

# Project Readiness Financing Project Administration Manual

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Project Number: 51296-001  
Loan Number: {PRFXXXX}  
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People's Republic of Bangladesh: Urban  
Infrastructure Improvement Preparatory Facility

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### **Project Administration Manual for Project Readiness Financing: Purpose and Process**

The project administration manual (PAM) for project readiness financing (PRF) is an abridged version of the regular PAM of the Asian Development Bank (ADB) and describes the essential administrative and management requirements to implement PRF following the policies and procedures of the government and ADB. The PAM should include references to all available templates and instructions either by linking to relevant URLs or directly incorporating them in the PAM.

The executing and implementing agencies, i.e., Department of Public Health Engineering (DPHE) and Narayanganj City Corporation (NCC), are wholly responsible for the implementation of ADB-financed PRF projects, as agreed between the borrower and ADB, and following the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation, including compliance by DPHE and NCC of their obligations and responsibilities for PRF project implementation following ADB's policies and procedures.

In the event of any discrepancy or contradiction between the PAM and the loan agreement, the provisions of the PRF loan agreement will prevail.

After ADB's approval of the PRF proposal, changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in this PAM.

## ABBREVIATIONS

ADB	–	Asian Development Bank
DPHE	–	Department of Public Health Engineering
DWASA	–	Dhaka Water Supply and Sewerage Authority
EARF	–	environmental assessment review framework
EMP	–	environmental management plan
EOI	–	expression of interest
ERD	–	Economic Relations Division
GAF	–	gender action framework
GAP	–	gender action plan
IEE	–	initial environmental examination
IPP	–	indigenous people plan
IPPF	–	indigenous people plan framework
LGD	–	Local Government Division
MOF	–	Ministry of Finance
NCC	–	Narayanganj City Corporation
PMU	–	project management unit
PRF	–	project readiness financing
SOE	–	statement of expenditures
SPS	–	Safeguards Policy Statement
TA	–	technical assistance
TOR	–	terms of reference
TPP	–	technical assistance project proposal
UIIPF	–	Urban Infrastructure Improvement Preparatory Facility

## I. IMPLEMENTATION PLAN

### A. Overall Implementation Plan

1. Table 1 presents the overall implementation plan for the project readiness facility (PFR) and records key implementation activities. This will be updated annually and submitted to Asian Development Bank (ADB) with updated contract and disbursement projections.

### Table 1: Overall Implementation Plan

[illegible]

Activities	Advance Actions						PRF Year 1					PRF Year 2				PRF Year 3		
	2018			2019			2020					2021				2022		
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<b>B. Management Activities</b>																		
Loan negotiation																		
ADB Board approval																		
Loan signing																		
Loan effectiveness																		
Submission of semiannual progress report																		
Submission of consolidated annual report																		
Submission of AFS																		
Submission of APFS																		
Projected date of ensuing loan - DPHE																		
Projected date of ensuing loan - NCC																		

Note: Land acquisition and resettlement will be completed prior to start of civil works. This will be scheduled and closely monitored with sufficient budget allocation from the government.

AFS = audited financial statement, APFS = audited project financial statement, DPHE = Department of Public Health Engineering, NCC = Narayanganj City Corporation, PCR = project completion report, PRF = project readiness financing.

Source: Asian Development Bank.

## II. PROJECT MANAGEMENT ARRANGEMENTS

### A. Project Implementation Organizations: Roles and Responsibilities

2. The stakeholders' role and responsibility in the project are presented in Table 2 below.
3. **Project Steering Committee.** A project steering committee, chaired by the Secretary of the Local Government Division (LGD), will be established to provide policy guidance and overall coordination of the facility implementation including all three components. The project management units (PMUs) of both components will coordinate with each other to serve as secretariat of the steering committee.
4. **Department of Public Health Engineering component.** Department of Public Health Engineering (DPHE) will be the executing agency for this component. A dedicated PMU with full time staff will be established within DPHE promptly after technical assistance project proposal (TPP) approval. A project implementation committee will be established at DPHE headquarters to coordinate and consult with representatives of the hill district councils and *pourashavas* of each target towns. This committee will ensure citizen participation in the project, and greater transparency. The committee will be chaired by chief engineer of DPHE and PMU will serve as secretariat. Project coordination committees will be established at DPHE district offices in the target towns to coordinate with members of the respective district councils. In the three hill district towns, the committee will be chaired by the chairpersons of hill district councils. In other towns, the committee will be chaired by the mayor of *pourashavas*. DPHE district offices will serve as secretariat.
5. **Narayanganj City Corporation component.** Narayanganj City Corporation (NCC) will be the executing agency for this component. A dedicated PMU will be established within NCC promptly after TPP approval. A project coordination committee, chaired by the Mayor, will be established to review the findings of study and reflect the desire of the citizen in project design, support site selection of the project component, and review and monitor the progress and support to resolve the issues.
6. **Security arrangement.** The PMU of DPHE will closely coordinate with concerned stakeholders to smoothly make necessary security arrangement in the hill district towns especially for international consultants, such as obtaining prior security clearance and arranging security escorts while they work in the hill district towns.

**Table 2: Management Roles and Responsibilities**

Project Implementation Organizations	Management Roles and Responsibilities
<b>Project Steering Committee</b>  <u>Chairperson:</u> Senior Secretary, Local Government Division (LGD), Ministry of Local Government, Rural Development and Co-operatives.  <u>Members:</u> Executing/implementing agencies and other concerned ministries and agencies:  - <i>Department of Public Health Engineering Department (DPHE) Component:</i> (i) Chief Engineer, DPHE (ii) Director General, LGD	<ul style="list-style-type: none"> <li>• Review the recommendation of the project implementation committee for addressing problems that arise during project implementation and to take decision accordingly.</li> <li>• Give guideline or to formulate policies required for implementing project activities.</li> <li>• Look after any other matter related to project implementation.</li> <li>• The committee will meet at least once in every three months, and whenever deemed necessary.</li> <li>• The committee should co-opt members from following organizations:</li> </ul>

Project Implementation Organizations	Management Roles and Responsibilities
<ul style="list-style-type: none"> <li>(iii) Additional Secretary (WS), LGD</li> <li>(iv) Joint Chief, Physical Infrastructure, Planning Commission</li> <li>(v) Deputy Secretary (Water Supply-1), LGD</li> <li>(vi) Joint Chief, LGD</li> <li>(vii) Deputy Chief, LGD</li> <li>(viii) Representative of NEC-ECNEC &amp; Coordination Wing of the Planning Division</li> <li>(ix) Representative from Implementation Monitoring and Evaluation Division (IMED)</li> <li>(x) Representative of Economic Relation Division, Ministry of Finance (MOF)</li> <li>(xi) Representative from the Programming Division, Planning Commission</li> <li>(xii) Representative from Finance Division, MOF</li> <li>(xiii) Project Director, DPHE</li> <li>(xiv) Senior Assistant Chief (Planning Section-3), LGD</li> <li>- <i>Narayanganj City Corporation (NCC) Component:</i> <ul style="list-style-type: none"> <li>(i) Director General (MIE), LGD</li> <li>(ii) Joint Secretary (Urban Development), LGD</li> <li>(iii) Joint Chief, LGD</li> <li>(iv) Representative of National Economic Council, Executive Committee of the National Economic Council (NEC-ECNEC) &amp; Coordination Wing of the Planning Division</li> <li>(v) Deputy Chief, LGD</li> <li>(vi) Representative, Economic Relations Division</li> <li>(vii) Representative from Finance Division, MOF</li> <li>(viii) Representative, Physical Infrastructure, Water Supply and Housing Wing, Planning Commission</li> <li>(ix) Representative, IMED</li> <li>(x) Representative, Programming Division, Planning Commission</li> <li>(xi) Representative, Rajdhani Unnayan Katripakkha (RAJUK)</li> <li>(xii) Representative, Bangladesh Water Development Board,</li> <li>(xiii) Representative, Bangladesh University of Engineering and Technology</li> <li>(xiv) Representative, Dhaka Water Supply and Sewerage Authority (DWASA)</li> <li>(xv) Representative, Bangladesh Inland Water Transport Authority (BIWTA)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>(i) Representative from Ministry of Chittagong Hill Tracts Affairs</li> <li>(ii) Representative from Ministry of Water Resource</li> <li>(iii) Representative from Bangladesh Water Development Board</li> <li>(iv) Representative from Department of Environment</li> </ul>



Project Implementation Organizations	Management Roles and Responsibilities
(xvi) Chief Executive Officer, NCC (xvii) Representative, Dhaka Transport Coordination Authority (xviii) Project Director, UIIPF (NCC Component)	
<b>Executing and Implementing Agencies</b> 1. DPHE 2. NCC  <u>Project Management Unit (PMU) for DPHE component</u> <ul style="list-style-type: none"> <li>- Project Director</li> <li>- Executive Engineer</li> <li>- Assistant Engineers, Sub-Assistant Engineers</li> <li>- Accounts Officer</li> <li>- Social Safeguards Officer</li> <li>- Environment Safeguards Officer</li> <li>- Data Entry Officer</li> </ul> <u>PMU for NCC component</u> <ul style="list-style-type: none"> <li>- Project Director</li> <li>- Executive Engineers</li> <li>- Assistant Engineers, Sub-Assistant Engineers</li> <li>- Urban Planner</li> <li>- Accounts Officer</li> <li>- Social Safeguards Officer</li> <li>- Computer Operator</li> </ul>	<ul style="list-style-type: none"> <li>• Establish a PMU (with the necessary technical, administrative, and accounting staff), to be headed by a full-time project director with the rank of superintending engineer.</li> <li>• Procure and manage consultants, provide technical support, manage day-to-day operations, and maintain coordination with ADB and all stakeholders.</li> <li>• Ensure compliance with project covenants</li> <li>• Ensure auditing of loan proceeds and maintenance of accounts.</li> <li>• Ensure compliance with the requirements of ADB Safeguard Policy Statement (SPS) 2009. ADB will review the environmental and social assessments and will monitor compliance to the requirements of SPS 2009.</li> <li>• Submit semiannual progress reports to ADB and the Government.</li> <li>• Process consultants' payments on time.</li> <li>• Submit withdrawal application to ADB with complete supporting documents.</li> </ul>
<b>1. DPHE Component:</b>  <u>Project Implementation Committee (DPHE-level)</u> <i>Chairperson:</i> Chief Engineer, DPHE <i>Members:</i> <ul style="list-style-type: none"> <li>- Additional Chief Engineer (Works), DPHE</li> <li>- Deputy Secretary (WS-1), LGD</li> <li>- Deputy Chief, Physical Infrastructure, Planning Commission</li> <li>- Senior Assistant Chief (Planning Section-3), LGD</li> <li>- Representative of Economic Relation Division</li> <li>- Representative of the Programming Division, Planning Commission</li> <li>- Representative of NEC-ECNEC and Coordination Wing of the Planning Division</li> <li>- Representative from IMED</li> <li>- Representative from Finance Division</li> <li>- Project Director, DPHE</li> <li>- Executive Engineer, DPHE</li> </ul> <u>Project Coordination Committees (Town level)</u> (Note: At least 30% member will be female in PCC)	<u>Project Implementation Committee (DPHE-level)</u> <ul style="list-style-type: none"> <li>• Give necessary assistance or suggestion for implementing project activities.</li> <li>• If any problem arises during project implementation, give necessary decision to solve the problem.</li> <li>• The committee will meet at least once in every three months.</li> <li>• The committee may select members, if necessary.</li> <li>• Chaired by chief engineer of DPHE and PMU will serve as secretariat.</li> <li>• The committee should co-opt members from the following organizations:               <ul style="list-style-type: none"> <li>(i) Representative from Ministry of Chittagong Hill Tracts Affairs</li> <li>(ii) Representative from Bangladesh University of Engineering and Technology</li> <li>(iii) Representative from Water Development Board</li> <li>(iv) Representative from Department of Environment</li> </ul> </li> </ul>

Project Implementation Organizations	Management Roles and Responsibilities
<p><u>1) Project Coordination Committee (Hill District Towns)</u>  <i>Chairperson:</i> Chief Executive Officer, Concerned Hill District Council  <i>Members:</i></p> <ul style="list-style-type: none"> <li>- Convener, Water Committee, Concerned Hill District Council</li> <li>- Representative from Concerned Municipality</li> <li>- Female Councilor, Concerned Hill District</li> <li>- Representative from Concerned Deputy Commissioner Office</li> <li>- Representative from Civil Society of Concerned Municipality</li> <li>- Executive Engineer, DPHE, Concerned Division</li> </ul> <p><u>2) Project Coordination Committee (Municipality/ City Corporation)</u>  <i>Chairperson:</i> Mayor, Concerned Municipality  <i>Members:</i></p> <ul style="list-style-type: none"> <li>- Female Councilor, Concerned Municipality (Member)</li> <li>- Representative from Concerned District Commissioner Office/ Upazila Parishad (Member)</li> <li>- Representative from Civil Society of Concerned Municipality (Member)</li> <li>- Executive Engineer/Assistant Engineer, DPHE, Concerned District / Upazila (Member)</li> </ul> <p><b>2. NCC Component:</b>  <u>Project Coordination Committee</u>          (Note: At least 30% member will be female in PCC)  <i>Chairperson:</i> Chief Executive Officer, NCC  <i>Members:</i></p> <ul style="list-style-type: none"> <li>- Project Director, UIIPF (NCC Component)</li> <li>- Executive Engineers, PMU, NCC</li> <li>- Urban Planner, PMU, NCC</li> <li>- Representative from DWASA</li> <li>- Representative from BIWTA</li> <li>- Representative from RAJUK</li> <li>- Representative from District Commissioner Office</li> </ul>	<p><u>Project Coordination Committee (Town level)</u></p> <ul style="list-style-type: none"> <li>• Review the findings of study and reflect the desire of the citizen in project design.</li> <li>• Support to site selection of the project component.</li> <li>• Coordinate with PMU</li> <li>• Review and monitor the progress and support to resolve the issue particularly related to local circumstances.</li> <li>• Facilitate to keep awareness of the citizens about the objective and scope of the project.</li> <li>• Support to revise the tariff structure to ensure sustainable operation of the services.</li> <li>• The committee may select the members, if necessary.</li> </ul> <p><u>Project Coordination Committee</u></p> <ul style="list-style-type: none"> <li>• Review the findings of study and reflect the desire of the citizen in project design.</li> <li>• Support site selection of the project component.</li> <li>• Review and monitor the progress and support to resolve the issue in particularly related to local circumstances.</li> <li>• Facilitate to keep awareness of the citizens about the objective and scope of the project.</li> <li>• Support to revise the tariff structure to ensure sustainable operation of the services.</li> <li>• The committee may co-opt the members, if necessary.</li> <li>• Coordinate with relevant stakeholders within the city corporation.</li> <li>• Discuss implementation issues and propose solution to facilitate progress.</li> </ul>
Asian Development Bank	<ul style="list-style-type: none"> <li>• Monitor overall project performance.</li> <li>• Coordinate with all the executing and implementing agencies on project implementation issues.</li> </ul>

Project Implementation Organizations	Management Roles and Responsibilities
	<ul style="list-style-type: none"> <li>• Review and approve procurement activities as per agreed Procurement Plan.</li> <li>• Process withdrawal applications for disbursement.</li> <li>• Review the environmental and social assessments and will monitor compliance to the requirements of SPS 2009.</li> <li>• Monitor compliance including gender equality and social inclusion (GESI) implementation.</li> <li>• Monitor annual audits of project loan accounts.</li> <li>• Conduct periodic loan administration missions, a mid-term review and project completion missions</li> <li>• Provide capacity and hand-holding support to PMU officials.</li> </ul>

Source: Asian Development Bank.

## B. Key Persons Involved in Implementation

### Executing Agencies

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### III. COSTS AND FINANCING

7. The project readiness financing facility is estimated to cost \$17.15 million (Table 2). ADB will finance consulting services, goods, incremental administrative costs, contingencies and interest during implementation. Equipment, vehicle, and furniture are included in the facility as the EAs have insufficient financial capacity for start-up activities in a timely manner.

**Table 2: Summary Cost Estimates (\$ million)**

Item	Amount <sup>a</sup>
<b>A. Base Cost<sup>b</sup></b>	
1. Water supply under DPHE component	7.10
2. Urban infrastructure and public financial management under NCC component	8.28
<b>Subtotal (A)</b>	<b>15.38</b>
<b>B. Contingencies<sup>c</sup></b>	<b>1.30</b>
<b>C. Interest During Implementation<sup>d</sup></b>	<b>0.47</b>
<b>Total (A+B+C)</b>	<b>17.15</b>

DPHE = Department of Public Health Engineering, NCC = Narayanganj City Corporation.

<sup>a</sup> In mid-2019 prices using an exchange rate of \$1.00 = Tk83.70.

<sup>b</sup> Includes taxes and duties of \$4.9 million to be financed from government resources by cash contribution.

<sup>c</sup> Physical contingencies are computed at 4.0% for consulting services. Price contingencies are computed at 1.5%–1.6% on foreign exchange costs and 6.3% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

<sup>d</sup> Interest during implementation for the Asian Development Bank loan has been computed at 2.0% per year.

Source: Asian Development Bank estimates.

#### A. Key Assumptions

8. The following key assumptions underpin the cost estimates and financing plan:

- (i) Exchange rate: BDT83.7 = \$1.00 (as of April 2019)
- (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

**Table 3: Escalation Rates for Price Contingency Calculation**

Item	2019	2020	2021	2022	Annual average
Foreign rate of price inflation	1.5%	3.0%	4.6%	6.2%	1.6%
Domestic rate of price inflation	6.3%	12.2%	18.3%	24.4%	6.1%

Source: Asian Development Bank estimates

- (iii) In-kind contributions cannot be easily measured and have not been quantified.

#### B. Allocation and Withdrawal of Loan Proceeds

**Table 4: Allocation and Withdrawal of Loan Proceeds**

No.	Item	Total Amount Allocated for ADB Financing Category (\$)	Basis for Withdrawal from the Loan Account
1	Consulting services	8,920,000	65.0% of total expenditure claimed
2	Goods and incremental administrative costs (office management)	702,000	88.0% of total expenditure claimed

No.	Item	Total Amount Allocated for ADB Financing Category (\$)	Basis for Withdrawal from the Loan Account
3	Interest charges	467,000	100.0% of amount due
4	Unallocated	911,000	
<b>Total</b>		<b>11,000,000</b>	

Note: ADB will not disburse salary of government officials.

Source: Asian Development Bank estimates.

### C. Detailed Cost Estimates by Expenditure Category and Financier

**Table 5: Detailed Cost Estimates by Financier**  
(\$ million)

Item	ADB		Government of Bangladesh				Total Costs
	\$	%	Tax	Non-Tax	Total	%	
<b>A. Investment costs</b>							
1. Consulting services	8.92	65.0%	4.80	-	4.80	35.0%	13.72
a. Water supply and fecal sludge management (DPHE)	4.15	65.0%	2.24	-	2.24	35.0%	6.39
b. Development of road, water supply, drainage, and municipal financial management (NCC)	4.77	65.0%	2.57	-	2.57	35.0%	7.33
2. Goods	0.50	88.0%	0.07	-	0.07	12.0%	0.57
a. Water supply and fecal sludge management (DPHE)	0.25	88.0%	0.03	-	0.03	12.0%	0.28
b. Development of road, water supply, drainage, and municipal financial management (NCC)	0.25	88.0%	0.03	-	0.03	12.0%	0.28
<b>Subtotal (A)</b>	<b>9.42</b>	<b>65.9%</b>	<b>4.87</b>	<b>-</b>	<b>4.87</b>	<b>34.1%</b>	<b>14.29</b>
<b>B. Recurrent costs</b>							
1. Incremental administrative costs	0.20	18.5%	0.03	0.86	0.89	81.5%	1.09
a. Salary	-	0.0%	-	0.86	0.86	100.0%	0.86
b. Others (office management)	0.20	88.0%	0.03	-	0.03	12.0%	0.23
<b>Subtotal (B)</b>	<b>0.20</b>	<b>18.5%</b>	<b>0.03</b>	<b>0.86</b>	<b>0.89</b>	<b>81.5%</b>	<b>1.09</b>
<b>Total Base Cost</b>	<b>9.62</b>	<b>62.6%</b>	<b>4.90</b>	<b>0.86</b>	<b>5.76</b>	<b>37.4%</b>	<b>15.38</b>
<b>C. Contingencies</b>							
1. Physical contingencies	0.36	65.3%	-	0.19	0.19	34.7%	0.55
2. Price contingencies	0.55	73.4%	-	0.20	0.20	26.6%	0.75
<b>Subtotal (C)</b>	<b>0.91</b>	<b>70.0%</b>	<b>-</b>	<b>0.39</b>	<b>0.39</b>	<b>30.0%</b>	<b>1.30</b>
<b>D. Financial charges during implementation</b>							
1. Interest during implementation	0.47	100.0%	-	-	-	0.0%	0.47
<b>Subtotal (D)</b>	<b>0.47</b>	<b>100.0%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.0%</b>	<b>0.47</b>
<b>Total Project Cost (A+B+C+D)</b>	<b>11.00</b>	<b>64.1%</b>	<b>4.90</b>	<b>1.25</b>	<b>6.15</b>	<b>35.9%</b>	<b>17.15</b>

DPHE = Department of Public Health Engineering, NCC = Narayanganj City Corporation.

- Notes:
1. Numbers may not sum precisely because of rounding.
  2. The costs of the actual audits of the project are minor and will be borne by the government.
  3. Equipment, vehicle, and furniture are included in Goods.
  4. Minor environmental monitoring and implementation of resettlement plan and gender equity action plan cost are absorbed in B1, if required.
  5. Others (office management) under incremental administrative cost are for PRF implementation and are not related to start-up costs.

Source: Asian Development Bank estimates.

## D. Detailed Cost Estimates by Year

**Table 6: Detailed Cost Estimates by Year**  
(\$ million)

Item	Total	2019	2020	2021	2022
<b>A. Investment costs</b>					
1. Consulting services	13.72	0.67	7.18	5.87	-
a. Water supply and fecal sludge management (DPHE)	6.39	0.31	3.16	2.91	-
b. Development of road, water supply, drainage, and municipal financial management (NCC)	7.33	0.35	4.02	2.96	-
2. Goods	0.57	-	0.57	-	-
a. Water supply and fecal sludge management (DPHE)	0.28	-	0.28	-	-
b. Development of road, water supply, drainage, and municipal financial management (NCC)	0.28	-	0.28	-	-
<b>Subtotal (A)</b>	<b>14.29</b>	<b>0.67</b>	<b>7.75</b>	<b>5.87</b>	<b>-</b>
<b>B. Recurrent costs</b>					
1. Incremental administrative costs	1.09	0.11	0.44	0.44	0.11
a. Salary	0.86	0.09	0.34	0.34	0.09
b. Others (office management)	0.23	0.02	0.09	0.09	0.02
<b>Subtotal (B)</b>	<b>1.09</b>	<b>0.11</b>	<b>0.44</b>	<b>0.44</b>	<b>0.11</b>
<b>Total Base Cost</b>	<b>15.38</b>	<b>0.77</b>	<b>8.19</b>	<b>6.31</b>	<b>0.11</b>
<b>C. Contingencies</b>					
1. Physical contingencies	0.55	0.03	0.29	0.24	-
2. Price contingencies	0.75	0.01	0.35	0.38	0.01
<b>Subtotal (C)</b>	<b>1.30</b>	<b>0.04</b>	<b>0.64</b>	<b>0.62</b>	<b>0.01</b>
<b>D. Financial charges during implementation</b>					
1. Interest during implementation	0.47	0.01	0.07	0.17	0.22
<b>Subtotal (D)</b>	<b>0.47</b>	<b>0.01</b>	<b>0.07</b>	<b>0.17</b>	<b>0.22</b>
<b>Total Project Cost (A+B+C+D)</b>	<b>17.15</b>	<b>0.82</b>	<b>8.90</b>	<b>7.10</b>	<b>0.34</b>

DPHE = Department of Public Health Engineering, NCC = Narayananj City Corporation.

- Notes:
1. Numbers may not sum precisely because of rounding.
  2. The costs of the actual audits of the project are minor and will be borne by the government.
  3. Equipment, vehicle, and furniture are included in Goods.
  4. Minor environmental monitoring and implementation of resettlement plan and gender equity action plan cost are absorbed in B1, if required.
  5. Others (office management) under incremental administrative cost are for PRF implementation and are not related to start-up costs.

Source: Asian Development Bank estimates.

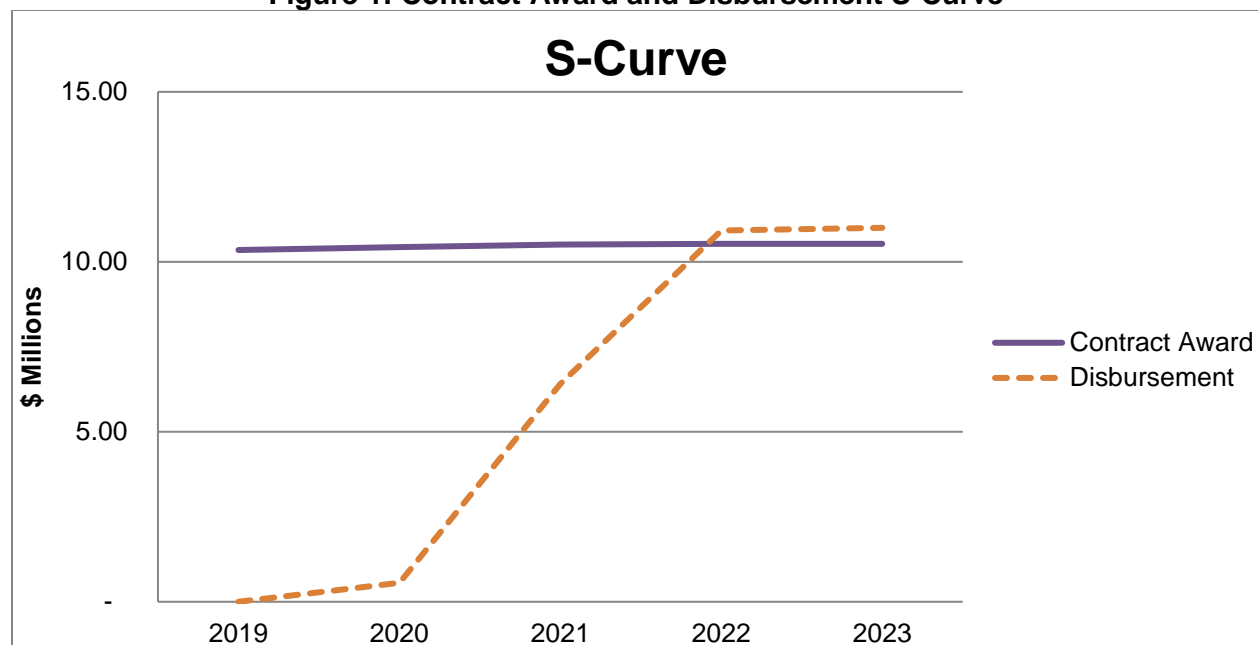
## E. Contract and Disbursement S-Curve

9. Projected contract awards and disbursements of the ADB loan are given in Table 7 and Figure 1.

**Table 7: Projected Contract Awards and Disbursements**

Year	Contract Awards (\$ million)					Disbursements (\$ million)				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2019	-	-	-	10.35	10.35	-	-	-	0.55	0.55
2020	0.02	0.02	0.02	0.02	0.08	2.41	1.05	1.05	1.34	5.85
2021	0.02	0.02	0.02	0.02	0.08	1.31	1.10	1.05	1.05	4.51
2022	0.02	-	-	-	0.02	0.08	-	-	-	0.08
<b>Total</b>					<b>10.53</b>	<b>Total</b>				<b>10.99</b>

**Figure 1: Contract Award and Disbursement S-Curve**





## IV. FINANCIAL MANAGEMENT

### A. Financial Management Assessment

10. The financial management assessment (FMA) was conducted for the proposed Urban Infrastructure Improvement Preparatory Facility (UIIPF) in accordance with the Guidelines for the Financial Management and Analysis of Projects (2005), the Financial Due Diligence: A Methodology Note (2009), and the Financial Management Technical Guidance Note (2015) of ADB.<sup>1</sup> The FMA considered the financial management capacity of DPHE and NCC in their roles as executing and implementing agencies, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements.

11. The assessment found that the financial management arrangements including accounting financial reporting and audit arrangements are mostly adequate and that DPHE and NCC have significant experience<sup>2</sup> in implementing a number of investment projects funded by development partners. The project completion report in 2016 for the ADB-funded 'Secondary Towns Water Supply and Sanitation Sector Project' concludes that DPHE's overall performance as the executing agency was satisfactory. Moreover, the expected number of contracts and transactions under the proposed PRF will be fairly limited. In addition, the financial management assessment found that DPHE and NCC have adequate capacity to administer the advance fund procedure within the ceilings established in para 17 of the disbursement section of this PAM. The overall financial management risk for the project is assessed as moderate.

12. The risks identified by the assessment that need to be addressed include:
- (i) delays in setting up dedicated PMUs with qualified staff may hamper the timely and effective implementation;
  - (ii) insufficient knowledge of ADB procedures by newly assigned staff in PMUs may cause delays in day-to-day financial management;
  - (iii) inadequate staff in the accounts section of NCC may delay the preparation of budget and financial statement;
  - (iv) weak internal audit system of DPHE and NCC may hamper the timely identification of issues; and
  - (v) no computerized accounting software or financial reporting system in place at the project level, and cumbersome financial reporting systems prone to errors.

The agreed measures for mitigating the foreseen risks are summarized in the table below:

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<sup>1</sup> (i) ADB. 2005. *Financial Management and Analysis of Projects*. Manila; (ii) ADB. 2009. *Financial Due diligence: A Methodology Note*. Manila; and (iii) ADB. 2015. *Financial Management Technical Guidance Note*. Manila.

<sup>2</sup> DPHE implemented (i) Secondary Towns Water Supply and Sanitation Sector Project and other three projects funded by ADB; (ii) Bangladesh Rural Water Supply and Sanitation Project and other three projects funded by the World Bank with one new project for board consideration in 2019; and (iii) Ground Water Investigation and Development of Deep Ground Water Source in Urban and Rural Areas funded by Japan International Cooperation Agency (JICA). NCC implemented (i) Urban Primary Health Care Service Delivery Project funded by ADB, (ii) Municipality Governance Strengthening Project funded by World Bank, and (iii) City Government Project funded by JICA.

**Table 8: Risk Assessment and Mitigation Plan**

<b>Area</b>	<b>Current scenario</b>	<b>Risk</b>	<b>Mitigation measure</b>	<b>Target date</b>
PMU establishment	PMUs of DPHE and NCC have not been established yet.	This may hamper the timely and effective implementation.	Timely setting up of PMUs with qualified key position staff for the effective implementation.	By loan signing
Staffing	Accounts staff in NCC is inadequate.	This may cause delays in the preparation of budget and financial statement.	Commitment from NCC to: (i) assign a dedicated accounts staff for the project, (ii) to develop a plan to strengthen its accounts section in the immediate future by e.g. engaging of additional qualified staff, streamlining of systems, etc.	By loan effectiveness
Training new staff	DPHE and NCC will appoint accounts staff to their PMUs for managing the facility funds.	New staff may have insufficient knowledge of ADB procedures, which may cause delays in the day-to-day financial management.	Extending sufficient training and capacity building support to enhance the financial management capacity of PMU.	By loan effectiveness
Internal audit	Internal audit system of DPHE and NCC is weak.	This may cause delays in the timely identification of issues.	In order to further strengthen the internal audit function of DPHE and NCC, the respective entities will assess their internal audit systems with support from consultant focusing on the areas of: (i) staffing and skill set, (ii) preparing an audit plan, (iii) used methodology and internal audit standards, (iv) periodicity, timeliness, quality of reporting and reporting lines, and (v) roles and responsibilities of the oversight body (audit committee). Based on the findings, the implementing agency will prepare a time bound action plan to address the identified weaknesses.	Within 3 months from loan effectiveness
Accounting software	Manual accounting systems in place at project level	This may cause errors and cumbersome reporting arrangements.	DPHE and NCC will assess their existing accounting and information systems with support from consultant to ensure that separate book of accounts can be maintained for the project and to automate the required financial reports. Based on the findings, the implementing agency will prepare a time bound action plan to address the identified weaknesses.	Within 3 months from loan effectiveness

ADB = Asian Development Bank, DPHE = Department of Public Health Engineering, NCC = Narayanganj City Corporation, PMU = project management unit.

13. In order to ensure sufficient knowledge in ADB's financial management requirements, including procedures and related systems, the PMUs must ensure that each financial/accounts staff assigned to the project undertake the following actions within the first three months working with the project:

- (i) Complete the ADB e-learning courses: ADB Disbursement eLearning course and Cash Basis International Public Sector Accounting Standard for ADB Project Financial Reporting;
- (ii) Master loan/grant agreement including the loan covenants and the relevant sections of this project administration manual (PAM), as well as ADB's *Loan Disbursement Handbook* (2017, as amended from time to time);
- (iii) Obtain user/reader rights (as required) to ADB's systems including: Client Portal for Disbursement (CPD) and the Loans and Grants Financial Information Service (LFIS).
- (iv) Familiarize themselves with ADB's reporting requirements including the agreed format for project financial statements and the financial information to be included in the semiannual progress reports.

14. Furthermore, the PMUs should on a yearly basis liaise with ADB to take advantage of other financial management resources and training events organized by ADB, especially in the first two years of project implementation.

15. In addition, the consulting firms, proposed to be recruited under UIIPF, will support DPHE and NCC in enhancing their financial management capacity and an inter-ministerial steering committee will oversee and guide the implementation of UIIPF. Close coordination and consultation with other development partners especially with Japan International Cooperation Agency (JICA) in NCC is clearly included in consultants' terms of reference (TOR).

## **B. Disbursement**

### **1. Disbursement Arrangements for ADB Funds**

16. LGD will disburse the project readiness loan proceeds<sup>3</sup> following ADB *Loan Disbursement Handbook* (2017, as amended from time to time), and detailed arrangements agreed between the government and ADB. Online training for project staff on disbursement policies and procedures is available.<sup>4</sup> Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

17. Under their respective components, the DPHE PMU and the NCC PMU will be responsible for: (i) preparing annual contract awards and disbursement projections, (ii) requesting budgetary allocations for counterpart funds, (iii) collecting supporting documents, and (iv) preparing and sending withdrawal applications to the ADB.

18. **The direct payment procedures.** The direct payment procedure will be used to pay the consultants. Both DPHE PMU and NCC PMU will include one accounts officer who will be responsible for preparing the withdrawal applications with complete supporting documents for signature by the respective Project Directors. The Project Directors of both PMUs will be the authorized signatory for withdrawal applications and submit these to Economic Relations Division

<sup>3</sup> LGD will disburse the loan proceeds to each of DPHE and NCC in accordance with allocation set forth in this PAM, on a grant basis.

<sup>4</sup> Disbursement eLearning. [http://wpqr4.adb.org/disbursement\\_elearning](http://wpqr4.adb.org/disbursement_elearning).

(ERD), Ministry of Finance (MOF) for review and approval and then to ADB for the processing of payments.

19. **Advance fund procedure** will be used to pay for small and recurrent project management related expenditures. Two separate advance accounts should be established and maintained by the DPHE PMU and NCC PMU for the ADB loan in the Central Bank of Bangladesh. The currency of the advance accounts is United States dollar. The advance accounts are to be used exclusively for ADB's share of eligible expenditures. In addition, DPHE PMU and the NCC PMU will open and maintain two separate sub-accounts (in BDT) in a nominated commercial bank. The funds in the advance accounts and in the sub-accounts will not be mingled with other funds. The DPHE PMU and NCC PMU who administers their respective advance account is accountable and responsible for proper use of advances to the advance account including advances to any sub-accounts. This procedure was practiced for ADB fund flow to DPHE in the completed Secondary Towns Water Supply and Sanitation Sector Project without issues. The DPHE PMU and NCC PMU will also be responsible in preparing all supporting documents for liquidation of eligible expenditures incurred and paid from the advance account as well as the replenishment of the advance incurred.

20. The total outstanding advance to the advance accounts should not exceed the estimate of ADB's share of expenditures to be paid through the advance accounts for the forthcoming 6 months. The ceiling of the advance fund procedure is the equivalent of \$100,000 per individual payment. The total outstanding advance, in any event, should not exceed \$300,000. The DPHE PMU and NCC PMU may request for initial and additional advances to the advance accounts based on an Estimate of Expenditure Sheet<sup>5</sup> setting out the estimated expenditures to be financed through the accounts for the forthcoming 6 months. Supporting documents should be submitted to ADB or retained by the DPHE PMU and NCC PMU in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance accounts. ADB will closely monitor the use of advance fund and ensure that it is fully liquidated before replenishment.

21. Before the submission of the first withdrawal application, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should be paid (i) by the DPHE and NCC and subsequently claimed to ADB through reimbursement, or (ii) through the advance fund procedure unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting disbursements. Use of ADB's CPD<sup>6</sup> system is encouraged for submission of withdrawal applications to ADB.

22. If the PRF is expected to be re-financed under an ensuing or ongoing loan, upon refinancing, no further disbursements will be made from the PRF account upon refinancing under an ensuing or ongoing loan. The PRF loan amount and accrued financing charges are paid out under the PRF cost category of the ensuing or ongoing loan that will refinance the PRF loan. Provided the following costs are eligible expenditures, the ensuing or ongoing loan will finance (i) costs incurred under PRF that have not yet been paid from the PRF account by the refinancing

<sup>5</sup> Estimate of Expenditure sheet is available in Appendix 8A of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

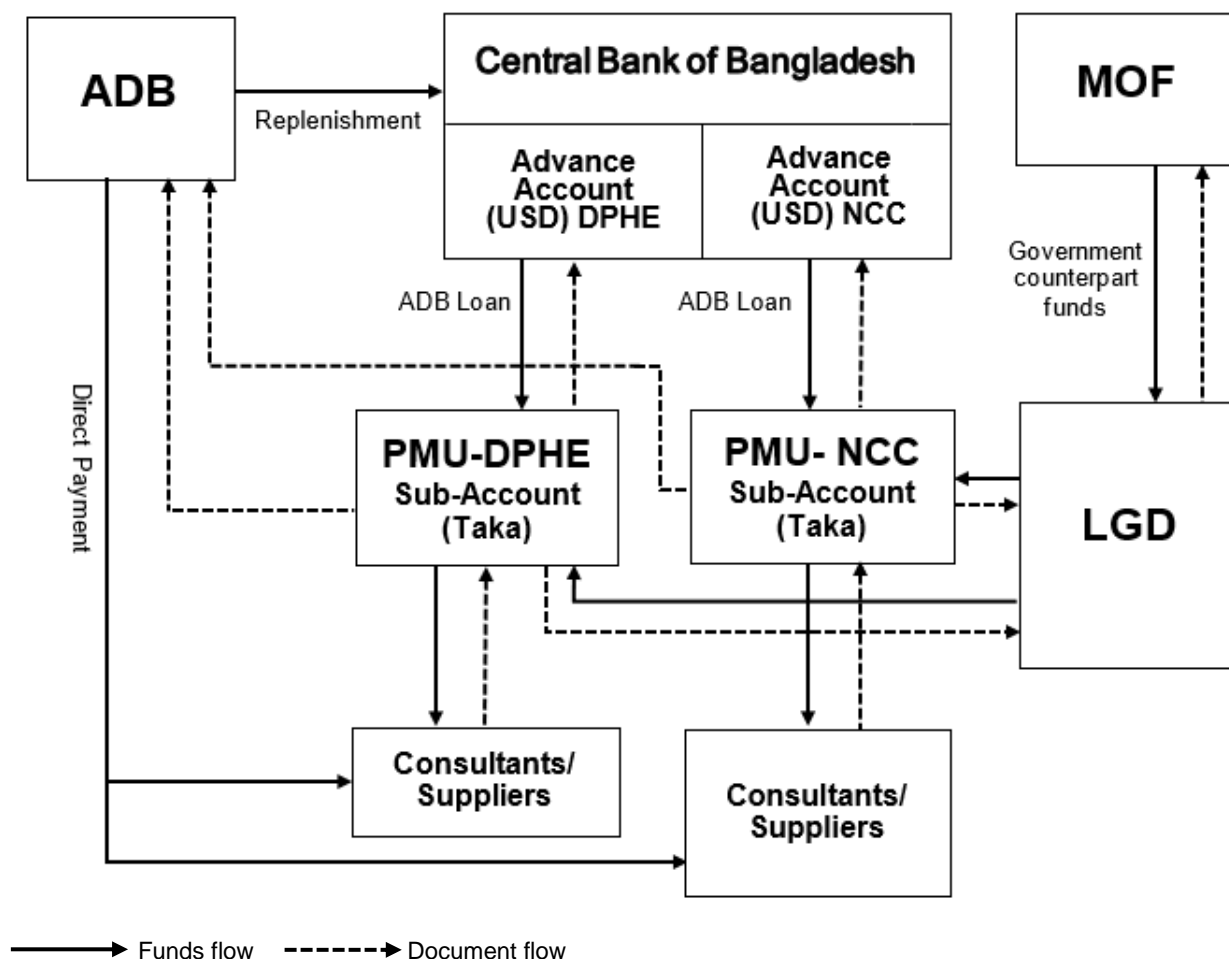
<sup>6</sup> The CPD facilitates online submission of withdrawal application to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at <https://www.adb.org/documents/client-portal-disbursements-guide>.

date, (ii) costs for activities initiated under PRF and continuing beyond the refinancing date, and (iii) costs incurred during PRF implementation but ineligible under PRF.

## 2. Disbursement Arrangements for Counterpart Fund

23. Counterpart funds will be provided by executing agencies from their annual budgets, which in turn will be based on the amounts provided for the projects in the budget of the government. The PMUs will be responsible for: (i) preparing disbursement projections, and (ii) requesting budgetary allocations for counterpart funds, and (iii) collecting supporting documents. Taxes and duties will be borne by the counterpart by way of cash contribution.

**Figure 2. Fund Flow Diagram**



ADB = Asian Development Bank, DPHE = Department of Public Health Engineering, LGD = Local Government Division, MOF = Ministry of Finance. NCC = Narayanganj City Corporation, PMU = Project Management Unit, USD = United States Dollars  
Source: Asian Development Bank.

## C. Accounting

24. DPHE and NCC will maintain separate PRF project accounts and records by funding source for all expenditures incurred on the PRF project, following cash basis of accounting. DPHE

and NCC will prepare their respective financial statements in accordance with the Bangladesh Accounting Standards based on the cash-basis International Public Sector Accounting Standards. Each project financial statement is expected to include at least the following: Sources and uses of funds, statement of budgeted versus actual expenditures, statement of imprest/advance account, summary statement of expenditures and notes disclosing the used accounting policies. Any significant variances between budgeted vs actual expenditures will also be explained in the notes.

#### **D. Auditing and Public Disclosure**

25. DPHE and NCC will cause the detailed project financial statements to be audited separately following the International Standards on Auditing by the Foreign Aided Project Audit Directorate (FAPAD) under the Comptroller and Auditor General of Bangladesh. DPHE and NCC will present their respective audited project financial statements together with the auditor's opinion, in English, to ADB within 6 months from the end of the fiscal year.

26. NCC will submit the audited entity financial statements together with the auditor's report and management letter, in English, to ADB within 1 month after approval by the relevant authority.

27. The audit report for the project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, following the applicable financial reporting standards; (ii) whether the proceeds of the loan were used only for the purposes of the project; and (iii) whether the borrower or executing agencies complied with the financial covenants contained in the legal agreements (where applicable).

28. DPHE and NCC will monitor compliance with financial reporting and auditing requirements during review missions and normal program supervision and will follow up regularly with all concerned, including the external auditor.

29. ADB has made the government, DPHE and NCC, aware of ADB's approach to delayed submission and the requirements for satisfactory and acceptable quality of the audited project financial statements.<sup>7</sup> ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower) or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that its policies and procedures were followed when the share of ADB's financing was used.

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<sup>7</sup> ADB's approach and procedures regarding delayed submission of audited project financial statements:

- (i) When ADB does not receive the audited project financial statements by the due date, ADB will write to the executing agency to inform it that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- (ii) When ADB does not receive the audited project financial statements within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will inform the executing agency (a) of ADB's actions and (b) that the loan may be suspended if the audit documents are not received within the next 6 months.
- (iii) When ADB does not receive the audited project financial statements within 12 months after the due date, ADB may suspend the loan.

30. In order to close the project accounts in a timely manner and to comply with ADBs requirements, the PMUs will ensure that the following measures are undertaken:

- (i) All ADB financed expenditures are incurred before or by the loan closing date;
- (ii) All advances to the advance accounts are normally to be liquidated without replenishment during the 6-month period prior to the loan closing date. Any unutilized balance of advances (if any) must be promptly refunded to ADB, within 4 months of the loan closing date;
- (iii) All withdrawal applications under the reimbursement and direct payment procedures are submitted to ADB preferably by the loan closing date but in no case later than the financial closing date as agreed with ADB;
- (iv) The final project financial statements are prepared in a timely manner and include all eligible expenditures incurred up to the loan closing date as well as up to the final withdrawal application submitted to ADB. The final project financial statement is to include a reconciliation of the project accounts and the ADB disbursement records for the fiscal year and cumulatively from inception. Any differences must be disclosed and explained;
- (v) The final project financial statements are audited by independent auditors as agreed with ADB and the Audited Project Financial Statements (APFS) and the management letter are submitted to ADB by the loan closing date or as soon as possible after the loan closing date;
- (vi) A final inventory of the project's assets is conducted and duly documented to facilitate the transfer of assets to the relevant authorities as applicable; and
- (vii) All projects financial records are filed in an orderly manner, backed up electronically and stored in a secure location for a for at least 1 year following receipt by ADB of the final APFS or 2 years after the loan closing date, whichever is later.

31. ADB's Access to Information Policy will guide the public disclosure of the APFS, including the auditor's opinion on the project financial statements. After the review, ADB will disclose the APFS and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on its website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.<sup>8</sup>

## V. PROCUREMENT AND CONSULTING SERVICES

### A. Advance Contracting

32. All advance contracting will follow the ADB Procurement Policy (2017, as amended from time to time) and its associated staff instructions. The issuance of consulting service recruitment notices or invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. ADB has advised the borrower, DPHE and NCC that approval of advance contracting does not commit ADB to finance the PRF project.

33. **Advance contracting.** Advance contracting for goods and consulting services under all the component will be undertaken by DPHE and NCC. Advance contracting that may be concluded in advance include (i) preparation of bidding documents to procure materials and equipment, procurement and bid evaluation, and award; and (ii) recruitment of loan consultants.

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<sup>8</sup> Such information generally falls under public communications policy exceptions to disclosure (ADB. 2011. *Public Communications Policy 2011: Disclosure and Exchange of Information*. Manila [para. 97(iv-v)]).

The government has requested for advance contracting for engaging consulting services under DPHE and NCC components.

## **B. Procurement of Consulting Services**

34. DPHE and NCC will recruit all consultants following the ADB Procurement Policy and its associated project administration instructions and/or staff instructions. The terms of reference for all consulting services are detailed in Section E.

35. Each PMU under DPHE and NCC will engage PRF loan consultants recruited through a firm and individually to help the executing agencies prepare and/or update the feasibility study, detailed design, drawing, cost estimate and bid documents of their respective components of the facility. NCC will also engage a consulting firm to improve and strengthen the municipal financial management. An estimated total of 156 person-months of international and 507 national consulting services are required under the facility. The consulting firms will be recruited using the quality- and cost-based method of selection with a quality-cost ratio of 90:10 to ensure engagement of highly qualified and experienced team of consultants. A pool of individual consultants will also be engaged to support each PMU.

## **C. Procurement of Goods and Civil Works**

36. All procurement of goods and works will follow the ADB Procurement Policy (2017, as amended from time to time) and its associated staff instructions. An 18-month procurement plan indicating threshold and review procedures, goods, and consulting service contract packages and national competitive bidding guidelines is in Section D.

37. Before the start of any procurement, ADB and the government will review the public procurement laws of the central and state governments to ensure consistency with the ADB Procurement Policy.

## **D. Procurement Plan**

38. A procurement plan (Appendix 3) was prepared in accordance with ADB's new template and using country-specific Annex. The procurement plan indicates threshold and review procedures, goods, and consulting service contract packages and national competitive bidding guidelines. The procurement plan provides: (i) a list of goods, and consulting services contract packages that will be processed over the next 18 months with milestone dates for activities; (ii) the proposed methods for procurement of such contracts that are permitted under the loan agreement; and (iii) the related ADB review procedures. The procurement packages in the procurement plan will be updated by the PMU for approval by ADB. The procurement plan will be updated at least annually or as the need arises for the duration of the project.

## **E. Consultant's Terms of Reference**

39. Summary of the terms or reference of the consulting packages is shown below. Detailed terms of reference of the consultants are available in Appendix 4.<sup>9</sup> The scope of consulting packages for each component will include the following:

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<sup>9</sup> Terms of reference of consulting firms is available in this link:



- (i) **DPHE component:** (a) preparation and updating feasibility studies, detailed design for the proposed infrastructure facilities for water supply from surface water and fecal sludge management in Rangamati, Bandarban and Lama in hill district area;  
(b) preparation of bidding documents following ADB's procurement policy and provision of procurement assistance for DPHE and *pourashavas*; (c) preparation of feasibility study for water supply from surface water from big river using cluster approach in two regions such as Cumilla region and Ishwardi region; and (d) provision of capacity building of local government (*pourashavas*/town's authority) and DPHE in the implementation of water service provision.
- (ii) **NCC component:**
  - (a) *Urban infrastructure subcomponent:* (i) preparation of master plan, feasibility study, detailed design for the proposed infrastructure facilities for water supply, drainage, and road in NCC; (ii) preparation of bidding documents following ADB's procurement policy and provision of procurement assistance for NCC; and (c) provision of capacity building of NCC in the implementation of the PRF and ensuing investment projects, and service provision.
  - (b) *Capacity building of municipal finance management subcomponent:* (i) conducting situation analysis and identification of capacity gap of financial management of NCC; (ii) development, implementation and monitoring of capacity building plan; and (iii) compile recommendations on administrative improvement in financial management and provision of support in implementing them, including necessary interagency coordination.

## VI. SAFEGUARDS

40. While the facility is not expected to have any adverse environmental or social safeguard impacts as it will only involve studies, surveys, designs and bid document preparation for the ensuing projects, it will assess the climate risk and vulnerability of the ensuing projects to understand the risks to climate change and natural hazards. The climate and disaster risk screening and/or assessments to be conducted under the proposed facility will look at how these risks threaten the ensuing project's infrastructure and service delivery, while the environmental risk assessment will look at how the ensuing projects will affect the natural and human systems within and around the project and its operation.

41. Climate change adaptation and mitigation measures will be explored and integrated into the project design to avoid or where avoidance is not possible, minimize the negative impacts of the identified risks during the climate change adaptation/climate risk vulnerability assessment.

42. The consultants to be hired under the facility will help the PMUs in (i) assessing safeguard issues in the ensuing projects and preparing the necessary safeguards documents in accordance with ADB's Safeguard Policy Statement (2009); and (ii) exploring project feasibility and designs

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[http://www.adb.org/Documents/Manuals/Consulting-Services-Operations-Manual/CSOM.pdf?bcsi\\_scan\\_D4A612CF62FE9576=AORY9a8Nho2ezS9Xss/ligEAAAANNiAA&bcsi\\_scan\\_filename=CSOM.pdf](http://www.adb.org/Documents/Manuals/Consulting-Services-Operations-Manual/CSOM.pdf?bcsi_scan_D4A612CF62FE9576=AORY9a8Nho2ezS9Xss/ligEAAAANNiAA&bcsi_scan_filename=CSOM.pdf)(paras 65–72).

The terms of reference of individual consultants is still being discussed and finalized with the EAs.

alternatives of the ensuing projects that will avoid, and where avoidance is not possible, minimize environmental and social impacts.<sup>10</sup>

43. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth in Appendix 5 of the Safeguard Policy Statement.

## VII. GENDER AND SOCIAL DIMENSIONS

44. Projects to be prepared under the facility will cover 12 cities and emphasize climate resilience, gender-responsiveness and social inclusion. Feasibility studies and detailed engineering design will ascertain social and poverty issues. Through the conduct of feasibility studies, the project will identify measures to ensure increased access of women and disadvantaged groups to basic urban services. The facility will center squarely on the low provision and quality of urban infrastructure that has caused acute shortages of basic public services, especially in poor communities. Particular attention will be drawn to gender and social inclusion issues and climate resilience. Consultancy and staff resources will be allocated to conduct engineering study, economic and financial analysis, and social and environmental assessment with required documentation.

45. The facility will promote projects that have gender friendly features and prepare guidelines for mainstreaming gender equity in the design of urban projects. Gender issues will be assessed, and gender perspectives will be integrated in project planning to achieve positive outcomes for women particularly in achieving gender equality. The facility will also ensure that at least 10% of female PMU staff will have increased capacity in the areas of procurement, contract management, safeguards and gender equality. As feasible, the implementing agencies will consider conducting, under the ensuing loans, baseline/end line surveys on socioeconomic indicators (e.g., health impacts, inter-household decision-making and responsibilities for water collection and other water, sanitation and hygiene [WASH] issues; time poverty and physical safety issues for women with poor urban infrastructure).

46. Knowledge of gender specific customer/consumer behavior for water supply, sanitation and drainage will be gained through survey and analysis that will inform a sex-disaggregated consumer/customer database. The role of women will be expanded through their engagement in complaints redress mechanisms, which will provide feedback on service quality. Based on the analysis, customer/consumer rights, and sustainable service delivery can be developed. PRF Consultant's Gender Specialist with the supervision of PMU will prepare gender action plan (GAP) for the ensuing investment project.

## VIII. PERFORMANCE MONITORING

### A. Monitoring

47. **Project readiness financing project performance monitoring.** Each PMU under DPHE and NCC will monitor PRF project performance semiannually and provide consolidated reports to ADB. These reports will include (i) each activity's progress measured against the implementation schedule, (ii) key implementation issues and solutions, (iii) an updated procurement plan, and (iv)

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<sup>10</sup> The assessment and selection of alternative for the project design will be based on the safeguards hierarchy, which is to consider first the alternative design that avoids adverse environmental and social impacts. If avoidance is not possible, prefer the alternative design that minimizes environmental and social impact.

an updated implementation plan for the next 12 months. To ensure PRF projects continue to be both viable and sustainable, DPHE and NCC should adequately review PRF project financial statements and the associated auditor's report. In the event that an ensuing loan is not approved, DPHE and NCC will submit a PRF project completion report to ADB within 6 months of physical completion of the PRF project.<sup>11</sup>

48. **Compliance monitoring.** The loan consultants will support the PMUs in monitoring performance, monitoring and evaluation framework and the Project Performance Management System for the facility. The PMUs, with support from loan consultants, will prepare a semiannual progress report, which among other items will include compliance of implementation with: (i) assurances, covenants, conditions; and (ii) gender action framework (GAF), etc. Status of compliance with loan covenants—policy, legal, financial, economic and others—will be reviewed during ADB review mission.

49. **Safeguards monitoring.** There are no reporting requirements as the loan is category C for environment, social and tribes, minor races, ethnic sects and communities<sup>12</sup> safeguards. Meanwhile, compliance to the safeguard requirements based on Safeguards Policy Statement 2009 of the ensuing projects to be evaluated for ADB financing, will be monitored.

## B. Reporting

50. Each PMU under DPHE and NCC will provide ADB with:

- (i) semiannual progress reports on the PRF project no later than 45 days after the end of each period in a format consistent with ADB's project performance reporting system. Requirements of the executing agency's progress report contents are provided in Appendix 5;
- (ii) consolidated annual reports, including (a) progress achieved by output measured against the performance targets, (b) key implementation issues and solutions, (c) an updated procurement plan, and (d) an updated implementation plan for the next 12 months;<sup>13</sup> and
- (iii) PRF project accounts, DPHE and NCC's audited financial statements, and the associated auditor's report.

## IX. ANTICORRUPTION POLICY

51. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy (1998, as amended to date) relating to the PRF project following ADB's Integrity Principles and Guidelines.<sup>14</sup> All contracts financed by ADB will include provisions specifying ADB's right to audit and examine the records and accounts of the executing agency and all PRF project contractors, suppliers, consultants, and other service providers. This includes the examination of project outputs, assets, and all other information that may be considered

<sup>11</sup> ADB. 2018. Project Completion Report for Sovereign Operations. *Project Administration Instructions*. PAI 6.07A. Manila.

<sup>12</sup> Groups or population identified as indigenous peoples within the context of ADB's Safeguard Policy Statement will be referred to in this document as tribes, minor races, ethnic sects and communities (following the request of the Government of Bangladesh).

<sup>13</sup> The regional departments will present the performance of the completed PRF in the project completion report of the ensuing loan.

<sup>14</sup> ADB. 2015. Integrity Principles and Guidelines (2015). Manila.

relevant for audit or inspection by ADB regardless of project completion, termination, or cancellation. Firms or individuals on ADB's anticorruption debarment list are ineligible to participate in activities that are financed, supported, or administered by ADB; and may not be awarded any contracts under the PRF project.<sup>15</sup>

52. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the PRF project.

## **X. ACCOUNTABILITY MECHANISM**

53. People who are, or may in the future be, adversely affected by the PRF project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted PRF projects can voice and seek a resolution for their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.<sup>16</sup>

## **XI. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL**

54. All revisions and/or updates during the course of implementation should be retained in this section to provide a chronological history of changes to implemented arrangements recorded in the PAM, including revision to contract awards and disbursement s-curves.

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<sup>15</sup> ADB. [Anticorruption and Integrity](#).

<sup>16</sup> ADB. [Accountability Mechanism](#).

## LIST OF ENSUING PROJECTS

1. The Asian Development Bank (ADB) and the executing agencies for the project readiness financing facility have agreed on the list of ensuing projects, which preparation will be supported by the facility during implementation. Notwithstanding the possible change in subprojects especially in Department of Public Health Engineering (DPHE) project as below, safeguards activities under the facility are expected to have minimal or no environmental or social impacts as it will only support consulting services.
2. **Secondary Towns Water Supply and Sanitation Project** [indicative name of the DPHE project]. Water supply and fecal sludge management in the following 11 selected towns: Bandarban, Chandpur, Cumilla, Daudkandi, Hajganj, Ishwardi, Lalpur, Lama, Natore, Pabna, and Rangamati.
3. The facility will support (i) feasibility study, detailed design and other project preparatory activities for ensuing investment project in the three towns in the Hill District area, namely Bandarban, Rangamati, and Lama, where urban infrastructure is less developed than other areas in the country; and (ii) feasibility study of the remaining eight towns, exploring cluster approach, where a town that serves as regional water grid/water hub to be connected to surrounding towns. Detailed design and advanced implementation support for the eight towns may be supported under the ensuing investment project for DPHE.
4. In the event some of the above towns under DPHE project are found by ADB and DPHE to be unfeasible as a result of the studies, inclusion of other towns may be approved. For such event, ADB and DPHE have agreed on selection criteria for choosing subprojects. This approach will allow the government to lead the identification, prioritization, and due diligence for selecting future subprojects to be supported by the project readiness financing. ADB's approval for subprojects selection of the ensuing projects will be granted based on satisfactory technical, governance and safeguards assessments and due diligence, promotion of gender equality and any other criteria agreed between the executing agency and ADB.
5. The nominated subprojects must meet the following criteria for being selected for funding under the project readiness financing:
  - (i) Availability of surface water source, in which water withdrawal by the project will not cause the surface water body to exceed its safe yield;
  - (ii) Availability of land for water supply infrastructures. It is preferable if the land is owned by the town authority or other governmental institution. In addition, the site of any proposed infrastructure or components is located in areas with sufficient distance from any sensitive receptors such as residential areas, etc.;
  - (iii) Quality of ground water sources, wherein the priority will be for ground water sources that have poor quality;
  - (iv) Coverage of hygienic latrine used by the residents. Meaning, any sanitation subproject will cover only those residential houses that use hygienic latrines;<sup>1</sup>
  - (v) Potential of the town to serve as regional water grid/water hub of cluster approach for surrounding towns/ townships;
  - (vi) Coverage of water supply services;
  - (vii) Willingness of the town to outsource water supply operation;

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<sup>1</sup> The design of the wastewater treatment plants to be built and any expansion plans will be able to accommodate increased wastewater generation from households as a result of the new water supply system in the future.

- (viii) Necessary time duration for supplemental feasibility study before commencement of detail engineering design;
- (ix) Identify the necessary clearances. For environmental clearances, identify if environmental impact assessment or initial environmental examination will be required by the Ministry of Environment, Forest and Climate Change (MOEFF). For social safeguard issues, identify if there is likelihood of involuntary resettlement and rough number of affected households; and
- (x) Compliance with the requirements of ADB Safeguard Policy Statement, 2009. The subprojects will avoid locations in environmentally sensitive areas.

6. ADB will review DPHE's proposal for a project to be included for support under the facility, and, if necessary, may request additional information to justify the selection. ADB's formal approval must be obtained before detailed design or other project preparation activities for the proposed project commences.

7. **Narayanganj Urban Development Project** [indicative name of Narayanganj City Corporation (NCC) project]:

- (i) Rehabilitation of existing water supply infrastructure and its expansion, especially in the main city area to improve the current low quality of water supply services. The facility will also support switching from ground water to surface water source.
- (ii) Drainage improvement mainly in the city center area where the need of improvement is urgent. The studies under the facility will explore feasible drainage schemes and onsite treatment options.
- (iii) 17-kilometer road along east side of Shitalakhya River to serve as a by-pass road to reduce the serious traffic congestion in the city.

## NECESSARY MANPOWER TO IMPLEMENT THE PROPOSED FACILITY

### I. Department of Public Health Engineering

**Table 1: Project Management Unit for the PRF Project**

Position	No	Grade and Pay scale	Remarks
Project Director (PD)	01	Grade-5 Scale: BDT 43000-69850	<ul style="list-style-type: none"> <li>➤ Full time, deputed from Department of Public Health Engineering (DPHE)</li> <li>➤ Terms of Reference (TOR):               <ul style="list-style-type: none"> <li>• Lead project management unit and act as Member Secretary of Project steering committee;</li> <li>• Coordinate with Chief Engineer, DPHE, Ministries, Asian Development Bank (ADB) and Hill District Councils/city corporations, and submit the report on activities and status of the project;</li> <li>• Review and recommend the consultant's proposal for selection;</li> <li>• Guide, supervise, monitor and support the activities performed by the technical assistance (TA) consultant and recommend the payment for the consultant;</li> <li>• Review and approve/recommend the report/design/ bid documents submitted by the consultant;</li> <li>• Approve and recommend the cost estimate;</li> <li>• Evaluate, approve/recommend the bid for the investment project (as advance contracting);</li> <li>• Conduct or support to conduct the different meeting/workshop;</li> <li>• Ensure environmental safeguards considerations are included in the designs, bid documents and other project documents;</li> <li>• Ensure close coordination of design engineers with safeguards consultants; and</li> <li>• Ensure safeguards consultants are involved in the review of bid documents, conditions of the contracts, and items to ensure satisfactory EMP compliance and sufficient budget requirements by contractor.</li> </ul> </li> </ul>
Executive Engineer	01	Grade-5 Scale: BDT 43000-69850	<ul style="list-style-type: none"> <li>➤ Full time, deputed from DPHE</li> <li>➤ TOR:               <ul style="list-style-type: none"> <li>• Verify the progress and other activity related report;</li> <li>• Liaise with the project Hill District Councils / city corporations/<i>pourashavas</i>, and Executive Engineer, DPHE field office as regard to conducting study;</li> <li>• Coordinate with city level committee through DPHE field office;</li> </ul> </li> </ul>

Position	No	Grade and Pay scale	Remarks
			<ul style="list-style-type: none"> <li>• Support to Project Director regarding evaluation of consultant proposal;</li> <li>• Supervise and the co-ordinate the activities of consultant in field;</li> <li>• Verify the payment invoice of the consultant;</li> <li>• Procure the equipment or other accessories as per direction of PD;</li> <li>• Support to PD to approve/recommend the report/design/ bid documents submitted by the consultant and cost estimate;</li> <li>• Support to PD to evaluate, approve/recommend the bid for the investment project</li> <li>• Provide support to floating and evaluation of bid;</li> <li>• Facilitate the project Hill District Councils/city corporations/<i>pourashavas</i> to conduct the meeting/ workshop</li> <li>• Review the safeguard document and provide opinion on that;</li> <li>• Ensure environmental safeguards considerations are included in the designs, bid documents and other project documents;</li> <li>• Ensure close coordination of design engineers with safeguards consultants; and</li> <li>• Ensure safeguards consultants are involved in the review of bid documents, conditions of the contracts, and items to ensure satisfactory EMP compliance and sufficient budget requirements by contractor.</li> </ul>
Assistant Engineer	02	Grade-9 Scale: BDT 22000-53060	<ul style="list-style-type: none"> <li>➤ Full time deputed from DPHE</li> <li>➤ TOR: <ul style="list-style-type: none"> <li>• Collect the information from the project Hill District Councils/city corporations/<i>pourashavas</i> /DPHE field office and, prepare the report on progress and other project related activities;</li> <li>• Supervise the project activities and report to Executive Engineer;</li> <li>• Prepare the cost estimate;</li> <li>• Provide support to evaluation of Bid;</li> <li>• Provide support to Executive Engineer for the task of procurement;</li> <li>• Be responsible to handle all aspects on environmental safeguards;</li> <li>• Coordinate with consultant and Hill District Councils/city corporations/<i>pourashavas</i> and DPHE for Social and Environmental assessment by the TA consultant;</li> <li>• Assist in conducting Workshop</li> </ul> </li> </ul>



Position	No	Grade and Pay scale	Remarks
Sub-Assistant Engineer	02	Grade-10 Scale: BDT 16000-38640	<ul style="list-style-type: none"> <li>➤ Full time, deputed from DPHE</li> <li>➤ TOR: <ul style="list-style-type: none"> <li>• Support to Assistant Engineer in collection of information and preparing report;</li> <li>• Supervise the project activities assigned by Assistant Engineer/Executive Engineer;</li> <li>• Support to Assistant Engineer/Executive Engineer to prepare the cost estimate;</li> <li>• Provide support to Executive Engineer for the task of procurement;</li> <li>• Support to Assistant Engineer as regard to Social and Environmental assessment by the TA consultant;</li> </ul> </li> </ul>
Accounts Officer	1	Grade-10 Scale: BDT 16000-38640	<ul style="list-style-type: none"> <li>➤ Full time, deputed from DPHE</li> <li>➤ TOR: <ul style="list-style-type: none"> <li>• Maintains all project book of accounts;</li> <li>• Keeps all project accounts up-to-date;</li> <li>• Ensures timely preparation of report of disbursements and periodic accounting reports of the project;</li> <li>• Prepare request for payment/invoice for consultant's payment/staff salary/contractor's payment;</li> <li>• Provide financial information for preparing progress report.</li> </ul> </li> </ul>
Social Safeguards/Social Development Officer	1	Grade-9 Scale: BDT 22000-53060	<ul style="list-style-type: none"> <li>➤ Full time, deputed from DPHE</li> <li>➤ TOR: <ul style="list-style-type: none"> <li>• Coordinate social impact assessment</li> <li>• Review the findings of social assessment and report to project management unit (PMU).</li> <li>• Support PMU to address the mitigation option and resettlement issue following findings of SIA</li> <li>• Take initiatives for social motivation and awareness programme</li> <li>• Prepare reports on social issues on behalf of PMU</li> </ul> </li> </ul>
Data Entry Operator	1	Grade-14 Scale: BDT 10200-24680	<ul style="list-style-type: none"> <li>➤ <u>Full time</u>, deputed from DPHE</li> <li>➤ Graduation in any discipline</li> <li>➤ 5 years' experience in computer operation and maintenance</li> <li>➤ TOR: <ul style="list-style-type: none"> <li>• Make data base on project related activities;</li> <li>• Support in typing and printing the report and letter;</li> <li>• Maintain the computers and other accessories;</li> <li>• Archive all important project reports and documents electronically.</li> </ul> </li> </ul>

Position	No	Grade and Pay scale	Remarks
Driver	2	Grade-16 Scale: BDT 9300-22490	<ul style="list-style-type: none"> <li>➤ <u>Outsourcing</u></li> <li>➤ SSC or equivalent</li> <li>➤ Five years driving experience. Must possess professional driving license.</li> <li>➤ TOR: To ensure safe transport of project personnel; and maintain the vehicles assigned to them</li> </ul>
Office Assistant	2	Grade 20 Scale: BDT 8250-20010	<ul style="list-style-type: none"> <li>➤ <u>Outsourcing</u></li> <li>➤ SSC or equivalent</li> <li>➤ TOR: To provide support to daily operation of the office.</li> </ul>

**Table 2: Project Management Unit members' appointment status and timeframe  
(Department Public Health Engineering's proposal)**

No.	Position	Appointment Timeframe	Remarks
1	Project Director	January 2019	Key position
2	Executive Engineer	January 2019	Key position
3	Assistant Engineer 1	January 2019	Key position
4	Assistant Engineer 2	January 2019	Key position
5	Sub-Assistant Engineer 1	January 2019	Key position
6	Sub-Assistant Engineer 2	January 2019	Key position
7	Accounts Officer	January 2019	Key position
8	Social Safeguard Officer	January 2019	Key position
9	Data Entry Operator	January 2019	Key position
10	Driver 1	January 2019	
11	Driver 2	January 2019	
12	Office Assistant 1	January 2019	
13	Office Assistant 2	January 2019	

Notes: 1. The above indicates official and fulltime appointment timeframe.

2. DPHE will allocate Environment Officer (engineer with environment background) by loan effectivity.

## **II. Necessary Manpower for Narayanganj City Corporation to Implement the Proposed Facility**

**Table 3: Project Management Unit for Project Readiness Facility**

Position	No	Grade and Pay Scale	Qualifications and Terms of Reference (TOR)
Project Director (PD)	1	Grade-4 Scale: BDT 50000-71200	<ul style="list-style-type: none"> <li>• Fulltime deputed from Narayanganj City Corporation (NCC, Superintended Engineer)</li> <li>• Bachelor of Science in Civil Engineering with 15 years' experience in management of water supply and sanitation or urban infrastructure in terms of management or construction works</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>• Lead project management unit and act as Member Secretary of project steering committee;</li> <li>• Coordinate with Mayor, NCC, Ministries, Asian Development bank (ADB) and other stakeholders, and submit reports of activities and status of the project;</li> </ul>

Position	No	Grade and Pay Scale	Qualifications and Terms of Reference (TOR)
			<ul style="list-style-type: none"> <li>• Closely coordinate with Dhaka Water Supply and Sewerage Authority (DWASA) for water supply part and also with Rajdhani Unnayan Katipakkha (RAJUK) for drainage master plan and BIWTA for road construction along Sitalakhya river</li> <li>• Review and recommend the consultant's proposal for selection;</li> <li>• Guide, supervise, monitor and support the activities performed by the technical assistance (TA) Loan consultant and recommend the payment for the consultant;</li> <li>• Review and approve/recommend the report/design/ bid documents submitted by the consultant;</li> <li>• Approve and recommend the cost estimate;</li> <li>• Evaluate, approve/recommend the bid for the investment project (as advance contracting) as member secretary of bid-evaluation committee;</li> <li>• Conduct or support to conduct different meetings/workshops;</li> <li>• Ensure environmental safeguards considerations are included in the designs, bid documents and other project documents;</li> <li>• Ensure close coordination of design engineers with safeguards consultants; and</li> <li>• Ensure safeguards consultants are involved in the review of bid documents, conditions of the contracts, and items to ensure satisfactory environment management plan (EMP) compliance and sufficient budget requirements by contractor.</li> </ul>
Executive Engineer (EE, Infrastructure)	01	Grade-5; Scale BDT 35500-67010	<ul style="list-style-type: none"> <li>• Fulltime deputed from NCC (Executive Engineer)</li> <li>• Bachelor of Science in Civil Engineering with 10 years' experience in urban infrastructure</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>• Verify the progress and other activity related report;</li> <li>• Liaise with all stakeholders (such as, RAJUK, Bangladesh Inland Water Transport Authority [BIWTA]) of the project regard to conducting study;</li> <li>• Coordinate with project level committee;</li> <li>• Support to Project Director regarding evaluation of consultant proposal;</li> <li>• Supervise and the co-ordinate the activities of consultant mainly for urban infrastructure works;</li> <li>• Verify the payment invoice of the consultant;</li> </ul>

Position	No	Grade and Pay Scale	Qualifications and Terms of Reference (TOR)
			<ul style="list-style-type: none"> <li>• Procure the equipment or other accessories as per direction of PD;</li> <li>• Support to PD to approve/recommend the report/design/ bid documents submitted by the consultant and cost estimate related to road and drainage;</li> <li>• Support to PD to evaluate, approve/recommend the bid for the investment project</li> <li>• Provide support to floating and evaluation of bid;</li> <li>• Facilitate to conduct the meeting/ workshop</li> <li>• Review the safeguard document and provide opinion on that;</li> <li>• Ensure environmental safeguards considerations are included in the designs, bid documents and other project documents;</li> <li>• Ensure close coordination of design engineers with safeguards consultants; and</li> <li>• Ensure safeguards consultants are involved in the review of bid documents, conditions of the contracts, and items to ensure satisfactory EMP compliance and sufficient budget requirements by contractor.</li> </ul>
Executive Engineer (Water Supply)	01	Grade-5; Scale BDT 43000-69850	<ul style="list-style-type: none"> <li>• Fulltime deputed from DWASA (Executive Engineer)</li> <li>• Bachelor of Science in Civil Engineering with 10 years' experience in urban water supply and sanitation</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>• Liaise with DWASA for better coordination with the study of Dhaka WASA and other activities.</li> <li>• Work as an interface between DWASA and NCC to gradually transfer the technology, information and, water supply management to NCC.</li> <li>• Verify the progress and other activity related report;</li> <li>• Liaise with all stakeholders of the project regard to conducting study for water supply;</li> <li>• Coordinate with project level committee;</li> <li>• Supervise and the co-ordinate the activities of consultant in field related to water supply;</li> <li>• Verify the payment invoice of the consultant;</li> <li>• Procure the equipment or other accessories as per direction of PD;</li> <li>• Organised training on operation and maintenance of water supply for the NCC staff.</li> <li>• Support to PD to approve/recommend the report/design/ bid documents submitted by the consultant and cost estimate related to water supply;</li> </ul>

Position	No	Grade and Pay Scale	Qualifications and Terms of Reference (TOR)
			<ul style="list-style-type: none"> <li>• Support to PD to evaluate, approve/recommend the bid for the investment project</li> <li>• Provide support to floating and evaluation of bid;</li> <li>• Facilitate to conduct the meeting/ workshop</li> <li>• Review the safeguard document and provide opinion on that.</li> </ul>
Urban Planner	01	Grade-6 Scale: BDT 35500-67010	<ul style="list-style-type: none"> <li>• Fulltime deputed from NCC (Urban Planner)</li> <li>• Graduate in urban and rural/regional planning or similar discipline with 7 years relevant working experience</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>• Collect and keep record of all the information related to the project and prepare the report on progress and other project related activities;</li> <li>• Supervise the project activities and report to Project Director;</li> <li>• Work closely with PRF consultant for drainage master plan and landscaping for road;</li> <li>• Provide support to evaluation of Bid;</li> <li>• Provide support to EE for the task of procurement;</li> <li>• Be responsible to handle all aspects on environmental safeguards;</li> <li>• Coordinate with consultant and work closely with PRF consultant for Social and Environmental assessment;</li> <li>• Assist in conducting Workshop</li> </ul>
Assistant Engineer	02	Grade-9 Scale: BDT 22000-53060	<ul style="list-style-type: none"> <li>• Fulltime deputed from NCC (Civil Engineer and Electrical Engineer)</li> <li>• BSc in Civil/ Electrical Engineering having experience in water supply/ sanitation/urban infrastructure projects will be given preference</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>• Collect and keep record of all the information related to the project and prepare the report on progress and other project related activities;</li> <li>• Supervise the project activities and report to Executive Engineer;</li> <li>• Work closely with PRF consultant for road and drainage infrastructure;</li> <li>• Provide support to evaluation of Bid;</li> <li>• Provide support to EE for the task of procurement;</li> </ul>

Position	No	Grade and Pay Scale	Qualifications and Terms of Reference (TOR)
			<ul style="list-style-type: none"> <li>Coordinate with consultant and work closely with PRF consultant for Social and Environmental assessment;</li> <li>Assist in conducting Workshop</li> </ul>
Assistant Engineer	01	Grade-9 Scale: BDT 22000-53060	<ul style="list-style-type: none"> <li>Fulltime deputed from DWASA (Water Supply Engineer and Mechanical Engineer)</li> <li>BSc in Civil/ Water Supply/ Mechanical Engineering having experience in water supply/ sanitation/urban infrastructure projects will be given preference</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>Support Executive Engineer (water supply) and PMU to collect information from DWASA.</li> <li>Support Executive Engineer to keep coordination between DWASA and NCC.</li> <li>Collect and keep record of all the information related to the project and prepare the report on progress and other project related activities;</li> <li>Supervise the project activities and report to Executive Engineer;</li> <li>Work closely with PRF consultant PRF consultant for water supply infrastructure;</li> <li>Provide support to evaluation of Bid;</li> <li>Provide support to EE for the task of procurement;</li> <li>Coordinate with consultant and work closely with PRF consultant for Social and Environmental assessment;</li> <li>Support to Executive Engineer to conduct the training (on the job/class room) to NCC staff.</li> <li>Assist in conducting Workshop</li> </ul>
Sub-Assistant Engineer	03	Grade-10 Scale: BDT 16000-38640	<ul style="list-style-type: none"> <li>Fulltime deputed from DWASA for Water Supply (01 positions)</li> <li>Fulltime deputed from NCC for Civil and Electrical (02 positions)</li> <li>Diploma in civil/ Mechanical/ Electrical/Water Supply Engineering (not less than three years course) from any recognized institute having experience in water supply/ sanitation/urban infrastructure projects will be given preference</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>Support to Assistant Engineer in collection of information and preparing report;</li> <li>Supervise the project activities assigned by Assistant Engineer/Executive Engineer;</li> </ul>

Position	No	Grade and Pay Scale	Qualifications and Terms of Reference (TOR)
			<ul style="list-style-type: none"> <li>Support to Assistant Engineer/Executive Engineer to prepare the cost estimate;</li> <li>Provide support to EE for the task of procurement;</li> <li>Support to Assistant Engineer as regard to Social and Environmental assessment by the PRF consultant.</li> </ul>
Accounts Officer	1	Grade-9 Scale: BDT 22000-53060	<ul style="list-style-type: none"> <li>Fulltime deputed from NCC</li> <li>Master's Degree in accounting /finance. Having experience in relevant works will be given preference</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>Maintains all project book of accounts;</li> <li>Keeps all project accounts up-to-date;</li> <li>Ensures timely preparation of report of disbursements and periodic accounting reports of the project;</li> <li>Prepare request for payment/invoice for consultant's payment/staff salary/other payments;</li> <li>Provide financial information for preparing progress report.</li> </ul>
Social Safeguards/Social Development Officer	1	Grade-9 Scale: BDT 22000-53060	<ul style="list-style-type: none"> <li>Full time, deputed from NCC</li> <li>Graduate in Social sciences/ Community Development or equivalent with 7 years of experience in related field</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>Co-ordinate social impact assessment</li> <li>Review the findings of social assessment and report to PMU.</li> <li>Support PMU to address the mitigation option and resettlement issue following findings of SIA'</li> <li>Take initiatives for social motivation and awareness programme</li> <li>Prepare reports on social issues on behalf of PMU</li> </ul>
Computer Operator	1	Grade-14 Scale: BDT 10200-24680	<ul style="list-style-type: none"> <li>Outsourcing</li> <li>Graduate of any discipline</li> <li>5 years' experience in computer operation and maintenance</li> </ul> <p><b>TOR:</b></p> <ul style="list-style-type: none"> <li>Make data base on project related activities;</li> </ul>

Position	No	Grade and Pay Scale	Qualifications and Terms of Reference (TOR)
			<ul style="list-style-type: none"> <li>Support in typing and printing the report and letter;</li> <li>Maintain the computers and other accessories;</li> <li>Archive all important project reports and documents electronically.</li> </ul>
Driver	2	Grade-16 Scale: BDT 9300-22490	<ul style="list-style-type: none"> <li>Outsourcing</li> <li>SSC or equivalent</li> <li>Five years driving experience. Must possess professional driving license.</li> <li><b>TOR:</b> Ensure safe transport of project personnel; and maintain the vehicles assigned to them</li> </ul>
Office Assistant	2	Grade 20 Scale: BDT 8250-20010	<ul style="list-style-type: none"> <li>Outsourcing</li> <li>SSC or equivalent</li> <li><b>TOR:</b> Provide support to daily operation of the office</li> </ul>

**Table 4: Project Management Unit Members' Appointment Status and Timeframe**

No.	Position	Appointment Timeframe	Remarks
1	Project Director	Early November 2018	Key position
2	Executive Engineer (Infrastructure)	Early November 2018	Key position
3	Executive Engineer (Water Supply)	Early November 2018	Key position
4	Urban Planner	Early November 2018	Key position
5	Assistant Engineer 1 (Civil)	Early November 2018	Key position
6	Assistant Engineer 2 (Water Supply)	Early November 2018	Key position
7	Assistant Engineer 3 (Electrical)	Early November 2018	Key position
8	Assistant Engineer 3 (Mechanical)	Early November 2018	Key position
9	Sub-Assistant Engineer 1 (Civil)	Early November 2018	Key position
10	Sub-Assistant Engineer 2 (Water Supply)	Early November 2018	Key position
11	Sub-Assistant Engineer 3 (Electrical)	Early November 2018	Key position
12	Sub-Assistant Engineer 3 (Mechanical)	Early November 2018	Key position
13	Accounts Officer	Early November 2018	Key position
14	Social Safeguards/Social Development Officer	Early November 2018	Key position
15	Computer Operator	Early November 2018	Key position
16	Driver 1	Early November 2018	
17	Driver 2	Early November 2018	
18	Office Assistant 1	Early November 2018	
19	Office Assistant 2	Early November 2018	

Notes: 1. The above indicates official and fulltime appointment timeframe.

2. NCC will allocate Environment Officer (engineer with environment background) by loan effectivity.



**Table 5: Proposed Project Management Unit for Investment Project**

Position	No	Grade and Pay Scale	Qualifications
Project Director	01	Grade-4 Scale: BDT 50000-71200	<ul style="list-style-type: none"> <li>BSc in Civil Engineering.</li> <li>18 years' experience in management of water supply and/sanitation or urban infrastructure in terms of management or construction works.</li> </ul>
Project Manager	01	Grade-5 Scale: BDT 43000-69850	<ul style="list-style-type: none"> <li>BSc in Civil Engineering.</li> <li>12 years' experience management of water supply and/sanitation or urban infrastructure in terms of management or construction works.</li> </ul>
Executive Engineer	02	Grade-5 Scale: BDT 18500-29700	<ul style="list-style-type: none"> <li>BSc in Civil Engineering/Water Supply</li> <li>10 years' experience as Assistant Engineer in water supply/ sanitation/urban infrastructure.</li> </ul>
Social safeguard officer	01	Grade-6 Scale: BDT 35500-67010	<ul style="list-style-type: none"> <li>Graduate in Social sciences/ Community Development or equivalent</li> <li>7 years of experience in related field.</li> </ul>
Urban Planner	01	Grade-6 Scale: BDT 35500-67010	<ul style="list-style-type: none"> <li>Graduate in urban and regional planning, architecture, urban design, or similar discipline</li> <li>7 years relevant working experience.</li> </ul>
Assistant Engineer	04	Grade-9 Scale: BDT 22000-53060	<ul style="list-style-type: none"> <li>BSc in Civil, Water Supply, Mechanical or Electrical Engineering.</li> <li>Candidate having experience in water supply / sanitation/urban infrastructure project will be given preference.</li> </ul>
Sub-Assistant Engineer	06	Grade-10 Scale: BDT 16000-38640	<ul style="list-style-type: none"> <li>Diploma in civil/ water supply/ Mechanical/ Electrical Engineering (not less than three years course) from any recognized institute.</li> <li>Candidate having experience in water supply / sanitation/urban infrastructure project will be given preference.</li> </ul>
Sr. Account officer	1	Grade-5 Scale: BDT 43000-69850	<ul style="list-style-type: none"> <li>Master's Degree in Accounting /finance.</li> <li>3 years' experience in related field.</li> </ul>
Accounts Officer	1	Grade-9 Scale BDT 22000-53060	<ul style="list-style-type: none"> <li>Master's Degree in Accounting /finance.</li> <li>Candidate having experience in relevant works will be given preference.</li> </ul>
Computer Operator	2	Grade-14 Scale: 5200-11235	<ul style="list-style-type: none"> <li>Graduated in any discipline</li> <li>5 years' experience in computer operation and maintenance.</li> </ul>
Driver	3	Grade-16 Scale: BDT 9300-22490	<ul style="list-style-type: none"> <li>SSC or equivalent.</li> <li>Five years' driving experience. Must possess professional driving license.</li> </ul>

Position	No	Grade and Pay Scale	Qualifications
Office Assistant	3	Grade 20 Scale: BDT 9300-22490	<ul style="list-style-type: none"> <li>SSC or equivalent.</li> </ul>

The Narayanganj City Corporation (NCC), with support from the PRF consultants, will draft its revised organogram that includes necessary staff to manage water supply services. The organogram should be drafted within the first 1 year of the facility, based on consultation with stakeholders including Dhaka Water Supply and Sewerage Authority (DWASA) and the Asian Development Bank, and submitted to the government in the second year of the facility. The said timeframe may be changed in line with the proposed transition of water supply service from DWASA to NCC.

## PROCUREMENT PLAN

### Basic Data

<b>Project Name:</b> Urban Infrastructure Improvement Preparatory Facility		
<b>Project Number:</b> 51296-001	<b>Approval Number:</b>	
<b>Country:</b> Bangladesh	<b>Executing Agency:</b> Department of Public Health Engineering, Narayanganj City Corporation	
<b>Project Procurement Classification:</b> Category B	<b>Implementing Agency:</b> Department of Public Health Engineering, Narayanganj City Corporation	
<b>Project Procurement Risk:</b> Medium		
<b>Project Financing Amount:</b> US\$ 17,150,000 <b>ADB Financing:</b> US\$ 11,000,000 <b>Cofinancing (ADB Administered):</b> - <b>Non-ADB Financing:</b> US\$ 6,150,000	<b>Project Closing Date:</b> 20 June 2022	
<b>Date of First Procurement Plan:</b> 7 August 2018	<b>Date of this Procurement Plan:</b> 29 August 2019	
<b>Procurement Plan Duration (in months):</b> 18	<b>Advance Contracting:</b> Yes	<b>e-GP:</b> No

### A. Methods, Review and Procurement Plan

Except as the Asian Development Bank (ADB) may otherwise agree, the following methods shall apply to procurement of goods, works, and consulting services.

Procurement of Goods and Works	
Method	Comments
Open Competitive Bidding (OCB) for Goods	
Request For Quotation for Goods	
Open Competitive Bidding (OCB) for Works	
Request For Quotation for Works	

Consulting Services	
Method	Comments
Quality- and Cost-Based Selection for Consulting Firm	90:10 quality-cost ratio
Competitive for Individual Consultant	

### B. Lists of Active Procurement Packages (Contracts)

The following table lists goods, works, and consulting services contracts for which the procurement activity is either ongoing or expected to commence within the procurement plan duration.

Goods and Works							
Package Number	General Description	Estimated Value (in US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
UIIPF/DPHE/NCB/G-01	4 Wheel Drive Cross Country Vehicle-1 and Double Cabin Pick-up-1	142,296.00	OCB	Prior	1S1E	Q4 / 2019	Advertising: National  No. Of Contracts: 1  Prequalification of Bidders: No  Domestic Preference Applicable: No  Bidding Document: Goods

<b>Goods and Works</b>							
<b>Package Number</b>	<b>General Description</b>	<b>Estimated Value (in US\$)</b>	<b>Procurement Method</b>	<b>Review</b>	<b>Bidding Procedure</b>	<b>Advertisement Date (quarter/year)</b>	<b>Comments</b>
UIIPF/NCC/NCB/G-01	4 Wheel Drive Cross Country Vehicle-1 and Double Cabin Pick-up-1	142,296.00	OCB	Prior	1S1E	Q4 / 2019	Advertising: National  No. Of Contracts: 1  Prequalification of Bidders: No  Domestic Preference Applicable: No  Bidding Document: Goods

<b>Consulting Services</b>							
<b>Package Number</b>	<b>General Description</b>	<b>Estimated Value (in US\$)</b>	<b>Selection Method</b>	<b>Review</b>	<b>Type of Proposal</b>	<b>Advertisement Date (quarter/year)</b>	<b>Comments</b>
UIIPF/DPHE/ICS/01	PPP Specialist (1)	152,370.00	Competitive	Prior		Q1 / 2020	Type: Individual  Assignment: International  Expertise: PPP Specialist  Comments: Under DPHE
UIIPF/DPHE/S-01	TA Consultant for Feasibility study, detailed design and procurement support services under DPHE	6,235,233.00	QCBS	Prior	FTP	Q2 / 2018	Type: Firm  Assignment: International  Quality-Cost Ratio: 90:10  Comments: Under DPHE
UIIPF/NCC/ICS/01	Project Management Specialist (1)	184,331.00	Competitive	Prior		Q3 / 2019	Type: Individual  Assignment: National  Expertise: Project Management Specialist  Comments: Under NCC
UIIPF/NCC/ICS/02	Procurement Specialist (1)	39,279.00	Competitive	Prior		Q1 / 2020	Type: Individual  Assignment: National

Consulting Services							
Package Number	General Description	Estimated Value (in US\$)	Selection Method	Review	Type of Proposal	Advertisement Date (quarter/year)	Comments
							Expertise: Procurement Specialist  Comments: Under NCC
UIIPF/ NCC/S-01	TA Consultant for Feasibility study, detailed design and procurement support services under Narayanganj City Corporation	5,916,764.00	QCBS	Prior	FTP	Q2 / 2018	Type: Firm  Assignment: International  Quality-Cost Ratio: 90:10  Comments: Under NCC
UIIPF/ NCC/S-02	Strengthening Municipal Financial Management Consultants under Narayanganj City Corporation	1,161,283.00	QCBS	Prior	FTP	Q1 / 2019	Type: Firm  Assignment: International  Quality-Cost Ratio: 90:10  Comments: Under NCC

**C. List of Indicative Packages (Contracts) Required Under the Project**

The following table lists goods, works, and consulting services contracts for which procurement activity is expected to commence beyond the procurement plan duration and over the life of the project (i.e., those expected beyond the current procurement plan duration).

Goods and Works						
Package Number	General Description	Estimated Value (in US\$)	Procurement Method	Review	Bidding Procedure	Comments
None						

Consulting Services						
Package Number	General Description	Estimated Value (in US\$)	Selection Method	Review	Type of Proposal	Comments
None						

## Open Competitive Bidding (National Advertisement)

### A. Regulation and Reference Documents

1. The procedures to be followed for open competitive bidding (national advertisement) shall be those set forth for the National Open Tendering Method in *The Public Procurement Rules, 2008* (as updated and pursuant to *The Public Procurement Act, 2006* issued by the Government of Bangladesh) with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of the Procurement Policy.

### B. Procurement Procedures

#### 1. Eligibility

2. The eligibility of bidders shall be as defined under section I of the Procurement Policy; accordingly, no bidder or potential bidder should be declared ineligible for reasons other than those provided in section I of the Guidelines, **as amended from time to time**.

#### 2. Advertising

3. The posting of specific notices for contracts valued at less than \$1 million on ADB's website is not required but is highly recommended.

#### 3. Location of Bid Submission

4. Submission of bids to 'primary' and 'secondary' locations, or 'multiple droppings' of bids, shall not be required or allowed. Advertisements and bidding documents shall specify only one location for delivery of bids.

#### 4. Bid Price as Percentage of Estimate

5. Bids shall not be invited on the basis of percentage above or below the estimated cost, and contract award shall be based on the lowest evaluated bid price of responsive bid from eligible and qualified bidder.

#### 5. Lottery

6. A lottery system shall not be used to determine a successful bidder, including for the purpose of resolving deadlocks.

#### 6. Rejection of All Bids and Rebidding

7. Bids shall not be rejected and new bids solicited without ADB's prior concurrence.

### C. Bidding Documents

#### 7. Anti-Corruption

8. Definitions of corrupt, fraudulent, collusive and coercive practices shall reflect the latest ADB Board-approved Anti-Corruption Policy definitions of these terms and related additional provisions (such as conflict of interest, etc.).

#### **8. Qualification Requirements**

9. Qualification criteria and specific requirements must be explicitly stated in the bidding documents and applied consistently during bid evaluation.

#### **9. Rejection of Bids**

10. A bid shall not be rejected on the grounds that its bid price is not within a percentage range above or below the contract estimate.

#### **10. ADB Policy Clauses**

11. A provision shall be included in all OCB (national advertisement) works and goods contracts financed by ADB requiring suppliers and contractors to permit ADB to inspect their accounts and records and other documents relating to the bid submission and the performance of the contract, and to have them audited by auditors appointed by ADB.

12. A provision shall be included in all bidding documents for OCB (national advertisement) works and goods contracts financed by ADB stating that the Borrower shall reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question.

13. A provision shall be included in all bidding documents for OCB (national advertisement) works and goods contracts financed by ADB stating that ADB will declare a firm or individual ineligible, either indefinitely or for a stated period, to be awarded a contract financed by ADB, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices or any integrity violation in competing for, or in executing, ADB-financed contract.

## DETAILED TERMS OF REFERENCE

### 1. Consultants for Feasibility Study, Detailed Design and Procurement Support Services (DPHE Component)

#### I. PROJECT DESCRIPTION

##### A. Project

1. In Bangladesh, urban infrastructure has not kept pace with rapid urbanization. As a result, there is acute shortage of urban services and the situation is causing severe strain to their natural environment. Urban local bodies (ULBs) with massive public service mandate including water supply, sanitation and waste management are not able to provide their services effectively with their limited institutional and technical capacity. ULBs (city corporations and *pourashavas*) performance are suffering for their existing limited governance and management; constraint with financial management capacity and accountability; insufficient participation of citizen, urban planning, gender equity and social inclusion; which results to poor service delivery especially in water supply and sanitation. Currently, piped water supply is available in only one third of the municipalities with typically 2-4 hours a day supply. Most of the towns' water supply is based on groundwater in many cases with poor water quality with high iron and arsenic content.

2. Government of Bangladesh has started processing a project readiness financing (PRF) from Asian Development Bank (ADB) to affirm the implementation of the Urban Infrastructure Improvement Preparatory Facility (UIIPF), aiming to the improvement of the urban infrastructure for increasing urban services for the citizen with sustainable service delivery. The PRF will provide support for feasibility studies, detailed engineering design, cost estimates and preparation of bid documents for the investment project. The PRF will likely to be implemented through two components such as (i) Department of Public Health Engineering (DPHE) component for Water Supply and Sanitation, and (ii) Narayanganj City Corporation (NCC) component for Urban Infrastructure and capacity building for municipal financial management.

3. DPHE component aims to provide emphasis on the transition from currently poor and intermittent groundwater-based water supply to continuous and efficient surface water-based water supply service. It also aims to cover small to medium towns targeting small group of towns together with certain number of bigger towns for the PRF. The small towns that are considered under DPHE component have a need for piped water supply requirement and also have commitment of improving sustainability of water supply and sanitation (WSS) operation through outsourcing or community management or other suitable system. Some of the towns are prioritized as they are in lagging area. Among others, the selection criteria consider source as surface water, groundwater quality, availability of land for infrastructure facilities, towns to act as regional water grid/ water hub to supply water to surrounding towns/township, or towns be considered as clustering towns to get water from nearby town of water grid/water hub.

4. **Project Objectives.** The objectives of this consultancy services is to provide support to DPHE and local government in the preparation/updating of feasibility studies, completion of detailed design for the proposed infrastructure facilities for water supply from surface water at three lagging towns such as Rangamati, Bandarban and Lama. The consultant will prepare contract package and procurement plan along with necessary bidding documents following ADB's procurement policy and assist *pourashavas* and DPHE in conducting all bid packages. The Consultant will conduct feasibility study for water supply from surface water from big river using cluster approach in two regions such as Cumilla region and Ishwardi region. The consultant will



also provide support on the capacity building of local government (*pourashavas*/town's authority) and DPHE in the implementation of the service provision.

5. The selected towns under this PRF with major activity are as follows:

**(i) Hill Towns**

- (a) In Rangamati, Bandarban and Lama (lagging area) will consider feasibility study for water supply from surface water and fecal sludge management (FSM); and detailed design of intake, treatment plant, transmission line, distribution system, associated electrical and mechanical installations, and other ancillary structures along with Fecal Sludge Management System aiming to protect the water source and environment from contamination. This will also consider designing of a service delivery mechanism along with a sustainable operation and maintenance (O&M).
- (b) The PRF will conduct engineering design and will prepare detail estimate and bid documents.
- (c) Investment project for studied towns will be developed and terms of reference (TOR) of consultancy service for the investment project will be prepared.

**(ii) Cluster Towns**

- (a) In Cumilla and Ishwardi region (each cluster contains four municipalities) will consider feasibility study for water supply from surface water with cluster approach. In case of Cumilla cluster, the feasibility study will consider the surface water source as Meghna river (near Daudkandi) and river Dakatia (near Chandpur) to find out the best feasible solution to establish as a regional water center and will supply water primarily to Cumilla city corporation and nearby other municipalities (based on the location of intake and proposed water treatment plant) through cluster approach. For Ishwardi region, river Padma (Ganges) will be explored as a source of water to develop a cluster for service delivery comprising a number of towns.
- (b) The consultant will also explore other surface water sources if found feasible. If the town(s) are not found feasible with surface water source, then the consultant will consult with ADB and DPHE for possible alternatives of the water sources and how to proceed with the study. The study will identify some other towns (not included in the initial study) to be incorporated in the cluster of towns in particular to using same surface water.
- (c) The PRF will explore different alternatives along with cluster approach.
- (d) Along with water supply, FSM will be studied and the feasible option will be identified and developed aiming to protect the water source and environment from contamination.
- (e) Part of this assignment will also design a institutional arrangement for sustainable service delivery mechanism of this concept of cluster approach in water supply along with appropriate mechanism for O&M.
- (f) Investment project for studied towns will be developed and TOR of consultancy service for the investment project will be prepared.

6. **Outputs.** The project will have following five major outputs:

- (i) Developed/updated feasibility studies for the towns for water supply services and sanitation (fecal sludge management) services with phasing of investment giving priorities;
- (ii) Developed detailed design reports, engineering design and detail estimate for appropriate infrastructure facilities in water supply and sanitation services (fecal sludge management) for Rangamati, Bandarban and Lama;
- (iii) Developed environmental and social safeguard documents for the project areas
- (iv) Developed investment plan with cost estimate and financial plan, sustainable service delivery mechanisms and modalities for O&M for towns under cluster approach;
- (v) Developed bid documents and contractors are selected for procurement of infrastructure facilities toward achieving sustainable service delivery for the envisaged service provision for Rangamati, Bandarban and Lama towns; and
- (vi) Developed capacity of the towns and DPHE in implementing, monitoring, overseeing and managing the proposed service provision.

7. **Implementation Arrangements of the PRF.** DPHE is the executing agency for the DPHE component of the PRF. DPHE will implement the component through its project management unit (PMU) and with close consultation with the local level coordination committee and stakeholders of the target towns. The PMU will engage the consultants, review the consultant's reports and provide technical guidance as required. Management and/or Implementation Committee at DPHE headquarter level will coordinate and monitor the project. An inter-ministry steering committee will oversee and guide the implementation.

## B. Consulting Services

8. DPHE will engage consultants through firm and individual under the PRF. The consultants will prepare and update the feasibility study, detailed design, drawing, cost estimate, environmental and social safeguard documents, and bid documents of the mentioned development on water supply and FSM of Rangamati, Bandarban and Lama. The service will prepare feasibility study for water supply from surface water at two region using cluster approach exploring different alternates and also for FSM. The consultant will design institutional arrangement for sustainable mechanism for service delivery using cluster approach and mechanism for O&M. In addition, the Consultant will propose and support establishing a project management and administration system in *pourashavas*/towns and DPHE including procurement of service. The consultancy will develop the investment plan for studied town and also identify the potential town(s) to be incorporated in cluster towns using same surface water source. The consultants will also provide support on the capacity building of *pourashavas*/hill district council and DPHE in the implementation of the PRF and service provision. The TOR is only for the recruitment of the consultant through firm. The consultants will not be eligible for construction supervision consultant in the ensuing investment project.

## II. PURPOSE OF THE ASSIGNMENT

9. The main objective of the PRF consultancy service is to support DPHE to prepare the ensuing investment project of surface water-based water supply and sanitation (fecal sludge management) ready for ADB Board consideration and implementation by completing the feasibility studies for few towns using cluster approach in water supply, and feasibility study and detailed engineering design, detail estimates, and bidding documents for some municipalities.

Different modalities for management of water supply and sanitation services including the cluster options will be explored and feasible options will be recommended.

10. DPHE intends to provide safe water to the urban dwellers with emphasis on those towns that have perennial surface water source all year round for construction of surface water treatment plant (SWTP) and have potential to be regional water grid/ water hub to supply water to surrounding towns/township through the proposed surface water treatment plant. In addition to these towns, DPHE would like to take three hill tracts towns (lagging area) that have potential surface water source to construct surface water treatment plant and supply water only to those three towns separately. These towns are Rangamati, Bandarban and Lama.

11. The specific objectives of the project consultants are:

- (i) To support DPHE in preparing the ensuing investment project ready for ADB Board consideration;
- (ii) To conduct feasibility study and develop appropriate surface water-based infrastructure models for the proposed towns considering clustering of potential towns using same source of surface water and explore the alternate options if required;
- (iii) To conduct feasibility study in the two regions (such as Cumilla and Ishwardi) using cluster approach including the feasibility of source, intake, treatment plant, transmission lines, distribution lines, etc., and also to explore the different modalities of management of water supply service including clustering (Number of town share common surface water source) and to recommend the best feasible option with justification;
- (iv) To investigate the feasibility of surface water at Daudkandi (Meghna) point and Chandpur (Dakatia) point for Cumilla region and find out the best solution with proper justification. In case of Ishwardi region, surface water at Hardinge bridge or suitable point will be investigated. Apart from this, other surface water source to be investigated if found required and potential. If the town(s) are not found feasible with surface water source, then the consultant will consult with ADB and DPHE for possible alternatives of the water sources and how to proceed with the study;
- (v) To select the towns under different cluster based on the surface water sources and its location and to identify the towns (not under study) to incorporate in cluster service considering its potentials;
- (vi) To conduct feasibility study of FSM for cluster towns to identify and outline the best feasible option to protect water source and environment from contamination;
- (vii) To conduct feasibility study, engineering design, cost estimate and bidding document for the all components for water supply and FSM for three hill towns to protect water source and environment from contamination;
- (viii) To preparer terms of reference for detailed design and construction supervision consultant to be engaged for feasible investment projects with cluster approach;
- (ix) To design of an appropriate service delivery mechanism for water supply and sanitation (FSM) through outsourcing or community management;
- (x) To increase the capacity of the town's authority in O&M and service delivery along with institutional development to become an institution for sustainable management of water supply and sanitation service;
- (xi) To strengthen capacity of the DPHE in performing support to towns in implementation, operation and management of the facilities, organize exposure visit for project personnel focusing on management of water supply system sharing by different cities;

- (xii) To prepare the detail investment plan for the targeted towns/townships including financial plan for O&M of each towns/townships for different modalities including clustering;
- (xiii) To prepare safeguard documents for the ensuing projects following the requirements of the government of Bangladesh and ADB Safeguard Policy Statement (SPS) 2009; and
- (xiv) To provide trainings to implementing agencies on managing construction disturbance and health and safety risks, addressing grievances and developing corrective actions for non-compliances.

### **III. DURATION AND LOCATION OF THE SERVICES**

12. The engagement period of the consultancy services is 24 months. Locations are in three hill towns Rangamati, Bandarban and in two regions such as Cumilla Region and Ishwardi Region.

### **IV. SCOPE OF SERVICES**

#### **A. Overview**

13. The consultant will support DPHE and the towns to develop project by updating/preparing the feasibility study, provide the required design and specification, prepare draft bid documents for three towns Rangamati, Bandarban and Lama and feasibility study for two regions such as Cumilla Region and Ishwardi Region for water supply using cluster approach and to develop the management modalities of the service. In preparation for these components, close consultation is anticipated with DPHE, the three towns and ADB. Through the project, DPHE aims to increase access to reliable and safe water supply in the selected town.

14. The consultant needs to identify scope of subprojects in water supply and FSM, in accordance with the discussion between DPHE and ADB, Government of Bangladesh and ADB for the towns. The consultant will prepare feasibility study for cluster towns and hill towns; and complete detailed design and bid documents of the proposed infrastructure facilities for hill towns including support to select the contractors. The consultant will ensure that all procurement of civil works and goods under the proposed subprojects are undertaken in an economical and efficient manner, consistent with widely accepted engineering standards and practices for such works, and to the satisfaction of the Government of Bangladesh and ADB. The consultant should ensure that on-the-job training is provided and expertise on engineering and project management is transferred to associated counterpart officials.

#### **B. Activities**

15. Main activities of the consultants are described below. The description may not be exhaustive, and the activities shall not necessarily be limited to those described.

#### **Activity 1: Mobilization**

16. The Team Leader will initially mobilize with few key members of the project team to set up of project office including furnishing and then will mobilize further manpower, equipment and peripherals.

### Activity 2: Inception report

17. The Consultants will, after initial interactions with the DPHE and towns, review all reports/ data available to identify the data gap and will finally draw and present component-wise action plan for collection of all such data/information. Under this task, the consultant is required to do the following:

- (i) Review existing feasibility study and other documents,
- (ii) Preliminary Field visit,
- (iii) Review approach and methodology in line with the existing field conditions,
- (iv) Prepare action plan for taking up the tasks, and
- (v) Draft inception report.

### Activity 3: Situation analysis report

18. Based on existing studies and available information and through research from other sources, preferably similar project in Bangladesh, the Consultant shall undertake the following assessments aiming feasibility study for three towns & two cluster towns and detailed engineering design for three hill towns:

- (i) The consultant shall carry out a critical review of all existing studies, data /maps and identify gaps in available information to determine demand over a standard project design life of 25 years.
- (ii) The consultant shall conduct necessary surveys, which will include, but not limited to:
  - (a) Detailed household surveys of the catchment area – to understand existing practices; ascertain demand and willingness to pay for facilities;
  - (b) Conduct physical surveys including topographic, geodetic and bathymetric (where necessary) and downstream water users of each catchment area in sufficient detail for project requirements;
  - (c) Geotechnical surveys at sites to meet project requirement; and
  - (d) Other necessary surveys/studies using latest information technology/cyber tools to select the best technical options for conveyance and treatment process.
- (iii) The consultant will do necessary survey for environmental assessment for preparing reports for the project investments as per SPS 2009, and Government's environmental regulations and policies. The consultant will also maintain sex aggregate data compatible to gender action framework (GAF).
- (iv) The consultant will screen potential environmental impacts using the project-specific Rapid Environmental Assessment checklists and/or the No Mitigation Measures Scenario checklist to determine the environment category and required assessment based on SPS 2009.
- (v) A considerable number of tribes, minor races, ethnic sects and communities
- (vi) <sup>1</sup>live in the three hill towns. Though the project is beneficial to them, indigenous peoples plan is required to be done. The Consultant will prepare Social Impact assessment and appropriate consultations generally for all towns especially for these three hill district towns.

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<sup>1</sup> Groups or population identified as indigenous peoples within the context of ADB's Safeguard Policy Statement will be referred to in this document as tribes, minor races, ethnic sects and communities (following the request of the Government of Bangladesh)

- (vii) Identify illegal encroachments and other obstructing structures, that needs to be relocated or shifted with mitigating measures for associated impacts.
- (viii) The portions of the existing and projected water demand presently met and to be met by the existing water systems and other water sources - with and without the Project shall be determined in terms of volume, quality, cost, reliability, and water supply gap determined.
- (ix) The consultant shall undertake a hydrologic analysis to determine the water yield at the proposed diversion/pumping point at the river system for water supply. The water yield must be reliably established by stream flow analysis and confirmed by stream flow measurements.
- (x) The consultant shall develop flow duration curves for the mean, as well as minimum and maximum, monthly flows at the potential diversion pumping points. Similar analysis will have to be done for ground water aquifers also.
- (xi) The consultant will carry out hydrological investigation as per requirement to confirm the surface water source for three hill district including location of intake taken sustainability into account.
- (xii) The consultant will carry out hydrological investigation at Daudkandi point (Meghna river) and Chandpur point (Dakatia river) for Cumilla region and Padma river at Hardinge Bridge point for Ishwardi region. If require, consultant will carry out hydrological investigation for identifying or confirming surface water source including location of intake taken sustainability into account. If the town(s) are not found feasible with surface water source, then the consultant will consult with ADB and DPHE for possible alternatives of the water sources and how to proceed the study.
- (xiii) The consultant shall assess the quality of raw water at the different alternative sources in terms of pH, color, turbidity, hardness, iron, manganese, arsenic, fecal coliform, and total dissolved solids, using the WHO drinking water standard, standards of the Department of Environment and any other established Bangladesh standards.
- (xiv) The consultant shall assess the existing condition and undertake the mapping of the baseline information of the watersheds/aquifers in the project area, the main sources of water supply for the proposed project and determine the data gaps for the formulation of appropriate watershed/aquifer management plan.
- (xv) An engineering analysis, to evaluate the cost effectiveness of water supply sources(s) to address the water supply needs of the proposed service area.
- (xvi) Analysis the sanitation situation of each town and define the FSM system.
- (xvii) Evaluate the institutional capacity of each project town.
- (xviii) Consultant will carry out the consultation workshop to explore the different modalities for management of water and sanitation service through consultation with stakeholder and recommend the feasible option with proper justification.

#### Activity 4: Feasibility Report

19. Studies will be carried out for all the subproject components under three hill district and cluster approach to ascertain both the technical and financial viability in the immediate phase and accordingly the listing of packages will be presented on implementation priority basis. **In hill towns**, study will explore the potentialities of surface water applying different options. In **Cluster towns**, feasibility study will consider surface water-based supply from nearby large river of the mentioned regions using cluster approach to supply potential towns. Consultant will also explore the potential towns (not included in the initial study) to be incorporated in the cluster considering the location of source and its management aspect. This will cover the modalities of service

delivery for the new approach along with operation and maintenance mechanisms for cluster approach as well as for three hill towns.

20. Feasibility study of sanitation of the towns (fecal sludge management) will also cover under this component. The studies will also look into environmental and social impact assessments, staffing, institutional capacity building, organizational structures, and economic and financial aspects.

21. Based on above assessment, various alternative options will be ranked and proposed for the preferred options. Financial analyses and tariff structures shall also be reviewed with recommendations. The recommended improvements shall include capital investment and annual operation and maintenance costs.

22. The Consultant shall formulate alternative schemes for water supply network. The alternative schemes such as PPP modality shall be analyzed by the combination of source diversion points, locations of pumping stations, treatment plants, reservoirs and main pipe routes in particular for the cluster approach. The Consultant's recommendation must be accompanied by a detailed risk assessment.

23. The Report shall address the following aspects:

- (i) Evaluation of potentiality of surface water source based on the hydrological investigation and selection of best feasible solution explaining justification;
- (ii) Defining the alternatives if the town(s) are not found feasible with surface water source;
- (iii) Develop selection criteria of town in consultation with different stakeholder in case of cluster approach;
- (iv) Selection of towns for each cluster exploring the different alternatives based on criteria;
- (v) Evaluation of design alternatives;
- (vi) Preliminary design and cost estimation;
- (vii) Organization evaluation and capacity assessment;
- (viii) Operation and maintenance aspects;
- (ix) Financial and economic analysis;
- (x) Diagnosis of institutional arrangement to provide water supply and sanitation (WSS) service in for cluster towns and hill towns separately;
- (xi) Financial planning, evaluation and modality for hill towns and cluster approach;
- (xii) Institutional and social capacity;
- (xiii) Formulation of work implementation plan;
- (xiv) Preliminary procurement plan;
- (xv) Contracting modality;
- (xvi) Preliminary construction schedule;
- (xvii) Analyze the method and route of laying the network;
- (xviii) Assess and propose the mitigation measures of safeguard issue of environmental and social;
- (xix) Undertake the poverty and social dimension;
- (xx) Detailed risk assessment of the options;
- (xxi) Stakeholder consultation;
- (xxii) Evaluation of probable technical solutions considering land availability of land, long term operation, easy to maintenance focusing on availability of spare parts, quality

- (such as water safety), accuracy (such as meter reading) and environment friendly as well;
- (xxiii) Explore appropriate technologies for setting up of water treatment plant (WTP), with probable locations;
  - (xxiv) The consultant shall undertake the preliminary engineering design (PED) of the water supply scheme selected by DPHE/towns;
  - (xxv) Based on the PED, the Consultant shall define the right of-way (ROW) to be acquired for the water supply distribution network of the Project, including technical descriptions of the areas/sites. Cluster settlement will also to be considered, where it requires, in discussion with *pourashava* and hill district council;
  - (xxvi) The Consultant shall also determine resettlement requirements, if any, including estimates of costs and feasible relocation sites;
  - (xxvii) Environment safeguards consultant should be involved from the feasibility study stage to ensure avoiding or minimizing environmental impact;
  - (xxviii) Detail outline of fecal sludge management (FSM);
  - (xxix) The consultant shall prepare the minimum performance standards and specifications (MPSS) for the design, construction, and O&M of the project; and
  - (xxx) For the selected scheme, the capital cost estimates shall be made for the different Project components – viz., diversion, pumping stations, treatment plants, main pipes, distribution network, including road cutting cost and reservoir, etc.

**Activity 5: Preparation of Institutional arrangement for sustainable service delivery mechanisms and O&M modalities for water supply using cluster approach**

24. As a part of the feasibility study for the towns' water supply under cluster approach, the consultant will prepare an institutional arrangement for sustainable service delivery mechanisms and O&M modalities for water supply using this approach. The mechanism can be managed by introducing a new management organization like Water Supply and Sewerage Authority (WASA) or introducing a private company/agency/organization for operation and maintenance of the source, treatment plant and as whole water supply system. Water can be delivered to different municipalities/towns using town metering system, the rest responsibility (distribution up to household level) may lie on the town/municipal authority. In this regard, the consultant will conduct a thorough review of all relevant laws, regulations, statutes and licenses pertaining to regulation, policy making, operations and private sector participation through the concession of ULBs or any other option and design the roles and responsibilities of all involved parties in the service delivery and operation and maintenance. The consultant will design a tariff structure for the services to make the *pourashava*/city corporation self-sustaining and income generating. The consultant will further design of institutional structures and arrangements that clarify the appropriate roles, responsibilities, staffing needs, funding sources, and legal, statutory, a secretariat (or advisory council) to support the regulator, and the future water operator (if applicable). Individual consultant international PPP Specialist will be involved to support these activities.

25. The consultant will outline the institutional arrangement and service delivery mechanism for the three hill towns, clarifying the appropriate roles, responsibilities, and staffing needs. The consultant will design a tariff structure for the services to make the *pourashava*/city corporation self-sustaining and income generating.



**Activity 6: Prepare Investment project and TOR for Detailed Design and Construction Supervision Consultant to be engaged for feasible investment project**

26. After completion of feasibility study for the towns' water supply under cluster approach, the consultant will prepare detailed terms of reference for selecting international consultant (through consulting firm and/or individual consultant) along with the budget for consulting firm for detailed design and construction supervision for implementation feasible project/s in this category including support to select consultant. The consultant will also prepare feasible investment project/s in this category along with tentative investment cost. The terms of reference for selection of consultants for detailed design and construction supervision will be based on this designed investment project for its implementation

27. The consultant will also prepare the investment project for three hill towns along with detailed TOR for consulting firm for the investment project including support to selection of consultant.

**Activity 7: Detailed Design Report for only three towns at the hill districts**

28. After selection and approval of the alternative options, the Consultants shall carry out the design of all the sub-components of the project comprising intake, well, treatment plant, overhead tank, pipeline, pumping station, fecal sludge treatment etc. to the level sufficient for estimation of capital and operations and maintenance costs to a reasonably accurate level. The design activities for the proposed project shall include detailed engineering analysis and designs, drawings, works specifications, bills of quantities, and cost estimates (Engineer's Cost) based on Schedule of Rates (with analysis) followed by Public Works Department (PWD), Local Government Engineering Department (LGED), DPHE and/or market rate analysis, along with detailed implementation plans.

29. The consultant should carry out further site surveys, geotechnical and other relevant investigations, field measurements, inspections and testing of existing equipment, as required for the project components, to further develop and refine the concept plan and preliminary design developed during feasibility study to examine better viability with lesser risk of failure and illustrate designs with more elaborate details where necessary.

30. The consultant will finalize the detailed project report (DPR) incorporating therein all such relevant comments and suggestions as expressed by the DPHE and other stake holders.

31. The DPR and related documents for the project must conform to the requirements of the guidelines and procedures of the government and shall include the following:

- (i) Project Proposal;
- (ii) Project Evaluation Criteria;
  - (a) General information: to include basic technical design, institutional arrangements;
  - (b) Estimated project cost: including capital costs and operation maintenance costs for 3 years; any assumptions made should be indicated;
  - (c) Project revenue: include fee/tariff structure; demand forecast for 3 years; and
  - (d) Estimated project benefits and costs:
    - i. Financial,
    - ii. Economic,

- a. O&M modalities,
  - b. Risk allocation matrix,
  - c. Logical framework, and
  - d. Project and financing milestones.
- (iii) Economic and financial analyses;
- (iv) Environmental impact assessment/initial environmental examination reports/environmental management reports;
- (v) Location map;
- (vi) Project context in DPHE's/towns overall strategy/program;
- (vii) Resettlement Plan/social impacts due diligence reports;
- (viii) Analyze sex segregate data and prepare GAP to be incorporated in bid documents including preparation of guideline/manual for training of PMU and city level project personnel;
- (ix) Grievance redressal mechanism for the ensuing projects;
- (x) Detailed design, specification of works and materials, while the assessment must be front loaded and completed, including meaningful consultation, should complete during the feasibility study;
- (xi) Engineer's estimate in the bill of quantities format (BOQ), if necessary;
- (xii) Develop contracting modality;
- (xiii) Construction program detailing sequence of the implementation of the whole works;
- (xiv) Recommendation of suitable construction techniques/ equipment for proposed; and
- (xv) At this stage consultant should also suggest / propose component different suitable procurement options for proposed projects under the respective component.

32. As DPR is the last stage of planning and design prior to preparation of Bid Documents it must contains in addition to other the following sections.

- (i) Detailed hydraulic and structural calculations, specifications, BOQ for the proposed water supply network including provision for road cutting;
- (ii) Explore options for use of trenchless technology for laying water supply network;
- (iii) Detailed drawings layout plan, L-section, civil and structural details, piping and instrumentation diagram, proposed electrical system drawings and standard details for the proposed water supply system, treatment works, pumping stations and outfall structures; and
- (iv) Consultant should propose different procurement options for the proposed components and give comparative for pros and cons for each option.

**Activity 8: Bid documentation and bidding process for three towns in two hill districts (Rangamati, Bandarban and Lama)**

33. Based on discussions with all stakeholders' consultant and approval from DPHE consultant should prepare bid documents for respective project packages.

34. The bid documents shall be based on ADB's updated version of standard bid documents. Consultant has to explore and give rational for using the type of bid documents for the proposed project. The consultant will provide support to DPHE and municipalities in bid evaluation and procurement process.

35. The draft contract to be included in the bid documents shall, among other things, clearly define the obligations of the implementing agency and the contractors with respect to financing, right-of-way (ROW) delivery, design, safeguards obligations, construction, and O&M in compliance with the MPSS, and tariffs; equitably allocate risks between the parties; and specify rules and procedures to address non- performance of contractual obligations.

## V. DETAILED OUTPUTS OF THE ASSIGNMENT

### 1. Key Timelines or Milestones

36. Key timeline of the outputs of the consultancy services are as follows:
- (i) For hill districts: Rangamati, Bandarban and Lama: Completion of Feasibility Study within 11 months, completion of Detailed Design within 15 months, completion of bid documents within 18 months and completion of Procurement Process within 24 months from the start of consultancy services.
  - (ii) For Custer towns: Cumilla and Ishwardi and surrounding towns: Feasibility study of cluster approach within 24 months from the start of consultancy services.

### 2. Team Composition and Qualification Requirements for the Key Experts

37. A total of 264-person months including 65 person-months of the International key experts, 199 person-months for the key national experts would be required. The estimated staffing and expertise person-months requirements per component are summarized below:

**Table 1: Summary of Consulting Services Requirements**

SL. No.	Position of Professional	Number	Person Months (PM)			
			Feasibility of three hill towns	Feasibility of Cluster towns	Detailed Design of three hill towns	Total
<b>A</b>	<b>International Consultants</b>					
A 1	Team Leader / Water Supply Specialist	1	3	9	3	15
A 2	Water Treatment Plant Specialist	1	2	2	2	06
A 3	Smart Water Supply Management Specialist	1	1	2	2	05
A 4	Social Safeguard Specialist	1	1	2	0	03
A 5	Environmental Safeguard Specialist	1	1	2	0	03
A 6	Water Supply Network Specialist	1	1	6	2	09
A 7	Institutional Development Specialist	1	2	6	1	09
A 8	Sanitation Specialist	1	2	1	1	04
A 9	Hydrologist	1	2	6	0	08
A 10	Procurement Specialist	1	0	0	3	03

SL. No.	Position of Professional	Number	Person Months (PM)			
			Feasibility of three hill towns	Feasibility of Cluster towns	Detailed Design of three hill towns	Total
	<b>Sub Total (A):</b>	<b>10</b>	<b>15</b>	<b>36</b>	<b>14</b>	<b>65</b>
<b>B</b>	<b>National Consultants</b>					
B 1	Deputy Team Leader/ Water Supply Design Expert	1	6	12	6	24
B 2	Water Treatment Plant Specialist	1	3	4	3	10
B 3	Hydrologist	1	4	7	1	12
B 4	Hydrogeologist	1	0	6	0	06
B 5	Hydraulic /Network Design Specialist	1	6	6	6	18
B 6	Fecal Sludge Management Specialist	1	3	6	6	15
B 7	Climate Change Specialist	1	2	3	1	06
B 8	Environmental Safeguard Specialist	1	3	4	1	08
B 9	Social Safeguard Specialist	1	3	4	1	08
B 10	Institutional Development Specialist	1	3	12	3	18
B 11	Economist	1	2	4	0	06
B 12	Financial Management Specialist	1	2	6	3	11
B 13	Structural Engineer	1	2	3	4	09
B 14	Electrical Engineer	1	1	3	2	06
B 15	Mechanical Engineer	1	1	3	2	06
B 16	Procurement Specialist	1	0	0	4	04
B 17	Community Development and Gender Specialist	1	6	6	2	14
B18	GIS Specialist	1	6	8	4	18
	<b>Sub Total (B):</b>	<b>18</b>	<b>53</b>	<b>97</b>	<b>49</b>	<b>199</b>
	<b>Total (A+B)</b>	<b>28</b>	<b>68</b>	<b>133</b>	<b>63</b>	<b>264</b>

38. In addition to professional inputs shown above, approximately 150 person-months of support staffs such as Field Engineers/ Quantity estimator / Junior Architects/Auto CAD/ Estimator/ GIS Operator for field work and other activities are anticipated to be required for facilitation in the following areas/components:

- (i) Survey and Investigations,
- (ii) Design and drawing support,

- (iii) Quantity estimation,
- (iv) Procurement support, and
- (v) Project management support etc.

## **A. Terms of Reference for Individual Experts: International Experts**

### **(A1) Team Leader/ Water Supply Specialist**

#### **Tasks and Responsibilities:**

39. The Team Leader cum Water Supply Specialist will be responsible for (but not limited to) the following:

#### **As a Team Leader:**

- (i) Lead the consultancy team, and is responsible for overall management and supervision of the consultant team and liaison with members of the PMU, PIU and government counterpart;
- (ii) Review and assess existing studies, documents and other information available relevant to the water sector;
- (iii) Incorporate the lesson learnt of the previous project, Secondary Towns Water Supply and Sanitation Sector Project (Loan 2265) in project planning and design especially in establishment of a Human Resource Department and in monitoring of regular keeping of inventory in city corporation/*pourashava*;
- (iv) Ensure the project team work together to design a project that avoids or minimizes environmental impact, not just give the environment specialist a design to retrospectively assess and fit mitigation to; and
- (v) Prepare a comprehensive, high quality feasibility study, institutional modality, detailed engineering designs and documentation, and project proposal acceptable to ADB and the government in a format suitable for ADB loan processing.

#### **As Water Supply Specialist:**

- (i) Review and update the feasibility study of the towns under hill districts and confirm the location of intake and treatment plant;
- (ii) Conduct feasibility study of intake of Bandarban with the alternative option of constructing dam over jhiri, intake source at Rangamati and Lama and also explore the feasibility of impounding reservoir where requires;
- (iii) Forecast/estimate water supply demand of the town for 25 years design period including the demand of the possible nearby clustering town/township;
- (iv) Assess the raw water quality and finalize the treatment options (component of treatment plant);
- (v) Complete detailed design of intake, collection, treatment plant, transmission and distribution facilities;
- (vi) Work closely with Climate Change Specialist and incorporate climate resilience into the design of water supply components;
- (vii) Work closely with the Environment Specialist to ensure working closely with the environment specialist to ensure their design reflects environmental measures, not just in preparing safeguard documents;
- (viii) Prepare an appropriate implementation plan for the project;
- (ix) Assist in preparation of procurement plan along the with contract packaging for goods and works;

- (x) Assist in preparation bill of quantities, cost estimates, drawings, specifications and bid documents for all contract packages and assist pourashava/town in bidding process including bid evaluation and contract award;
- (xi) Prepare feasibility study for towns under cluster approach in two regions including detailed investigations on intake source location water availability, intake reservoir, treatment plant, transmission line, distribution system, etc.
- (xii) Conduct preliminary engineering design, cost estimates, economic and financial analysis as per ADB's requirement;
- (xiii) Assist in preparation of land acquisition and resettlement plan and all safeguard documentation;
- (xiv) Assist in planning and design a service delivery mechanism for cluster approach through outsourcing or community management with special attention to increase of tariffs and financial sustainability of the *pourashava/town*;
- (xv) Design and implement capacity development program for DPHE and *pourashava/town* based on the capacity deficit including on the job-training program; and
- (xvi) Work closely with Environmental and social safeguard specialist to prepare environmental and social safeguard documents.

### **Qualifications and Experiences**

40. The Team Leader/Water Supply Specialist will be a Civil engineering graduate with masters in water supply/environmental/public health engineering and relevant disciplines with working experience of more than 20 yrs. She/he will have about 15 years international experience in the field of design of water supply planning and design works projects, preferably with at least 7 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. She/he will have working experience as Team Leader in minimum 5 projects among which at least 2 assignments of similar Project. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program.

### **(A2) Water Treatment Plant Specialist:**

#### **Tasks and Responsibilities**

41. The Water Treatment Plant Specialist will be responsible for (but not limited to) the following:

- (i) Prepare/update the feasibility study and confirm the sustainable location of intake and treatment plant;
- (ii) Forecast/estimate water supply demand of the town for 25 years design period including the demand of the possible nearby clustering town/township;
- (iii) Analyze raw water quality with Water Quality Specialist for selecting treatment process and treatment options;
- (iv) Support to conduct survey and investigation and plan components water supply system such as intakes, raw water storage, pump station, treatment plants, overhead tanks, bulk water facilities, distribution network, etc.;
- (v) Complete detailed design of intake, collection and treatment plant and assist in design of transmission and distribution facilities;
- (vi) Work closely with Climate Change Specialist and incorporate climate resilience

- into the design of water supply components with particular focus on salinity intrusion into water source, raw water quality of source and treatment process;
- (vii) Assist in preparation bill of quantities, cost estimates, drawings, specifications and bid documents for water supply contract packages;
- (viii) Update/prepare feasibility study of cluster towns;
- (ix) Assist to develop cluster approach modalities focusing on treatment plant;
- (x) Assist in planning and design a service delivery mechanism for cluster approach with O&M modalities through outsourcing or any other sustainable option;
- (xi) Design and implement capacity development program for DPHE and *pourashava*/town including on the job training program; and
- (xii) Prepare Operation and Maintenance Manuals.

### **Qualifications and Experiences**

42. This Water Treatment Plant Specialist will be a graduate in civil engineering with masters in water supply/environmental/public health engineering and disciplines with 15 years experience. She/he will have 10 years international experience in designing of relevant water treatment plant process and infrastructure, preferably with at least 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Work experiences in the project funded by international donor including ADB would be preferable. S/He should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program.

### **(A3) Smart Water Supply Management Specialist:**

#### **Tasks and Responsibilities**

43. The Smart Water Supply Management Specialist will work under the Team Leader in preparing, institutionalize, and implementing the smart components related features for water supply managements. She/he will support for use of information technology for nonrevenue water (NRW) management and sustainable DMA management by providing input related to efficient, automated and modern ways of water management including supervisory control and data acquisition (SCADA) system and automatic meter reading (AMR). The expert will also be responsible for analyzing the constrains of DPHE in sustainable water supply operation and contextualizing good practices in DPHE/towns; and for preparing district metering areas (DMA) wise assessment of commercial losses and periodic review of reduction in commercial losses in close coordination with financial management expert.

44. The duties and task of the Water Supply Management Specialist includes, but not limited to:

- (i) Propose and pilot use of SCADA and AMR in DMAs as an integral part of preparation and implementation of water supply projects;
- (ii) Review DMA wise system input volume (SIV) meter location, check meter installation at site, and commissioning and configuration to relevant computer systems;
- (iii) Provide guidance/supervise meter testing and calibrations at field and at workshops. Train DPHE's/towns staff for large and small meter calibration and repair techniques and best practices in installation of meter;
- (iv) Prepare specifications for selection of reliable water meters;
- (v) Analyze constrains of DPHE/towns in sustainable DMA operation and

- contextualizing good practices in DPHE;
- (vi) Support DPHE in exploring the avenues for reducing cost of meter reading;
- (vii) Analyze existing billing system with DPHE's commercial division and with international experience develop system to improve the existing billing system to reduce NRW;
- (viii) Study and provide systems to take accurate and timely meter readings, avoid estimated billing, setting up fast track billing system of new connections, and establish software to calculate the NRW levels of project area accurately;
- (ix) recommend the suitable geographical information system for the objective identified and implement, formulate geographic information system- (GIS) based system and assist all the experts and PMU while trouble shooting;
- (x) Create data base for maintaining necessary information and establish mechanism to update data base; and
- (xi) Contribute in the training program on smart water management including SCADA and AMR.

### **Qualifications and Experiences**

45. The Water Supply Management Specialist will be a Post Graduate degree in civil/water supply engineering with 12 years of working experience in the management of major water supply Project of which minimum 07 years in the operation, maintenance and control of water supply system having smart water management features, preferably with at least 5 years working experience in similar field in Bangladesh or elsewhere in the developing countries. Work experiences in the project funded by international donor including ADB would be preferable. S/He should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program.

### **(A4) Social Safeguard Specialist:**

#### **Tasks and responsibilities**

46. International Social Safeguards Specialist will work with National Social Safeguard Expert and will be responsible for (but not limited to) the following:

- (i) Undertake social safeguards analysis based on detailed designs and preparation of necessary safeguard documentation in accordance with ADB's Safeguard Policy Statement (SPS);
- (ii) Prepare resettlement framework and indigenous peoples planning framework (IPPF) as per ADB SPS;
- (iii) Prepare resettlement plan and indigenous peoples plan (IPP) in accordance with the respective framework and ADB SPS and prepare due diligence report on land acquisition and resettlement in case there are no resettlement impacts;
- (iv) Work closely with design engineers and national social safeguard specialist in preparing resettlement plans, IPPF and IPP, as well as other tasks to ensure compliance with ADB SPS safeguards requirement;
- (v) Prepare the project's item-wise detailed budget, total cost estimates of the proposed infrastructures safeguard requirements;
- (vi) Submit draft resettlement plans to the executing agency and ADB for review and clearance prior to bidding, and IPPF and IPP, as well as other tasks to ensure compliance with ADB SPS safeguards requirement;



- (vii) Coordinate all involuntary resettlement issues and ensure that all subprojects comply with safeguards requirements of ADB and Government of Bangladesh;
- (viii) Calculate compensations/entitlements of affected people and coordinate with PMU and other team experts budget allocation for social safeguards implementation
- (ix) Prepare project information documents for disclosure to stakeholders and affected people; and
- (x) Hold consultation during preparation of the social safeguard documents and ensure comments/issues raised are communicated to PMU, project and measures to address such issues/concerns are addressed early on in the project design.

### **Qualifications and Experiences**

47. The Social Safeguard Specialist will be a post-graduate in social sciences/Community mobilization or equivalent with at least 12 years of experience in the relevant field. She/he in designing relevant customer interaction programs for water supply and sanitation service delivery. Work experience in the project funded by international donor including ADB safeguards experience is preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(A5) Environmental Safeguard Specialist:**

#### **Tasks and responsibilities**

48. Environmental Safeguard Specialist will be responsible for carrying out the following principle tasks in association with the National Environmental Safeguard Specialist and other consultants in the consultant team:

- (i) Prepare environmental safeguard documents such as environmental impact assessment (EIA) reports and/or initial environmental examination (IEE) reports for this project in accordance with ADB SPS, 2009 and the country's legal requirements;
- (ii) Assess government policies, experiences, institutions, and the legal framework for environmental assessment to address any gaps with ADB SPS;
- (iii) Prepare ADB categorization forms for environment, periodically discuss with ADB to minimize environmental impacts and proactively work with other consultants from feasibility study stage to avoid or minimize environmental impacts before mitigating them;
- (iv) Prepare the environmental impact assessment and/or initial environmental examinations, appropriate for each subproject in accordance with ADB SPS, 2009. In doing so, undertake desk-based due diligence using integrated biodiversity assessment tool (IBAT) and water stress mapping for project towns to determine potential environmental sensitivities involved. Quantitatively assess all direct, indirect, cumulative, and induced impacts with respect to physical, biological, socioeconomic especially health and safety and livelihoods, including downstream water users, and PCR, existing facilities audit, associated facilities due diligence etc.;
- (v) Prepare all safeguard documents in meaningful consultation with project affected persons and communities as part of the safeguard documentation;
- (vi) Prepare environmental management plan (EMP) by dividing mitigation measures under into two parts for subproject: (a) Environmental Code of Practice (ECoP) to

- address standard construction related impacts irrespective specific location; and
- (b) management plan to address site specific environmental issues;
- (vii) Assess against the standards and measures set out in the General Environment Health and Safety (EHS) Guidelines, EHS Guidelines for Water and Sanitation, and others as may be applicable;
- (viii) Assist the DPHE in complying with ADB's disclosure requirements as per the SPS; and
- (ix) Provide capacity building trainings to implementing agency on ADB SPS, particularly on managing construction disturbance and health and safety risks, addressing grievances and developing corrective actions for non-compliances. This includes conduct of safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of EMPs; and to ensure quality and format of EIAs/IEEs follow ADB Handbook of Styles and Usage.

### **Qualifications and Experiences**

49. The Environmental Safeguard Specialist will be a Post Graduate in Civil Engineering, environmental engineering or relevant discipline with at least 12 years of relevant working experience environmental field, preferably with at least 5 years working experience in environmental safeguard issues in Bangladesh or elsewhere in the developing countries. She/he should have good communication skills, and be able to assist in the capacity building and training program. Experience of working with ADB or other donor funded projects will be advantageous.

### **(A6) Water Supply Network Specialist:**

#### **Tasks and Responsibilities**

50. Water Supply Network Specialist will work closely with Hydrologist and Treatment Plant Specialist. He/she will assist and be responsible to the Team Leader for carrying out the following principle tasks in association with the other team members:

- (i) Assist in planning of each water supply components such as intakes, raw water storage, pump station, treatment plants, overhead tanks, bulk water facilities, distribution network, etc.;
- (ii) Identify pipes and other facilities for construction / rehabilitation in consultation with team leader/other consultants;
- (iii) Conduct survey and investigation, hydraulic analysis of network system and detailed design of water supply networking, pipeline design, transmission and distribution networks, overhead tanks, pumping stations including specifications, drawings, and detailed cost estimates for all components;
- (iv) Work closely with climate change specialist to incorporate climate change adaptation and disaster resilience into water supply designs, with particular focus on salinity intrusion into water source;
- (v) Assist in preparation of bidding documents and bill of quantities in accordance with ADB's procurement policy;
- (vi) Develop mechanism of identification of water supply system leak detection and leak management to prevent water losses; and
- (vii) Prepare O&M manuals.

## Qualifications and Experiences

51. The international Water Supply Network Specialist will be a post-graduate in Water supply, Public health engineering, Civil Engineering or relevant with 12 years experience in designing, construction supervision of large integrated water supply projects including pipe networking, pipe lines, distribution networks, pumping stations etc. and a thorough knowledge on the use of popular software, namely EPANET, WaterCAD etc., preferably with at least 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. S/He should have good communication skills, and be able to assist in the capacity building and training program. Experience of working with ADB or other donor funded projects will be advantageous.

### **(A7) Institutional Development Specialist:**

#### **Tasks and Responsibilities**

52. The Institutional development specialist will work under the Team Leader in preparing, institutionalize, and implementing the institutional system development and capacity building related features for water supply managements. She/he will support for defining the modality of water and sanitation service delivery mechanism for cluster approach and hill district as well and also for NRW management and sustainable management of water supply service in close coordination with financial management expert.

53. The duties and task of the smart water management specialist includes, but not limited to:

- (i) Assess the institutional strength and weakness of each *pourashava*,
- (ii) Assess the capacity of the town/*pourashava* in terms of managing the water supply service,
- (iii) Assess the requirement for institutional development to cope with the sustainable service delivery for hill towns and cluster towns,
- (iv) Define and outline the modality of service delivery mechanism for hilly towns and for cluster approach as well with alternative approach explaining the justification,
- (v) Define the area for capacity building to comply the desired institutional, and
- (vi) Analyze existing billing system with international experience develop system to improve the existing billing system to reduce NRW.

## Qualifications and Experiences

54. The Institution Development Specialist will have a degree in business administration/engineering or relevant with 12 years experience in institutional development especially in water supply project, preferably with at least 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. She/he should have good communication skills, and be able to assist in the capacity building and training program. Experience of working with ADB or other donor funded projects will be advantageous.

### **(A8) Sanitation Specialist:**

#### **Tasks and Responsibilities**

55. The Sanitation Specialist will advise and work closely with National Faecal Sludge Management Specialist on the detailed engineering design on faecal sludge management.

He/she will be responsible to the Team Leader and work closely with the other members of consulting team and implement the following principal tasks:

- (i) Assess the existing and projected sanitation systems in towns including quantity and quality of effluent from households, commercial and industries;
- (ii) Collect and test wastewater sample from septic tanks/effluent treatment plants of the town area and analyze them;
- (iii) Identify problems and opportunities for the provision, operation and management of a sustainable sanitation system in town;
- (iv) Select appropriate sanitation technology options with alternatives and preferred options for domestic, commercial and industries, including design criteria for (i) septic tanks and de-sludging; and (b) pit latrines and de-sludging with a view to protect water source and environment of the towns;
- (v) Prepare a complete plan and detailed design for fecal sludge/septage management systems from collection to treatment and final endues/disposal in the context of Bangladesh;
- (vi) Prepare detailed design for fecal sludge disposal site and for maximizing opportunities for sludge after-use;
- (vii) Develop design criteria for the design of septic tanks based on soil absorption capacity and sludge processing;
- (viii) Prepare detailed cost estimates and specifications for proposed sanitation equipment (e.g. de-sludging vehicles and pit latrines/septic tanks);
- (ix) Prepare O&M manual; and
- (x) Assist in design a sustainable service delivery operation with participation of private sector/outsourcing or community management focusing on the increase of the tariffs.

### **Qualifications and Experiences**

56. The international Sanitation Specialist should be a post-graduate in Wastewater Engineering, Sanitary Engineering, Public Health Engineering, Civil Engineering or relevant with at least 12 years working experience in the wastewater/faecal sludge treatment planning, design and management sector and at least 5 years working experience in Faecal sludge management in Bangladesh or elsewhere in the developing countries. She/he should have good communication skills, and be able to assist in the capacity building and training program. Experience of working with ADB or other donor funded projects will be advantageous.

### **(A9) Hydrologist:**

#### **Tasks and responsibilities**

57. Hydrologist will be responsible for carrying out the following principle tasks in association with the water supply and treatment specialist and other consultants in the consultant team:

- (i) Review and update the feasibility study of the towns under hill districts and confirm the location of intake considering the issue of sustainability and treatment plant;
- (ii) Collect and analyze the data to define the hydrological setting of the nearby potential surface water source to confirm the sustainable water source for the target towns.

- (iii) Support to explore the feasibility of intake of Bandarban with the alternative option of constructing dam over jhiri; intake source at Rangamati and Lama and to explore feasibility of impounding reservoir, where requires, with justification;
- (iv) Support to explore the feasibility of potential water source for the cluster towns with alternatives;
- (v) Support to design of intake, collection, treatment plant;
- (vi) Work closely with Climate Change Specialist to consider the climate resilience aspect to confirm sustainability of water source;
- (vii) Assist in planning and design a service delivery mechanism for cluster approach through outsourcing or community management with special attention to increase of tariffs and financial sustainability of the *pourashava*/town; and
- (viii) Design and implement capacity development program for DPHE and *pourashava*/town based on the capacity deficit including on the job-training program.

### **Qualifications and Experiences**

58. The international Hydrologist should be a post graduate in Hydrology, civil engineering, water resources engineering, or relevant with specialization with at least 12 years working experience in planning and designing of water supply/treatment plant project, and preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience of working with ADB or other donor funded projects will be advantageous.

### **(A10) Procurement Specialist:**

59. International Procurement Specialist will be responsible for carrying out the following principle tasks in association with the national procurement specialist and other consultants in the consultant team:

- (i) Prepare procurement plan of the project agreed upon between the ADB and Government of Bangladesh, including procurement thresholds, procurement methods (ICB/NCB/Shopping) and approval requirements (prior or post) in connection with procurement of goods and works under the project, and advise PMU and PIU accordingly;
- (ii) Keep liaison with other team members, in the procurement of equipment and vehicles including preparation of specification and bid documents;
- (iii) Prepare bidding documents for procurement of goods and works for all contract packages for use of PMU and PIUs following ADB Procurement Policy and Public Procurement Rules, 2008 of Government of Bangladesh as applicable;
- (iv) Prepare bill of quantities, cost estimates, specifications and bid documents for all contract packages under water supply and sanitation components at three hill districts;
- (v) Assist *pourashava*/town in bidding process including bid evaluation and contract award;
- (vi) Facilitate the use of the e-Government Procurement system (if and when approved for use by ADB) for procurement activities under the project;
- (vii) Assist PIUs in:
  - (a) Preparing and updating procurement plans, including annual procurement plans for goods and works;

- (b) Designing bid packages that achieve the greatest economy, efficiency and competition;
- (c) Bidding, bid evaluation and contract award processes; and
- (d) Scheduling and arranging procurement activities in order to meet the timeframes specified in the procurement plan.
- (viii) Provide capacity building support to PMU and PIUs in handling procurement works; and
- (ix) Provide timely and constructive assistance in dealing with any obstacles to procurement activities.

## **Qualifications and Experiences**

60. The international Procurement should be a post-graduate in civil engineering, economics, business administration, commerce, law or equivalent from any recognized university, and graduate degree in civil engineering or relevant with at least 12 years of experience of preparation of procurement plan and procurement documents of development partner including ADB, and preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience in procurement services in planning and designing of water supply/treatment plant project is preferable. Experience of working with ADB or other donor funded projects will be advantageous.

## **B. Terms of Reference for Individual Experts: National Experts**

### **(B1) Deputy Team Leader/ Water Supply Design Expert:**

#### **Tasks and Responsibilities**

61. Deputy Team Leader/ Water Supply Design Expert will be responsible for carrying out the following principle tasks in association with the International Hydraulic and Network specialist/Treatment Plant Specialist and Network Specialist and other consultants in the consultant team:

- (i) Forecast/estimate water supply demand of the town for 25 years design period including the demand of the possible nearby clustering town/township;
- (ii) Analyze raw water quality with treatment Specialist for selecting treatment process and treatment options;
- (iii) Conduct survey and investigation and plan components water supply system such as intakes, raw water storage, pump station, treatment plants, overhead tanks, bulk water facilities, distribution network, etc.;
- (iv) Complete detailed design of intake, collection and treatment plant and assist in design of transmission and distribution facilities;
- (v) Work closely with Climate Change Specialist and incorporate climate resilience into the design of water supply components with particular focus on salinity intrusion into water source;
- (vi) Assist in preparation bill of quantities, cost estimates, drawings, specifications and bid documents for water supply contract packages;
- (vii) Assist in planning and design a service delivery mechanism through outsourcing or community management;
- (viii) Assist in planning and design a service delivery mechanism through outsourcing or community; and

- (ix) Support to institutional development specialist to define the service delivery modalities.

### **Qualifications and Experiences:**

62. Graduate in civil engineering, water supply, public health engineering or similar / relevant discipline with a minimum of 15 years relevant working experience, including at least 7 years experience in design of the urban water supply and water treatment plant or relevant project. Post-graduate degree in Water Supply or relevant is preferable. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B2) Water Treatment Plant Specialist** **Tasks and Responsibilities**

63. The Water Treatment Plant Specialist will work with International Water Treatment Plant Specialist and other consultant in preparing feasibility study and treatment plant design and will be responsible for (but not limited to) the following:

- (i) Support to prepare/update the feasibility study and confirm the location of intake and treatment plant;
- (ii) Analyze raw water quality or selecting treatment process and treatment options and water source as well;
- (iii) Support to design of intake, collection and treatment plant;
- (iv) Work closely with Climate Change Specialist and incorporate climate resilience into the design of water supply components with particular focus on treatment process.
- (v) Assist in preparation bill of quantities, cost estimates, drawings, specifications and bid documents for water supply contract packages;
- (vi) Support to develop under cluster approach along with concept design for detailed feasibility focusing on treatment process and plant;
- (vii) Assist in planning and design a service delivery mechanism for cluster approach with O&M modalities through outsourcing or any other sustainable option;
- (viii) Design and implement capacity development program for DPHE and *pourashava*/town including on the job training program; and
- (ix) Prepare O&M manuals.

### **Qualifications and Experiences**

64. Graduate in Civil engineering or relevant disciplines with 12 years experience in designing of relevant water treatment plant infrastructures. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program.

### **(B3) Hydrologist** **Tasks and responsibilities**

65. Hydrologist will be responsible for carrying out the following principle tasks in association with the water supply and treatment specialist and other consultants in the consultant team:

- (i) Review and update the feasibility study of the towns under hill districts and confirm the location of intake and treatment plant;
- (ii) Support to collect and analyze the data to define the hydrological setting of the nearby potential surface water source to confirm the sustainable water source for water source for the target towns.
- (iii) Support to explore the feasibility of intake of Bandarban with the alternative option of constructing dam over jhiri; the intake source at Rangamati and Lama and explore the feasibility of impounding reservoir, where requires, with justification;
- (iv) Support to explore the feasibility of potential water source for the cluster towns with alternatives
- (v) Support to design of intake, collection, treatment plant,
- (vi) Work closely with Climate Change Specialist to consider the climate resilience aspect to confirm sustainability of water source;
- (vii) Assist in planning and design a service delivery mechanism for cluster approach through outsourcing or community management with special attention to increase of tariffs and financial sustainability of the *pourashava*/town; and
- (viii) Design and implement capacity development program for DPHE and *pourashava*/town based on the capacity deficit including on the job-training program.

### **Qualifications and Experiences**

66. Graduate in Civil Engineering, water resource engineering or relevant discipline with at least 12 years of relevant working experience in hydrological study, including at least 5 years experience in hydrological study of water supply or relevant project. Post-graduate degree in Hydrology or relevant is preferable. Experience of working with ADB or other donor funded projects will be advantageous.

### **(B4) Hydrogeologist**

#### **Tasks and responsibilities**

67. Hydrogeologist will be responsible for carrying out the following principle tasks in association with the water supply and treatment specialist and other consultants in the consultant team:

- (i) Review and update the feasibility study of the towns under hill districts and confirm the location of intake and treatment plant;
- (ii) Collect and analyze the data to define the hydrogeological setting of the nearby potential surface water source to confirm the sustainable water source for water source for the target towns.
- (iii) Support to explore the potentiality of groundwater (for the towns where it requires) through hydro-geological investigation
- (iv) Support to design of production well,
- (v) Work closely with Climate Change Specialist to consider the climate resilience aspect to confirm sustainability of water source; and
- (vi) Design and implement capacity development program for DPHE and *pourashava*/town based on the capacity deficit including on the job-training program.



## **Qualifications and Experiences**

68. Graduate degree in civil engineering, hydrogeology or similar/relevant discipline with a minimum of 12 years relevant working experience, including at least 5 years experience in hydrogeological study of water supply or relevant project. Post-graduate degree in Hydrogeology or relevant is preferable. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B5) Hydraulic /Network Design Specialist:** **Tasks and Responsibilities**

69. Hydraulic /Network Design Specialist will be responsible for (but not limited to) the following:

- (i) Analyze collected data for network considering water supply for existing and future demands of services and prepare hydraulic design of distribution network;
- (ii) Identify pipes and other facilities for construction / rehabilitation in consultation with team leader/other consultants;
- (iii) Monitor survey and network designing;
- (iv) Coordinate with DPHE for maintaining proper record of pipes and other facilities in digital form, including all works to be developed under the project;
- (v) Train and hand over the hydraulic model to DPHE staff to enable them update and utilize it by them;
- (vi) Carry out computer analysis of the existing water supply networks (if any) and identify existing constraints and their rectification for incorporation in the projects; and
- (vii) Formulate and simulate hydrodynamic models.

## **Qualifications and Experiences**

70. Graduate degree in civil/water supply engineering or similar/relevant discipline with a minimum of 12 years relevant working experience, including at least 5 years experience in network modeling, planning and design water supply systems and a thorough knowledge on the use of popular software, namely EPANET, Water CAD etc. Post-graduate degree in relevant field is preferable. Work experiences in the project funded by international donor including ADB would be preferable.

### **(B6) Fecal Sludge Management Specialist**

71. Fecal Sludge Management Specialist will be responsible for carrying out the following the following principle tasks in association with the International Fecal Sludge Management Specialist and other consultants in the consultant team:

- (i) Prepare a complete plan and design for fecal sludge/septage management systems from collection to treatment and final disposal in context of Bangladesh;
- (ii) Define sludge management technologies including mechanized options with alternatives explaining justifications with a view to protect the water source and environment of towns from contamination;
- (iii) Prepare detailed design for fecal sludge disposal site and for maximizing opportunities for sludge after-use;

- (iv) Collect and test wastewater sample from septic tanks/effluent treatment plants and analyze them;
- (v) Develop design criteria for the design of septic tanks based on soil absorption capacity;
- (vi) Prepare detailed cost estimates and specifications for proposed sanitation equipment (e.g., de-sludging vehicles and pit latrines/septic tanks);
- (vii) Prepare O&M manual;
- (viii) Assist in design of sustainable service delivery operations with participation of private sector/outsourcing or community management focusing on the increase of the tariffs.

### **Qualifications and Experiences**

72. Graduate in civil engineering, environmental engineering, wastewater engineering, municipal engineering or similar/relevant discipline with a minimum 12 years working experience in the wastewater management including fecal sludge management. Post-graduate degree in Wastewater Engineering or relevant is preferable. Experience of working with ADB or other donor funded projects will be advantageous.

### **(B7) Environmental/ Climate Change specialist**

73. Environmental/ Climate Change specialist will be responsible for carrying out the following the following principle tasks in association with the other consultants in the consultant team:

- (i) Assist in incorporating climate and disaster resilience into feasibility and detailed designs of water supply and drainage. This includes (a) multi-hazard approach taking all relevant hazards into consideration at given project sites, and (b) capturing the details of climate and disaster risks to ensure that future projects are not located in high susceptibility zones and that project designs and materials are appropriate (climate resilient) and will not make the ensuing projects susceptible to the identified threats;
- (ii) Incorporate climate and disaster resilience into DPHE's specification for construction work;
- (iii) Assist the PMU and towns in the selection of eligible clustering towns using selection criteria;
- (iv) Review recommendations of previous TA, and work closely with water supply and other experts to incorporate adaptation into both physical and non-physical design components; and
- (v) Work closely with the design engineers to identify, quantify, and clearly report the incremental costs of climate adaptation and disaster resilience in the project design.

### **Qualifications and Experiences**

74. Graduate in Civil/Environmental Engineering, climate science, or related degree with over 12 years of experience, involved in planning and design of climate and disaster resilient infrastructure projects, preferably in water supply, etc. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

**(B8) Environmental Safeguard Expert:**  
**Tasks and responsibilities**

75. Environmental Safeguard Expert will be responsible for carrying out the following principle tasks in association with the International Environmental Safeguard Specialist and other consultants in the consultant team:

- (i) Assist the international environmental safeguards specialist consultant (or, in the absence of the international environmental safeguards specialist, lead) in preparation of environmental safeguard documents such as EIA reports and/or IEE reports for this project in accordance with ADB SPS and the country's legal requirements;
- (ii) Assist in including quantitative assessment of all direct, indirect, cumulative, and induced impacts with respect to physical, biological, socioeconomic especially health and safety and livelihoods, including of downstream water users, and PCR, existing facilities audit, associated facilities due diligence etc.;
- (iii) Ensure all the project preparation including feasibility study and detail design comply with ADB SPS and proactively work with other consultants from feasibility study stage to avoid or minimize environmental impacts before mitigating them;
- (iv) Assess government policies, experiences, institutions, and the legal framework for environmental assessment to address any gaps with ADB SPS;
- (v) Prepare ADB categorization forms for environment;
- (vi) Together with the international Environmental Safeguard consultant, undertake desk based due diligence using IBAT and water stress mapping for project towns to determine potential environmental sensitivities involved.
- (vii) Assess against the standards and measures set out in the EHS Guidelines, EHS Guidelines for Water and Sanitation, and others as may be applicable;
- (viii) Prepare draft the environmental impact assessment and/or initial environmental examinations, appropriate for each subproject in accordance with ADB SPS;
- (ix) Prepare all safeguard documents in meaningful consultation with project affected persons and communities as part of the safeguard documentation; and
- (x) Assist implementing agency to establish grievance redressal mechanism and ensure members of the grievance committee have the necessary capacity to resolve project-related issues/concerns;
- (xi) Assist the international environmental safeguards specialist consultant (or, in the absence of the international environmental safeguards specialist consultant, lead) in providing capacity building trainings to implementing agency on ADB SPS, particularly on managing construction disturbance and health and safety risks, addressing grievances and developing corrective actions for non-compliances. This includes conduct of safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of EMPs; and to ensure quality and format of EIAs/IEEs follow ADB Handbook of Styles and Usage.

**Qualifications and Experiences**

76. Graduate in Civil Engineering, environmental engineering, similar/relevant discipline with at least 12 years of relevant working experience environmental field including at least 5 years' experience in urban water supply and water treatment plant or relevant project. Experience of working with ADB or other donor funded projects will be advantageous.

**(B9) Social Safeguards / Resettlement Specialist:**  
**Tasks and Responsibilities**

77. The Social Safeguards/Resettlement Specialist will work with International Social Safeguards Specialist will be responsible for (but not limited to) the following:

- (i) Undertake social safeguards analysis based on detailed designs and preparation of necessary safeguard documentation in accordance with ADB SPS;
- (ii) Prepare resettlement framework and IPPF as per ADB SPS;
- (iii) Prepare resettlement plan and IPP in accordance with the resettlement framework and ADB SPS and prepare due diligence report on land acquisition and resettlement in case there are no resettlement impacts;
- (iv) Work closely with design engineers and national social safeguard specialist in preparing resettlement plans, IPPF and IPP, as well as other tasks to ensure compliance with ADB SPS safeguards requirement;
- (v) Undertake necessary census and socioeconomic surveys and data collection, conduct meaningful consultations with project-affected people for drafting the social safeguard documents
- (vi) Prepare the project's item-wise detailed budget, total cost estimates of the proposed infrastructures safeguard requirements;
- (vii) Submit draft resettlement plans, IPPF and IPP, as well as other tasks to ensure compliance with ADB SPS safeguards requirement, to the executing agency and ADB for review and clearance prior to bidding.
- (viii) coordinate all involuntary resettlement issues and ensure that all subprojects comply with safeguards requirements of ADB and Government of Bangladesh;
- (ix) calculate compensations/entitlements of affected people and coordinate with PMU and other team experts budget allocation for social safeguards implementation
- (x) prepare project information documents for disclosure to stakeholders and affected people; and
- (xi) Hold consultation during preparation of the social safeguard documents and ensure comments/issues raised are communicated to PMU, project and measures to address such issues/concerns are addressed early on in the project design.

**Qualifications and Experiences**

78. The Social Safeguards/Resettlement Specialist will be a Graduate in Social sciences/ community mobilization or equivalent with at least 12 years of experience. She/he in designing relevant customer interaction programs for water supply and sanitation service delivery. Work experience in the project funded by international donor including ADB safeguards experience is preferable.

**(B10) Institution Development Specialist:**  
**Tasks and Responsibilities**

79. The Institution Development Specialist will be responsible for, (but not limited to) the following:

- (i) Define and outline the modalities of service delivery for the hill towns and cluster model with alternatives explaining the justification;

- (ii) Develop technical capacity of the town/*pourashava*/township water supply and sanitation section related to their objective, organization, NRW management, operation and management;
- (iii) Improvement water safety planning and source monitoring through the development of water safety plans and guidelines;
- (iv) Capacity building activities will focus on (a) strengthening municipal/town finance systems to improve local revenues and financial sustainability of investments, (b) enhancing citizen participation in *pourashava*/town planning and decision making, (c) strengthening technical capacity and institutional arrangements for improved service delivery and O&M, and (d) promoting private sector participation in water supply and sanitation management;
- (v) Establish and assist project coordination committee in each town/*pourashava*/township and deliver appropriate technical training for the members of such committees; and
- (vi) Assist public-private partnership (PPP) specialist in designing O&M modality in case of cluster approach.

### **Qualifications and Experiences**

80. Graduate degree in business administration/engineering or relevant with 10 years experience in relevant field. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B11) Economist:**

#### **Tasks and Responsibilities**

81. The economist will be responsible for (but not limited) to perform the following responsibilities:

- (i) Conduct economic analysis of the project, including (a) demand analysis, (b) least economic cost analysis, (c) economic cost and benefit analysis, (d) economic internal rates of return, (e) average incremental economic costs, (f) sensitivity analysis, (g) risk analysis, (h) benefit distributional analysis, (i) poverty impact ratios, (j) assessment of subsidies, and (k) other relevant works;
- (ii) Review tariff policies, current tariff levels and structures, and collection mechanisms for water supply services;
- (iii) Recommend suitable tariff structure and user charges;
- (iv) Assess the pricing of services for the poor, willingness to pay, ability to pay of different user groups, and cost-sharing mechanisms; and
- (v) Establish rules and procedures in PMU for evaluating economic viability and train DPHE/ towns staff to utilize them.

### **Qualifications and Experiences**

82. Graduate degree in Economics or relevant with 10 years of experience in economic analysis of infrastructure projects. The specialists should have experience in design and development of accounting and budgeting systems for public enterprises. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills and be able to assist in the capacity building and training program.

**(B12) Financial Management Specialist:**  
**Tasks and Responsibilities**

83. The Financial Management Specialist will be responsible for (but not limited to) the following:

- (i) Conduct project costing including budgeting, accounting and reporting;
- (ii) Project future incremental costs and revenues to assess to ensure project sustainability;
- (iii) Prepare the financial management assessment;
- (iv) Conduct financial analysis of the project with financial internal rate of return (FIRR) and weighted average cost of capital (WACC) computations with sensitivity analysis corresponding to critical variables;
- (v) Establish rules and procedures in PMU for fund flow and internal control and train DPHE staff to utilize them;
- (vi) Assist PMU in preparing bid documents and negotiating the contracts regarding financial matters;
- (vii) Establish a sound accounting practice and systems to manage resources available at the investment program;
- (viii) Develop budgetary control process, design budget procedures and budget formats;
- (ix) Train PMU staff in the preparation of annual budget estimates and disbursement plans;
- (x) Review the financial management system of government agencies involved in the program and make recommendations for optimal integration; and
- (xi) Direct and advise on the establishment of billing and collection system.

**Qualification and Experiences**

84. Graduate degree in Financial Management/Business administration or related field and be a chartered accountant or certified public accountant (CPA) or equivalent with at least 10 years professional experience in relevant field. She/he will have experience in design and development of accounting and budgeting systems for public enterprises. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

**(B13) Structural Engineer:**  
**Tasks and Responsibilities**

85. The Structural Engineer will be responsible for (but not limited to) the following:

- (i) Support to prepare/update feasibility studies;
- (ii) Perform all structural design of civil construction works that includes under water supply and sanitation infrastructures such as, structures at intake, pump station, treatment plant, overhead tank, any other buildings, etc.;
- (iii) Collect relevant data, information related to structural design of schemes included above;
- (iv) Undertake detailed design, prepare design reports including drawings;
- (v) Assist in the preparation of detailed estimate and bill of quantities; and
- (vi) Device computer-based design module using standard updated software and help to train PIU and PMU staff in using AutoCAD/other design software.

### **Qualifications and Experiences**

86. Graduate degree in Civil/Structural Engineering with at least 10 years experience in designing water supply infrastructure or relevant projects. She/he will be experienced in designing of water treatment plant structures. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills and be able to assist in the capacity building and training program.

#### **(B14) Electrical Engineer:** **Tasks and Responsibilities**

87. The Electrical Engineer will be responsible for (but not limited to) the following:

- (i) Support to prepare/update the feasibility studies;
- (ii) Perform all electrical design works that includes under water supply, water treatment plant and sanitation infrastructures such as, electrical design requirement at intake, pump station, treatment plant, overhead tank, any other buildings, etc.;
- (iii) Perform design of sub-station if required for water treatment plant
- (iv) Collect relevant data, information related to electrical design of schemes included above;
- (v) Undertake detailed design, prepare design reports including drawings;
- (vi) Assist in the preparation of detailed estimate and bill of quantities and specifications of all electrical items; and
- (vii) Device computer-based design module using standard updated software and help to train PIU and PMU staff in using electrical design soft wares.

### **Qualifications and Experiences**

88. Graduate degree in Electrical Engineering or relevant with working experience about 10 years in designing of relevant electrical components of such infrastructure (water treatment plants, pump houses etc.). She/he will be experienced in designing of electrical component in water treatment plants. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

#### **(B15) Mechanical Engineer:** **Tasks and Responsibilities**

89. Mechanical Engineer will be responsible for carrying out the following the following principle tasks in association with all other consultants in the consultant team:

- (i) Support to prepare/update the feasibility studies;
- (ii) Perform all mechanical/electro-mechanical design works that includes under water supply, water treatment plant and sanitation infrastructures such as, mechanical design requirement at intake, pump station, treatment plant, overhead tank, any other buildings, etc.;
- (iii) Collect relevant data, information related to mechanical design of schemes included above;
- (iv) Undertake detailed design, prepare design reports including drawings;

- (v) Assist in the preparation of detailed estimate and bill of quantities and specifications of all mechanical/electro-mechanical items; and
- (vi) Device computer-based design module using standard updated software and help to train PIU and PMU staff in using mechanical design software.

### **Qualifications and Experiences**

90. Graduate in Mechanical Engineering, similar / relevant discipline with at least 10 years of relevant working experience mechanical design, with significant experience in urban water supply systems and water treatment plants or related projects. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B16) Procurement Specialist**

91. Procurement Specialist will be responsible for carrying out the following principle tasks in association with the international procurement specialist and other consultants in the consultant team:

- (i) Prepare procurement plan of the project agreed upon between the ADB and Government of Bangladesh, including procurement thresholds, procurement methods (ICB/NCB/Shopping) and approval requirements (prior or post) in connection with procurement of goods and works under the project, and advise PMU and PIU accordingly;
- (ii) Keep liaison with other team members, in the procurement of equipment and vehicles including preparation of specification and bid documents;
- (iii) Prepare bidding documents for procurement of goods and works for all contract packages for use of PMU and PIUs following ADB Procurement Policy and Public Procurement Rules, 2008 of Government of Bangladesh as applicable;
- (iv) Prepare bill of quantities, cost estimates, specifications and bid documents for all contract packages under water supply and sanitation components at three hill districts;
- (v) Assist *pourashava*/town in bidding process including bid evaluation and contract award;
- (vi) Facilitate the use of the e-Government Procurement system (if and when approved for use by ADB) for procurement activities under the project;
- (vii) Assist PIUs in:
  - (a) Preparing and updating procurement plans, including annual procurement plans for goods and works,
  - (b) Designing bid packages that achieve the greatest economy, efficiency and competition,
  - (c) Bidding, bid evaluation and contract award processes, and
  - (d) Scheduling and arranging procurement activities in order to meet the timeframes specified in the procurement plan.
- (viii) Provide capacity building support to PMU and PIUs in handling procurement works; and
- (ix) Provide timely and constructive assistance in dealing with any obstacles to procurement activities.



## Qualification and Experience

92. Graduate in Civil Engineering, similar/relevant discipline with at least 10 years of preparation of procurement plan and procurement documents of development partner including ADB, with significant experience in procurement services in urban water supply systems and water treatment plants or related projects. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B17) Community Development and Gender Specialist:** **Tasks and Responsibilities**

93. Community and Gender Expert will be responsible for (but not limited to) the following:

- (i) Responsible for preparation of summary poverty reduction and social strategy, GAP, and community and participation plan;
- (ii) Assess the training needs of the PMU and the Division;
- (iii) Develop method and tools for mainstreaming gender equality as directed in the DPHE/towns gender equality strategy and gender impact assessment;
- (iv) Prepare/revise training materials, as necessary to train project staff and other key stakeholders (contractors/subcontractors and labor supervisors);
- (v) Support sex-disaggregated data collection, collation and gender-based reporting following GAF and prepare the manual/guideline for GAP for ensuing investment project;
- (vi) Organize/facilitate training and orientation for Community Program and Consumer Relation Division, PMU and NGO staff on GAF following guideline/manual and their responsibilities to implement the GAF and monitor the progress;
- (vii) Review MIS and data collection mechanism to suggest incorporation of sex disaggregated indicators in monitoring of GAF;
- (viii) Ensure women's participation in community consultation, identify their needs and ensure women's participation in community-based organizations (CBO);
- (ix) Review the existing community training and awareness raising materials and methodologies to integrate information/topics and suggest methodologies as necessary to implement the GAF and raise voice of community women;
- (x) Oversee that the bid documents include appropriate labor and gender related provisions;
- (xi) Support/participate in community orientation program, where necessary;
- (xii) Provide inputs on GAP related issues to the Detailed Project Report;
- (xiii) Work the development of Community Consultation Plans and participate in consultations with any Stakeholder Committees that may be established during the course of the planning and design of water supply and sanitation schemes;
- (xiv) Work for awareness raising activities will focus on (i) water supply, sanitation and fecal sludge management, and (ii) community mobilization to enable poor communities to access and use of developed interventions;
- (xv) Prepare the design for a willingness-to-pay survey for assessing the demand for various urban services; and undertake the willingness-to-pay survey for water supply and sanitation schemes; and
- (xvi) Work with Social Development Specialist on the social development activities.

## Qualifications and Experiences

94. Graduate in Social sciences/gender studies or equivalent with at least 10 years of work experience in designing relevant customer interaction programs for water supply/ sanitation service delivery programs. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B18) GIS Specialist:**

#### **Tasks and Responsibilities**

95. GIS Specialist will assist and be responsible to the Team Leader for implementing the following principle tasks:

- (i) Prepare GIS based maps required for subprojects;
- (ii) Assist the consultant team in preparing and analyzing the GIS database and maps;
- (iii) Provide GIS material for presentation purposes;
- (iv) Develop and deliver on the job training to PIU and PMU staff; and
- (v) Assist in any other task assigned by the supervising consultants as per requirement.

#### **Qualification and Experience**

96. Graduate in engineering, urban planning and/or geography or similar/relevant discipline with at least 8 years of relevant working experience in designing and operating GIS systems in the urban water and sanitation related sector. She/he should have good communication skills and be able to assist in the capacity building and training program.

## **VI. REPORTING REQUIREMENTS, TIME SCHEDULE AND DELIVERABLES**

97. The estimated total duration of consulting services will be 24 months from December 2019 to December 2021. The list of deliverables, which the Consultant is expected to producing and corresponding time schedule is outlined in the table below.

**Table 2: Schedule of Deliverables (for each component)**

<b>Sl. no.</b>	<b>Deliverable</b>	<b>Month of Delivery</b>	<b>Summary of Contents</b>	<b>Number of Copies</b>
(i)	Inception Report	Within 30 days of mobilization.	Initial findings, detailed approach and methodology, detailed work plan.	10 Copies
(ii)	Monthly Report	Every month	Describe briefly and concisely all activities and progress for the previous month by the 10th day of each month. Problems encountered or anticipated will be clearly stated, together with actions to be taken or recommendations on remedial measures for correction. Also indicates the work to be performed during the coming month;	10 Copies

<b>Sl. no.</b>	<b>Deliverable</b>	<b>Month of Delivery</b>	<b>Summary of Contents</b>	<b>Number of Copies</b>
(iii)	Situation Analysis Report	Within 06 months for Rangamati, Bandarban and Lama Within 12 months for cluster towns	Report on topographic, geodetic and bathymetric survey for the proposed infrastructures.	10 Copies
(iv)	Draft Report on Feasibility for Hill towns	Within 09 months from commencement	Feasibility on Hill town through Updating previous feasibility study including concept design, economic and financial analysis, estimated investment project, institutional modalities for service delivery including draft DPP	10 Copies
(v)	Final Report on Feasibility for Hill towns	Within 11 months from commencement	Finalization of draft report incorporating suggestions/comments of ADB, DPHE	15 Copies
(vi)	Detailed Design Report	Within 15 months for Rangamati, Bandarban and Lama	Detailed Design and Drawings for all infrastructures.	10 Copies
(vii)	No Mitigation Measures Scenario Checklist	Within 30 days from mobilization	Use the ADB-suggested checklist	Electronic copies in Word and PDF formats.
(viii)	Environmental assessment and social safeguard report (EIA, IEE, resettlement plans, DDRs)	Within one month after the detailed design is finalized.	For environmental assessment documents, follow the outline suggested in ADB SPS (Annex to Appendix 1). For resettlement plans, follow the outline suggested in ADB SPS (Annex to Appendix 2). Ensure that the EIA or IEE and resettlement plans or DDRs use the final detailed design as referred to in item (vi) above.	Electronic Copies in Word and PDF formats.
(ix)	Bid documents	Within 18 months for Rangamati, Bandarban and Lama	Bid documents for all contract packages including works and goods	10 Copies
(x)	Draft Report on Feasibility for cluster towns	Within 21 months from commencement	Feasibility on Hill town through Updating previous feasibility study including concept design, economic and financial analysis, estimated investment project and institutional modalities for service delivery	10 Copies

Sl. no.	Deliverable	Month of Delivery	Summary of Contents	Number of Copies
(xi)	Final Report on Feasibility for cluster towns	Within 23 months from commencement	Finalization of draft report incorporating suggestions/ comments of ADB, DPHE	15 Copies
(xii)	Selection of Contractor for work execution of projects	Within 24 months for Rangamati, Bandarban and Lama;	Pre bid minutes, Bid Evaluation Reports, Different submittal documents for ADB, draft contract agreements etc.	As required

ADB = Asian Development Bank, DPHE = Department of Public Health Engineering, DPP = development project proforma, DDR = due diligence report, EIA = environmental impact assessment, IEE = initial environment examination, SPS = Safeguard Policy Statement.

98. In addition to above consultant will submit semiannually and yearly progress reports at the end of each quarter/ year during the course of assignment mentioning status/ progress of work, activities performed, and issues related to assignment during the month.

## **VII. CLIENT'S INPUT AND COUNTERPART PERSONNEL**

### **A. Services, facilities and property**

99. DPHE will provide the office space in the DPHE head quarter building, but the consultant will be responsible for the cost of utilities (electricity, gas, water, etc). The consultant will have access to DPHE's GIS and DPHE Library. They will also be provided with previous available reports, data, and information relevant to their assignments. Necessary office equipment, such as computers; computer peripheral equipment, desks CAD, etc. should be procured under the consulting services budget.

100. DPHE will provide to the Consultant assistance which include making available all relevant documents, and assistance for obtaining work permit, visa and other similar documents as well as exemption and privileges, if any.

### **B. Professional and support counterpart personnel**

101. DPHE will provide all necessary counterpart support on a no-cost basis to the consultant's team. All the counterpart support, facilities and information would be provided by the Government in kind and would be free of charge to the Consultant.

102. Client will provide the following inputs, project data and reports to facilitate preparation of the proposals:

- (i) Master plan on water supply and sanitation for Chittagong Hill Districts, and
- (ii) Any other related document available in DPHE.

## 2. Consultant for Preparatory Studies and Procurement Support (NCC Component)

### I. PROJECT DESCRIPTION

1. In Bangladesh, rapid urbanization in contrast to the urban infrastructure deficit, insufficient and inefficient existing urban infrastructure, is causing acute shortage of urban services. It is also creating severe strain to natural environment, which indeed increasing rapid growth in demand for urban infrastructure and services. Urban local bodies (ULBs) with massive public service mandate including water supply, sanitation and waste management are not able to provide their services effectively with their limited institutional and technical capacity. ULBs (city corporations and *pourashavas*) are suffering for their existing weak governance and management; poor financial management capacity and accountability; lack of participation of citizen, urban planning, gender equity and social inclusion; which results to poor municipal service delivery. Currently, piped water supply is available in only one third of the municipalities with typically 2-4 hours a day supply. Most of the towns' water supply is based on groundwater in many cases with poor water quality with high iron and arsenic content. Sanitation coverage is not still up to the mark.

2. Government of Bangladesh has started processing a project readiness facility (PRF) from Asian Development Bank (ADB) to affirm the implementation of the Urban Infrastructure Improvement Preparatory Facility (UIIPF), aiming to the improvement of the urban infrastructure for increasing urban services for the citizen with sustainable service delivery. The PRF will provide support for feasibility studies, detailed engineering design, cost estimates and preparation of bid documents for the ensuing investment projects which may be supported under other ADB loans after the completion of the PRF. The PRF will likely to be implemented through two components such as, (i) Department of Public Health Engineering (DPHE) component for Water Supply and Sanitation, and (ii) Narayanganj City Corporation (NCC) component for Urban Infrastructure and capacity building for municipal financial management.

3. NCC component of the PRF aims to prepare the ensuing investment project for infrastructural and other interventions envisaged to be implemented at NCC under ensuing investment projects. The proposed infrastructure facilities for implementation at NCC are (i) road along east side of Shitalakhya River with walkways and landscaping; (ii) improvement of existing water supply infrastructure and its expansion; and (iii) development of priority drainage following master plan with phasing investment plan.

4. **Project Objectives.** The main objective of the NCC component of PRF consultancy service is to support NCC to prepare the ensuing investment project ready for ADB Board consideration and implementation by completing feasibility study, detailed engineering design, safeguards planning documents, and bidding documents for the prioritized infrastructure facilities at NCC that are important for better municipal service delivery and improvement of quality of urban life. It will also cover institutional development and capacity building of NCC for implementation of (i) ensuing investment projects and (ii) municipal financial management.

5. The following are the proposed infrastructure facilities for implementation at NCC:

- (i) **Road along east side of Shitalakhya River with walkways and landscaping.** The target road is 17 kilometers (km), including 1.7 km where only road development is completed. The 17 km includes widening of the existing riverside road. The aim of this road is to improve traffic efficiency. The land is owned by Bangladesh Inland Water Transport Authority (BIWTA). While BIWTA has

endorsed the development plan, the land acquisition and resettlement are necessary. There is an existing conceptual study.

- (ii) **Improvement of existing water supply infrastructure and its expansion for future surface water-based water supply.** This may include non-revenue water reduction (NRW), rehabilitation and upgrade of water treatment plant, and rehabilitation and expansion of water distribution network. This will also include introduction of priority DMA (prioritize with good justification). The current water supply source is around 30% surface water and 70% ground water. The city corporation intends to switch to surface water. Some of the existing distribution network is more than 50 years old, thus requires urgent rehabilitation that will also serve for future switching to surface water and possible increase in water supply quantity. NCC expects to take responsibility of water supply services and its infrastructure development from Dhaka Water Supply and Sewerage Authority (DWASA).
- (iii) **Drainage improvement.** This will be drainage improvement in priority areas identified under the master plan followed by feasibility study. In the feasibility study outline of priority investment in phases will be included. It also includes investigation and analysis of quality of currently conveyed water by the drainage system and define onsite treatment process for its safe disposal by combining several outfalls into one. The implementation of some priority drainage schemes with onsite outfall treatment will necessarily depend on the technical feasibility and compliance with ADB's safeguard procedure and also with agreement by ADB and NCC to be included those under investment loan based on the size of the investment loan. There may be some temporary/permanent resettlement.

6. **Outputs.** The project will have the following outputs:

- (i) Developed detailed feasibility studies including environmental, socio-economic, geographic, and geodetic surveys at sites for (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation and upgrade of existing water supply infrastructure with expansion of distribution network along with introduction of priority DMA and proposed options for switching to surface water based water supply considering future demand; and (c) improvement of drainage system through preparing drainage master plan with phasing investment plan considering priority and include implementation of some priority drainage schemes under investment loan as technically feasible and in compliance with ADB's safeguard procedure and is also agreed by ADB and NCC to include those under investment loan.
- (ii) Developed detailed design reports, engineering design and detail estimate for appropriate infrastructure facilities for (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation of existing water supply infrastructure with expansion of distribution network and introduction of priority DMA with good justification; (c) some priority drainage schemes under investment loan as technically feasible and in compliance with ADB's safeguard procedure.
- (iii) Developed climate and disaster resilient design.
- (iv) Developed environmental and social safeguard documents as required by ADB SPS 2009 and applicable national laws, regulations, policies and guidelines. Conducted environmental audit of existing facilities to be rehabilitated/expanded under the project, and conducted due diligence of associated facilities as required by ADB SPS.

- (v) Developed bid documents for procurement of the completed detailed design of (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation of existing water supply infrastructure with expansion of distribution network; (iii) priority drainage schemes if feasible along with advance contracting/procurement of the proposed investment loan ready for ADB's board consideration.
- (vi) Developed a sustainable service delivery mechanism and O&M modalities for water supply through outsourcing or public private partnership;
- (vii) Developed capacity of NCC to execute their responsibilities as a city corporation to implement ensuing investment projects, operate, manage and monitor service provision locally.
- (viii) Documented investment loan processing ready for ADB's board consideration.
- (ix) Formulated TOR for supervision consultant of the investment project.
- (x) Formulated Development Project Proforma (DPP) for the investment project and support provided to NCC on approval process.

7. **Implementation Arrangements.** NCC will be the executing agency and implementing agency for the NCC component of the PRF. NCC will implement the component through its project management unit (PMU) setup at NCC. PMU will implement the PRF including ensuring quality and timely completion of master plan, feasibility study, detailed engineering design, bid documents and procurement, establish mechanism for quality construction and supervision, preparation of gender action plan (GAP) along with social and environmental safeguard documentation in line with ADB guidelines. The PRF consultants that will work closely with the PMU. An inter-ministry steering committee will oversee and guide the implementation.

### C. Consulting Services

8. NCC will engage PRF consultants through firm and individual under the PRF. The consultants will ensure that master plan, feasibility study, environmental and social safeguard documents, detailed design and all procurement of civil works, goods, and services under the proposed subprojects are undertaken in an economical and efficient manner, consistent with widely accepted engineering standards and practices for such works, and to the satisfaction of government of Bangladesh and ADB. The PRF consultants will have their project office established at NCC. PRF consultants will also provide support on the capacity building of NCC in the implementation of the PRF, ensuing investment projects, and service provision. This term of reference is only for the recruitment of the PRF consultant through firm. The PRF consultants will not be eligible for construction supervision consultant in the ensuing investment project.

## II. PURPOSE OF THE ASSIGNMENT

9. The main objective of this consultancy assignment is to support NCC to prepare the ensuing investment project for infrastructural and other interventions envisaged to be implemented at NCC. The consultant will make the project ready for ADB Board consideration and implementation by completing master plan, feasibility study, detailed engineering design, safeguards planning documents, and bidding documents for the prioritized infrastructure facilities at NCC that are important for better municipal service delivery and improvement of quality of urban life.

10. The specific objectives of this consultancy assignment of the NCC component are:

- (i) To support NCC for preparing the ensuing investment project ready for ADB's board consideration;
- (ii) To conduct feasibility study for (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation and upgrade of existing water supply infrastructure with expansion of distribution network and proposed options for switching to surface water-based water supply considering demand; and (c) improvement of drainage system through preparing drainage master plan with phasing investment plan considering priority;
- (iii) To conduct detailed engineering design, and cost estimate for (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation and upgradation of existing water supply infrastructure with expansion of distribution network and introduction of priority DMA with good justification; (c) some priority drainage schemes under investment loan as technically feasible and in compliance with ADB's safeguard procedure;
- (iv) To ensure climate and disaster resilient design in the infrastructure design;
- (v) To prepare bid documents and assist NCC in advance procurement for all subproject components mentioned for the detailed designs;
- (vi) To complete all necessary environmental and social safeguard documentation such as environmental and social safeguards reports (environmental impact assessment (EIA), initial environmental examination (IEE), environmental audits, compliance reports, resettlement plans, due diligence reports (DDR), and indigenous peoples plan (IPP) including screening of potential environmental impacts using the project-specific rapid environmental assessment checklists and/or the no mitigation measures scenario checklist to determine the environment category and the required assessment based on SPS 2009) as per ADB SPS and applicable Government of Bangladesh laws, regulations, policies and guidelines;
- (vii) To conduct necessary meaningful consultations per ADB SPS requirements;
- (viii) To design a sustainable service delivery mechanisms and O&M modalities for water supply exploring outsourcing or public private partnership;
- (ix) To build capacity of NCC to execute their responsibilities to implement ensuing investment projects and as a city corporation to operate, manage and monitor service provision locally;
- (x) To prepare terms of reference for detailed design and construction supervision consultant to be engaged for feasible investment subprojects including support to proposal evaluation to select consultant;
- (xi) To prepare DPP for the investment project; and
- (xii) To provide trainings to implementing agencies on managing construction disturbance and health and safety risks, addressing grievances and developing corrective actions for non-compliances.

### **III. DURATION AND LOCATION OF THE SERVICES**

11. The engagement period of the consultancy services is 24 months. Location of the assignment is Narayanganj City Corporation, Narayanganj.

### **IV. SCOPE OF SERVICES**

#### **A. Overview**

12. The PRF Consultant will support NCC to develop project by conducting the feasibility study, providing the required design and specification, prepare draft bid documents for the



infrastructure subprojects to be implemented under UIIPF. The following are the proposed infrastructure facilities for implementation at NCC and subsequent scope of consultancy services:

- (i) **Road along east side of Shitalakhya River with walkways and landscaping.**  
The PRF Consultant will conduct feasibility study referring to the already completed 1.7 km driveway along the river, prepare detailed engineering design, prepare environmental audit of existing facilities to be rehabilitated/expanded under the project, conduct baseline environmental and social surveys including the impact on the aquatic environment, and prepare draft bid document, as well as support procurement process including floating of bid, bid evaluation, negotiation (as advance contracting before the ensuing investment project).
- (ii) **Improvement/rehabilitation of existing water supply infrastructure and development surface water-based water supply.** This may include NRW reduction, rehabilitation and upgrade of water treatment plant along with examining the suitability of present location of the intake and exploring alternate potential site through hydrogeological investigation as well, and expansion of water distribution network.  
The consultant will conduct the feasibility study for the new treatment plant including intake, and will prepare the outline of investment project in phases focusing on surface water based system. The consultant will also conduct feasibility study to rehabilitate and upgrade the existing water supply system and expansion of distribution network and introduce DMA with good justification. The consultant will prepare detailed engineering design, prepare environmental audit of existing facilities to be rehabilitated/expanded under the project, conduct baseline environmental and social surveys, and prepare draft bid documents, as well as support procurement process including floating of bid, bid evaluation, negotiation (as advance contracting before the ensuing investment project) for this investment loan covering the up-gradation of existing system and expansion of distribution network including priority DMA and upgradation of treatment plant including intake structure. The consultant will further work on the institutional capacity building toward implementation of the investment project and the transition of water supply management responsibility from DWASA to NCC exploring the option of outsourcing the operation of system or part of system as found feasible by the study.
- (iii) Support preparation of a transition plan for the proposed handover of responsibility for water supply and related services from DWASA to NCC, including:
  - (a) a timeline describing each major stage of development and implementation of the handover, including acquisition of requisite governmental approvals;
  - (b) a business plan approved by NCC and DWASA, describing the transfer of assets and liabilities from DWASA to NCC;
  - (c) a staffing plan approved by NCC, featuring a revised organogram reflecting responsibilities assumed from DWASA, and costed against available NCC resources;
  - (d) a profit-and-loss analysis of water supply operation in NCC and its improvement plan after the handover;
  - (e) a plan of necessary management support by DWASA after the handover; and
  - (f) as required and feasible, support implementation of the transition plan, through continuous coordination amongst NCC, DWASA, LGD, and ADB.

- (iv) **Drainage improvement.** The consultant will conduct situation analysis of the existing sanitation system of Narayanganj city including storm/grey water drainage, wastewater (domestic and industrial wastewater), septage/ fecal sludge management situation. The consultant will prepare master plan for storm water/ grey water drainage system for NCC including different suitable options with cost involvement and conduct feasibility study. The consultant will investigate the quality of water to be drained out, and based on that, define the appropriate treatment process for its safe disposal by possible integrating several outfalls into one. The consultant will further prepare draft the bid documents, prepare environmental audit of existing facilities to be rehabilitated/expanded under the project, conduct baseline environmental and social surveys, and assist advance contracting/procurement of those that's detail design is completed. The scope of the ensuing investment project may cover priority drainage schemes including treatment plant as agreed by NCC and ADB if observed feasible. The consultant will consider option for suitable onsite treatment options considering outfall of existing drainage (or be rehabilitated) and in designing of new priority drainage schemes, where several outfall may be integrated if feasible. The consultant will work on the institutional capacity building of NCC to manage the drainage system.
- (v) **Safeguard documentation.** The consultant will prepare all safeguard documentation as per requirements of ADB SPS and national laws, regulations, and guidelines. The environment safeguards should be integral to the feasibility study where the designers/engineers and environment safeguard specialists work together to design a project to avoid or minimize environmental impact, not just given a design to retrospectively prepare safeguards documents for.
- (vi) **Design a sustainable service delivery mechanism for NCC water supply.** The consultant will work on to design a sustainable service delivery mechanisms and O&M modalities for water supply considering outsourcing or public private partnership defining the roles and responsibility of each actor. The mechanism can be managed by NCC or introducing a private company/agency/organization for operation and maintenance of the source, treatment plant and as whole water supply system or jointly by NCC and private company/organization.
- (vii) **Institutional development and capacity building:** The consultant will evaluate the institutional capacity of NCC in terms of technical and management. The consultant will also identify the areas and needs for intervention required as regard to capacity building through detail analysis and plan to improve the institutional capacity to implement the ensuing investment project, manage, operate maintain municipal services with efficient service delivery leading to make the service sustainable. In this regard, the consultant will prepare capacity development plan for implementation and operation phase along with appropriate guidelines and manuals for service delivery. The consultant will undertake necessary training programs including on the job training. The consultant will arrange overseas training for NCC relevant staff on the operation and maintenance of water supply and climate resilient design for other urban infrastructures necessary.
- (viii) **Investment Loan Processing Documentation.** The consultant will prioritize subprojects to be proposed for implementation under investment loan based on the size of the investment project and its priority as agreed by NCC and ADB. The consultant will assist NCC in preparation of all documents as per the requirement of ADB for processing of investment loan.

- (ix) **TOR for Supervision Consultant.** The consultant will prepare terms of reference for supervisor consultant along with consultancy budget and support for advance procurement under ensuing investment project.

13. While doing the scope mentioned above, the study under this assignment shall cover the activities in the following sections.

## **B. Activities**

14. Main activities of the consultants are described below. The description may not be exhaustive, and the activities shall not necessarily be limited to those described.

### **Activity 1: Mobilization**

15. The team leader will initially mobilize with few key members of the project team to set up of project office including furnishing and then will mobilize further manpower, equipment and peripherals.

### **Activity 2: Inception report**

16. The consultants will, after initial interactions with the NCC, review all reports/data available to identify the data gap and will finally draw and present component-wise action plan for collection of all such data/information. Under this task, the consultant is required to do the following:

- (i) Review existing feasibility studies (if any) and other documents,
- (ii) Project preparation TA consultants' report,
- (iii) Preliminary field visits,
- (iv) Review approach and methodology in line with the existing field conditions,
- (v) Prepare action plan for taking up the tasks, and
- (vi) Draft inception report.

### **Activity 3: Drainage Master Plan**

17. The consultant will prepare drainage master plan for NCC and the activities will involve but not limited to the following:

- (i) Review the existing drainage network along with existing road, canal, land use and other structure plan, also the plan of future expansion of the city in consultation with city corporation;
- (ii) Identify the priority area of existing drains required to be rehabilitated or upgraded;
- (iii) Identify the outfalls and proposed layout plan drainage network with alternatives;
- (iv) Prepare base map showing existing and proposed drainage network;
- (v) **Current Situation Analysis.** Conduct a situation analysis of existing sanitation system of Narayanganj city including storm/grey water drainage, wastewater (domestic and industrial wastewater), septage/ fecal sludge management situation, assess quality of water conveyed by existing drainage system;
- (vi) **Strategic Goals and Targets in the Future.** Conduct analysis of where the city wishes to be with respect to drainage management with a plan for intervening 5-year intervals with specific performance targets. Particular attention should be given to the vision of the city contained in the various formal planning documents and consultation with relevant government agencies, City level committee,

- community-based organizations (CBOs) and nongovernment organizations (NGO) working in this sector;
- (vii) **Specific Objectives to achieve Goals.** Assessment of indicators for achieving the objectives/targets, such as expansion of areas served, increased population coverage, overall investment, and operation and maintenance (O&M) costs. It should also include other factors including the policy environment, systems and procedures, organizational arrangements, sector governance and broad stakeholder relationships, customer service, planning and budgeting procedures, O&M arrangements, financial management, human resources management, and information systems;
  - (viii) **Sustaining the Program.** Identify how this drainage management will be sustained, which covers arrangements in place and planned for monitoring of performance, performance evaluation and the incentives and disincentives to undertake or develop these functions. Most important are indications of government “ownership” of the master plan and the quality of the planning it contains;
  - (ix) **Drainage Master Plan.** Prepare Drainage Master Plans for storm water/ grey water drainage system for NCC having different suitable options including treatment process with cost involvement including technical, social environmental and institutional aspect consistent with the NCC’s policies and acts, identifying potential areas for drainage network and different treatment options before safe disposal;
  - (x) **Institutional Capacity.** Design an institutional capacity development plan recommending improvements in policy and regulatory frameworks, organizational arrangements and capability, and human resources as required to establish sustainable storm/grey water drainage system (That means institutional setup including resource requirement for enforcing/cutting out practically as much as possible the interaction/illegal connection of domestic sewage and industrial wastewater into the storm/grey water drainage system); and
  - (xi) **Cost Estimate and phase wise investment plan.** Estimate the preliminary cost for physical implementation of proposed drainage master plan and prepare of phase wise investment plan as appropriate.

#### Activity 4: Feasibility Study Report

18. The consultant will undertake detailed feasibility study including environmental, socio-economic, geographic, and geodetic surveys at sites for the following infrastructure facilities:

- (i) **Road along east side of Shitalakhya River with walkways and landscaping:** In the feasibility, the consultant has to focus especially on the following under this component:
  - (a) Facilitate and assist NCC in the timely transfer of existing land of the road from BIWTA to the City Corporation for the proposed development;
  - (b) For the widening of the road, conduct detailed land acquisition and resettlement action plan as per ADB SPS requirements and through meaningful consultation, and prepare detailed information on affected persons with appropriate compensations/entitlements;
  - (c) Conduct environmental audit of existing facilities to be rehabilitated/expanded under the project;

- (d) Screen, categorize and prepare all required environment safeguard documents as per ADB SPS and applicable government laws, regulations, policies and guidelines;
  - (e) Conduct meaningful consultations as required by ADB SPS;
  - (f) Assist implementing agency to establish grievance redressal mechanism and ensure members of the grievance committee have the necessary capacity to resolve project-related issues/concerns;
  - (g) Conduct safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of environmental management plans, resettlement plans and indigenous peoples plans, (if any);
  - (h) Ensure relevant provisions from the EIAs/IEEs and environmental management plans are incorporated in the bid and contract documents;
  - (i) Conduct the studies referring to the already completed 1.7 km driveway along the river;
  - (j) Review the Hatirjheel project of Dhaka and incorporate innovation and lesson learnt of that project into this especially for landscaping and recreational facilities design and waste management with necessary customization; and
  - (k) Prepare concept design along with landscaping and development of recreational facilities for the citizen of NCC beside the river.
- (ii) **Improvement of existing water supply infrastructure and development future surface water-based water supply:** In the feasibility, the consultant has to focus especially on the following under this component:
- (a) Conduct situation analysis: Review and analyze the existing situation of water supply of NCC focusing on NRW reduction, rehabilitation and upgradation of distribution system and water treatment plant, and expansion of water distribution network;
  - (b) Conduct survey and investigation as required in particular for optimizing the existing facilities;
  - (c) Conduct feasibility study and hydraulic design considering improvement/rehabilitation of existing water supply infrastructure including the improvement of existing treatment plant's performance and capacity including suitable location of intake and also rehabilitation and expansion of distribution network and transmission line;
  - (d) Identify priority rehabilitation and upgradation of the existing system. This could include DMA (prioritize with good justification), network, pumping station, WTP (rehabilitation), etc.;
  - (e) Evaluate the feasibility of switching the water supply partially (30%) surface water to full (100%) surface water-based supply through hydrological investigation including suitable location of intake considering sustainability;
  - (f) Support preparation of a transition plan for the proposed handover of responsibility for water supply and related services from DWASA to NCC;
  - (g) Prepare a concept design of future water supply considering 25 years of design period collecting demographic information with potential surface water as source along with intake, treatment plant, transmission and distribution networks, all electrical and mechanical installations required for proposed water supply. Prepare outline for investment plan in phases;
  - (h) Conduct detailed land acquisition and resettlement action plan as per ADB SPS requirements and through meaningful consultation, and prepare

- (i) detailed information on affected persons with appropriate compensations/entitlements;
  - (i) Conduct environmental audit of existing facilities to be rehabilitated/expanded under the project;
  - (j) Screen, categorize and prepare all required environment safeguard documents as per ADB SPS and applicable government laws, regulations, policies and guidelines;
  - (k) Conduct meaningful consultations as required by ADB SPS;
  - (l) Assist implementing agency to establish grievance redressal mechanism and ensure members of the grievance committee have the necessary capacity to resolve project-related issues/concerns;
  - (m) Safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of environmental management plans, resettlement plans and indigenous peoples plans (if any); and
  - (n) Ensure relevant provisions from the EIAs/IEEs and environmental management plans are incorporated in the bid and contract documents.
- (iii) **Drainage improvement.** In the feasibility, PRF consultant has to focus on the following under this component:
- (a) Conduct feasibility study of proposed master plan along technical, social, environmental and legal aspects for implementation;
  - (b) Conduct detailed site survey of all existing and proposed project drains for existing rehabilitation and proposed priority drainage scheme design as agreed by NCC and ADB;
  - (c) Collect rainfall data and analyze and define the drainage catchment areas;
  - (d) Conduct the hydraulic design of drainage network defining primary, secondary and tertiary drain including cross sectioning of each drain along with the alignment including onsite treatment options at outfall for a particular drain or group of drains before disposal especially in rehabilitation of existing drainage and in designing of new priority drainage schemes;
  - (e) Conduct detailed land acquisition and resettlement action plan as per ADB SPS requirements and through meaningful consultation, and prepare detailed information on affected persons with appropriate compensations/entitlements;
  - (f) Conduct environmental audit of existing facilities to be rehabilitated/expanded under the project.
  - (g) Screen, categorize and prepare all required environment safeguard documents as per ADB SPS and applicable government laws, regulations, policies and guidelines;
  - (h) Conduct meaningful consultations as required by ADB SPS;
  - (i) Assist implementing agency to establish grievance redressal mechanism and ensure members of the grievance committee have the necessary capacity to resolve project-related issues/concerns;
  - (j) Conduct safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of environmental management plans, resettlement plans and indigenous peoples plans (if any); and
  - (k) Ensure relevant provisions from the EIAs/IEEs and environmental management plans are incorporated in the bid and contract documents.

19. In general, under the feasibility study the consultant will conduct the following activities:

- (i) Site reconnaissance, stakeholder meetings and meaningful consultations to identify existing problems;
- (ii) Review the existing road, canal, land use and other structure plan, also the plan of future expansion of the city in consultation with city corporation, city level committee, Rajdhani Unnayan Kartripakkha (RAJUK), and other development authority;
- (iii) Conduct detailed site surveys and environmental audits of all existing and proposed facilities;
- (iv) Collect demographic information of study area and determine the target population dividing into number of zones;
- (v) Collect existing topographic maps, compare those with the digital elevation model (DEM to be collected), validate with spot leveling and cross-sectional survey;
- (vi) Collect the flood level data of strategic locations for certain periods;
- (vii) Conduct the environmental and social surveys, impacts assessment and environmental management and resettlement planning for proposed investment project. The environment safeguards should be integral to the feasibility study where the designers/engineers and environment safeguard specialists work together to design a project to avoid or minimize environmental impact, not just given a design to retrospectively prepare safeguards documents for;
- (viii) Carry out soil test and hydrological investigation; and
- (ix) Conduct economic and financial analysis of the intervention focusing the operation and maintenance of the systems.

#### **Activity 5: Detailed Engineering Design**

20. The consultant will undertake detailed engineering design for the following infrastructure facilities:

- (i) Road along east side of Shitalakhya River with walkways and landscaping: Conduct the detail engineering design, drawing and, bill of quantities (BOQ), cost estimate and meaningful consultations required for the proposed river side road along with the detailed design of landscaping and recreational facilities;
- (ii) Rehabilitation of existing water supply infrastructure: Conduct the detail engineering design, drawing and, BOQ, cost estimate and meaningful consultations required for the proposed rehabilitation of existing water supply infrastructures including the improvement of existing treatment plants (including intake, transmission line) in terms of operational performance and capacity, rehabilitation of existing pipe network (distribution and transmission) and expansion of distribution network; and
- (iii) **Drainage Component.** Conduct detailed engineering design drawing and, BOQ, cost estimate and meaningful consultations required for the existing drainage rehabilitation and for the priority drainage schemes as agreed by NCC and ADB. The consultant will consider onsite treatment options for a particular drain or group of drains before disposal especially in rehabilitation of existing drainage and in designing of new priority drainage schemes in the main city area where industrial drain water is not mixed. This will be done if it is found feasible and, in compliance with ADB SPS requirement. It will be done only for those schemes agreed by NCC and ADB to be included under investment loan.

### **Activity 6: Climate and Disaster Resilient Design**

21. The consultant will incorporate climate change and disaster impact in the proposed urban infrastructure design so the infrastructures become climate and disaster resilient with multi-hazard approach.

### **Activity 7: Safeguards and Gender**

22. The consultant will prepare all necessary safeguard documentation as required by ADB SPS and national laws, regulations, policies and guidelines for the proposed infrastructure facilities under the investment loan. This will include:

- (i) Environment
  - (a) Prepare environmental assessment and review framework (EARF) and sample IEE/EIA and EMP (as required) for each subproject category in accordance with ADB SPS and national laws, regulations, policies and guidelines;
  - (b) Prepare subproject selection criteria incorporating environmental conditions;
  - (c) Screen and prepare environmental categorization form for submission to ADB for concurrence and guidance on environment safeguard documents to be prepared;
  - (d) Prepare EIA/IEE as advised by ADB and following prescribed outline in Appendix 1 of ADB SPS. Ensure design of mitigation will follow the hierarchy of avoid and minimize before mitigating and offsetting by working closely with designers/engineers;
  - (e) Conduct environmental audit of existing facilities to be rehabilitated/expanded under the project;
  - (f) Conduct due diligence of associated facilities as defined in ADB SPS;
  - (g) Conduct meaningful consultations and ensure issues/concerns/suggestions raised are incorporated in the design and EIAs/IEEs;
  - (h) Ensure relevant provisions from the EIAs/IEEs and environmental management plans are incorporated in the bid and contract documents;
  - (i) Assist implementing agency to establish grievance redressal mechanism and ensure members of the grievance committee have the necessary capacity to resolve project-related issues/concerns;
  - (j) Assess against the standards and measures set out in the General Environment Health and Safety (EHS) Guidelines, EHS Guidelines for Water and Sanitation, and others as may be applicable;
  - (k) Include in the environmental assessment the quantitative assessment of all direct, indirect, cumulative, and induced impacts with respect to physical, biological, socioeconomic especially health and safety and livelihoods, including of downstream water users, and PCR; and
  - (l) Conduct safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of environmental management plans.
- (ii) Involuntary Resettlement and Indigenous People Plan
  - (a) Preparation of resettlement framework, indigenous peoples planning framework (IPPF) and sample resettlement plans, due diligence reports



- (b) (DDR) and indigenous peoples plans (IPP) as required and any other documentation as required by ADB for each subproject category.
- (b) Conduct safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of resettlement plans and indigenous peoples plans (if any).
- (iii) Gender
  - (a) Provide support to NCC in achieving indicators and compliance to GAF as per ADB requirement.
  - (b) Conduct a social development and gender assessment and prepare a GAP for the investment project.
  - (c) Prepare training manual and provide training to the PMU and other project personnel following the manual

**Activity 8: Design a sustainable service delivery mechanism and O&M for water supply involving private organization or public private partnership**

23. The consultant will assess the institutional capacity of NCC in terms of managing the desired level of service delivery. The PRF consultant will further design of institutional structures and arrangements that clarify the appropriate roles, responsibilities, staffing needs, funding sources, and legal, statutory, a secretariat (or advisory council) to support the regulator, and the future water operator (if applicable) to ensure the sustainable service delivery mechanisms. In case of water supply, the consultant will explore the possibility of outsourcing or involving public private partnership including developing the model so that the water supply system will be managed by NCC or introducing a private company/agency/organization for operation and maintenance of the source, treatment plants and as whole water supply system. It can also be jointly managed by NCC and private company/organization. Water can be delivered to different delivery points using town-metering system. In this regard, the consultant will conduct a thorough review of all relevant laws, regulations, statutes and licenses pertaining to regulation, policy making, operations and private sector participation through the concession of NCC or any other option and design the roles and responsibilities of all involved parties in the service delivery and operation and maintenance. The consultant will design a tariff structure for the services to make the city corporation self-sustaining and income generating.

**Activity 9: Procurement Support**

24. The consultant will support NCC for procurement activities for the implementation of the investment subprojects:

- (i) The consultant will prepare of all necessary procurement (under Activity 5) documents in compliance with ADB's Procurement Policy for the all infrastructure development facilities mentioned above under detailed design;
- (ii) The consultant will prepare necessary work packages, prepare procurement plan, and implementation plan for the proposed investment project;
- (iii) The consultant will support NCC in procurement process as advance contracting for selection of contractor/s before the issuing of investment loan. This will include invitation to bids, attending pre-bid meetings, receive of bids, evaluation of bids, contract negotiation, award of contract and contract signing as per the ADB's procurement policy; and
- (iv) The consultant will prepare the TOR for the consultant of investment project and provide support to NCC in selection process.

### **Activity 10: Institutional development and Capacity building Support**

25. The consultant will support the NCC on the capacity development to execute their responsibilities as city corporation to operate, manage and monitor service provision locally. The consultant will conduct the following:

- (i) Establish a project management and administration system for NCC for proper implementation, management and monitoring of the project especially for the capacity building of the ensuing project;
- (ii) Evaluate the institutional capacity of Narayanganj City Corporation in terms of technical and management aspect;
- (iii) Staffing plan approved by NCC, featuring a revised organogram reflecting responsibilities assumed from DWASA, and costed against available NCC resources;
- (iv) Institutional capacity building toward the transition of water supply management responsibility from DWASA to NCC exploring the option of outsourcing the O&M of the system in full or parts in accordance with the finding of feasibility study;
- (v) Design an institutional capacity recommending improvements in policy and regulatory frameworks, organizational arrangements and capability, and human resources as required to establish sustainable storm/grey water drainage system;
- (vi) Identify the areas & needs for intervention required through detail analysis and plan to improve the institutional capacity to implement, manage, operate maintain municipal services with efficiently service delivery leading to make the service sustainable;
- (vii) Prepare capacity development plan for implementation and operation phase along with appropriate guidelines and manuals for service delivery for overall city corporation services;
- (viii) Conduct workshop involving all stakeholder and hold periodical meeting with NCC, city level coordination committee;
- (ix) Undertake necessary training programs including on the job training; and
- (x) Arrange overseas training for NCC relevant staff on the operation and maintenance of water supply and climate resilient design for other urban infrastructure as necessary.

### **Activity 11: Investment Loan Processing Documentation and preparation of Development Project Proforma (DPP)**

26. The consultant will prioritize subprojects among the proposed for implementation under investment loan based on the size and priority of the investment project as agreed by NCC and ADB. PRF consultant will assist NCC in preparation of all documents as per the requirement of ADB for processing of investment loan.

27. As per the requirement of Government of Bangladesh, the consultant will assist NCC in preparation of DPP in the appropriate format and assist in its approval.

### **Activity 12: Prepare Investment project and TOR for Detailed Design and Construction Supervision Consultant to be engaged for feasible investment project**

28. The consultant will prepare terms of reference for supervisor consultant along with consultancy budget. The consultant will prepare the investment project delineating the different phases.

## V. DETAILED OUTPUTS OF THE ASSIGNMENT

### (i) Team Composition and Qualification Requirements for the Key Experts

29. The engagement period of the PRF Consultant services is 24 months. A total of 297 person months including 79 person-months of the International key experts, 218 person-months for the key national experts would be required. The estimated staffing and expertise person-months requirements per component are summarized below:

**Table 3: Summary of Consulting Services Requirements**

SL. No.	Position of Professional	Number	Person Months (PM)			
			Road and landscaping	Water Supply Component	Drainage Master Plan	PM
<b>A</b>	<b>International Consultants</b>					
1	Municipal Infrastructure Engineer/Team Leader	1	3	6	6	15
2	Urban Planner	1	2	0	3	5
3	Pavement Design Engineer	1	3	0	0	3
4	Water Supply Design Specialist/ Treatment Plant Specialist	1	0	12	0	12
5	Water Supply Management Specialist	1	0	3	0	3
6	Water Supply Network Specialist	1	0	6	0	6
7	Institution Development Specialist	1	0	3	1	4
8	Hydrologist	1	0	3	3	6
9	PPP Specialist	1	0	4	0	4
10	Hydraulic Network Specialist (Drainage)	1	0	0	6	6
11	Wastewater Engineer	1	0	0	3	3
12	Procurement Specialist	1	0	2	1	3
13	Environment/Climate Change Specialist	1	0.5	1.5	1	3
14	Social Safeguard Specialist	1	0.5	1.5	1	3
15	Environmental Safeguard Specialist	1	0.5	1.5	1	3
	<b>Sub Total (A):</b>	<b>15</b>	<b>9.5</b>	<b>43.5</b>	<b>26</b>	<b>79</b>
<b>B</b>	<b>National Consultants</b>					
1	Municipal Infrastructure Engineer /Deputy Team Leader	1	4	10	10	24
2	Drainage Design Engineer	1	0	0	15	15

SL. No.	Position of Professional	Number	Person Months (PM)			
			Road and landscaping	Water Supply Component	Drainage Master Plan	PM
3	Wastewater Engineer	1	0	0	8	8
4	Pavement Design Engineer	1	12	0	0	12
5	Urban Planner	1	4	0	8	12
6	Water Supply Design Expert	1	0	15	0	15
7	Hydraulic /Network Design Specialist	1	0	12	0	12
8	Environmental Safeguard Specialist	1	2	4	3	9
9	Social Safeguard Specialist	1	3	5	4	12
10	Institutional Development Specialist	1	0	9	6	15
11	Economist	1	1	3	2	6
12	Financial Management Specialist	1	1	6	5	12
13	Structural Engineer	1	2	6	4	12
14	Electrical Engineer	1	1	5	0	6
15	Mechanical Engineer	1	1	5	0	6
16	Procurement Specialist	1	3	5	4	12
17	Social Development and Gender Specialist	1	1	6	5	12
18	Community Mobilization Expert	1	0	2	1	3
19	GIS Specialist	1	2	7	6	15
	<b>Sub Total (B):</b>	<b>19</b>	<b>37</b>	<b>100</b>	<b>81</b>	<b>218</b>
	<b>Total (A+B)</b>	<b>34</b>	<b>46.5</b>	<b>143.5</b>	<b>107</b>	<b>297</b>

30. In addition to professional inputs shown above, approximately 200 person-months of support staffs such as Junior Engineers/Quantity estimator/ junior Architects/Auto CAD/Office support for field-work and other activities are anticipated to be required for facilitation in the following areas/components:

- (i) Survey and Investigations,
- (ii) Design and drawing support,
- (iii) Quantity estimation,
- (iv) Procurement support, and
- (v) Project management support.

**A. Terms of Reference for Individual Experts: International Experts**  
**(A1) Municipal Infrastructure Engineer/Team Leader**

### **Tasks and Responsibilities:**

31. The Municipal Infrastructure Engineer/Team Leader will be responsible for (but not limited to) the following:

#### **As a Team Leader:**

- (i) Lead the consultancy team, and is responsible for overall management and supervision of the consultant team and liaison with members of the PMU and government counterpart;
- (ii) Review and assess existing studies, documents and other information available relevant to the water sector;
- (iii) Prepare a comprehensive, high quality drainage master plan, feasibility study, institutional modality, detailed engineering designs and documentation, and project proposal acceptable to ADB and the government in a format suitable for ADB loan processing;
- (iv) Ensure the project team work together to design a project that avoids or minimizes environmental impact, not just give the environment specialist a design to retrospectively assess and fit mitigation to;
- (v) Prepare a transition plan for the proposed handover of responsibility for water supply and related services from DWASA to NCC and support implementation of the transition plan through continuous coordination amongst NCC, DWASA, Local Government Division (LGD) and ADB.
- (vi) a timeline describing each major stage of development and implementation of the handover, including acquisition of requisite governmental approvals;
- (vii) a business plan approved by NCC and DWASA, describing the transfer of assets and liabilities from DWASA to NCC;
- (viii) a staffing plan approved by NCC, featuring a revised organogram reflecting responsibilities assumed from DWASA, and costed against available NCC resources;
- (ix) a profit-and-loss analysis of water supply operation in NCC and its improvement plan after the handover; and
- (x) a plan of necessary management support by DWASA after the handover.

#### **As Municipal Infrastructure Engineer:**

- (i) Conduct a situation analysis of existing sanitation system of Narayanganj city including storm/grey water drainage, wastewater (domestic and industrial wastewater), septage/ fecal sludge management situation;
- (ii) Conduct analysis of where the city wishes to be with respect to drainage management with a plan for intervening 5-year intervals with specific performance targets;
- (iii) Assessment of indicators for achieving the objectives/targets, such as expansion of areas served, increased population coverage, overall investment, and O&M costs of drainage network;
- (iv) Identify how this drainage management will be sustained, which covers arrangements in place and planned for monitoring of performance, performance evaluation and the incentives and disincentives to undertake or develop these functions. Most important are indications of government “ownership” of the master plan and the quality of the planning it contains;
- (v) Prepare drainage master plans for storm water/grey water drainage system for

- NCC including different suitable options with cost involvement including technical, social environmental and institutional aspect consistent with the NCC's policies and acts, identifying potential areas for drainage network and different treatment options before safe disposal;
- (vi) Conduct feasibility studies including environmental, socio-economic, geographic, and geodetic surveys at sites for (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation of existing water supply infrastructure and future provision of water supply targeting switching over to 100% surface water-based supply system; and (c) drainage Master plan and priority drainage schemes for implementation;
  - (vii) Facilitate and assist NCC in the timely transfer of existing land of the road from BIWTA to the City Corporation for the proposed development;
  - (viii) Prepare engineering design and detail estimate for appropriate infrastructure facilities for (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation of existing water supply infrastructure and expansion of priority pipe network; and (c) priority drainage schemes;
  - (ix) Work closely with the environment specialist to ensure their design reflects environmental measures not just in preparing safeguard documents;
  - (x) Work closely with Climate Change Specialist and incorporate climate resilience into the design of water supply components;
  - (xi) Prepare an appropriate implementation plan for the project;
  - (xii) Assist in preparation of procurement plan along the with contract packaging for goods and works;
  - (xiii) Assist in preparation bill of quantities, cost estimates, drawings, specifications and bid documents for all contract packages;
  - (xiv) Support NCC in procurement process as advance contracting for selection of contractor/s before the issuing of investment loan;
  - (xv) Assist in preparation of land acquisition and resettlement plan and all safeguard documentation;
  - (xvi) Work closely with environmental and social safeguard specialist to prepare environmental and social safeguard documents;
  - (xvii) Assist NCC on the institutional capacity development to execute their responsibilities as city corporation to operate, manage and monitor service provision locally based on the capacity deficit leading to sustainable municipal service delivery as a city corporation;
  - (xviii) Arrange overseas training (identify appropriate training option and organize training) for NCC relevant staff on the operation and maintenance of water supply and climate resilient design for other urban infrastructure as necessary;
  - (xix) Assist NCC in preparation of all documents as per the requirement of ADB for processing of investment loan;
  - (xx) Prepare terms of reference for supervisor consultant along with consultancy budget; and
  - (xxi) Prepare the investment project.

### **Qualifications and Experiences:**

32. The Municipal Infrastructure Engineer/Team Leader will be a Civil engineering graduate with masters in municipal engineering/water supply/environmental/public health engineering or relevant disciplines with working experience of more than 20 yrs. She/he will have about 15 years international experience in the field of municipal infrastructure planning and design works projects, preferably with 7 years proven work experience and skill in similar position in Bangladesh and or

elsewhere in developing countries. She/he will have working experience as Team Leader for 10 years and more preferably similar projects. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program.

**(A2) Urban Planner**  
**Tasks and Responsibilities**

33. Urban Planner will be responsible for (but not limited to) the following:

- (i) Review current urban planning mechanisms in NCC in light of better medium- to long-term urban planning, including recommendations to introduce climate-resilience into master planning;
- (ii) Prepare/update NCC master plan especially for drainage considering all possible future development in different areas with a phasing of investment plan and/or implementation/enforcement of the approved master plans;
- (iii) Review/update and/or prepare landscaping and architectural layout of road along east side of Shitalakhya River with walkways considering urban planning perspective;
- (iv) Ensure that the location of proposed infrastructures under the project is consistent with proposed/ existing master plan or urban plan and land-use;
- (v) Propose measures to improve planned and organized development;
- (vi) Propose measures to fill gaps in urban planning and develop specific interventions to strengthen urban planning with climate resilience;
- (vii) Prepare detailed plans and proposals, including the engineering drawings for proposed subproject facilities; and
- (viii) Develop and deliver relevant capacity development program for NCC including on the job training.

**Qualifications and Experiences**

34. The international Urban Planner should be a post-graduate in urban and regional planning, or similar discipline with 15 years of experience of that 10 years of relevant experience, including urban land use, master plans, and experience in natural disaster risk management planning. He/she should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program. He/she should have preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience of working with ADB or other donor funded projects will be advantageous.

**(A3) Pavement Design Engineer**  
**Tasks and Responsibilities**

35. Pavement Design Engineer will be responsible for (but not limited to) the following:

- (i) Review and update the concept design of the widening of existing road along east side of Shitalakhya River with walkways and landscaping;
- (ii) Prepare/update concept design along with landscaping and development of recreational facilities for the citizen of NCC beside the river and conduct the feasibility study;

- (iii) Consultant will also conduct the studies referring to the already completed 1.7 km driveway along the river;
- (iv) Review and update geometric design of the proposed road including road safety, road furniture, road markings, etc.;
- (v) Organize and conduct appropriate survey, site investigations and testing including all the geotechnical investigation necessary to produce and complete the required comprehensive design of roads, culvert/bridges, and all other associated components including street lighting and landscaping;
- (vi) Complete the pavement design of the roads;
- (vii) Complete engineering design, drawings, bill of quantities and cost estimates;
- (viii) Prepare bid documents and assisting NCC in bidding process following ADB procurement guideline; and
- (ix) Develop and deliver relevant capacity development program for NCC including on the job training.

### **Qualifications and Experiences**

36. The international Pavement Design Engineer should be a post-graduate in highway engineering, transportation engineering, or similar discipline with a bachelor degree in civil engineering with 15 years of experience of that 10 years of relevant experience, including urban road design/pavement design. He/she should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program. He/she should have preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience of working with ADB or other donor funded projects will be advantageous.

### **(A4) Water Supply Design Specialist /Water Treatment Plant Specialist:** **Tasks and Responsibilities**

37. The Water Treatment Plant Specialist will be responsible for (but not limited to) the following:

- (i) Review and analyze the existing situation of water supply of NCC, focusing on water treatment plant, review the suitability of location of existing intake and recommend for the most appropriate feasible option;
- (ii) Conduct survey and investigation as required in particular to optimize the existing facilities;
- (iii) Conduct the feasibility study on the rehabilitation of the water supply infrastructures especially, distribution network, water treatment plant for increasing capacity and performance and to improve the service level;
- (iv) Evaluate the possibility of switching the water supply partially (30%) surface water to full (100%) surface water-based supply;
- (v) Forecast/estimate water supply demand of the NCC for 25 years design period including the demand of the possible extended area;
- (vi) Analyze raw water quality for selecting treatment process and treatment options;
- (vii) Prepare a concept design of water supply considering 25 years of design period with potential surface water as source along with intake, treatment plant, transmission and distribution networks, all electrical and mechanical installations required for proposed water supply. Prepare outline for investment plan in phases;
- (viii) Work closely with Climate Change Specialist and incorporate climate resilience into the design of water supply components with particular focus on chemical



- contamination into water source, raw water quality of source and treatment process;
- (ix) Complete detailed design of the rehabilitation of the existing water supply infrastructure including existing treatment plants focusing the increase of treatment plant's performance and capacity;
- (x) Complete concept design of intake, collection and treatment plant and assist in design of transmission and distribution facilities for the proposed surface water-based water supply system;
- (xi) Assist in preparation bill of quantities, cost estimates, drawings, specifications and bid documents for water supply contract packages;
- (xii) Assist in planning and design a service delivery mechanism for water supply system under NCC;
- (xiii) Design and implement capacity development program for NCC considering that NCC is going to take the responsibility of water supply services and its infrastructure development from DWASA focusing on treatment plant; and
- (xiv) Prepare O&M manuals.

### **Qualifications and Experiences**

38. This professional staff will be a Graduate in Civil engineering with masters in water supply/environmental/public health engineering or relevant disciplines with 15 years experience. She/he will have 10 years international experience in designing of relevant water treatment plant process and infrastructure, preferably with 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program.

### **(A5) Water Supply Management Specialist:**

#### **Tasks and Responsibilities**

39. The Water Supply Management Specialist will work under the Team Leader in preparing, institutionalize, and implementing the smart components related features for water supply managements. She/he will support for use of IT for NRW management and sustainable DMA management by providing input related to efficient, automated and modern ways of water management including supervisory control and data acquisition (SCADA) system and automatic meter reading (AMR). The expert will also be responsible for analyzing the constrains of NCC in sustainable water supply operation and contextualizing good practices in NCC; and for preparing DMA wise assessment of commercial losses and periodic review of reduction in commercial losses in close coordination with financial management expert.

40. The duties and task of the Water Supply Management Specialist includes, but not limited to:

- (i) Propose and pilot use of SCADA and AMR in DMAs as an integral part of preparation and implementation of water supply projects;
- (ii) Review DMA wise system input volume (SIV) meter location and check meter installation at site and commissioning and configuration to relevant computer systems;
- (iii) Provide guidance/supervise meter testing and calibrations at field and at workshops. Train NCC staff for large and small meter calibration and repair

- techniques and best practices in installation of meter;
- (iv) Prepare specifications for selection of reliable water meters;
- (v) Analyze constraints of NCC in sustainable DMA operation and contextualizing good practices in NCC;
- (vi) Support NCC in exploring the avenues for reducing cost of meter reading;
- (vii) Analyze existing billing system with NCC's commercial division and with international experience develop system to improve the existing billing system to reduce NRW;
- (viii) Study and provide systems to take accurate and timely meter readings, avoid estimated billing, setting up fast track billing system of new connections, and establish software to calculate the NRW levels of project area accurately;
- (ix) Recommend the suitable geographical information system for the objective identified and implement, formulate GIS-based system and assist all the experts and PMU while trouble shooting;
- (x) Create data base for maintaining necessary information and establish mechanism to update data base; and
- (xi) Contribute in the training program on smart water management including SCADA and AMR.

### **Qualification and Experiences**

41. The Water Supply Management Specialist will be a Post Graduate degree in civil/water supply engineering or relevant degree with 12 years of working experience in the management of major water supply Project of which 5 years in the operation, maintenance and control of water supply system having smart water management features, preferably with 5 years working experience in similar field in Bangladesh or elsewhere in the developing countries. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program.

### **(A6) Water Supply Network Specialist: Tasks and Responsibilities**

42. Water Supply Network Specialist will work closely with Hydrologist and Treatment Plant Specialist. He/she will assist and be responsible to the Team Leader for carrying out the following principle tasks in association with the other team members:

- (i) Identify pipes and other facilities for construction/rehabilitation of existing infrastructures in consultation with team leader/other consultants;
- (ii) Conduct survey and investigation, hydraulic analysis of existing network system and detailed design for rehabilitation of existing network and expansion of distribution network, pipeline design, transmission line, overhead tanks, pumping stations including specifications, drawings, and detailed cost estimates for all components;
- (iii) Assist in planning of each water supply components such as intakes, raw water storage, pump station, treatment plants, overhead tanks, bulk water facilities, distribution network, etc. for future water supply provision;
- (iv) Work closely with climate change specialist to incorporate climate change adaptation into water supply designs, with particular focus on salinity intrusion into water source;

- (v) Assist in preparation of bidding documents and bill of quantities in accordance with ADB's procurement guideline;
- (vi) Develop mechanism of identification of water supply system leak detection and leak management to prevent water losses; and
- (vii) Prepare O&M manuals.

### **Qualification and Experience**

43. The international Water Supply Network Specialist will be a post-graduate in Water supply, public health engineering, civil engineering or relevant discipline with 12 years experience in designing, construction supervision of large integrated water supply projects including pipe networking, pipe lines, distribution networks, pumping stations etc. and a thorough knowledge on the use of popular software, namely EPANET, WaterCAD etc., preferably with 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. She/he should have good communication skills, and be able to assist in the capacity building and training program. Experience of working with ADB or other donor funded projects will be advantageous.

### **(A7) Institutional Development Specialist:** **Tasks and Responsibilities**

44. The Institutional development specialist will work under the Team Leader in preparing, institutionalize, and implementing the institutional system development and capacity building related features for urban service management for NCC. It is to be considered that NCC is going to take the responsibility of water supply services and its infrastructure development from DWASA. She/he will support for defining the modality of water for NRW management and sustainable management of water supply service.

45. The duties and task of the Institutional Development Specialist includes, but not limited to:

- (i) Assess the institutional strength and weakness of NCC;
- (ii) Assess the capacity of the NCC in terms of municipal service delivery including new responsibility of water supply taking from DWASA and support the transition of management;
- (iii) A business plan approved by NCC and DWASA, describing the transfer of assets and liabilities from DWASA to NCC;
- (iv) A staffing plan approved by NCC, featuring a revised organogram reflecting responsibilities assumed from DWASA, and costed against available NCC resources;
- (v) A plan of necessary management support by DWASA after the handover;
- (vi) as required and feasible, support implementation of the transition plan, through continuous coordination amongst NCC, DWASA, LGD, and ADB;
- (vii) Design an institutional capacity for implementation of drainage master plan recommending improvements in policy and regulatory frameworks, organizational arrangements and capability, and human resources as required to establish sustainable storm/grey water drainage system;
- (viii) Define the institutional modality in case of outsourcing the O&M of water supply service;
- (ix) Assess the requirement for institutional development to cope with the sustainable service delivery for NCC;

- (x) Define and outline the modality of service delivery mechanism for urban municipal services;
- (xi) Define the area for capacity building to comply the desired institutional requirements;
- (xii) Analyze existing billing system with international experience and develop system to improve the existing billing system to reduce NRW;
- (xiii) Design and implement capacity development program considering that NCC is going to take the responsibility of water supply services and its infrastructure development from DWASA; and
- (xiv) Assist NCC on the institutional capacity development to execute their responsibilities as city corporation to operate, manage and monitor service provision locally based on the capacity deficit leading to sustainable municipal service delivery as a city corporation. This should include development of capacity development plan to be implemented during the implementation of investment loan and provide on-the-job training during the implementation of this PRF.

### **Qualification and Experiences**

46. The Institution Development Specialist will have a degree in business administration/engineering or relevant discipline with 12 years experience in institutional development especially in water supply project, preferably with 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. S/He should have good communication skills, and be able to assist in the capacity building and training program. Experience of working with ADB or other donor funded projects will be advantageous.

### **(A8) Hydrologist:**

#### **Tasks and responsibilities**

47. Hydrologist will be responsible for carrying out the following principle tasks in association with the water supply and treatment specialist and other consultants in the consultant team:

- (i) Collect and analyze the data to define the hydrological setting of the nearby potential water source to confirm the sustainable water source for water supply of NCC;
- (ii) Support design/rehabilitation of existing water supply system including exploration of suitable location of intake;
- (iii) Support to design of intake, collection, treatment plant, distribution network of proposed future surface water-based water supply system;
- (iv) Collect rainfall data and analyze and define the drainage catchment areas;
- (v) Support to conduct the hydraulic design of drainage network defining primary, secondary and tertiary drain including cross sectioning of each drain along with the alignment;
- (vi) Work closely with Climate Change Specialist to consider the climate resilience aspect to confirm sustainability of water source; and
- (vii) Design and implement capacity development program for NCC in terms of maintaining surface water source.

### **Qualification and Experience**

48. The international Hydrologist should be a post graduate in Hydrology, civil engineering, water resources engineering, or relevant discipline with specialization with at 12 years working

experience in planning and designing of water supply/surface water treatment plant project, and preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience of working with ADB or other donor funded projects will be advantageous.

#### **(A9) PPP Specialist**

##### **Tasks and responsibilities**

49. International Public-Private Partnership (PPP) Specialist will be responsible for carrying out the following principle tasks in association with other consultants in the consultant team:

- (i) Conduct a thorough review of all relevant laws, regulations, statutes and licenses pertaining to regulation, policy making, operations and private sector participation through the concession of NCC or any other option and design the roles and responsibilities of all involved parties in the service delivery and operation and maintenance;
- (ii) Explore the different service delivery model focusing on outsourcing the O&M of water supply system under the purview of PPP.
- (iii) Design service delivery and operational mechanism for water supply services involving a private company/agency/organization for operation and maintenance of the source, treatment plants and as whole water supply system;
- (iv) Design a tariff structure for the services to make the city corporation self-sustaining and income generating;
- (v) Design of institutional structures and arrangements that clarify the appropriate roles, responsibilities, staffing needs, funding sources, and legal, statutory, a secretariat (or advisory council) to support the regulator, and the future water operator;
- (vi) Drafting of all laws, regulations, statutes to legitimize the appropriate regulatory institutions and arrangements; and
- (vii) Design of a training program for regulators and secretariat staff that will allow them to fulfill their responsibilities once the new operation is in place.

##### **Qualifications and Experiences**

50. The international PPP Specialist should be a post graduate in Economics, Business Administration or relevant discipline with specialization with at 12 years working experience in establishing PPP programs and financially closed PPP Projects in various sectors, of that 5 years proven work experience in infrastructure projects where one of more in water supply infrastructures, preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience of working with ADB or other donor funded projects will be advantageous.

#### **(A10) Hydraulic Network Specialist (Drainage)**

##### **Tasks and responsibilities**

51. International Hydraulic Network Specialist (Drainage) will be responsible for carrying out the following principle tasks in association with other consultants in the consultant team:

- (i) Review the existing drainage network along with existing road, canal, land use and other structure plan, also the plan of future expansion of the city in consultation with City corporation;

- (ii) Identify the part of existing drains required to be rehabilitated or need up gradation;
- (iii) Identify the outfalls and proposed layout plan drainage network with alternatives;
- (iv) Prepare base map showing existing and proposed drainage network;
- (v) Conduct a situation analysis of existing sanitation system of Narayanganj city including storm/grey water drainage, wastewater (domestic and industrial wastewater), septage/fecal sludge management situation;
- (vi) Conduct analysis of where the city wishes to be with respect to drainage management with a plan for intervening 5-year intervals with specific performance targets;
- (vii) Assessment of indicators for achieving the objectives/targets, such as expansion of areas served, increased population coverage, overall investment, and O&M costs of drainage network;
- (viii) Identify how this drainage management will be sustained, which covers arrangements in place and planned for monitoring of performance, performance evaluation and the incentives and disincentives to undertake or develop these functions;
- (ix) Prepare drainage master plans for storm water/grey water drainage system for NCC including different suitable options with cost involvement including technical, social environmental and institutional aspect consistent with the NCC's policies and acts, identifying potential areas for drainage network;
- (x) Collect rainfall data and analyze and define the drainage catchment areas and conduct feasibility study of the proposed master plan;
- (xi) Conduct detailed site survey for existing drainage rehabilitation and for the priority drainage schemes as agreed by NCC and ADB;
- (xii) Conduct the hydraulic design of existing drainage rehabilitation and for the priority drainage schemes network defining primary, secondary and tertiary drain including cross sectioning of each drain along with the alignment;
- (xiii) Conduct detailed engineering design drawing and, BOQ, cost estimate of existing drainage rehabilitation and for the priority drainage schemes under the investment project based on size of investment project as agreed by NCC and ADB;
- (xiv) Assist in preparation specifications and bid documents for drainage contract packages; and
- (xv) Design an institutional capacity for implementation of drainage master plan recommending improvements in policy and regulatory frameworks, organizational arrangements and capability, and human resources as required to establish sustainable storm/grey water drainage system.

### **Qualifications and Experiences**

52. The international Hydraulic Network Specialist (Drainage) should be a post graduate in drainage engineering, waste water engineering, public health engineering, environmental engineering or relevant discipline with a graduation degree in civil engineering or relevant with specialization with 12 years working experience in planning and designing of urban drainage infrastructure, and preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience of working with ADB or other donor funded projects will be advantageous.

**(A11) Wastewater Engineer**  
**Tasks and responsibilities**

53. International Wastewater Engineer will be responsible for carrying out the following principle tasks in association with other consultants in the consultant team:

- (i) Conduct a situation analysis of existing sanitation system of Narayanganj city including storm/grey water drainage, wastewater (domestic and industrial wastewater), septage/ fecal sludge management situation;
- (ii) Conduct analysis of where the city wishes to be with respect to drainage management with a plan for intervening 5-year intervals with specific performance targets;
- (iii) Assessment of indicators for achieving the objectives/targets, such as expansion of areas served, increased population coverage, overall investment, and O&M costs of drainage network;
- (iv) Identify how this drainage management will be sustained, which covers arrangements in place and planned for monitoring of performance, performance evaluation and the incentives and disincentives to undertake or develop these functions;
- (v) Prepare drainage master plans for storm water/grey water drainage system for NCC including different suitable options with cost involvement including technical, social environmental and institutional aspect consistent with the NCC's policies and acts, identifying potential areas for drainage network;
- (vi) Conduct feasibility study of the proposed master plan;
- (vii) Analysis the quality of water conveyed by the existing drainage system and design the treatment plant based on that for the safe disposal of drained water;
- (viii) Conduct detailed site survey for existing drainage rehabilitation and for the priority drainage schemes as agreed by NCC and ADB;
- (ix) Support to conduct the hydraulic design of existing drainage rehabilitation and for the priority drainage schemes network defining primary, secondary and tertiary drain including cross sectioning of each drain along with the alignment;
- (x) Conduct detailed engineering design drawing and, BOQ, cost estimate of existing drainage rehabilitation and for the priority drainage schemes under the investment project based on size of investment project as agreed by NCC and ADB. The loan consultant will consider onsite treatment options (anaerobic baffled reactor, constructed wetlands, etc. or combination of two or more) outfall for a particular drain or group of drains before disposal especially in rehabilitation of existing drainage and in designing of new priority drainage schemes;
- (xi) Assist in preparation specifications and bid documents for drainage contract packages; and
- (xii) Design an institutional capacity for implementation of drainage master plan recommending improvements in policy and regulatory frameworks, organizational arrangements and capability, and human resources as required to establish sustainable storm/grey water drainage system.

**Qualifications and Experiences**

54. The international Wastewater Engineer should be a post graduate in civil engineering, wastewater engineering, drainage engineering, environmental engineering or similar/relevant discipline, with a graduation degree in civil engineering or relevant with specialization with 12 years working experience in planning and designing treatment of urban drainage infrastructure including

treatment of wastewater especially onsite treatment, and preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience of working with ADB or other donor funded projects will be advantageous.

**(A12) Procurement Specialist**  
**Tasks and responsibilities**

55. International Procurement Specialist will be responsible for carrying out the following principle tasks in association with the national procurement specialist and other consultants in the consultant team:

- (i) Prepare procurement plan of the project agreed upon between the ADB and Government of Bangladesh, including procurement thresholds, procurement methods (OCB/Shopping) and approval requirements (prior or post) in connection with procurement of goods and works under the project, and advise PMU accordingly;
- (ii) Keep liaison with other team members, in the procurement of equipment and vehicles including preparation of specification and bid documents;
- (iii) Prepare bidding documents for procurement of goods and works for all contract packages for use of PMU following ADB Procurement Policy and Public Procurement Rules, 2008 of Government of Bangladesh as applicable;
- (iv) Prepare specifications and bid documents for all contract packages as advance contracting for the components under proposed investment projects;
- (v) Support to prepare terms of reference, request for proposals (RFP) including support in the bid/proposal invitation and evaluation process as well.
- (vi) Assist city corporation in bidding process including bid evaluation, proposal evaluation and contract award;
- (vii) Facilitate the use of the e-Government Procurement system (if and when approved for use by ADB) for procurement activities under the project;
- (viii) Assist PMU in:
  - (a) Preparing and updating procurement plans, including annual procurement plans for goods and works;
  - (b) Designing bid packages that achieve the greatest economy, efficiency and competition;
  - (c) Bidding, bid evaluation and contract award processes; and
  - (d) Scheduling and arranging procurement activities in order to meet the timeframes specified in the procurement plan.
- (ix) Provide capacity building support to PMU in handling procurement works; and
- (x) Provide timely and constructive assistance in dealing with any obstacles to procurement activities.

**Qualification and Experience**

56. The international Procurement should be a post-graduate in civil engineering, economics, business administration, commerce, law or relevant discipline from any recognized university, and graduate degree in civil engineering or relevant with 12 years of experience of preparation of procurement plan and procurement documents of development partner including ADB, and preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience in procurement services in planning and designing of water supply/treatment plant project is preferable. Experience of working with ADB or other donor funded projects will be advantageous.



**(A13) Environment/Climate Change Specialist**  
**Tasks and responsibilities**

57. International Environmental/ Climate Change specialist will be responsible for carrying out the following principle tasks in association with the other consultants in the consultant team:

- (i) Assess the extent of impact of climate change over the proposed component under the project;
- (ii) Assist in incorporating climate resilience into feasibility and detailed designs of infrastructure facilities to be implemented under this project;
- (iii) Incorporate climate resilience into NCC's specification for construction work;
- (iv) Review recommendations of previous TA, and work closely with other experts to incorporate adaptation into both physical and non-physical design components; and
- (v) Work closely with the design engineers to identify, quantify, and clearly report the incremental costs of climate adaptation in the project design.

**Qualification and Experience**

58. The international Environmental/Climate Change specialist will be a post-graduate in Civil/Environmental Engineering, urban planning, climate science, or related degree with over 12 years of experience, involved in planning and design of climate resilient urban infrastructure projects, etc. and preferably 5 years proven work experience and skill in similar position in Bangladesh and or elsewhere in developing countries. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

**(A14) Social Safeguard Specialist:**  
**Tasks and responsibilities**

59. International Social Safeguards Specialist will work with National Social Safeguard Expert and will be responsible for (but not limited to) the following:

- (i) Undertake social safeguards analysis based on detailed designs and preparation of necessary safeguard documentation in accordance with ADB SPS;
- (ii) Prepare resettlement framework and indigenous peoples planning framework (IPPF) as per ADB SPS;
- (iii) Prepare resettlement plan and indigenous peoples plan (IPP) in accordance with the respective framework and ADB SPS and prepare due diligence report (DDR) on land acquisition and resettlement in case there are no resettlement impacts;
- (iv) Work closely with design engineers and national social safeguard specialist in preparing resettlement plan, DDRs, and IPP as required;
- (v) Prepare the project's item-wise detailed budget, total cost estimates of the proposed infrastructures safeguard requirements;
- (vi) Submit draft resettlement plans and IPP as required to the executing agency and ADB for review and clearance prior to bidding.
- (vii) Coordinate all involuntary resettlement issues and ensure that all subprojects comply with safeguards requirements of ADB and Government of Bangladesh;
- (viii) Calculate compensations/entitlements of affected people and coordinate with PMU and other team experts budget allocation for social safeguards implementation

- (ix) Prepare project information documents for disclosure to stakeholders and affected people; and
- (x) Hold consultation during preparation of the social safeguard documents and ensure comments/issues raised are communicated to PMU, project and measures to address such issues/concerns are addressed early on in the project design.

### **Qualifications and Experiences**

60. The Social Safeguard Specialist will be a postgraduate in social sciences or related field with 12 years of experience in the relevant field. She/he will have experience in conducting meaningful consultations and disclosure activities. Work experience in the project funded by international donor including ADB safeguards experience is preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(A15) Environmental Safeguard Specialist:** **Tasks and responsibilities**

61. Environmental Safeguard Specialist will be responsible for carrying out the following principle tasks in association with the National Environmental Safeguard Specialist and close coordination with the implementing agency and other consultants in the consultant team:

- (i) Identify applicable and relevant national laws, regulations, policies and guidelines. Consult with regulatory agencies and prepare action plan to ensure all required statutory clearances are obtained prior to project implementation;
- (ii) Prepare all necessary applications and supporting documents required to obtain necessary environmental statutory clearances, no objection letters, etc.;
- (iii) Prepare EARF (if required) in accordance with ADB SPS and national laws, regulations, policies and guidelines;
- (iv) Prepare subproject selection criteria incorporating environmental conditions and ensure these are incorporated in project design criteria;
- (v) Screen and prepare environmental categorization form for submission to ADB for concurrence and guidance on environment safeguard documents to be prepared;
- (vi) Prepare EIAs/IEEs as advised by ADB and following prescribed outline in Appendix 1 of ADB SPS;
- (vii) Ensure all the project preparation including feasibility study and detail design comply with ADB SPS 2009 and proactively work with other consultants from feasibility stage to avoid or minimize environmental impacts before mitigating them;
- (viii) Undertake desk based due diligence using IBAT and water stress mapping for project towns to determine potential environmental sensitivities involved;
- (ix) Conduct environmental audit of existing facilities to be rehabilitated/expanded under the project and incorporate in the detailed design and EIA/IEEs any corrective actions required to ensure compliance with ADB SPS and national laws, regulations, policies and guidelines;
- (x) Conduct due diligence of associated facilities as defined in ADB SPS and incorporate project-relevant measures in the detailed design measures;
- (xi) Conduct meaningful consultations and ensure issues/concerns/suggestions raised are incorporated in the design and EIAs/IEEs;
- (xii) Ensure relevant provisions from the EIAs/IEEs and environmental management plans (EMPs) are incorporated in the bid and contract documents;
- (xiii) For the roads improvement subproject, work closely with the design team to ensure adjacent body of water is not negatively impacted;

- (xiv) For the water supply subproject, work closely with the design team to ensure downstream users will not be impacted by the water abstraction and will have sufficient ecological flow to sustain both environmental and human demands;
- (xv) For the drainage subproject, work closely with the design team to ensure outfall/s water will not negatively impact the receiving body of water and surrounding areas;
- (xvi) Ensure environmental assessment is done with reference to the standards and measures set out in the General EHS Guidelines, EHS Guidelines for Water and Sanitation, and EHS Guidelines for toll roads, and others as may be applicable;
- (xvii) Provide cost estimates for mitigation measures and environmental monitoring program as specified in the EMPs and ensure that sufficient budget is allocated by the implementing agency and/or by specifying in bid and contract documents to be implemented by the contractors;
- (xviii) Assist implementing agency to establish grievance redressal mechanism and ensure members of the grievance committee have the necessary capacity to resolve project-related issues/concerns;
- (xix) Provide capacity building trainings to implementing agency on ADB SPS, particularly on managing construction disturbance and health and safety risks, addressing grievances and developing corrective actions for non-compliances. This includes conduct of safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of EMPs; and to ensure quality and format of EIAs/IEEs follow ADB Handbook of Styles and Usage;
- (xx) Ensure NCC comply with ADB disclosure requirements; and
- (xxi) Ensure NCC develops the capacity to address/resolve environmental safeguard grievances/complains.

### **Qualification and Experience**

62. The Environmental Safeguard Specialist will be a postgraduate in Civil Engineering, environmental engineering, urban planning or relevant discipline with 12 years of relevant working experience environmental field, preferably with 5 years working experience in environmental safeguard issues in Bangladesh or elsewhere in the developing countries. She/he should have good communication skills, and be able to assist in the capacity building and training program. Experience of working in ADB projects is required.

### **B. Terms of Reference for Individual Experts: National Experts**

#### **(B1) Municipal Infrastructure Engineer /Deputy Team Leader:** **Tasks and Responsibilities**

63. Municipal Infrastructure Engineer /Deputy Team Leader will be responsible for carrying out (but not limited to) the following:

- (i) Conduct a situation analysis of existing sanitation system of Narayanganj city including storm/grey water drainage, wastewater (domestic and industrial wastewater), septage/ fecal sludge management situation;
- (ii) Conduct analysis of where the city wishes to be with respect to drainage management with a plan for intervening 5-year intervals with specific performance targets;
- (iii) Assessment of indicators for achieving the objectives/targets, such as expansion of areas served, increased population coverage, overall investment, and O&M

- costs of drainage network;
- (iv) Identify how this drainage management will be sustained, which covers arrangements in place and planned for monitoring of performance, performance evaluation and the incentives and disincentives to undertake or develop these functions. Most important are indications of government “ownership” of the master plan and the quality of the planning it contains;
- (v) Prepare drainage master plans for storm water/grey water drainage system for NCC including different suitable options with cost involvement including technical, social environmental and institutional aspect consistent with the NCC’s policies and acts, identifying potential areas for drainage network and different treatment options before safe disposal;
- (vi) Conduct feasibility studies including environmental, socio-economic, geographic, and geodetic surveys at sites for (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation of existing water supply infrastructure and future provision of water supply based on surface water; and (c) drainage master plan and priority drainage schemes for implementation;
- (vii) Facilitate and assist NCC in the timely transfer of existing land of the road from BIWTA to the City Corporation for the proposed development;
- (viii) Prepare engineering design and detail estimate for appropriate infrastructure facilities for (a) road along east side of Shitalakhya River with walkways and landscaping; (b) rehabilitation of existing water supply infrastructure and expansion of priority distribution work; and (c) priority drainage schemes;
- (ix) Work closely with Climate Change Specialist and incorporate climate resilience into the design of water supply components;
- (x) Prepare an appropriate implementation plan for the project;
- (xi) Assist in preparation bill of quantities, cost estimates, drawings, specifications and bid documents for all contract packages;
- (xii) Support NCC in procurement process as advance contracting for selection of contractor(s)/consultant before the issuing of investment loan;
- (xiii) Assist in preparation of land acquisition and resettlement plan and all safeguard documentation;
- (xiv) Work closely with environmental and social safeguard specialist to prepare environmental and social safeguard documents;
- (xv) Assist NCC on the institutional capacity development to execute their responsibilities as city corporation to operate, manage and monitor service provision locally based on the capacity deficit leading to sustainable municipal service delivery as a city corporation;
- (xvi) Assist NCC in preparation of Development Project Proforma (DPP) in the appropriate format used by the Government of Bangladesh and assist in its approval; and
- (xvii) Prepare TOR for supervisor consultant along with consultancy budget, and prepare the investment project.

### **Qualification and Experiences**

64. Graduate in civil engineering, municipal engineering, public health engineering or similar / relevant discipline with 15 years relevant working experience, including 7 years experience in design of the urban municipal infrastructure or relevant project. Post-graduate degree in municipal engineering or relevant is preferable. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

**(B2) Drainage Design Engineer**  
**Tasks and Responsibilities**

65. Drainage Design Engineer will be responsible for carrying out (but not limited to) the following principle tasks in association with other consultants in the consultant team:

- (i) Review the existing drainage network along with existing road, canal, land use and other structure plan, also the plan of future expansion of the city in consultation with City corporation;
- (ii) Identify the part of existing drains required to be rehabilitated or need up-gradation;
- (iii) Identify the outfalls and proposed layout plan drainage network with alternatives following treatment process for its safe disposal;
- (iv) Prepare base map showing existing and proposed drainage network;
- (v) Conduct a situation analysis of existing sanitation system of Narayanganj city including storm/grey water drainage, wastewater (domestic and industrial wastewater), septage/fecal sludge management situation;
- (vi) Conduct analysis of where the city wishes to be with respect to drainage management with a plan for intervening 5-year intervals with specific performance targets;
- (vii) Assessment of indicators for achieving the objectives/targets, such as expansion of areas served, increased population coverage, overall investment, and O&M, costs of drainage network;
- (viii) Identify how this drainage management will be sustained, which covers arrangements in place and planned for monitoring of performance, performance evaluation and the incentives and disincentives to undertake or develop these functions;
- (ix) Prepare drainage master plans for storm water/grey water drainage system for NCC including different suitable options with cost involvement including technical, social environmental and institutional aspect consistent with the NCC's policies and acts, identifying potential areas for drainage network;
- (x) Collect rainfall data and analyze and define the drainage catchment areas and conduct feasibility study of the proposed master plan;
- (xi) Conduct detailed site survey for existing drainage rehabilitation and for the priority drainage schemes as agreed by NCC and ADB;
- (xii) Conduct the hydraulic design of existing drainage rehabilitation and for the priority drainage schemes network defining primary, secondary and tertiary drain including cross sectioning of each drain along with the alignment;
- (xiii) Conduct detailed engineering design drawing and, BOQ, cost estimate of existing drainage rehabilitation and for the priority drainage schemes under the investment project based on size of investment project as agreed by NCC and ADB;
- (xiv) Assist in preparation specifications and bid documents for drainage contract packages; and
- (xv) Design an institutional capacity for implementation of drainage master plan recommending improvements in policy and regulatory frameworks, organizational arrangements and capability, and human resources as required to establish sustainable storm/grey water drainage system.

**Qualification and Experiences**

66. Graduate in civil engineering, municipal engineering, drainage engineering or similar/relevant discipline with 12 years relevant working experience, including 5 years experience

in design of the urban drainage infrastructure or relevant project. Post-graduate degree in Drainage Engineering or relevant is preferable. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B 3) Wastewater Engineer**

#### **Tasks and Responsibilities**

67. Wastewater Engineer will be responsible for carrying out (but not limited) to the following principle tasks in association with other consultants in the consultant team:

- (i) Conduct a situation analysis of existing sanitation system of Narayanganj city including storm/grey water drainage, wastewater (domestic and industrial wastewater), septage/fecal sludge management situation;
- (ii) Prepare drainage master plans for storm water/grey water drainage system for NCC including different suitable options with cost involvement including technical, social environmental and institutional aspect consistent with the NCC's policies and acts, identifying potential areas for drainage network;
- (iii) Conduct feasibility study of the proposed master plan;
- (iv) Support to conduct detailed site survey for existing drainage rehabilitation and for the priority drainage schemes as agreed by NCC and ADB;
- (v) Support to conduct detailed engineering design drawing and, BOQ, cost estimate of existing drainage rehabilitation and for the priority drainage schemes under the investment project based on size of investment project as agreed by NCC and ADB. The consultant will consider onsite treatment options (anaerobic baffled reactor, constructed wetlands, etc. or combination of two or more) outfall for a particular drain or group of drains before disposal especially in rehabilitation of existing drainage and in designing of new priority drainage schemes;
- (vi) Assist in preparation specifications and bid documents for drainage contract packages; and
- (vii) Design an institutional capacity for implementation of drainage master plan recommending improvements in policy and regulatory frameworks, organizational arrangements and capability, and human resources as required to establish sustainable storm/grey water drainage system.

#### **Qualification and Experiences**

68. Graduate in civil engineering, wastewater engineering, drainage engineering or similar / relevant discipline with 12 years relevant working experience, including 5 years experience in design of the urban wastewater or relevant project. Post-graduate degree in Drainage Engineering or relevant is preferable. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B4) Pavement Design Engineer**

#### **Tasks and Responsibilities**

69. Pavement Design Engineer will be responsible for carrying out (but not limited) to the following principle tasks in association with other consultants in the consultant team:

- (i) Review and update the concept design of the widening of existing road along east side of Shitalakhya River with walkways and landscaping;
- (ii) Prepare/update concept design along with landscaping and development of recreational facilities for the citizen of NCC beside the river and conduct the feasibility study;
- (iii) Consultant will also conduct the studies referring to the already completed 1.7 km driveway along the river;
- (iv) Review and update geometric design of the proposed road including road safety, road furniture, road markings, etc.;
- (v) Organize and conduct appropriate survey, site investigations and testing including all the geotechnical investigation necessary to produce and complete the required comprehensive design of roads, culvert/bridges, and all other associated components including street lighting and landscaping;
- (vi) Complete the pavement design of the roads;
- (vii) Complete engineering design, drawings, bill of quantities and cost estimates;
- (viii) Prepare bid documents and assisting NCC in bidding process following ADB procurement guideline; and
- (ix) Develop and deliver relevant capacity development program for NCC including on the job training.

### **Qualification and Experiences**

70. Graduate in civil engineering, highway/transportation engineering or similar/ relevant discipline with 12 years relevant working experience, including 5 years experience in design of urban road or relevant project. Post-graduate degree in highway/transportation engineering or relevant is preferable. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B5) Urban Planner** **Tasks and Responsibilities**

71. Urban Planner will be responsible for carrying out (but not limited to) the following principle tasks in association with other consultants in the consultant team:

- (i) Review current urban planning mechanisms in NCC in light of better medium- to long-term urban planning, including recommendations to introduce climate/disaster-resilience into master planning;
- (ii) Prepare/update NCC Master Plan especially for drainage considering all possible future development in different areas with a phasing of investment plan and/or implementation/enforcement of the approved master plans;
- (iii) Review/update and/or prepare landscaping and architectural layout of road along east side of Shitalakhya River with walkways considering urban planning perspective;
- (iv) Ensure that the location of proposed infrastructures under the project is consistent with proposed/ existing master plan or urban plan and land-use;
- (v) Propose measures to improve planned and organized development;
- (vi) Propose measures to fill gaps in urban planning and develop specific interventions to strengthen urban planning with climate resilience;
- (vii) Prepare detailed plans and proposals, including the engineering drawings for proposed subproject facilities; and

- (viii) Develop and deliver relevant capacity development program for NCC including on the job training.

### **Qualifications and Experiences**

72. Graduate in urban and regional planning or similar discipline with 12 years relevant working experience, including 5 years experience in urban planning, landscaping or relevant project. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B6) Water Supply Design Expert** **Tasks and Responsibilities**

73. The Water Supply Design Expert will be responsible for (but not limited to) the following:
- (i) Review and analyze the existing situation of water supply of NCC focusing on NRW reduction, rehabilitation and upgradation of water treatment plant & distribution network, and expansion of water distribution network through survey and study;
  - (ii) Conduct survey and investigation as required in particular to optimize the existing facilities;
  - (iii) Forecast/estimate water supply demand of the NCC for 25 years design period including the demand of the possible extended area;
  - (iv) Analyze raw water quality for selecting treatment process and treatment options;
  - (v) Prepare a concept design of water supply considering 25 years of design period collecting demographical information, with possible surface water as source along with intake, treatment plant, transmission and distribution networks, all electrical and mechanical installations required for proposed water supply. Prepare outline for investment plan in phases;
  - (vi) Complete detailed design of the rehabilitation and upgradation of the existing water supply infrastructure including existing treatment plants focusing the increase of treatment plant's performance and capacity;
  - (vii) Complete concept design of intake, collection and treatment plant and assist in design of transmission and distribution facilities for the proposed surface water-based water supply system;
  - (viii) Assist in preparation bill of quantities, cost estimates, drawings, specifications and bid documents for water supply contract packages;
  - (ix) Assist in planning and design a service delivery mechanism for water supply system under NCC; and
  - (x) Design and implement capacity development program for NCC considering that NCC is going to take the responsibility of water supply services and its infrastructure development from DWASA.

### **Qualifications and Experiences**

74. Graduate in Civil engineering or relevant disciplines with 12 years' experience in designing of relevant urban water supply design infrastructures. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training program.



**(B7) Hydraulic/Network Design Specialist:**  
**Tasks and Responsibilities**

75. Hydraulic/Network Design Specialist will be responsible for (but not limited to) the following:

- (i) Identify pipes and other facilities for construction/rehabilitation of existing infrastructures in consultation with team leader/other consultants;
- (ii) Conduct survey and investigation, hydraulic analysis of existing network system and detailed design of water supply existing networking, pipeline design, transmission and expansion of distribution networks, overhead tanks, pumping stations including specifications, drawings, and detailed cost estimates for all components;
- (iii) Assist in planning of each water supply components such as intakes, raw water storage, pump station, treatment plants, overhead tanks, bulk water facilities, distribution network, etc. for future water supply provision;
- (iv) Work closely with climate change specialist to incorporate climate/disaster change adaptation into water supply designs, with particular focus on salinity intrusion into water source;
- (v) Assist in preparation of bidding documents and bill of quantities in accordance with ADB's procurement guideline;
- (vi) Develop mechanism of identification of water supply system leak detection and leak management to prevent water losses; and
- (vii) Prepare O&M manuals.

**Qualifications and Experiences**

76. Graduate degree in civil/water supply engineering or similar/relevant discipline with 12 years relevant working experience, including 5 years experience in network modeling, planning and design water supply systems and a thorough knowledge on the use of popular software, namely EPANET, WaterCAD, etc. Post-graduate degree in relevant field is preferable. Work experiences in the project funded by international donor including ADB would be preferable.

**(B8) Environmental Safeguard Expert:**  
**Tasks and responsibilities**

77. Environmental Safeguard Expert will be responsible for carrying out the following principle tasks in association with the International Environmental Safeguard Specialist, implementing agency and other consultants in the consultant team:

- (i) Provide necessary support to the International Environment Safeguard Specialist in conducting consultations/discussions with environmental regulatory agencies and other stakeholders;
- (ii) Assist in identifying all applicable and relevant national laws, regulations, policies and guidelines and preparing action plan to ensure all required statutory clearances are obtained prior to project implementation;
- (iii) Collect all necessary forms, templates, applications and list of all supporting documents required to obtain necessary environmental statutory clearances, no objection letters, etc.;
- (iv) Provide cost estimates for obtaining required environmental statutory clearances, no objection letters, etc.;

- (v) Provide cost estimates for environmental mitigation measures, tree replacements, water spraying, etc., and specific environmental monitoring activities per EMPs.;
- (vi) Identify environmental laboratories or third-party service providers as required in the EMPs.;
- (vii) Assist in preparing the EARF (if required) in accordance with ADB SPS and national laws, regulations, policies and guidelines;
- (viii) Assess the practicality and applicability of subproject selection criteria incorporating environmental conditions;
- (ix) Assist in the project/subproject screening and drafting of environmental categorization form for submission to the International Environment Safeguards Consultant;
- (x) Conduct necessary surveys and documentation of site-specific baseline environmental conditions of each subproject site and indirect area of influence;
- (xi) Quantitatively assess all direct, indirect, cumulative, and induced impacts with respect to physical, biological, socioeconomic especially health and safety and livelihoods, including downstream water users, and PCR;
- (xii) Identify distances of nearest sensitive receptors to each subproject site and/or alignment;
- (xiii) Together with the International Environment Safeguard Consultant, undertake desk based due diligence using IBAT and water stress mapping for project towns to determine potential environmental sensitivities involved;
- (xiv) Together with the International Environment Safeguards Consultant, organize and conduct meaningful consultations at each subproject site and/or alignment;
- (xv) Prepare records/minutes of consultations/discussions for inclusion in EIAs/IEEs;
- (xvi) Assist in preparing EIAs/IEEs as advised by ADB and following prescribed outline in Appendix 1 of ADB SPS;
- (xvii) Assist in conducting environmental audit of existing facilities to be rehabilitated/expanded under the project;
- (xviii) Assist in conducting due diligence of associated facilities as defined in ADB SPS;
- (xix) Coordinate with design team and procurement consultants to ensure relevant provisions from the EIAs/IEEs and environmental management plans are incorporated in the bid and contract documents;
- (xx) Assist implementing agency to establish grievance redressal mechanism and ensure members of the grievance committee have the necessary capacity to resolve project-related issues/concerns;
- (xxi) Together with the International Environment Safeguards Consultant, conduct safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of EMPs;
- (xxii) Assist in ensuring environmental assessment is done with reference to the standards and measures set out in the General EHS Guidelines, EHS Guidelines for Water and Sanitation, and EHS Guidelines for toll roads, and others as may be applicable;
- (xxiii) Assist the international environmental safeguards specialist consultant (or, in the absence of the international environmental safeguards specialist, lead) in preparation of environmental safeguard documents such as EIA and/or IEEs for this project in accordance with ADB SPS and the country's legal requirements;
- (xxiv) Assist the NCC in complying with ADB's disclosure requirements as per the SPS; and
- (xxv) Assist the international environmental safeguards specialist consultant (or, in the absence of the international environmental safeguards specialist consultant, lead) in providing capacity building trainings to implementing agency on ADB SPS,

particularly on managing construction disturbance and health and safety risks, addressing grievances and developing corrective actions for non-compliances. This includes conduct of safeguards capacity building to ensure implementing agency has the capacity to implement, monitor, and report on implementation of EMPs; and to ensure quality and format of EIAs/IEEs follow ADB Handbook of Styles and Usage.

### **Qualification and Experience**

78. Graduate in Civil Engineering, environmental engineering, urban planning or similar/relevant discipline with 12 years of relevant working experience environmental field including 5 years' experience in urban water supply and water treatment plant or relevant project. Experience of working with ADB or other donor funded projects will be advantageous.

### **(B9) Social Safeguards Specialist:** **Tasks and Responsibilities**

79. The Social Safeguards/Resettlement Specialist will work with International Social Safeguards Specialist will be responsible for (but not limited to) the following:

- (i) Undertake social safeguards assessment and due diligence based on detailed designs and preparation of necessary safeguard documentation in accordance with ADB policy and guidelines;
- (ii) Prepare resettlement framework and IPPF as per ADB SPS;
- (iii) Prepare resettlement plans in accordance with resettlement framework and ADB's involuntary resettlement guidelines and prepare due diligence report on land acquisition and resettlement in case there are no resettlement impacts;
- (iv) Prepare indigenous peoples plans, if required, in accordance with ADB SPS.
- (v) Work closely with design engineers and international social safeguard specialist in preparing resettlement plans and IPPs as required;
- (vi) Undertake necessary census and socioeconomic surveys and data collection, conduct meaningful consultations with project-affected people for drafting the social safeguard documents
- (vii) Prepare the item-wise detailed budget, total cost estimates of the proposed compensation and mitigation measures and any other costs in the social safeguards documents;
- (viii) Submit draft resettlement plans/PPPs/DDRs to the executing agency and ADB for review and clearance prior to bidding;
- (ix) Coordinate all involuntary resettlement issues and ensure that all subprojects comply with safeguards requirements of ADB and Government of Bangladesh;
- (x) calculate compensations/entitlements of affected people and coordinate with PMU and other team experts for budget allocation for social safeguards implementation;
- (xi) prepare project information documents for disclosure to stakeholders and affected people; and
- (xii) Hold consultation during preparation of the social safeguard documents and ensure comments/issues raised are communicated to PMU, project and measures to address such issues/concerns are addressed early on in the project design.

### **Qualifications and Experiences**

80. The Social Safeguards/Resettlement Specialist will be a graduate in social sciences or related field with 10 years of experience. She/he will have experience in conducting meaningful consultations and disclosure activities. Work experience in the project funded by international donor including ADB safeguards experience in Bangladesh is preferable.

#### **(B10) Institution Development Specialist:** **Tasks and Responsibilities**

81. The Institution Development Specialist will be responsible for, (but not limited to) the following:

- (i) Assess the institutional strength and weakness of NCC;
- (ii) Assess the capacity of the NCC in terms of municipal service delivery including new responsibility of water supply taking from DWASA;
- (iii) Design an institutional capacity for implementation of drainage master plan recommending improvements in policy and regulatory frameworks, organizational arrangements and capability, and human resources as required to establish sustainable storm/grey water drainage system;
- (iv) Assess the requirement for institutional development to cope with the sustainable service delivery for NCC;
- (v) Assist in exploring the feasibility of outsourcing the O&M of water supply system and defining the modality in this regard;
- (vi) Define and outline the modality of service delivery mechanism for urban municipal services;
- (vii) Define the area for capacity building to comply the desired institutional requirements;
- (viii) Analyze existing billing system with international experience develop system to improve the existing billing system to reduce NRW;
- (ix) Design and implement capacity development program considering that NCC is going to take the responsibility of water supply services and its infrastructure development from DWASA including preparation of a plan of necessary management support by DWASA after the handover; and
- (x) Assist NCC on the institutional capacity development to execute their responsibilities as city corporation to operate, manage and monitor service provision locally based on the capacity deficit leading to sustainable municipal service delivery as a city corporation. This should include development of capacity development plan to be implemented during the implementation of investment loan and provide on-the-job training during the implementation of this PRF.

### **Qualifications and Experiences**

82. Graduate degree in business administration/engineering or relevant discipline with 10 years experience in relevant field. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

#### **(B11) Economist:** **Tasks and Responsibilities**

83. The economist will be responsible for (but not limited to) supporting the Financial Specialist to perform the following responsibilities:

- (i) Conduct economic analysis of the subprojects for feasibility study, including (a) demand analysis, (b) least economic cost analysis, (c) economic cost and benefit analysis, (d) economic internal rates of return, (e) average incremental economic costs, (f) sensitivity analysis, (g) risk analysis, (h) benefit distributional analysis, (i) poverty impact ratios, (j) assessment of subsidies, and (k) other relevant works;
- (ii) Review tariff policies, current tariff levels and structures, and collection mechanisms for water supply services;
- (iii) Recommend suitable tariff structure and user charges;
- (iv) Assess the pricing of services for the poor, willingness to pay, ability to pay of different user groups, and cost-sharing mechanisms;
- (v) Prepare a profit-and-loss analysis of water supply operation in NCC and its improvement plan after the handover; and
- (vi) Establish rules and procedures in PMU for evaluating economic viability and train NCC staff to utilize them.

### **Qualifications and Experiences**

84. Graduate degree in Economics or relevant with 10 years of experience in economic analysis of infrastructure projects. The specialists should have experience in design and development of accounting and budgeting systems for public enterprises. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B12) Financial Management Specialist:** **Tasks & Responsibilities**

85. The Financial Management Specialist will be responsible for (but not limited to) the following:

- (i) Conduct project costing including budgeting, accounting and reporting;
- (ii) Project future incremental costs and revenues to assess to ensure project sustainability;
- (iii) Prepare the Financial Management Assessment;
- (iv) Conduct financial analysis of the project with financial internal rate of return (FIRR) and weighted average cost of capital (WACC) computations with sensitivity analysis corresponding to critical variables;
- (v) Establish rules and procedures in PMU for fund flow and internal control and train NCC staff to utilize them;
- (vi) Assist PMU in preparing bid documents and negotiating the contracts regarding financial matters;
- (vii) Establish a sound accounting practice and systems to manage resources available at the investment program;
- (viii) Develop budgetary control process, design budget procedures and budget formats;
- (ix) Train PMU staff in the preparation of annual budget estimates and disbursement plans;

- (x) Review the financial management system of government agencies involved in the program and make recommendations for optimal integration;
- (xi) Prepare business plan for water supply service approved by NCC and DWASA, describing the transfer of assets and liabilities from DWASA to NCC;
- (xii) Design a tariff structure for the services to make the city corporation self-sustaining and income generating; and
- (xiii) Direct and advise on the establishment of billing and collection system.

### **Qualification and Experiences**

86. Graduate degree in Financial Management/Economics or related field with 10 years professional experience in relevant field. She/he will have experience in design and development of accounting and budgeting systems for public enterprises. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B13) Structural Engineer:** **Tasks and Responsibilities**

87. The Structural Engineer will be responsible for (but not limited to) the following:

- (i) Support to prepare/update feasibility studies;
- (ii) Perform all structural design of civil construction works that includes under water supply infrastructures such as, structures at intake, pump station, treatment plant, overhead tank, any other buildings, etc.;
- (iii) Perform all structural design of civil construction works under east side of Shitalakhya River landscaping design and drainage master plan;
- (iv) Assist in structural design of priority drainage scheme.
- (v) Collect relevant data, information related to structural design of schemes included above;
- (vi) Undertake detailed design, prepare design reports including drawings;
- (vii) Assist in the preparation of detailed estimate and bill of quantities; and
- (viii) Device computer-based design module using standard updated software and help to train PMU staff in using Auto CAD/other design soft wares.

### **Qualifications and Experiences**

88. Graduate degree in Civil / Structural Engineering or relevant discipline with 10 years experience in designing water supply infrastructure or relevant projects. She/he will be experienced in designing of water treatment plant structures. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B14) Electrical Engineer:** **Tasks and Responsibilities**

89. The Electrical Engineer will be responsible for (but not limited to) the following:

- (i) Support to prepare/update the feasibility studies;
- (ii) Perform all electrical design works that includes under water supply, water treatment plant and sanitation infrastructures such as, electrical design

- requirement at intake, pump station, treatment plant, overhead tank, any other buildings, etc.;
- (iii) Perform design of sub-station if required for water treatment plant;
- (iv) Perform all electrical design works under road along east side of Shitalakhya River with walkways and landscaping; and all other subprojects;
- (v) Collect relevant data, information related to electrical design of schemes included above;
- (vi) Undertake detailed design, prepare design reports including drawings;
- (vii) Assist in the preparation of detailed estimate and bill of quantities and specifications of all electrical items; and
- (viii) Device computer based design module using standard updated software and help to train PMU staff in using electrical design software.

### **Qualifications and Experiences**

90. Graduate degree in electrical engineering or relevant discipline with working experience about 10 years in designing of relevant electrical components of such infrastructure (water treatment plants, pump houses etc.). She/he will be experienced in designing of electrical component in water treatment plants. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B15) Mechanical Engineer:** **Tasks and Responsibilities**

91. Mechanical Engineer will be responsible for carrying out the following principle tasks in association with all other consultants in the consultant team:

- (i) Support to prepare/update the feasibility studies;
- (ii) Perform all mechanical/electro-mechanical design works that includes under water supply, water treatment plant and sanitation infrastructures such as, mechanical design requirement at intake, pump station, treatment plant, overhead tank, any other buildings, etc.;
- (iii) Perform all mechanical design works under road along east side of Shitalakhya River with walkways and landscaping (if any); and all other subprojects (if any);
- (iv) Collect relevant data, information related to mechanical design of schemes included above;
- (v) Undertake detailed design, prepare design reports including drawings;
- (vi) Assist in the preparation of detailed estimate and bill of quantities and specifications of all mechanical/electro-mechanical items and
- (vii) Device computer-based design module using standard updated software and help to train PMU staff in using mechanical design software.

### **Qualification and Experience**

92. Graduate in Mechanical Engineering, similar/relevant discipline with 10 years of relevant working experience in mechanical design, with significant experience in urban water supply systems and water treatment plants or related projects. Experience of working with ADB or other donor funded projects will be advantageous. She/he should have good communication skills, and be able to assist in the capacity building and training program.

**(B16) Procurement Specialist**  
**Tasks and Responsibilities**

93. Procurement Specialist will be responsible for (but not limited to) the following:
- (i) Prepare of all necessary procurement documents in compliance with ADB's Procurement Policy for the all infrastructure development facilities under the projects;
  - (ii) Prepare procurement plan of the project agreed upon between the ADB and Government of Bangladesh, including procurement thresholds, procurement methods (ICB/NCB/Shopping) and approval requirements (prior or post) in connection with procurement of goods and works under the project, and advise PMU accordingly;
  - (iii) Keep liaison with other team members, in the procurement of equipment and vehicles including preparation of specification and bid documents;
  - (iv) Prepare bidding documents for procurement of goods and works for all contract packages for use of PMU following ADB Procurement Policy and Public Procurement Rules, 2008 of Government of Bangladesh as applicable;
  - (v) Facilitate the use of the e-Government Procurement system (if and when approved for use by ADB) for procurement activities under the project;
  - (vi) Assist PMU in:
    - (a) Preparing and updating procurement plans, including annual procurement plans for goods and works;
    - (b) Designing bid packages that achieve the greatest economy, efficiency and competition;
    - (c) Bidding, bid evaluation and contract award processes; and
    - (d) Scheduling and arranging procurement activities in order to meet the timeframes specified in the procurement plan.
  - (vii) Prepare capacity building plan and provide capacity building support to PMU in handling procurement works;
  - (viii) Support to prepare the bid (works, goods, service), bid invitation, bid evaluation for selection of contractor/consultant as advanced contracting for proposed investment project; and
  - (ix) Provide timely and constructive assistance in dealing with any obstacles to procurement activities.

**Qualifications and Experiences**

94. Graduate in civil engineering or relevant discipline with 10 years of relevant working experience of preparation of procurement plan and procurement documents of development partner including ADB. He/she should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to assist in the capacity building and training programs.

**(B17) Social Development and Gender Specialist:**  
**Tasks and Responsibilities**

95. Social Development and Gender Specialist will be responsible for (but not limited to) the following:



- (i) Responsible for preparation of social and gender analysis, summary poverty reduction and social strategy and GAP;
- (ii) Assess the training needs of the PMU and the Division;
- (iii) Develop method and tools for mainstreaming gender equality as directed in the NCC Gender Equality Strategy and gender impact assessment;
- (iv) Prepare/revise training materials, as necessary to train project staff and other key stakeholders (Contractors/ sub-contractors and labor Supervisors);
- (v) Organize/facilitate training and orientation for community program and consumer;
- (vi) Relation Division, PMU and NGO staff on gender action framework (GAF) and their responsibilities to implement the GAF and monitor the progress;
- (vii) Review management information system and data collection mechanism to suggest incorporation of sex disaggregated indicators in monitoring of GAF;
- (viii) Support sex-disaggregated data collection, collation and gender-based reporting;
- (ix) Ensure women's participation in community consultation, identify their needs and ensure women's participation in CBOs;
- (x) Review the existing community training and awareness raising materials and methodologies to integrate information/topics and suggest methodologies as necessary to implement the GAF and raise voice of community women;
- (xi) Oversee that the bid documents include appropriate labor and gender related provisions;
- (xii) Support/participate in community orientation program, where necessary;
- (xiii) Provide inputs on GAP related issues to the detailed project report and to incorporate GAP into bidding document;
- (xiv) Provide support to NCC in achieving indicators and compliance to GAF as per ADB requirement; and
- (xv) Prepare training manual on GAP and provide training to the PMU and other officials.

### **Qualifications and Experiences**

96. Graduate in social sciences/gender studies or equivalent discipline with 10 years of work experience in conducting social/gender analysis and preparation of gender action plans for water supply/ sanitation service delivery programs. Work experience in projects funded by international donors including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

### **(B18) Community Mobilization Expert:** **Tasks and Responsibilities**

97. Community Mobilization Expert will be responsible for (but not limited to) the following:

- (i) Development of communication strategy and consultation and participation plan (CPP);
- (ii) Conduct stakeholder analysis and continuous consultations with stakeholders in line with the communication strategy and CPP;
- (iii) Awareness raising activities will focus on (a) water supply, sanitation and waste management, and (b) community mobilization to enable poor communities to access and make use of developed interventions;
- (iv) Prepare the design for a willingness-to-pay and affordability survey to be adopted by the NCC assessing the demand for various urban services; and undertake the willingness-to-pay and affordability survey for relevant subprojects prepared under the project;

- (v) Analyze the willingness-to-pay and affordability survey data and prepare the survey report with analytical data;
- (vi) Conduct focus group discussions (FGD) to help validate willingness-to-pay survey data and provide field reports and insights based on the FGDs for project design and design of affordable tariffs; and
- (vii) Work with Social Safeguard Specialists and the project management and implementation units to operationalize the project grievance redress mechanism at various levels and the system of feedback and record-keeping of grievances.

98. Graduate in Social sciences/gender studies or equivalent discipline with 10 years of work experience in community mobilization and consultation activities related to water supply/sanitation service delivery programs. Work experience in projects funded by international donors including ADB would be preferable. She/he should have good communication skills, and be able to assist in the capacity building and training program.

**(B19) GIS Specialist:**  
**Tasks and Responsibilities**

99. GIS Specialist will assist and be responsible to the Team Leader for implementing the following principle tasks:

- (i) Prepare GIS based maps required for subprojects;
- (ii) Assist the consultant team in preparing and analyzing the GIS database and maps;
- (iii) Provide GIS material for presentation purposes;
- (iv) Develop and deliver on the job training to PMU staff; and
- (v) Assist in any other task assigned by the supervising consultants as per requirement.

**Qualifications and Experiences**

100. Graduate in engineering, urban planning and/or geography or similar/relevant discipline with 08 years of relevant working experience in designing and operating GIS systems in the urban water and sanitation related sector. She/he should have good communication skills, and be able to assist in the capacity building and training program.

**i. KEY TIMELINES OR MILESTONES/TIME SCHEDULE AND DELIVERABLES**

101. The estimated total duration of consulting services will be 24 months from December 2019 to December 2021. The list of deliverables, which the consultant is expected to producing and corresponding time schedule is outlined in the table below.

**Table-4: Schedule of Deliverables (for each component)**

Sl. no.	Deliverable	Month of Delivery	Summary of Contents	Number of Copies
(i)	Inception Report	Within 30 days of mobilization.	Initial findings, detailed approach and methodology, detailed work plan.	10 copies
(ii)	Transition plan for water supply management	Within Nine month	Timeline of implementation, business plan, staffing plan, management support from DWASA	10 copies

Sl. no.	Deliverable	Month of Delivery	Summary of Contents	Number of Copies
(iii)	Report on Feasibility	<ul style="list-style-type: none"> <li>• Riverside road and landscaping within 09 months;</li> <li>• Rehabilitation/upgradation of water supply infrastructure within 11 months;</li> <li>• Feasibility study of priority drainage after drainage Master Plan within 11 months;</li> <li>• Future surface water-based water supply with within 18 months</li> </ul>	Reviewing/updating of previous feasibility study, prepare feasibility study including concept design, cost estimates, economic and financial analysis.	10 copies for each category
(iv)	Drainage Master Plan	Within 9 months	Prepare drainage Master Plan with phasing investment plan	10 copies
(v)	Progress Report	Semiannual and Mid-term Report. Semiannual reports should be submitted within 45 days of each period.	Prepare the report on the progress of the TA Consultancy	10 copies
(vi)	Detailed Engineering Design	<ul style="list-style-type: none"> <li>• Riverside road and landscaping within 12 months;</li> <li>• Water Infrastructure rehabilitation/upgradation within 14 months, and</li> <li>• Priority drainage schemes within 14 months</li> </ul>	Detailed design updating existing design.	10 copies for each category
(vii)	No Mitigation Measures Scenario Checklist	<ul style="list-style-type: none"> <li>• Within 30 days from mobilization</li> </ul>	Use the ADB-suggested checklist	Electronic copies in Word and PDF formats.
(viii)	Environmental Assessment and Social Safeguard Report (EIA reports, IEE reports, resettlement plans, DDRs)	<ul style="list-style-type: none"> <li>• Within 30 days after the detailed design is finalized.</li> <li>•</li> </ul>	For environmental assessment documents, follow the outline suggested in ADB SPS (Annex to Appendix 1). For resettlement plans, follow the outline suggested in ADB SPS (Annex to Appendix 2). Ensure that the EIA or IEE reports and RPs or DDRs use the final detailed design as referred to in item (vi) above.	Electronic Copies in Word and PDF formats.
(ix)	Bid Documents	<ul style="list-style-type: none"> <li>• Riverside road and landscaping within 15 months;</li> <li>• Water Infrastructure rehabilitation/upgrade, 16 months</li> <li>• priority drainage schemes within 16 months</li> </ul>	Bid documents for contract packages including works and goods	10 copies for each category

Sl. no.	Deliverable	Month of Delivery	Summary of Contents	Number of Copies
(x)	Selection of Contractor for work execution of projects as advance contracting	<ul style="list-style-type: none"> <li>Riverside road and landscaping within 22 months;</li> <li>Rehabilitation/upgradation of water Infrastructure 24 months</li> <li>priority drainage schemes within 24 months</li> </ul>	Pre-bid minutes, Bid Evaluation Reports, Different submittal documents for ADB, Draft contract agreements etc.	10 copies for each category
(xi)	Draft Completion Report	Within 23 Months	Prepare the draft completion report of the TA consultancy activities under the TOR	10 copies
(xii)	Completion Report	Within 24 months	Prepare the TA Consultancy completion report incorporating comments from Client and ADB.	15 copies

ADB = Asian Development Bank, DDR = due diligence report, DWASA = Dhaka Water Supply and Sewerage Authority, EIA = environmental impact assessment, IEE = initial environment examination, TA = technical assistance, TOR = terms of reference.

102. In addition to above consultant will submit yearly progress reports at the end of each year during the course of assignment mentioning status/progress of work, activities performed, and issues related to assignment during the month.

## VI. CLIENT'S INPUT AND COUNTERPART PERSONNEL

### A. Services, facilities and property

103. NCC will provide the office space in the NCC head quarter building, but the consultant will be responsible for the cost of utilities (electricity, gas, water, etc.). The consultant will also be provided with previous available reports, data, and information relevant to their assignments. Necessary office equipment, such as computers; computer peripheral equipment, deskCAD, etc. should be procured under the consulting services budget.

104. NCC will provide to the consultant assistance which include making available all relevant documents, and assistance for obtaining work permit, visa and other similar documents as well as exemption and privileges, if any.

### B. Professional and support counterpart personnel

105. NCC will provide all necessary counterpart support on a no-cost basis to the PRF Consultant's team. All the counterpart support, facilities and information would be provided by the Government in kind and would be free of charge to the consultant.

106. A PMU will be established under NCC, which will be headed by Project Director. PMU will be consisted of the following members: Project Director, Executive Engineers (Water Supply and Infrastructures), Urban Planner, Engineers (Water Supply and Infrastructures), Accounts/Financial Officer, Safeguards/Gender Officer, and Contract Management Officer. PMU staff will be acted as counterpart support for the Consultant. Project Coordination Committee (PCC) will be formed consisting of the members as Chief Executive Officer, NCC (Chair), Project Director (Member), Executive Engineers (PMU) (Member), Urban Planner (PMU) (Member),

Representative from DWASA (Member), Representative from BIWTA (Member), Representative from RAJUK (Member), Representative from District Commissioner Office (Member) will also provide necessary counterpart support to the Consultant. PCC will review the findings of study, and will reflect the desire of the citizen in project design, will support site selection of the project component and review and monitor the progress and support to resolve the issue in particularly related to local circumstances. NCC will provide any other counterpart support as necessary for successful implementation of the project.

**VII. CLIENT WILL PROVIDE THE FOLLOWING INPUTS, PROJECT DATA AND REPORTS TO FACILITATE PREPARATION OF THE PROPOSALS**

107. NCC will provide the following upon request of the bidder during proposal preparation:

- (i) Existing water supply information,
- (ii) Location and existing information related to road alongside the river,
- (iii) Existing drainage location and related information, and
- (iv) All necessary information about the city corporation.

### 3. Consultancy Services for Strengthening Municipal Financial Management (SMFM) Program of NCC Component

#### I. BACKGROUND

##### A. Project Description

1. In Bangladesh, rapid urbanization strains the urban sustainable development, resulting in insufficient urban infrastructure and shortage of urban services. The rapid urbanization and growth in demand of scarce public services is also creating severe strain on the environment. Urban local bodies (ULBs) with massive public service mandate/responsibilities including water supply, sanitation and waste management are not able to provide services effectively with their limited institutional and technical capacity. ULBs (city corporations and *pourashavas*) are suffering under weak governance and management; poor financial management capacity and accountability; lack of participation of citizens, urban planning, gender equity and social inclusion; all resulting in poor municipal service delivery.

2. Government of Bangladesh has requested a project readiness financing (PRF) from Asian Development Bank (ADB) to implement Urban Infrastructure Improvement Preparatory Facility (UIIPF) to prepare an ensuing investment project, aiming to the improvement of the urban infrastructure and increasing urban services for the citizens and providing sustainable service delivery. The PRF will likely to be implemented through several institutions such as (i) Department of Public Health Engineering (DPHE), component for water supply and sanitation; and (ii) Narayanganj City Corporation (NCC) component for urban infrastructure.

3. Sound municipal financial management is the firm basis of administrative capacity of city corporations, which covers wide range of aspects, not only revenue, planning, budgeting, accounting, internal controls, monitoring and evaluation, and internal audit, but also sustainable management of human resources and service delivery (e.g., water supply, conservancy, operation and maintenance of existing urban infrastructures). To this end, Strengthening Municipal Financial Management Program (SMFM) under NCC component, aims to improve efficiency and transparency of municipal financial management through capacity building of relevant officials on financial management, thereby for NCC to provide better service delivery to the citizens with sound financial discipline and resource allocation. SMFM also maintains close collaboration and coordination with Local Government Division (LGD) led initiative on revenue and account automation system to ULBs, which have been already introduced to Dhaka North and South City Corporation with support of ADB funded "Urban Public and Environmental Health Sector Development Program (UPEHSD)".

4. **Project Objectives.** The outcome of SMFM Program under NCC Component is to improve financial management of NCC with strengthened capacity of concerned CC officials, of which impact will be more effective and efficient municipal service delivery with sound financial discipline, prioritized resource allocation, and sound financial management of UIIPF in line with ADB requirement. The achievement can be measured by assessing performance indicators: (i) capacity building plan during and after the PRF is developed; (ii) at least 50% of target NCC officials (permanent) in revenue, planning/budgeting, accountant, internal controls and other relevant departments develop personal capacity strengthening plans and receive identified training; and (iii) recommendations on improving organizational framework for NCC are developed, approved by management in NCC, and submitted to LGD.

5. The followings are the proposed components for SMFM Program:

- (i) Situation analysis, identification of gaps and proposal of solutions with respect of financial management of NCC including project financial management of UIIPF. This includes a wide range of consultations and focus group discussion with NCC officials and stocktaking of existing documents (e.g., survey reports and analytical works) already produced by Financial Management and Municipal Finance Consultancy (FMMFC) under UPEHSDP and other development partners, such as World Bank and Japan International Cooperation Agency (JICA), avoiding duplications and maximizing synergy effects;
- (ii) Development, implementation and monitoring of capacity building plan on financial management. Based on the situation analysis and identified gaps, capacity building plan will be developed in close consultation with Financial Management Academy (FIMA). Depending on the training subject, such as planning/budgeting, procurement, records management, holding tax management, budget formulation, execution, and monitoring, etc. preparation of training materials will be built on those which are already developed and utilized for NCC by the different projects under LGD. Methodology concerning evaluations and impact assessments of training courses against certain benchmarks will be also developed as a part of the capacity building plan; and
- (iii) Enabling environment for promoting administrative improvement, with recommendations on purchase of equipment and organizational structure of NCC based on the newly approved and/or to be approved organogram. It includes personnel allocation, optimal human resource arrangement, personnel exchanges among city corporations. It also includes the enhancement of interagency coordination mechanism to improve the efficiency and effectiveness of municipal service delivery.

6. **Outputs.** SMFM Program under NCC Component will deliver the following major outputs:

- (i) Capacity building plan during the PRF is developed;
- (ii) At least 50% of target NCC officials (permanent) in revenue and accountant department receive training;
- (iii) At least 50% of action plans to be prepared by training participants are implemented 6 months after the training completion;
- (iv) Equipment (personal computers, printers, server, etc. and office furniture) identified and purchased;
- (v) Capacity building plan up to 2025 is developed; and
- (vi) Recommendations on improving organizational framework for NCC developed in close cooperation with management of NCC and submitted to concerned wing of LGD.

7. **Implementation Arrangements of the PRF.** NCC will be the executing agency for SMFM Program under NCC Component. NCC will implement the component through its project management unit (PMU). The technical assistance (TA) consultants will work closely with the PMU. An inter-ministry steering committee will oversee and guide the implementation.

**B. Consulting Services**

8. NCC will engage consultants through firms and individuals for each subcomponent under the PRF. TA consultancy will have their project office at NCC under NCC Component.

## II. SCOPE OF SERVICES

9. **Capacity building on financial management.** The objective of consultancy services is to provide technical support to the NCC to implement and achieve the set impact, outcome and outputs of SMFM Program under UIIPF. The scope, tasks and activities are:

- (i) Situation analysis, identification of gap and proposal of possible solutions:

### a-1) Review of existing documents

10. The consultants will conduct situation analysis and identify the gap/deficiencies in current practices of financial management of NCC. To this end ADB has drafted a first capacity needs assessment. The PRF will confirm the findings of that assessment with the NCC. The consultants will then conduct intensive reviews of other existing documents to understand the quality and timeliness of the audit function as well any areas of improvement in NCC's internal controls. These documents are already developed by Financial Management and Municipal Finance Consultancy (FMMFC) under UPEHSDP in 2013 and 2014 as below:

- (i) Holding tax management manual report;
- (ii) Accrual accounting feasibility report;
- (iii) Guidelines for preparation of budget and budgetary control mechanism;
- (iv) Guidelines for asset register, stores and inventory;
- (v) Accounting manual;
- (vi) Procurement manual;
- (vii) Internal audit manual; and
- (viii) Uniform chart of accounts for city corporations.

11. Other development partners, such as World Bank (Municipal Governance Support Project, MGSP) and JICA (Capacity Development for City Corporation, C4C) also have interventions in NCCs; thus stocktaking of relevant documents produced by these projects should be also deeply reviewed (e.g., organizational structure and human resource management, interagency coordination with other relevant government organizations).

### a-2) Consultation with NCC

12. The consultants will then have a series of consultations with different levels of NCC officials to establish their needs, form common recognition on the current situation and challenges, and prioritize possible measures to be taken for their solutions. Administrative Reform Committee (ARC) as well as Capacity Development Unit (CDU), headed by Chief Executive Officer with memberships of departmental heads will be the focal points from NCC side. The area of consultation on financial management will include, but not necessarily be limited to:

- (i) Planning/budgeting procedures, including involvement of beneficiaries;
- (ii) Organizational structure;
- (iii) Human Resource functions;
- (iv) Records management;
- (v) The appropriateness of the budget classification system in terms of financial management and usefulness as a management instrument;
- (vi) The budget execution, including monitoring of implementation and management information system;
- (vii) Budget revision functions;
- (viii) Decentralization of budget and budget execution (effectiveness of budget execution);



- (ix) Revenue generation and possibilities for expanding the tax net;
  - (x) The reliability of budget (income vs. expenditure) and for individual functions;
  - (xi) Internal controls and internal audit functions;
  - (xii) Procurement functions;
  - (xiii) External audit and follow-up; and
  - (xiv) Number of staff and qualifications at each function (planning, budgeting, revenue, accounting, internal controls, internal audit).
- (ii) Develop, assist and monitor implementation of capacity building plan on municipal financial management during the PRF (up to April 2022).

13. Based on the situation analysis, identified gaps and possible solutions, the consultants will develop, implement and monitor capacity building plan on municipal financial management during the PRF. The objective of the capacity building is in the attachment. The activities include the following process.

**b1) Planning of training program**

- (i) The consultants will review the training schedule planned for NCC by other projects, avoiding unnecessary duplications. TA consultants will also review the training materials, which have already been produced and utilized for NCC by other projects;
- (ii) The consultants in close consultation with Financial Management Academy (FIMA) under Office of Comptroller and Auditor General (OCAG) will develop three-year training plan for NCC; and
- (iii) Before making decisions of training subject, the consultants, together with FIMA and PMU, will maintain close communication and coordination with JICA supported “City Governance Project (CGP)” and C4C project, where CGP has its project office in NCC. For example, guidelines on “tax assessment & collection” and “budget preparation, execution and monitoring”, to be approved by LGD as national standard of training materials, are under development, and trainings were already provided with relevant officers of NCC with subsequent of follow-up activities.

**b2) Modalities and methodology of trainings**

- (i) Capacity building plan of NCC will be implemented through two modalities: (a) classroom lectures and practical exercise at FIMA including material-based learning of good practice in other country/ies that has/had similar situation as Bangladesh, and (b) peer-learning by exchange visits to other city corporations in Bangladesh;
- (ii) The consultants will make outsourcing contract with FIMA for implementation of training courses. The consultants will facilitate the implementation process and assure the quality of training courses;
- (iii) The consultant will make sure that the outline of each training course, to be prepared by FIMA, will also include methodology for evaluation of training courses such as marking and questionnaire; and
- (iv) The consultants will arrange local exchange visit program, identify NCC officials to visit other city corporations to learn and exchange views on reform efforts on financial management.

**b3) Implementation and monitoring of training courses**

- (i) The consultants will attend training courses to be conducted by FIMA and conduct

- quality control, providing necessary technical supports;
- (ii) The consultants will ensure that action plans with baseline benchmark and expected outcome after completion of training course (e.g., 3 months and 6 months) will be developed by each trainee at the last section of each training course;
- (iii) The consultants will assess the impact of training courses and provide necessary technical supports to NCC to improve NCC's financial management including project financial management of UIIPF;
- (iv) Based on the assessment, the consultants will give feedbacks to FIMA and improve the capacity building plan for next financial year;
- (v) By repeating above Plan-Do-See-Action (PDSA) cycle during three year of the PRF implementation period, the consultants will develop capacity development plan that may be implemented after the PRF under the ensuing investment project, as well as draft consultants' TOR with discussion with NCC.
- (vi) The consultant together with PMU will negotiate with concerned wings of LGD to secure required budget for implementing capacity development plan up to 2025.
- (iii) Promotion of administrative improvement:

#### Organizational Structure:

- (i) Based on the situation and gap analysis, the consultants, in close consultation with Administrative Reform Committee (ARC) of NCC, will develop recommendations on improving organizational structure of NCC. Recommendations will include personnel allocation and optimal human resource arrangement, with implication of required budget. It also includes the enhancement of interagency coordination mechanism to improve the efficiency and effectiveness of municipal service delivery.
- (ii) The consultants together with PMU will organize consultation workshops with presence of senior managements of NCC and LGD.
- (iii) The consultants will submit final recommendations to PMU and facilitate the process of PMU to submit recommendations to concerned wing of LGD.
- (iv) Identify equipment (personal computers, laptops, printers, software (not budget/accounting) and furniture needs and procurement.
  - (a) The consultant will assess the need for equipment in the form of personal computers, printers, server and backup and facilitate the procurement of the approved items; and
  - (b) The consultant will identify software needs (apart from accounting which will be provided from other source) and likewise facilitate the procurement subsequent to the approval.
- (v) Coordination with LGD led revenue and account automation initiative
  - (a) LGD recently made ministerial decision that revenue and account automation system, being already introduced to Dhaka North and South City Corporation by UPEHSDP, will be rolled out to remaining city corporations and municipalities by LGD's own fund;
  - (b) The consultant will closely communicate with UPEHSDP and/or LGD and regularly update when the automation system, namely revenue management system (RMS) and double entry accrual accounting system (DEAAS), will be introduced to NCC; and
  - (c) The consultant, if required, will make necessary adjustments to the capacity building plan when RMS and DEAAS are to be introduced to NCC during TA implementation period.

### III. TEAM COMPOSITION AND QUALIFICATION REQUIREMENTS FOR THE KEY EXPERTS

14. The engagement period of the consultant services is 30 months. A total of 102 person months including 12 person-months of the international key expert, 90 person-months for the key national experts would be required. The estimated staffing and expertise person-months requirements per component are summarized below:

**Table 5. Summary of Consulting Services Requirements**

SI No.	Position of Professional	Number	Person-Months
<b>International Consultancy Firm</b>			
<b>A</b>	<b>International Consultants</b>		
1	Team Leader/Public Finance Management Specialist	1	12
	<b>Subtotal (A):</b>	<b>1</b>	<b>12</b>
<b>B</b>	<b>National Consultants (Key)</b>		
1	Financial Management Specialist/Deputy Team Leader	1	24
2	Capacity Development Specialist	1	24
3	Urban Planning & Institutional Specialist	1	12
	<b>Subtotal (B):</b>	<b>3</b>	<b>60</b>
<b>C</b>	<b>National Consultants (Non-Key)</b>		
1	Administration/Account Officer	1	30
	<b>Subtotal (C):</b>	<b>1</b>	<b>30</b>
	<b>Grand Total (A)+(B)+(C)</b>	<b>5</b>	<b>102</b>

#### A. Terms of Reference for International Consultants (A)

##### (A1) Team Leader/Public Financial Management Specialist.

##### Tasks and Responsibilities:

15. The Team Leader/Public Financial Management Specialist will be responsible for (but not limited to) the following principle tasks in association with other consultants in the consultant team:

##### As Team Leader:

- (i) Lead the SMFMP consultancy service, and is responsible for overall management and supervision of the consultant team (the Team) and liaison with members of the PMU and government counterparts;
- (ii) Review and assess existing studies, documents and other information available relevant to the water sector;
- (iii) Prepare a comprehensive, high quality deliverables as in "Table-2: Schedule of Deliverables"; and
- (iv) Ensure quality control of semiannual, mid-term and completion reports.

##### As Public Financial Management Specialist:

- (i) Conduct intensive reviews on reports, guidelines and manuals developed by package B, Financial Management and Municipal Finance Consultancy (FMMFC), under UPEHSDP;
- (ii) Conduct intensive reviews, interviews and stocktaking of relevant documents produced by other development partners, such as World Bank (Municipal Governance Support Project: MGSP, Strengthening Public Financial Management

- (iii) Program; SPEMP) and JICA (Capacity Development for City Corporation: C4C); Lead situation and gap analysis of current financial management system being practiced in NCC. Conduct a series of consultations with different levels of CC officials in participatory manner, to assess their needs, form common recognition on the current situation and challenges, and prioritize possible measures to be taken for their solutions;
- (iv) Supervise and maintain quality of development, implementation and monitoring capacity building plan on municipal financial management and project financial management during the PRF. Ensure that proper coordination and consultation takes place among team, PMU and FIMA;
- (v) Develop recommendations on improving organizational structure. Recommendations will include personnel allocation and optimal human resource arrangement, with implication of required budget. Conduct consultation workshop with concerned stakeholders, submit final recommendations to PMU and facilitate the process of PMU to submit recommendations to concerned wing of LGD; and
- (vi) Maintain close coordination and consultation with UPEHSDP and LGD Urban Development Wing, regularly updating the trend of introduction of the automation system (RMS and DEAAS) to NCC. Regularly communicate with JICA-supported CGP and C4C project to create synergy effects and avoid unnecessary duplications.

### **Qualifications and Experiences**

16. The Team Leader/Public Financial Management Specialist will be a master holder on public financial management with relevant disciplines with working experience of more than 10 yrs. She/he will have about 7 years of international experience in the field of public and municipal financial management together with project management, preferably with at least 5 years proven work experience and skill in similar position in South Asia and or elsewhere in developing countries. Work experiences in the project funded by international donor including ADB would be preferable. She/he should have good communication skills, be familiar with participatory approaches to project design and implementation and be able to ensure the quality of the capacity building and training program.

### **B. Terms of Reference for National Consultants (Key)**

#### **(B1) Financial Management Specialist/Deputy Team Leader** **Tasks and Responsibilities**

17. Financial Management Specialist/Deputy Team Leader will be responsible for carrying out (but not limited to) the following principle tasks in association with other consultants in the consultant team:

- (i) Assist Team Leader in managing overall planning, implementation and monitoring of the SMFM program and project financial management of UIIPF, liaison with members of the PMU, LGD and other government counterparts;
- (ii) Conduct intensive reviews on reports, guidelines and manuals developed by package B, Financial Management and Municipal Finance Consultancy (FMMFC), under UPEHSDP;
- (iii) Conduct intensive reviews, interviews and stocktaking of relevant documents produced by other development partners, such as World Bank (Municipal Governance Support Project: MGSP, Strengthening Public Financial Management

- (iv) Program; SPEMP) and JICA (Capacity Development for City Corporation: C4C); Lead situation and gap analysis of current financial management system being practiced in NCC and possible gap in conducting project financial management of UIIPF. Conduct a series of consultations with different levels of city corporation officials in participatory manner, to assess their needs, form common recognition on the current situation and challenges, and prioritize possible measures to be taken for their solutions;
- (v) Develop, implement and monitor capacity building plan on municipal financial management during the PRF. Ensure that proper coordination and consultation takes place among team, PMU and FIMA; and
- (vi) Maintain close coordination and consultation with LGD Urban Development Wing and JICA supported CGP and C4C project to create synergy effects and avoid unnecessary duplications.

### **Qualification and Experiences**

18. Post-graduate in public financial management or economics with a minimum of 15 years relevant working experience, including at least 7 years experiences in financial management of ULBs such as budgeting, accounting, taxation, and auditing. He/she should have management experience, good communication skills, and be able to assist in the capacity building and training program. Holders of certified public tax and/or accountant are preferable. Experience of working with ADB or other donor funded projects will be advantageous.

### **(B2) Capacity Development Specialist** **Tasks and Responsibilities**

19. Capacity Development Specialist will be responsible for carrying out (but not limited to) the following principle tasks in association with other consultants in the consultant team:

- (i) Conduct intensive reviews on reports, guidelines and manuals developed by package B, Financial Management and Municipal Finance Consultancy (FMMFC), under UPEHSDP;
- (ii) Conduct intensive reviews, interviews and stocktaking of relevant documents produced by other development partners, such as World Bank (Municipal Governance Support Project: MGSP, Strengthening Public Financial Management Program; SPEMP) and JICA (Capacity Development for City Corporation: C4C);
- (iii) Conduct situation and gap analysis of current financial management system being practiced in NCC. Conduct a series of consultations with different levels of city corporation officials in participatory manner, to assess their needs, form common recognition on the current situation and challenges, and prioritize possible measures to be taken for their solutions;
- (iv) Review the training schedule planned for NCC by other projects, avoiding unnecessary duplications. Training materials, which have already been produced and utilized for NCC by other projects, should be also reviewed, especially for those which are developed by JICA supported C4C project;
- (v) Develop three-year training plan for NCC in close consultation with FIMA under OCAG. Ensure that ARC as well as CDU, headed by Chief Executive Officer of NCC, will be involved in the planning process;
- (vi) Maintain close communication with Training Department of FIMA, facilitate communication with NCC for conducting training courses at FIMA. Participate in each of training course to be conducted by FIMA and conduct quality control,

providing necessary technical supports. Ensure that action plans with baseline benchmark and expected outcome after completion of training course (e.g., 3 months and 6 months) will be developed by each trainee at the last section of each training course;

- (vii) Plan and arrange local exchange visits program for NCC;
- (viii) Assess the impact of training courses and provide necessary technical supports to improve NCC's financial management. Give feedbacks to FIMA and improve the capacity building plan for next financial year; and
- (ix) Develop capacity development plan after the PRF (up to 2025) and negotiate with concerned wings of LGD to secure required budget for implementing the plan after completion of SMFM program.

### **Qualification and Experiences**

20. Graduate in economics or financial management with a minimum of 10 year relevant working experience, including at least 7 year experience in capacity development of Urban Local Bodies, with respect to financial management, such as budgeting, accounting, taxation, and auditing. He/she should have experience of management of training programs (planning, implementation and monitoring) and good communication skills. Experience of working with ADB or other donor funded projects will be advantageous.

### **(B3) Urban Planning and Institutional Specialist** **Tasks and Responsibilities**

21. Urban Institutional Specialist will be responsible for carrying out (but not limited) to the following principle tasks in association with other consultants in the consultant team:

- (i) Conduct intensive reviews on relevant reports, guidelines and manuals developed by package B, FMMFC, under UPEHSDP;
- (ii) Conduct intensive reviews, interviews and stocktaking of relevant documents produced by other development partners, such as World Bank (Municipal Governance Support Project: MGSP, Strengthening Public Financial Management Program; SPEMP) and JICA (Capacity Development for City Corporation: C4C);
- (iii) Participate in situation analysis, and conduct necessary consultation with ARC as well as different levels of NCC officials, identifying the gap in terms of organizational structure of NCC;
- (iv) Prepare draft recommendations to improve organizational structure of NCC to respond to the increased needs of municipal service delivery, including personnel allocation and optimal human resource arrangement, together with implication of required budget and its impact to mid long-term financial projection. Recommendations also include interagency coordination mechanism to improve the efficiency and effectiveness of municipal service delivery;
- (v) Liaise with the Planning Unit and Budget Unit to institutionalize the cooperation between the two functions, both in preparation of development plan (five year), annual implementation plan and budget. Furthermore, institutionalize the ongoing cooperation between the two units in the monitoring of execution of annual plan and budget;
- (vi) Organize consultation workshops with presence of senior managements of NCC and LGD to sensitize and obtain feedback on drafted recommendations; and
- (vii) Finalize the recommendations, submit them to PMU and facilitate the process of PMU to submit recommendations to concerned wing of LGD.

## **Qualification and Experiences**

22. Graduate in social sciences or similar/relevant discipline with a minimum of 10 years relevant working experience, including at least 5 years experiences working with ULBs and/or relevant government entities dealing with capacity development of ULBs. She/he is required to have decent knowledge on the functions of ULBs, especially on city corporations, and its legal framework. Experience of working with ADB or other donor funded projects will be advantageous.

## **C. Terms of Reference for National Consultants (Non-Key)**

### **(C1) Administration/Account Officer** **Tasks and Responsibilities**

23. Administration/Account Officer will be responsible for carrying out (but not limited) to the following principle tasks in association with other consultants in the consultant team:

- (i) Provide all administrative support to the project and manage the office and all project activities;
- (ii) Prepare, develop, maintain and use an accounting database system to maintain all transaction and procurement records of the NCC under the TA;
- (iii) Set up a project specific bank account (advance account, second generation advance account, and PMU account) for ADB grant in the name of Project and maintain it;
- (iv) Prepare and request payment with appropriate supporting documents to NCC PMU approval authority and ADB following the agreed fund flow and appropriate disbursement categories;
- (v) Track and expedite payments to different parties;
- (vi) Ensure bookkeeping of all expenses, payments and accounts to meet the professional statutory requirements of the government; and
- (vii) Ensure all project financial activities are aligned to ADB and the government disbursement requirement and highest level of integrity is maintained in all financial transactions.

## **Qualification and Experiences**

24. Graduate in Business Administration/Accounting or similar/relevant discipline with a minimum of 10 years relevant working experience, including at least 5 years experiences working with ULBs and/or relevant government entities dealing with capacity development of ULBs. She/he is required to have decent knowledge on the functions of ULBs, especially on city corporations, and its legal framework. Experience of working with ADB or other donor funded projects will be advantageous.

## **IV. REPORTING REQUIREMENTS, TIME SCHEDULE AND DELIVERABLES**

25. The estimated total duration of consulting services will be 30 months from December 2019 to December 2021. The list of deliverables, which the Consultant is expected to producing and corresponding time schedule is outlined in the table below.

**Table 6: Schedule of Deliverables**

<b>Sl. no.</b>	<b>Deliverable</b>	<b>Month of Delivery</b>	<b>Summary of Contents</b>
1	Inception report	Within 30 days of mobilization.	Initial findings, detailed approach and methodology, detailed work plan.
2	Capacity building plan for NCC officials up to 2022 (during TA consultancy period)	Within 3 months after mobilization	Vision, goals and objectives with strategic components, including plan, methodologies of implementation and monitoring/evaluation. Recommendations on improving organizational framework for NCC are developed, approved by management in NCC, and submitted to LGD.
3	Recommendations on organizational structure of NCCs	Within 18 Months	Recommendations on organizational structure of NCC to improve service delivery, including personnel allocation and optimal human resource arrangement, with implication of required budget.
4	Semiannual progress report	Within 45 days after the end of each period	Report on the progress of activities, issues, risks, actions to be taken to mitigate under the TA consultancy. The progress report should list activities, output and impact and draw lessons learned.
5	Mid-term progress report	Within 15 months	Report on the progress of activities, issues, risks, actions to be taken to mitigate under the TA consultancy
6	Capacity building plan for NCC officials up to 2025 (after TA consultancy period)	Within 28 months after mobilization	Vision, goals and objectives with strategic components, including plan, methodologies of implementation and monitoring/evaluation.
7	Draft completion report	Within 29 months	Prepare the draft completion report of the TA consultancy activities under the TOR and the summary of impact and lessons learned
8	Completion report	Within 30 months	Prepare the TA consultancy completion report incorporating comments from client and ADB.

ADB = Asian Development Bank, NCC = Narayanganj City Corporation, LGD = Local Government Division, TA = technical assistance,



26. In addition to above consultant will submit yearly progress reports at the end of each year during the course of assignment mentioning status/progress of work, activities performed, and issues related to assignment during the month.

## **V. CLIENT'S INPUT AND COUNTERPART PERSONNEL**

### **A. Services, facilities and property**

27. NCC will provide the office space within its premise, but the consultant will be responsible for the cost of utilities (electricity, gas, water, etc.). Consultant will also be provided with previous available reports, data, and information relevant to their assignments. Necessary office equipment, such as computers should be procured under the consulting services budget.

28. LGD/NCC will provide to the consultant assistance which include making available all relevant documents, and assistance for obtaining work permit, visa and other similar documents as well as exemption and privileges, if any.

### **B. Professional and support counterpart personnel**

29. NCC will provide all necessary counterpart support on a no-cost basis to the consultant's team. All the counterpart support, facilities and information would be provided by the government in kind and would be free of charge to the consultant.

## **VI. CLIENT WILL PROVIDE THE FOLLOWING INPUTS, PROJECT DATA AND REPORTS TO FACILITATE PREPARATION OF THE PROPOSALS**

30. LGD will provide the following upon request of the bidder during proposal preparation:

- (i) Reports, guidelines and manuals developed by package B, FMMFC, under UPEHSDP as below:
  - (a) Holding tax management manual report;
  - (b) Accrual accounting feasibility report;
  - (c) Guidelines for preparation of budget and budgetary control mechanism;
  - (d) Guidelines for asset register, stores and inventory;
  - (e) Accounting manual;
  - (f) Procurement manual;
  - (g) Internal audit manual; and
  - (h) Uniform chart of accounts for city corporations.
- (ii) Inception, mid-term and final report of service package 12A of package B (FMMFC) under UPEHSDP.

### Objective of the Capacity Building

Objective of the capacity building is to support NCC to achieve the following points:

1. Staffing
  - (i) Terms of Reference (TORs) for financial staff are available and in line with their duties.
  - (ii) Financial staff is aware of national and Asian Development Bank's (ADB) Anticorruption Policy and Whistleblowing Mechanisms.
2. Internal controls
  - (i) Sufficient internal controls are in place including the following:
    - (a) Adequate segregation of duties - In particular, the following functional responsibilities are performed by different persons: (i) authorization to execute a transaction, (ii) recording a transaction, (iii) custody of assets involved in the transaction, (iv) reconciliation of bank accounts and subsidiary ledger, as well as ordering, receiving, accounting for and paying for goods and services.
    - (b) The level of authorization follows the agreed delegation of authority as per the entity's rules, regulations and the financial management manual in line with the individual staff TORs.
    - (c) Periodic reconciliations including reconciliation of bank accounts statement and project's accounts receipts and payments statement well as reconciliation of project's system payroll and physical payroll.
    - (d) All data, records and assets should be kept in a physically secure environment.
    - (e) Financial reports including periodic cash forecasts and contract register, are periodically analyzed and reviewed by the entity's management.
3. Accounting
  - (i) All financial records are orderly filed and stored physically safe location (flood and fireproof) and daily/weekly electronic back up is maintained on an external server or hard drive and updated regularly.
4. Asset management
  - (i) A fixed asset register is maintained and regularly updated, all assets are tagged with a unique id number and an annual physical inventory verification is conducted annually and the findings are duly documented and reported to the management.
5. Financial reporting
  - (i) Financial reports are prepared in sufficient detail and a timely manner and used by the management. Minimum ABD reporting requirements of the annual project financial statements are listed below:
 

Under cash basis:

    - (a) Statement of cash receipts and payments – the cash receipts must be separated by financing source and payments by expenditure categories;
    - (b) Statement of budgeted versus actual expenditures (variance report) - Remember also to briefly explain any significant variations in the notes of the financial statements;

- (c) A statement of imprest/advance account (where applicable);
- (d) A summary statement of expenditures (where applicable) – this statement should disclose a summary of all expenditures claimed under statement of expenditures by withdrawal application; and
- (e) Significant accounting policies and explanatory notes.

Under accrual basis:

- (a) Statements of financial position (balance sheet), financial performance (income statement), cash flows, changes in net assets/equity (where applicable), imprest account (where applicable);
  - (b) Summary statement of expenditures (where applicable);
  - (c) Statement of budgeted versus actual expenditures;
  - (d) Significant accounting policies and explanatory notes; and
  - (e) Any additional schedules agreed.
- (ii) Budgeted amounts are compared with the actual expenditures; and
  - (iii) Physical progress is compared with the financial performance.

6. Internal and external audit arrangements

- (i) Support NCC in being audited annually according to internal standards on auditing, and
- (ii) Support NCC that internal control issues identified by the auditors are being followed up by the management of NCC and these are timely resolved.

## **EXECUTING AGENCY'S PROGRESS REPORT CONTENTS**

### **A. Introduction and Basic Data**

- (i) loan number, project title, borrower, executing agency, implementing agency;
- (ii) total estimated project cost and financing plan;
- (iii) status of project financing including availability of counterpart funds and cofinancing;
- (iv) dates of approval, signing, and effectiveness of Asian Development Bank (ADB) loan;
- (v) original and revised (if applicable) ADB loan closing date and elapsed loan period based on original and revised (if applicable) loan closing dates; and
- (vi) date of last ADB review mission.

### **B. Utilization of Funds**

- (i) cumulative contract awards financed by the ADB loan, cofinancing, and counterpart funds (commitment of funds to date), and comparison with time-bound projections (targets);
- (ii) cumulative disbursements from the ADB loan, cofinancing, and counterpart funds (expenditure to date), and comparison with time-bound projections (targets); and
- (iii) re-estimated costs to completion, need for reallocation within ADB loan categories, and whether an overall project cost overrun is likely.

### **C. Project Purpose and Implementation Progress**

- (i) status of project scope and implementation arrangements compared with those in the report and recommendation of the President (RRP), and whether major changes have occurred or will need to be made;
- (ii) an assessment of the likelihood that the project outcome and outputs will be achieved in part or in full, and whether remedial measures are required based on the current project scope and implementation arrangements;
- (iii) an assessment of changes to the key risks that affect achievement of the outcome and outputs, and quantifiable implementation targets;
- (iv) other project developments, including monitoring and reporting on gender, safeguards (environment, resettlement and tribes, minor races, ethnic sects and communities<sup>1</sup>), and social safeguards requirements that might adversely affect the project's viability or accomplishment of project outcome;
- (v) assessment of project implementation arrangements such as establishing, staffing, and funding of the project management office or project implementation units;
- (vi) information relating to the executing agency's internal operations that impacts on implementation arrangements or project progress;
- (vii) assessment of the progress of each implementation activity, such as:
  - (a) recruitment of consultants and their performance;
  - (b) procurement of goods and works (from preparation of detailed designs and bidding documents to contract awards);

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<sup>1</sup> Groups or population identified as indigenous peoples within the context of ADB's Safeguard Policy Statement will be referred to in this document as tribes, minor races, ethnic sects and communities (following the request of the Government of Bangladesh).

- (c) the performance of suppliers, manufacturers, and contractors for goods and works contracts; and
- (d) comparison with the original implementation schedule—quantifiable and monitorable target, (include charts such as bar or milestone to illustrate progress and actual versus planned expenditure, S-curve graph showing the relationship between physical and financial performance, and actual progress in comparison with the original schedules and budgets). The reference framework or guidelines in calculating the project progress including examples are shown in Attachment.

#### **D. Compliance with Covenants**

- (i) the borrower's compliance with policy loan covenants such as sector reform initiatives and executing agency reforms, and the reasons for any noncompliance or delay in compliance;
- (ii) the borrower's and executing agency's compliance with financial loan covenants including the executing agency's financial management, and the provision of audited project accounts or audited agency financial statements; and
- (iii) the borrower's and executing agency's compliance with project-specific loan covenants associated with implementation, safeguards (environment, resettlement, and tribes, minor races, ethnic sects and communities), social and gender dimensions, and other requirements specified in the loan agreement. Sections VII. Safeguards and VIII. Gender and Social Dimensions of the project administration manual.

#### **E. Major Project Issues and Problems**

Summarize the major problems and issues affecting or likely to affect implementation progress, compliance with covenants, and achievement of project outputs and outcome, including the findings of any project procurement-related review that may have been undertaken. Recommend actions to overcome these problems and issues (e.g., changes in scope, changes in implementation arrangements, and reallocation of loan proceeds).

## **FRAMEWORK AND GUIDELINES IN CALCULATING PROJECT PROGRESS**

### **A. Introduction**

1. Physical and pre-commencement activities are considered in calculating project implementation progress. These activities, which may include recruitment of consultants, capacity building, detailed design, preparation of bid and prequalification documents, etc., could constitute a significant proportion of overall implementation and should be counted.

2. Each activity in the implementation schedule will be weighed according to its overall contribution (using time as a reference) towards project implementation. These weights will then be used to calculate the percentage of project progress along the entire time span of the project. This is to provide a holistic view of the pace of implementation.

### **B. Framework for Compiling Activity List and Assigning Weights**

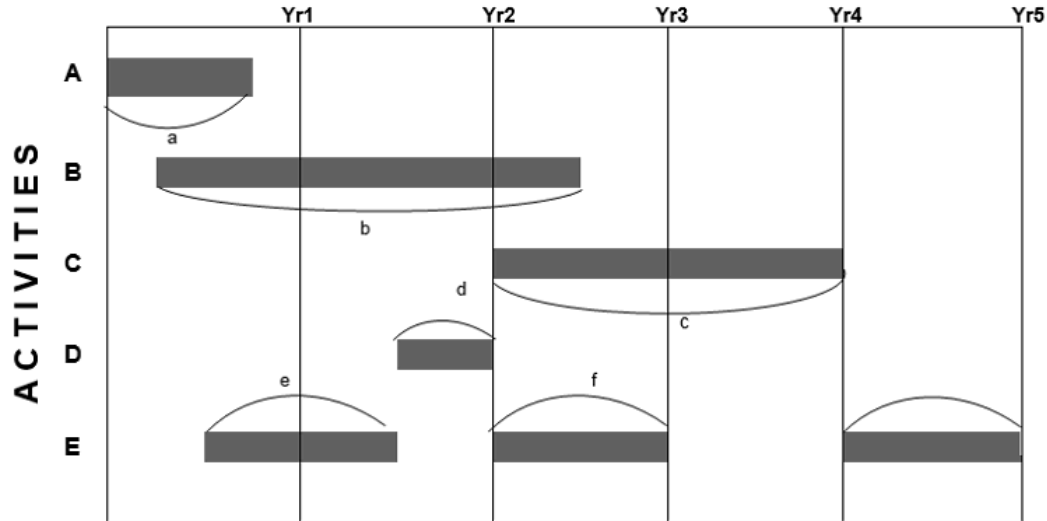
3. The sector division should identify major implementation activities and include them in the implementation schedule, which is included in the PAM. The implementation schedule should follow the critical path of the project's major activities in project implementation taking account of various country, sector, and project constraints.

4. Corresponding weights for each activity should be assigned to ensure that project progress measures the percentage of achievement (nonfinancial except when the project has credit components) for all events during the entire duration of the implementation schedule. To avoid disproportionate assignment of weights, to the extent possible, these should be evenly distributed along the implementation schedule. When activities are concurrent, avoid "double counting."

5. Once all activities are identified and corresponding weights assigned, project progress should be calculated using the following steps:








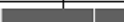








- (i) Determine the actual percentage progress (nonfinancial) of each activity;
- (ii) Multiply these percentages by the assigned weight of each activity to arrive at the weighted progress; and
- (iii) Add up the resulting weighted progress of all activities to determine the project progress.

6. Figure 1 provides an illustration of the calculation using a generic sample implementation schedule and Figure 2 is a specific example in the education sector.

**Figure 1: Implementation Schedule with Activities and Weights**

1. Sum of all weights should equal 100 percent ( $a+b+c+d+e+f+g = 100\%$ ).
2. When calculating the percentage of "project progress," all completed activities should be counted as accomplished, regardless of when they were scheduled to be completed. For example, when calculating the percentage of "project progress" after year 3, if activity D is completed in year 3 rather than in year 2, it should still be included in the computation.
3. Total weight of each activity is as follows: Activity A = a; Activity B = b; Activity C = c; Activity D = d; and Activity E = e+f+g.
4. Project progress of a project is the summation of the actual percentage of progress for each activity multiplied by the total weight of each activity.

**Figure 2: Sample Implementation Schedule**

Activities	Year 1	Year 2	Year 3	Year 4	(a) Assigned Weight	(b) Actual Progress	(a) x (b) Weighted Progress
Establish PIU					5%	100%	6%
Establish Accreditation Board, etc.					5%	0%	0%
Appoint Staff and Budget					4%	75%	3%
Adopt Architecture Plans					2%	100%	2%
Shortlist Consulting Firms					6%	100%	6%
Prepare Fellowship Program					6%	76%	4%
Prepare Civil Works Tendering					30%	0%	0%
Civil Works: Classrooms, Dorms, etc.					6%	0%	0%
Procurement of Furniture and Equipment					16%	10%	2%
Field Work of Consultants					7%	0%	0%
Provide Fellowships					6%	0%	0%
Conduct Study Tours					6%	0%	0%
Provide Curriculum Standards					6%	0%	0%
				Total Weight	100%		
				Imp. Progress			24%

Where, (a) is the assigned weight for each activity, (b) is the actual progress of each activity, and (a) x (b) is the weighted progress for each activity. Project progress is the sum of all weighted progress for each activity.