructure. These services together with Institutional development and Implementation assistance have been amalgamated into 6 components as follows:

(i) Component A: Water Supply;
(ii) Component B: Sewerage and Drainage;
(iii) Component C: Solid Waste management;
(iv) Component D: Roads and Bridges;
(v) Component E: Other urbain/municipal infrastructure;
(vi) Component F: Capacity Building, Institutional development Governance and Implementation Support

2. Eligibility Criteria for Subprojects: The project would finance only those subprojects, which meet the following eligibility criteria:

3. **Technical Criteria:**

(i) The subproject will be aligned with Master Plan findings and any subsequent changes thereafter, with priority given to strengthening and optimum utilization of the existing system.

(ii) The subproject will be technically sound and preliminary design will have been prepared. The subproject will be designed and executed as seismic resistant structure in accordance with relevant standards.

(iii) All necessary government approvals will be in place.

(iv) The nature of subproject eligible for inclusion in the program are:

1. **Water Supply.** Work relating to improvement of transmission mains, distribution networks, balancing reservoirs, pumping stations, consumer metering and if required, augmentation of water supply source. Priority should be given to expansion of the water supply network to uncovered areas of the towns, improvement of the distribution networks and proposals aiming at reduction of unaccounted for water.

2. **Sanitation and Drainage.** Works relating to public toilets, construction of community septic tank, sludge cleaning equipment's and septic tank emptier.

(a) Sewer and septic tank cleaning equipment's will only be procured once the states have developed secured land fill site for solid waste management for the city.

(b) Only internal drainage structure , de-silting of canals and drains and structural improvement of canals and drains will be considered. No river training works will be included under the project.

3. **Solid Waste Management (SWM).** Works pertaining to improvement of collection, transportation, segregation and disposal of municipal waste.

(a) SWM subproject should be limited to only Municipal Waste; proposal for hazardous or biomedical waste will not be eligible for financing under this program.

(b) SWM equipment's and vehicles will only be procured once the urban local bodies have developed secured land fill site for solid waste management for the city.

(c) Proposal for composting plant under the SWM component should be supported by the market analysis of demand of end product and the financial viability of the plants.

(d) All compost plant proposals should be based on private public partnership.

4. **Road and Bridges**. Works related to improvement of riding quality, reduction of traffic congestion, widening of existing roads, construction of new drainage culverts and minor pedestrian bridges and improvement of pedestrian facilities will be included.

(a) Works related to Bypass arrangements, car parking arrangements and bridges for vehicular traffic are excluded from project

5. **Other Municipal/urban Infrastructure**

(a) Construction of cyclone shelter is eligible under the project

(b) Construction of municipal market will be eligible if Pourasabhas agreed to fix the rent as per the market rates.

(c) Proposals for construction of slaughter houses will be conditional to the establishment of waste treatment and disposal facilities.

(d) Other works relating to obligatory municipal functions will be subject to a situation report and within a road map for improvements in the service functions.

4. **Financial and Institutional Criteria.** Sub-projects must demonstrate financial and institutional sustainability; this will be demonstrated by a 5 year horizon plan. The plan must address O&M cost, sources of funds i.e, State support and user charges, O&M staffing needs and service level targets agreed with the urban local bodies.

5. **Economic Criteria.** The sub-project should have an economic internal rate of return of at least 12% or it should be the least cost technical option of providing the particular service.

6. **Social Criteria.** The subproject will, to the extent possible, not require land acquisition or resettlement (which includes the displacement of squatters or encroachers from the rights of way). If land acquisition or involuntary resettlement is required for a subproject, a Resettlement Plan will be prepared and implemented in accordance with applicable laws and regulations of the State Government, ADB's Safeguard Policy and the agreed Resettlement Framework).

7. If any indigenous peoples/scheduled tribes are likely to be affected significantly by a subproject, an Indigenous People Development Plan will be prepared and implemented in accordance with the ADB's Safeguard Policy and the agreed Indigenous People's Development Framework

8. **Environmental Criteria.** The subprojects will comply with environmental requirements specified in ADB's Safeguard Policy and those specified in Country's environmental regulations, including legislations and standards. Environmental assessment of individual sub project will be carried out and mitigation measures identified during the assessment will be implemented in accordance with Environmental Assessment and Review Framework.

Attachment 2

Project Implementation Organizations – Roles and Responsibilities

Project implementation organizations/constituents	**Management Roles and Responsibilities**
Local Government Engineering Department (LGED), Government of Bangladesh (GOB), and Department of Public Health Engineering (DPHE), GOB	Executing agency
Pourasabhas of Amtali, Pirojpur, Galachipa, Mothbaria+++++	Implementing agency
Empowered/ Steering Committee, comprising: (i) Secretary, Local Government Department, as chair (ii) Chief Engineer, LGED (iii) Chief Engineer, DPHE (iv) Representatives Planning Commission (v) Representative of Implementation, Monitoring, and Evaluation Division of the Ministry of Planning (vi) Representative of Economic Relations Division and Finance Division of the Ministry of Finance (vii) Representative of Ministry of Environment and Forest (viii) Representative of Bangladesh Water Development Board (ix) Project Director, member secretary (x) Special invitees to advise the committee on technical issues.	(i) Provide strategic guidance, and oversee the implementation of the project (ii) Review and provide policy direction on: (a) Implementation of the urban reform agenda (b) Compliance with loan covenants under the ADB loans; (iii) Facilitate in resolving critical project implementation issues and in inter-departmental co-ordination (iv) Oversee site clearance activities and obtaining statutory clearances (v) Approve: (a) Subproject concept, scope and cost (b) Town Selection (vi) Consider and take decision on (a) Annual budget and (b) Annual action plan
Town Committees in respective towns, comprising: (i) Mayor or Chairperson (ii) Executive Engineer of local PIU (iii) Commissioner/ Secretary (iv) Line Agencies' Representatives (v) NGO and Civil Societies	(i) ;;; Ministry of Water Resources;;
Program Management Unit, comprising: (i) Program director (ii) Deputy program directors	(i) Liaise and correspond with ADB on all issues related to Investment Program; (ii) Establish the PIUs in strategic locations town and recruit staff; (iii) Identify, prepare and submit subproject appraisal reports to the

(iii) Finance officer (iv) Accounts manager (v) Water supply engineer (vi) Procurement officer (vii) Institutional reform officer (viii) Community development officer (ix) Public relation officer **Environment and social management cell** (x) Resettlement officer (xi) Environment officer	executive committees and obtain their consent (iv) Prepare periodic financing request after compilation of constituent subprojects and other components and submit to executive committee for approval. (v) Approve (a) Detailed engineering design (b) Training and capacity building program; (vi) Manage project consultants as an employer (vii) Plan, implement and monitor: (a) Public relations activities (b) Gender mainstreaming initiatives (c) Community participation activities; (d) Safeguard compliance activities. (viii) Prepare and submit periodic progress reports to ADB (ix) Establish, maintain and update the investment program performance monitoring system (x) Maintain Project accounts and prepare consolidated monthly reports (xi) Take necessary action for obtaining statutory clearances (xii) Coordinate for obtaining right of way clearances with related State and National agencies (xiii) Implement institutional reform component under the Investment program (xiv) Coordinate with the PIU and subproject towns for implementation of physical investment activities. (xv) Establish a second generation imprest account with a commercial bank (xvi) Monitor physical and no-physical investment activities under the investment program; (xvii) Monitor implementation of safeguards plans, guide the PIU as and when necessary, and prepare reports. (xviii) Prepare and submit: (a) Reports to the executive committees for consideration and approval; (b) Internal audit report; (c) Reports mandated under the loan agreements and the framework financing agreement to ADB; (d) Disbursement application to ADB. (xix) Submit reports of external auditor to executive committee (xx) Disseminate information related to the investment program to the public and media;
Consultant Selection Committee, comprising: (i) Project director, PMU as Chair (ii) Deputy project directors, PMU Finance officer, PMU (iii) Procurement officer, PMU (iv)	(i) Open expressions of interest and proposals (ii) Evaluate expressions of interest and proposals (iii) Prepare evaluation reports; (iv) Submit recommendation to the executive committee
Tender Evaluation Committee comprising: (i) xxxxx (ii) Procurement specialist, Consultants	(i) Open tender (ii) Evaluate bids (iii) Prepare evaluation reports (iv) Submit recommendation to PMU
Project implementation units at Amtali, Pirojpur, Galachipa, Mothbaria+++, comprising: (i) Municipal engineer as PIU head (ii)	(i) Supervise the contractors as engineers (ii) Facilitate collection of data for detailed engineering desigs (iii) Submit the bills to PMU (iv) Implement: (a) Resettlement plans (b) Environment management plan (v) Obtain right of way clearances (vi) Assist the town committee in their review and preparing necessary documents (vii) Prepare progress report on each contract (viii) Maintain subproject and contract -level accounting

3. Comments from Ms. Vivian Castro, Economic and Financial Specialist

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
General Comments			
	Since this project will have such a disproportionate (positive) impact on the poor, please make sure to include poverty impact analysis in the economic analysis (even though I note in para 362 that '*vulnerability will neither be monetized nor even quantified*'). We are cognizant of data constraints – and are not recommending resource intensive data collection in order to undertake poverty impact analysis – but please try to come up with some estimates and we can always provide explanation that it is an estimate.		Thanks. Noted, will do.
	Have you thought about how to evaluate the economic benefits of 'soft' adaptation? The infrastructure benefits are more straight forward since a more direct relationship can be made between inputs and production outputs– but can we capture the benefits of changing behavior and attitudes of pourashavas officials and citizens as a result of the project (through project capacity building, institutional strengthening and awareness raising activities)? What will be the economic gains from these soft investments?		• All economic gains of soft investments gets reflected in the infrastructure benefits. • One option is to load certain percentage on to the infrastructure cost for soft investments and then do cost and benefit analysis…. We are investigating how to do these for urban planning measures (building codes and land use planning) and will see how far we can go.
Executive Summary			
74	Figures are provided for revenue growth and expenditure growth – but I'm unclear as to which FY(s)/time period this refers to		Year will be specified…since Galachipa 2012-13 data was not then available did not mention the year. Other three towns data relate fo FY 2012-13 and Galachipa's FY 2011-12.
75	Cost recovery figures are provided for Amtali and Piroipur – what about the other 2 towns; if figures are not yet available, just make it clear because it looks like an oversight.		Figures for all four towns are available. DFR will reflect the same.
Main Report			
118	The paragraph mentions the general difficulty that pourashavas face in ensuring sustainability of investments – so, please be realistic and clear about O&M budget needs related to these investments; better to deal with them upfront and make sure pourashavas understand the budget implications now.		Noted. This is being discussed with the pourashavas and will be in DFR
373	Cross-subsidies: I'm not saying that we should absolutely not cross-subsidize other sectors with water revenue (if I understood correctly what Consultant is implying); but this should be thought through very carefully with strong justification. They probably know this, but I just wanted to reiterate it. It may make sense, for example, for non-revenue generating sectors like drainage. In any case, this is probably the status quo – water is usually LG's cash cow. Same case here?		Yes.
420	Under sub-heading *Improved, more coordinated and inclusive disaster forecasting and warning systems* – the last		Will add: "weather forecasting service"

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	bullet point seems to be incomplete.		
522	This is a really short section on solid waste management. Are there CBOs, private entrepreneurs that pick up trash from people's homes (even if not formalized through contract)? Maybe it is brief because the main audience for this report already knows the situation. Who is responsible for clearing drains (sediment but also rubbish)? Do municipalities have staff that actually do this at the moment?		
941	**Financing Pattern.** *Civil works and equipment for revenue-generating subprojects, including water supply, bus terminals, and truck terminals, will be financed 50% by grant and 50% by loan for Class A Pourashava, and 70% by grant and 30% by loan for Class B Pourashava. The loan will have an interest rate of 4% for 20 years, including a 5-year grace period, and will be denominated in the local currency. All other types of subprojects will be funded 100% by grant."* How much is available for loan? I assumed the loan portion was the higher proportion; and grant portion was smaller. But is this para. correct?		Will modify this para. What is described in the first portion of this Para is the on-lending arrangements between GoB and Pourashavas. UGIIP 2 model will be followed wherein the revenue generating projects – financing pattern was 50% grant and 50% loan and in case of non-revenue generating projects it was entirely as Grant from GoB. Yes. In case of financing pattern between GoB, ADB and other co-financiers, Loan portion will be higher. Para will be modified to cover only onlending arrangements between GoB and Pourashavas.
For Benoit and Kishnan			
	(i) My understanding is that we don't need to worry so much about what discount rate to use when analyzing incremental benefits of cc adaptation– as long as we properly capture the risk reduction premium/benefits – is this correct? From the reading I've done it looks like some similar types of projects have applied excessive discounting – and we should avoid this. Please share your view on this.		This has been discussed and summarised through separate email dated 18th May and subsequently summarised in note received from Vivian.
	(ii) For these towns we are talking about increasing resilience to extreme events (and cc may change their probability and size and frequency) – what method of economic analysis is most appropriate in this case? Is there another type of analysis we should be considering that we may not have considered? Or is basic 'costs avoided' approach enough?		This has been discussed and summarised through separate email dated 18th May and subsequently summarised in note received from Vivian.
	(iii) For stand-alone adaptation projects it probably makes sense to do a "gap analysis" to identify additional investments the project needs to increase its resilience to cc. But in this case, since we are dealing with basic infra investments that are needed regardless of cc, can we just focus on economic evaluation of how the project reduces risks and monetary losses – instead of estimating additionality? Or do we need to do both?		This has been discussed and summarised through separate email dated 18th May and subsequently summarised in note received from Vivian.

4. Comments from Mr. Arghya Sinha Roy (ASR), Disaster Risk Management Specialist

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
Executive Summary			
83	The para. says " *In Stage 1, pourashavas will start governance improvement by developing a Pourashava Development Plan (PDP) and formulating essential institutions such as the Town Level Coordination Committees (TLCC), Ward Level Coordination Committees (WLCC), and Community-Based Organizations (CBOs)."* Since later in the report it is mentioned that the Pourashava Disaster Management Committee has not been set up in the project towns, it will be worthwhile to explore if this could be one of the criteria under the project for improving governance.	ASR (2)	
85	The expected impact of CTIIP is *"improved access to and delivery of climate resilient municipal services in project pourashavas, and reduction of the occurrence of water-related diseases, with reduced exposure to climate change derived catastrophic events."* Catastrophic events are influenced by a wide range of factors, including anthropogenic climate change, natural climate variability, and socioeconomic development; and it is difficult to attribute them to a specific factor. Thus it is suggested to rephrase the sentence *" reduction of the occurrence of water-related diseases, with reduced exposure to ~~climate change derived catastrophic events~~ climate extremes".*	ASR (3)	Noted, thank you.
Main Report			
272	One of the criteria for town selection is *"Existence of flood protection embankment – higher score if there are embankments, so that the infrastructure improvement investments under the project have some protection from flooding".* While this is OK, we also need to consider if the existing embankments are sufficient to meet the future risks from climate change.	ASR (4)	Enhancing the levels of these embankments is the responsibility of BWDB,
318, Fig. 5.1	Climate Change Adaptation Assessment and Strategy Approach: It is not clear why Disaster Risk Management is included as a separate sector. If the framework and guidelines for project appraisal (as explained in the figure) has already factored in concerns related to disaster risk (in this case focusing on climate related hazards and not geophysical), then each sector plan and investment should be assessed for disaster risk (current and future), and necessary actions to reduce risk and manage residual risk should be factored in the sector investments, be it in water and sanitation, urban planning or urban infrastructure.	ASR (5)	Agreed! Will merge non-structural and disaster management, but with separate sub-section on some specific disaster risk reduction measures.
357, Tab. 5.14	Town Specific Climate Change and Adaptation (User Friendly Output for Climate Resilience): The cell on recommended adaptation options for flooding proposes *"that the infrastructure is so built that the floods do not damage them or the water supply plants, reservoirs, pipe lines are not affected"*. However, given the scope of the CTIIP, it is equally important to highlight that the infrastructure should not be planned and built in such a manner that it unwittingly increasing the	ASR (6)	Noted, thank you. Will be included in DFR (currently implied in Climate Resilience criterion, scoring matrix for drainage and flood control)

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	existing levels of current and future vulnerabilities or create new ones. The cell on recommended action for tropical cyclone should also include cyclone shelters.		Agreed and added for DFR
361	The sentence should read as *"…direct (stock) damage ~~and loss~~, and indirect (flow) loss owing to lost productivity, health care costs, and reduced economic activity".* This (damage and loss) is a standard terminology used in post-disaster assessments.	ASR (7)	OK, thank you.
366	The sentence should read as… *"while special attention will be in the next section to non-structural ~~disaster risk reduction and~~ disaster risk management*". Disaster risk management is broader and includes disaster risk reduction as well as managing the residual risk.	ASR (8)	OK, thank you.
384	The sentence should read as *…." incorporate climate change to development pans, governance, disaster risk management ~~and risk reduction~~, and social security improvement."*	ASR (9)	Noted, thank you.
Section 5.5.1	It is suggested to change the title of the section to Disaster Risk Management as this will automatically cover Disaster Risk Reduction and also aspects related to managing residual risk.	ASR (10)	Noted.
397	The sentence should read as *"….. national policy support for and integrate structural and non-structural disaster risk ~~reduction and~~ management measures into the coastal towns".*	ASR (11)	Noted, thank you.
398	The sentence should read as *"….is the limited role of the Pourashava in disaster risk ~~reduction (DRR) and~~ management (DRM)."*	ASR (12)	Noted.
Section 5.5.2	It is suggested to change the title to *"Overview of Coastal Area Hazards and Implications for ~~DRR/~~DRM"*	ASR (13)	Noted, thank you.
400	Following changes are suggested. "*An assessment of the hazards coastal towns are exposed to is important to prioritize ~~DRR/~~DRM measures. Broadly speaking, flooding and cyclone winds pose the greatest hazards to human life and property, but droughts can significantly impact livelihoods. Other hazards include river erosion, and earthquakes that may cause tsunamis, a particularly devastating form of inundation. The cause of most ~~natural~~ disasters* ***caused from natural hazards*** *is a combination of rainfall or lack of it, tidal levels, and cyclones."*	ASR (14)	Noted, thank you.
Section 5.5.3	It is suggested to change the title to *"Relationship between Climate Change Adaptation and Disaster Risk ~~Reduction, and Their~~ Management"*	ASR (15)	Noted, thank you.
406	The para states "…most climate change related vulnerability in coastal towns is related to what is still commonly called natural disasters." However, the second sentence is not very clear which states "…in effect, most of the DRM activity and potential activity is also climate adaptation". If you mean, most of the climate change adaptation activity for these towns will be same as DRM activities, then it will be worthwhile highlighting these activities will be similar provided DRM activities consider both current and future risks. The last sentence should read as *"~~Hazards~~* ***Disasters*** *from cyclones,*	ASR (16)	Yes, you read our meaning correctly. In fact, we will merge the non-structural and the DRM sections. Changes to be made as suggested except avoid redundant use of the word "risk".

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	monsoon season flooding, and exploring the risk of emerging ~~disaster hazards~~ ***risks*** *such as extreme heat events and water resource threats are the primary challenges".*		
Fig. 5.12	The title of the figure is not very clear. First of all it suggested not using the term natural disaster. Moreover, do you mean disasters that will result from anthropogenic climate change and disasters from natural climate variability and geophysical hazards? If so, it will be far simpler to have the title as **Overlap between CCA and DRM in Bangladesh Coastal Town.**	ASR (17)	Noted, thank you.
Section 5.5.4	Title of section 5.5.4: It is suggested to change the title to *"Pourashava ~~DRR~~/DRM and Existing Limitations".*	ASR (18)	OK.
413	The para. states "Thus broader structural change may be essential to maintain the sustainability of improvements in local level DRR/DRM". This is correct and it will be good to highlight that DRM needs to be considered as an important part of urban governance. This is line with suggestion made in point 2 (para 83).	ASR (19)	Noted, thank you.
420	It is very impressive that the PPTA is looking in a comprehensive manner and providing recommendations on strengthening disaster resilience within the pilot pourashavas. However, as suggested in point 5, similar to integrating climate change concerns, DRM related measures need to be considered within the various sectors. If so, automatically we are not only looking at non-structural measures but also at structural measures which are built within existing investments. In fact, the second sentence in the para already mentions *"Each PPTA sector expert should consider what DRR measures may enhance the effectiveness and sustainability of their subprojects"*. Additional measures that are recommended in the report should also be built as much as possible within existing urban sector development processes. Some suggestions are provided below: *Specific support to most vulnerable communities (slums, those outside the embankments, women, children, elderly, and disabled):* This is very important, but such considerations should be built within ongoing/planned slum up gradation projects. *Improved understanding of Pourashava and ward-level hazards:* As rightly pointed out undertaking risk assessment is very important. But even better if this can be undertaken as part and parcel of urban planning (land use planning process). Risk assessment can also be undertaken as a standalone exercise provided there is a commitment from the local government to use the findings of the assessment in land use planning, building regulations, etc. Raise profile of DRM in urban planning: This should be linked to the previous bullet. Once disaster risk (current and future) information is integrated in the spatial plans, it should guide decisions regarding climate/disaster proofing investments as well as standalone DRR investments such as (flood embankments).	ASR (20)	The engineers and planners will suggest non-structural measures to accompany the infrastructure investments in their sectors. The planners in particular should make recommendations. Regarding the point on slum upgrading projects, we are unaware of any such projects in the pilot towns, but agree with the idea.
481	One of the topics suggested in the training is	ASR (21)	Noted, thank you.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	"Disaster Risk Reduction though land use planning". It is suggested to also include in the same bullet *development control systems.* If enforced properly, similar to land use planning, development control regulations can play a vital role in reducing disaster risk.		
General Comments			
	It is suggested not to use the term 'natural disasters' in the report. Please use 'disasters caused by natural hazards'.	ASR (22)	
	It is suggested to use the term "disaster risk management" and not "disaster risk reduction and management". When we say disaster risk management it includes disaster risk reduction, and actions to manage the residual risk (risk that cannot be reduced). Similarly, it is suggested not to use the term "disaster management" and instead use "disaster risk management" because the focus of the project is not to manage disaster events, but managing the risk that may lead to a disaster.	ASR (23)	

5. Comments from Pritha Hariram Cawrse (PHC), Urban Development Specialist

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
Main Report			
499, Tab. 7.1	Which institution is responsible for sanitation? In particular who will be responsible for the construction, management and maintenance of public and community toilets?	PHC (1)	Pourashava will be responsible for the construction, management and maintenance of public and community toilets.
500, Tab. 7.2	"Population served street hydrant: Nil"; does this mean all service connections in the project will be HH connections?	PHC (2)	Yes, with shared connections in slum areas.
528	Water safety planning (development of water safety plans) should be part of the water quality prioritization criteria (this in line with Bangladesh's policies to ensure the supply of safe water). Please consider assessing the viability of coordinating the development and implementation of such plans with existing programs, i.e. the BRAC WASH Program etc.	PHC (3)	Noted, thank you.
529	A site selection criteria should apply, i.e. sanitation facilities should be downstream of drinking water supply source. Also ensure a min. buffer distance from pits/ septic tanks to nearest water source are included.	PHC (4)	Noted, thank you.
589	Please assess the viability of collaborating or coordinating with existing sanitation and hygiene programs in the country (this will apply for all project Pourshavas).	PHC (5)	OK.
638	Has performance based contracts been considered for operation and maintenance of the public toilets?	PHC (6)	Yes.
640	Who and how will community latrines been constructed, managed and maintained?	PHC (7)	The community latrines will be constructed in the slums; one latrine for a cluster of families. The latrine will be maintained by the users.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
642	Maintenance of minimum buffer distance to the nearest dwelling (min 300m or as per National Standard) and water course (min 50-100m or as per National Standard) should be a selection criteria for the land earmarked for treatment of sludge. Is this government land?	PHC (8)	Noted.
676	Is Baleshwar river susceptible to high salinity levels during storm surges?	PHC (9)	Yes.
696	For the HHs that will not be connected, do they have existing connections or ability to access safe water? (This comment applies for most project towns where planned coverage is not 100% in the urban areas).	PHC (10)	The proposed water supply will cover only the urban area of Pourashava.
General Comments			
Sanitation	A septage management system should be developed, implemented and managed as part of the sanitation program in the project Pourshavas.	PHC (11)	Noted.
Water supply	Have alternative sources such as rainwater harvesting and storage been explored in any of the project towns?	PHC (12)	Yes but in a very limited scale.

6. Comments from Ms. Indah Setyawati (IS), Resettlement Specialist

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
Main Report			
Tab 7.12	Municipal Roads and Footpaths Selection Criteria: CTIIP Column: number iv. Please be clear whether the LAR impacts in this requirement include resettlement impacts that temporary in nature and resettlement impacts to both legal and illegal land users. This may have significant consequences with the available land with no IR impacts for the purpose. CTIIP Column: number v. Acquisition for ROW of a new road to be acquired by pourashava has to to comply with the requirements of ADB SPS 2009 and project frameworks.		Noted, thank you.
642	Safeguards due diligence should be done for the sludge treatment and dumping land to be arranged by Galacipa Pourashava.		Noted.
700	Ground reservoir is proposed in Pirojpur but no information provided on the land status of the proposed reservoir. Please clarify.		The proposed ground reservoir will be accommodated in the proposed water works compound.
895	Please clarify in the MST experts who will be responsible for supporting the PIU capacity on safeguards matters of the project (monitoring, reporting, etc.)		This is not included in the TOR for the MSTs.
924	Stated that no sub projects with land acquisition to be conducted in phase I.		Incorrect statement. It is proposed that SWTPs will be implemented during project

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	Please confirm in the report that the SWTP for Pirojpur and Mathbaria will be done in phase II (para 694 and 751).		phase I, and land to be acquired.
925	Please elaborate more on the project requirements to comply with ADB SPS on Involuntary Resettlement and Indigenous People. The frameworks to be prepared should include Indigenous People Plan Framework (IPPF). Slum upgrading: not much assessment made for this component in the report, although based on the Table 7.8 up to 20% of the population in Pirojpur and 18% in Galachipa is located slum area.		Noted. It is proposed that slums are improved through the provision of piped water supply, community toilets, and roads.

7. Comments from Ms. Ferdousi Sultana (FS), Gender Specialist

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
Main Report	My observation is the Social, Gender, Poverty assessment has not been done yet.	FS (1)	
884-886	Para 884-886 on Gender generally mentions women's situation and mostly some water collection related issue in slums. Looking at the DMF, I find many other areas need to be looked into. The report mentions FGD etc. will be done.	FS (2)	
	I have looked into the contents of Vol. 2 and did not find an outline of the Social, Gender, Poverty Assessment.	FS (3)	
887-888	Similarly Paras 887-888 on Poverty says survey for poverty assessment will be done,	FS (4)	
889-891	Paras-889-891 on community participation mentions that community participation component will be developed. A specific participation plan should be developed.	FS (5)	
Chap. 11	I have looked into Part 11- Capacity Building. Capacity building needs mentioned in line with the UGIAP of the UGIIP II. There is proposal for one Social Gender and community mobilization expert for limited time. Our experience says that all these three areas cannot be addressed by one person. Also we found gender is still an area needing constant push. Therefore, I suggest that identification of a Gender and Social Development Officer/focal point in PMO like in UGIIP (completed project) with support from a long term gender specialist is recommended.		This refers to the capacity building mobile support teams to be fielded under the PPTA.

8. Comments from Pilot Program for Climate Resilience (PPCR) Specialists

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
General			
	Thanks for sharing the Interim Report with us. We find the report is quite comprehensive and very well drafted with sufficient information that would be needed for preparation of documents to meet the requirements of the PPCR Sub Committee. In accordance with the CIF Guidelines pertaining to PPCR, the following documents will be needed for submission to CIF AU for approval of funding by PPCR SC: 1. Summary Project/Program Approval Request (template attached) 2. MDB Request for Payment of Project Implementation and Supervision Services (template attached) 3. Cover Page for Project/Program Approval Request (template attached) 4. Draft RRP after SRM/MRM, after incorporating comments, if any, but prior to Grant Negotiations. There is no need to include the SRM/MRM Comments Matrix or the draft Agreement In addition, we would suggest inclusion of the PAM and an Appendix on Climate Change Vulnerability Assessment and Adaptation Options under the proposed Project. In terms of substance, from the point of view of PPCR SC, the following topics should be discussed in the Summary Project/Program Approval Request, with a summary in the RRP and details in the PAM. 1. Stakeholder engagement and participation 2. Knowledge management and information dissemination – link to existing hub in MOEF and LGED Central (the document should indicate funding out of PPCR resources that has been earmarked for knowledge management) 3. Gender Dimensions and Sensitivity 4. Coordination with other agencies and development partners 5. Sustainability of selected interventions 6. Monitoring & Evaluation with special reference to Monitoring and Reporting in accordance with PPCR Guidelines (latest guidelines attached).. We would also suggest that PPCR related activities to be undertaken during implementation also be reflected in other relevant documents such as Gender Action Plan, Summary Poverty Reduction and Social Strategy, Monitoring and Evaluation, and the Design and Monitoring with clear reference to Core PPCR Indicators where appropriate.		
Executive Summary			
86	The projected outcome is the provision of more accessible, reliable and climate change responsive services to the population of the project pourashavas.		Noted, thank you.
87	The outputs will be: (1) improved municipal infrastructure with climate-resilient designs, particularly for water supply, sanitation and drainage; (2) strengthened local governance and capacity for sustainable service delivery, urban planning and disaster risk management; (3)		Noted, thank you.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	enhanced awareness and behavioral change in climate change adaptation and disaster preparedness; and (4) project management and administrative support.		
Main Report 1, 2	Rationale is weak and needs further strengthening. Paras. 1 and 2 need to elaborate on the need for infrastructure improvement to address the existing problems and future challenges and ensure its sustainability in the wake of imminent climate change impacts through appropriate climate resilient design, constructions and maintenance. As presented, these two paras. appear inconclusive. Quite a significant amount of information relevant to the rationale can be found in sections 5.5.6 and 5.5.7 (pages 128-1340 which could appropriately be utilized to strengthen it further.		Yes, we will create strengthened rationale.
13	• The expected impact of CTIIP is improved climate change responsive (or resilient) access to and delivery of municipal services in coastal pourashavas, including water supply, sanitation, drainage, urban roads and bridges, solid waste management, slum improvements and boat landing stations, and a reduction of the occurrence of water-related diseases. The projected outcome is the provision of more accessible, reliable and climate-resilient municipal services to the population of the pourashavas. *Language different when compared to the Executive Summary* • The outputs will be: (i) improved municipal infrastructure with climate-resilient designs, particularly for water supply, sanitation and drainage; (ii) strengthened local governance and capacity for sustainable service delivery and urban planning; (iii) enhanced awareness and behavioral change in climate change adaptation and disaster preparedness, water conservation and hygiene activities; and (iv) project management and administrative support. The project design will incorporate the role of women in water supply and sanitation, and target the poor. *Why not other sectors/interventions*	TQ (1) TQ (2)	Noted, thank you. We will ensure that statements in both the Executive Summary and Main Report are the same Yes, also other municipal infrastructure interventions.
Section 13.5, Tab. 13.4 Design and Monitoring Framework	**Impact** Improved access to and delivery of climate resilient municipal services in project pourashavas, and reduction of the occurrence of water related diseases, with reduced exposure to climate change derived catastrophic events. The timeline for achievement of performance targets appears rather unrealistic. Moreover, the PPCR Indicators referred to here (A1.2 and A1.3 are the SPCR (country) level Indicators, where the targets are defined at the SPCR level, to which the information generated at the project level will contribute. Obviously the date of 2019 for achievement of performance targets appears rather unrealistic. **Outcome** Provision of more accessible, reliable and climate-improved services to the population of the project pourashavas. This outcome corresponds to PPCR Result B1: Strengthened adaptive capacities; The corresponding PPCR Core Indicator, which has been reflected only in	FS (5)	Noted, thanks and will prepare a separate narrative as suggested.

Section/ Paragraph	Comment (ADB)	ADB Officer (Comment Ref. No.)	Response (PPTA Consultant)
	reference to certain performance targets is B1: Extent to which vulnerable households, communities businesses and public sector services use improved PPCR supported tools, instruments, strategies, activities to respond to CV&CC. Since the Performance Targets and Indicators in this section correspond to tools, instruments, strategies, activities, the Indicator B1. As there is no reference to Evidence showing that climate information products/services are used in decision making in climate sensitive sectors, the Indicator against Result B3: Use of climate information in decision making routinely applied, reference to this PPCR Indicator is incorrect. Similarly, since the Outcome does not include any reference to PPCR Result: A2. Strengthened climate responsive development planning. Therefore, the INDICATOR A2.2: Changes in budget allocations at national and possibly sub- national level of government to take into account effects of CV&CC, may not be applicable. **Outputs:** The output: 1. Improved municipal infrastructure with climate resilient design in project pourashavas should correspond to PPCR Output A1. Increased resilience of households, communities, businesses, sectors and society to climate variability and climate change. The Corresponding PPCR Core Indicator would be A1.3: Numbers of people supported by PPCR to cope with effects of climate change. The Indicator for achievement of Performance Targets, in addition to its physical dimensions, should also include the human dimensions (the number of people). This should be consistent with and contribute to the Impact. This Indicator will also and contribute to the anticipated Impact, as sated earlier. For the DMF as a whole, it suggested that instead of simply referring to PPCR Indicators, it would be more appropriate to provide a narrative that responds to these Indicators. Also, please note that for the Core Indicators A1.3, B1 and B5, data needs to be collected at project level and aggregated (in case of A1.3) or synthesized at SPCR level. The remaining core indicators (A2.1 and B2) apply to the SPCR level only. Therefore wherever there is a reference to A2.1 and B2, the hierarchal contribution at the project/program level towards national/country (SPCR) level, may be indicated, if possible.		

LGED COMMENTS ON INTERIM REPORT

Comments from Mr. Abul Kalam Azad, Additional Chief Engineer, received on 4 June 2013

Section/ Paragraph	Comment (LGED)	Comment No.	Response (PPTA Consultant)
	Both predicted rise in sea-levels (32 cm in 2030 and 50 cm in 2050) and enhanced monsoon rainfalls are likely to amplify the existing threats from tidal flooding and severe cyclonic storms (strong winds and heavy rainfall in a s short period of time).	(1)	Agreed and our loss/damage assessments will take these into account.
	CDTA>PPTA>PDA>Investment.	(2)	
	In Bangladesh many projects exist in coastal zones like ICZMP (WARPO), ECRRP (WB), EDDRP (ADB), CDMP I & II, CEIP (BWDB), STWSSP (DPHE).	(3)	
	In LGED there are currently about 10 projects dealing with climate change issues. CIIRP (ADB), ECRRP (WB), CDSP-IV (IFAD), CALIP (IFAD, SOHARDO (USAID) are significant projects. These projects also have different innovation and piloting. Consolidation of all project findings and research and development is felt (to be) urgent in LGED.	(4)	
	More searching for a suitable groundwater source at Pirojpur and Mathbaria (is) suggested. Surface water reservoir is more vulnerable to storm surge. Embankment failure and tidal flooding on 25 May 2013 caused damage to properties in Amtali and Mathbaria Upazila (Newspaper Prothom Alo, 26 May 2013). Low river flow and high salinity of surface water due to potential climate change may cause problems. SWTP is expensive and pourashavas don't want it. Moreover, salinity treatment is expensive. Check how SWTP in Pirojpur was affected by SIDR and AILA. Phase-2 of STWSSP will cater (for) water demand of Pirojpur pourashava up to 2020 (or 2030).	(5)	The drilling of exploratory boreholes, to determine the salinity levels of deep groundwater, is included in the scope of project water supply works at Pirojpur and Mathbaria.
	Flooding, water-logging due to heavy rainfall within the polder and poor drainage is a vital problem.	(6)	Yes, we agree.
	DPHE's master plan for water supply, sanitation and drainage shall be in place with LGED's master plan. Development and updating of urban master plan incorporating the climate change issue is essential. Drainage and environmental management plan is a very important part of urban master plan.	(7)	Yes we agree and provision for the revision of the master plan is built into the TA Urban Planning
	Drainage and flood control component is more urgent than other components to address the climate change issues (Chapter 9, CDTA report). Benefits of drainage and flood control intervention are manifold (reduces backup of sewage and waterlogging and many more). Damages and losses during SIDR and AILA	(8)	Yes we agree, drainage and flood protection are key for climate change resilience.

Section/ Paragraph	Comment (LGED)	Comment No.	Response (PPTA Consultant)
	were huge (Tables 9-32, 9-33, CDTA).		
	Cost of civil works shall not include vehicles and equipment (pick up, motorcycle, truck-mounted vacuum pump, garbage truck, etc.).	(9)	
	Criteria for investment on different infrastructure component: a) 1st priority – 2013 existing infrastructure deficit and upgrade cost, b) 2nd priority – 2030 infrastructure deficit and upgrading cost with climate change scenario, c) 3rd priority – 2050 infrastructure deficit and upgrading cost with climate change scenario (Table 9-22, CDTA).	(10)	Infrastructure subproject selection criteria have been developed along these lines.
	Practical and effective options for the location of water-intake works, appropriate design of drainage system, urban wastewater discharge, and location of sanitary infrastructures are essential.	(11)	
	Capacity building of LGED/pourashava staff (and other government staff) in technical and non-technical areas, particularly relating to the inclusion of suitable climate resilience and adaptation measures in the future planning and infrastructure design/construction/maintenance, is recognized.	(12)	Yes, we agree.
	Ensure ongoing support and investment in climate change related research among partnering and collaborating agencies and institutions (BMD, IWFM-BUET, IWM, FFWC-BWDB, LGED, DMB, etc.). CALIP (IFAD) also supports such collaboration. CALIP-Climate Change Adaptation and Livelihood Protection is IFAD-funded (grant) supplementary project to HILIP (Haor Infrastructure and Livelihood Improvement Project) under LGED. For example, capacity building of LGED and pourashava in modeling and designing urban drainage system with assistance of IWFM-BUET.	(13)	
	Soft outputs of CDTA/PPTA like hydrodynamic models, urban drainage models, digital elevation map, data base, etc. (has been) found effective in redesigning the pourashava drainage system. Rainfall and water level data are essential for model calibration.	(14)	
	For sustainable development and management of climate change issues, LGED Climate Change Cell and LGED Urban Planning Cell may be established as suggested in the inception report of CDTA. Urban MIS cell is also equally important. A detailed framework of LGED proposed climate change cell needs to be developed.	(15)	Noted.
	Assistance from development partners (ADB Pilot Program for Climate Resilience, JFPR, Danish Climate Adaptation Facility, JICA, IFAD-Adaptation for Smallholder Agriculture Programme, and others). This will surely enhance the capacity of LGED to upgrade and incorporate climate related knowledge in planning, policy and decision making process at government level.	(16)	Yes, we agree.

Section/ Paragraph	Comment (LGED)	Comment No.	Response (PPTA Consultant)
	In Bangladesh, Haor area suffers from flash flood, and coastal areas from tidal flooding and cyclonic storms.	(17)	Noted.
	Maintenance of public latrines in pourashavas is very poor. Evaluation of existing maintenance practices of public latrines and community latrines in poursashavas (i.e. Pirojpur) is needed before further investment.	(18)	
	Provision of raised water supply and sanitation facilities in cyclone shelters/ raised *kills*/ community are appreciated.	(19)	
	PPTA Consultant will prepare subproject feasibility study, project financing plan with preliminary engineering design and implementation arrangement. Also, prepare project administrative manual (PAM). PAM shall be discussed among LGED senior officials like Additional Chief Engineers, Superintending Engineers, 10-Project Directors having climate change components.	(20)	Noted.
	TOR and a very detailed cost breakdown for all consultancy services (e.g. PIC) including remuneration, reimbursables, tax, etc. following GOB PPR-2008/ADB guidelines is necessary for inclusion in DPP (PEC's consideration). Revision of cost for consultancy services is very difficult once it is approved. Quality of civil works construction is of high risk instead of medium. Provision of a well qualified expatriate municipal infrastructure engineer having experience in drainage and flood control (to be stationed in the field) will be appreciated (donor's grant is preferred). For QCBS procurement a 90:10 ratio is desirable.	(21)	Noted.
	For both preliminary engineering design (PPTA Consultant) and detailed engineering design (PDA Consultant) a (thorough) discussion will be held with the stakeholders (how we can reach the stakeholders and who are the stakeholders). Methodology for preparing pourashava development plan (DPD) may be adapted.	(22)	Extensive consultations have been held at pourashava level for the selection and preliminary design of proposed infrastructure interventions.
	Unless there is other requirement, single lane bridges should be avoided in urban areas.	(23)	
	Valuable reference documents like Building Construction Act 1952, Building Construction Rules 1996, Urban and Regional planning Act 2013 (Draft), Local Government (Pourashava) Act 2009, BNBC, UTIDP Master Plan, UDD Master Plan (Galachipa), Pourashava Development Plan (PDP), Combined Urban Development Guidelines (MSP), Bangladesh Climate Change Strategy and Action Plan 2008 (MOFE), National Plan for Disaster Management 2010-2015 (Disaster Management Bureau), Integrating Disaster Risk Reduction in Land-use Planning, Bangladesh (UDD), Water Supply and Sanitation master Plans for 148 Pourashavas (DPHE), Land-use Master Plan and Drainage Master Plan for Galachipa (DOE) etc. may be collected (for) LGED's internal consultation and	(24)	

Section/ Paragraph	Comment (LGED)	Comment No.	Response (PPTA Consultant)
	documentation.		
	Planning horizons and design considerations: a. Water supply: design horizon 25 years (projected population till 2040), b. Drainage and flood control: high flood level 100 years, rainfall of 2030, 2050, c. Roads, bridges and culverts: 20 years, with 50 years for right-of-way, d. Cyclone shelter: design life 50 years but accommodation capacity based on 20 years, e. Boat landings, f. Solid waste management, g. Slum upgrading, h. Bus terminal, market/ kitchen-market.	(25)	a. Yes, we are applying these parameters. b.
	Design standard of roads and bridges shall confirm Planning Commission Gazette. Location of cyclone shelters shall confirm to the national plan (?). Check performance on latrines constructed under STWSSP in Pirojpur.	(26)	
	Cost estimate of different components shall include base cost (2013) plus projected escalation during the project period. GOB's allowable amount for price contingency does not cover it.	(27)	
	Team composition and TOR of Project Implementation Consultant shall be finalized after consultation with LGED senior officials. Position of senior urban planner, senior climate change adaptation specialist and MIS expert at LGED may be considered for sustainable development and management of climate change issue.	(28)	Noted.
	PPTA Interim Report addresses water supply component in more detail than other important and complex components like drainage and flood control component, although climate change affects this more.	(29)	This was not our intention. We recognize that drainage and flood control are key for climate change resilience.
	Both the Team Leader and Deputy Team Leader are water supply specialists. The expatriate consultant for the crucial and complex drainage and flood control component has not yet started working with the team.	(30)	As specified in the PPTA TOR. The originally nominated international drainage and flood control did a field input in February-March 2013. His replacement started his field input on 12 May, and will be here until 28 June.
	Both the CDTA and PPTA reports contain plenty of information and are obviously considered as very valuable documents for LGED, LGIs and other government organizations.	(31)	Noted.

APPENDIX B: REVIEW OF URBAN PLANNING IN STUDY POURASHAVAS

1. INTRODUCTION

1. The review of urban planning mechanisms in the study pourashavas involves three lines of inquiry.[203] The first is the field visit survey conducted in the study towns (Amtali, Galachipa, Mathbaria and Pirojpur). The purpose of the interview discussions was to better understand the on-the-ground realities of operating what is a fledging urban planning system. Interview surveys were conducted with officials and representatives to probe five main areas: (i) the legal framework (including rules and regulations) and governance structures (the main institutional and governance review is reported in Chapter 8), (ii) master plan preparation and climate change adaptation, (iii) master plan implementation and its relationship to the building permit system, (iv) the role of urban planning in relation to the identification of climate resilient infrastructure, and (v) urban planning capacity. The combined annotated responses to interview discussion questions were shown in Appendix 6.1 of the Interim Report.

2. The second has involved measuring the existing master plan material against an ideal-type framework for climate resilient plans: the preparation of plans, the plan product, and its implementation. The annotated screening of available master plans documents was included as Appendix 6.2 in the Interim Report. Master plan implementation strategies were outlined in Appendix 6.3 of the Interim Report.

3. The third involves setting the analysis of the coastal towns in the broader context of urban planning in Bangladesh. We have been requested to learn from and build recommendations on current and past practice—practically what has worked and what has not. This has required looking at past and present projects, reviewing the effectiveness of the various approaches and the lessons learned, and considering the likely currents in the development of the planning system.[204] This is considered necessary to support, to the degree possible, building on and harmonizing recommendations for strengthening the system on current thinking and practice. To a degree it also supports the corroboration, and cross-referencing of, the findings with past assessments. Where appropriate the assessment also references relevant international thinking and practice. Together the three strands inform the preliminary outline recommendations (Section 6.3).

4. Our analysis is set within the context of option development of 'TA 7890-BAN: *Strengthening the Resilience of the Urban Water Supply, Drainage and Sanitation to Climate Change in Coastal Towns'*.[205] Option 10—'Planning considerations at regional and local level'—records a level of medium effectiveness: 'Involvement of the Pourashava and local stakeholders in urban planning will ensure that their current climate related problems are addressed. The master plans prepared under the UTIDP should be discussed and accepted

[203] "Review current urban planning mechanisms in the project municipalities in light of better medium- to long-term urban planning and enforcement of necessary regulations and bylaws, and identify ways to strengthen urban planning in project towns, including recommendations to introduce climate-resilience into master planning and/or implementation/enforcement of the approved master plans. The consultants will propose measures to fill gaps in urban planning and develop specific interventions to strengthen urban planning with climate resilience under the project." (TOR TA 8182 BAN: Preparing Coastal Towns Infrastructure Improvement'

[204] This includes PPTA) City Region Development Project (ADB), 2009-10 (covering Dhaka, Khulna and 7 pourashavas); Project Preparation - Pro-poor and Green Urban Transport in Khulna (CDIA/KfW), 2011; Sida assessment for CRDP engagement (Sida), 2011; UN-HABITAT Urban Sector Scoping, 2011; Municipal Services Project Review and project preparation (World Bank), 2011-12 (Component A involving 13 pourashavas and Component B involving 27 pourashavas).

[205] Draft Final Report Volume 1 Main Report (March 2013).

by pourashavas; pourashava level urban planning capacity needs to be built.' (p.146)

5. There is broad consensus internationally that urban planning has a fundamental role to play in responding to climate change and managing risk. For UN-HABITAT, "Land-use planning is perhaps the most fundamental tool for mainstreaming disaster risk reduction into urban development processes. It provides a framework within which interventions to partner local actors for risk mapping and community resilience building can be undertaken. This includes partnerships between the municipal or city government, community groups and the private sector. Familiar planning tools such as zoning, community participation, GIS, and information and education program are all integral to mainstreaming risk reduction within local comprehensive land-use planning process."[206] The most straightforward relationship—the use and development of land—is emphasized by the World Bank: "Risk-based land use planning identifies the safest areas in order to prioritize immediate investments in urban development and infrastructure projects. Land use plans influence the location, type, design, quality, and timing of development".[207]

6. Beyond the role of urban planning in responding to the potential impacts of climate change—and underlining this assessment—ensuring effective municipal planning to manage and guide urban growth and development are vital for the future of urban Bangladesh. In the absence of planning, as the current state of cities and towns testify, the provision of municipal infrastructure becomes conditional on responding to demand generated from uncontrolled development, and in turn results in inefficiency in service coverage and levels, and the operation and maintenance costs that follow. But the speed of urban development, together with the varying capacity of pourashavas, must be matched by a degree of responsiveness and flexibility in the methods and tools (a 'one size fits all' approach is likely to prove inefficient and ineffective). There is a critical need for a balanced approach to the management of urban development in both controlling (preventing inappropriate development taking place) and enabling development. The latter needs to emphasize the capacity of pourashavas to benefit from the opportunities presented by development (for example through the provision of infrastructure and operation and maintenance costs) and increasingly financed by the private sector. This requires the provision of planning regulations and mechanisms for 'capturing' benefits for the wider benefit pourashava (such as infrastructure levies and 'planning gain'). Such mechanisms are of special significance in rapidly urbanizing areas—as the speed of the development accelerates and medium to large volume developers (residential, commercial and industrial) enter the market—but currently of less significance in the smaller coastal towns with modest growth rates.

7. There are four critical planning functions for supporting sustainable urban development in Bangladesh and beyond in relation to climate change: (i) controlling land use by preventing development in areas of high risk and in areas that exacerbate levels of risk, (ii) promoting, directing and facilitating development in areas of least risk and that are compatible with a climate resilient urban development strategy, (iii) allocating and reserving sufficient land for critical climate resilient infrastructure (such as water supply, drainage and

[206] UN-HABITAT (2007) Global Report on Human Settlements 2007: Enhancing Urban Safety and Security, p.205.

[207] World Bank (2013) 'Building urban resilience: principles, tools and practice', edited by Abhas Jha, Todd Miner and Zuzana Stanton-Geddes, World Bank. (p.26). An ideal scope and purpose of risk assessment applied to land use planning is summarised as: (i) risk-based land use planning is a non-structural approach that identifies the safest locations and regulations for guiding urban development; (ii) risk-based land use plans should inform all urban infrastructure projects; (iii) mainstreaming land use planning in infrastructure projects reduces episodic and everyday risk is rapidly urbanizing cities and towns in hazard-prone areas that expose a high concentration of economic assets and population, especially the poor, to disaster risks; (iv) land use plans control development in hazard-prone zones, facilitate rescue operations, and provide for emergency refuges; (v) land use plans are implemented using a combination of regulations and incentives for private sector and community engagement, and this is more difficult if institutional coordination and municipal capacity are lacking, and; (vi) risk-based land use planning should be incorporated into all phases of the urban project cycle. (p.57)

roads) including sufficient rights-of-way and land availability, and (iv) identifying, on a continual basis, priority capital investments (for both new infrastructure and rehabilitation of existing infrastructure, and including 'natural' eco-systems infrastructure).

2. MASTER PLAN SCREENING

8. The absence of master plans in Bangladesh has historically hampered better management of the urban development process. This has resulted in arbitrary decision-making on building and development control, and has worked against the efficient (planned) provision of basic infrastructure. The major effort to redress this has been the GOB-Local Government Engineering Department (LGED) projects: (i) Upazila Towns Infrastructure Development Project (UPTDP) covering 223 pourashavas, commencing in 2008 and with scheduled closure by June 2012 (it is understood that this is being extended to June 2013);[208] and (ii) District Towns Infrastructure Development Project (DTIDP) preparing master plans for 22 district level pourashavas and Rangpur Division Town. These projects share a common method and are jointly abbreviated D/UTIDP.

9. Under D/UTIDP the objectives for master plan preparation include: (i) Formulation of a 20-year vision; (ii) Preparation of a multi-sector short and long term investment plan; (iii) Provide controls for private sector development, clarity and security for future development; and (iv) Prepare a 20-year Structure Plan. The D/UPTDP master plan is a 3-tier document: (i) Structure Plan (strategy for the next 20 years); (ii) Urban Area Plan (specific strategies and guidelines for 10 to 15 years consisting of a Land Use Plan, Transportation and Traffic Management Plan and Drainage and Environmental Management Plan); and (iii) Detailed Area Plan or Ward Action Plan (that provide detailed development proposals and implementation guidelines for a 5-year time horizon and is to contain land use guidelines for every parcel of land, detailed infrastructure plans, and a list of present and priority future development projects). Master plan preparation is carried through six detailed physical and socio-economic surveys, including the collection, scanning and digitization of the Mouza (Base) Map, and preparation of eight survey maps (as part of the GIS database). The approval of the master plan is made by GOB upon recommendation of the pourashava council (which meet monthly) and with the suggestion of the pourashava Standing Committee on Urban Planning, Urban Services and Development.

10. The status of master plans in the study towns is recorded in **Table 1**. The review of Mathbaria is not included at this interim stage as both surveys and draft / interim master plans are not yet completed.

11. The development of the master plans must be set within the context of the framework for their production (the TOR): this was a tightly prescribed and somewhat rigid approach to plan development with little space for flexibility. In large part, the observed deficiencies reflect this framework, though we are of the opinion that the effort to develop master plans is an important step forward.[209] Master plan development must also be contextualized more generally by the state of urban planning and local government in Bangladesh—urban planning is a fledgling discipline. This is important as it also contextualizes potential responses to perceived deficiencies and gaps.

[208] The number of pourashavas per region covered is: Dhaka (20), Mymenshing (20), Comila (21), Noakhali (14), Chittagong (16), Sylhet (13), Rangpur (19), Bogra-Pabna (21), Rajshahi (22), Geater Faridpur (16), Barishal (19), Khulna-Kushtia (22).

[209] Preparation of master plans has been split into 12 consulting packages undertaken by 8 consulting firms.

Table 1: Master Plan Preparation Status for Study Towns

Towns	Project	Available Material	Master Plan Completion[210]
Amtali	UTIDP	Survey Report (Final), December 2011; UTIDP Interim Report; Final Draft Plan Report	Final Draft Plan Report, March 2013
Galachipa	UTIDP UDD	Land Use / Master Plan of Galachipa Pourashava (December 2012) (UDD) produced by UDD. UTIDP Interim Report	UDD - pending GOB approval and gazetting UTIDP - Draft Plan, April 2013
Mathbaria	UTIDP	No master plan materials available for review	Survey Report under preparation
Pirojpur	DTIDP	Draft Master Plan	Final Draft Plan Report – dispatched to town, March 2013

Source: PPTA Consultant.

12. Such a large-scale master plan making process is first of its kind in Bangladesh. Most of the upazila level pourashavas (mostly category B and C) are also of recent creation (within 15 years). These small local/rural towns were earlier *Thana Towns* (Police Stations) that were upgraded into *upazilas* (sub-district) through a country-wide decentralization policy (1982). The pourashavas are therefore relatively new and are still characterized by insufficient capacity to handle the tasks of a master plan development and implementation. Similarly, the urban planning profession is a young discipline.[211] There is also an acute shortage of professional surveyors given the scale of urban planning and development currently underway. The result is a serious capacity gap in the process of master plan preparation. Most of the master plans have been prepared by a young generation of planners and surveyors under the guidance of some 'first generation' senior planners (also inexperienced in handling such large scale works involving the simultaneous production of multiple plans). The same is true for private consulting companies that were engaged in the process of preparing the master plans of pourashavas. Of the five selected coastal towns, only Patuakhali has had some planning capacity for the last two years.

13. Our observations, whilst critical, look to identifying the gaps and shortcomings and identifying ways of strengthening and taking forward the implementation of the plans by the introduction, for example, of additional tools and instruments, and strengthened planning processes at the pourashava level. Of the master plan development process in general it has been observed:[212]

- On balance, and given the relative size of the coastal town pourashavas, the master plans are very detailed. The effort in master plan preparation appears tilted to the collation and review of data rather than creating workable instruments capable of implementation and that respond to the significant growth even in these relatively small towns.

[210] Best available estimate from D/UTIDP project offices (LGED).
[211] Urban planning is being currently offered in six public universities at undergraduate and graduate level; three of the universities commenced offering courses in urban planning in the 1990s, the remainder in the last three years.
[212] '[Module B-1] Preparation of Municipal Development Programs', World Bank / LGED (2012).

- The speed in master plan development may reflect the level of data collection and analysis. Clearly there has been a long master plan gestation period. The plans commenced over five years ago and there appear significant delays between survey reports, interim reports and draft final plans. This will likely render the need for revision and updating in the near future.

- All pourashavas reported satisfaction with the degree of interaction between the consultants and pourashava representatives and officials. In Amtali 'substantial' interaction was reported over the last year involving the Mayor and ward councillors, though previous to this it was unclear what level of interaction had taken place (the plan has been in development for 5 years). However, the level and depth of participation is unsubstantiated, and by comparison to the development of PDP under UGIIP-2, participation is confined to representatives and officials and has been sporadic. By comparative standards the development of the plan has been light touch in terms of participation. Whilst 'consultation' with stakeholders is identified as an element in plan development, the degree to which the pourashava leads and shapes the process is unclear, as are the tools used for formulating visions and priorities.[213] In the context of the time to develop the master plans there has not been consistent, regular and effective partnership between the consultants and the Pourashava in a rapidly changing situation.

- Whilst all pourashavas expressed confidence in the accuracy of the surveys and plans, mistakes in recording existing land use information can still be observed. Errors have been noted and need to be addressed, for example, in Amtali an important sluice gate and part of the major drainage canal that falls to river Payra were found to be missing in the existing land use and draft master plan maps. The river Payra that flows on the boundary of Amtali Pourashava and causes tidal surge to Amtali and its sub-region was also not shown in the maps.

- It is clear that insufficient consideration has been given to the capacity required to utilise the plan in decision-making once adopted: both for the control of development and the identification of priority infrastructure and basic urban services. When asked what steps have been taken for the anticipated adoption and implementation of the master plan, all four pourashavas reported that no substantive steps have been taken: there has been no briefing, training, systems preparation or development of monitoring and evaluation approaches. Amtali reported that the Standing Committee on Urban Planning had been activated. In general, such preparatory considerations were considered premature. This reflects that master plan preparation has been tackled in large part as a technical exercise of data collection and plan preparation; there has been no capacity development as part of this process. The development and utilization of such a plan is likely to prove challenging for even well resourced and capacitated local government.

- There is no indication of the method to be used in identifying and prioritizing infrastructure needs, or the proposed method for pourashava infrastructure planning, programming and financing in general. The plan does not appear to include any consideration of municipal finance and sustainability.

14. In the questionnaire survey conducted with the pourashavas, it was asked whether from the pourashava's perspective climate change issues and disaster risk management considerations had been addressed in the preparation of the master plan, and whether this

[213] Previous assessment carried out under the CRDP PPTA indicated that the development of detailed area plan (DAP) covering Tongi Pourashava (under the *Dhaka Metropolitan Development Plan 1995-2015*) had involved minimal consultation with the pourashava. The DAP orientation has been disputed.

coverage was considered adequate. The responses received must be compared to the conclusion of the screening of the available master plan documents presented below. Amtali and Pirojpur were positive about the degree to which climate change and disaster risk reduction measures are addressed, though Amtali has not commented on how the impacts are assessed or covered in the emerging master plans. Pirojpur's perspective on climate change relates to the problems of flooding and congestion in drainage. Galachipa and Mathbaria reported that climate change issues had been discussed with the consultants, though neither pourashava is clear whether such issues are addressed in the master plan (Galachipa) and survey report (yet to be delivered to Mathbaria). On disaster risk reduction measures there was even less certainty in responses. Pirojpur reported being aware that disaster risk issues are covered, but was unclear whether it had been addressed accurately, that the survey was now outdated and was unclear whether the solutions identified were appropriate. None of the pourashavas has been subjected to a vulnerability and adaptation assessment, a quickly emerging standard measure in the promotion of, and response to, climate change issues. Mathbaria was positive about the prospect of such an approach.

15. We have developed a straightforward screening matrix for reviewing the master plan materials. This has been applied to Amtali, Galachipa and Pirojpur. The matrix has been developed following a review of current international practice and experience in reviewing urban climate change resilience, developing climate change action plans and integrating climate change and disaster risk management into planning instruments.[214] The screening supports an assessment of the degree to which the master plans respond to climate change impacts and disaster risk management through a series of questions focussed on: (i) preparation, (ii) product, and (iii) implementation. The screening matrix with a rationale for questions and its application to the pourashavas is included as **Appendix B.2**.

16. We do not review the climate resilience of the individual master plans here. To a greater extent the treatment of climate change issues is identical in the pourashavas—reflecting the plan development process by the same consulting firm. The issues identified, the climate change references made and possible solutions are the same; this inevitably reflects a lack of local specificity in the development of the plans and the degree to which vulnerability assessments have been made. Of the master plans we have noted:

- The study pourashavas are located in disaster prone districts: Amtali (Barguna District), Galachipa (Patuakhali District), and Pirojpur (Pirojpur District). During the monsoon, the weather becomes turbulent when cyclones and tornadoes hit the coastal areas of the district and causes loss of life and damage to properties. Devastating cyclones, such as Sidr and Aila, with over 200 km/hr speed and up to 5-6m high waves cause extensive damage. Both districts are intersected by a large number of rivers and channels. Flooding caused by cyclone and the monsoon is common at the regional and

[214] Asian Cities Climate Change Resilience Network (2012) 'ACCCRN City Projects August 2012', ACCCRN, Rockefeller Foundation. ICLEI (undated) 'Urban vulnerability assessment: approach, methodology and workplan', ICLEI South Asia Secretariat, Delhi.
UNISDR (2004) 'Living with Risk: A Review of Global Risk Reduction Initiatives' and (2012) 'How to make cities more resilient: A handbook for local government leaders'.
Tyler, S. and Moench, M. (2012) 'A framework for urban climate resilience', *Climate and Development,* 4 (4).
UN-HABITAT (2007) 'Global Report on Human Settlements 2007: Enhancing Urban Safety and Security'. (2009) 'Global Report on Human Settlements 2009: Planning Sustainable Cities'. (2010) 'Participatory climate change assessments: A toolkit based on the experience of Sorsogon City, Philippines', Cities and Climate Change Initiative Discussion Paper No.1. (2011) 'Global Report on Human Settlements 2011: Cities and Climate Change'. (2012) 'Developing local climate change plans: A guide for cities in developing countries', Cities and Climate Change Initiative Tool Series. (undated) 'Planning for climate change: A strategic, values-based approach for urban planners', Version 1 for comment and field-testing.
World Bank (2008) 'Climate Resilient Cities: Reducing vulnerabilities to climate change impacts and strengthening disaster risk management in East Asian cities'. (2013) 'Building urban resilience: principles, tools and practice'.

sub-regional level. All the rivers are connected with streams and tidal channels and flow down to the Bay of Bengal.

- The available master plans for the study towns all identify cyclones and flooding as two major events faced on a regular basis. The tidal surge in the pourashavas resulting from high speed cyclones and monsoon flooding is reported in the respective master plans as:

  - **Amtali:** 8-10 feet in high speed cyclones and monsoon flooding of 2-5 feet beaching of the by river bank in year's of exceptionally heavy rainfall. In both conditions, flooding at regional and sub-regional levels is common.

  - **Galachipa**: Devastating cyclones, such as Sidr and Aila, are referenced with over 200 km/hr speed and up to 5-6m high waves. The River Ramnabad that passes by Galachipa pourashava is an active channel for tidal surge. During cyclone, the tidal surge rushes through this river and causes inundation in low-lying areas of the pourashava. During monsoon, three wards outside flood embankments are flooded every year.

  - **Pirojpur:** Tidal surge of 6-7 feet in high speed cyclones and monsoon flooding in year's of exceptionally heavy rainfall are major disasters considered in the plan. The River Baleshwar that passes close by Pirojpur pourashava and the River Kochha flows at a certain distance can cause tidal inundation in the pourashava.

- Whilst all master plans reference hazard types in the analysis of critical planning issues of the pourashava, this falls well short of hazard and vulnerability profiling and mapping.

- Amtali and Galachipa identify salinity intrusion and the presence of arsenic in the ground water as critical problems that require planned interventions for water supply.

- All the master plans provide instructions on building cyclone resilient structures for the safety of people and property. The plans reference the need for multi-purpose cyclone shelters, raised roads, forestry and riverside tree plantation, adequate drainage facilities, rainwater harvesting and community facilities for public safety against climate change disasters (cyclones, flooding, tidal inundation, etc.). Purpose built cyclone shelters are considered insufficient to provide equitable access for populations in different areas of the towns; similarly education facilities that can be used as cyclone shelters are not appropriately located for adequate access to all sections of the respective town's population. Whilst all the master plans flag the need to build cyclone and flood resilient public facilities in the future, they do not make any specific proposals on rehabilitation of major physical infrastructure or facilities except for roads and embankments.

- All the master plans reference the need to follow building codes and rules, and all relevant national policies including Coastal Zone Policy (2005) which emphasizes on public safety and secure livelihoods.

3. URBAN PLANNING PROCEDURE AND SYSTEMS: FINDINGS

17. Implementation of the master plans and the urban planning system more generally involves two principal activities: (i) the control of development through land use zoning and

other control mechanisms through the current building permit system, and (ii) the means for identifying and bringing forward priority infrastructure investments, both new and rehabilitated infrastructure. This balance of controlling and facilitating urban development is critical to the efficiency and effectiveness of plan implementation, and is reflected in the TOR objectives issued for the development of master plans.[215]

3.1 Development Control and Enforcement

18. The principal mechanism for the control of development in urban Bangladesh is the building permit sanctioned under the Building Construction Act (1952), and subsequent regulations and rules; the principal of which is the Bangladesh National Building Code which specifies minimum standards for design, construction, quality of materials, use and occupancy, location and maintenance of buildings. Section III of the Act mandates pourashavas to permit or refuse permission for the erection, re-erection, addition or alteration of any building, and any proposal that is inconformity or contravention of the master plan. It is therefore the centerpiece of ensuring development in the coastal towns adheres to the master plan. However, in the current context—in the absence of statutorily adopted plans—the permit system works primarily as a building control mechanism (ensuring building are safe, accessible and efficient and conform to construction standards) rather than a planning mechanism (for example related to the permitted use of land and buildings, and in conformity with zoning rules) as such. This will of course change once the master plans are adopted and in place, and the development control system will, in theory, be expanded to include land use clearance and development permit approval. The Local Government (Pourashava) Act, 2009 empowers the pourashava to practice development following the master plan. Once the master plan is approved, the pourashava will have scope to investigate the building permit application on the basis of underlying planning principles and directions of implementation laid out in the master plan. The pourashavas are currently practicing building permits following the Building Construction Act, 1952 and Building Construction Rules, 1996. The practice varies widely from pourashava to pourashava and among different categories of pourashavas (A, B and C).[216] In combination, these approvals will be a critical component in ensuring the development is in conformity with the plan, and with subsequent revisions that seeks to enhance its responsiveness to climate change impacts. However, it should be noted that whilst there is scope for making and practicing similar development control systems in pourashavas as currently practiced under RAJUK's jurisdiction, no specific rules have so far been framed. The draft Urban and Regional Planning Act 2012 proposes for a unifying national authority under which planning practices in the country will be functioning, the coordinating office being in the Ministry of Housing and Public Works.[217]

[215] In abridged form these objectives were: (i) formulate a 20-year vision, (ii) plan for people and services they require, (iii) prepare a multi-sector short and long term investment plan through a participatory process, (iv) control private sector development, (v) provide guidelines for development, and (vi) prepare a 20-year master plan.

[216] This system operates only in 4 urban development authorities (RAJUK, CDA, KDA & RDA) at present whereby the Dhaka Metropolitan Building Construction Rules (2008) binds planning and building construction into a four step process requiring: Land use clearance certificate; Development Permit; Building permit; and, Occupancy Certificate. An applicant (individual or developer) must seek a land use clearance certificate from RAJUK. A check is made as to whether the intended use (residential, commercial, industrial, recreational etc) of the plot of land is legally compatible with the land use provisions made in the master plan. Applications fully compliant with the land use/zoning provisions and provided a certificate of clearance and triggers the next step submission of building designs.

[217] All relevant ministries will be represented in such an Authority. Under it, an executive committee will carry out the responsibilities to implement the tasks of the Act. The regulatory authority or commission will meet at least once in every six months, while the executive committee will meet once in every three months. The proceedings of the executive committee meeting will be placed in the meeting of the authority/commission for approval. Making any new rules or modifications in the Act will be the function of the national regulatory authority/ commission. The Act proposes to bring all previous planning activities to be considered under the

19. The Bangladesh National Building Code (BNBC) was published in 1993, but only adopted in 2006. In its current form, environmental sustainability elements (including those related to the impacts of climate change) are not addressed. For example, there are no prescriptions for energy efficiency (lighting or heating), nor for water saving appliances or rainwater harvesting. However, the Code is currently being updated and it is likely that there will be guidelines on 'energy efficiency and passive energy design features' and 'rainwater management'. The latter will contain guidelines for harvesting, storing and distributing rainwater. The Code does have disaster risk management (DRM) related features with provisions to strengthen the structure of a building for wind, seismic and flood loads. It is anticipated that the updated code will include elaborated prescriptions for coping with flood load. As of June 2013, the Code is in the final stages of revision. The BNBC has not yet been made compulsory for pourashavas and city corporations by any specific gazette notification. It is likely that the pourashavas as elected bodies can, however, utilize it in development control within the legal purview of the Local Government (Pourashava) Act, 2009.

20. The building permit system is being practiced in all five pourashavas, and from responses to survey questions, follows a similar system of implementation. On receipt of the application for building permission, it is reviewed by the pourashava engineers and a site check is carried out by an engineer and surveyor. Recommendations on the application are made by both. Amtali, Galachipa and Pirojpur also reported that the ward councilors were consulted and make recommendations on the application. The final decision on the application is made by the mayor (Amtali, Galachipa, Mathbaria) on the basis of the recommendations received.[218] This is in contravention to the Local Governemnt (Pourashava) Act 2009, which requires decisions to be made by related standing committee. Only Patuakhali referred to the role of the Standing Committee on Urban Planning, Citizen Services and Development which was 'informed about the process'. Neither the TLCC nor WLCC were referenced as active in the building permission process. The permit is granted through a signed permission on the reverse of the application (Galachipa, Mathbaria), through the multiple signed approval of the layout plans (Amtali) and through issuance of a letter (Pirojpur). The engineering office places the application to the Mayor with a note for approval. But this is not uniformly practiced in the study pourashavas.

21. It is understood that there is scope for pourashavas to implement building permits within the legal framework. The pourashavas can also impose development control following the mandate in Local Government (Pourashava) Act, 2009. There are other national Acts, policies and strategies to support such initiatives of the pourashavas. The information on building permit status of the last five years was collected through field surveys **(Table 2)**. An increasing trend can be observed in the number of permits approved by the four pourashavas. In five years there have been no building permit rejections in Amtali, Mathbari and Pirojpur, and only two rejections in Galachipa. This may be explained by the administrative request for resubmission where applications are in contravention of the regulations. Building applications are generally received if all necessary documents are correct. Incomplete applications are simply returned.

Act and carry out all kinds of physical plans (urban, regional, rural, local, any others) under the jurisdiction of national regulatory planning body. This will ease the government process in plan making, implementation, and monitoring. This will support better coordination among various ministries and departments and help more rational distribution of resources for development at various levels of planning.

[218] '[Module B-1] Preparation of Municipal Development Programs', World Bank / LGED (2012) reported that in many cases the decisions on the building permit was made by the Mayor alone.

Table 2: Building Permits Approved and Rejected in Last Five Years in Study Towns

Year	Pirojpur		Mathbaria		Amtali		Galachipa	
	A	R	A	R	A	R	A	R
2008-09	112	0	105	0	14	0	31	0
2009-10	156	0	111	0	12	0	47	0
2010-11	142	0	167	0	80	0	114	0
2011-12	165	0	192	0	210	0	227	0
2012-13*	68	0	128	0	86	0	46	2
Total	643	0	703	0	402	0	465	2
Total holding	11500		4316		4627		5002	

Source: Pourashava records.

22. Clearly there are considerable areas of informal settlement that to all intents are currently beyond the development control net; as these households do not own any land, they cannot be legally brought under building permit system, which in its current form is in nay case inappropriate for application to poor households. These poor populations mainly live in government *khas* lands and are at greater risk of climate change impacts. In Patuakhali there are seven slums mostly on government *khas* land (a 2009 survey indicated that 30.47% population were migrants). For Amtali and Mathbari there are two and four slums respectively. In Galachipa there are three slums on government barracks land (clustered settlement) and two slums on WAPDA land outside the embankment. Except the three government barracks in Galachipa, the remainder of the slums are located mainly in low lands or areas of greater disaster risks by floods, tidal surge and cyclones. These require either protection or, more controversially, planned resettlement within the pourashava to less/least vulnerable areas (raising questions of land availability and participatory resettlement planning).

23. All building permits granted are recorded (manually) in a register; there is a separate file for each application containing the application, layout plans, notes and correspondence. There is no computerization of the records; Mathbaria and Pirojpur reported this would be useful. Formally the decisions on building permits are not available to the public. In practice, all the pourashavas reported that neighbors were informed of applications through interactions with pourashava officials during the site visit, and more generally through 'local knowledge'.

24. The enforcement of planning and building rules is identified as a critical area in the preparation of CTIIP. Amatli, Galachipa and Mathbaria reported that a final site visit was carried out on the conclusion of construction; we were unable to substantiate this. An Assessor also visits the site to put a holding number for tax collection. There was, however, no final notification that the development had been completed in conformity with the permission. Pirojpur reported that site checks were carried out at the application stage only, with no further checks made due to the lack of manpower. Where developments do not conform to the building permit there is a mixed approach of trying to correct the deviation at the point of detection and where unsuccessful of demolishing those parts of the development that infringe the permission. Galachipa reported that the ward councilors are used to advocate compliance. There was an inconclusive response to the degree to which permits were infringed—Galachipa reported around 10 to 20% of all permits. In the absence of longitudinal data on permits and completed developments we cannot confidently conclude that adequate enforcement is in place. Previous assessments have reported that although the permit conditions and building code is usually followed in the design phase, this is often

violated during construction (including set-backs, building heights and floor area ratios). In circumstances where development proceeds without permission, a similar approach was reported by the pourashavas. Amtali reported construction was barred and the developer compelled to apply for permission, and Pirojpur tries to resolve illegal development (which was reported to arise) through the intervention of ward councilors. Galachipa and Mathbaria did not consider illegal development as an issue, in part a reflection of the local context where people feel compelled to comply, and the 'eyes' of the community that support a disposition to compliance.

25. Despite a general confidence in compliance and enforcement there was nonetheless interest in improving enforcement procedures and methods (a reflection perhaps that enforcement remains under-reported). Public awareness raising was considered significant means, and is already conducted occasionally in Mathbaria (through loudspeakers and newspaper coverage). Pirojpur considers the town level coordination committee (TLCC) could be a principal mechanism for motivating compliance (and enforcement), a possibility also recognized by Galachipa. The possible role of the TLCC was not substantiated.

26. The relationship between the emerging master plans and building permits is generally understood—zoning was cited as a useful tool for better planning in all pourashavas, with Mathbaria referencing clear rights-of-way as a critical aspect. All pourashavas confirmed that permits will be granted in line with zoning. But there was little indication that sufficient consideration has been given to: (i) how the system will be operated in practice (the same as usual but with reference to the master plan), (ii) whether modified and/or new systems are needed, (iii) how the permit and plan system will be monitored (and subsequently revised), (iv) how the presence of the plan needs to be 'advertised', and (v) who needs to be briefed, trained and inducted in urban planning and the utilization of plans.

27. The coastal towns are not alone in their endeavors these are the to-be-expected maturation pains of urban planning in Bangladesh. The recent review of the urban local planning process carried out in preparation of the World Bank's Municipal Governance and Support Project also concluded that implementation of the master plans through the building permit system appear not to have received sufficient attention in the development of the plans (and the TOR framing their development). We have noted from the UTDIP master plans screened that there is no reference to the building permit system in the chapters on implementation. This relationship is briefly covered in the Galachipa master plan prepared by UDD.

28. The relationship between the building permit system and planning and environmental issues is also under-developed (reflecting its building control orientation). As it is currently practiced the building permit system is oriented almost exclusively to the proposed layout design and operates as a building/engineering-centric assessment. In general building permits are approved unless there is some irregularity in the application or plans (see Table 6.2).[219] Amtali and Galachipa reported that environmental factors were considered, especially in relationship to flooding and water levels. Mathbaria referenced 'suggestions' made on plinth heights and the strength of columns and beams in the context of the risk of cyclones, and similarly Pirojpur reported that plinth height requirements are a foot higher than previously. Both pourashavas related their actions to the emerging master plan: Mathbaria will revise and adapt the system once the master plan is adopted, and Pirojpur referred to the need to revise the master plan in the context of current building permit practice.

[219] '[Module B-1] Preparation of Municipal Development Programs', World Bank / LGED (2012) noted that in some instances the urban planners technical recommendations were not considered, particularly if the planners recommendation is for refusal.

3.2 Master Plan Implementation

29. The second critical role of master plans is providing the means for identifying and bringing forward priority infrastructure (new and rehabilitated) investments.

30. One of six objectives for the preparation of the master plan is the development of a "multi-sector short and long term investment plan through participatory process" (though as discussed, participation has been inadequately provisioned in the master plan preparations).[220] There is evidence from urban areas across the Asia region and beyond of the inability of traditional master planning approaches to bridge the gap between long, and often unstructured, project wish lists, and implementation. Whilst longer term strategic planning is required, the shopping list of investments identified in long range plans (20 years plus) tends to be too static to respond to continually evolving challenges and priorities in tune with available and/or accessible finance. Rather than signaling a structural flaw in the master plans themselves, it does suggest that in dynamic urban development situations, investment priorities are continually shifting, and that pourashavas require a degree of flexibility (and opportunism) to respond to changing circumstances. In addition, pourashavas are bound by central government planning processes for capital investment. Unsurprisingly, when asked how investments were identified, all five pourashavas reported that this was done annually in response to the Annual Development Plan and budgeting procedure and that such matters were settled through discussion at the Pourashava Council.

31. With master plans still in the process of finalization, it is of course too early to comment on the efficiency of implementation. However, we can confidently draw on the experience of UGIIP and of preparatory project assistance undertaken by the World Bank (both executed by LGED) to sketch the challenges and responses in sharpening the capacity of implementation. The experience of these projects highlight two areas that are especially significant: (i) planning tools that promote flexibility, but avoid incremental approaches to infrastructure provision through short to medium term planning, and (ii) planning tools that promote participation, and transparency and accountability in the decision-making processes. We have also noted the recommendation of the CDTA-7890 for the development of Municipal Adaptation Plans (MAP) founded on vulnerability assessments (p.182).[221]

32. Several DP projects have sought to address the deficiency in urban plans: most notably the ADB UGIIP 1 and 2 and World Bank Municipal Services Project.[222] In general, these approaches seek to identify infrastructure needs as part of a broader municipal development framework, and over time have increased in the level of sophistication. As already discussed this has involved linking infrastructure identification, programming and financing to mandatory governance improvements and to training-oriented capacity development activities. There is a widely held view that the provision of infrastructure alone will not solve the problems of growth in cities and towns, and there have been concerted efforts to link infrastructure, governance and capacity improvements; successive interventions by LGED have consistently endorsed this approach.

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[220] Terms of Reference for the preparation of master plans under the Upazilla Towns Infrastructure Development Project. Dated August 2007.

[221] 'TA 7890-BAN: Strengthening the Resilience of the Urban Water Supply, Drainage and Sanitation to Climate Change in Coastal Towns', Draft Final Report Volume 1 Main Report (March 2013): p.182. The MAP process recommended by the CDTA is taken from 'Developing a Municipal Adaptation Plan (MAP) for climate change: the city of Cape Town', Pierre Mukheibir and Gina Ziervogel (2007) *Environment & Urbanization*. This has not been implemented in the form proposed (consultants correspondence, March 2013).

[222] The UGIIP Development Project Proposal (DPP) explicitly focused on the absence of pourashava plans and weaknesses in urban planning as critical factors: "Most Pourashavas do not have a plan for land use and development of various infrastructures. Combined with weak governance, investments tend to be made in an unplanned and discretionary manner…Lack of proper urban planning leads to inefficient allocation of available funds, adding further stress on limited resources. Unplanned and rapid urbanization creates large unmet demand for urban infrastructure and services" (p.11).

33. The mechanism for identifying and prioritizing investments in UGIIP-1 and 2 has been the Municipal Development Infrastructure Plan (MIDP) and the Pourashava Development Plan (PDP) respectively. In the World Bank MSP the production of town-level feasibility studies to support prioritized infrastructure investments was used. Both the MIDP and PDP were conceived as a town wide planning framework founded on a participatory needs identification process. Both present a vision of the pourashava.[223] The PDP seeks to determine development priorities and support elaboration through technical and feasibility studies. Prioritization of infrastructure starts at the ward level using a simple template recording the current status (adequate, average and poor), what needs to be done (short to medium term), and a priority ranking. Prioritization is carried out through stakeholder discussion, and there does not appear to be the application of any other method. The final 'short-listing' of infrastructure appears to be carried out by the TLCC, but in the absence of technical support.

34. In relation to the size of the participating pourashavas, the PDP is a complex document and experience has shown that intensive support has been required for its development. In volume alone PDP's are commonly in excess of 250 pages. Recent assessments suggest that the approach is on the 'right track'. UGIIP has demonstrated that visioning is significant in enhancing the ownership of plans by pourashavas and supporting the mind-set change required at the local level; this is critical to nurturing a modern approach to municipal planning and management. Equally, there is recognition that more-focused, shorter-range and regularly revised capital investment plans are better suited to the size and capacity of pourashavas.[224] In its current form it is considered unsuited to smaller (Class C) pourashavas with more limited capacity. A recent assessment concluded that as an investment identification and prioritization method it appears to be too sophisticated and 'over-engineered'. There is a need to clearly separate the visioning and goal setting (with a longer term horizon of 15 to 20 years in UGIIP-2), from the rolling medium term programming of high priority infrastructure investments against financial capacity, and to consider more robust and simple methods for the prioritization of projects. There is also a need to separate core strategic (city-wide) proposals (larger infrastructure investments such as the longer range responses to climate change impacts) from small scale and localized (more routine) projects that maybe be more appropriate to municipal own-source funding.

35. The level of effort to engage stakeholders in PDP development approaches is impressive. This appears to broad in scope and employing methods that have been well accepted in the local context. Levels of accountability and transparency in the development of the PDP have been enhanced through the establishment of WLCC and TLCCs. But previous project preparatory assessments suggest that the visioning exercises need sharpening to prevent a 'wish-list' approach to infrastructure investments. Arguably the level of participation, and the identification of infrastructure needs from the ward level upwards, could work against the identification and prioritization of strategic investment needs. Guidelines are provided for conducting focus group discussions and ward level visioning exercises.

36. Building on the experience of the PDP and MSP feasibility studies, LGED has recently developed 'Combined Urban Infrastructure Development Guidelines' supported by the World Bank project preparation (Municipal Governance and Services Project). The guidelines consist of three interrelated components: (i) urban infrastructure development guideline, (ii) urban capacity building guideline, and (iii) urban financial guideline. The

[223] A review of UGIIP-1 MIDPs in Tongi and Noapara for CRDP concluded that whilst they provide sound situation analysis and identify local priorities, the implementation orientation of these tools is much weaker, and given the institutional and financial constraints faced by pourashavas, they are likely to be unsustainable in the long term (for example in terms of operation and maintenance of municipal infrastructure). The process had concluded in a 'wish list' of aspirational projects (the Noapara MIDP listed 81 separate initiatives).

[224] LGED (2011) 'Analysis of Issues and Options 1'.

guidelines were conceived as a relatively user-friendly guide for the development of short to medium term (1 to 3 years rolling) capital investment plans ('Municipal Investment Plan') and related capacity building plans. In essence it is a striped back PDP process that focuses on the expeditious development (target of 16 weeks) of capital investment plans, using a straight-forward investment pre-feasibility and prioritization method and more closely aligning investment planning to asset management (the actual and projected commitments for O&M). The guideline has been written in a format that anticipated adjustment to varying sizes of pourashava and varying objectives (economic, social, and environmental). It has been tested in 26 pourashavas during 2012 and revised accordingly.[225] The approach will be fed into the Municipal Governance and Services Project which is scheduled for preparation during 2013 and with an initial target of 4 city corporations and 22 pourashavas.

37. The advantages of the guidelines are, in principle:

- Designed to be developed in a reasonable timeframe and with the full participation of the pourashava.
- Builds on the most successful aspects of PDP development (such as visioning and the central involvement of the TLCC), and therefore builds on the practicability of planning in Bangladesh urban centers.
- Could be adapted to, and adopt, a vulnerability and adaptation assessment as part of the capital investment plan (as opposed to requiring separate Municipal Adaptation Plans).
- Prioritization methods that will allow for top-listing climate change resilience investments.
- Designed to be used on a continual process (reviewed annually, with substantial reviews every 3 years).
- Supports the development of capacity of the pourashava for planned investment and preparation of pre-feasibility assessments.
- Integrates an asset management approach that can be readily tied to DRM investments (condition assessments and O&M plans).
- Straightforward methods for calculating the lifecycle costs of infrastructure options (based on capital investment, average lifespan, yearly depreciation and yearly maintenance) could readily be applied to identifying incremental costs of responding to climate change (the resilience increment).
- Has in in-built assessment of capacity needs and financial resourcing

3.3 Urban Planning Capacity

38. Capacity development focuses on both the players (individuals and organizations) and rules (institutions) of the 'game' focusing on three components: (i) human resources: the ability and competencies of individuals to operate and support an urban planning system and process (both elected representatives and pourashava staff, and also the capacity of a broader group of stakeholders to participate in the urban planning process); (ii) organization capacity: most significantly the strength, capability and resources available to pourashavas. This means identifying the limitations and bottlenecks in processes and systems, service delivery arrangements and management of staff resources, and (iii) the policies, legal and regulatory frameworks that control and guide the way that the urban planning works, and condition the human and organization capacity. This is conditioned heavily by the relationship between central and local government, and national laws, rules and norms, and especially so in a very centralized state such as Bangladesh.

39. Our analysis is limited to urban planning, though there are many broader capacity

[225] '[Module B-1] Preparation of Municipal Development Programs', World Bank / LGED (2012).

development issues (such as the strength of human resource management or the culture of continuous training and learning in an organization) that affect the veracity of the planning process. It should also be emphasized that the five coastal towns under review are in no way exceptional in the capacity challenges faced: they are, by and large, typical of the issues faced throughout Bangladesh. Relatively recent institutional and organization assessments were undertaken in preparation of ADB urban sector projects, each assessing the capacity of pourashavas.[226] The conclusions on organization capacity are largely consistent, are repeated throughout DP assessments and analysis, and are reflected in current national policy and planning documents. The findings of the assessment under CTIIP are no different. In brief, pourashavas have insufficient capacity and resources and are finding it difficult to respond to the need for forward planning and investment in basic urban infrastructure and services. This undercuts sustainable local urban governance, makes local planning ineffective and undermines local economic development.[227] The impacts of climate change if anything exacerbate the weaknesses in municipal management more generally. It is noted that recent assessments have heavily emphasized the significance of capacity and skills in urban management, beyond predominantly physical land use planning, that are yet to be developed in Bangladesh.[228]

40. Three critical areas that bear on the performance of urban planning are: (i) finance and financial management capacity with pourashavas heavily constrained by a lack of finance from both own-source revenue collection and inter-governmental block grant transfers, (ii) organization and operational planning, with insufficient capacity for organizational management that would provide pourashavas with the competencies to plan and manage resources over the medium and longer-terms; and (iii) skilled staff with human resources representing a major constraint in number and in relevant skills, as a result of both the centrally determined organogram for all classes of pourashava (A, B and C) and the number of unfilled posts.[229][230] Some of the capacity issues (such as the operation of the building permit system) have already been discussed above.

A. Human Capacity

41. The organograms for the three classes of pourashava (A, B and C) tightly prescribe how local government is structured and staffed in Bangladesh. Only Class A pourashavas have an Urban Planner. This position is based in the Engineering Department. In Mathbaria and Pirojpur the Urban Planer position has not been filled. Mathabria regards urban planning as a critical activity, expressedly wants the position filled, and has requested an Urban Planner through the official government channels. Urban planners are recruited and

[226] UGIIP Technical Assistance assessed 22 pourashavas in 2002. UEHSDP Project Preparation Technical Assistance (PPTA) assessed 7 pourashavas in 2009. UGIIP-2 PPTA: assessed 3 pourashavas and 4 for UGIIP-1 lesson learning assessment. CRDP PPTA assessed 6 pourashavas in 2010.

[227] "Planned development of urban areas is a strongly felt need but the ineffectiveness of the local government and development authorities in urban planning has been brought up in the institutional development forums time and again." ADB (2009) *City Cluster Economic Development*: *Case Study Dhaka Capital Region, Bangladesh* (p.62).

[228] '[Module B-1] Preparation of Municipal Development Programs', World Bank / LGED (2012). LGED (2011) 'Analysis of Issues and Options 1'. Zillur Rahman, H. (ed) (2012) *Bangladesh Urban Dynamics*, Power and Participation Research Centre (PPRC).

[229] CRDP is focusing on the strengthening organisational management through: (a) Development of an Annual Operation and Maintenance (O&M) Plan; (b) Strengthening performance setting and monitoring system; (c) Human resource management; (d) Building capacity for Public-Private Partnership development. Capacity support in urban planning to pourashavas in the Dhaka and Khulna city regions is being channelled through two technical assistance components: (i) Regional development planning; and (ii) Strengthening regional planning and governance.

[230] For example the CRDP Assessment reported that of the sample municipalities surveyed, vacancy rates of overall approved posts varied between 19 per cent (in Tongi and Narsingdi Pourashavas) to almost 50 per cent (in Narayngnj Pourashava Noapara Pourashava).

appointed through LGED and directly seconded to the Pourashava, and then employed and paid through the Pourashava. The presence of the Urban Planner is considered necessary for the effective implementation of the master plan. Pirojpur Pourashava was more passive in its reaction—an urban planner had not been assigned by the ministry; the architect position was also vacant. Planning issues are handled by engineers. For Amtali and Galachipa pourashavas this was not considered an issue, and there was confidence that the master plans could be implemented with existing resources (we remain unconvinced as discussed below).

42. No pourashava officer or councilor has received any training, briefing or sensitization to the role of urban planning and responsibilities arising from it. Similarly, no TLCC members have received briefing or sensitization on urban planning and the purpose and role of the master plan. Pirojpur Pourashava intends to address TLCC capacity needs after the endorsement of the master plan.

43. The findings of this limited survey are in line with past reviews of pourashava level urban planning. A recent review of urban planning in 26 pourashavas concluded that the absence of urban planners in category B and C pourashavas is manifest in little initiative amongst officials to understand the master plan process, monitor the progress of plan preparation or review the plan prepared. The mayors, councilors and senior staff appeared not to appreciate the importance or the master plan and there were no opportunities for them to be briefed in detail.[231]

44. The TOR / Job Description was issued by LGD in 2005. It is overdue for revision in the light of progress in developing the local urban planning system. The Town Planner is to perform his/her duties under the Executive Engineer.[232]

45. Local urban planning is in a fledging state in Bangladesh. Urban master plans are due for delivery, but with little foresight as to the capacity and focal lead that will be required to implement, monitor and evolve the system. No other country of which we are aware has successfully initiated a local urban planning process in the absence of strengthening planning capacity through the presence of urban planners, or building the multi-disciplinary capacity of built environment specialists (engineers, geographers, architects, sociologists and so on) to look at urban development in an integrated and holistic manner. A recent World Bank review of urban planning in pourashavas, benchmarked against international practice, listed the most critical roles for urban planning as: (i) managing urban development and helping to create liveable and affordable housing areas, and areas for employment of the local community, (ii) playing a role in the planning and development of quality infrastructure to serve the needs of all urban communities, (iii) playing a role in regenerating obsolete and socially-deprived areas and creating new jobs, (iv) designing our towns and cities to include attractive buildings, vibrant public spaces and bustling shopping centers, (v) working to protect our agricultural land to support food self sufficiency, (vi) protecting natural areas including forests, grasslands, waterways, rivers and shorelines, (vii) creating policies for

[231] '[Module B-1] Preparation of Municipal Development Programs', World Bank / LGED (2012).

[232] The Job Description states that the Town Planner will: (i) prepare the master Plan of the pourashava, which amongst other things, must contain: (a) the history, statistics, public services of the pourashava and survey report describing specified aspects, (b) development of areas within the pourashava, its expansion and information related to development, (c) information of the applicable rules on land development, building construction and reconstruction within the pourashava; (ii) prepare the proposals on pourashava development and present it to the higher authority; (iii) liaise with agencies related to urban development and inform the authority; (iv) collect the laws and rules related to urban development and important records/publications, and take necessary actions in this respect; (v) put emphasis on environment in respect of urban development; (vi) take initiative in matters of urban development and management; (vii) examine the design for construction and expansion of public and private establishments within the pourashava as per the master plan, and make arrangement for approval of the design by examining its environment-friendliness to build a beautiful town, and; (viii) perform other responsibilities entrusted upon him/her by the authority.

managing traffic and providing sustainable solutions to our transport needs, (viii) improving energy efficiency and cutting carbon emissions in our homes, factories and businesses, and (ix) engaging people to have a say in how their living space is developed and protected to improve their quality of life.

46. Urban sector capacity building programs are coordinated and/or implemented through various means. The Urban Management Support Unit (established under UGIIP-1) and MSU (established under MSP) coordinate the delivery of training financial systems, master plan orientation (based map data collation) and community participation. Separate capacity building activities are carried out under the Urban Improvement and Capacity Development (GICD) TA of UGIIP-2, the GIZ support through UGIIP-2 and UPPR.

47. As a characterization, the current crop of pourashava urban planners is early career, well-trained and enthusiastic. On one hand this represents a considerable resource for nurturing the development of the urban planning system. On the other, it touches on both the sustainability of CTIIP and risks in implementation, the problems in recruiting and retaining urban planners are widely acknowledged. In part this appears to result from the status of local government (within the overall system of government), pay levels and, most critically, the absence of an urban planning / built environment career prospects and structure. This will necessitate an approach that encourages staff retention, continuing professional development and incentives and opportunities for career progression.

B. Organization Capacity

48. The organizational context of the coastal towns is set by structurally constrained local government through out-dated standardized organograms and job descriptions, fixed levels of staffing (coupled with key appointments and deputations from central government) and standardised conditions (rules and terms).[233] The staffing composition bears little relation to the scope and nature of the urban challenges faced by pourashavas. A Committee was established within LGD (and convened by the Secretary) to recommend changes to the staffing structure, including the recommendation for urban planners in all classes of pourashavas, with additional staff resources in larger (Class A) pourashavas. An alternative, and much beefed up pourashava planning department for class A pourashavas has been proposed (in 2012)—in terms of both sections and staff numbers—consisting of sections on information technology, planning (master plan and building construction control), and beautification and recreation (covering water bodies and low lying areas, landscaping and environmental conservation. This would also help to balance the role of planning from a current situation where urban planners predominantly support the Chief Engineer/Executive Engineers in reviewing and approving the building permit applications.[234] An enhanced and broader range of technical planning positions would help address what is considered one of the major drags on the development of the profession and practice of town planning in Bangladesh: an absence of career progression in both local and central government, and one that is equally reflected in perceived weaknesses in private sector consulting.[235] A vibrant planning scene will help push on innovation in sustainable urban development. There

[233] CRDP assessments noted that there is no systematic organisational planning, no setting of annual objectives and targets in service delivery, and hence no reflection in the work of pourashava departments or individuals. In the absence of some form of performance benchmarking, it is impossible to measure the efficiency of pourashavas, to compare performance between them, and to identify gaps and obstacles in service provision. Pourashavas lack a performance planning culture. There is no systematic goal setting for staff performance, there are standardised job descriptions, weak staff appraisal systems, and poor or absent training needs assessments and training plans.

[234] '[Module B-1] Preparation of Municipal Development Programs', World Bank / LGED (2012).

[235] These positions include Chief, Senior-Assistant and Assistant Municipal Town Planners, GIS Assistants, Assistant and Sub-Assistant Municipal Architects/Town Planners, Auto CAD Operator/Draftsmen and Surveyors.

is no indication when a decision on the revised organogram will be settled.

49. UGIIP-1 and 2 specifically targeted the enhancement of multi-stakeholder participation, accountability and transparency, and have demonstrated the significance of enhancing the mechanisms for participation with the initiation of Town and Ward Level Citizens Committees (TLCC and WLCC [T/WLCC]). This has been mainstreamed in urban local government through the mandatory initiation of T/WLCC required by the Local Government (Pourashava) Act 2009. Both T/WLCC are activated and operating in all the study pourashavas. The meetings are held regularly in Amtali and Pirojpur (quarterly), with Galachipa and Mathbaria reporting that they are not held regularly, but as required. We have been informed that decisions taken at T/WLCC are being acted on (however this has not been verified). All five pourashavas acknowledge that there is a role for T/WLCC in urban planning matters, though with varying degrees of substantiation. Galachipa and Mathbaria have used the TLCC to discuss the development of the master plan, Pirojpur report that all urban planning matters (such as drainage, water supply and sanitation) are put before T/WLCC before decisions are taken at the Pourashava Council. No pourashava reported regular or formalized presentations on urban planning at T/WLCC. As reported above, there has been no training, briefing or sensitization on urban planning matters for T/WLCC members.

50. The four pourashavas reported that the mandated Standing Committee on Urban Planning, Urban Services and Development has been established, though it was neither clear how regularly this committee is meeting in each pourashava, nor the range of issues over which it has control. Galachipa has not activated the Committee and will do so on the adoption of the master plan. This is a critical piece of the governance infrastructure and means of ensuring transparency and accountability, and accordingly must be efficiently run and managed in the pourashavas. It is clear that extensive awareness raising and 'sensitization' to the purpose, practice, roles and responsibilities deriving from TLCC and WLCC is required (LGD served an office order on 9 March 2011 to form TLCC and WLCC in each pourashava), together with the operation of numerous standing committees that are established at the pourashava level. Previous pourashava assessments have commented that elected representatives were unable to identify standing committees to which they held membership, nor articulate the purpose of the committee and their role as members. Whilst the creation of new stakeholder structures are judged to have enhanced the transparency and accountability of pourashavas, there is a balance to be struck between the development of extensive elected representative and stakeholder decision-making and consultative mechanisms, and the need for effective and efficient participation.

51. We are convinced that T/WLCC represents an important mechanism for enhancing participation in, and understanding of, urban planning, and for significantly improving he level of scrutiny, transparency and accountability of urban planning matters (ranging from the development of plan proposals to the exercising of development control). Supporting participation in planning remains a critical area.

52. Effective stakeholder engagement must be conceived as central to the identification of priority interventions, including the development of on-going/rolling capital investment plans.[236] The PDP development makes extensive use of stakeholder participation with the initial steps of the process (preparatory phase, situation assessment, and formulation of the pourashava development vision) employing a range of techniques for engaging stakeholders (such as citizen report cards, focus group discussions, and visioning exercises). These are

[236] UGIIP has sought to make pourashavas responsible for governance reforms through the development of UGIAPs (discussed in Section 8) which prescribe methods for enhancing the awareness and the participation of local stakeholders in urban planning and management (citizen awareness and participation, women's participation, and integration of the urban poor); and for improving accountability and transparency (financial accountability and sustainability, and administrative transparency).

taken up in the development of investment plans (discussed above). UGIIP has also supported the initiation of Slum Improvement Committees (SIC) (to support the development of and Poverty Reduction Action Plans within the PDP) and sought to deepen the pourashava wide capacity for participation through the formation of Community Based Organizations (CBOs).[237][238]

53. The preparation of master plans has not enjoyed the level of participation experienced in PDP development. In large part this is the outcome of a prescriptive TOR for the preparation of master plans under UTIDP. This TOR makes provision for "at least 2 public consultation meeting/seminar one for discussion on the Interim Report and the other on draft Final Report on the proposed Master Plan." (p.70). There is no other reference to participation (other than an information-giving inception seminar).[239] In our view this is inadequate and will over time need to be redressed through the preparation plan revisions and, as discussed above, the development of implementation-oriented planning instruments.

C. Institutional Capacity

54. The institutional framework within which the four study towns operate is, to a large extent, determined at a national level. Formal legal systems and legislation are central to defining the extent, nature and institutional home of regulatory planning powers. In the context of rapid urbanization, the actual and potential consequences of the legal system are therefore far-reaching. Comparative international reviews have emphasized that a pre-condition of meeting the challenge of urban growth and change through urban planning is that national legislation is up to date and responsive to current needs.[240] One of the most important aspects of legislation is to clearly identify the different planning responsibilities and tasks allocated at various levels of government and administration.

55. For cities and towns in Bangladesh (including those in the coastal zone) the legislative and regulatory context for the operation of urban planning system has until recently been unclear.[241] It is recognized that the current legislative framework is outdated and fragmented. It is not enforced, in part a reflection of considerable under-resourcing and capacity for operating the system. Land grabbing, unlawful construction and construction that does not comply with the permitted development is commonplace, if not universal. Currently there is no urban planning law as such. As discussed the weaknesses in both policy and legislative framework are being addressed through a National Urban Sector Policy and a new Urban and Regional Planning Act (UPRA). A legal review of the UPRA undertaken under the City Region Development Project concluded that this was an improvement on existing frameworks, in particular in relation to the level of flexibility and the requirement for

[237] An Urban Public and Environmental Health Sector Development Program (UPEHSDP) has also adopted a UGIIP performance-based method recognizing that by "providing appropriate forums for citizen's participation in municipal affairs, the overall effectiveness of municipal governance and urban basic services do improve." ADB (2008) 'Aide-Memoire Appraisal Mission Proposed Sector Development Programme Loan and Technical Assistance Grant. People's Republic of Bangladesh: Urban Public and Environmental Health Sector Development Program'. Project 39305, July 2009.

[238] The Urban Partnerships for Poverty Reduction (UPPR) Project sets to reduce urban poverty in Bangladesh through the development of a hierarchical community governance system comprising over 23,000 primary groups, 2,200 community organizations (termed Community Development Committees, CDCs), 250 cluster committees of CDCs, and three town-level federation clusters. UPPR extensive baseline surveys and establishment of organization networks provides clearly targeted poverty reduction interventions.

[239] '[Module B-1] Preparation of Municipal Development Programs', World Bank / LGED (2012) notes that even for pourashavas that have planners there is no clear directives from the MLGRDC or LGED to the pourashava to make the process more participatory so that the master plan consultants and the Urban Planner and pourashava officials work together in a coordinated way.

[240] Global Report on Human Settlements 2009: Planning Sustainable Cities (UN-HABITAT, 2009)

[241] *Town Planning and the Political Culture of Planning in Bangladesh (*Golam Rahman, 2008)

participation; but UPRA is enabling legislation and will need to be elaborated through subsequent regulations and rules.[242]

56. In principle, both the policy and legislation could have an impact on the CTIIP, and there should be adequate flexibility that capacity development activities respond to the opportunities presented (most especially from new development control mandates to pourashavas granted through the new legislation).

57. At the local level, the pourashava is the basic urban planning and development authority. The primary legislation setting down statutory, mandatory and discretionary roles, responsibilities and powers is the Local Government (Pourashava) Act, 2009. The SFYP reiterates that through this Act, the pourashava authorities are empowered to prepare Master Plan, implement development schemes and exercise building control. All study pourashavas reported they understood the mandate provided by this Act. Less confidence was expressed on understanding the mandate of pourashavas under planning related policy, regulations and rules. All pourashavas cited the responsibilities and requirements under the Building Construction Act (1952), and in varying degrees to the Building Construction Rules (1996) and Bangladesh National Building Code (2006); Mathbaria Pourashava referred to a 'partial understanding'. No secondary legislation was cited. Neither was reference made to broader national policy and strategies elated to the performance of cities and towns. Noteworthy is the reference to tendering, and construction rules which may underline the currently engineering-dominated approach to urban planning.[243] No locally specific by-laws are in place, with Amtali referring to the following of rules issued by the ministry.

4. RECOMMENDATIONS

58. Our recommendations attempt to build on tried and tested systems in Bangladesh—rather than experimenting with new methods and tools. The recommendations are focused on three core areas of urban planning: **people, processes and tools**. It should be noted that not all measures would be suited to each of the Phase I participating pourashavas and that, in particular, the smallest pourashavas may be unsuited to the fully fledged implementation of an urban planning system.

4.1 Urban Planning Personnel

59. The lack of qualified technical planning staff in the pourashavas represents a major challenge in supporting the development and implementation of municipal urban planning. We strongly recommend that participation in CTIIP is conditional on the presence of an urban planner: in A class pourashava that the vacant position is filled and in B class pourashavas that an urban planner position is created for the duration of the project (and potentially absorbed on agreement of the new planning organisational structure currently under consideration. UGIIP-1 and 2 has addressed this through the requirement that this post be filled, and a Planning Unit established, as part of the UGIIAP performance criteria (but this was applied to Class A pourashavas only).

[242] TA 7641-BAN: Strengthening Regional Planning and Governance. Final Report. Volume 1. Main Report. December 2012

[243] Previous and current urban programs (UGIIP, UPEHSDP, CRDP and UPPR) all confirm that pourashavas (and agencies that support them) must undergo a significant mind set change to shift municipal development planning from an engineering-driven approach in the provision of infrastructure, to the more efficient delivery of basic urban services based on performance and results. Performance-based derived improvements have a broader currency than strengthening governance; in principle benchmarking can be applied to the dispersal and/or allocation of resources in terms of a range of organizational development and service level improvements.

60. A mix of training (on-the-job), briefing and sensitization will need to be carried out during the course of CTIIP implementation. This will need to be targeted at both pourashava staff and elected representatives, and should be delivered on site, singularly (with participating pourashavas) and jointly (bringing pourashavas together for joint learning and sharing). For UGIIP-2, a network of facilitators has supported a hands-on approach to capacity development: for each of the three governance and capacity components: urban planning, municipal finance and community mobilization. There are three expert coordinators at the region level (of which there are 6) and 3 'facilitators' in each on the 35 pourashavas. The presence of facilitators is considered successful in the implementation of UGIIP-2 and it is recommended that a similar approach is used in CTIIP; it is ideally suited to the geographical concentration of CTIIP. Training and briefing should be short, practical and delivered in situ (with an 'after-sales' - on-the-job - support orientation).

61. It is clear that a level of advocacy and sensitization is required in building an appreciation of and understanding of climate change, and the possible impacts in the coastal towns. There is a general level of skepticism generated by 'climate change' as the latest 'fashion' in development funding. This will need to be addressed to ensure a sustainable approach to the ideas, methods and tools to be introduced by the project.[244] The general themes for training will need to cover:

- The role of urban planning
- The role of the master plan
- The role of the urban planner
- Pourashava planning mandates (laws, regulations, rules and policies)
- The role and responsibilities of elected representatives in urban planning
- The role of TLCC and WLCC in urban planning
- Development control systems and how to operate them
- Infrastructure investment planning for climate resilience
- Assessment of disaster risk and vulnerability
- Disaster Risk Reduction (DRR) through land use planning
- Purpose, use and management of GIS.

4.2 Urban Planning Processes

62. The master plan is, in principle, a critical instrument for embedding a shared vision of the respective towns and driving forward their development. Whilst the presence of an urban planner is considered a pre-requisite for implementation, it is insufficient in itself. The implementation of plans must be a shared responsibility and not assigned solely to the urban planner; this will need to be reflected in revised job descriptions for pourashava officials. It needs to be understood by the political decision makers, officers and the citizens of the respective coastal towns. In effect this means nurturing an appreciation and clear understanding of urban planning (and the role of the master plans within this) amongst the representatives (mayors and councilors), the most relevant pourashava officers (engineers, planners, conservancy, medical and accounts staff).

[244] Whilst of a very different scale and context, the widely referenced experience of Durban is of interest. Whilst a climate change project had operated since 2000, by 2006 it was reported that very little internal organisation momentum and knowledge was built amongst either elected representatives or municipal staff. This was addressed through intensive briefing and sensitisation to climate change. The extent to which climate change was institutionalised in the local government as then measured against 4 markers: (i) the emergence of identifiable politics/administrative champions for climate change issues, (ii) the appearance of climate change as a significant issue in mainstream municipal plans, (iii) allocation of dedicated resources, and (iv) incorporation of climate change considerations into political and administrative decision making. Debra Roberts 'Thinking globally, acting locally – institutionalizing climate change at he local government level in Durban, South Africa' *Environment & Urbanization* (2008).

63. **Development control.** In general development control and enforcement systems rely on a balance between appropriate regulation, public awareness and citizen pressure. Few, if any systems are immune from the breaking of rules. If anything, a cultural disposition to compliance or non-compliance—which can be very localized—is more significant especially in a context of limited capacity and resources to effectively manage an enforcement system.[245] One thing is clear (from international experience), there is no silver bullet to ensuring compliance.

64. Appropriately enhancing the capacity and efficiency of the development control and enforcement system in the coastal towns (as in other pourashavas) should be based on four core principles: (i) use existing mechanisms effectively and build on existing practice, (ii) ensure optimal transparency and accountability to engender confidence in the system as equitable and fair; (iii) use a mix of carrots and sticks to reward compliance and penalize non-compliance, and (iv) recognize, and work within, the existing and projected constraints in capacity to operate the planning system. In this context we recommend:

- **Ensure the Standing Committee on Urban Planning, Urban Services and Development is approving building permits.**

- **Ensure oversight roles for TLCC and WLCC**. The decisions on applications for development are rightly held by democratically elected and accountable councillors. But the T/WLCC mechanisms have proved effective mechanism to introduce checks and balances in the local governance systems. TLCC should play a critical oversight role. Each TLCC meeting should be presented with recommendations of applications. WLCC are to some extent the eyes and ears for the pourashava. On a number of occasions the role of ward councillors in commenting on applications and assisting with enforcement was raised. In principle the WLCC could play an important role in ensuring conformity to permissions and 'policing' illegal development.

- **Introduce standardized records and reporting**. There is neither consideration of the broader planning and environmental issues, nor a standardized approach to reviewing these issues, and reporting on them. A standardized checklist for review may be helpful in screening applications and focusing attention on any potential climate change/environmental considerations. This might range from commenting on the potential for rainwater harvesting on larger proposed developments to the localized impacts on drainage. This would introduce simple reporting standards to ensure consistency in the consideration of applications.

- **Introduce standardized forms**. Whilst pourashavas follow a similar approach in recording, cataloguing and registering building permit applications, there is variance between pourashavas. Building permit forms and information required differs between pourashava, and the permit itself is not standardized. Whilst this has subservient role to play in supporting more efficient urban planning and enforcement, it is part of a broader approach to supporting the development of the system.

- **Introduce computerized records.** As the pourashavas and the pressure for development intensifies, the computerization of records will support more efficient management and monitoring of the building permit/development control system. Future dividends could also arise from linking permit applications and approvals

[245] As Jane Jacobs recognised in the wildly different urban setting of New York in the 1960s, eyes on the street and informal community 'surveillance' is the most efficient way of enforcing rules (formal and informal).

to GIS and to publicly accessible on-line information as access to computers increases.

- **Increase accessibility and transparency.** The location and nature of applications for building permit should be routinely advertised at both the town level (most suitability outside the pourashava building) and at the ward level through the use of, or introduction of, signboards. In an effort to ensure optimal exposure, the use of SMS could also be considered. The register should be made publicly accessible and this service advertised in the pourashava.

- **Increase public awareness activities.** Awareness campaigns are already practiced in the four pourashavas. Building the understanding and appreciation of rules and the need for conformity to a master plan is useful in encouraging support for planning.

- **Test incentives to encourage conformity**. Punitive enforcement measures and 'peer pressure' will go some way to ensuring conformity with the master plans. But additional measures to encourage compliance could also be tested. Full and verified conformity might include reduced fees (rebate), short holding tax 'holidays', awards and showcasing of the best developments: most urban areas display a (un)healthy level of built-form plagiarism which at its best results in the copying of good examples (for example buildings that successfully integrate rainwater harvesting, or reduced construction and maintenance cost whilst increasing resilience).

- **Develop 'Climate Change Adaptation Building Standards'**. To support decision-making that reflects an emphasis on climate change resilience we would recommend supplementary building design guidance if necessary and based on the revised BNBC (2013). Whilst these would not have legal force, developed on the basis of local knowledge of the five coastal towns, these could provide a short, user-friendly and straightforward guide to ensuring adaptation measures on individual sites and buildings.

4.3 Urban Planning Tools

A. Master Plans

65. We have discussed the deficiencies and gaps in the current—emerging—master plans eariler. Whilst the plans reflect current climate related impacts (of flooding) they are neither based on projected climate change impacts nor responsive to the likely impacts in the longer term. This must be addressed for the effective development of climate resilient plans.

66. In the short-run we are not recommending wholesale revision of the master plan, though zoning regulations should be checked following the development of a vulnerability and adaptation assessment as part of a straight-forward Municipal Investment Plan; this should be produced in the short-run. Within the lifetime of the project the master plan should be revised and the vulnerability and adaptation assessment integrated ('mainstreamed').[246]

67. In line with current international experience and practice this would in outline terms consist of:

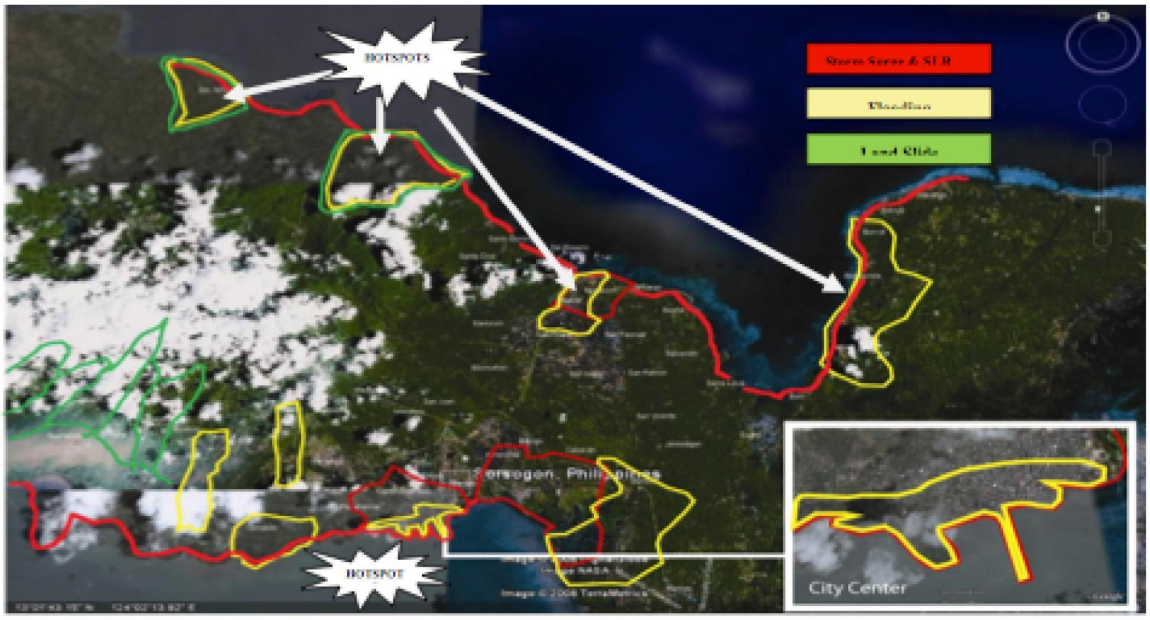
[246] The currently prepared final master plan reports are too voluminous. Efforts should be made in the future to shorten the size of the reports and make those more user-friendly.

- Pourashava exposure: Identifying the local contribution on climate change
  - Existing climate data (provided for by section 5)
  - People's account of changing weather patterns
  - Projected climate change trends (provided for by section 5)

- Pourashava sensitivity
  - Overall vulnerability of the pourashava
  - Vulnerability of places ('hot spots') (see **Figure 1**)[247]
  - Vulnerability of sectors and infrastructure

- Pourashava participatory planning for climate change adaptation
  - Identification of priority actions through participatory planning and management (with emphasis on inclusiveness of the urban poor)

Figure 1: Typical Vulnerability and Adaptation Assessment Planning: Identification of 'Hot Spots'



Source: UN-HABITAT 'Sorsogon City Climate Change Vulnerability and Adaptation Assessment (2010).

B. Municipal (Climate Resilient) Investment Plans

68. We have discussed the role of, and need for, urban planning implementation tools earlier. Traditional master plans with medium to long-term horizons, whilst useful in setting strategic frameworks, generally prove difficult to implement. In the dynamic environment of urban change and development in Bangladesh, a means of identifying high priority strategic investments (in the context of climate change those investments that best enhance urban resilience) will remain a necessity.

69. To summarize, the need for an additional implementation tool, and for further integrating climate change and disaster risk management aspects, there are two critical issues:

[247] Identification of pourashava 'hot spots' (especially low lying areas beyond embankments and characterized by informal settlement).

(i) The master plans developed under GOB support are traditional land use instruments that can be revised (as necessary) on the basis of detailed vulnerability assessments. Whilst a list of projects is identified for implementation in the first five years of the plan, on balance these plans will remain deficient as a method for identifying and bringing forward investments on a continuous (rolling) basis due to a lack of prioritization, and the absence of a link to municipal financing and on-going O&M. This is a critical gap in addressing the adaptation of infrastructure and it needs to be bridged.[248]

(ii) Experience suggests that shorter-range investment plans provide the most efficient means of trying to plug this gap—these should be far more operational, quicker to develop, more responsive to changing needs, and based on municipal financial capacity. It is not recommended that there is a separate climate change plan or strategy. Given the relative size of the coastal towns the land use and urban development ramifications of climate change are best integrated within the master plan. Rather it is the need for an investment instrument used to prioritize investments that is being emphasised.

70. The recently developed LGED framework for the development of a municipal level capital investment planning process (short to medium range rolling capital investment plans—referred to as Municipal Investment Plans—provide a template that can, in principle, be adapted to climate change adaptation planning and developed and revised within the lifecycle of the loan project **(Figure 2)**.[249] The guidelines are designed to complement and support the emergent master plans by strengthening the implementation process (essentially taking long listed projects through a prioritization and pre-feasibility screening), linking capital costs to asset (O&M) management (lifecycle costs). The approach would need to capture vulnerability and adaptation assessments flagged up as critical components by CDTA 7890, and capture methods already tested and/or under trial.[250] Generally these use already well-worn principles, methods and tools in participatory planning and management that have been under implementation for 20-years plus, albeit adapted to climate change; for example the environmental management and planning approach pioneered by the UN-HABITAT/UNEP Sustainable Cities Programme that has been adapted to climate change and disaster risk management over the last five years.

Figure 2: Outline Municipal (Climate Resilient) Investment Plan

Municipal Investment Plan (3-year)	
	Foreword from the Mayor (key issues that influenced the selection of investments)
1	**Municipal Investment Framework**
	Vision, Goals and Targets
	Municipal Overview (development challenges, infrastructure, service delivery)
	Vulnerability and Adaptation Assessment: Priority Issues
2	**Proposed Investments (3-Year Capital Investment Plan)**
	Summary Technical Description of Investments (where, what, why)

[248] An investment programming gap that both the MIDP and PDP have tried to address through UGIIP-1 and 2 respectively.

[249] LGED (2012) 'Combined Urban Infrastructure Development Guidelines', prepared for the Local Government Engineering Department (Bangladesh) and World Bank review of the Municipal Services Project.

[250] UN-HABITAT; (2010) 'Participatory climate change assessments: A toolkit based on the experience of Sorsogon City, Philippines', Cities and Climate Change Initiative Discussion Paper No.1; (2012) 'Developing local climate change plans: A guide for cities in developing countries', Cities and Climate Change Initiative Tool Series, prepared by IIED; (undated) 'Planning for climate change: A strategic, values-based approach for urban planners', Version 1 for comment and field testing.

	Objectives and targets (Proposed 'results', benefits and 'beneficiaries')
	Summary of Development Impacts (economic, environmental and social) and mitigation measures (where required)
	Outline Investment Costs (including O&M)
	Summary of Economic and Financial Feasibility
	Summary of Implementation Arrangements
3	**Municipal Investment Budget**
	Annexes
A	Asset Management Plan (Asset Inventory; Asset Condition Assessment; Maintenance Budget (Annual/3-Year))
B	Pre-Feasibility Screening Report
C	Vulnerability and Adaptation Assessment
Source: 'Combined Urban Infrastructure Development Guidelines' (2012)	

C. Geographical Information Systems

71. A Geographical Information System (GIS) is a means to an end, not an end in itself. By combining both spatial and socio-economic data, more meaningful information is generated and outputs from GIS analysis can greatly enhance decision-making where and what to extend the problem lies. There are good examples of where the use of GIS has transformed local decision-making through the visualization of the planning and development process, in relation to environmental risks such as flooding. In addition, GIS has a range of applications to storing and using geographical data for administrative purposes. For example, in some pourashavas, such as Bhairab, Chandpur and Chapai Nawabganj where urban planners are currently working, the GIS database is helping increase the revenue base.

72. One of the most useful and invaluable aspects of the master plan preparation process has been the preparation of detailed GIS based mapping. We have noted that in some cases the accuracy of this mapping must be reviewed. However, it is an important start and a mechanism for handing this on to pourashavas, and the capacity support that this will require, is critical to ensuring this diagnostic planning tool is fully utilized in mapping and recording climate change risks and resilience measures. Of course, GIS has multiple applications that will support the planning and financial management systems of the pourashava: for example indicating land suitability and locational vulnerability, recording building permits, monitoring urban development, recording tax holdings, recording municipal assets and so on. GIS will also be critical to ensuring that the master plan, and other potential planning tools, are 'living' documents through supporting periodic updating and, significantly, monitoring progress. Building the understanding and awareness of the urban planning process and the challenge of incorporating climate change resilience within this is—arguably – the most significant challenge faced by the project.

4.4 Recommendations in Brief

73. In brief, the core strengthening and capacity development in urban planning should involve: [251]

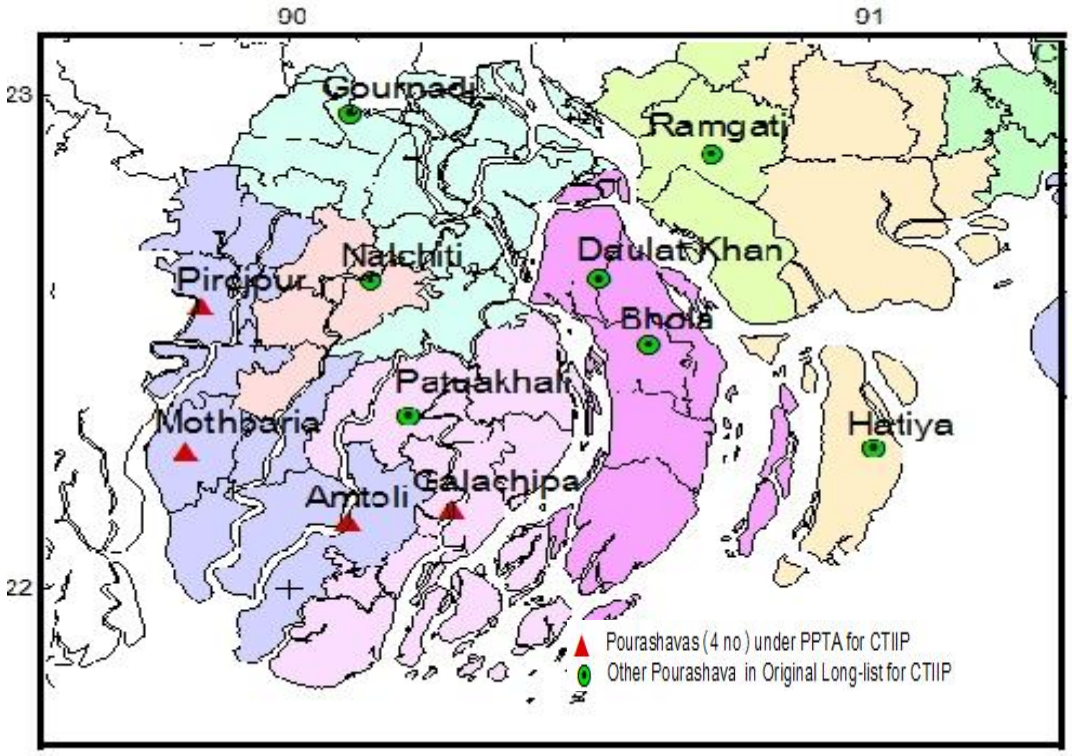
- Urban Planners appointed in participating pourashavas.
- Training, briefing and sensitization activities designed and implemented with pourashava representatives and staff.
- Development control systems enhanced with elaboration of new systems (approval processes and storage) and testing of most effective mechanisms for enforcement and compliance.
- Implementation of uniform building application and approval format/system in all categories of pourashavas.
- Awareness raising campaigns designed and implemented.
- Municipal (Climate Resilient) Investment Plans developed in four pourashavas, supporting capacity development activities undertaken, method tested and revised, training modules and activities established and implemented.
- GIS systems installed in pilot pourashavas, staff assigned and trained, and applications established.

[251] The recommendations are built out of the detailed discussions with the pourashavas and tempered by lessons learned from other DP interventions. In brief, out investigations recorded: (i) Personnel: all towns reported a lack of capacity and considered a mix of training/sensitization as useful in supporting the development of urban planning (which is new to all 4). An Urban Planner in the team seems to be crucial for effectiveness. (ii) Development control: 'room for improvement' is recognized in all 4 towns with TLCC/WLCC and citizen awareness as identified as a useful way forward. Repeated structural/building disasters in Bangladesh underline that transparency and accountability in building regulation should be critical (not optional) in infrastructure/urban development and planning projects. (iii) Plans – all 4 towns consider vulnerability assessments as important. There is recognition of the gap in the capacity and methods for planning for investments. (iv) GIS: all 4 expressed considerable interest. The sustainability of these capacity development measures will be conditioned by a range of factors – but political leadership and political drive will be a key determinant of success.

APPENDIX C: CLIMATE CHANGE – PROJECT ADAPTATION (PAA) REPORT

Part 1: Climate Change Adaptation

BASIC PROJECT INFORMATION	
Project Title: Coastal Towns Infrastructure Improvement Project (CTIIP)	Sector: Municipal Infrastructure with climate resilience measures
Location: (*If possible GIS maps with location) See below maps of project towns*	Estimated ADB Financing:
Brief Description: (*Max 200 words)*	Implementation Period: 2014-2019
The project takes place in the coastal areas of Bangladesh; CTIIP prepared GIS maps showing the project locations. The project areas are located in highly exposed zone close to the sea and are severely affected by tropical cyclones and monsoon inundations. The study towns are threatened by sea level rise and are protected from tidal inundations by polders. The drinking water is a severe problem for much of the coastal zone due to high saline levels. However, a sweet water aquifer is available in many areas for extraction and municipal supply. For Pirojpur and Mathbaria, the ground water aquifer is saline and is not suitable for household use, where the surface water treatment is the only solution for safe water supply. However, project scientists and engineers are proposing the use of rainwater harvesting over these areas. Further investigation of the ground water availability may be advised. The project finds it necessary for continuous monitoring of the ground water quality in the water supply plants. The monsoon inundation associated with high astronomical tide in the situation of higher sea level some time become very severe which affect roads, bridges/ culverts, embankments and housing and education, health, social/community and commercial sectors. The CTIIP project aims at the improvement of urban infrastructure through structural and non structural measures to achieve resilience against climate change impacts. Keeping the above in consideration, the future climate scenarios (temperature, rainfall, sea level rise, future projections of tropical cyclone intensity and probability including the future damages have been derived and the impact and adaptation analysis have been prepared by the CTIIP climate adaptation specialists for use in considering project designs.	



Climate Change Classification: (ADB PCS: *Mitigation or Adaptation Classification*)

SUMMARY of CLIMATE RISK SCREENING

(Screening will be done using GIS and Remote Sensing techniques built through three sets of databases: Geological, Climate and Knowledge base. Other climate change assessment reports or databases can be used provided they are from reputable sources and appropriate scope.)

A. Projected changes under A1 scenario (2050)

Temperature (^{0}C)	Precipitation (%)	Sea Level Rise (masl):	Others: Increased frequency of Category 5 cyclones
From:1.3 To: 2.6	From: 20 To: 24	39 cm includes the local effects (sedimentation and subsidence)	

B. Climate Risks

1. Flood 2. Landslides due to precipitation 3. Drought 4. others	Description of the risk: The study towns are vulnerable to devastation by storm winds and flooding caused by associated surges, tidal inundation for extreme astronomical tides, and flooding for extreme monsoon rainfall and increase of discharge in the Ganges, Brahmaputra and Meghna (GBM) system. Sea level rise will enhance the extent of tidal inundation and cause northward penetration of high salinity impacting coastal infrastructure, housing, agriculture, health, water supply, biodiversity and livelihoods. River erosion is dominant in many areas of the coastal zone. The sea level rise increases the threat of tsunami flooding over the coastal zone. Landslides are not a problem for project areas. Droughts are not severe here with some exceptions during very dry monsoon years.

C. Recommendations	
Activities: 1. Infrastructure be made climate resilient 2. Urban planning to be made climate resilient 3. Capacity building/awareness raising/financing of community based climate adaptation/disaster risk management	Requirements for TOR: 1. See below and "summary recommendations for climate adaptation" in DFR 2. See ToR "Urban Planning" in DFR 3. See ToR "Climate change planning, forecasting, disaster risk preparedness and adaptation" in DFR
Risk Classification: (*Low, Medium and High Risk*) High Risk	

DUE DILIGENCE

(Enumerate the type of analytical or fact finding activities conducted during project preparation)

Activities:

1. *The field visits, data collection on climate change perceptions of the people, disaster impacts, disaster risk assessment, disaster risk mapping, interview with key informants and meeting with pourashava mayors and administrative and technical staff. The data have been analyzed and reports have been prepared and the results have been incorporated in the report.*
2. *Further, the field data have been collected for a minimum of 30 points from each pourashava on storm surge inundation due to cyclone Sidr, inundation due to extreme astronomical tides and extreme monsoon flooding during the year 2012. Preparation of GIS maps showing present flood inundation and future projected flood inundation scenarios for 2030 and 2050 1:10 year design storms.*
3. *Current climate change has been analyzed for temperature and rainfall for the project areas and future scenarios for the year 2030, 2050 and 2065 have been prepared based on the latest information available from literature sources and IPCC (2007). The sea level projection for 2030, 2050 and 2065 have also been developed based on the Sea Level Rise depicted by IPCC (2007) and the local changes (very dominant land subsidence (3mm /year for the study towns and limited deposition). The future projection of the intensity of tropical cyclone has been deduced based on the relationship of intensity with Sea Surface Temperature (SST). Following this, CTIIP estimated the future probability of tropical cyclones of different intensities for the decades 2021-2030, 2031-2040, 2041-2050.*
4. *The damage and assessment and future projections have been developed by relating the damage with maximum wind speed. The future projected wind and probability of the projected categories of the cyclones have been translated to damage and loss.*
5. *Developed impact and adaptation table for the engineers as guidance for climate resilient designs of infrastructure, housing, water supply, sanitation and other climate resilience actions as per ToR.*
6. *Impacts per sector were identified and where possible quantified, monetized. Based on these, incremental cost/benefit analyses of the climate resilient measures were performed, including economic (quantified) and social and environmental (qualitative assessment).*
7. *Research impacts of sea and tide level rise and current water management and flood defense practices on present and future drainage congestion and on saline intrusion. Assessment of implications and possible mitigating actions.*
8. *Socioeconomic and willingness-to-pay surveys prepared for each town, which included questions on climate change/ disasters.*
9. *Assessment of institutional responsibilities and inter-relationships on degree of climate resilience achievable within direct scope of Project and stakeholder capacity*

PROJECT DESIGN CHANGE OR ADAPTATION RESPONSE

(Describe key action items and budgetary allocations, and other response measures relevant to the project)

Based on the above tools and analyses prepared for and provided to CTIIP engineers and other technical staff, each subproject undertook several design enhancements to improve infrastructure climate resilience in water supply, sanitation, drainage and flood control, and other municipal infrastructure. In addition, CTIIP created two project ToRs to enhance capacity in climate resilient urban planning and community preparedness for climate change.

Budgetary allocations to account for climate resilient measures were increased significantly. A detailed breakdown and analysis shall be available once the final numbers are available.

Below is a summary of each design change/adaptation response starting with the non-structural responses.

A. Community Awareness Raising and Capacity Building:

CTIIP designed a program of capacity building and awareness raising specifically related to climate change issues as outlined in the below table:

Objective: Strengthen pourashava and community level preparedness for climate change, in all CTIIP towns			
Component A	**Component B**	**Component C**	**Component D**
Climate and disaster technical tools to inform adaptation and DRM decision making	**Community-level awareness raising and warning systems for climate hazards and resilience options,** especially for the poor and marginalized	**Disaster preparedness** through support for pourashava level Disaster Risk Management Committees	Resource pro-poor, community level adaptation through **locally managed climate resilience funds**
Outputs Downscaled climate model outputs Improved tropical cyclone projections Flood inundation monitoring and mapping Cyclone and flood loss and damage assessments/tools	**Outputs** Community awareness raising events Fishing community early warning system Community DRM hazard mapping and planning	**Outputs** Orientation system for new civil servants/officials Technical support for DRM Committees	**Outputs** Funds Design/Management Plans Locally managed funds for each subject pourashava

B. Urban Planning:

CTIIP created a program to integrate climate resilience into urban planning (in particular, land use planning and climate resilient building codes) was developed, as outlined in the below table:

Objective: Strengthen local urban planning practice in general, and climate resilient urban planning in particular, in four coastal towns			
Component A	**Component B**	**Component C**	**Component D**
Climate Sensitive Land Use / Master Plans built or revised on the basis of	**Planning and building control adapted to climate change**	Straight-forward and continual **infrastructure investment**	**Sufficient capacity and skills** (of the pourashava and individuals) **in urban**

climate change vulnerability and adaptation assessments	that can be implemented and is enforceable	**programming methods that prioritize climate adapted investments** that are affordable and sustainable	**planning** to effectively run the planning system, and to make it a joint, multi-stakeholder, enterprise
Outputs Vulnerability and Adaptation Assessment Revised urban master plan	**Outputs** Climate Change Adaptation Building Standards Guide Planning and Building Control Guideline	**Outputs** Municipal Adaptation Investment Plans	**Outputs** Climate Change in Coastal Cities Training Package Geographical Information Systems

C. Water Supply:

Amtali and Galacipa Pourashava:

- Increased water demand due to temperature rise predicted 1.2-2.4^0 C by 2050 has been taken into account in the water demand projection. 15% of average daily demand (ADD) has been assumed as increased water demand due to temperature rise.
- The cyclonic strong wind to be taken into account for designing superstructure such as overhead tank in order to make it strong enough to withstand.
- The upper well casing of production tube well will be vertically extended for protection from flooding and storm surge.
- Provision for power backup (generator) to keep the water supply operational if the normal power supply gets interrupted/stopped from National Grid rid after cyclone/storm.

Mathbarai and Pirojpur Pourashava:

- Increased water demand due to temperature rise predicted 1.2-2.4^0 C by 2050 has been taken into account in the water demand projection. 15% of average daily demand (ADD) has been assumed as increased water demand due to temperature rise.
- The cyclonic strong wind to be taken into account for designing all the superstructures such as overhead tank, office building etc. in order to make those strong enough to withstand.
- Water storage provision for emergency water supply after cyclone, storm surge etc.
- Protection measures (embankment with block pitching) around the water treatment plant have been kept in provision to protect from cyclone, storm, sea level rise etc.
- Provision for power backup (generator) to keep the water supply operational if the normal power supply gets interrupted/stopped from National Grid rid after cyclone/storm.

D. Sanitation:

Public Toilet, School Toilet and Community Latrine:

- The septic tanks and superstructures of the public toilets, school toilets and community latrines will be constructed above flood level to keep protected from inundation during monsoon flooding.

Household Pit Latrine:

- The pit latrines will located at high area of the household;
- The pit of the latrine will be placed above the flood level;

- Elevated pit of about 1 m high with an impermeable lining extended down at least 0.6 m below ground level is expected;
- Cover slab with the provision of gas outlet will be placed at the top of the pit;
- Latrine platform and the pit will be separetly located;
- Latrine platform with squatting pan and water seal U-pipe will be directly connected to the pit by a junction pipe.

E. Drainage and Flood Control:

- Existing drains rehabilitated and capacities enhanced to 2050 projections – dredging, re-profiling, lining, etc., as appropriate.
- New drains constructed to same capacity, including reinstating and enhancing natural drainage channels, etc., wherever feasible.
- Runoff detention capacity introduced wherever feasible.
- Materials selected and construction quality monitored for increased durability, because of longer inundation periods, wastewater risks, etc.

E. Other Municipal Infrastructure:

Roads:

- Crest level raised 200mm above A1B[252] scenario sea levels in 2034.
- Surface material all concrete with minimum thickness of 150 mm with adequate reinforcement
- Pavements to be thickened sand aggregate. Sub-base to be 0.25 meters wider than overlying layer.
- Embankments additionally strengthened on roads in flood areas with either concrete or brick work.
- Cross drainage structures increased as necessary with full width drainage layer in sub-base. (Minimum 2 per km).
- Need for larger culverts assessed.
- Strengthened abutments and approaches to bridges and culverts.

Cyclone Shelters:

- Base level of first floor raised by 200mm to avoid higher storm surges.

Boat Landings:

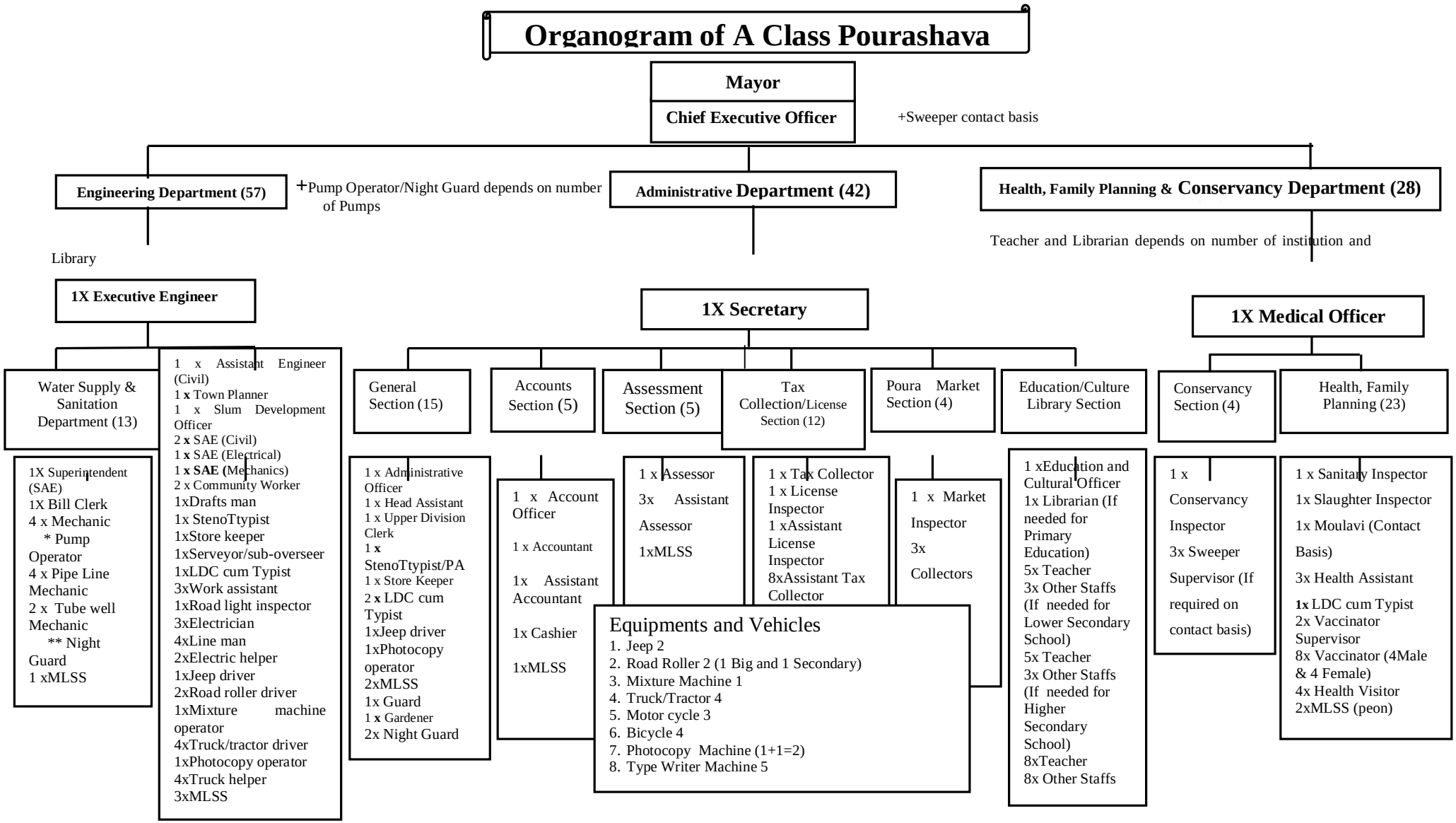
- Overall construction strengthened with allowances for greater tolerance in water level fluctuations.

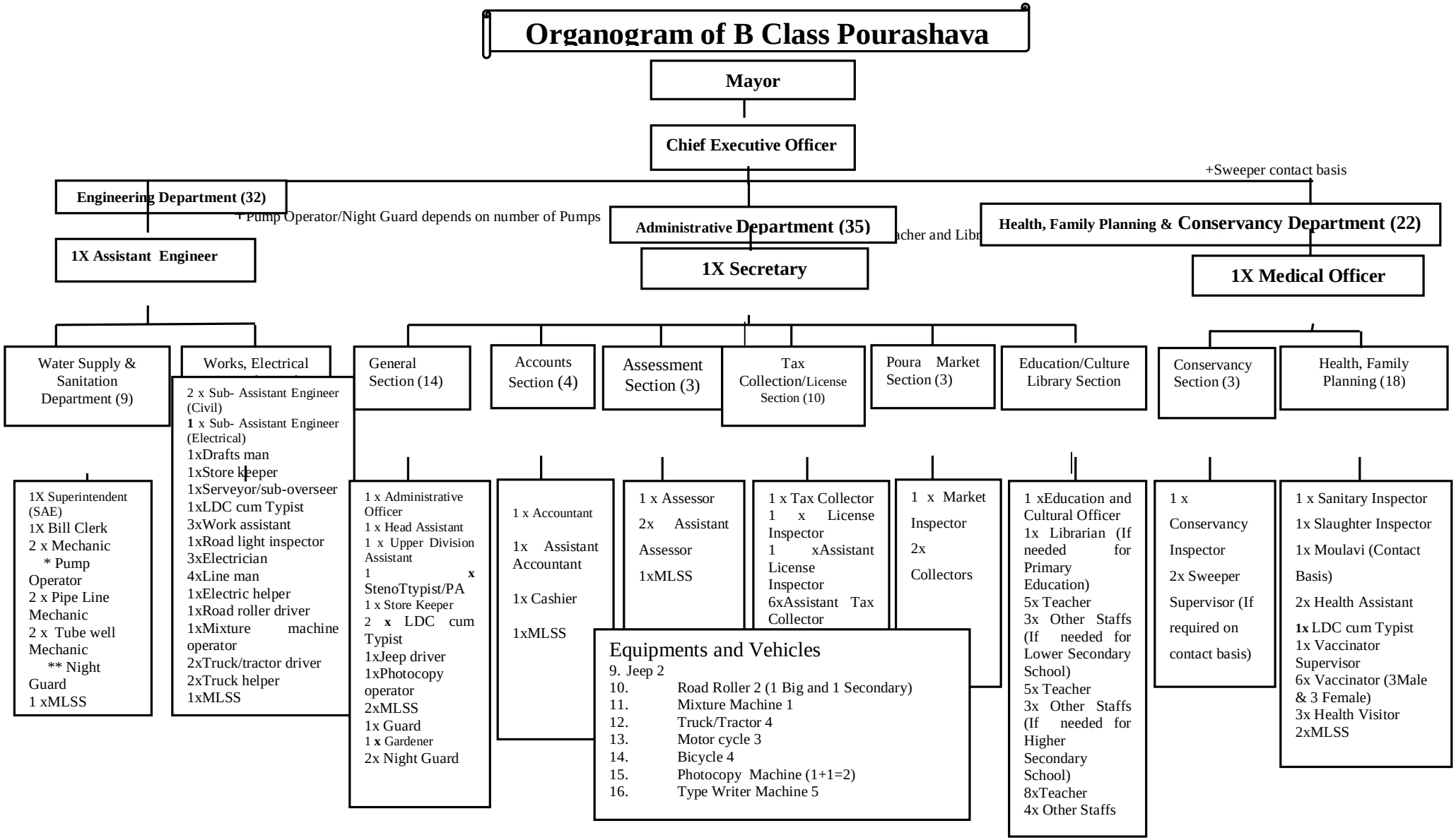
Solid Waste Management:

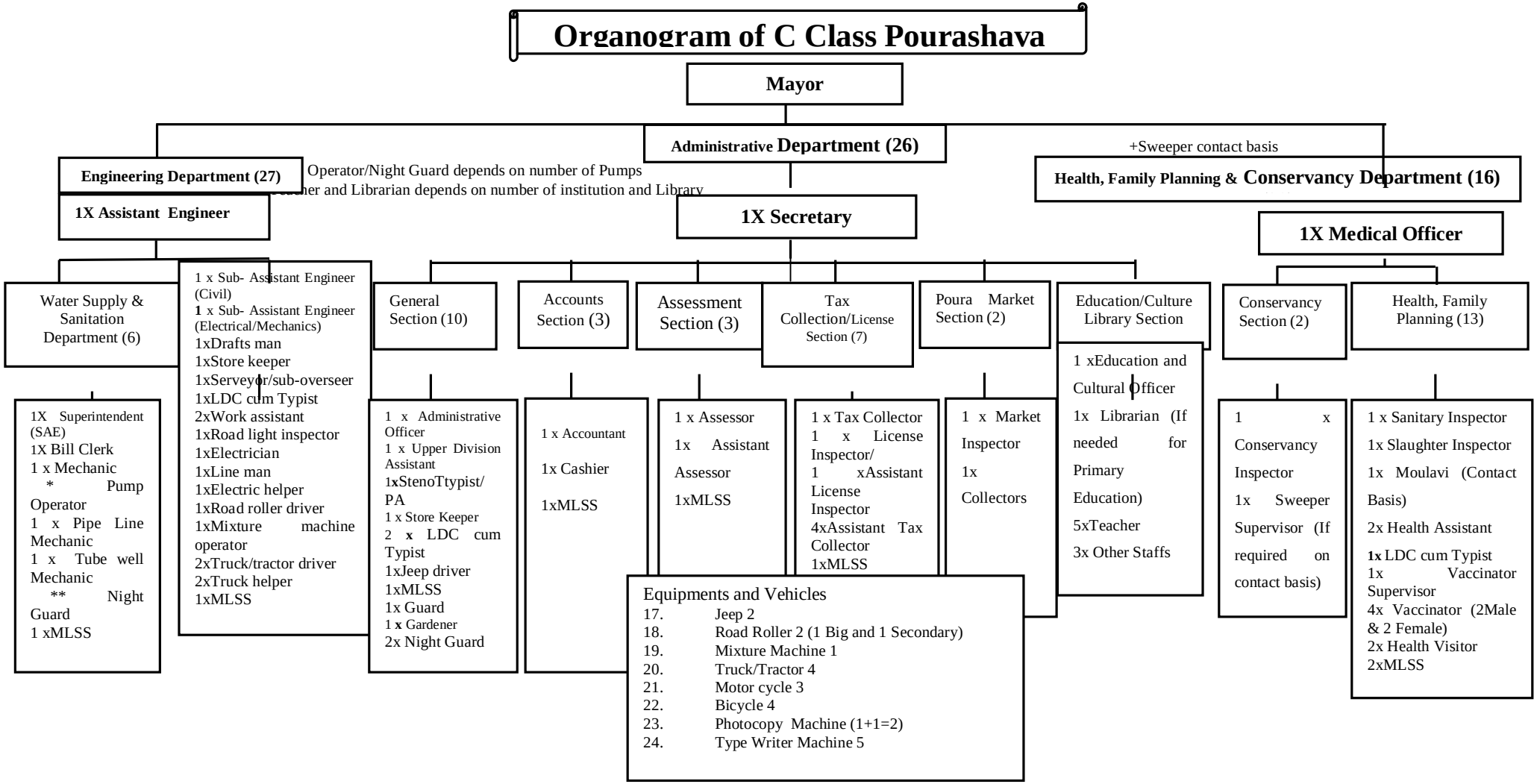
- Drainage improved to accommodate more frequent and intense rainfalls.
- Need to pump more water over landfill to avoid any heat stress.

[252] A1B represents a mid-range emission scenario for the future global emission of Greenhouse gases. A1B makes assumptions about future growth and development of human activities during the next century. It was used for the IPCC climate change assessments in 2007.

APPENDIX D: POURASHAVA ORGANOGRAMS




Organogram of B Class Pourashava
Mayor
Chief Executive Officer
+Sweeper contact basis
Engineering Department (32)
+ Pump Operator/Night Guard depends on number of Pumps
Administrative Department (35)
Health, Family Planning & Conservancy Department (22)
1X Assistant Engineer
1X Secretary
1X Medical Officer
Water Supply & Sanitation Department (9)
Works, Electrical
General Section (14)
Accounts Section (4)
Assessment Section (3)
Tax Collection/License Section (10)
Poura Market Section (3)
Education/Culture Library Section
Conservancy Section (3)
Health, Family Planning (18)
1X Superintendent (SAE)
1X Bill Clerk
2 x Mechanic
* Pump Operator
2 x Pipe Line Mechanic
2 x Tube well Mechanic
** Night Guard
1 xMLSS
2 x Sub- Assistant Engineer (Civil)
1 x Sub- Assistant Engineer (Electrical)
1xDrafts man
1xStore keeper
1xServeyor/sub-overseer
1xLDC cum Typist
3xWork assistant
1xRoad light inspector
3xElectrician
4xLine man
1xElectric helper
1xRoad roller driver
1xMixture machine operator
2xTruck/tractor driver
2xTruck helper
1xMLSS
1 x Administrative Officer
1 x Head Assistant
1 x Upper Division Assistant
1 x StenoTtypist/PA
1 x Store Keeper
2 x LDC cum Typist
1xJeep driver
1xPhotocopy operator
2xMLSS
1x Guard
1 x Gardener
2x Night Guard
1 x Accountant
1x Assistant Accountant
1x Cashier
1xMLSS
1 x Assessor
2x Assistant Assessor
1xMLSS
1 x Tax Collector
1 x License Inspector
1 xAssistant License Inspector
6xAssistant Tax Collector
1 x Market Inspector
2x Collectors
Equipments and Vehicles
9. Jeep 2
10. Road Roller 2 (1 Big and 1 Secondary)
11. Mixture Machine 1
12. Truck/Tractor 4
13. Motor cycle 3
14. Bicycle 4
15. Photocopy Machine (1+1=2)
16. Type Writer Machine 5
1 xEducation and Cultural Officer
1x Librarian (If needed for Primary Education)
5x Teacher
3x Other Staffs (If needed for Lower Secondary School)
5x Teacher
3x Other Staffs (If needed for Higher Secondary School)
8xTeacher
4x Other Staffs
1 x Conservancy Inspector
2x Sweeper Supervisor (If required on contact basis)
1 x Sanitary Inspector
1x Slaughter Inspector
1x Moulavi (Contact Basis)
2x Health Assistant
1x LDC cum Typist
1x Vaccinator Supervisor
6x Vaccinator (3Male & 3 Female)
3x Health Visitor
2xMLSS


Organogram of C Class Pourashava
Mayor
Administrative Department (26)
Engineering Department (27)
Operator/Night Guard depends on number of Pumps
her and Librarian depends on number of institution and Library
+Sweeper contact basis
Health, Family Planning & Conservancy Department (16)
1X Assistant Engineer
1X Secretary
1X Medical Officer
Water Supply & Sanitation Department (6)
1 x Sub- Assistant Engineer (Civil)
1 x Sub- Assistant Engineer (Electrical/Mechanics)
1xDrafts man
1xStore keeper
1xServeyor/sub-overseer
1xLDC cum Typist
2xWork assistant
1xRoad light inspector
1xElectrician
1xLine man
1xElectric helper
1xRoad roller driver
1xMixture machine operator
2xTruck/tractor driver
2xTruck helper
1xMLSS
General Section (10)
Accounts Section (3)
Assessment Section (3)
Tax Collection/License Section (7)
Poura Market Section (2)
Education/Culture Library Section
Conservancy Section (2)
Health, Family Planning (13)
1X Superintendent (SAE)
1X Bill Clerk
1 x Mechanic
* Pump Operator
1 x Pipe Line Mechanic
1 x Tube well Mechanic
** Night Guard
1 xMLSS
1 x Administrative Officer
1 x Upper Division Assistant
1xStenoTtypist/ PA
1 x Store Keeper
2 x LDC cum Typist
1xJeep driver
1xMLSS
1x Guard
1 x Gardener
2x Night Guard
1 x Accountant
1x Cashier
1xMLSS
1 x Assessor
1x Assistant Assessor
1xMLSS
1 x Tax Collector
1 x License Inspector/
1 xAssistant License Inspector
4xAssistant Tax Collector
1xMLSS
1 x Market Inspector
1x Collectors
1 xEducation and Cultural Officer
1x Librarian (If needed for Primary Education)
5xTeacher
3x Other Staffs
1 x Conservancy Inspector
1x Sweeper Supervisor (If required on contact basis)
1 x Sanitary Inspector
1x Slaughter Inspector
1x Moulavi (Contact Basis)
2x Health Assistant
1x LDC cum Typist
1x Vaccinator Supervisor
4x Vaccinator (2Male & 2 Female)
2x Health Visitor
2xMLSS
Equipments and Vehicles
17. Jeep 2
18. Road Roller 2 (1 Big and 1 Secondary)
19. Mixture Machine 1
20. Truck/Tractor 4
21. Motor cycle 3
22. Bicycle 4
23. Photocopy Machine (1+1=2)
24. Type Writer Machine 5

NB:

A Class Pourashava: Graveyard and Cremation Place (If needed) One person Care taker, Priest and Dom on contact basis should be taken.134+ Pump Operator+Teacher-Employee & Librarian+ Sweeper (Contact Basis), 2x MLSS. *** Vice-Chairman Post is demolished. So, Vice-Chairman and MLSS Post have not been shown in Organogram.

B Class Pourashava NB: Graveyard and Cremation Place (If needed) One person Care taker, Priest and Dom on contact basis should be taken.
134+ Pump Operator+Teacher-Employee & Librarian+ Sweeper (Contact Basis), 2x MLSS. *** Vice-Chairman Post is demolished. So, Vice-Chairman and MLSS Post have not been shown in Organogram.

C Class Pourashava NB: Graveyard and Cremation Place (If needed) One person Care taker, Priest and Dom on contact basis should be taken.
75+ Pump Operator+Teacher-Employee & Librarian+ Sweeper (Contact Basis), 2x MLSS. *** Vice-Chairman Post is demolished. So, Vice-Chairman and MLSS Post have not been shown in Organogram.

APPENDIX E.1: PROCUREMENT CAPACITY ASSESSMENT REPORT AND RECOMMENDATIONS

Proposed Project Name: Coastal Towns Infrastructure Improvement Project (CTIIP)	**Proposed Amount:** $115 million
Executing/Implementing Agency: Local Government Engineering Department (LGED), Government of Bangladesh	**Source of Funding:** Ordinary Capital Resources
Assessor: Mohammed Zulyaminayn	**Date:** April-May 2013

Expected Procurement

The procurement under the Project with be carried out in 2 batches; out of which only batch-1 interventions have been identified which consists of 32 works contract packages: 1 following international competitive bidding (ICB) and 31 following national competitive bidding (NCB) for water supply, sanitation, drainage and flood control, roads, bridges, culverts, cyclone shelters and solid waste management for the project towns. Batch-2 interventions will be identified by design consultants to be employed under Project Design Advance (PDA).

Implementation of the project will be supported by the consultants; namely, Project Management and Supervision Consultant (PMSC) and Institutional Strengthening and Awareness Building Consultant (ISABC). An International NGO will also be hired under the project for Community Mobilization, Communications and Behavioral Change (CMCBC). All these selection process will follow QCBS method with greater weight on quality (90%).

In order to facilitate project management, there would be 7 goods contracts following NCB method for procurement of office furniture, office equipment including vehicles, quality control and monitoring tools, equipment for waste management and drainage maintenance etc.

General Procurement Environment Assessment

Risk Assessment	Summary of Findings:
Low	The proposed project will be implemented by pourashavas (municipalities); which follow the guidelines of the local government ministry. The government's rules and regulations will govern its implementation. The national procurement act and rules are comparable to ADB's procurement guidelines with a few exceptions which have clearly been identified and noted down as "conditions" to be followed by EAs and IAs. There is also provision under public procurement act of Bangladesh to comply with development partner's guidelines and requirements while implementing projects of multilateral institution. The government has developed its own standard documents for procurement of goods and works. These are mainly used for the government funded projects. However, these documents follow standard formats similar and comparable to ADB's standard documents; and hence, could be used for the project subject to few modifications in conformity with ADB's requirements. Such adjustments would ensure compliance with ABD's policies without making major change in the existing system or without creating immediate need for orientation / training only for the bidding documents. For recruitment of consultants, the government of Bangladesh generally follows development partner's guidelines and use procurement documents of the funding agency. For the proposed project, the government has agreed to: (i) follow national standard documents after modifications to be suggested by ADB for procurement of goods and works following NCB method under national act subject to the "conditions" as mentioned above; (ii) use ADB's standard bid documents and procedures for procurement of goods and works following ICB method; and (iii) recruit consultants using ADB's consultant selection documents and guidelines. To ensure wider dissemination of procurement information, EAs and IAs will publish procurement notices for NCB in at least two leading national newspapers, 1 in Bangla and 1 in English as per requirement of the national procurement act. it is also mandatory to publish procurement notices and information on contract award in the national web portal of Central Procurement Technical Unit (CPTU) and concerned agency website for procurement of services valued BDT 5 million ($ 62,500) or more, and procurement of goods and works valued BDT 10 million ($ 125,000) or more. The government also agreed to publish all notices of international consultant recruitment, all procurement notices for procurement of goods and works following ICB method, and all procurement notices for procurement of goods valued $ 500,000 or more and works valued $ 1,000,000 or more following NCB method in the ADB's external web site.

General Agency Resource Assessment: Organizational and Staff Capacity	
Risk Assessment Low	Summary of Findings: The executing agency, LGED has long been implementing projects funded by multilateral development partners including ADB. The agency is headed by Chief Engineer and reporting to its Ministry of Local Government, Rural Development & Co-operatives (LGRD&C). The co-executing agency, DPHE also has experience of implementing ADB funded projects, and successfully procured and administered goods, works and service contracts in accordance with ADB guidelines. Under this project, DPHE will basically provide technical expertise for water and sanitation interventions.. A separate project management unit (PMU) will be created under LGED for the execution of the project. PMU will be headed by a full-time Project Director in rank not less than executive engineer of LGED, and supported by two full-time Deputy Project Directors and other project officials. PMU will be assisted by a team of consultants (Project Management and Supervision Consultant) including fulltime procurement experts dedicated for procurement activities. Pourashavas (municipalities) will establish town level PIUs with its own staff and staff deputed from the project. PIUs will be supported by the procurement and technical experts of the project consultants, who would also arrange specific trainings on procurement including ADB procurement procedures for staffs of PMU and PIUs. The national procurement act has a well-established bid approval procedure which will be followed for the project.
Procurement Practices: *Procurement of Goods and Works*	
Risk Assessment: Low	Summary of Findings: LGED has recently implemented several ADB funded projects; such as: UGIIP, STIFPP-2 involving various pourashavas throughout the country. No major issues have been reported in these projects. The proposed project will follow similar implementation arrangements and procedures for procurement. As such, low level of risk is envisaged for procurement of goods and works.
Procurement Practices: *Consulting Services*	
Risk Assessment: Low	Summary of Findings: All recruitment of consultants will be done centrally by PMU at LGED following ADB guidelines. LGED has experience of such recruitment of consultants for several ADB funded projects; such as: UGIIP, STIFPP-2, UGIIP-II, CRDP, SRIIP etc. However, LGED faced difficulties in consultant management due to high turnover of personnel in consulting firms and poor quality of some experts. To mitigate the risk LGED will (i) stipulate specific penalty provision for frequent replacement of experts only in agreement with ADB and (ii) adopt QCBS method with 90:10 ratio instead of usual standard 80:20.
Process Control and Oversight : General	
Risk Assessment: Low	Summary of Findings: In accordance with national procurement act, bid evaluation will be carried out by the tender evaluation committee (TEC) within the PIU and will be approved by the Project Director or Chief Engineer or the Ministry depending upon value of contracts as per government's delegation of financial power. The government has agreed to include technical and procurement experts of the supervision consultant team in the evaluation committee. In line with the provision of national procurement act, at least 2 external members from other relevant agencies are included in the evaluation committee. At the LGED HQ level, TEC is headed by an Additional Chief Engineer, and TEC in the pourashavas are headed by the Executive or Assistant Engineer of that pourashava. LGED would provide on job training to all the members of the TEC and organize them to attend national level procurement training organized by CPTU. LGED follows accounting system according to government standard. Payments and disbursements under ADB funded projects are processed following ADB approved

	procedures.
Process Control and Oversight : Accountability Measures	
Risk Assessment: Low	Summary of Findings: The process control and oversight mechanism of any public sector investment are stipulated in the government's accountability procedures. During implementation of previous projects under ADB funding, it was observed that these procedures fully complies with ADB's requirements. Results of contract award are disclosed on the project's web site.
Process Control and Oversight : Records Keeping and Audit	
Risk Assessment Low	Summary of Findings: In accordance with the requirements of national procurement act, all major documents including original invitation document, evaluation reports, winning bid or proposal, signed original contract and contract administration papers have to be retained by the procuring entity for at least five years after completion of activities. The procuring entities also preserve these documents as long as there is any audit observation related to any contract.

Summary of Assessment

The overall procurement risk for the proposed project is low considering the following:

(i) The executing agency, LGED has long been implementing projects funded by ADB. The co-executing agency, DPHE also has experience of implementing ADB funded projects. Both these agencies have successfully procured and administered goods, works and service contracts in accordance with ADB guidelines.

(ii) The national procurement act has established good procurement practice in the procuring entities throughout the country including the municipalities.

However, the capacity of the participating pourashavas (municipalities), particularly, the technical staffs of PIUs need strengthening. To provide capacity support to town level PIUs following measures have been suggested:

- The TORs of project consultants' will have sufficient person months for procurement experts and will support PMU and PIUs in procurement and administration of project.
- PMU will assign technical and procurement experts of the supervision consultant team for each PIU. They will also be part of PIU's TEC.
- PMU will arrange on-job training activities, and also coordinate sending project relevant staffs to attend regular training programs organized by ADB, CPTU.

Specific Recommendations for Project Implementation

Risks	**Recommended Action**	**Responsibility and comment**
Problems during Implementation		
Considering the long experience of LGED, there is no major risk identified. However, the pourashava mayors, councilors, project related staffs may require regular guidance on project implementation.	PMU will organize project specific workshops / seminars at least bi-annually to review the progress identifying problems / issues (if any) followed by detail discussion and guidance on implementation.	LGED.
Delay in Procurement Processing		
Sometimes, delay in procurement decision making process is observed in the ongoing projects concerned with pourashavas.	The national procurement act provided suggested timeline for decision making process. PMU & PIUs should follow these timeline. PMU may also prepare time bound action plan for completing each steps of procurement activities and responsibility matrix to ensure	LGED

	timely award and implementation of contracts.	
Capacity Constraint		
Considering the past experiences of LGED, no major risk has been identified. However, capacity of technical staffs of PIUs at town level is limited.	• Keep sufficient person months for procurement and technical experts in the TORs of project supervision consultants' to support PMU and PIUs in procurement and administration of project. • PMU will assign technical and procurement experts of the supervision consultant team for each PIU. They will also be part of PIU's TEC. • PMU will arrange on-job training activities, and also coordinate sending project relevant staffs to attend regular training programs organized by ADB, CPTU.	LGED. LGED LGED
General Recommendations, EA/IA Capacity		
Risk/Capacity Constraint	**Recommended Action**	**Responsibility and comment**
Vacancy of staff positions and transfer of staffs trained under the project		
Currently there are some vacancies of staff positions in the batch-1 pourashavas. Transfer of staffs trained under the project may also impose constraint in capacity of the pourashavas.	The local government ministry may assure that: (i) all project-relevant positions in the selected pourashavas are posted with adequately qualified and experienced staffs; and (ii) staffs trained under the project are retained within their positions up to the completion of the project. s are technical staffs project PMU will organize project specific workshops / seminars at least bi-annually to review the progress identifying problems / issues (if any) followed by detail discussion and guidance on implementation.	LGD (ministry) and selected pourashavas
General Recommendations, Procurement Environment		
Risk/Capacity Constraint	**Recommended Action**	**Responsibility and comment**
No major risks or constraint identified.	None	None

Procurement Capacity Assessment - Agency Questionnaire

Implementing Agency – Amtali Pourashava

Risk Ratings	Extremely High	High	√ **Average**	Low

I. Specific Assessment and Ratings

Question	Answer/Finding	Risk
A. ORGANIZATIONAL AND STAFF CAPACITY		
A.1. How many years of experience does the head of the procurement department/ unit have in a direct procurement role?	The engineering section (ES) headed by an Assistant Engineer (AE) undertakes all procurement activities; although, it is not identified as procurement department. The position of AE is posted by the Local Government Division (LGD) from the pool of government officials (municipal engineers employed under LGD) having engineering educational background (either graduate or diploma), and adequate working experience. Currently, the Sub-Assistant Engineer, Ms. Tania Afroj has been given the charge of AE due to transfer of the previous staff. Ms. Afroj has diploma in civil engineering with 2 years of experience as SAE in the pourashava activities. At the time of data collection for capacity assessment in April 2013, Mr. Md. Mizanuzzaman having diploma in civil engineering has been in the position of AE for about 2 years. He has 23 years of general experience, and has been working for 13 years in various positions (Sub-Assistant / Assistant Engineer- SAE/AE) in several pourashavas in the country.	Average
A.2. How many staff in the procurement department/unit are:		Average
i. Full Time?	Total 3 full time staffs available in Engineering Section: SAE-2 & Water Superindent-1. Vacant Positions: AE-1, Surveyors, draftsman, Work Assistants-2.	
ii. Part Time?	3 staffs: Secretary, Accountant, Accounts Assistant also provide full support in procurement activities.	
iii. Seconded?	None	
A.3. Does the procurement staff have English language proficiency?	Working knowledge. Currently, the staffs work with bidding documents in English language, and maintain written communication with LGED's project offices in English.	Low
A.4. Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	Staff Positions are sufficient but some positions are vacant. If vacant positions are filled with appropriate staffs, the number and qualifications of the staffs would be capable of undertaking additional procurement activities similar to those currently being practised. Generally, for improved design and technology for works and goods (infrastructures, equipment etc.), short term expertise support would be essential. If new categories of procurement are introduced, staff trainings would be mandatorily required to familiarize them with new elements / aspects of	Average

Question	Answer/Finding	Risk
	procurement, such as: technology, method of construction, equipment, plants etc.	
A.5. Does the unit have adequate facilities, such as PCs, internet connections, photocopy facilities, printers, etc., to undertake the planned procurement?	Not Adequate. New facilities would be required; because, existing PCs and printers are old, although working. Existing facilities within the pourashava: - 5 PCs (1 in Engineering Section, 1 in Accounts Section & 3 in other sections); - No Laptop in any section; - 5 Printers (1 printer in Engineering Section, 4 in other sections); - No Photocopy machine; and - the old Fax machine is not working. Additional facilities tentatively required: - 4 PCs (2 in Engineering Section, 1 in Accounts Section & 1 in Admin Section) networked within the office; - 2 internet connectivity (GSM modems) from alternate sources (Grameen Phone /City Cell / Teletalk); - 1 Laptop in Engineering Section; - 2 Laser Printers (1 in Engineering Section & 1 in Accounts Section); - 1 Photocopy machine; and - 1 Fax machine.	Average
A.6. Does the agency have a procurement training program?	No, the pourashava does not have any training program of its own. But it would send the staffs to trainings organized by other agencies /departments, such as: LGED, NILG etc. (when available).	Average
A.7. Does the agency have a Procurement Committee that is independent from the head of the agency?	Yes, 2 Procurement Committees constituted following the circular by LGD: Tender Opening Committee (TOC): 5 persons: AE-1, SAE-1 & Secretary-1; and Tender Evaluation Committee (TEC): 8 persons: AE-1, SAE-1, Secretary-1, counsellors-2 (including 1 nominated female), Representative of Deputy Commissioner of the district (Upazila Assistant Secondary Education Officer)-1, Representative of DPHE (Upazila SAE)-1 & Representative of LGED (Upazila SAE)-1. Under the prevailing procurement laws, these committees work independently from the procuring entity (pourashava).	Low
A.8. Does the agency have a procurement department/unit, including a permanent office that performs the function of a Secretariat for the Procurement Unit, and which serves as the main support unit of the Procurement Committee??	Yes. The engineering section (ES) functions as procurement department. It has permanent office, staffs and facilities. Under the procurement laws, this section mandatorily provides secretarial support to the procurement committees.	Low
A.9. If yes, what type of procurement does it undertake?	Works contract in road, bridge, culvert, drain, water supply system, Lighting facilities, Sanitation etc.	
A.10. At what level does the department/unit report (to the head of agency, deputy etc.)?	To the head of pourashava, Mayor.	Low
A.11. Do the procurement positions in the agency have job descriptions, which outline specific roles, minimum technical requirements and career routes?	The positions of pourashava are run by the circulars issued by the Local Government Division (LGD). All staff positions have job descriptions, which outline specific roles, minimum technical requirements and career routes.	Low
A.12. Is there a procurement process manual for goods and works?	Yes, the Public Procurement Rules (PPR) 2008 generally used as guidelines or manual which	Low

Question	Answer/Finding	Risk
	supplements and details all the provisions of Public Procurement Act (PPA) 2006. LGD arranged adequate publication of PPA and PPR, and distributed to each pourashava.	
A.13. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes, PPR is updated from time to time. It does not cover foreign assisted projects but stipulates that conditions of financing agreement shall prevail for procurement under foreign-assisted projects.	
A.14. Is there a procurement process manual for consulting services?	Yes, PPR covers consulting services; however, pourashavas are not required to procure services under the proposed project.	
A.15. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes, PPR is updated from time to time. It does not cover foreign assisted projects but stipulates that conditions of financing agreement shall prevail for procurement under foreign-assisted projects.	
A.16. Are there standard documents in use, such as Standard Procurement Documents/Forms, and have they been approved for use on ADB funded projects?	Yes, there are standard procurement documents / forms issued by CPTU. For ADB projects, these documents are modified incorporating ADB's requirements.	
A.17. Does the ToR follow a standard format such as background, tasks, inputs, objectives and outputs?	Yes, the standard documents issued by CPTU follow ADB format; however, pourashavas are not required to procure services under the proposed project.	
A.18. Who drafts the procurement specifications?	Sub-Assistant Engineer and Assistant Engineer. For procurement under a project, the staffs follow standards set by the design experts / consultants or the Project Director.	Low
A.19. Who approves the procurement specifications?	Specifications for the civil works have been prepared by the Engineering departments at National level, same specifications for civil works are followed. Specifications are drafted by the Assistant Engineer, who submits to the Mayor for final approval. For procurement under a project, the staffs follow project standards approved by the Project Director.	
A.20. Who drafts the bidding documents?	Sub-Assistant Engineer and Assistant Engineer. For procurement under a project, the staffs follow the approved standard bid document for the project.	
A.21. Who manages the sale of the bidding documents?	Accounts Section of the pourashava.	
A.22. Who identifies the need for consulting services requirements?	Any kind of procurement needs are initially identified by the Engineering Section.	Average
A.23. Who drafts the terms of reference (ToR)?	Generally, the pourashava does not procure any services. If required, Engineering Section would prepare the ToR. For procurement of services under a project, the relevant experts at the project office would prepare the ToR.	
A.24. Who prepares the request for proposals (RFPs)?	If required, Engineering Section would prepare the RFPs. For procurement of services under a project, the relevant experts at the project office would prepare the RFPs.	
B. INFORMATION MANAGEMENT		
B.1. Is there a referencing system for procurement files?	Yes.	Low
B.2. Are there adequate resources allocated to record keeping infrastructure, which includes	Yes.	Low

Question	Answer/Finding	Risk
the record keeping system, space, equipment and personnel to administer the procurement records management functions within the agency?		
B.3. For what period are records kept?	Generally 5 years. PPR [rule 43(1), Schedule-2] stipulates minimum time as 5 years. Normally, records are not destroyed.	Low
B.4. Are copies of bids or proposals retained with the evaluation?	Yes. Kept in the file concerned with evaluation of bids.	Low
B.5. Are copies of the original advertisements retained with the pre-contract papers?	Yes. Kept in the file concerned with invitation for bids.	Low
B.6. Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Yes. There is one file for each contract.	Low
B.7. Are copies of invoices included with the contract papers?	Yes. Kept in the file concerned with individual contract.	Low
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1. Has the agency undertaken foreign-assisted procurement of goods or works recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Yes, the pourashava implemented Danida assisted water and sanitation project executed by Department of Public Health Engineering (DPHE). In addition, there are projects funded by government's own resources: 1) Important Urban Infrastructure Development project under LGED from 2011 (on going) and 2) Bangladesh Municipal Development Fund (BMDF).	Average
C.2. If the above answer is yes, what were the major challenges?	Delay in contract implementation	
C.3. Is there a systematic process to identify procurement requirements (for a period of one year or more)	Yes. A potential list of requirements is prepared in the months of June-July each year based on citizen's demands or field survey by the Engineering Section.	
C.4. Is there a minimum period for preparation of bids and if yes how long?	Yes. When the decision about a procurement scheme is final, the Engineering Section takes about 7 days to prepare the bidding documents. After the Invitation for Bids (IFB) bids has been published in the newspapers, the minimum preparation time for the bidders according to PPR [rule 61(4), Schedule-2] is as follows: 14 days for estimated value up to BDT 3 million (approx. US$ 37,500); 21 days for estimated value above BDT 3 million and up to BDT 50 million (approx. US$ 625,000); and 28 days for estimated value above BDT 50 million.	Average
C.5. Are all queries from bidders replied to in writing?	Generally, bidders make queries only verbally to the concerned staffs who also clarify verbally face to face. Clarifications are also given during pre-bid meetings if bidders remain present, and brief minutes recorded. Written queries are replied in writing,	
C.6. Does the bidding document state the date and time of bid opening?	Yes. These are stated in the bidding data sheet.	Low
C.7. Is the opening of bids done in public?	Yes. The procedure is detailed in PPR [rule 97].	Low
C.8. Can late bids be accepted?	No. Late bids are returned unopened according to	

Question	Answer/Finding	Risk
	PPR [rule 97(6)].	
C.9. Can bids be rejected at bid opening?	No bids can be rejected at the time of opening according to PPR [rule 97(6)].	
C.10. Are minutes of the bid opening taken?	Tender Opening Sheet (TOS) is prepared which includes signature of officials and bidders present in the meeting. Apart from opening sheet, minutes are not prepared.	Average
C.11. Who may have a copy of the minutes?	TOS is distributed to all concerned offices including the project office (when applicable). Bidders do not generally express interest to receive the TOS or any minutes; because, they record the information (name of bidders and prices) by themselves during "read–out" session. There is also logistical limitation to make photocopy and prompt distribution of the TOS to the bidders. .	
C.12. Are the minutes free of charge?	In accordance with PPR [rule 97(7)], TOS has to be signed by the opening officials and attending bidders, and has to be distributed to all who attended the opening session, and to the head of procuring entity and relevant consultant / project offices. There is no provision of price or cost for distribution of TOS or opening minutes.	
C.13. Who undertakes the evaluation of bids (individual(s), permanent committee, ad-hoc committee)?	TEC (as detailed in A.7 above) undertakes evaluation of bids following the provisions of PPR [rule 98]. It is a permanent committee.	Low
C.14. What are the qualifications of the evaluators with respect to procurement and the goods and/or works under evaluation?	Current TEC consisted of 8 persons, 6 of whom are responsible government officials having experience in public procurement, and 2 are elected or selected public representatives (counsellors). 4 of them have engineering educational background; either graduation or at least diploma. 3 members come from external agency outside the controlling authority of the pourashava.	Low
C.15. Is the decision of the evaluators final or is the evaluation subject to additional approvals?	Recommendation of TEC is subject to concurrence of the project office (when applicable), and approval of the Mayor.	Low
C.16. Using at least three real examples, how long does it normally take from the issuance of the invitation for bids up to contact effectiveness?	Usually not more than 60 days required from the issuance of the invitation for bids up to contact signing /effectiveness for estimated cost of contract more than BDT 3 million (approx. US$ 37,500) for which bid preparation time is minimum 21 days. PPR allows maximum 14 days for bid evaluation process, maximum 7 days for approval at the level of Mayor, 28 days from issuance of Notification of Award and Contract signing [rule 8(14), schedule -3, Part-A & rule 102(11), Schedule-2].	Low
C.17. Are there processes in place for the collection and clearance of cargo through ports of entry?	Not Applicable. Pourashava has not yet done any procurement from abroad. However processes will be established if required under the project.	Average
C.18. Are there established goods receiving procedures?	Yes. Generally, the user unit /official(s) and the store-in-charge receive the goods examining for the proper quality and quantity.	Low
C.19. Are all goods that are received recorded as assets or inventory in a register?	Yes. Store-in-charge is responsible for recording the items in the stock / inventory register.	Low
C.20. Is the agency/procurement department familiar with letters of credit?	No, Pourashava has never used letters of credit.	Average

Question	Answer/Finding	Risk
C.21. Does the procurement department register and track warranty and latent defects liability periods?	Yes, warranty and latent defects liability periods are recorded in the concerned contract file, which is kept open until the specified period is over, and all pending issues are resolved.	Low
Consulting Services		
C.22. Has the agency undertaken foreign-assisted procurement of consulting services recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	No, . Pourashava has not yet done any procurement of consulting services.	Low
C.23. If the above answer is yes, what were the major challenges?	Not Applicable.	
C.24. Are assignments and requests for expressions of interest (EOIs) advertised?	Not Applicable. Pourashava is not likely to be involved in any procurement of services under the proposed project.	Low
C.25. Is a consultants' selection committee formed with appropriate individuals, and what is its composition (if any)?	Not Applicable.	Low
C.26. What criteria is used to evaluate EOIs?	Not Applicable.	Low
C.27. Historically, what is the most common method used (QCBS, QBS, etc.) to select consultants?	Not Applicable.	Low
C.28. Do firms have to pay for the RFP document?	Not Applicable.	Low
C.29. Does the proposal evaluation criteria follow a pre-determined structure and is it detailed in the RFP?	Not Applicable.	Low
C.30. Are pre-proposal visits and meetings arranged?	Not Applicable.	Low
C.31. Are minutes prepared and circulated after pre-proposal meetings?	Not Applicable.	
C.32. To whom are the minutes distributed?	Not Applicable.	
C.33. Are all queries from consultants answered/addressed in writing?	Not Applicable.	Low
C.34. Are the technical and financial proposals required to be in separate envelopes?	Not Applicable.	Low
C.35. Are proposal securities required?	Not Applicable.	Low
C.36. Are technical proposals opened in public?	Not Applicable.	Low
C.37. Are minutes of the technical opening distributed?	Not Applicable.	
C.38. Do the financial proposals remain sealed until technical evaluation is completed?	Not Applicable.	Low
C.39. Who determines the final technical ranking and how?	Not Applicable.	
C.40. Are the technical scores sent to all firms?	Not Applicable.	
C.41. Are the financial proposal opened in public?	Not Applicable.	Low
C.42. Are minutes of the financial opening distributed?	Not Applicable.	
C.43. How is the financial evaluation completed?	Not Applicable.	Low
C.44. Are face to face contract negotiations held?	Not Applicable.	
C.45. How long after financial evaluation is negotiation held with the selected firm?	Not Applicable.	
C.46. What is the usual basis for negotiation?	Not Applicable.	
C.47. Are minutes of negotiation taken and signed?	Not Applicable.	
C.48. How long after negotiation is the contract signed?	Not Applicable.	Low
C.49. Is there an evaluation system for measuring the outputs of consultants?	Not Applicable.	Low

Question	Answer/Finding	Risk
Payments		
C.50. Are advance payments made?	No, advance payment is not made.	Low
C.51. What is the standard period for payment included in contracts?	According to PPR [rule 39(22), Schedule-2], payment has to be made within 28 days from the date of issuance of acceptance certificate to the contractor / supplier. This period is included in the standard contract conditions.	Average
C.52. On average, how long is it between receiving a firm's invoice and making payment?	The Pourashava usually makes payment within 7 to 15 days.	
C.53. When late payment is made, are the beneficiaries paid interest?	Usually, payments are made promptly when funds are available. Standard contract conditions include the provision of interest for delayed payment. However, no case of interest claim for payment delay has yet been reported.	
D. EFFECTIVENESS		
D.1. Is contractual performance systematically monitored and reported?	Yes. Through field visits by technical staffs, quality control tests etc.	Average
D.2. Does the agency monitor and track its contractual payment obligations?	Yes. Accounts section monitors the payment obligations through tracking the contract-wise lists.	Low
D.3. Is a complaints resolution mechanism described in national procurement documents?	Yes. Bidding and Contract documents clearly reflect PPR's specific provisions for complaint resolution mechanisms.	Low
D.4. Is there a formal non-judicial mechanism for dealing with complaints?	Yes. During Bidding Process: At the 1st stage, any complaint is to be submitted to the procuring entity who is obliged to address the issue within 5 working days [PPR rule 57(4), Schedule-2]. If not satisfied, the complainant may go to next higher authority gradually up to the highest administrative tier (Secretary of the concerned ministry) with time bound obligation at every stage [PPR rule 57, Schedule-2]. At the last stage, the complainant may submit the matter to the Review Panel consisting 3 to 5 persons who are eminent experts in the laws, contract implementation and technical aspects of the procurement. This panel is independent of the government control, and has the obligation to decide on the issue within 12 working days [PPR rule 60(2), Schedule-2]. During Contract Implementation: According to standard bidding documents for works and goods, there are three options: (i) "Amicable Settlement" between the procuring entity and the contractor or supplier; (ii) "Adjudication" by an independent person mutually agreed and named in the contract agreement; and (iii) "Arbitration" conducted in accordance with the Arbitration Act (Act No 1 of 2001) of Bangladesh which facilitates settlement outside the judicial court.	Low
D.5. Are procurement decisions and disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment?	Yes.	Low
E. ACCOUNTABILITY MEASURES		
E.1. Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Yes. PPR stipulates strict compliance with ethical standards called "code of ethics" [PPR rule 127(1)(b), Schedule-XII] by those involved in procurement. Any case of professional misconduct or offence shall be dealt with provisions of PPR [rule 127] and other	Low

Question	Answer/Finding	Risk
	applicable laws; such as: Anti-corruption Commission Act 2004 of the country.	
E.2. Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	Yes. During bid evaluation process, each member of the committee has to declare and sign written individual statement of "no business or other links to any of the competing Tenderers or Applicant" [PPR rule 8(13)(a)]. PPR [rule 55] has specific provision detailing the conflict of interest situations for the tenderers (for works and goods) or applicants (for services). According to rule 55(7), procuring entity officials, who have an interest, directly or indirectly, with a firm or individual that is Tendering or has Tendered for a Procurement proceedings of that entity shall declare its relationship with that firm or individual and consequently not participate in any proceedings concerned with that specific Procurement at any stage including from when the specifications are written and qualification criteria are established up to the Supply of Goods or performance of the Works are completed and, until all contractual obligations have been fulfilled".	Low
E.3. Is the commencement of procurement dependent on external approvals (formal or de-facto) that are outside of the budgeting process?	No.	Low
E.4. Who approves procurement transactions, and do they have procurement experience and qualifications?	As head of Engineering Section, the Assistant Engineer (AE) is responsible for all procurement transactions, which are finally approved by the head of procuring entity, Mayor. Currently, the AE has been in the position for about 2 years, and working for 13 years in several pourashavas. The current Mayor has been serving the position for about 2 years, and he has adequate experience in dealing with procurement activities.	Low
E.5. Which of the following actions require approvals outside the procurement unit or the evaluation committee, as the case may be, and who grants the approval?	All of these actions require approvals from the Mayor. No other approvals are required.	Low
a) Bidding document, invitation to pre-qualify or RFP		
b) Advertisement of an invitation for bids, pre-qualification or call for EOIs		
c) Evaluation reports		
d) Notice of award		
e) Invitation to consultants to negotiate		
f) Contracts		
E.6. Is the same official responsible for: (i) authorizing procurement transactions, procurement invitations, documents, evaluations and contracts; (ii) authorizing payments; (iii) recording procurement transactions and events; and (iv) the custody of assets?	No, the same person is not responsible for all the stated actions. Mayor is responsible for items (i) and (ii); and AE is responsible for items (iii) and (iv)	Low
E.7. Is there a written auditable trail of procurement decisions attributable to individuals and committees?	Yes. All procurement decisions including communication / exchange of views /comments between relevant / responsible persons are recorded in the concerned file.	Low

II. General Ratings

Criterion	Risk
A. Organizational and Staff Capacity	Average
B. Information Management	Low
C. Procurement Practices	Average
D. Effectiveness	Average
E. Accountability Measures	Low
OVERALL RISK RATING	**Average**

Procurement Capacity Assessment - Agency Questionnaire

Implementing Agency – Galachipa Pourashava

Risk Ratings	Extremely High	High	√ **Average**	Low

I. Specific Assessment and Ratings

Question	Answer/Finding	Risk
A. ORGANIZATIONAL AND STAFF CAPACITY		
A.1. How many years of experience does the head of the procurement department/ unit have in a direct procurement role?	The engineering section (ES) currently headed by an Assistant Engineer (AE) undertakes all procurement activities; although, it is not identified as procurement department. The pourashava has been declared as class-I last April (2013). But the organogram applicable for class-I pourashava has not yet been implemented. The position of AE is posted by the Local Government Division (LGD) from the pool of government officials (municipal engineers employed under LGD) having engineering educational background (either graduate or diploma), and adequate working experience. Currently, Mr. H. M. Solaiman having diploma in civil engineering has been in the position of AE for about 2 months. He has been working for 13 years in various positions (Sub-Assistant / Assistant Engineer- SAE/AE) in several pourashavas in the country.	Low
A.2. How many staff in the procurement department/unit are:		Average
iv. Full Time?	Total 5 full time staffs available in Engineering Section: AE-1, SAE-1, Surveyor-1 & Water Superindent-1, Work Assistant-1. Vacant Positions: XEN-1, SAE-1, Work Assistants-3.	
v. Part Time?	3 staffs: Secretary, Accountant, Accounts Assistant also provide full support in procurement activities.	
vi. Seconded?	None	
A.3. Does the procurement staff have English language proficiency?	Working knowledge. Currently, the staffs work with bidding documents in English language, and maintain written communication with LGED's project offices in English.	Low
A.4. Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	If vacant positions are filled with appropriate staffs, the number and qualifications of the staffs would be capable of undertaking additional procurement activities similar to those currently being practised. Generally, for improved design and technology for works and goods (infrastructures, equipment etc.), short	Average

Question	Answer/Finding	Risk
	term expertise support would be essential. If new categories of procurement are introduced, staff trainings would be mandatorily required to familiarize them with new elements / aspects of procurement, such as: technology, method of construction, equipment, plants etc.	
A.5. Does the unit have adequate facilities, such as PCs, internet connections, photocopy facilities, printers, etc., to undertake the planned procurement?	Not Adequate. New facilities would be required; because, existing PCs and printers are old, although working. Existing facilities within the pourashava: - 8 PCs (1 in Engineering Section, 1 in Accounts Section & 6 in other sections); - No Laptop in any section; - 8 Printers (1 Laser printer in Engineering Section, 7 in other sections); - Photocopy machine not working; and - the old Fax machine is not working. Additional facilities tentatively required: - 4 PCs (2 in Engineering Section, 1 in Accounts Section & 1 in Admin Section) networked within the office; - 2 internet connectivity (GSM modems) from alternate sources (Grameen Phone /City Cell / Teletalk); - 1 Laptop in Engineering Section; - 2 Laser Printers (1 in Engineering Section & 1 in Accounts Section); - 1 Photocopy machine; and - 1 Fax machine.	Average
A.6. Does the agency have a procurement training program?	No, the pourashava does not have any training program of its own. But it would send the staffs to trainings organized by other agencies /departments, such as: LGED, NILG etc. (when available).	Average
A.7. Does the agency have a Procurement Committee that is independent from the head of the agency?	Yes, 2 Procurement Committees constituted following the circular by LGD: Tender Opening Committee (TOC): 5 persons: AE-1, SAE-1 & Secretary-1; and Tender Evaluation Committee (TEC): 8 persons: AE-1, SAE-1, Secretary-1, counsellors-2 (including 1 nominated female), Representative of Deputy Commissioner of the district (Upazila Project Implementation Officer-PIO)-1, Representative of DPHE (Upazila SAE)-1 & Representative of LGED (Upazila Engineer)-1. Under the prevailing procurement laws, these committees work independently from the procuring entity (pourashava).	Low
A.8. Does the agency have a procurement department/unit, including a permanent office that performs the function of a Secretariat for the Procurement Unit, and which serves as the main support unit of the Procurement Committee??	Yes. The engineering section (ES) functions as procurement department. It has permanent office, staffs and facilities. Under the procurement laws, this section mandatorily provides secretarial support to the procurement committees.	Low
A.9. If yes, what type of procurement does it undertake?	Road, bridge, culvert, drain, water supply system, Lighting facilities, Sanitation etc.	
A.10. At what level does the department/unit report (to the head of agency, deputy etc.)?	To the head of pourashava, Mayor.	Low
A.11. Do the procurement positions in the agency have job descriptions, which outline specific roles, minimum technical requirements and career routes?	The positions of pourashava are run by the circulars issued by the Local Government Division (LGD). All staff positions have job descriptions, which outline specific roles, minimum technical requirements and career	Low

Question	Answer/Finding	Risk
	routes.	
A.12. Is there a procurement process manual for goods and works?	Yes, the Public Procurement Rules (PPR) 2008 generally used as guidelines or manual which supplements and details all the provisions of Public Procurement Act (PPA) 2006. LGD arranged adequate publication of PPA and PPR, and distributed to each pourashava.	Low
A.13. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes, PPR is updated from time to time. It stipulates that conditions of financing agreement shall prevail for procurement under foreign-assisted projects.	
A.14. Is there a procurement process manual for consulting services?	Yes, PPR covers consulting services; however, pourashavas are not required to procure services under the proposed project.	
A.15. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes, PPR is updated from time to time. It stipulates that conditions of financing agreement shall prevail for procurement under foreign-assisted projects.	
A.16. Are there standard documents in use, such as Standard Procurement Documents/Forms, and have they been approved for use on ADB funded projects?	Yes, there are standard procurement documents / forms issued by CPTU. For ADB projects, these documents are modified incorporating ADB's requirements.	
A.17. Does the ToR follow a standard format such as background, tasks, inputs, objectives and outputs?	Yes, the standard documents issued by CPTU follow ADB format; however, pourashavas are not required to procure services under the proposed project.	
A.18. Who drafts the procurement specifications?	Sub-Assistant Engineer and Assistant Engineer. For procurement under a project, the staffs follow standards set by the design experts / consultants or the Project Director.	Low
A.19. Who approves the procurement specifications?	Specifications are generally approved by the Assistant Engineer, who submits to the Mayor for final approval. For procurement under a project, the staffs follow project standards approved by the Project Director.	
A.20. Who drafts the bidding documents?	Sub-Assistant Engineer and Assistant Engineer. For procurement under a project, the staffs follow project standards approved by the Project Director.	
A.21. Who manages the sale of the bidding documents?	Accounts Section of the pourashava.	
A.22. Who identifies the need for consulting services requirements?	Any kind of procurement needs are initially identified by the Engineering Section.	Average
A.23. Who drafts the terms of reference (ToR)?	Generally, the pourashava does not procure any services. If required, Engineering Section would prepare the ToR. For procurement of services under a project, the relevant experts at the project office would prepare the ToR.	
A.24. Who prepares the request for proposals (RFPs)?	If required, Engineering Section would prepare the RFPs. For procurement of services under a project, the relevant experts at the project office would prepare the RFPs.	
B. INFORMATION MANAGEMENT		
B.1. Is there a referencing system for procurement files?	Yes.	Low
B.2. Are there adequate resources allocated to record keeping infrastructure, which includes the record keeping system, space, equipment and personnel to administer the procurement	Yes. Enough space is available in the new office building; but furniture is not adequate.	Low

Question	Answer/Finding	Risk
records management functions within the agency?		
B.3. For what period are records kept?	Generally 5 years. PPR [rule 43(1), Schedule-2] stipulates minimum time as 5 years. Normally, records are not destroyed.	Low
B.4. Are copies of bids or proposals retained with the evaluation?	Yes. Kept in the file concerned with evaluation of bids.	Low
B.5. Are copies of the original advertisements retained with the pre-contract papers?	Yes. Kept in the file concerned with invitation for bids.	Low
B.6. Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Yes. There is one file for each contract.	Low
B.7. Are copies of invoices included with the contract papers?	Yes. Kept in the file concerned with individual contract.	Low
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1. Has the agency undertaken foreign-assisted procurement of goods or works recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Yes, the pourashava implemented Danida assisted water and sanitation project executed by Department of Public Health Engineering (DPHE). In addition, there are projects funded by government's own resources: 1) Important Urban Infrastructure Development project under LGED from 2011 (on going) and 2) Bangladesh Municipal Development Fund (BMDF).	Average
C.2. If the above answer is yes, what were the major challenges?	Not Applicable.	
C.3. Is there a systematic process to identify procurement requirements (for a period of one year or more)	Yes. A potential list of requirements is prepared in the months of June-July each year based on citizen's demands or field survey by the Engineering Section.	
C.4. Is there a minimum period for preparation of bids and if yes how long?	Yes. When the decision about a procurement scheme is final, the Engineering Section takes about 7 days to prepare the bidding documents. After the Invitation for Bids (IFB) bids has been published in the newspapers, the minimum preparation time for the bidders according to PPR [rule 61(4), Schedule-2] is as follows: 14 days for estimated value up to BDT 3 million (approx. US$ 37,500); 21 days for estimated value above BDT 3 million and up to BDT 50 million (approx. US$ 625,000); and 28 days for estimated value above BDT 50 million.	Average
C.5. Are all queries from bidders replied to in writing?	Generally, bidders make queries only verbally to the concerned staffs who also clarify verbally face to face. Clarifications are also given during pre-bid meetings if bidders remain present, and brief minutes recorded.	
C.6. Does the bidding document state the date and time of bid opening?	Yes. These are stated in the bidding data sheet.	Low
C.7. Is the opening of bids done in public?	Yes. The procedure is detailed in PPR [rule 97].	Low
C.8. Can late bids be accepted?	No. Late bids are returned unopened according to PPR [rule 97(6)].	
C.9. Can bids be rejected at bid opening?	No bids can be rejected at the time of opening according to PPR [rule 97(6)].	

Question	Answer/Finding	Risk
C.10. Are minutes of the bid opening taken?	Tender Opening Sheet (TOS) is prepared which includes signature of officials and bidders present in the meeting. Apart from opening sheet, minutes are not prepared.	Average
C.11. Who may have a copy of the minutes?	TOS is distributed to all concerned offices including the project office (when applicable). Bidders do not generally express interest to receive the TOS or any minutes; because, they record the information (name of bidders and prices) by themselves during "read–out" session. There is also logistical limitation to make photocopy and prompt distribution of the TOS to the bidders, while ensuring security of the TOS.	
C.12. Are the minutes free of charge?	In accordance with PPR [rule 97(7)], TOS has to be signed by the opening officials and attending bidders, and has to be distributed to all who attended the opening session, and to the head of procuring entity and relevant consultant / project offices. There is no provision of price or cost for distribution of TOS or opening minutes.	
C.13. Who undertakes the evaluation of bids (individual(s), permanent committee, ad-hoc committee)?	TEC (as detailed in A.7 above) undertakes evaluation of bids following the provisions of PPR [rule 98].	Low
C.14. What are the qualifications of the evaluators with respect to procurement and the goods and/or works under evaluation?	Current TEC consisted of 8 persons, 6 of whom are responsible government officials having experience in public procurement, and 2 are elected or selected public representatives (counsellors). 4 of them have engineering educational background; either graduation or at least diploma. 3 members come from external agency outside the controlling authority of the pourashava.	Low
C.15. Is the decision of the evaluators final or is the evaluation subject to additional approvals?	Recommendation of TEC is subject to concurrence of the project office (when applicable), and approval of the Mayor.	Low
C.16. Using at least three real examples, how long does it normally take from the issuance of the invitation for bids up to contact effectiveness?	Usually not more than 60 days required from the issuance of the invitation for bids up to contact signing /effectiveness for estimated cost of contract more than BDT 3 million (approx. US$ 37,500) for which bid preparation time is minimum 21 days. PPR allows maximum 14 days for bid evaluation process, maximum 7 days for approval at the level of Mayor, 28 days from issuance of Notification of Award and Contract signing [rule 8(14), schedule -3, Part-A & rule 102(11), Schedule-2].	Low
C.17. Are there processes in place for the collection and clearance of cargo through ports of entry?	Not Applicable. Pourashava has not yet done any procurement from abroad.	Average
C.18. Are there established goods receiving procedures?	Yes. Generally, the user unit /official(s) and the store-in-charge receive the goods examining the proper quality and quantity.	Low
C.19. Are all goods that are received recorded as assets or inventory in a register?	Yes. Store-in-charge is responsible for recording the items in the stock / inventory register.	Low
C.20. Is the agency/procurement department familiar with letters of credit?	Not Applicable. Pourashava has not yet done any procurement from abroad.	Average

Question	Answer/Finding	Risk
C.21. Does the procurement department register and track warranty and latent defects liability periods?	Yes, warranty and latent defects liability periods are recorded in the concerned contract file, which is kept open until the specified period is over, and all pending issues are resolved.	Low
Consulting Services		
C.22. Has the agency undertaken foreign-assisted procurement of consulting services recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Not Applicable. Pourashava has not yet done any procurement of services.	Low
C.23. If the above answer is yes, what were the major challenges?	Not Applicable.	
C.24. Are assignments and requests for expressions of interest (EOIs) advertised?	Not Applicable. Pourashava is not likely to be involved in any procurement of services under the proposed project.	Low
C.25. Is a consultants' selection committee formed with appropriate individuals, and what is its composition (if any)?	Not Applicable.	Low
C.26. What criteria is used to evaluate EOIs?	Not Applicable.	Low
C.27. Historically, what is the most common method used (QCBS, QBS, etc.) to select consultants?	Not Applicable.	Low
C.28. Do firms have to pay for the RFP document?	Not Applicable.	Low
C.29. Does the proposal evaluation criteria follow a pre-determined structure and is it detailed in the RFP?	Not Applicable.	Low
C.30. Are pre-proposal visits and meetings arranged?	Not Applicable.	Low
C.31. Are minutes prepared and circulated after pre-proposal meetings?	Not Applicable.	
C.32. To whom are the minutes distributed?	Not Applicable.	
C.33. Are all queries from consultants answered/addressed in writing?	Not Applicable.	Low
C.34. Are the technical and financial proposals required to be in separate envelopes?	Not Applicable.	Low
C.35. Are proposal securities required?	Not Applicable.	Low
C.36. Are technical proposals opened in public?	Not Applicable.	Low
C.37. Are minutes of the technical opening distributed?	Not Applicable.	
C.38. Do the financial proposals remain sealed until technical evaluation is completed?	Not Applicable.	Low
C.39. Who determines the final technical ranking and how?	Not Applicable.	
C.40. Are the technical scores sent to all firms?	Not Applicable.	
C.41. Are the financial proposal opened in public?	Not Applicable.	Low
C.42. Are minutes of the financial opening distributed?	Not Applicable.	
C.43. How is the financial evaluation completed?	Not Applicable.	Low
C.44. Are face to face contract negotiations held?	Not Applicable.	
C.45. How long after financial evaluation is negotiation held with the selected firm?	Not Applicable.	
C.46. What is the usual basis for negotiation?	Not Applicable.	
C.47. Are minutes of negotiation taken and signed?	Not Applicable.	
C.48. How long after negotiation is the contract signed?	Not Applicable.	Low
C.49. Is there an evaluation system for measuring the outputs of consultants?	Not Applicable.	Low

Question	Answer/Finding	Risk
Payments		
C.50. Are advance payments made?	No advance payment is made.	Low
C.51. What is the standard period for payment included in contracts?	According to PPR [rule 39(22), Schedule-2], payment has to be made within 28 days from the date of issuance of acceptance certificate to the contractor / supplier. This period is included in the standard contract conditions.	Average
C.52. On average, how long is it between receiving a firm's invoice and making payment?	The pourashava usually makes payment within 7 to 15 days.	
C.53. When late payment is made, are the beneficiaries paid interest?	Usually, payments are made promptly when funds are available. Standard contract conditions include the provision of interest for delayed payment. However, no case of interest claim for payment delay has yet been reported.	
D. EFFECTIVENESS		
D.1. Is contractual performance systematically monitored and reported?	Yes. Through field visits by technical staffs, quality control tests etc.	Average
D.2. Does the agency monitor and track its contractual payment obligations?	Yes. Accounts section monitors the payment obligations through tracking the contract-wise lists.	Low
D.3. Is a complaints resolution mechanism described in national procurement documents?	Yes. Bidding and Contract documents clearly reflect PPR's specific provisions for complaint resolution mechanisms.	Low
D.4. Is there a formal non-judicial mechanism for dealing with complaints?	Yes. During Bidding Process: At the 1st stage, any complaint is to be submitted to the procuring entity who is obliged to address the issue within 5 working days [PPR rule 57(4), Schedule-2]. If not satisfied, the complainant may go to next higher authority gradually up to the highest administrative tier (Secretary of the concerned ministry) with time bound obligation at every stage [PPR rule 57, Schedule-2]. At the last stage, the complainant may submit the matter to the Review Panel consisting 3 to 5 persons who are eminent experts in the laws, contract implementation and technical aspects of the procurement. This panel is independent of the government control, and has the obligation to decide on the issue within 12 working days [PPR rule 60(2), Schedule-2]. During Contract Implementation: According to standard bidding documents for works and goods, there are three options: (i) "Amicable Settlement" between the procuring entity and the contractor or supplier; (ii) "Adjudication" by an independent person mutually agreed and named in the contract agreement; and (iii) "Arbitration" conducted in accordance with the Arbitration Act (Act No 1 of 2001) of Bangladesh which facilitates settlement outside the judicial court.	Low
D.5. Are procurement decisions and disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment?	Yes.	Low
E. ACCOUNTABILITY MEASURES		
E.1. Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Yes. PPR stipulates strict compliance with ethical standards called "code of ethics" [PPR rule 127(1)(b), Schedule-XII] by those involved in procurement. Any case of professional misconduct or offence shall be dealt with provisions of PPR [rule 127] and other	Low

Question	Answer/Finding	Risk
	applicable laws; such as: Anti-corruption Commission Act 2004 of the country.	
E.2. Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	Yes. During bid evaluation process, each member of the committee has to declare and sign written individual statement of "no business or other links to any of the competing Tenderers or Applicant" [PPR rule 8(13)(a)]. PPR [rule 55] has specific provision detailing the conflict of interest situations for the tenderers (for works and goods) or applicants (for services). According to rule 55(7), procuring entity officials, who have an interest, directly or indirectly, with a firm or individual that is Tendering or has Tendered for a Procurement proceedings of that entity shall declare its relationship with that firm or individual and consequently not participate in any proceedings concerned with that specific Procurement at any stage including from when the specifications are written and qualification criteria are established up to the Supply of Goods or performance of the Works are completed and, until all contractual obligations have been fulfilled".	Low
E.3. Is the commencement of procurement dependent on external approvals (formal or de-facto) that are outside of the budgeting process?	No.	Low
E.4. Who approves procurement transactions, and do they have procurement experience and qualifications?	As head of Engineering Section, the Assistant Engineer (AE) is responsible for all procurement transactions, which are finally approved by the head of procuring entity, Mayor. Currently, the AE has been in the position for about 2 years, and working for 13 years in several pourashavas. The current Mayor has been serving the position for more than 10 years.	Low
E.5. Which of the following actions require approvals outside the procurement unit or the evaluation committee, as the case may be, and who grants the approval?	All of these actions require approvals from the Mayor.	Low
g) Bidding document, invitation to pre-qualify or RFP		
h) Advertisement of an invitation for bids, pre-qualification or call for EOIs		
i) Evaluation reports		
j) Notice of award		
k) Invitation to consultants to negotiate		
l) Contracts		
E.6. Is the same official responsible for: (i) authorizing procurement transactions, procurement invitations, documents, evaluations and contracts; (ii) authorizing payments; (iii) recording procurement transactions and events; and (iv) the custody of assets?	No, the same person is not responsible for all the stated actions. Mayor is responsible for items (i) and (ii); and AE is responsible for items (iii) and (iv)	Low
E.7. Is there a written auditable trail of procurement decisions attributable to individuals and committees?	Yes. All procurement decisions including communication / exchange of views /comments between relevant / responsible persons are recorded in the concerned file.	Low

II. General Ratings

Criterion	Risk
A. Organizational and Staff Capacity	Average
B. Information Management	Low
C. Procurement Practices	Average
D. Effectiveness	Average
E. Accountability Measures	Low
OVERALL RISK RATING	**Average**

Procurement Capacity Assessment - Agency Questionnaire

Implementing Agency – Mathbaria Pourashava

Risk Ratings	Extremely High	High	√ **Average**	Low

I. Specific Assessment and Ratings

Question	Answer/Finding	Risk
A. ORGANIZATIONAL AND STAFF CAPACITY		
A.1. How many years of experience does the head of the procurement department/ unit have in a direct procurement role?	The engineering section (ES) headed by an Executive Engineer (XEN) undertakes all procurement activities; although, it is not identified as procurement department. The position of XEN is posted by the Local Government Division (LGD) from the pool of government officials (municipal engineers employed under LGD) having engineering educational background (either graduate or diploma), and adequate working experience. Currently, Mr. Abdus Salek having diploma in engineering has been in the position of XEN for about 2 years. He has 24 years of general experience, and has been working for 22 years in various positions (Sub-Assistant / Assistant / Executive Engineer- SAE/AE/XEN) in several pourashavas in the country.	Low
A.2. How many staff in the procurement department/unit are:		Low
vii. Full Time?	Total 8 full time staffs in Engineering Section (XEN-1, AE-1, SAE-1, Surveyor-1, Work Assistants-4).	
viii. Part Time?	4 staffs: Secretary, Accountant, 2 Accounts Assistants (1 as Cashier) also provide full support in procurement activities. For water related infrastructure schemes, water superintendent also assist in the procurement process.	
ix. Seconded?	None	
A.3. Does the procurement staff have English language proficiency?	Adequate working knowledge. Currently, the staffs work with bidding documents in English language, and maintain written communication with LGED's project offices in English.	Low
A.4. Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	The number and qualifications of the existing staffs are capable of undertaking additional procurement activities similar to those currently being practised. Generally, for improved design and technology for works and goods (infrastructures, equipment etc.), short term expertise support would be essential. If new categories of procurement are introduced, staff trainings would be mandatorily required to familiarize them with new elements / aspects of procurement, such as: technology, method of construction, equipment, plants etc.	Average
A.5. Does the unit have adequate facilities, such as PCs, internet connections, photocopy facilities, printers, etc., to undertake the planned procurement?	Not Adequate. New facilities would be required; because, existing PCs and printers are old, although working. <u>Existing facilities within the pourashava:</u> - 4 PCs (1 in Engineering Section, 1 in Accounts Section & 2 in other sections); - 2 Laptops in other sections; - 3 Printers (1 dot printer in Engineering	Average

Question	Answer/Finding	Risk
	Section, 2 in other sections); - No Photocopy machine; and - the old Fax machine is not working. Additional facilities tentatively required: - 4 PCs (2 in Engineering Section, 1 in Accounts Section & 1 in Admin Section) networked within the office; - 2 internet connectivity (GSM modems) from alternate sources (Grameen Phone /City Cell / Teletalk); - 1 Laptop in Engineering Section; - 2 Laser Printers (1 in Engineering Section & 1 in Accounts Section); - 1 Photocopy machine; and - 1 Fax machine.	
A.6. Does the agency have a procurement training program?	No, the pourashava does not have any training program of its own. But sends the staffs to trainings organized by other agencies /departments, such as: LGED, NILG etc.	Average
A.7. Does the agency have a Procurement Committee that is independent from the head of the agency?	Yes, 2 Procurement Committees constituted following the circular by LGD: Tender Opening Committee (TOC): 5 persons: XEN-1, AE-1, Secretary-1, nominated High School Teacher-1 & nominated Primary School Teacher-1; and Tender Evaluation Committee (TEC): 8 persons: XEN-1, AE-1, Secretary-1, counsellors-2 (including 1 nominated female), Representative of Deputy Commissioner of the district (Upazila Cooperative Officer)-1, Representative of DPHE (Upazila SAE)-1 & Representative of BWDB (Upazila SAE)-1. Under the prevailing procurement laws, these committees work independently from the procuring entity (pourashava).	Low
A.8. Does the agency have a procurement department/unit, including a permanent office that performs the function of a Secretariat for the Procurement Unit, and which serves as the main support unit of the Procurement Committee??	Yes. The engineering section (ES) functions as procurement department. It has permanent office, staffs and facilities. Under the procurement laws, this section mandatorily provides secretarial support to the procurement committees.	Low
A.9. If yes, what type of procurement does it undertake?	Road, bridge, culvert, drain, water supply system, Lighting facilities, Sanitation etc.	
A.10. At what level does the department/unit report (to the head of agency, deputy etc.)?	To the head of pourashava, Mayor.	Low
A.11. Do the procurement positions in the agency have job descriptions, which outline specific roles, minimum technical requirements and career routes?	The positions of pourashava are run by the circulars issued by the Local Government Division (LGD). All staff positions have job descriptions, which outline specific roles, minimum technical requirements and career routes.	Low
A.12. Is there a procurement process manual for goods and works?	Yes, the Public Procurement Rules (PPR) 2008 generally used as guidelines or manual which supplements and details all the provisions of Public Procurement Act (PPA) 2006. LGD arranged adequate publication of PPA and PPR, and distributed to each pourashava.	Low
A.13. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes, PPR is updated from time to time. It stipulates that conditions of financing agreement shall prevail for procurement under foreign-assisted projects.	
A.14. Is there a procurement process manual for consulting services?	Yes, PPR covers consulting services; however, pourashavas are not required to procure services under the proposed project.	

Question	Answer/Finding	Risk
A.15. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes, PPR is updated from time to time. It stipulates that conditions of financing agreement shall prevail for procurement under foreign-assisted projects.	
A.16. Are there standard documents in use, such as Standard Procurement Documents/Forms, and have they been approved for use on ADB funded projects?	Yes, there are standard procurement documents / forms issued by CPTU. For ADB projects, these documents are modified incorporating ADB's requirements.	
A.17. Does the ToR follow a standard format such as background, tasks, inputs, objectives and outputs?	Yes, the standard documents issued by CPTU follow ADB format; however, pourashavas are not required to procure services under the proposed project.	
A.18. Who drafts the procurement specifications?	Sub-Assistant Engineer and Assistant Engineer. For procurement under a project, the staffs follow standards set by the design experts / consultants or the Project Director.	Low
A.19. Who approves the procurement specifications?	Specifications are generally approved by the Executive Engineer, who submits to the Mayor for final approval. For procurement under a project, the staffs follow project standards approved by the Project Director.	
A.20. Who drafts the bidding documents?	Sub-Assistant Engineer and Assistant Engineer. For procurement under a project, the staffs follow project standards approved by the Project Director.	
A.21. Who manages the sale of the bidding documents?	Accounts Section of the pourashava.	
A.22. Who identifies the need for consulting services requirements?	Any kind of procurement needs are initially identified by the Engineering Section.	Average
A.23. Who drafts the terms of reference (ToR)?	Generally, the pourashava does not procure any services. If required, Engineering Section would prepare the ToR. For procurement of services under a project, the relevant experts at the project office would prepare the ToR.	
A.24. Who prepares the request for proposals (RFPs)?	If required, Engineering Section would prepare the RFPs. For procurement of services under a project, the relevant experts at the project office would prepare the RFPs.	
B. INFORMATION MANAGEMENT		
B.1. Is there a referencing system for procurement files?	Yes.	Low
B.2. Are there adequate resources allocated to record keeping infrastructure, which includes the record keeping system, space, equipment and personnel to administer the procurement records management functions within the agency?	Yes.	Low
B.3. For what period are records kept?	Generally 10 years. PPR [rule 43(1), Schedule-2] stipulates minimum time as 5 years. Normally, records are not destroyed.	Low
B.4. Are copies of bids or proposals retained with the evaluation?	Yes. Kept in the file concerned with evaluation of bids.	Low
B.5. Are copies of the original advertisements retained with the pre-contract papers?	Yes. Kept in the file concerned with invitation for bids.	Low
B.6. Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Yes. There is one file for each contract.	Low
B.7. Are copies of invoices included with the	Yes. Kept in the file concerned with individual	Low

Question	Answer/Finding	Risk
contract papers?	contract.	
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1. Has the agency undertaken foreign-assisted procurement of goods or works recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	No foreign-assisted project undertaken. However, there are projects funded by government's own resources: 1) Important Urban Infrastructure Development project under LGED from 2011 (on going), and 2) Upazila Urban Infrastructure Development Project under LGED from 2008 (on going).	Average
C.2. If the above answer is yes, what were the major challenges?	Not Applicable.	
C.3. Is there a systematic process to identify procurement requirements (for a period of one year or more)	Yes. A potential list of requirements is prepared in the months of June-July each year based on citizen's demands or field survey by the Engineering Section.	
C.4. Is there a minimum period for preparation of bids and if yes how long?	Yes. When the decision about a procurement scheme is final, the Engineering Section takes 7 to 15 days to prepare the bidding documents. After the Invitation for Bids (IFB) bids has been published in the newspapers, the minimum preparation time for the bidders according to PPR [rule 61(4), Schedule-2] is as follows: 14 days for estimated value up to BDT 3 million (approx. US$ 37,500); 21 days for estimated value above BDT 3 million and up to BDT 50 million (approx. US$ 625,000); and 28 days for estimated value above BDT 50 million.	Average
C.5. Are all queries from bidders replied to in writing?	Generally, bidders make queries only verbally to the concerned staffs who also clarify verbally face to face. Clarifications are also given during pre-bid meetings if bidders remain present, and brief minutes recorded.	
C.6. Does the bidding document state the date and time of bid opening?	Yes. These are stated in the bidding data sheet.	Low
C.7. Is the opening of bids done in public?	Yes. The procedure is detailed in PPR [rule 97].	Low
C.8. Can late bids be accepted?	No. Late bids are returned unopened according to PPR [rule 97(6)].	
C.9. Can bids be rejected at bid opening?	No bids can be rejected at the time of opening according to PPR [rule 97(6)].	
C.10. Are minutes of the bid opening taken?	Tender Opening Sheet (TOS) is prepared which includes signature of officials and bidders present in the meeting. Apart from opening sheet, minutes are not prepared.	Average
C.11. Who may have a copy of the minutes?	TOS is distributed to all concerned offices including the project office (when applicable). Bidders do not generally express interest to receive the TOS or any minutes; because, they record the information (name of bidders and prices) by themselves during "read–out" session. There is also logistical limitation to make photocopy and prompt distribution of the TOS to the bidders, while ensuring security of the TOS.	
C.12. Are the minutes free of charge?	In accordance with PPR [rule 97(7)], TOS has to be signed by the opening officials and attending bidders, and has to be distributed to all who attended the opening session, and to	

Question	Answer/Finding	Risk
	the head of procuring entity and relevant consultant / project offices. There is no provision of price or cost for distribution of TOS or opening minutes.	
C.13. Who undertakes the evaluation of bids (individual(s), permanent committee, ad-hoc committee)?	TEC (as detailed in A.7 above) undertakes evaluation of bids following the provisions of PPR [rule 98].	Low
C.14. What are the qualifications of the evaluators with respect to procurement and the goods and/or works under evaluation?	Current TEC consisted of 8 persons, 6 of whom are responsible government officials having adequate experience in public procurement, and 2 are elected or selected public representatives (counsellors). 4 of them have engineering educational background; either graduation or at least diploma. 3 members come from external agency outside the controlling authority of the pourashava.	Low
C.15. Is the decision of the evaluators final or is the evaluation subject to additional approvals?	Recommendation of TEC is subject to concurrence of the project office (when applicable), and approval of the Mayor.	Low
C.16. Using at least three real examples, how long does it normally take from the issuance of the invitation for bids up to contact effectiveness?	Usually not more than 60 days required from the issuance of the invitation for bids up to contact signing /effectiveness for estimated cost of contract more than BDT 3 million (approx. US$ 37,500) for which bid preparation time is minimum 21 days. PPR allows maximum 14 days for bid evaluation process, maximum 7 days for approval at the level of Mayor, 28 days from issuance of Notification of Award and Contract signing [rule 8(14), schedule -3, Part-A & rule 102(11), Schedule-2].	Low
C.17. Are there processes in place for the collection and clearance of cargo through ports of entry?	Not Applicable. Pourashava has not yet done any procurement from abroad.	Average
C.18. Are there established goods receiving procedures?	Yes. Generally, the user unit /official(s) and the store-in-charge receive the goods examining the proper quality and quantity.	Low
C.19. Are all goods that are received recorded as assets or inventory in a register?	Yes. Store-in-charge is responsible for recording the items in the stock / inventory register.	Low
C.20. Is the agency/procurement department familiar with letters of credit?	Not Applicable. Pourashava has not yet done any procurement from abroad.	Average
C.21. Does the procurement department register and track warranty and latent defects liability periods?	Yes, warranty and latent defects liability periods are recorded in the concerned contract file, which is kept open until the specified period is over, and all pending issues are resolved.	Low
Consulting Services		
C.22. Has the agency undertaken foreign-assisted procurement of consulting services recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Not Applicable. Pourashava has not yet done any procurement of services.	Low
C.23. If the above answer is yes, what were the major challenges?	Not Applicable.	
C.24. Are assignments and requests for expressions of interest (EOIs) advertised?	Not Applicable. Pourashava is not likely to be involved in any procurement of services under the proposed project.	Low
C.25. Is a consultants' selection committee formed with appropriate individuals, and what is its composition (if any)?	Not Applicable.	Low
C.26. What criteria is used to evaluate EOIs?	Not Applicable.	Low
C.27. Historically, what is the most common method used (QCBS, QBS, etc.) to select	Not Applicable.	Low

Question	Answer/Finding	Risk
consultants?		
C.28. Do firms have to pay for the RFP document?	Not Applicable.	Low
C.29. Does the proposal evaluation criteria follow a pre-determined structure and is it detailed in the RFP?	Not Applicable.	Low
C.30. Are pre-proposal visits and meetings arranged?	Not Applicable.	Low
C.31. Are minutes prepared and circulated after pre-proposal meetings?	Not Applicable.	
C.32. To whom are the minutes distributed?	Not Applicable.	
C.33. Are all queries from consultants answered/addressed in writing?	Not Applicable.	Low
C.34. Are the technical and financial proposals required to be in separate envelopes?	Not Applicable.	Low
C.35. Are proposal securities required?	Not Applicable.	Low
C.36. Are technical proposals opened in public?	Not Applicable.	Low
C.37. Are minutes of the technical opening distributed?	Not Applicable.	
C.38. Do the financial proposals remain sealed until technical evaluation is completed?	Not Applicable.	Low
C.39. Who determines the final technical ranking and how?	Not Applicable.	
C.40. Are the technical scores sent to all firms?	Not Applicable.	
C.41. Are the financial proposal opened in public?	Not Applicable.	Low
C.42. Are minutes of the financial opening distributed?	Not Applicable.	
C.43. How is the financial evaluation completed?	Not Applicable.	Low
C.44. Are face to face contract negotiations held?	Not Applicable.	
C.45. How long after financial evaluation is negotiation held with the selected firm?	Not Applicable.	
C.46. What is the usual basis for negotiation?	Not Applicable.	
C.47. Are minutes of negotiation taken and signed?	Not Applicable.	
C.48. How long after negotiation is the contract signed?	Not Applicable.	Low
C.49. Is there an evaluation system for measuring the outputs of consultants?	Not Applicable.	Low
Payments		
C.50. Are advance payments made?	No advance payment is made.	Low
C.51. What is the standard period for payment included in contracts?	According to PPR [rule 39(22), Schedule-2], payment has to be made within 28 days from the date of issuance of acceptance certificate to the contractor / supplier. This period is included in the standard contract conditions.	Average
C.52. On average, how long is it between receiving a firm's invoice and making payment?	The pourashava usually makes payment within 7 to 15 days.	
C.53. When late payment is made, are the beneficiaries paid interest?	Usually, payments are made promptly when funds are available. Standard contract conditions include the provision of interest for delayed payment. However, no case of interest claim for payment delay has yet been reported.	
D. EFFECTIVENESS		
D.1. Is contractual performance systematically monitored and reported?	Yes. Through field visits by technical staffs, quality control tests etc.	Average
D.2. Does the agency monitor and track its contractual payment obligations?	Yes. Accounts section monitors the payment obligations through tracking the contract-wise lists.	Low
D.3. Is a complaints resolution mechanism described in national procurement documents?	Yes. Bidding and Contract documents clearly reflect PPR's specific provisions for complaint	Low

Question	Answer/Finding	Risk
	resolution mechanisms.	
D.4. Is there a formal non-judicial mechanism for dealing with complaints?	Yes. During Bidding Process: At the 1st stage, any complaint is to be submitted to the procuring entity who is obliged to address the issue within 5 working days [PPR rule 57(4), Schedule-2]. If not satisfied, the complainant may go to next higher authority gradually up to the highest administrative tier (Secretary of the concerned ministry) with time bound obligation at every stage [PPR rule 57, Schedule-2]. At the last stage, the complainant may submit the matter to the Review Panel consisting 3 to 5 persons who are eminent experts in the laws, contract implementation and technical aspects of the procurement. This panel is independent of the government control, and has the obligation to decide on the issue within 12 working days [PPR rule 60(2), Schedule-2]. During Contract Implementation: According to standard bidding documents for works and goods, there are three options: (i) "Amicable Settlement" between the procuring entity and the contractor or supplier; (ii) "Adjudication" by an independent person mutually agreed and named in the contract agreement; and (iii) "Arbitration" conducted in accordance with the Arbitration Act (Act No 1 of 2001) of Bangladesh which facilitates settlement outside the judicial court.	Low
D.5. Are procurement decisions and disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment?	Yes.	Low
E. ACCOUNTABILITY MEASURES		
E.1. Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Yes. PPR stipulates strict compliance with ethical standards called "code of ethics" [PPR rule 127(1)(b), Schedule-XII] by those involved in procurement. Any case of professional misconduct or offence shall be dealt with provisions of PPR [rule 127] and other applicable laws; such as: Anti-corruption Commission Act 2004 of the country.	Low
E.2. Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	Yes. During bid evaluation process, each member of the committee has to declare and sign written individual statement of "no business or other links to any of the competing Tenderers or Applicant" [PPR rule 8(13)(a)]. PPR [rule 55] has specific provision detailing the conflict of interest situations for the tenderers (for works and goods) or applicants (for services). According to rule 55(7), procuring entity officials, who have an interest, directly or indirectly, with a firm or individual that is Tendering or has Tendered for a Procurement proceedings of that entity shall declare its relationship with that firm or individual and consequently not participate in any proceedings concerned with that specific Procurement at any stage including from when the specifications are written and qualification criteria are established up to the Supply of Goods or performance of the Works are	Low

Question	Answer/Finding	Risk
	completed and, until all contractual obligations have been fulfilled".	
E.3. Is the commencement of procurement dependent on external approvals (formal or de-facto) that are outside of the budgeting process?	No.	Low
E.4. Who approves procurement transactions, and do they have procurement experience and qualifications?	As head of Engineering Section, the Executive Engineer (XEN) is responsible for all procurement transactions, which are finally approved by the head of procuring entity, Mayor. Currently, the XEN has been in the position for about 2 years, and working for 22 years in several pourashavas. The current Mayor has been serving the position for about 15 years.	Low
E.5. Which of the following actions require approvals outside the procurement unit or the evaluation committee, as the case may be, and who grants the approval?	All of these actions require approvals from the Mayor.	Low
m) Bidding document, invitation to pre-qualify or RFP		
n) Advertisement of an invitation for bids, pre-qualification or call for EOIs		
o) Evaluation reports		
p) Notice of award		
q) Invitation to consultants to negotiate		
r) Contracts		
E.6. Is the same official responsible for: (i) authorizing procurement transactions, procurement invitations, documents, evaluations and contracts; (ii) authorizing payments; (iii) recording procurement transactions and events; and (iv) the custody of assets?	No, the same person is not responsible for all the stated actions. Mayor is responsible for items (i) and (ii); and XEN is responsible for items (iii) and (iv)	Low
E.7. Is there a written auditable trail of procurement decisions attributable to individuals and committees?	Yes. All procurement decisions including communication / exchange of views /comments between relevant / responsible persons are recorded in the concerned file.	Low

II. General Ratings

Criterion	Risk
A. Organizational and Staff Capacity	Average
B. Information Management	Low
C. Procurement Practices	Average
D. Effectiveness	Average
E. Accountability Measures	Low
OVERALL RISK RATING	**Average**

Procurement Capacity Assessment - Agency Questionnaire

Implementing Agency – Pirojpur Pourashava

Risk Ratings	Extremely High	High	√ **Average**	Low

I. Specific Assessment and Ratings

Question	Answer/Finding	Risk
A. ORGANIZATIONAL AND STAFF CAPACITY		
A.1. How many years of experience does the head of the procurement department/ unit have in a direct procurement role?	The engineering section (ES) headed by an Executive Engineer (XEN) undertakes all procurement activities; although, it is not identified as procurement department. The position of XEN is posted by the Local Government Division (LGD) from the pool of government officials (municipal engineers employed under LGD) having engineering educational background (either graduate or diploma), and adequate working experience. Currently, Mr. M. Abu Hanif having diploma in engineering has been in the position of XEN for about 7 years. He has 29 years of general experience, and has been working for 27 years in various positions (Sub-Assistant / Assistant/ Executive Engineer- SAE/AE/XEN) in several pourashavas in the country.	Low
A.2. How many staff in the procurement department/unit are:		Low
x. Full Time?	Total 10 full time staffs in Engineering Section [XEN-1, AE-1, SAE(Civil)-2, SAE(Elec.)-1, SAE(Mech.)-1, Surveyor-1, Work Assistants-2, Office Assistant-1].	
xi. Part Time?	3 staffs: Secretary, Accountant, Accounts Assistant also provide full support in procurement activities. For water related infrastructure schemes, water superintendent also assist in the procurement process.	
xii. Seconded?	None	
A.3. Does the procurement staff have English language proficiency?	Adequate working knowledge. Currently, the staffs work with bidding documents in English language, and maintain written communication with LGED's project offices in English.	Low
A.4. Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	The number and qualifications of the existing staffs are capable of undertaking additional procurement activities similar to those currently being practised. Generally, for improved design and technology for works and goods (infrastructures, equipment etc.), short term expertise support would be essential. If new categories of procurement are introduced, staff trainings would be mandatorily required to familiarize them with new elements / aspects of procurement, such as: technology, method of construction, equipment, plants etc.	Average
A.5. Does the unit have adequate facilities, such as PCs, internet connections, photocopy facilities, printers, etc., to undertake the planned procurement?	Not Adequate. New facilities would be required; because, existing PCs and printers are old, although working. <u>Existing facilities within the pourashava:</u> - 6 PCs (2 in Engineering Section, 1 in Accounts Section & 3 in other sections); - 4 Laptops (2 in Engineering Section & 2 in	Average

Question	Answer/Finding	Risk
	other sections); - 6 Printers (1 Laser printer in Engineering Section, 5 in other sections); - No Photocopy machine; and - 1 old Fax machine in working condition. Additional facilities tentatively required: - 3 PCs (2 in Engineering Section & 1 in Accounts Section) networked within the office; - 2 internet connectivity (GSM / 4G-Wimax modems) from alternate sources (Grameen Phone /City Cell / Teletalk / Banglalion); - 1 Laptop in Engineering Section; - 2 Laser Printers (1 in Engineering Section & 1 in Accounts Section); - 1 Photocopy machine; and - 1 Fax machine.	
A.6. Does the agency have a procurement training program?	No, the pourashava does not have any training program of its own. But sends the staffs to trainings organized by other agencies /departments, such as: LGED, NILG etc.	Average
A.7. Does the agency have a Procurement Committee that is independent from the head of the agency?	Yes, 3 Procurement Committees constituted following the circular by LGD: Tender Opening Committee (TOC): 3 persons:XEN-1, AE-1, SDE-RHD/DPHE-1; and Tender Evaluation Committee (TEC): 8 persons: XEN-1, AE-1, Secretary-1, counsellors-2 (including 1 nominated female), Representative of Deputy Commissioner of the district (DD, LG)-1, Representative of PWD (SDE)-1 & Representative of RHD (SDE)-1. Tender Evaluation Committee (TEC) for STWSSP (water & sanitation project for which approving authority at the project HQ level of DPHE): 5 persons: Mayor-1, XEN-1, XEN-DPHE-1, Representative of PWD (XEN)-1 & Representative of BWDB (XEN)-1. Under the prevailing procurement laws, these committees work independently from the procuring entity (pourashava).	Low
A.8. Does the agency have a procurement department/unit, including a permanent office that performs the function of a Secretariat for the Procurement Unit, and which serves as the main support unit of the Procurement Committee??	Yes. The engineering section (ES) functions as procurement department. It has permanent office, staffs and facilities. Under the procurement laws, this section mandatorily provides secretarial support to the procurement committees.	Low
A.9. If yes, what type of procurement does it undertake?	Road, bridge, culvert, drain, water supply system, Lighting facilities, Sanitation etc.	
A.10. At what level does the department/unit report (to the head of agency, deputy etc.)?	To the head of pourashava, Mayor.	Low
A.11. Do the procurement positions in the agency have job descriptions, which outline specific roles, minimum technical requirements and career routes?	The positions of pourashava are run by the circulars issued by the Local Government Division (LGD). All staff positions have job descriptions, which outline specific roles, minimum technical requirements and career routes.	Low
A.12. Is there a procurement process manual for goods and works?	Yes, the Public Procurement Rules (PPR) 2008 generally used as guidelines or manual which supplements and details all the provisions of Public Procurement Act (PPA) 2006. LGD arranged adequate publication of PPA and PPR, and distributed to each pourashava.	Low

Question	Answer/Finding	Risk
A.13. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes, PPR is updated from time to time. It stipulates that conditions of financing agreement shall prevail for procurement under foreign-assisted projects.	
A.14. Is there a procurement process manual for consulting services?	Yes, PPR covers consulting services; however, pourashavas are not required to procure services under the proposed project.	
A.15. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes, PPR is updated from time to time. It stipulates that conditions of financing agreement shall prevail for procurement under foreign-assisted projects.	
A.16. Are there standard documents in use, such as Standard Procurement Documents/Forms, and have they been approved for use on ADB funded projects?	Yes, there are standard procurement documents / forms issued by CPTU. For ADB projects, these documents are modified incorporating ADB's requirements.	
A.17. Does the ToR follow a standard format such as background, tasks, inputs, objectives and outputs?	Yes, the standard documents issued by CPTU follow ADB format; however, pourashavas are not required to procure services under the proposed project.	
A.18. Who drafts the procurement specifications?	Sub-Assistant Engineer and Assistant Engineer. For procurement under a project, the staffs follow standards set by the design experts / consultants or the Project Director.	Low
A.19. Who approves the procurement specifications?	Specifications are generally approved by the Executive Engineer, who submits to the Mayor for final approval. For procurement under a project, the staffs follow project standards approved by the Project Director.	
A.20. Who drafts the bidding documents?	Sub-Assistant Engineer and Assistant Engineer. For procurement under a project, the staffs follow project standards approved by the Project Director.	
A.21. Who manages the sale of the bidding documents?	Accounts Section of the pourashava.	
A.22. Who identifies the need for consulting services requirements?	Any kind of procurement needs are initially identified by the Engineering Section.	Average
A.23. Who drafts the terms of reference (ToR)?	Generally, the pourashava does not procure any services. If required, Engineering Section would prepare the ToR. For procurement of services under a project, the relevant experts at the project office would prepare the ToR.	
A.24. Who prepares the request for proposals (RFPs)?	If required, Engineering Section would prepare the RFPs. For procurement of services under a project, the relevant experts at the project office would prepare the RFPs.	
B. INFORMATION MANAGEMENT		
B.1. Is there a referencing system for procurement files?	Yes.	Low
B.2. Are there adequate resources allocated to record keeping infrastructure, which includes the record keeping system, space, equipment and personnel to administer the procurement records management functions within the agency?	Yes. There is limitation of space in the existing old office building. However, the new building is scheduled to be complete within next 12 to 18 months, when adequate space would be available.	Low
B.3. For what period are records kept?	Generally not less than 5 years. PPR [rule 43(1), Schedule-2] stipulates minimum time as 5 years. Normally, records are not destroyed.	Low
B.4. Are copies of bids or proposals retained with the evaluation?	Yes. Kept in the file concerned with evaluation of bids.	Low

Question	Answer/Finding	Risk
B.5. Are copies of the original advertisements retained with the pre-contract papers?	Yes. Kept in the file concerned with invitation for bids.	Low
B.6. Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Yes. There is one file for each contract.	Low
B.7. Are copies of invoices included with the contract papers?	Yes. Kept in the file concerned with individual contract.	Low
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1. Has the agency undertaken foreign-assisted procurement of goods or works recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Yes, ADB & GOB funded Secondary Towns Water Supply and Sanitation Project executed by Department of Public Health Engineering (DPHE). In addition, there are projects funded by government's own resources: 1) Important Town Infrastructure Development project under LGED from 2011 (on going), and 2) District Towns Infrastructure Development Project under LGED from 2008 (on going).	Low
C.2. If the above answer is yes, what were the major challenges?	Not Applicable.	
C.3. Is there a systematic process to identify procurement requirements (for a period of one year or more)	Yes. A potential list of requirements is prepared in the months of June-July each year based on citizen's demands or field survey by the Engineering Section.	
C.4. Is there a minimum period for preparation of bids and if yes how long?	Yes. When the decision about a procurement scheme is final, the Engineering Section takes 7 to 15 days to prepare the bidding documents. After the Invitation for Bids (IFB) bids has been published in the newspapers, the minimum preparation time for the bidders according to PPR [rule 61(4), Schedule-2] is as follows: 14 days for estimated value up to BDT 3 million (approx. US$ 37,500); 21 days for estimated value above BDT 3 million and up to BDT 50 million (approx. US$ 625,000); and 28 days for estimated value above BDT 50 million.	Average
C.5. Are all queries from bidders replied to in writing?	Generally, bidders make queries only verbally to the concerned staffs who also clarify verbally face to face. Clarifications are also given during pre-bid meetings if bidders remain present, and brief minutes recorded.	
C.6. Does the bidding document state the date and time of bid opening?	Yes. These are stated in the bidding data sheet.	Low
C.7. Is the opening of bids done in public?	Yes. The procedure is detailed in PPR [rule 97].	Low
C.8. Can late bids be accepted?	No. Late bids are returned unopened according to PPR [rule 97(6)].	
C.9. Can bids be rejected at bid opening?	No bids can be rejected at the time of opening according to PPR [rule 97(6)].	
C.10. Are minutes of the bid opening taken?	Tender Opening Sheet (TOS) is prepared which includes signature of officials and bidders present in the meeting. Apart from opening sheet, minutes are not prepared.	Average
C.11. Who may have a copy of the minutes?	TOS is distributed to all concerned offices including the project office (when applicable). Bidders do not generally express interest to receive the TOS or any minutes; because, they	

Question	Answer/Finding	Risk
	record the information (name of bidders and prices) by themselves during "read–out" session. There is also logistical limitation to make photocopy and prompt distribution of the TOS to the bidders, while ensuring security of the TOS.	
C.12. Are the minutes free of charge?	In accordance with PPR [rule 97(7)], TOS has to be signed by the opening officials and attending bidders, and has to be distributed to all who attended the opening session, and to the head of procuring entity and relevant consultant / project offices. There is no provision of price or cost for distribution of TOS or opening minutes.	
C.13. Who undertakes the evaluation of bids (individual(s), permanent committee, ad-hoc committee)?	TEC (as detailed in A.7 above) undertakes evaluation of bids following the provisions of PPR [rule 98].	Low
C.14. What are the qualifications of the evaluators with respect to procurement and the goods and/or works under evaluation?	Current TEC consisted of 8 persons, 6 of whom are responsible government officials having adequate experience in public procurement, and 2 are elected or selected public representatives (counsellors). 4 of them have engineering educational background; either graduation or at least diploma. 3 members come from external agency outside the controlling authority of the pourashava.	Low
C.15. Is the decision of the evaluators final or is the evaluation subject to additional approvals?	Recommendation of TEC is subject to concurrence of the project office (when applicable), and approval of the Mayor.	Low
C.16. Using at least three real examples, how long does it normally take from the issuance of the invitation for bids up to contact effectiveness?	Usually not more than 60 days required from the issuance of the invitation for bids up to contact signing /effectiveness for estimated cost of contract more than BDT 3 million (approx. US$ 37,500) for which bid preparation time is minimum 21 days. PPR allows maximum 14 days for bid evaluation process, maximum 7 days for approval at the level of Mayor, 28 days from issuance of Notification of Award and Contract signing [rule 8(14), schedule -3, Part-A & rule 102(11), Schedule-2].	Low
C.17. Are there processes in place for the collection and clearance of cargo through ports of entry?	Not Applicable. Pourashava has not yet done any procurement from abroad.	Average
C.18. Are there established goods receiving procedures?	Yes. Generally, the user unit /official(s) and the store-in-charge receive the goods examining the proper quality and quantity.	Low
C.19. Are all goods that are received recorded as assets or inventory in a register?	Yes. Store-in-charge is responsible for recording the items in the stock / inventory register.	Low
C.20. Is the agency/procurement department familiar with letters of credit?	Not Applicable. Pourashava has not yet done any procurement from abroad.	Average
C.21. Does the procurement department register and track warranty and latent defects liability periods?	Yes, warranty and latent defects liability periods are recorded in the concerned contract file, which is kept open until the specified period is over, and all pending issues are resolved.	Low
Consulting Services		
C.22. Has the agency undertaken foreign-assisted procurement of consulting services recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Not Applicable. Pourashava has not yet done any procurement of services. There was selection of a NGO about 2 years back which was done following the procurement rules (PPR).	Low
C.23. If the above answer is yes, what were the	Not Applicable.	

Question	Answer/Finding	Risk
major challenges?		
C.24. Are assignments and requests for expressions of interest (EOIs) advertised?	Not Applicable. Pourashava is not likely to be involved in any procurement of services under the proposed project.	Low
C.25. Is a consultants' selection committee formed with appropriate individuals, and what is its composition (if any)?	Not Applicable.	Low
C.26. What criteria is used to evaluate EOIs?	Not Applicable.	Low
C.27. Historically, what is the most common method used (QCBS, QBS, etc.) to select consultants?	Not Applicable.	Low
C.28. Do firms have to pay for the RFP document?	Not Applicable.	Low
C.29. Does the proposal evaluation criteria follow a pre-determined structure and is it detailed in the RFP?	Not Applicable.	Low
C.30. Are pre-proposal visits and meetings arranged?	Not Applicable.	Low
C.31. Are minutes prepared and circulated after pre-proposal meetings?	Not Applicable.	
C.32. To whom are the minutes distributed?	Not Applicable.	
C.33. Are all queries from consultants answered/addressed in writing?	Not Applicable.	Low
C.34. Are the technical and financial proposals required to be in separate envelopes?	Not Applicable.	Low
C.35. Are proposal securities required?	Not Applicable.	Low
C.36. Are technical proposals opened in public?	Not Applicable.	Low
C.37. Are minutes of the technical opening distributed?	Not Applicable.	
C.38. Do the financial proposals remain sealed until technical evaluation is completed?	Not Applicable.	Low
C.39. Who determines the final technical ranking and how?	Not Applicable.	
C.40. Are the technical scores sent to all firms?	Not Applicable.	
C.41. Are the financial proposal opened in public?	Not Applicable.	Low
C.42. Are minutes of the financial opening distributed?	Not Applicable.	
C.43. How is the financial evaluation completed?	Not Applicable.	Low
C.44. Are face to face contract negotiations held?	Not Applicable.	
C.45. How long after financial evaluation is negotiation held with the selected firm?	Not Applicable.	
C.46. What is the usual basis for negotiation?	Not Applicable.	
C.47. Are minutes of negotiation taken and signed?	Not Applicable.	
C.48. How long after negotiation is the contract signed?	Not Applicable.	Low
C.49. Is there an evaluation system for measuring the outputs of consultants?	Not Applicable.	Low
Payments		
C.50. Are advance payments made?	No advance payment is made.	Low
C.51. What is the standard period for payment included in contracts?	According to PPR [rule 39(22), Schedule-2], payment has to be made within 28 days from the date of issuance of acceptance certificate to the contractor / supplier. This period is included in the standard contract conditions.	Average
C.52. On average, how long is it between receiving a firm's invoice and making payment?	The pourashava usually makes payment within 7 days.	
C.53. When late payment is made, are the beneficiaries paid interest?	Usually, payments are made promptly when funds are available. Standard contract conditions include the provision of interest for	

Question	Answer/Finding	Risk
	delayed payment. However, no case of interest claim for payment delay has yet been reported.	
D. EFFECTIVENESS		
D.1. Is contractual performance systematically monitored and reported?	Yes. Through field visits by technical staffs, quality control tests etc.	Average
D.2. Does the agency monitor and track its contractual payment obligations?	Yes. Accounts section monitors the payment obligations through tracking the contract-wise lists.	Low
D.3. Is a complaints resolution mechanism described in national procurement documents?	Yes. Bidding and Contract documents clearly reflect PPR's specific provisions for complaint resolution mechanisms.	Low
D.4. Is there a formal non-judicial mechanism for dealing with complaints?	Yes. During Bidding Process: At the 1st stage, any complaint is to be submitted to the procuring entity who is obliged to address the issue within 5 working days [PPR rule 57(4), Schedule-2]. If not satisfied, the complainant may go to next higher authority gradually up to the highest administrative tier (Secretary of the concerned ministry) with time bound obligation at every stage [PPR rule 57, Schedule-2]. At the last stage, the complainant may submit the matter to the Review Panel consisting 3 to 5 persons who are eminent experts in the laws, contract implementation and technical aspects of the procurement. This panel is independent of the government control, and has the obligation to decide on the issue within 12 working days [PPR rule 60(2), Schedule-2]. During Contract Implementation: According to standard bidding documents for works and goods, there are three options: (i) "Amicable Settlement" between the procuring entity and the contractor or supplier; (ii) "Adjudication" by an independent person mutually agreed and named in the contract agreement; and (iii) "Arbitration" conducted in accordance with the Arbitration Act (Act No 1 of 2001) of Bangladesh which facilitates settlement outside the judicial court.	Low
D.5. Are procurement decisions and disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment?	Yes.	Low
E. ACCOUNTABILITY MEASURES		
E.1. Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Yes. PPR stipulates strict compliance with ethical standards called "code of ethics" [PPR rule 127(1)(b), Schedule-XII] by those involved in procurement. Any case of professional misconduct or offence shall be dealt with provisions of PPR [rule 127] and other applicable laws; such as: Anti-corruption Commission Act 2004 of the country.	Low
E.2. Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	Yes. During bid evaluation process, each member of the committee has to declare and sign written individual statement of "no business or other links to any of the competing Tenderers or Applicant" [PPR rule 8(13)(a)]. PPR [rule 55] has specific provision detailing the conflict of interest situations for the tenderers (for works and goods) or applicants (for services). According to rule 55(7), procuring entity officials, who have an interest,	Low

Question	Answer/Finding	Risk
	directly or indirectly, with a firm or individual that is Tendering or has Tendered for a Procurement proceedings of that entity shall declare its relationship with that firm or individual and consequently not participate in any proceedings concerned with that specific Procurement at any stage including from when the specifications are written and qualification criteria are established up to the Supply of Goods or performance of the Works are completed and, until all contractual obligations have been fulfilled".	
E.3. Is the commencement of procurement dependent on external approvals (formal or de-facto) that are outside of the budgeting process?	No.	Low
E.4. Who approves procurement transactions, and do they have procurement experience and qualifications?	As head of Engineering Section, the Executive Engineer (XEN) is responsible for all procurement transactions, which are finally approved by the head of procuring entity, Mayor. Currently, the XEN has been in the position for about 7 years, and working for 27 years in several pourashavas. The current Mayor has been serving the position for about 10 years.	Low
E.5. Which of the following actions require approvals outside the procurement unit or the evaluation committee, as the case may be, and who grants the approval?	All of these actions require approvals from the Mayor.	Low
s) Bidding document, invitation to pre-qualify or RFP		
t) Advertisement of an invitation for bids, pre-qualification or call for EOIs		
u) Evaluation reports		
v) Notice of award		
w) Invitation to consultants to negotiate		
x) Contracts		
E.6. Is the same official responsible for: (i) authorizing procurement transactions, procurement invitations, documents, evaluations and contracts; (ii) authorizing payments; (iii) recording procurement transactions and events; and (iv) the custody of assets?	No, the same person is not responsible for all the stated actions. Mayor is responsible for items (i) and (ii); and XEN is responsible for items (iii) and (iv)	Low
E.7. Is there a written auditable trail of procurement decisions attributable to individuals and committees?	Yes. All procurement decisions including communication / exchange of views /comments between relevant / responsible persons are recorded in the concerned file.	Low

II. General Ratings

Criterion	Risk
A. Organizational and Staff Capacity	Average
B. Information Management	Low
C. Procurement Practices	Average
D. Effectiveness	Average
E. Accountability Measures	Low
OVERALL RISK RATING	**Average**

Executing Agency Capacity Assessment Questionnaire

Agency: Local Government Engineering Department (LGED)

Part A. General Agency Resource Assessment	Response
A.1. Is there a procurement department?	Because of the nature of the job decentralized in the whole country, procurement is being conducted by several procuring entities of LGED working in different levels as such LGED does not have a separate procurement department exclusively responsible for the procurement. However, LGED has a procurement unit in the Headquarter. The procurement unit provides policy issues and directives related to procurement to all procuring entities of the department.
A.2. What procurement does it undertake?	LGED undertakes all kinds of public procurement related to goods, works and services mainly for developing urban and rural infrastructures as well as small scale water resources projects.
A.3. Are the staff provided with written job descriptions?	Yes.
A.4. How many years experience does the head of the procurement unit have in a direct procurement role?	30 years.
A.5. How many staff in the procurement department are:	
i. Full Time?	10 (ten) nos.
ii. Part Time?	--
iii. Seconded?	--
A.6. At what level does the department report (to the head of agency, deputy etc.)?	Head of agency, Chief Engineer
A.7. Do the staff that will be involved with the procurement have English language skills sufficient to undertake international procurement?	Yes, the procuring entities those who will be involved in the procurement have sufficient proficiency in English. It may be mentioned here that the whole language skills sufficient procurement document in terms of bidding document, specification, public procurement law and rules are being practiced in English. The LGED procuring entities are being continuously trained up with the procurement law, rules and bidding documents and contract management. Hence, English language will not be at all any problem for LGED procuring entities.
A.8. Is the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	With national and international training and huge procurement practice in different national and foreign aided projects, the capacity of LGED officials and staff has developed sufficiently at a level to undertake additional procurement proposed under the project. The Ministry of Planning has been conducting 3-week long residential training course for developing the knowledge and skill of the procuring entities for major procuring departments of Bangladesh. LGED is one of those departments receiving that kind of extensive training on procurement. Most of the Procuring entities of LGED have been trained on that course. Some of the LGED officers have completed post-graduation degree on procurement from the abroad. In addition, some engineers of the department were trained on procurement under FIDIC condition. Besides, LGED has been conducting different kinds training courses on procurement for all levels of staff involved with the procurement.
A.9. Does the unit have adequate facilities such as PCs, internet	As mentioned earlier that the LGED procurement unit provides procurement directives and policy guidelines for procurement but

connections, photocopy facilities, printers etc. to undertake the expected procurement?	that unit does not involve with the procurement. However, the unit is equipped with facilities of PCs, internet connections, photocopy facilities, printers etc. The procurement under the proposed project will be undertaken by PMU & PIUs; which will be equipped with adequate facilities such as: PCs, Internet Connections, photocopy facilities, printers etc. for smooth implementation of procurement.
A.10. Is there a procurement training program?	As mentioned earlier, there are various training programs on procurement arranged by the Ministry of Planning and LGED for the officials and staffs responsible for procurement. This kind of training programs continues round the year.
Part B. Agency Procurement Processes, Goods and Works	
B.1. Has the agency undertaken foreign assisted procurement of goods or works recently (last 12 months, or last 36 months)? (If yes funded by whom and name of the Project)	Yes.
B.2. If the above is yes, what where the major challenges?	Some major challenges are as follows: • Procurement of consultants usually causes delay, which leads to start-up delay in civil works and goods; • Designing realistic procurement plan after considering all uncertainties.
B.3. Is there a procurement process manual for goods and works?	Yes. All public procurements are being undertaken in accordance with the Public Procurement Rules-2008 supported by Public Procurement Act-2006. Comprehensive procurement process for goods, works and services are described in that document. All those documents are available in the Central Procurement Technical Unit (CPTU) website: www.cptu.gov.bd
B.4. If there is a manual is it up to date and does it cover foreign assisted procurement?	Yes. The public procurement rules are amended from time to time and those amendments are notified to all procuring entities through notification in the Government Gazette. All amendments are also available in the CPTU website. Such document is used for foreign assisted procurement if that document is acceptable to the concerned donor. Otherwise, customized procurement documents are prepared with concurrence of the donor and that document is used for foreign assisted procurement.
B.5. Is there a systematic process to identify procurement requirements (1 year or more)	Yes. Considering the available resources against prioritized requirement, all procuring entities of LGED have to submit the annual procurement plans to the head of procuring entity for approval at the dead end of the year for the following year. Procurement requirements are determined from the procurement plan. However, such plans are modified time to time depending on the availability of resources or other reasons.
B.6. Who drafts the specifications?	The Maintenance Unit and Quality Control Unit jointly publish standard general specifications of civil works with rates at the dead end of the financial year for the following year. The specifications and rates are updated in each year with the assistance of experts working in those units.
B.7. Who approves the specification?	The Head of Procuring Entity i.e. the Chief Engineer approves the specifications.
B.8. Are there standard bidding documents in use and have they been approved for use on ADB funded projects?	Yes. Under the purview of the Public Procurement Rule, the standard bidding documents have been prepared by the Central Procurement Technical Unit (CPTU) for all kind of procurements. These documents are available in the CPTU website: www.cptu.gov.bd Those standard bidding documents are used for foreign aided procurements if those are acceptable to the donor. Otherwise, customized bidding documents are prepared in concurrence with the donor for the foreign aided procurement. Most of the donors including ADB accepted the bidding

	documents of CPTU for National Competitive Bidding (NCB).
B.9. Who drafts the bidding documents?	Central Procurement Technical Unit (CPTU) is responsible for preparation and modification of Standard Bidding Documents. The project management office is responsible for making customized bidding documents acceptable to the respective donors.
B.10. Who manages the sale of the document?	In case of works procurement, the District Executive Engineer (Procuring Entity) manages the sale of all bidding documents. The biding documents are sold at least by the following offices: 1. The Executive Engineer of the district (procuring Entity); 2. The Upazila Engineer of the Upazila where the site is located; 3. Superintending Engineer of the concerned LGED region; and 4. The Project Director, of the concerned project. However, records of all sales are available at the office of the Procuring Entity. The Project Director becomes the procuring entity for the case of goods and services and he/she manages the sales of bidding document of those procurement.
B.11. Are all queries from bidders replied to in writing?	Yes.
B.12. Is there a minimum period for preparation of bids and if yes how long?	Yes. The minimum period for preparation of tender for NCB procurement is 28 days since the publication of the tender in the newspaper but the same is 42 days for ICB procurement.
B.13. Does the bidding document state the date and time of opening and how close is it to the deadline for submission?	Yes. Bids are opened within 3 (three) hours after closing.
B.14. Is the opening public?	Yes.
B.15. Can late bids be accepted?	No.
B.16. Can bids be rejected at bid opening?	No.
B.17. Are minutes taken?	Yes.
B.18. Who may have a copy of the minutes?	The bidders or their authorized representatives those who attend the opening of the tenders.
B.19. Are the minutes free of charge?	Yes.
B.20. Who undertakes the evaluation (individual(s), permanent committee, ad-hoc committee)?	The evaluations are undertaken by permanent Tender Evaluation Committees formed as per the Public Procurement Rules and subsequent directives by the procurement unit.
B.21. What are the qualifications of the evaluators in respect to procurement and the goods and works under evaluation?	For LGED officials, minimum Graduate in Engineering.
B.22. Is the decision of the evaluators final or is the evaluation subject to additional approvals?	The evaluators can only recommend to the appropriate approving authority determined in accordance with the Government's Delegation of Financial Power for approval.
B.23. Using at least three real examples how long between the issue of the invitation for bids and contact effectiveness?	Maximum 4 (four) months.
B.24. Are there processes in place for the collection and clearance of cargo through ports of entry?	Yes.
B.25. Are there established goods receiving procedures?	Yes.
B.26. Are all goods received recorded as assets or inventory in a register or similar?	Yes.
B.27. Is the agency/procurement	Yes.

department familiar with letters of credit?	
B.28. Does the procurement department register and track warranty and latent defects liability periods?	Yes.
Part C. Agency Procurement Processes, Consulting Services	
C.1. Has the agency undertaken foreign assisted procurement of consulting services recently (last 12 months, or last 36 months)?	Yes.
C.2. If the above is yes what where the major challenges?	Delay in getting concurrence from the development partners in various layers of procurement process such as: EOI, RFP, Technical Evaluation, Financial Evaluation, Combined Evaluation, Contract Negotiation, Agreement etc.
C.3. Is there a procurement process manual for consulting services procurement?	Yes.
C.4. Is the manual up to date and does it cover foreign assisted projects?	Yes.
C.5. Who identifies the need for consulting services requirements?	LGED and the development partners.
C.6. Who drafts the ToR?	LGED and the development partners.
C.7. Do the ToR followed a standard format such as background, tasks, inputs, objectives and outputs?	Yes.
C.8. Who prepares the request for proposals?	The designated Project Director of LGED.
C.9. Are assignments advertised and expressions of interest called for?	Yes.
C.10. Is a consultants' selection committee formed with appropriate individuals in terms of procurement and technical expertise?	The Proposal Evaluation Committee (PEC) is a permanent committee formed by the Head of Procuring Entity.
C.11. What criteria is used to evaluate EOIs?	The major criteria are as follows: • Consultancy firm's facilities and area of expertise; • Similar assignment; • Experience in similar operating environments and conditions; • Professional qualifications and adequate resources; • Managerial strength and financial capacity.
C.12. Historically what is the most common method used (QCBS, QBS etc.)	QCBS
C.13. Do firms have to pay for the proposal document?	No.
C.14. Does the evaluative criteria follow a pre-determined structure and is it detailed in the RFP?	Yes.
C.15. Are pre-proposal visits and meetings arranged?	Yes.

C.16. Are minutes prepared and circulated after pre-proposal meetings?	Yes.
C.17. To who are minutes distributed?	The consulting firms or their authorized representatives those who present in the meeting and those consulting firms who received RFP documents.
C.18. Are all queries from consultants answered to in writing?	Yes.
C.19. Are the financial and technical proposals in separate envelopes?	Yes.
C.20. Are proposal securities required?	No.
C.21. Are technical proposals opened in public?	Yes.
C.22. Do the financial proposals remain sealed until technical evaluation is completed?	Yes.
C.23. Are minutes of technical opening distributed?	Yes.
C.24. Who determines the final technical ranking and how?	The Proposal Evaluation Committee determines the final technical ranking according to predetermined evaluation criteria.
C.25. Are the technical scores published and sent to all firms?	Technical scores are disclosed/ published prior to opening financial proposal.
C.26. Is the financial proposal opening public?	Yes.
C.27. Are there minutes taken and distributed of financial proposal opening?	Yes.
C.28. How is the financial evaluation completed?	Financial Evaluation is carried out in accordance with the procurement guidelines. In general, arithmetical calculations are checked and corrected. If any work was proposed in the technical proposal but not' priced in the financial proposal must be loaded by the highest price of the participating firms. All taxes and provisional sum must be taken out from the financial proposal for cost comparison.
C.29. Are face to face contract negotiations held?	Yes
C.30. How long after financial evaluation is the selected firm to negotiate?	3 (three) weeks.
C.31. What is the usual basis for negotiation?	• Methodology of Works; • Work plan: • Organization and staffing: • Deliverable; • Proposed contract price etc.
C.32. Are minutes of negotiation taken and signed?	Yes.
C.33. How long after negotiations until the contract is signed?	2 (two) months
C.34. Are advance payments made?	Yes.
C.35. Is there an evaluation system for measuring the outputs of consultants?	No. However, the LGED officials are aware of this evaluation system and capable of managing a balance between the expenditure against the consultant input compared to delivered output.
Part D. Process Oversight and Control	

D.1. Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Yes.
D.2. Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	Yes.
D.3. Is the commencement of procurement dependent on external approvals (formal or de-facto) outside of the budgeting process?	Yes.
D.4. Who approves procurement transactions and do they have procurement experience and qualifications?	According to delegation of financial power of the Government, different layers of approving authority ranging from district level Executive Engineer, Project Director, HOPE, Line Ministry and Cabinet Committee approves procurement transactions within their financial power.
D.5. Which of the following actions require approval outside of the procurement unit or a permanent evaluation committee and who grants the approval?	
a) Bidding document, invitation to pre-qualify or request for proposal	HOPE and Development Partner
b) Advertisement of an invitation for bids, pre-qualification or call for expressions of interest	HOPE
c) Evaluation reports	As per delegation of financial power, HOPE or Line Ministry or Cabinet Committee (CCGP) and Development Partner.
d) Notice of award	HOPE and Development Partner.
e) Invitation to consultants to negotiate	HOPE and Development Partner.
f) Contracts	HOPE and Development Partner.
D.6. Is contractual performance systematically monitored and reported upon?	Yes.
D.7. Does the agency monitor and track its contractual payment obligations?	Yes.
D.8. On average how long is it between receiving a firm's invoice and making payment?	2(two) weeks.
D.9. What is the standard period for payment included in contracts?	2(two) weeks.
D.10. When payment is made late are the beneficiaries paid interest?	Yes, if the claim is justified
D.11. Are payments authorized by the same individuals empowered to approve invitation documents, evaluations and contracts?	No.
D.12. Is there a written auditable trail of procurement decisions attributable to individuals and committees?	No.
D.13. Are procurement decisions and	Yes.

disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment?	
D.14. Is there a formal non-judicial mechanism for dealing with complaints?	Yes.
D.15. Is a complaints resolution mechanism described in national procurement documents?	Yes.
Part E. Records Keeping	
E.1. Is there a referencing system for procurement files?	Yes.
E.2. Are original contracts secured in a fire and theft proof location?	Yes.
E.3. Are copies of bids or proposals retained with the evaluation?	Yes.
E.4. Are copies of the original advertisements retained with the pre-contract papers?	Yes.
E.5. Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Yes.
E.6. Are copies of invoices included with contract papers?	Invoices are not included in the contract but are kept in separate files containing the copy of the contract and related correspondences.
E.7. For what period are records kept?	5 (five) years.

Procurement Capacity Assessment - Agency Questionnaire

Co-Executing / Implementing Agency – Department of Public Health Engineering (DPHE)

Risk Ratings	Extremely High	High	Average	√ Low

I. Specific Assessment and Ratings

Question	Answer/Finding	Risk
A. ORGANIZATIONAL AND STAFF CAPACITY		
A.1. How many years of experience does the head of the procurement department/ unit have in a direct procurement role?	DPHE has 72 procuring Entities (1 in each district and others in H/Q) because of its decentralized job nature. Each procuring entity is led by an officer having at least 12 years of procuring experience.	Low
A.2. How many staff in the procurement department/unit are:	Each of the procuring entity have at least 12 no. of staffs.	Low
xiii. Full Time?	All staffs are full time.	
xiv. Part Time?	None.	
xv. Seconded?	None.	
A.3. Does the procurement staff have English language proficiency?	Yes. Adequate working knowledge.	Low
A.4. Are the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project?	Yes. Under the project, DPHE will not be directly involved in procurement activities.	Low
A.5. Does the unit have adequate facilities, such as PCs, internet connections, photocopy facilities, printers, etc., to undertake the planned procurement?	Yes. The core establishment of DPHE has at least minimum facilities. PIU office will be supported by the Project.	Low
A.6. Does the agency have a procurement training program?	DPHE has regular training program including procurement. Under a WB supported project of CPTU, most of the staffs have been trained and under process of getting training (3 week duration).	Low
A.7. Does the agency have a Procurement Committee that is independent from the head of the agency?	Yes. PEC/TEC and TOC are formed following PPR.	Low
A.8. Does the agency have a procurement department/unit, including a permanent office that performs the function of a Secretariat for the Procurement Unit, and which serves as the main support unit of the Procurement Committee??	All the committees are supported by the department's permanent setups (District offices for field level and divisions for H/Q) as well as its administrative channels. There is no separate procurement department in the HQ to perform as Secretariat for procurement Unit that serves as the support unit of Procurement committees.	Low
A.9. If yes, what type of procurement does it undertake?	--	
A.10. At what level does the department/unit report (to the head of agency, deputy etc.)?	All the Procuring Entities (72 nos.) directly submit their monthly expenditure statement to the Chief Accounts General office of the Government of Bangladesh. Other financial and procurement related reports are submitted to the administrative authority of the departments.	Low
A.11. Do the procurement positions in the agency have job descriptions, which outline specific roles, minimum technical requirements and career routes?	All the positions responsible for the government procurement have their specific job description and career routs as per the approved government recruitment and promotion regulations.	Low
A.12. Is there a procurement process manual for goods and works?	All procurement is done as per PPR 2008 and PPA 2006.	Low
A.13. If there is a manual, is it up to date and	Yes. As per PPR, all the foreign assisted	

Question	Answer/Finding	Risk
does it cover foreign-assisted projects?	project will also follow PPR 2008 and PPA 2006 if not otherwise specified by the donors and agreed by the Government of Bangladesh.	
A.14. Is there a procurement process manual for consulting services?	Yes	
A.15. If there is a manual, is it up to date and does it cover foreign-assisted projects?	Yes	
A.16. Are there standard documents in use, such as Standard Procurement Documents/Forms, and have they been approved for use on ADB funded projects?	Yes	
A.17. Does the ToR follow a standard format such as background, tasks, inputs, objectives and outputs?	Yes.	
A.18. Who drafts the procurement specifications?	Respective Procurement Entity	Low
A.19. Who approves the procurement specifications?	Head of Procuring Entity	
A.20. Who drafts the bidding documents?	Respective Procurement Entity	
A.21. Who manages the sale of the bidding documents?	Respective Procurement Entity & other places as per PPR.	
A.22. Who identifies the need for consulting services requirements?	As per donor's requirement and respective project offices.	Low
A.23. Who drafts the terms of reference (ToR)?	Respective Project Office.	
A.24. Who prepares the request for proposals (RFPs)?	Respective Project Office.	
B. INFORMATION MANAGEMENT		
B.1. Is there a referencing system for procurement files?	Yes.	Low
B.2. Are there adequate resources allocated to record keeping infrastructure, which includes the record keeping system, space, equipment and personnel to administer the procurement records management functions within the agency?	Yes.	Low
B.3. For what period are records kept?	As per PPR.	Low
B.4. Are copies of bids or proposals retained with the evaluation?	Yes.	Low
B.5. Are copies of the original advertisements retained with the pre-contract papers?	Yes	Low
B.6. Is there a single contract file with a copy of the contract and all subsequent contractual correspondence?	Yes	Low
B.7. Are copies of invoices included with the contract papers?	No. Kept separately.	Low
C. PROCUREMENT PRACTICES		
Goods and Works		
C.1. Has the agency undertaken foreign-assisted procurement of goods or works recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Yes. ADB, IDB, UNICEF, JICA, World Bank.	Low
C.2. If the above answer is yes, what were the major challenges?	In few cases Delay in getting concurrence from the development partners.	
C.3. Is there a systematic process to identify procurement requirements (for a period of one year or more)	Yes the yearly procurement plan is to be approved in advance as per PPR	
C.4. Is there a minimum period for preparation of bids and if yes how long?	Yes. For NCB-28 days and ICB – 42 days and other cases as per PPR.	Low
C.5. Are all queries from bidders replied to in writing?	Yes.	

Question	Answer/Finding	Risk
C.6. Does the bidding document state the date and time of bid opening?	Yes.	Low
C.7. Is the opening of bids done in public?	Yes.	Low
C.8. Can late bids be accepted?	No.	
C.9. Can bids be rejected at bid opening?	No.	
C.10. Are minutes of the bid opening taken?	Yes.	Low
C.11. Who may have a copy of the minutes?	Bidders or Authorized representatives of the Bidders who attended the opening of the Tender.	
C.12. Are the minutes free of charge?	Yes.	
C.13. Who undertakes the evaluation of bids (individual(s), permanent committee, ad-hoc committee)?	Permanent Tender evaluation committee has been formed following PPR.	Low
C.14. What are the qualifications of the evaluators with respect to procurement and the goods and/or works under evaluation?	Minimum at the rank of 1st Class officer of government.	Low
C.15. Is the decision of the evaluators final or is the evaluation subject to additional approvals?	The committee can only recommend for approval.	Low
C.16. Using at least three real examples, how long does it normally take from the issuance of the invitation for bids up to contact effectiveness?	At least three months and Maximum four months.	Low
C.17. Are there processes in place for the collection and clearance of cargo through ports of entry?	Yes.	Low
C.18. Are there established goods receiving procedures?	Yes	Low
C.19. Are all goods that are received recorded as assets or inventory in a register?	Yes	Low
C.20. Is the agency/procurement department familiar with letters of credit?	No. DPHE will not be required to open L/C.	Low
C.21. Does the procurement department register and track warranty and latent defects liability periods?	Yes.	Low
Consulting Services		
C.22. Has the agency undertaken foreign-assisted procurement of consulting services recently (last 12 months, or last 36 months)? (If yes, please indicate the names of the development partner/s and the Project/s.)	Yes. IDB, World Bank	Low
C.23. If the above answer is yes, what were the major challenges?	None.	
C.24. Are assignments and requests for expressions of interest (EOIs) advertised?	Yes	Low
C.25. Is a consultants' selection committee formed with appropriate individuals, and what is its composition (if any)?	Yes	Low
C.26. What criteria is used to evaluate EOIs?	As per REOI notice.	Low
C.27. Historically, what is the most common method used (QCBS, QBS, etc.) to select consultants?	QCBS	Low
C.28. Do firms have to pay for the RFP document?	Yes	Low
C.29. Does the proposal evaluation criteria follow a pre-determined structure and is it detailed in the RFP?	Yes	Low
C.30. Are pre-proposal visits and meetings arranged?	Yes	Low
C.31. Are minutes prepared and circulated after pre-proposal meetings?	Yes	
C.32. To whom are the minutes distributed?	To the attended firms	
C.33. Are all queries from consultants	Yes	Low

Question	Answer/Finding	Risk
answered/addressed in writing?		
C.34. Are the technical and financial proposals required to be in separate envelopes?	Yes	Low
C.35. Are proposal securities required?	No	Low
C.36. Are technical proposals opened in public?	Yes	Low
C.37. Are minutes of the technical opening distributed?	Yes, to the PEC members and concerned approving authority.	
C.38. Do the financial proposals remain sealed until technical evaluation is completed?	Yes	Low
C.39. Who determines the final technical ranking and how?	Proposal Evaluation Committee (PEC)	
C.40. Are the technical scores sent to all firms?	No.	
C.41. Are the financial proposal opened in public?	Yes	Low
C.42. Are minutes of the financial opening distributed?	Yes	
C.43. How is the financial evaluation completed?	As per PPR	Low
C.44. Are face to face contract negotiations held?	Yes	
C.45. How long after financial evaluation is negotiation held with the selected firm?	Within proposal validity period, 90 days.	
C.46. What is the usual basis for negotiation?	Reimbursable items.	
C.47. Are minutes of negotiation taken and signed?	Yes.	
C.48. How long after negotiation is the contract signed?	4 weeks	Low
C.49. Is there an evaluation system for measuring the outputs of consultants?	As mentioned in ToR.	Low
Payments		
C.50. Are advance payments made?	As per contract.	Low
C.51. What is the standard period for payment included in contracts?	As per nature of job and Agreement.	Low
C.52. On average, how long is it between receiving a firm's invoice and making payment?	2 weeks	
C.53. When late payment is made, are the beneficiaries paid interest?	As per PPR.	
D. EFFECTIVENESS		
D.1. Is contractual performance systematically monitored and reported?	Yes	Low
D.2. Does the agency monitor and track its contractual payment obligations?	Yes	Low
D.3. Is a complaints resolution mechanism described in national procurement documents?	Yes	Low
D.4. Is there a formal non-judicial mechanism for dealing with complaints?	Yes	Low
D.5. Are procurement decisions and disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment?	Yes.	Low
E. ACCOUNTABILITY MEASURES		
E.1. Is there a standard statement of ethics and are those involved in procurement required to formally commit to it?	Yes	Low
E.2. Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process?	Yes	Low
E.3. Is the commencement of procurement dependent on external approvals (formal or de-facto) that are outside of the budgeting process?	Yes	Low
E.4. Who approves procurement transactions,	As per delegation of Financial power of the	Low

Question	Answer/Finding	Risk
and do they have procurement experience and qualifications?	Government.	
E.5. Which of the following actions require approvals outside the procurement unit or the evaluation committee, as the case may be, and who grants the approval?		Low
y) Bidding document, invitation to pre-qualify or RFP	Hope and Development Partner (DP)	
z) Advertisement of an invitation for bids, pre-qualification or call for EOIs	HOPE	
aa) Evaluation reports	As per delegation of Financial Power (HOPE/ Line Ministry/ CCGP) and by DP (if preferred by donors)	
bb) Notice of award	HOPE/DP	
cc) Invitation to consultants to negotiate	HOPE/DP	
dd) Contracts	HOPE/DP	
E.6. Is the same official responsible for: (i) authorizing procurement transactions, procurement invitations, documents, evaluations and contracts; (ii) authorizing payments; (iii) recording procurement transactions and events; and (iv) the custody of assets?	No.	Low
E.7. Is there a written auditable trail of procurement decisions attributable to individuals and committees?	Yes	Low

II. General Ratings

Criterion	Risk
A. Organizational and Staff Capacity	Low
B. Information Management	Low
C. Procurement Practices	Low
D. Effectiveness	Low
E. Accountability Measures	Low
OVERALL RISK RATING	**Low**

EA Capacity Assessment Appendix 1 General Procurement Environment Assessment

1. Is there a procurement law? *The answer to this is a simple yes or no, i.e. is their a single law governing procurement which is representative of best practice or is procurement governed through various laws, decrees etc.? Assess this as either "High" or "Low"*	Yes, there is a single law generally representative of best practice (PPA 2006) with the PPR 2008 supporting that law (low risk).
2. Are the laws and regulations clear and concise? *If there is no single law check "high", and similarly if the law is complex and difficult to follow check "average". If the law is easy to follow check "low".*	Yes (low risk)
3. What does the law (or regulations applicable to procurement) cover? *If there is a single law, "low" will apply when the law covers drafting and use of standard bidding documents evaluation, contracting, through to the management of contracts including payment, warranty and defects liability periods. The less the procurement process is covered the higher the risk. If there is no single law, check "high"*	PPA covers the entire procurement process including contract management (low risk)
4. Does the law cover the procurement of consulting services? *If consulting services are not covered or there is no law the risk is high, if they are covered the risk is low.*	Yes (low risk)
5. Does the law differentiate between processes for consulting services and Goods/Works? *If there is no law, or it applies the same processes to consulting services as for goods and works check high. If there is some differentiation but the processes are similar, check average. If consulting services are dealt with separately check low*	Yes (low risk)
6. Does the law require advertisement of all procurement opportunities *Low risk will be represented through advertisement all above $25,000, average above all above $100,000, high by no advertisement or advertisement at a higher threshold than $100,000.*	Yes, if NCB, PPR 2008 section 90(1), (low risk).
7. Are contract awards advertised? *The same thresholds as stated at A6 should be applied*	Yes, if over $62,500 (professional services) or $125,000(other), PPR 2008 section 37 (average risk)
8. Are there restrictions on goods works and services on the basis of origin? *If procurement is limited to solely national origin check high, if there are restrictions or a national preference scheme, average. If None low*	None (low risk).

9. Does the law or relevant legislation and regulations provide acceptable provision for the participation of state owned enterprises? if the SOE is legally and financially autonomous and not a dependent agency of the purchaser low, other than this high	Yes, if the SOE is legally and financially autonomous, PPR 2008 section 61(3), (low risk).
10. Are there restrictions on the nationality of bidders and consulting firms invited? *ɔcurement is limited to solely national firms and individuals check high, if there are restrictions or a national preference scheme, average. If None low*	No (low risk).
11. Are foreign bidders and consultants forced to offer through or with local partners? *If yes, high, in certain circumstances average, never, low*	No (low risk).
12. Is there a domestic preference scheme? *If there is across the board high, if applicable in limited circumstances, average, if none, low.*	Yes, Optional for International Open Tender (low risk).
13. Is there a national standard mandated for use for quality control purposes? *No, or Yes with direct, accessible international equivalents low, yes without international equivalents high*	Yes, with direct, accessible international equivalents, PPR 2008, section 29(5) (low risk).
14. Are any agencies exempt from the law? *Such as the security forces, if yes high, also high of any types of goods are exempt from parts of the law such as medicines, text books or any other commodity*	No, PPA 2006, section 3 (low risk).
15. Is the default method for procurement open competition? *Either yes or no and low or high*	Yes (low risk).
16. Is open procurement easily avoided? *If the procurement law allows avoidance of open procurement above the national threshold on the basis of circumstances that are not in response to natural disasters ,i.e. simple urgency, check high, if open procurement can be avoided by senior management decision average. If avoidance requires approval of an oversight agency, low.*	Sometimes, subject to prior approval of senior management with justifications for use of direct procurement, PPR 2008 section 63, 75 (average risk).
17. Do the rules and regulations require pre-qualification? *Only for complex contracts, low, no contracts average, all contracts high.*	Only for large and complex procurements, PPR 2008 section 91 (low risk)
18. Do the rules and regulations require registration? *If yes, high, if only for specialist goods such as medicines average. If no registration low*.	No (low risk).
19. Are there systematic procurement process audits? *Yes, low. Only financial audits average, none, high*	Yes, PPR 2008 section 45 (low risk).

20. Is there a national procurement manual or guide? *A single procurement manual or guide, low, manual exists but out of date/not in wide use average, none high*	Yes, the Public Procurement Rules 2008 (updated from time to time) generally used as guidelines or manual which supplements and details all the provisions of Public Procurement Act 2006 (low risk).
21. Do the laws and regulations mandate the use of standard documents? *Documents for goods, works and consultants services low, just for 2 of the three average, only one or none high*	Yes, PPR 2008, section 4 (low risk).
22. Have these standard bidding document's been approved for use on ADB projects? *Yes low, some but not all average, no high,*	Yes, subject to modification as per NCB Annex (low risk).
23. Do the regulations require the collection of nation wide statistics on procurement? *Yes and statistics collected low, yes but data not collected or used average, no high*	Yes, PPR 2008, section 130(e) (low risk)
24. Is consolidated historical procurement data available to the public? *Yes low, too much or too little, average, no high*	Some data available, although it is mandatory under section 130(h)(iii) (average risk).
25. Do the procurement laws and regulations contain provisions for dealing with misconduct? *Such as fraud and corrupt practices – the procurement law or regulations may include or cross refer to anti-corruption legislation. Yes low, no high.*	Yes, PPR 2008, section 127 (low risk)
26. Is fraud and corruption in procurement regarded as a criminal act? *The penalties should include penal servitude (prison) yes low, no high.*	Yes, PPA 2006, section 64(4), (low risk)
27. Have there been prosecutions for fraud and corruption? *If there have been successful prosecutions for fraud and corruption, low, if prosecutions seem to focus solely on low grade junior staff average, none high*	There are examples of prosecutions for fraud and corruption involving senior staffs specially after each change of political power (average risk)
28. Is there an alternative disputes resolution process independent of government and courts? *If there is an arbitration law and independent process low, if the standard contracts use ICC or similar dispute resolution average, if arbitration is through the courts or can be overturned by courts high*.	Yes (low risk).

29. Does the law allow for sovereign immunity to the EA for claims against it? *If plaintiffs can sue the government for contractual non-performance low, if they cannot high*	No (low risk).
30. Do the regulations allow for black listing (disbarment) of firms and individuals and if the do? *If there is no black listing process or the process is transparent and equitable and undertaken by an independent oversight agency low. If there is a process and it is administered by a single line agency such as finance average, if it is administered by the executing agency high.*	Yes. The disbarment process is administered by the Procuring Entity (PE), PPR 2008, section 126(5). PE submits the proceedings to the Central Procurement Technical Unit (CPTU) who oversees the proceedings, accumulates the debarred list and publishes in public website (average risk).
31. Which body oversees procurement? *Independent body reporting to the elected body low, single body reporting to the cabinet average, no body or reports to a single state agency such as the Prime Minister or Finance Minister high.*	Central Procurement Technical Unit, reporting to the Minister for Planning (average risk).
32. What powers does the oversight body have? *If the body can impose administrative sanctions on an EA and its staff and overturn contact awards including ministerial decisions low, if the body only can impose sanctions through the head of the EA, average, if the body can only recommend action high*	A Review Panel (supported by CPTU) can impose sanctions or recommend actions to the EA, PPR 2008, section 60 (low risk)
33. Is there a nationwide procurement training plan? *If procurement training is assessed and planned for nationwide low, if this is delegated to line agencies average, if there is no strategy or plan high.*	Yes (low risk).
34. Is there a procurement accreditation or professionalization program? *An externally recognized program low, a government sponsored program average, none, high*	Yes (low risk).
35. Are major projects identified within an agencies appropriation or budget? *Yes low, no but a system in place for the ring-fencing of project funds average, neither low*	Yes (low risk)
36. Is the procurement cycle tied to an annual budgeting cycle? i.e. can procurement activity only commence once a budget is approved? *No a medium expenditure framework is in place low, activity may start up to but excluding contract award average, yes tied to annual budget high*	Yes, activity may start up to but excluding contract award (average risk).

37. Once an appropriation or budget is approved will funds be placed with the EA or can the EA draw them down at will? *Yes low, no - additional controls imposed high (such as cash release system)*	No, additional controls imposed (cash release system), (high risk)
38. Can an EA draw directly from a loan or imprest account or will it spend budgeted funds with the borrower claiming reimbursement? *Draws directly low, from budgeted funds high*	Yes, EA can draw directly the loan or imprest account (low risk)
39. When an EA is implementing a project using funds from the national budget has a delay in funding significantly delayed procurement? *No or not applicable low, yes high*	No, funding is provided in advance (low risk).

APPENDIX E.2: REPORT ON PROCUREMENT WORKSHOP

Summary: A day-long workshop was arranged involving two officials—the secretaries and the executive/ assistant engineers, from each pourashava within the batch-1 coastal towns under CTIIP—and four potential contractors from each of the batch-1 towns. The key objectives were to familiarize the participants about ADB's procurement guidelines and anti-corruption policies. During he first half of the day the pourashava officials were given adequate demonstration on procurement planning processes based on which they would prepare/ update/ implement procurement plans for the proposed project. The contractors attended during the 2nd half of the day, received a briefing on the salient features of the project, and also participated in a survey on their capacity for the execution of civil works contracts.

The workshop findingsfrom feedback of the participants was useful in designing the procurement packages for the project.

1. **The Schedule.** The workshop program was as follows:

   Date: 23 May 2013 (Thursday)

   Venue: LGED District Office, Barisal

   Time: Part - A: 9:00 am to 1:15 pm involving Pourashava Officials, and

   Part - B: 2:30 pm to 5:30 pm involving selected contractors and Pourashava Officials.

2. **Participation**.

   Part-A: Core Officials of 4 Coastal Towns Relevant for Procurement Planning:-

   Amtali Paurashava: Secretary & Assistant Engineer,

   Galachipa Paurashava: Secretary & Assistant Engineer,

   Mathbaria Paurashava: Secretary & Executive Engineer; and

   Pirojpur Paurashava: Secretary & Executive Engineer.

   Part-B: 4 selected contractors from each of 4 Coastal Towns and 4 contractors from Divisional HQ, Barisal (Total 20 contractors), and Paurashava Officials.

   All invited officials (100%) attended the workshop, and 18 out of 20 invited contractors (90%) participated in the program.

3. **Major objectives.** Part – A for pourashava officials: i) Familiarize Pourashava officials with Anti-corruption Policy and Procurement Guidelines of Asian Development Bank highlighting major differences with the Public Procurement Act and Rules (PPA & PPR); ii) Emphasis on the requirements of procurement planning, packaging of contracts following recommendations of project preparation team; and iii) Prepare draft procurement plan for initial 18 months of the project from the list of priority-I infrastructures identified by the project preparation team.

4. Part-B for potential bidders: i) Familiarize local contractors about the upcoming project, and the key requirements of the Procurement Guidelines of Asian Development Bank; ii) Know contractors' views about prevailing environment of the 4 coastal towns with respective to fair and competitive bidding process, potential scope and readiness of e-Procurement etc.; and iii) Gather basic information on the financial, technical capacity and relevant experience of the participating contractors.

5. **Facilitation.** The Procurement Expert of the PPTA team conducted the workshop. The concerned Project Director attended the workshop partly and provided guidance. Three LGED officials, Superintending Engineer, Executive Engineer, and Senior Assistant Engineer (SrAE) facilitated in the sessions to disseminate their experience in infrastructure development activities under various development projects. As the head of LGED's Barisal region, the Superintending Engineer highlighted on various aspects of infrastructure interventions with regard to climate resilience in the coastal areas. The Executive Engineer emphasised more on the quality control aspects of construction activities for the practising engineers as well the contractors. Being in-charge of LGED's regional laboratory, the Senior Assistant Engineer (SrAE) explained various quality control facilities available at LGED, and discussed about the process for getting the tests done without delay ensuring the representative test results. The EE and SrAE supported the pourashava officials in understanding the procurement planning process during group work activities, and assisted in gathering information and feedback from the contractors.

6. **Presentations**. The pourashava officials were given brief presentations on Anti-corruption Policy and Procurement Guidelines of ADB followed by discussion on the requirements of procurement planning, packaging of contracts following recommendations of project preparation team.

7. In Part-B of the workshop, local contractors received presentation on salient features of the upcoming project followed by discussion on the key aspects of the Anti-corruption policy and Procurement Guidelines of ADB.

8. **Group Activities**. After presentations in Part – A, the pourashava officials worked in town-wise groups with a view to prepare draft procurement plans for the initial 18 months of the project from the list of priority-I infrastructures identified by the project preparation team. At the time of the workshop, they had a long list of infrastructure schemes prepared by the PPTA experts who informed that the list would be reduced based on the availability of funds. As such, the officials familiarized themselves with the basic format of the procurement plan, and prepared a tentative group of packages subject to finalization of the scheme lists. According to the preliminary draft of the officials, the indicative number of packages were identified as follows:

Table-1: Town-wise Indicative Number of Procurement Packages As Suggested by Officials

Name of Town	Indicative Number of Procurement Packages (Initial Draft)	Maximum Value of Each Package
Amtali	Road (13 nos.)– 6 packages, Total BDT 289 million, Bridges (2 nos.) – 1 package, Total BDT 39 million, Water Supply – 4 packages, Total BDT 103 million, Cyclone Shelter (3 nos.)– 1 package, Total BDT 90 million, Drainage – 2 packages, Total BDT 75 million, Market (1no.) – 1 package, Total BDT 15 million, & Boat Landing (3 nos.) – 1 package, Total BDT 4.5 million.	BDT 20 to 50 million (USD 250,000 to 625,000)
Galachipa	Road (9 nos.)– 3 packages, Total BDT 150 million, Water Supply – 2 packages, Total BDT 141 million, Cyclone Shelter (3nos.)– 3 packages, Total BDT 90 million & Drainage (8 Km) – 3 packages, Total BDT 80 million.	BDT 20 to 30 million (USD 250,000 to 375,000)
Mathbaria	Road (8 nos.)– 4 packages, Total BDT 140 million, Water Supply – 5 packages, Total BDT 350 million, Cyclone Shelter (1 no.)– 1 packages, Total BDT 30 million &	BDT 20 to 30 million (USD 250,000 to

Name of Town	Indicative Number of Procurement Packages (Initial Draft)	Maximum Value of Each Package
	Drainage (8 nos.) – 5 packages, Total BDT 150 million.	375,000)
Pirojpur	Road (18 nos.) & Bridges (4 nos.) – 9 packages, Total BDT 395.2 million & Cyclone Shelter (3 nos.) – 3 packages, Total BDT 75 million.	BDT 30 to 50 million (USD 375,000 to 625,000)

9. In the Part-B of workshop, the participating contractors expressed their views that competitive bidding environment prevailed in the pourashava's procurement activities. All of them showed keen interest in e-Procurement, although none of them were technologically ready for using it. The contractors then provided basic information on their past experience, financial, and technical capacity. None of the contractors had experience of participating in the ICB bidding process.

Table-2: Experience of Highest Value of Single Works Contract of the Participating Contractors

Contractor's Town	Highest Value of Single Works Contract	Bidding Method (ICB/NCB), Nature of Works and Employer / Procuring Entity
Barisal	BDT 56.0 million (USD 700,000)	NCB, Building Works under Patuakhali Science & Technology University (PSTU)
Amtali	BDT 100.0 million (USD 1.25 million)	NCB, Improvement of Roads under LGED
Galachipa	BDT 7.4 million (USD 92,500)	NCB, Improvement of Roads by bituminous carpeting under LGED
Mathbaria	BDT 58.1 million (USD 726,000)	NCB, Improvement of Roads under LGED
Pirojpur	BDT 30.0 million (USD 375,000)	NCB, Improvement of Roads under LGED

10. **Feedback.** The participants had an open discussion session in the end. The facilitators' panel answered the questions/ queries which mainly related to procedural aspects of procurement process. The officials of the pourashavas and the local contractors also provided comments/ suggestions on the contract packaging, preference of choosing NCB method over ICB method, inclusion of a procurement expert in the evaluation committee of pourashavas, technical support of infrastructure experts in supervision and quality control of construction activities, capacity building of pourashava staffs etc.

11. **Major Findings.** The officials of the pourashavas and the local contractors have experience of implementing low value civil works packages involving regular nature and technology of interventions, such as: rehabilitation/ construction of roads, drains, culverts etc.

12. Based on the information provided by the concerned engineers, it was noted that batch-1 pourashavas had been executing small value contracts with total number of packages ranging from 60 to 90 nos. each year and value of single contract not exceeding BDT 5 million (approximate USD 62,500). Occasionally, there were several higher value contracts, for example: Pirojpur pourashava had only one contract with BDT 30 million (approximate USD 375,000) for the construction of its new office building. No other batch-1 pourashava had implemented a contract of such a value. The total volume of works contract for one fiscal year was around BDT 80 to 100 million (approximate USD 1.0 to 1.25 million) in Pirojpur pourashava; which was found to be the highest among 4 selected towns of CTIIP.

13. It was also observed that 4 contractors of Galachipa pourashava implemented works contracts of value not exceeding BDT 10 million (approximate USD 125,000). Highest value of single contract for 9 out of 11 participating contractors of other 3 batch-1 towns (Amtali, Mathbaria and Pirojpur) was BDT 36 million (approximate USD 450,000). 2 contractors of Amtali have experience of single contract value of BDT 100 million (approximate USD 1.25 million). None of these higher value contracts were implemented under target pourashavas. 3 contractors from the divisional headquarter, Barisal had shown better experience of single contract value ranging from BDT 20 to 120 million (approximate USD 0.25 to 1.50 million).

14. From the findings as described above, it was apparent that very few local contractors had experience of a single contract value more than BDT 40 million (approximate USD 500,000), and the pourashavas currently did not have experience of administering contracts of such value.

15. **Recommendation.** With a view to widen competition in the bidding process attracting participation by local bidders for works packages, a lower qualification (work experience) requirement for bidders, such as 50% of the estimated price instead of the usual 80% may be adopted for packages with repetitive works involving widely known technology and method of construction. For example, a bidder having work experience with USD 300,000 contract may qualify bidding for a package valued at USD 600,000 for civil works of rehabilitation/ construction of roads, RCC culverts, brick / RCC drains etc.

16. Capacity building of the procurement and technical staffs of the pourashavas would be essential in order to execute higher value contracts. During implementation of CTIIP, additional support through experts hired under the project should be provided. A procurement expert engaged under the project should be included in the bid evaluation committee of the pourashavas in order to ensure quality of the bidding process. Similarly, relevant technical experts engaged under the project should be assigned for quality of works implementation. Furthermore, staggering of the implementation schedule may also be adopted by commencing the lower value contract packages during earlier months of the project, and based on the performance of these packages, gradually going for procurement process of higher value packages.

17. **Challenge Ahead.** The challenging part of the pourashava capacity is “random” transfer of staffs. In order to ensure adequate capacity of each pourashava throughout the project period, the local government division may consider as follows: (i) suitable staffs are posted against all procurement and technical positions of the selected pourashavas; (ii) these staffs are not transferred during the project period; and (iii) if any of these staffs are transferred for any unavoidable circumstances, the vacancies are immediately filled in with appropriate replacement.