



# GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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## PART I: PROJECT INFORMATION

|                             |   |                              |                          |
|-----------------------------|---|------------------------------|--------------------------|
| Project Title:              | Promoting Low Carbon Urban Development in Bangladesh  |                              |                          |
| Country(ies):               | Bangladesh  | GEF Project ID: <sup>1</sup> | 9368                     |
| GEF Agency(ies):            | UNDP  | GEF Agency Project ID:       | 5571                     |
| Other Executing Partner(s): | Ministry of Power, Energy and Mineral Resource (MoPEMR)   | Submission Date:             | 2016-01-11               |
|                             |   | Re-submission Date:          | 2016-02-24               |
|                             |   | Resubmission Date:           | 2016-04-06               |
| GEF Focal Area(s):          | Climate Change  | Project Duration (Months)    | 60                       |
| Integrated Approach Pilot   | IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/> | Corporate Program: SGP       | <input type="checkbox"/> |
| Name of parent program:     | [if applicable]   | Agency Fee (\$)              | 357,940                  |

### A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES<sup>2</sup>

| Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs) | Trust Fund | (US\$)                |              |
|--|------------|-----------------------|--------------|
|  |            | GEF Project Financing | Co-financing |
| CCM-2 Program 3  | GEFTF      | 3,767,810             | 24,255,800   |
| Total Project Cost   |            | 3,767,810             | 24,255,800   |

### B. INDICATIVE PROJECT DESCRIPTION SUMMARY

| Project Objective: To reduce GHG emissions by enabling investments in renewable energy, energy-efficiency, and waste-to-energy applications to support urban development in Bangladesh |                             |   |  |            |                       |              |
|--|-----------------------------|---|--|------------|-----------------------|--------------|
| Project Components   | Financing Type <sup>3</sup> | Project Outcomes  | Project Outputs  | Trust Fund | (US\$)                |              |
|  |                             |   |  |            | GEF Project Financing | Co-financing |
| 1. City level integration of low carbon urban development plans and /or programs   | TA                          | Low carbon development initiatives are integrated at city level to reduce GHG emissions | <ul style="list-style-type: none"> <li>Identified cost effective waste-to-energy, energy efficiency and renewable energy interventions in selected cities Dhaka, Chittagong, Gazipur and Khulna</li> <li>Established coordination committee in each city to ensure integration of low carbon principles in City Plans</li> <li>Low carbon strategies and technology applications incorporated in the City Corporation Plans of Dhaka, Chittagong, Gazipur and Khulna Cities</li> </ul> | GEFTF      | 1,076,000             | 6,926,000    |
|  |                             | Buildings and public lighting in cities comply  | <ul style="list-style-type: none"> <li>City corporation bylaws incorporate energy efficiency in public lighting and Energy Performance Index (EPI) as per Bangladesh National Building Code</li> </ul>   | GEFTF      | 358,000               | 2,554,000    |

<sup>1</sup> Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.

<sup>2</sup> When completing Table A, refer to the excerpts on [GEF 6 Results Frameworks for GETE, LDCF and SCCF](#).

<sup>3</sup> Financing type can be either investment or technical assistance.

|   |      |   |  |       |                  |                   |
|---|------|---|--|-------|------------------|-------------------|
|   |      | with energy efficiency standards  | (BNBC) for buildings<br><ul style="list-style-type: none"> <li>Government procurement schemes for public sector commercial buildings<sup>4</sup> that include EPI in their procurement and EIA guidelines</li> </ul>   |       |                  |                   |
| 2. Implementation of selected low carbon interventions in cities including piloting innovations | Inv. | Increased investments in EE and RE projects in cities                           | <ul style="list-style-type: none"> <li>Implemented energy efficient street lighting schemes (200,000 units LED lamps for replacement of 150 W HPS lamps and 200,000 units LED lamps for replacing 250 W HPS lamps), in selected cities in collaboration with private sector (as part of available CSR funds)</li> <li>Implemented city corporation building bylaws on energy efficiency in the selected cities</li> <li>Implemented solutions for solid waste management including Integrated Resource Recovery Centers (IRRC), waste-to-energy and 4R (reducing, reusing, recycling, and recover) wherein some projects developed in Public-Private-Partnership (PPP) modality</li> </ul> | GEFTF | 1,435,000        | 9,644,800         |
| 3. Sensitizing City Dwellers on Greening Efforts  | TA   | Active involvement of the majority of city residents in green city development. | <ul style="list-style-type: none"> <li>Completed sensitizing events for city dwellers and follow-up actions</li> <li>Completed workshops on lessons learnt for government, city corporations, NGOs and CBOs on waste-to-energy, and energy efficiency solutions</li> <li>Completed Urban Forum event every year involving multi-stakeholders</li> <li>Codified information and knowledge to support informed decision making process, provide public with information on green urban development projects, investments mobilized, GHG emissions reductions achieved</li> </ul>   | GEFTF | 719,390          | 4,631,000         |
| Subtotal  |      |   |  |       | 3,588,390        | 23,755,800        |
| Project Management Cost (PMC) <sup>5</sup>  |      |   |  | GEFTF | 179,420          | 500,000           |
| <b>Total Project Cost</b>   |      |   |  |       | <b>3,767,810</b> | <b>24,255,800</b> |

**C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE**

| Sources of Co-financing | Name of Co-financier | Type of Co-financing | Amount (\$) |
|-------------------------|----------------------|----------------------|-------------|
| Recipient Government    | MoPEMR               | Grants               | 23,084,800  |

<sup>4</sup> **Commercial Buildings** – The government, public and private sector buildings with commercial use like hospitals, hotels, office buildings, shopping malls, airports, schools, etc. qualify as commercial buildings under BNBC.

<sup>5</sup> For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

|                           |  |         |                   |
|---------------------------|--|---------|-------------------|
| Recipient Government      | MoPEMR   | In-kind | 86,000            |
| Recipient Government      | Department of Environment  | In-kind | 57,000            |
| Beneficiaries             | City Corporation Dhaka   | Grants  | 57,000            |
| Beneficiaries             | City Corporation Dhaka   | In-kind | 57,000            |
| Beneficiaries             | City Corporation Chittagong                                      | Grants  | 57,000            |
| Beneficiaries             | City Corporation Chittagong                                      | In-kind | 57,000            |
| Beneficiaries             | City Corporation Khulna  | Grants  | 144,000           |
| Beneficiaries             | City Corporation Khulna  | In-kind | 141,000           |
| Beneficiaries             | City Corporation Gazipur   | Grants  | 144,000           |
| Beneficiaries             | City Corporation Gazipur   | In-kind | 144,000           |
| Beneficiaries             | MoLGRD   | Grants  | 57,000            |
| Beneficiaries             | MoLGRD - Department of Environment                               | In-kind | 57,000            |
| Others                    | Bangladesh Urban Forum   | Grants  | 28,000            |
| Others                    | United International University                                  | In-kind | 28,000            |
| GEF Agency                | UNDP   | Grants  | 57,000            |
| Private Sector            | To be decided based on number of interested Parties at PPG phase |         |                   |
| <b>Total Co-financing</b> |  |         | <b>24,255,800</b> |

**D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS**<sup>a</sup>; N/A

a. Refer to the [Fee Policy for GEF Partner Agencies](#).

**E. PROJECT PREPARATION GRANT (PPG)**<sup>6</sup>

Is Project Preparation Grant requested? Yes  No  If no, skip item E.

**PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS**

| Project Preparation Grant amount requested, US\$ |            |                         |                | 150,000              | Agency Fee, US\$ |                             |                 | 14,250 |
|--|------------|-------------------------|----------------|----------------------|------------------|-----------------------------|-----------------|--------|
| GEF Agency                                       | Trust Fund | Country/Regional/Global | Focal Area     | Programming of Funds | (US\$)           |                             |                 |        |
|  |            |                         |                |                      | PPG (a)          | Agency Fee <sup>7</sup> (b) | Total c = a + b |        |
| UNDP   | GEF TF     | Bangladesh              | Climate Change | (select as applicabl | 150,000          | 14,250                      | 164,250         |        |
| <b>Total PPG Amount</b>                          |            |                         |                |                      | <b>150,000</b>   | <b>14,250</b>               | <b>164,250</b>  |        |

**F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS**<sup>8</sup>

| Corporate Results   | Replenishment Targets   | Project Targets   |
|---|---|---|
| 4. Support to transformational shifts towards a low-emission and resilient development path | 750 million tons of CO <sub>2e</sub> mitigated (include both direct and indirect) | 857,500 tonnes of CO <sub>2</sub> mitigated over the economic useful lifetime of the interventions. |

<sup>6</sup> PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to \$50k for PF up to \$2m (for MSP); up to \$100k for PF up to \$3m; \$150k for PF up to \$6m; \$200k for PF up to \$10m; and \$300k for PF above \$10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

<sup>7</sup> PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

<sup>8</sup> Provide those indicator values in this table to the extent applicable to your proposed project. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and/or SDCF.

## **PART II: PROJECT JUSTIFICATION**

### **1. Project Description.**

The proposed project targets the Cities, Dhaka, Chittagong, Gazipur and Khulna in piloting initiatives towards low carbon development path by reducing GHG emissions generation. The project influences city government planners and decision makers to integrate and implement energy efficient street lighting, building bylaws, and effective solid waste management in collaboration with private sector in their city corporations development plans.

The total project budget is US\$ 28,023,610. The expected GEF grant support is US\$ 3,767,810 and the co-financing is US\$ 24,255,800. The Ministry of Power, Energy and Mineral Resource (MoPEMR) will provide bulk of the co-financing i.e. US\$ 23,084,800. A major portion of this co-finance is public investment towards local governments/city corporations combined with private investments. The project is expected to leverage private sector investments, which will be assessed during the PPG phase.

#### **1.1. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed**

The cities of South Asia in general and Bangladesh in particular are growing at an unprecedented rate, and there is potential to steer this development onto a sustainable and low carbon path. Promotion of low-carbon urban development is instrumental to add value to help cities earn win-win benefits or co-benefits by integrating energy efficient sustainable initiatives and green development principles into city planning. Population growth is rapid and adding pressure on limited available land resource. Rapid urbanization is expected to continue which is certainly a threat, but there are opportunities as well. At the national level addressing urban waste is a priority. Bangladesh Climate Change Strategy and Action Plan (BCCSAP) was built on six pillars where mitigation and low-carbon development is one of the six pillars. Under mitigation and low-carbon development, BCCSAP has identified following key areas i.e. (i) afforestation and reforestation; (ii) renewable energy development, energy efficiency; (iii) gas exploration and reservoir management; (iv) urban waste; and (v) lower emissions from agriculture. Low-carbon resilient development seeks to link policy, plan, programme and capacity development objectives in the context of national development. There has been little progress to date in meeting the targets and the finance allocation is inadequate.

Bangladesh's urban population has been growing at a yearly average rate of 6 percent since independence in 1971, resulting in the urban population growing six-fold. Bangladesh is experiencing a very high rate of urbanization. As per recent UN data, approximately 25 percent of Bangladesh's population currently lives in urban areas. Of this urban population, more than half lives in the four largest cities: Dhaka, Chittagong, Khulna and Rajshahi. The key drivers for urbanization in Bangladesh are: (i) countrywide demographic transition from rural areas to urban centers; (ii) displaced/landless people<sup>9</sup> migration to urban areas; (iii) conversion of rural growth centers into urban areas; (iv) agriculture sector is no longer able to absorb the surplus labor force entering the economy every year, and many from this sector move to cities where the economic opportunities are much better<sup>10</sup>, and (v) lack of educational, health facilities, social and cultural opportunities in rural areas. Growth of urban GDP is proportionately related to urbanization growth in Bangladesh. Dhaka is a mega city, being greatly impacted as it contributes to about 13% of the country's total GDP. Much of the organized service sector (government, banking, construction, and trade) is also concentrated in Dhaka.

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<sup>9</sup> Mainly these are people affected by natural disasters and persistent river erosions.

<sup>10</sup> The country's economic growth has spurred migration of people from rural areas to urban areas where better employment opportunities are available. For example, economic opportunities provided by the garments industry have made possible for people to earn more incomes. The garments industry alone is responsible for almost 80% of Bangladesh's export earnings.

A number of assessments were conducted in recent years to identify emerging key urban issues at city level. The issues identified are: (a) poor urban planning and management, (b) lack of coordination amongst agencies, (c) governance crisis further exacerbated by political turmoil, (d) inadequate solid waste management leads to environmental issues such as pollution, and (e) rapid growth of slums and squatter settlements that exert pressure on land, and housing. Further, the impact of climate change will accelerate Bangladesh's ongoing urbanization as well as deepen the scale and severity of urban poverty.

The following are manifestations of the emerging urban issues in Bangladesh that have impacts on energy demand and GHG emissions generation.

- Agriculture sector activities has fallen sharply and the excess labor force in this sector has to be accommodated in other sectors, such as in the manufacturing and services sector. Most of the establishments in the manufacturing and services sectors are in the urban areas. The change in trend in economic activities have influenced the migration of people from the rural areas to urban areas where increased production and employment opportunities are present, apart from the improved and better infrastructures and services.
- In response to the rapid urbanization and urban development, the delegation of powers, resources and responsibilities were given to the local governments (e.g., municipalities) to coordinate among relevant government institutions the provision of improved services. However, this is not happening due to a poor coordination among institutions.
- People in vulnerable communities such as those living along coastal areas and riverbanks tend to migrate to urban centers to avoid natural disasters and climate change induced hazards such as soil erosion.
- Existing overloaded urban infrastructures and systems that need to be improved and expanded.
- Rising middle class in cities, and expansion of metropolitan cities in an uncoordinated and non-integrated manner.

The abovementioned items are evidences of a burgeoning development of Bangladeshi cities, albeit in an uncoordinated and unorganized manner, that has brought about higher energy consumption and increased GHG emissions, as well as deteriorating urban air quality, in the major cities of Bangladesh. These are brought about by persistent barriers to achieving sustainable low carbon urban development, which are described below, along with the immediate and root causes.

- **Absence of appropriate policies and regulatory frameworks for supporting sustainable and low carbon development of cities:** Cities in Bangladesh have to periodically prepare a structure plan and urban area plan. These are prepared by the City Corporations and Urban Development Authorities respectively. The current city plans have been, as in the past, formulated based on the traditional urban development planning process and definitely do not make use of low carbon development principles. The existing plans have not adequately address energy and environment issues. Energy efficiency in public lighting, as well as in building and other urban systems (e.g., water supply, transport, land use, etc.) is not addressed. Urban waste management issues are addressed in the traditional way, and opportunities for waste-to-energy applications are not considered. As a result, landfill areas are overburdened and such situation has greatly affected the waste management and cleaning efforts of major cities in the country. In regards to city plans implementation, a much better delivery remains to be desired. In general, less than 10% of the planned actions are implemented. Even though some successful pilots on the application of energy efficiency technologies and practices, as well environment-friendly urban waste management schemes have been implemented, these are not replicated nor scaled-up. These situations are brought about by the absence of concrete policies and associated regulatory frameworks that are supportive of sustainable and low carbon urban development. This in turn is caused by a number of inter-related issues such as the fact that in general city planning is by and large still based on the traditional urban development principles; lack of technical knowhow in integrated urban development planning, inadequate financing of the these schemes due to the lack of support from local government officials, and the low

level of confidence by the private sector (that is capable of providing financing) in venturing into public-private partnerships with city governments.

- **Inadequate environmental regulations and coordination for management of solid waste and other industrial waste:** Waste management is a big issue in cities in Bangladesh that need to be addressed on priority. Open dumping of all types of solid waste, and open burning of these in overflowing waste dumps is a common sight in many cities. Such open burning releases toxic gases, particulate matter, short-lived climate forcers (SLCF) such as black carbon and hazardous air pollutants. Despite the existence of environmental regulations, proper solid waste management in major cities in Bangladesh remains to be desired. The lack of proper enforcement of the already inadequate environmental regulations stemming from the absence of proper coordination between regulatory authority, city corporations and city development authorities. Responsible authorities do not have the capacity and technical know-how for the implementation and operation of solid waste management infrastructures such as landfills, waste-to-energy technologies for solid waste, and recycling.
- **Poor coordination between the agencies in-charge of the implementation of the Bangladesh National Building Code (BNBC) and city corporation bylaws for promoting energy efficiency in buildings, and public lighting:** Currently, the BNBC is being updated with energy efficiency codes. Based on experience in the past, although codes/guides like the BNBC emphasizes their specific objects (in this case energy efficiency), when it comes to implementation at the national and local levels is in general lax. Currently, codes such as the BNBC do not incorporate principles of sustainable and environment-friendly designs and operations. The same is true with the city corporation bylaws. For example, the Dhaka city corporation bylaws were revised recently but there was no emphasis on energy efficiency in the city building code, as well as in public lighting and other urban systems. This problem is mainly due to the lack of coordination between the relevant authorities responsible for the city corporation building bylaws and the agency that is mandated to implement the building code. Moreover, city corporation officials do not have technical understanding of the code and responsibilities for enforcement, and proper monitoring of code compliance.
- **No upscaling of proven interventions:** Sustainable low carbon systems have already been piloted and demonstrated in cities in Bangladesh. Among these is the highly successful IRRC scheme of Waste Concern in Dhaka. IRRC has provided solutions for decentralized waste management for cities in Bangladesh and creates opportunity for public-private partnerships. There exists high potential to expand IRRC to other locations in Dhaka as well as to replicate IRRC across other cities. Despite these opportunities, the IIRC scheme has not been replicated nor scaled-up in other cities in the country, let alone Dhaka. The reasons for this is manifold. There is the lack of technical expertise in the city corporations to ensure the sustainable implementation and monitoring of these schemes. The non-availability and rather limited accessibility of finance to replicate and scale-up even proven schemes such as the IRRC is a major reason for the absence of replication and upscaling of proven schemes. Moreover, the private sector is also wary about investing in this kind of initiatives, which are often perceived to be risky investments.
- **Lack of awareness among city dwellers on low carbon city development:** Without the involvement of the people living in the cities and without their cooperation, city corporations cannot achieve the targets set for low-carbon development. Making matters worse is the lack of effort by the city corporations, municipal and development authorities to sensitize city dwellers at least in Dhaka city to make people more aware of the need to, and benefits of, implementing low carbon (“green”) schemes and practicing environment-friendly and energy efficient measures and techniques in helping create and sustain a livable city. This situation of low level of awareness and attitude towards green initiatives in cities are by and large due to the rather top down approach employed by the city authorities in past programs on cleaning and greening efforts in cities and lack of participation of the citizens, youth, women and other city dwellers in such city development initiatives.

- Absence of a common platform for mutual exchange of ideas, best practices and policy discussion on urbanization and urban development:** There is no common forum to share experience and promote good practices among urban sector stakeholders and to contribute to the formulation and implementation of urban sector management policies for developing better, safer and livable cities with the full cooperation of various stakeholders. The Bangladesh Urban Forum (BUF) was initiated in the year 2011 and created a space for broad-based stakeholders and actors in urban sector to come together and discuss efforts in addressing issues related to urbanization. So far, only one BUF event was conducted. Apart from that, there are no other forum among cities to discuss urban development issues, let alone sustainable low carbon urban development. This stems from the rather inadequately informed views and decisions of city authorities in the planning and operation of their cities, the lack of cooperation and coordination among cities, and most likely the lack of understanding and appreciation among the city authorities of the need to, and the benefits of, planning and implementing more environment-friendly, sustainable and low carbon development of cities.

## 1.2. The baseline scenario or any associated baseline projects

There are a number of ongoing projects and programs related to urbanization in Bangladesh. Following table summarizes the ongoing projects and programs that partly address the above-mentioned barriers and facilitate investments in renewable energy, energy-efficiency, and waste-to-energy urban development projects in Bangladesh.

| Baseline Project   | Brief Description  | Implementation Period                                  | Budget (potential co-financing) |
|--|--|--|---------------------------------|
| Urban Partnership Project for Poverty Reduction (UPPR)                             | This project is now graduating to the next phase by integrating low-carbon development options while addressing the issues related to urbanization. New phase “National Urban Poverty Reduction Programme” (NUPRP) 2015-2019 is planned with US\$ 179 million. This NUPRP programme will earmark US\$ 30million co-financing specifically for the proposed GEF project. The key activities that will be subsumed as part of proposed project are development and implementation of pro-poor policies and practices, continuation of urban forums to engage stakeholders, improved living environment through various interventions that embrace public-private partnerships.   | May 2015 – Dec 2019                                    | \$ 30 million                   |
| Third Urban Governance and Infrastructure Improvement (Sector) Project (UGIIP-III) | With the successful implementation of UGIIP-II, phase III was initiated. It is mainly about governance reforms that include citizen participation and integration of the urban poor. More specifically, it will involve energy-integrated infrastructure planning, design, construction, operation and maintenance. Budget of this component is to be subsumed into the proposed GEF project. In this initiative, the poor and excluded groups will be represented in the Ward-Level Coordination Committees (WLCCs) and Town-Level Coordination Committees (TLCCs), which are formal consultative bodies in municipalities. Preparation of poverty reduction action plan (PRAP) and own budget allocation to the implementation of PRAP is a prerequisite for municipalities to receive capital investment support under the project. | Preparatory Technical Assistance approved in July 2014 | \$ 2.1million                   |
| Coastal Towns  | This project of ADB will strengthen climate resilience   | Approved in  | \$ 117.1                        |

| Baseline Project  | Brief Description   | Implementation Period    | Budget (potential co-financing)        |
|---|---|--------------------------|--|
| Environmental Infrastructure Project  | and disaster preparedness in eight vulnerable coastal municipalities (secondary towns) of Bangladesh. This project is in line with the governments' Sixth Five-Year Plan (2011-2015) targets assistance to vulnerable coastal populations requiring investments in climate-resilient infrastructure and urban planning. The main areas of interventions are (a) Improved climate-resilient municipal infrastructure component will be subsumed into the proposed GEF project (b) Strengthened institutional capacity, governance, and awareness, and (c) Project management and administration supported.   | July 2014 run until 2019 | million (of this, \$ 12 million grant) |
| Implementation of Seventh Five Year Plan (2016-2020) to save 15% of primary and secondary energy by 2021                                | Sustainable & Renewable Energy Development Authority (SREDA) is mandated to carry out plans and actions towards the achievement of this target of energy savings. Government prepared an Action Plan to ensure Energy Efficiency & Conservation both at supply and demand side, where a number of interventions have been identified along with a timeframe for its implementation. Further, it is promoting innovative mechanisms to ensure energy efficiency and conservation at industries, residential and commercial buildings and in service sector. Steps have been taken under Sixth Five Year plan to revise the "Building Code" including energy efficiency and solar energy solutions. Seventh Five Year Plan will continue the remaining activities for the next 5 years, and will be subsumed into the proposed GEF project. | 2016-2020                | \$ 50 million                          |
| City Plans are smarter with Low Carbon integration of Dhaka, Gazipur, Chittagong, Khulna, Rajshahi, Rangpur, Barisal, Mymensingh cities | Dhaka Metropolitan Development Plan (DMDP) being implemented by RAJUK. The project addresses Dhaka's urban planning issues at three geographic levels: sub-regional, urban and sub-urban. In the context of DMDP, RAJUK has prepared Detailed Area Plan (DAP) with the provision of the Structure Plan for purposes such as: <ul style="list-style-type: none"> <li>• Provide basic infrastructure and services in the study area through systematic planning.</li> <li>• Create congenial environment to promote economic activities.</li> <li>• Improve drainage system of the area and protect flood flow from encroachment.</li> <li>• Create service centers to enable urban growth.</li> </ul> Some of these ongoing activities will be subsumed as part of proposed GEF project to maximize the impact of proposed project.        | 1995-2015 (ongoing)      | \$ 1 million                           |
| Value for Waste   | This project is supported by Swiss Contact and being implemented by Waste Concern. Under this project, Waste Concern is conducting baseline surveys on solid waste management in Gulshan, Banani and Baridhara area of Dhaka city and identifying ways to promote source separation/segregation of waste as well as recycling of waste.   | 2014-2019                | \$ 2 million                           |
| National projects   | Existing and pipeline projects of Local Government, City Corporations, Municipalities along with budget allocation that fall within the scope of the proposed projects.   | 2015-2019                | \$ 1 million                           |



Apart from these, there are a number of other initiatives from organizations such as BRAC experimenting of waste to energy programme in Gazipur City Corporation. ADB-LGED supported BRT programme intends to support landfill waste to gas for BRT vehicles fueling. As it can be seen in a business-as-usual case, there has been policy harmonization and reform issues as far as development plans for cities are concerned. The existing city plans certainly do not consider low-carbon interventions, as there is no conducive environment for private sector investments and public-private partnerships.

Bangladesh enacted a National Energy Policy in 1996 and established the Sustainable Renewable Energy Development Authority (SREDA) in 2012 as the nodal agency to promote both renewable energy and energy efficiency. While there is a notable stride of the Government of Bangladesh (GoB) to enhance its energy generation, GoB also emphasized on energy efficiency and conservation as a key approach towards attaining long-term energy security. Moreover, as the future energy supply will be more reliant on coal compared to current NG based economy; conservation and energy efficiency measures are given highest priority in the recently finalized Energy Efficiency and Conservation master Plan of 2015. Energy efficiency in buildings and urban infrastructures are considered as a key to achieve GoB's desired goals. These initiatives give special importance to low carbon interventions in policies and plans as well as its mainstreaming but calls for awareness campaigns, the gradual implementation of low carbon programs and capacity building and institutional strengthening to take it forward. The Ministry of Power, Energy & Mineral Resources, Ministry of Local Government & RD&C, Ministry of Public Works/ Housing & Urban Development, Department of Environment, City Corporations, City / Urban Development Authorities, Bangladesh Standards and Testing Institute has responsibility for implementation of Low Carbon urban initiatives, follow-up of National Building Code, EIA, Energy Standards and Energy Performance Index. Therefore, in the baseline scenario, all these initiatives will achieve a limited impact without the GEF assistance to leverage the potential opportunities for scaling-up and mainstreaming to make a difference in terms of reduced energy consumption and GHG emissions reduction in medium and long term.

### **1.3. Proposed alternative scenario, GEF focal area<sup>11</sup> strategies, with a brief description of expected outcomes and components of the project**

It is all the more important and relevant for major cities, such as Dhaka, Chittagong, Khulna and Rajshahi, in Bangladesh to consider integration of green and low-carbon interventions as part of the city plans, particularly in Dhaka city where its plan is due for revision. By having a long-term vision, strategic planning and coordination among various public entities at city level will enable the cities to maximize their economic growth potential. The proper addressing of the issue on how growth centers will be planned and implemented will be facilitated so that they become green, low carbon and sustainable planned development areas. This is also recognizing the fact that it is generally easier and better to start the development of new areas into something that is in line with green, low-carbon and sustainable manner. Dhaka city is one of the least livable cities with the highest population density and vulnerable to climate change impacts is one of the cities that will be considered for transformation to green, low carbon development under this proposed GEF project.

The proposed project is expected to bring about the envisioned alternative scenario in the area of EE and RE applications in Bangladeshi cities in support of urban development. The project will comprise of the following components:

#### Component 1: Integrated low carbon urban development plans and /or programs

This component of the project will address issues concerning the absence of a regulatory framework and policies for utilization of public urban open space, waste minimization, energy efficiency in public lighting and

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<sup>11</sup> For biodiversity projects, in addition to explaining the project's consistency with the biodiversity focal area strategy, objectives and programs, please also describe which [Aichi Target\(s\)](#) the project will directly contribute to achieving.

buildings, and the absence of a common platform at city level for sharing information and experiences/lessons learned on urbanization and urban development. It is comprised of a set of activities that will deliver outputs that will contribute to the realization of two outcomes: (1) Low carbon development initiatives are integrated at city level to reduce GHG emissions; and, (2) Buildings and public lighting in cities comply with existing energy efficiency standards. The first outcome will be achieved through identified cost-effective waste-to-energy, energy efficiency and renewable energy interventions. It is important to establish a coordination committee at each city level to bring all the efforts unified at city level by involving other ministerial departments, public sector and private sector institutions. Activities will be implemented to incorporate low carbon strategies and technology applications in the city corporation development plans. One of the important output to deliver this outcome is Output 1.1, which is for ensuring that the appropriate low carbon technologies (waste-to-energy, energy efficiency and renewable energy) that will be considered by the cities of Dhaka, Chittagong, Gazipur and Khulna will be technically and economically feasible. This output is comprised of evaluation reports on the potentially feasible sites where the appropriate technologies will be applied, feasibility studies for the selected potential sites, and ultimately the recommendations for the line-up of identified, vetted, and confirmed cost-effective projects in the 4 cities that will showcase the design, planning, engineering, installation, and commercial operation of feasible urban system facilities that make use of suitable WTE, EE and RE technologies.

In regards the second outcome, about 40% of primary energy in Bangladesh is consumed in the residential sector, and major part is consumed by electric home appliances. Introduction of EE labeling program is quite effective to promote energy efficiency and conservation (EE&C) in residential sector. Bangladesh Standards and Testing Institution (BSTI) has issued Bangladesh Standards (BDSs) on EE measurement methods, but couldn't issue regulation yet. Energy efficiency standards in Bangladesh are still voluntary and hence not necessarily strictly followed. This outcome will be achieved through integrating BNBC Energy Performance Index (EPI) in city corporation bylaws for buildings and energy efficiency in public lighting. Further, activities will be conducted to ensure public procurement schemes will include guidelines to achieve stated EPI in their procurement and EIA guidelines.

#### Component 2: Implementation of selected low carbon interventions in cities including piloting innovations

The outcome from the delivery of the activities will be increased investments in energy efficiency, renewable energy including waste-to-energy solutions in selected cities. This component is intended to address issues concerning effective management of waste through waste-to-energy technologies such as bimethanation and 4R (reducing, reusing, recycling, and recover) schemes, as well as enhancing energy utilization efficiency in cities through scale up of proven schemes such as energy efficient street lighting (LED/solar PV based lighting) in selected cities in collaboration with private sector (as part of CSR initiatives) thereby increased investments in low carbon technologies. The expected outputs will be delivered through the implementation of the following indicative activities: (1) Implementation of city corporation building bylaws; (2) demonstration of the application energy efficient public lighting (200,000 units each of 250 W and 150 W HPS lamps used in public lighting will be replaced with more energy efficient LED lamps); (3) scale up of IRRCs<sup>12</sup> in collaboration with private sector/NGOs; and, (4) waste-to-energy and 4R (reducing, reusing, recycling, and recover) projects in Public-Private-Partnership (PPP) modality.

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<sup>12</sup> An IRRC (integrated resource recovery center) is a decentralized community-based center specializing in waste treatment. One of its attractive feature of its operation is the close involvement of the surrounding communities. IRRCs promote segregation of waste at the source. Workers collect pre-sorted waste from households, markets and businesses and bring it to the IRRC for processing. The waste is sorted to take out the recyclable materials (e.g., bottles and cans) that can be sold, from the organic waste that are sent to composting to produce organic fertilizer. IRRCs can incorporate various components for treating waste depending on the types of waste that are available. A single center can process between 2 and 20 tons of waste a day, serving a population of 1,000-50,000 people. Lastly, as a paradigm shift in the area of waste management, IRRCs treat waste as a resource from which money can be made.

The EE public lighting demos, as well those on waste-to-energy, and EE and RE technology applications in a city's buildings sector will be carried out with selected private sector entities based on the principle of public-private partnerships. It is expected that, with these successful demonstration plus the conducive enabling conditions that will be established and facilitated (through supportive policies and regulations, capacity development, information and awareness raising campaigns) through the proposed project will not only encourage and motivate other cities and the private sector in these cities to seriously consider, and invest on, the implementation of these technologies to support the achievement of city development needs and objectives. Based on the project proponents and the consultations done with stakeholders from the major cities in Bangladesh, it is expected that these demos will catalyze investments (from city corporations and the private sector in cities) towards the application low carbon technologies in the provision of the necessary climate resilient and energy efficient infrastructures and services for city development.

### Component 3: Sensitizing City Dwellers on Greening Efforts

This project component will comprise of activities that will address coordination issues when it comes to the implementation of BNBC and city corporation bylaws, and sensitize city dwellers and raise their awareness on greening city development. The awareness raising that the project seeks to achieve includes: (1) City residents become consciously aware of the concept of city living that is not only in line with enhanced well-being but also sustainable, resource and energy conserving, and environment friendly; (2) City residents practice the concept of sustainable and low carbon development in their daily lives; (3) City authorities (CDAs, city corporations) formulate policies and decisions that support low carbon urban development; (4) The private sector, NGOs and CSOs work effectively in partnership with CDAs and city corporations along the same mindset of low carbon urban development; (5) City authorities (particularly CDAs) become qualified and skilled in energy-integrated urban development planning, and are knowledgeable about sustainable and low carbon development; and, (6) Knowledge, understanding and application of the new urban development planning and implementation approach are regularly provided and shared among multi-stakeholders (city and municipal corporations, private sector entities, etc.). This component will also contribute to the mutual exchange of ideas, best practices, and policy discussion on urban development. The expected outcome from the delivery of the outputs from the component activities is the active involvement of the majority of city residents in green city development. The proposed outputs are necessary to realize active involvement of the majority of city residents in green city development. This means involvement from the city authorities, the private sector, non-government and civic society organizations, and from the likes of the academe and the general population. Based on the results and lessons learned from previous and ongoing poverty reduction programs/projects in Bangladesh, a series of awareness-raising activities have to be carried out for city dwellers to instil the concept of city living that is not only in line with enhanced well-being but also sustainable, resource and energy conserving, and environment friendly. It is also necessary that such activities have to be supplemented by tangible follow-up actions that will enhance instilling the concept of sustainable and low carbon development in their minds and practice these in their daily living.

The concept of sustainable urban development has to be appreciated and learned by the city authorities (CDAs, city corporations) who will formulate, make the policies and decisions that will support such urban development strategy. Other partners, such as those in the private sector, NGOs and CSOs also have to do the same if they are to work in partnership with city governments. In this regard, appropriate information, communication and education (ICE) activities (e.g., seminar-workshops) on low carbon technologies (e.g., waste-to-energy, energy efficiency and renewable energy technologies) and their applications are necessary to facilitate this.

Since the concepts of energy-integrated urban development planning, sustainable and low carbon development are new to CDAs and city corporations, other forms of ICEs have to be carried out to spread the knowledge and understanding, as well as to share experiences in the application of the new urban development planning and implementation approach. Per the suggestions obtained during the stakeholder consultations, the conduct of annual urban forum events involving multi-stakeholders (city and municipal

corporations, private sector entities, etc.) have to be included as part of the awareness raising and capacity building initiatives.

Moreover, as part of the ICE activities to further enhance the awareness and knowledge of cities/municipalities in low carbon development, all of the information gathered and accumulated in the various awareness raising campaigns, capacity development work, feasibility studies and other research work done by relevant stakeholders and project partners, demonstration and pilots, etc., have to be properly documented and codified to support informed decision making process, provide the public with information on low carbon development projects applicable in cities and municipalities, and the potential benefits from them (in terms of energy and resource savings, as well as GHG emissions reduced), as well as sources of funds for investments on low carbon technologies.

Please refer to Annex A, for further justification of the proposed activities under Component 3.

### ***GEF Focal Area Strategies***

The proposed project is aligned with the GEF-6 Climate Change Strategic Objective 2/Program 3 “Promote integrated low-emission urban systems”. The project’s objective and three components are a good fit for the envisaged CCM-2 outcomes including “Policy, planning and regulatory frameworks foster accelerated low GHG development and emissions mitigation”, and “financial mechanisms to support GHG reductions are demonstrated and operationalized”.

#### **1.4. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing**

In the absence of the project interventions, the planning processes in cities will continue to ignore low carbon development strategies. In recent months, City Development Authority / City Corporations of Bangladesh convened a number of discussions while updating city corporation bylaws to integrate energy efficiency code of Bangladesh National Building Code (BNBC). However, after rounds of discussion and valid inputs of MoPEMR, there was not even a mention of word energy efficiency in the approved bylaws. Cities in Bangladesh are rapidly growing, but the issue of waste-to-energy continues to be ignored because of the complexities. So far there isn’t a single functional sanitary landfill addressing the issue of solid waste management. There are many private sector investors in the country, but they mostly stay on the side lines, in view of the perceived high risks for investment. Therefore, the PPP modality, as a risk sharing modality, is one of the options that could be tested in some of the waste-to-energy projects that are planned in the proposed project.

Further, the proposed project will come up with a number of activities that are additional to the baseline activities in removing the multiple barriers faced by cities in successfully adopting low carbon interventions. A range of possible interventions in renewable energy, energy-efficiency, and waste-to-energy will be identified for low carbon urban development in Bangladesh. The project will directly support cost-effective solutions that are included as part of updated plans.

#### **1.5. Global environmental benefits**

The project will bring about global environmental benefits in terms of avoided CO<sub>2</sub> emissions from the application of specific low carbon technologies that will be designed and demonstrated. The project will directly support cost-effective solutions that are included as part of the updated city development plans that will be prepared with technical assistance from the project. Based on the initial stakeholders consultations, the proposed project will implement waste-to-energy (WTE) solutions through the IRRC scheme; and will carry out demo replacements of High Pressure Sodium (HPS) lamps with LEDs in public lighting (200,000 units of 250 W and 150 W HPS lamps), and energy efficiency technology applications in new buildings in selected cities.

The WTE technology application demos will be partly financed with GEF funds, which will be used for the identified features that will be added into the baseline WTE projects in selected cities. Such additional features will be for enhancing or optimizing the baseline design to improve energy performance and the corresponding CO<sub>2</sub> emission reductions (from displacement of fossil fuel-fired power generation system, and for avoiding potential CH<sub>4</sub> emissions from the decomposition/bio-degradation of poorly disposed wastes. In this regard, the incremental CO<sub>2</sub> emission reductions from the GEF-funded incremental features can be attributed to the GEF investment. The demos on the EE lighting applications in street lighting, and the EE technology applications in new buildings, will showcase the incremental features (enhancements, modifications, etc.) that will be incorporated in the selected baseline street lighting projects<sup>13</sup> and EE building projects<sup>14</sup>. These incremental features in these demos will be financed with GEF funds. In this regard, the incremental CO<sub>2</sub> emission reductions from the GEF-funded incremental features from the EE street lighting and EE building demos can be attributed to the GEF investment.

A detailed line up of confirmed demonstrations will be established during the design stage (i.e., PPG exercise) of the project, including the calculations of the potential direct and consequential CO<sub>2</sub> emission reductions that can be expected from each demo. There may be updates to these interventions proposed at the PIF stage following the detailed analysis during the PPG stage of the potential demos. The detailed selection and estimation of the CO<sub>2</sub> emission reductions (direct and consequential) will be presented in the full size project documentation.

The potential GHG emission reductions (direct and consequential) that can be realized from the envisioned demonstrations that will be carried out under the project is about 857,500 tons CO<sub>2</sub>. This is over the lifetime of the interventions that will be showcased in the demos. In EE street lighting, the estimated number of HPS lamp to LED lamp replacements is 200,000. This will bring about 139,000 MWh/year electricity savings (daily operating hours = 8), and CO<sub>2</sub> emission reductions of about 93,100 tons CO<sub>2</sub>/year (grid emission factor = 0.67 tons/MWh). The lifetime CO<sub>2</sub> emission reduction is about 651,900 tons (7 years economic life). The EE building technologies application demos will be in 12 commercial buildings with a minimum floor area of 1,000 m<sup>2</sup>, and the potential CO<sub>2</sub> emission reductions (assuming average 10 years of economic life of technologies) are expected to be about 5,600 tons<sup>15</sup>. The waste-to-energy demos are expected to contribute at least about 100,000 tons CO<sub>2</sub> emission reductions over a useful lifetime of 10 years.

## **1.6. Innovation, sustainability, and potential for scaling up**

*Innovation:* While project will involve interventions to facilitate and enable the creation of a conducive environment for the implementation of low carbon technologies in urban systems to pave the way for sustainable low carbon urban development, it will also comprise of novel actions that will contribute to the notable achievement of the project's expected outcomes. These novel actions involve the replication and scaling up of proven and operational low carbon technology applications across the country that are applicable in urban development. For example, after a number of test applications, the setting up and operation of IRRCs have been proven to be technically and economically viable in the country as far as municipal solid waste management is concerned. Nevertheless, there are currently no new IRRCs that are established and operated in other cities/towns in the country. Considering the fact that there is enormous replication potential for the IRRC scheme for the cost-effective management of other waste materials, the replication and scaling up of existing IRRCs will be facilitated under this proposed project. The proposed project will expand the scope of IRRCs, to cover other waste-to-energy technologies such as anaerobic digestion. A recent study by Waste Concern indicated the potential mix of solid waste in different municipalities in the country. The scope of IRRC

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<sup>13</sup> City Corporations are currently allocating budgets for energy efficient street lighting projects.

<sup>14</sup> The Bangladesh Government (MoPEMR) will be supporting mandatory installation of solar PV systems in new buildings in urban areas of the country.

<sup>15</sup> This assumes a baseline Energy Performance Index (EPI) in existing commercial buildings in cities of 220 kWh/m<sup>2</sup>, and the targeted EPI is 150 kWh/m<sup>2</sup>.

application in targeted municipalities will be based on the study findings particularly the average calorific value of waste. In this way, suitable technologies will be selected as part of the IRRC scheme to reduce potential cause of failures in previous IRRC scheme implementations. This is one of the critical aspects to be considered in the replication and scaling-up of existing IRRC scheme implementations.

The promotion of further development, establishment and commercial operation of IRRCs is considered one of the novel ideas that will contribute to the notable achievement of the project's expected outcomes. The IRRCs can be designed to incorporate various components for treating wastes. For example, using a biogas digester, IRRCs can treat organic agricultural and market wastes to produce biogas. IRRCs can also take care of used cooking oil and convert it into biodiesel. To make this innovation operational, part of the interventions that will be carried out under the project is the development of the capacities of communities in cities/towns served by IRRCs in implementing solid waste management strategies that are decentralized, pro-poor, and low carbon. Among the beneficiaries are the communities in terms of cleaner and healthier environments; local (city/town) governments in terms of solid waste management cost savings; IRRC investors in terms of significant profits from the recovery of valuable resources from waste through public-private partnership; rural farmers in terms of access to more effective organic fertilizers; and, informal sector tertiary economic activity of waste picking/sorting that provides a steady source of income and improved working conditions for people (especially the indigents) in the communities where the IRRCs will be set-up and operated.

Regarding energy efficiency in public lighting, this needs major improvements in rapidly developing cities of Bangladesh, where there is a huge potential for investments. Although there have been a number of successful demonstrations of energy efficient street lighting in cities, these were never scaled up nor replicated. Another area the proposed project will look at are the latest developments in public lighting systems. This will include, among others, the development and application of procurement guidelines for energy efficient lighting products (e.g., LED lamps) for city corporations. These project interventions will be implemented in public-private partnership modality. The proposed project will work with institutions such as Waste Concern and various other Energy Research Institutions to support innovative application of technologies to promote low carbon urban development in Bangladesh.

*Sustainability:* The proposed GEF project will include the incorporation of low carbon development strategies and technologies in the existing detailed area plans (DAPs) rather than coming up with new DAPs for Dhaka, Chittagong and Khulna. Moreover, the proposed project will link the project interventions with the GoB's Energy Efficiency and Conservation Master Plan for buildings to ensure long-term continuity of the project interventions. The project implementing partner is the MoPEMR, and within this ministry, SREDA<sup>16</sup> is the one responsible for the implementation and sustenance of the interventions on the promotion, demonstration and widespread application of low carbon city development planning and energy efficient design and operation of urban systems. With SREDA's direct involvement in the project, the long-term sustainability of these project interventions can be ensured inasmuch as this is part and parcel of its mandate.

Apart from institutional capacity, the other factors to be considered in ensuring sustainability of this proposed project are those associated with some of the risks that are summarized in Part II, Sec. 4 of the PIF. The stated risks, if not mitigated will definitely impact on the sustainability of whatever frameworks, systems and processes that will be established and operationalized to enable low carbon urban development under the

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<sup>16</sup> Since the COP 21 Paris Climate Agreement, the Government of Bangladesh has embarked on a mission to promote low carbon development and has allocated resources to achieve set targets in the 7<sup>th</sup> Five Year Plan implementation. SREDA is a responsible institution to take forward this mission. In this regard, SREDA promotes sustainable energy and builds an energy conscious nation to ensure energy security and to reduce carbon emission. This nodal agency of the MoPEMR has developed a roadmap for achieving its set goals of promoting, implementing and sustaining initiatives for achieving low carbon development. It works with various institutions in the country i.e. GIZ, JICA, IDCOL and other private sector entities to take forward the issue of sustainability of various low carbon initiatives. SREDA is the only national government agency for policy, regulations, coordination and implementation in partnership with public, private and development partners as far as renewable energy and energy efficiency are concerned.

project. These include: (a) Energy efficiency, renewable energy and waste-to-energy interventions remain non-priority areas for City Corporations; (b) No private sector institution comes forward to engage with the city/municipal government in the provision of urban services (e.g., waste management) through a public-private partnership; and, (c) Major adverse economic conditions force up interest rates and/or curtail bank lending for a significant period.

In regards the IRRC business case that will be promoted, supported and advanced under the project, the factors that have to be considered to ensure the sustainability of these centers include: (1) level of community awareness; (2) financing and cash flow management; (3) level of household/community participation; (4) level of waste collection; (5) extent of engagement of the informal sector; (6) level of human capacity in the communities considering the range of stakeholders that are involved; and, (7) level of regulatory and enforcement systems. Effective partnerships between diverse stakeholders are essential for the long-term sustainability of waste to resource initiatives such as the IRRC concept.

*Potential for Scaling-up:* There exists a large potential for improving the energy efficiency in the design and operation of buildings, as well as in public lighting systems in cities in Bangladesh. These opportunities have not been fully exploited so far in any of the baseline projects that are considered in this project. The proposed project will facilitate increased investments in low carbon technologies through the identification of appropriate institutions to implement these through a public-private partnership modality. In the buildings sector, it was assessed that nearly 50% of the total energy is consumed in air conditioning and 10-30% by lighting systems. A minimum of 36% direct reduction in energy consumption can be realized just by the replacement of existing non-energy efficient appliances/equipment used in buildings with energy efficient ones. Each City Corporation has substantive investments for waste management. Through the technical assistance activities that will be carried out under this proposed project, the demonstration of a sustainable commercially operated urban waste management schemes<sup>17</sup> through public-private partnership arrangement will be implemented. There is a large scope for replication of the proven IRRC model to promote and implement cost-effective waste-to-energy solutions. The proposed project will involve working closely with the relevant stakeholders in the area of urban waste management to facilitate such potential replications and/or scale-up of existing operational IRRCs. This will showcase an approach for the MoPEMR, selected City Corporations, other development partners in the country and most importantly NGOs and private sector to adopt.

**2. Stakeholders:** *Will project design include the participation of relevant stakeholders from [civil society organizations](#) and [indigenous people](#)? (Yes / No  ) If yes, identify key stakeholders and briefly describe how they will be engaged in project design/preparation.*

MoPEMR is the implementing partner of the project. Urban planning (of cities with population over 0.5 million) lies with each City Development Authority under the City Corporation. The Urban Development Directorate under the Ministry of Public Works is responsible for towns (with population below 0.5 million) and are under the municipal corporations. The governance of cities and municipalities is managed by the Local Government Division. The Engineering Department of local governments is also engaged in municipal level planning. There is no integration in urban services management as multiple agencies are working in silos. The MoPEMR is leading the efforts on electricity provision and implementation of national energy efficiency targets for both city and municipal corporations<sup>18</sup>. The SREDA, under the MoPEMR, is responsible for the

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<sup>17</sup> It was assessed in 2012 that waste generation in Bangladesh is around 22.4 million tons per year or 150 kg/capita/year and is projected to reach 47,064 tons per day by 2025. The total waste collection rate in major cities of Bangladesh such as Dhaka is only about 42% of total generated waste. But this collected amount is dumped in insanitary landfill sites, and the rest are left uncollected. The uncollected waste poses serious health implications to the people, which may even has the potential of transmitting diseases.

<sup>18</sup> The energy planning requirements of cities and municipalities are based on the advice from the MoPEMR, which is leading the efforts on electricity provision and implementation of national energy efficiency and low carbon development targets for City and Municipal Corporations in the country. In this regard, having the MoPEMR as the implementing partner for this proposed

management of the project – from the provision of support and coordination to the implementation of energy efficient, low carbon initiatives in partnership with all the stakeholders involved. The MoPEMR will chair the National Steering Committee (NSC)<sup>19</sup> to play a coordination role for the planning and implementation of the integrated technical services that the project will implement and deliver. It will have an agreement with all the partner agencies to implement the project in a coordinated manner. The coordination committee in each city will be based at the City Development Authority to ensure integration of low carbon principles in city planning, which is one of the activities whose implementation will be supervised by SREDA. The mayor (CEO) of each city corporations is responsible for the implementation and follow-up of the decisions agreed in the coordination committee and liaise directly with SREDA. More detailed project management plan will be presented in full-sized project document.

The main stakeholders of this project are Dhaka City Corporation – both Dhaka North City Corporation (DNCC), Dhaka South City Corporation (DSCC), Capital Development Authority (RAJUK), Khulna Development Authority, Chittagong Development Authority and Gazipur City Corporation. The other stakeholders are the Local Government Division, and other development partners based in the country. The following summarizes the roles and responsibilities of the various stakeholders in the preparation/design of the proposed GEF project:

| Stakeholder   | Roles and Responsibilities in Project Preparation   |
|---|---|
| MoPEMR  | MoPEMR will be the main implementing partner of the project, and will closely coordinate with Capital Development Authority of Bangladesh (RAJUK), Urban Development Directorate (UDD), Department of Environment, Local Government Division, City Corporations and other key stakeholders. It is responsible for communication, and coordination with Department of Environment (DOE) as far as identifying the activities for the implementation and enforcement of waste management regulations are concerned. |
| Dhaka City Corporation – both Dhaka North City Corporation (DNCC), Dhaka South City Corporation (DSCC) and Gazipur City Corporation | Dhaka City Corporation building bylaws will need to be revised including clauses related to energy efficiency. It is important to convince Dhaka City Corporation during PPG phase of potential energy savings and benefits if such building bylaws are enforced as it is an agency responsible for identification of demonstration projects.   |
| Urban Development Directorate (UDD)   | This is a key stakeholder in the integration of cost effective low carbon interventions included as part of City and Urban Planning Process. It is a key agency responsible for identification of low carbon demonstrations.  |
| Local Government Division, Ministry of Local Government, Rural Development & Cooperatives   | Capacity building is needed for Local Government Division in planning processes to integrate building code, energy efficiency and green city development principles incorporated as part of Municipality/City rules and allocate required public budget. This is the key agency responsible for identification of capacity building needs of city corporations.   |
| Municipality Association /  | Important agency in the integration of cost-effective low carbon interventions  |

project, the appropriate technical and management support will be available for the promotion and institutionalization of low carbon urban development in the country.

<sup>19</sup> For overall coordination, the project implementing partner, MoPEMR (represented by SREDA) will be the responsible party. It will also chair the National Steering Committee (NSC). The members will come from the partner agencies particularly the participating cities/municipalities (i.e., city/municipal corporations), which be represented by their incumbent city/municipality CEO (mayor). The national government agencies that are involved in urban/town development will also be NSC members. Among these are the relevant departments of the Ministry of Public Works such as the Urban Development Directorate (UDD), Local Government Division, and Local Government Engineering Department. The coordination committee in each city that will be involved in the project will comprise of the representatives the City Development Authority (CDA), and the relevant city government agencies involved in city development planning, engineering and infrastructures, and general services. The mayor (CEO) of each city/municipal corporation is responsible for the implementation and follow-up of the decisions agreed in the coordination committee.



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| Mayors / Urban Forum and City Corporations   | integrated into the City Plans. During the project preparation phase, the proposed project will closely consult with respective municipalities and city corporations for their inputs to the project design.   |
| Chittagong Development Authority (CDA)   | Important agency in the integration of cost-effective low carbon interventions integrated into the Detailed Area Plan (DAP) of Chittagong City. Also a key agency responsible for knowledge and awareness dissemination and management in green city development.  |
| Department of Environment (DOE)'s Climate Cell, Ministry of Environment and Forests (MoEF) | It is responsible for Regulation, Compliance, Monitoring and Enforcement in waste management and air quality control. DOE will be involved in the identification of waste-to-energy projects to be demonstrated in PPP modality. During the project preparation phase, DOE's climate cell inputs will be sought to design activities related to sensitizing city dwellers on greening and cleaning efforts involving a series of events on low carbon greening efforts in urban areas. |
| Dhaka WASA (Water Supply & Sewerage Authority)   | An agency responsible for identification of waste-to-energy projects to be demonstrated in PPP modality. Also, in the identification of possible energy efficiency interventions in water supply system.   |
| Khulna Development Authority   | Important agency in the integration of cost-effective low carbon interventions integrated into the Detailed Area Plan (DAP) of Khulna City. Also a key agency responsible for knowledge and awareness dissemination and management in green city development.  |
| ADB  | Development Partner: Key role in the identification and design of baseline projects and parallel initiatives that are in line with proposed project.   |
| WB   | Development Partner: key role in the identification and design of baseline projects and parallel initiatives that are in line with proposed project.   |
| JICA   | Development Partner: key role in the identification and design of baseline projects and other initiatives that are in line with proposed project.  |
| kfW  | Development Partner: Key role in the identification and design of baseline projects and other initiatives that are in line with proposed project.  |
| Ministry of Housing and Public Works (MOHPW)   | Key agency responsible for enforcement of National Building Codes - provision of advice and recommendations in the identification of baseline projects, as well as updated information and scope of building bylaws.   |
| Local Government Engineering Dept. (LGED)  | Key agency responsible for promotion of low carbon initiatives in urban infrastructure projects – provision of advice and recommendations in the identification of building energy efficiency demonstration projects.  |
| Waste Concern  | A private company that provides solutions for solid waste management and waste-to-energy. A key partner agency responsible for identification and implementation of demonstration projects in PPP modality. Waste Concern will initiate R&D and offer innovative solution to promote and support innovations on waste to energy initiatives.   |
| Bangladesh Export Processing Zone Authority (BEPZA)  | Responsible for the promotion of low carbon development projects in export processing zones located on the periphery of cities. Key role in the identification and design of baseline projects and other initiatives that are in line with proposed project.   |
| Universities, Energy Research Institutions and Think Tanks                                 | Responsible to promote research, study and establish support innovation lab on low carbon initiatives and disseminate knowledge products.  |

**3. Gender Equality and Women's Empowerment:** *Are issues on [gender equality](#) and women's empowerment taken into account? (Yes /No  ). If yes, briefly describe how it will be mainstreamed into project preparation (e.g. gender analysis), taking into account the differences, needs, roles and priorities of women and men.*

Under the UPPR project, it was assessed that half of the project beneficiaries are women for the interventions promoted in cities and urban areas as they equally influence both genders. Similarly, it was assumed that low-carbon interventions will also equally benefit both the genders and will have a direct positive socio-economic

impact. It is estimated that the total number of project beneficiaries are 8,021,200 people, where half of them are women i.e. 4,010,600 numbers. The assumptions behind these draft estimates are: each public light will benefit 4 families (with 5 members/family), each commercial building establishment will accommodate 100 people i.e. 1,200 nos. assuming 12 buildings will be targeted, and a tCO<sub>2</sub> avoided through waste-to-energy projects will benefit one person. However, these numbers will be revalidated during the project preparation phase. At the city level, the proposed project will influence the DAPs, which will influence the course of city planning and subsequently the city dwellers. Through cost-effective low carbon interventions, the project will directly influence the people in terms of creating livelihood options for those who are employed and/or directly involved in the implementation of demonstration projects. Overall, the project will have a very positive impact on gender. During the PPG phase, the project will come up with indicators to further assess project impact on both genders using suggested methodologies, which will be mainstreamed into project preparation and subsequently its implementation.

**4. Risks:** *Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable).*

The following risks might prevent the project in achieving its objective along with mitigation actions stated are as follows:

| <b>Risk</b>   | <b>Level of Risk</b> | <b>Mitigation Actions</b>   |
|---|----------------------|---|
| Political turmoil in the country  | High                 | Bangladesh has a long history of political uncertainty. Although this is beyond the scope of the project, PMU will ensure project activities are carefully planned and adaptive management is practiced to deal with such adverse situations.   |
| Delayed implementation start of the project   | High                 | Based on the experience with UNDP-GEF projects, there might be a delayed start of the project activities on ground. The main difficult is in establishing PMU and approval of the project document in local language. This will be overcome through the experiences learnt from past projects to establish a PMU in first place immediately after the CEO endorsement of the project. In this way, activities could be rolled on quickly as MoPEMR already pass through this lesson in one of the ongoing projects. |
| Committed co-financing may not be realized and fully available in time  | Medium               | Major contribution is expected to come from New phase of UPPR i.e. “National Urban Poverty Reduction Programme” (NUPRP). With the lessons learnt under UPPR, the PMU will closely coordinate with national partners to ensure the timely availability of co-financing. In addition, where needed, MoPEMR will support with their own infrastructure grants to fill the gaps in co-financing.  |
| The demonstration projects are not able to source required finance in a timely fashion                                | Medium               | Project Board of the proposed project oversee and make timely intervention as needed in coordination with project stakeholders. MoPEMR will liaise with banks where needed as part of infrastructure development.   |
| Cities could not excel on low-carbon interventions even after completion of GEF project intervention                  | Medium               | The project is anchored with baseline project initiatives that has secured national budget allocation. By the end of the project, if city corporation see a good progress in these cost-effective interventions, they will replicate these with public funds. Since the technologies promoted under the project are proven, it is a matter of demonstrating their cost-effectiveness.   |
| Energy efficiency, renewable energy and waste-to-energy interventions remain non-priority areas for City Corporations | Low                  | This will make the EE/RE interventions that will be implemented under the project useless. The results will only last during the duration of the project but their impact will not be realized after the project. To mitigate this, the policies at the national level continue to emphasize the importance of the low-carbon interventions. MoPEMR, CSOs and NGOs continue to pressurize City Corporations to take appropriate actions to implement low-   |

| Risk  | Level of Risk | Mitigation Actions   |
|---|---------------|--|
|   |               | carbon interventions.  |
| Local Government Division may not cooperate in assessing capacity building needs of City Corporations   | Low           | MoPEMR will closely coordinate with the Local Government Division through project PMU and ensure good working relationship is maintained and received their full cooperation to assess capacity building.  |
| No private sector institution come forward to implement demonstration projects in PPP modality  | Low           | While the project may succeed in demonstrating PPP-based urban services provision, without a sustainable follow-up plan (i.e., business plan or roadmap) to scale up and/or replicate these successful demos, the concept and practice of low carbon urban development will not be institutionalized in Bangladeshis cities and municipalities. To facilitate sustained PPP initiatives, clear and mutually beneficial agreements between the city/town governments and private sector entities on PPP initiatives. During PPG phase, required co-financing letters will be obtained as needed, whilst clarifying the conditions that are agreed between MoPEMR and institutions that come forward to develop projects under PPP modality. |
| Major adverse economic conditions force up interest rates and/or curtail bank lending for a significant period during the project's implementation. | Low           | In such situation, other economic priorities of city/town governments and that of the private sector may take precedence over low carbon urban development actions. Although Bangladesh economy is steadily growing, the political uncertainty is a major impediment. This economy is like other South Asian economies, weakly linked to potential international financial crises and events. This does not risk interest rates greatly rising or significant bank lending restrictions.   |
| Increased vulnerability of cities due to climate change   | Low           | Climate factors and climate scenario will be taken into account in the feasibility studies of the proposed interventions. Further, risk reduction strategies will be developed into a project design to manage climate-related risks.  |

The overall risk of this proposed project is medium.

**5. Coordination:** *Outline the coordination with other relevant GEF-financed and other initiatives.*

| Ongoing Project  | Brief Description of the Coordination Arrangement   |
|--|---|
| Solar-LED street lighting project                                      | This is Sub-project 2 under "Power System Efficiency Improvement Project" of ADB being implemented in the Six Bangladesh City Corporations. It is designed to replace 1,000 km of streetlights across the 6 Bangladesh City Corporations. It is likely to be extended to 8 city corporations. Its estimated cost is approximately US\$ 37.03 million. The Executing Agency (EA) is the Bangladesh Power Development Board (BPDB), with each city corporation as Implementing Agency (IA). The proposed project will closely consult with ADB to determine potential synergies and complementarities.  |
| Development of Sustainable Renewable Energy Power Generation (SREPGen) | This GEF-5 project is being implemented by UNDP with SREDA of MoPEMR as Implementing Partner. This project is expected to be implemented until December 2018. Its objective the reduction of the annual growth rate of GHG emissions from the fossil fuel-based power generation by exploiting Bangladesh's renewable energy resources for electricity generation. This will be achieved through increased share of RE in Bangladesh's power mix through facilitating the financing, implementation and operation of pilot (RE) energy projects using rice husk and solar panels. One of the activities is to increase the affordability of photovoltaic solar lanterns (PVSLs) for low income households by supporting pilot PVSL diffusion activities. This is to address the lighting energy needs of rural poor. The proposed project will closely follow the developments in lighting, and consult with SREDA to combine renewable energy with advanced LED technologies for implementation at city level. |

**6. Consistency with National Priorities:** *Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (Yes /No ). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.*

The proposed project is consistent with the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), Seventh Five Year Plan (2015-2019), and National Perspective Plan. The low-carbon resilient development in the BCCSAP is built on six pillars where mitigation/low-carbon development is one of the pillars. This seeks to link policy, plan, programme and capacity development objectives in the context of national development. The proposed project is consistent with Bangladesh 2<sup>nd</sup> National Communications to the UNFCCC that identified cities need to play a key role while addressing the issue of climate change as they are most vulnerable. Sustainable waste management in major cities is identified as one of the mitigation options where incineration is identified as one of the waste-to-energy technologies, but its feasibility will be assessed during PPG phase. It can be stated that the proposed project is consistent with national priorities and strategies, which will help Bangladesh to address GHG emissions by investing in low carbon development projects.

The proposed project is completely in line with Bangladesh Intended Nationally Determined Contributions (INDC) report that was submitted to the UNFCCC in September 2015. It is in line with the 7 programs on climate change mitigation in the BCCSAP. Three of these mitigation programs are on interventions applicable to cities, i.e., “Improved energy efficiency in production and consumption of energy”, “Renewable energy development”, and “Management of urban waste”. In Bangladesh, there are a number of activities being implemented on energy efficiency, e.g., energy efficiency labelling program to promote sales and use of high efficiency products in the market. Energy Efficiency measures for buildings, such as heat insulation and cooling energy efficiency measures, and a revised code on energy efficiency of new buildings are included as part of ongoing activities reported in the INDC. The proposed project will take these initiatives to the next level of implementation through its scale up activities at the city level.

**7. Knowledge Management:** *Outline the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.*

Component three of the proposed project specifically focuses of information dissemination to the public and sensitizing them. The project is expected to use all the possible sources of the communication medium for sensitizing the city dwellers of the initiatives taken by the City Corporation and municipal authorities of various low carbon initiatives. There are a number of baseline projects focusing of urban development in the country. The proposed project will closely work with those projects as well and build synergies. The project will make use of the existing knowledge networks established by other donors to maximize outreach and benefit from a range of communication and learning strategies. There is a dedicated output in the project on conducting an Urban Forum each year. This is expected to attract various stakeholders including private sector and mobilize investments in the implementation of green initiatives.

### **PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**

**A. RECORD OF ENDORSEMENT<sup>20</sup> OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the [Operational Focal Point endorsement letter](#)(s) with this template. For SGP, use this [SGP OFP endorsement letter](#)).


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<sup>11</sup> For biodiversity projects, in addition to explaining the project’s consistency with the biodiversity focal area strategy, objectives and programs, please also describe which [Aichi Target\(s\)](#) the project will directly contribute to achieving

| NAME                  | POSITION                           | MINISTRY                                   | DATE       |
|-----------------------|------------------------------------|--|------------|
| Dr. Kamal UDDIN Ahmed | Secretary, Operational Focal Point | Ministry of Environment and Forests, Dhaka | 08/10/2015 |

#### B. GEF AGENCY(IES) CERTIFICATION

**This request has been prepared in accordance with GEF policies<sup>21</sup> and procedures and meets the GEF criteria for project identification and preparation under GEF-6.**

| Agency Coordinator,<br>Agency name                  | Signature   | Date             | Project Contact Person                            | Telephone                    | Email                        |
|---|---|------------------|---|------------------------------|------------------------------|
| Adriana Dinu,<br>Executive Coordinator,<br>UNDP GEF |  | April 6,<br>2016 | Manuel Soriano,<br>Sr. Regional Technical Advisor | +66 2304<br>9100 ext<br>5048 | butchaiah.gadde<br>@undp.org |

#### C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required [GEF Project Agency Certification of Ceiling Information Template](#) to be attached as an annex to the PIF.

<sup>20</sup> For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

<sup>21</sup> GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

## Annex A: Summary of Indicative Activities and Indicative Costs for Component 3: Sensitizing City Dwellers on Greening Efforts

The following is the summary of the envisioned capacity development and awareness raising activities that may be included in the proposed project. These are based on the stakeholder consultations that were carried out during the PIF development.

The estimated costs are at best order-of-magnitude costs of baseline and incremental activities and based on previous capacity development activities in Bangladesh, as well as taking into account the identified baseline capacity development activities. These suggested incremental interventions will be evaluated further during the PPG exercise, and will be adjusted accordingly content-wise and cost-wise depending on the additional information that will be obtained as to the actual nature, extent and magnitude of the information, capacity building and awareness-related barriers.

| Specific Activities   | Costs Involved   |
|---|--|
| <b>Capacity Needs Assessment</b>  |  |
| <ul style="list-style-type: none"> <li>• Conduct of general capacity needs assessment in the urban and suburban areas in Bangladesh in the area of sustainable city/town development.</li> <li>• Conduct of specific capacity needs assessment in the 4 pilots cities in sustainable urban development planning (overall and sectoral), and application of green, low carbon technologies in the design, engineering, operation and maintenance of climate resilient and energy efficiency urban systems and infrastructures.</li> </ul>  | <p>Capacity needs assessment (consultants for the conduct of surveys and evaluations); Travel costs for visits to selected cities/towns (25) for the data gathering/survey; Workshop on the findings and recommendations, and action planning for the design of the capacity development programs.</p> <p><b>Estimated Cost: US\$ 31,400</b></p> <ul style="list-style-type: none"> <li>- Baseline: US\$ 0</li> <li>- Incremental: US\$ 31,400</li> </ul>  |
| <b>Capacity Development Program on Sustainable Urban Development - for city/town authorities.</b>   |  |
| <ul style="list-style-type: none"> <li>• Training course (local and foreign) on sustainable urban development for city authorities (e.g., conduct and assessment of policy studies; formulation of sustainable low carbon development policies and regulatory frameworks; mainstreaming of sustainability concepts in city development planning and budgeting particularly for climate resilient and energy efficient urban systems, and infrastructures investments and financing.</li> <li>• Study tour in selected cities in developed and developing countries that have successfully applied green and low carbon development concepts - for sustainable development policy making and decision making, energy-integrated development planning, green and low carbon technology applications and financing for urban systems and infrastructures.</li> </ul> | <p>Design of training program and training courses (consultants and associated costs); Organization of training courses (local and abroad); Organization of study tours and attachments to relevant urban development planning institutions (local and abroad); Conduct of the local and foreign training courses (experts/trainors, training materials, training venues, associated travel costs, etc., - for pilot cities and selected towns); Conduct of foreign study tours (experts, counterpart organization costs, study tour materials, associated travel costs, etc., - for pilot cities); Training and study tour reports; Evaluation of capacity development program and its impacts; development of follow-up action plan (consultants and associated costs)</p> <p><b>Estimated Cost: US\$ 1,096,400</b></p> <ul style="list-style-type: none"> <li>- Baseline: US\$ 974,600</li> </ul> |

| Specific Activities   | Costs Involved   |
|---|--|
|   | - Incremental: US\$ 120,000  |
| <b><i>Capacity Development Program and Promotional Campaigns on Sustainable Urban Development - for the general city/town citizenry</i></b>   |  |
| <ul style="list-style-type: none"> <li>• Seminars for communities on sustainable development (focusing on the 3 pillars of sustainability) and applications of green and low carbon techniques, measures and practices - at least 10 different type of communities (based on economic status)</li> <li>• Seminar-workshops (S/W) for various target groups in cities/towns on low carbon technologies as applied to the various sectors of cities/towns, e.g., waste management, transport and communications, buildings (commercial and public/institutional), industrial and manufacturing facilities, public utilities (water supply, energy supply, land use, green areas, planned development areas, urban renewal, etc.) - one S/W per major sector (at least 15)</li> <li>• Special seminar-workshops for NGOs, CSOs, academe and other community groups on the mainstreaming of green, low carbon development concepts in their development plans and programs.</li> <li>• Conduct of promotional campaigns and roadshows on green, low carbon development, mainly for information dissemination, raising awareness, getting the buy-in of the citizenry and city/town government authorities. - one S/W per major community groups (at least 5)</li> <li>• Mass media campaigns (advertisements and promotional materials in print, and audio-visual media) - for 6 months</li> <li>• Piloting of application of innovative green and low carbon techniques and practices in identified communities (e.g., 4R in households, utilization of EE appliances); application and impact assessments of feasible low carbon technologies in identified urban sectors (e.g., building energy code applications, green procurement systems); and application and impact assessment of policy recommendations of green and low carbon policies/plans in selected NGOs/CSOs and community groups (e.g., EE building design permitting). - 2 pilots in each of the 4 pilot cities.</li> </ul> | <ul style="list-style-type: none"> <li>• Design of the capacity development program and the seminars, and seminar-workshops (consultants and associated costs); Organization of seminars and seminar-workshops; Conduct of the seminars and seminar-workshops (experts/resource persons, workshop materials, seminar/workshop venues, associated travel costs, seminar/workshop proceedings, etc.); Evaluation of capacity development program and its impacts; development of follow-up action plan (consultants and associated costs).</li> <li>• Cost of media campaigns (including advertisement and publication costs) that will run for 6 months.</li> <li>• Design of pilots (consultants and associated travel costs); Implementation and M&amp;E of pilots (costs are based on the project design)</li> <li>• Cost of roadshows and promotional campaigns (inclusive of planning, organizational, implementation and evaluation costs).</li> </ul> <p><b>Estimated Cost: US\$ 2,045,300</b></p> <ul style="list-style-type: none"> <li>- Baseline: US\$ 1,770,300</li> <li>- Incremental: US\$ 275,000</li> </ul> |
| <b><i>Enhancement of Public-Private Partnerships for Sustainable Urban Development - For private sector entities that work (or are seeking to work) in partnership with city/town governments in the provision of public services</i></b>   |  |
| <ul style="list-style-type: none"> <li>• Seminar-workshops on effective public-private partnerships for private sector entities that can potentially, and/or interested in prospective, implementation of</li> </ul>  | Design of the capacity development program and the seminar-, and dialog-workshops (consultants and associated costs); Organization of  |

| Specific Activities   | Costs Involved  |
|---|---|
| <p>public services provisions (e.g., waste management, energy supply)</p> <ul style="list-style-type: none"> <li>• Seminar-workshops for the financial/banking sector entities on the financing of green, low carbon development urban development projects</li> <li>• Dialog workshops with existing entities that are already promoting or operating green, low carbon technology-based systems and infrastructures (e.g., IRRCs) in cities for potential scaling up and further replications - focusing on the facilitation by city/town governments of such initiatives</li> </ul>  | <p>seminar-, and dialog-workshops; Conduct of the seminar- and dialog-workshops (experts/resource persons, workshop materials, workshop venues, associated travel costs, workshop proceedings, etc.); Evaluation of capacity development program and its impacts; development of follow-up action plan (consultants and associated costs).</p> <p><b>Estimated Cost: US\$ 520,600</b></p> <ul style="list-style-type: none"> <li>- Baseline: US\$ 450,600</li> <li>- Incremental: US\$ 70,000</li> </ul>  |
| <p><b><i>Capacity Development on Energy-Integrated Urban Development Planning, and Application of Green, Low Carbon Technologies in Urban Systems &amp; Infrastructures - for city/town planners; and technical, engineering and general services personnel</i></b></p>   |   |
| <ul style="list-style-type: none"> <li>• Training course on energy-integrated urban development planning for city planners; green, low carbon technologies for technical, engineering and general services personnel. For city planners, this will cover, e.g., application of sustainable, low carbon development policies, and regulatory frameworks in energy-integrated sectoral planning). For technical, engineering and general services personnel, e.g., climate resilient and energy efficient urban system design, engineering, installation, operation and maintenance; cost estimation, and techno-economic feasibility evaluation of such urban systems and infrastructures investments, etc.</li> <li>• On-the job training (attachments) in cities in developing and developed countries on the application of energy-integrated urban development planning, and in the design and implementation of green and low carbon technologies in urban systems and infrastructures.</li> <li>• Study tour in selected cities in developed and developing countries that are employing energy-integrated urban development planning, green and low carbon technology applications and financing for urban systems and infrastructures.</li> <li>• Piloting of the application of energy-integrated urban development planning in selected cities.</li> </ul> | <ul style="list-style-type: none"> <li>• Design of local training program and training courses (consultants and associated costs); Organization of on-the-job training (abroad); Organization of study tours and attachments to relevant urban development planning institutions (abroad); Conduct of the local training courses (experts/trainors, training materials, training venues, associated travel costs, etc., - for pilot cities and selected towns); Conduct of foreign on-the-job training and study tours (experts, counterpart organization costs, study tour materials, associated travel costs, etc., - for pilot cities); Training and study tour reports; Evaluation of capacity development program and its impacts; development of follow-up action plan (consultants and associated costs)</li> <li>• Design of pilots (consultants and associated travel costs); Implementation and M&amp;E of pilots (costs are based on the project design)</li> <li>• Purchase of agreed incremental hardware for use in the pilots</li> <li>• Purchase of software for computerized models/tools for energy-integrated urban development planning, and other associated planning and simulation tools.</li> <li>• Purchase of software for computerized models/tools for green, low carbon technology application design, and other associated engineering and feasibility analysis tools.</li> </ul> <p><b>Estimated Cost: US\$ 989,200</b></p> <ul style="list-style-type: none"> <li>- Baseline: US\$ 856,200</li> </ul> |



| Specific Activities  | Costs Involved   |
|--|--|
|  | - Incremental: US\$ 133,000  |
| <b><i>Enhancement of Information Dissemination and Sharing - for pilot cities</i></b>  |  |
| <ul style="list-style-type: none"> <li>• Training course on the design, development, operation and maintenance a city/town-wide information databank on green and low carbon technologies that are applicable in Bangladeshi cities, including on the data gathering, evaluation, processing and encoding, as well as in the maintenance of the database system.</li> <li>• Piloting of the design, development of a city/town-wide information databank in selected cities/towns, including data gathering, processing and encoding in database</li> <li>• Development of an information exchange system among Bangladeshi cities/towns for sharing information about energy-integrated urban development planning, and experiences in actual application of appropriate green, low carbon technologies in addressing urban issues and other areas of concern.</li> </ul> | <ul style="list-style-type: none"> <li>• Design of local training program and training courses (consultants and associated costs); Organization and conduct of the local training courses (experts/trainors, training materials, training venues, associated travel costs, etc., - for pilot cities and selected towns); Training and study tour reports; Evaluation of capacity development program and its impacts; development of follow-up action plan (consultants and associated costs)</li> <li>• Design of the database system (consultants and associated costs)</li> <li>• Design of pilots (consultants and associated travel costs); Implementation and M&amp;E of pilots (costs are based on the project design)</li> <li>• Cost for data gathering (e.g., surveys)</li> <li>• Cost for agreed incremental hardware for the database system (e.g., supplementary computers and peripheral equipment)</li> <li>• Purchase of software for the database system, and information exchange system, and other associated database maintenance cost.</li> <li>• Purchase of information (e.g., subscriptions to commercial database systems; subscription to science and technology or engineering magazines to supplement information/data inputs in the data base and information exchange system.</li> </ul> <p><b>Estimated Cost: US\$ 669,300</b></p> <ul style="list-style-type: none"> <li>- Baseline: US\$ 579,300</li> <li>- Incremental: US\$ 90,000</li> </ul> |