### Project Name
Project Name: Chittagong Water Supply Improvement and Sanitation Project

### Region
Region: SOUTH ASIA

### Sector
Sector: Water supply (95%); Flood protection (4%); Sewerage (1%)

### Project ID
Project ID: P103999

### Borrower(s)
Borrower(s): PEOPLE’S REPUBLIC OF BANGLADESH

Ministry of Local Government, Rural Development and Cooperatives
Building #7, Room #602
Bangladesh Secretariat
Bangladesh
1000
Tel: + 880 (2) 716 3566

### Implementing Agency
Implementing Agency: Chittagong Water and Sewerage Authority (CWASA)
WASA Bhaban, Dampara, Chittagong, Bangladesh
Tel: + 880 (31) 285 1806

### Environment Category
Environment Category: [ ] A [X] B [ ] C [ ] FI [ ] TBD (to be determined)

### Date PID Prepared
Date PID Prepared: March 23, 2010

### Date of Appraisal Authorization
Date of Appraisal Authorization: March 11, 2010

### Date of Board Approval
Date of Board Approval: May 27, 2010

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**Country and Sector Background**

1. **Availability of Urban Water Supply, Sanitation and Drainage Services.** Out of a total population of about 142 million in Bangladesh, about 36 million (25%) lived in urban areas in 2005. An estimated 71% of this urban population has access to safe water supply and sanitation (WSS) services of which the coverage by piped water supply is 39% and the remaining 32% is by hand pump tube wells. Pipe networked water supply is available in the main cities and in about 100 towns only. But even in these areas, household access is not universal, reaching only a small portion of the low income neighborhoods or newly developed areas. The remaining about 200 towns do not have piped water networks and rely on lower level technologies. Access to improved sanitation covers only 50% of the population in urban areas. Only Dhaka has a water-borne sewerage system serving about 25% of its population. Inadequate drainage systems in most urban centers exacerbate the water and sanitation situation. In major cities, raw sewage in open drainage is a common sight.

2. **Service Delivery Framework.** The responsibility for the water supply and sanitation sector lies with the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C) through its Local Government Division (LGD). Urban WSS services are carried out by different designated agencies and authorities. Dhaka, Chittagong and Khulna have water supply and sewerage authorities (WASAs). In other urban centers, the respective Water Supply and Sewerage Sections of city corporations or pourashavas are responsible for WSS services.
However, due to capacity constraints in these other urban centers as well as continued centralized management of the sector, the central government’s Department of Public Health Engineering (DPHE) carries out infrastructure development and rehabilitation work and transfer these to the pourashavas. Overall, urban water supplies are handicapped by inefficient operation, excessive and poorly targeted subsidies, and inequitable access especially affecting the poor.

3. **Key Policy, Operational and Institutional Issues.** Rapid urbanization is a key policy issue affecting the urban WSS sector. Improving and extending infrastructure to meet existing and increasing demand for safe WSS, and particularly addressing the lack of services to urban slums is a key operational issue. Improving the efficiency and sustainability of urban water utilities and clarifying/improving their accountability to various tiers of stakeholders (e.g., consumers, local government, and central government) are key institutional issues.

4. **Government Sector Targets and Policy Responses.** The Government sector objective as stated in the National Strategy for Accelerated Poverty Reduction II (NSAPR-II) (FY 2009 – 11) envisions supplying pure drinking water to entire population by 2011 and the bringing each household under hygienic sanitation by 2013. Various other targets can be found in other Government sector documents. The common feature of these targets is that they represent a huge challenge to the Government. Various key sector policies have been promulgated over the last decade. The National Policy for Safe Water Supply and Sanitation (1998) represents the ‘parent’ policy which stipulates a specific objective of facilitating access for all citizens to a basic level of services in water supply and sanitation. Various other policies and strategies augment the national policy i.e., the National Water Resources Management Plan (2004), the National Policy on Arsenic Mitigation (2004), the Sector Development Framework (2004), the National Sanitation Strategy (2005) and the Pro-Poor Strategy (2005). In 2006, the GOB developed the Sector Development Program – Water and Sanitation Sector in Bangladesh (SDP-WSSB). The SDP-WSSB drew together the relevant sector policies, strategies and targets and provided an avenue for the various policies to be incorporated onto a single platform.

5. **Chittagong Water Supply and Sewerage Authority (CWASA).** Until recently, the governing legislation of CWASA vested to it the responsibility of water supply in Chittagong. However, its decision making and operational autonomy from LGD is significantly constrained. Since its recent gazettement under the WASA Act (1996), CWASA is responsible for providing water, sewerage and stormwater drainage services in Chittagong. This recent change represents a huge step forward in the reform process towards improving CWASA’s governance and institutional arrangement. The Act provides for CWASA to manage its facilities and operate with a high degree of autonomy. It provides for an autonomous corporate management structure intended to improve the clarity of roles and responsibilities amongst sector institutions and strengthen CWASA’s accountability to its service provision mandates. The management of CWASA is answerable to a Board of Directors representing a range of stakeholders. The Board of Directors is appointed by the Government. The relationship between the Government and CWASA is underpinned by a Performance Contract between the two parties. It must be noted that CWASA is only beginning to implement the provisions of the WASA Act (1996). Over the next several years, CWASA is expected to be in a state of organizational transition. Nevertheless, CWASA and LGD have undertaken a series of key enabling actions towards a successful transition process.
6. **Water Supply, Sanitation and Stormwater Drainage in Chittagong.** Water production capacity is inadequate (172MLD production capacity, equivalent to 35% of the total estimated demand) and the pipe network is dilapidated. Currently, about 45,000 households are directly connected with treated piped water by CWASA (out of about 600,000 households in the Chittagong City Corporation (CCC) area). Even then, within the current network water supply is not guaranteed on a regular basis. Other agencies (i.e., the CCC and the Railway Authority) have attempted to provide some services as a partial stop-gap measure. A large portion of the remaining city population access water through shallow tube wells. The quality of this underground water is questionable, with high salt and iron levels (and possibly with arsenic contamination at some wells), posing health risks to the public. There are no water borne sewerage systems in Chittagong, hence CWASA has never developed the capacity to operate these systems. Neither has CWASA developed the capacity to operate stormwater drainage service. Operational responsibility for Chittagong’s stormwater drainage systems remain unclear, with the Chittagong Development Authority (CDA) continuing to plan and construct facilities, and CCC continuing to operate and maintain the city’s stormwater drainage canals. In the meantime, flooding and water-logging are worsening occurrences, with unplanned hill cutting contributing to drain blockages.

7. **Investment Gaps in CWASA.** Since the completion of the previous Bank project in 1988, neither major water production plants nor significant scale network expansion efforts have been completed. This protracted absence of significant development financing CWASA has resulted in its water supply capital development plan remaining unfinanced for a long period of time, whilst water service delivery gap continued to widen. Significant development partner financing resumed in 2005. CWASA has recently begun to develop plans for sewerage infrastructure, although no detailed design activities has been done nor is CWASA currently capable of operating and maintaining a sewerage system.

8. **Capacity Constraints in CWASA.** The organizational transition to meet the provisions of the WASA Act (1996) and the need to establish a mechanism to operate and maintain sewerage and drainage facilities represent a large challenge to CWASA. This situation is exacerbated by a prolonged lack of human resources planning and management. Of its current approximately 600 staff, only about 20 are engineers for design and building, and about 30 are technicians. Though the demand for CWASA services is increasing, there has been no significant new permanent recruitment for over two decades. Many of CWASA’s senior staff will reach retirement age within the next five years. CWASA’s operating facilities are also in urgent need of rehabilitation, augmented and modernization to cater for any expected expansion of service provision.

**Project Objectives**

9. The Project Development Objective (PDO) is to increase the sustainable access to safe water and improved sanitation, as well as support the establishment of a longer term water supply, sanitation and drainage capital development and operational management program in Chittagong.
10. The PDO will be achieved through:
   a) Increasing the supply of safe potable water by constructing selected water
      production, transmission, storage and distribution facilities;
   b) Increasing the delivery of safe potable water by expanding piped water supply
      services to under-served areas through the rehabilitation, replacement and
      extension of primary and secondary distribution pipes in selected areas (including
      water supply and sanitation service expansion into urban slums through a
      balanced program involving community participation);
   c) Improving the management of existing on-site sanitation facilities, while
      simultaneously updating the sewerage and drainage master plans, identifying and
      designing priority investments for a longer term development program; and
   d) Strengthening the operations and institutional structure of CWASA emphasizing
      on increasing the sustainability and accountability of operations, and improving
      the coordination for the water, sanitation and drainage services between key
      stakeholder agencies in Chittagong.

Rationale for Bank Involvement

11. Chittagong is the second largest city in Bangladesh. Chittagong is the second largest
city in Bangladesh and its foremost sea port and industrialized city. Eighty percent of
Bangladesh’s exports and imports are routed through the port of Chittagong. There are currently
two export processing zones within the metropolitan area, while four more are planned. Thirty
percent of manufacturing in Bangladesh takes place in Chittagong. Forty percent of the country’s
heavy industry is located here. Almost all of Bangladesh’s industrial exports originate in
Chittagong. This economic activity, amongst others, has prompted a large population influx.
The present population within CCC area is about 2.6 million (compared to about 600,000 in
1980 when the previous Bank WSS project was conceived and under which the last major WSS
infrastructure was completed). Chittagong metropolitan area is estimated to have about 3.8
million people, second only to Dhaka. Following the on-going Dhaka Water Supply and
Sanitation Project (approved in FY08), Chittagong is a natural follow-on complement to the
Bank’s efforts to support the provision of WSS services in urban Bangladesh.

12. Reengagement towards a long term institutional development support. The Bank
had supported the water supply and sanitation infrastructure in Chittagong, financing two
previous projects since the 1960s. The first project (1963) focused on physical infrastructure,
while the second (i.e., the Second Chittagong Water Supply Project) had institutional and
physical development objectives. This project closed in 1987 and while the physical components
were completed satisfactorily, it did not meet its entire institutional development objectives. The
project performance audit report emphasized that a gradual (stepwise) approach to institutional
development is necessary to achieve real change and capacity gains. Learning from past
experience of the need for long term continuous engagement (particularly for institutional
strengthening efforts that require long term efforts to establish, implement and stabilize) the
Bank is reengaging after a long absence with a longer term, phased support outlook, with a view
towards addressing issues in realistic scopes and timeframes. In undertaking this reengagement
process, the Bank has the comparative advantage of its long term presence in the country, its
experience in supporting the improvement of infrastructure constraints in large cities, and its experience in supporting performance improvements in urban utilities.

**Project Description**

13. Three components are proposed for the project:

- **Component 1. Water Supply and Sanitation – US$163.5m including contingencies (IDA US$151.1).** This component will support the construction of Water Treatment Plants in CWASA’s development plan that are currently not financed or earmarked for financing by other financiers. This component will also support the rehabilitation and extension of the water distribution system, including the extension of water supply and sanitation service provision to selected urban slums. Water supply operational equipment, spare parts and technical assistance will be provided for the improvement of operations and maintenance (O&M). A pilot septic sludge handling system will be implemented. Technical assistance will be provided to support CWASA’s contracts management, engineering design reviews and supervision engineers for WTPs and distribution systems, as well as the implementation of water supply and sanitation service provision to urban slums. This component will also support studies related to the saline intrusion of the Halda river, including analysis, recommendations and designs for options for future source of raw water for Modunaghat WTP and Mohara WTP.

- **Component 2. Sewerage and Drainage – US$9.5m including contingencies (IDA US$8.8).** This component will support studies to update and/or confirm the sewerage master plans and drainage master plans for Chittagong. In addition, technical assistance will be provided for the identification and design of priority investments in sewerage and drainage. A small amount of funds will be provisioned to enable limited works to begin on the priority investments in canal rehabilitation when they are identified and designed, including engineering and construction supervision support. Given the need for close coordination and cooperation amongst stakeholder agencies (CWASA, CCC and CDA) for the efficient operations and maintenance (O&M) of drainage and sewerage services, this component will support technical assistance, consultations and training towards the development of a responsibility and coordination framework for drainage and sewerage in Chittagong.

- **Component 3. Institutional and Operational Development, and Project Management Support – US$12.2 including contingencies (IDA US$10.1).** This component will support a comprehensive institutional development of CWASA. Capacity building support will be provided at all operational levels to improve the efficiency of CWASA’s overall service delivery operation. CWASA will receive support to modernize its operational systems and facilities. This support would include (i) the establishment of expanded facilities in parallel with the service expansion of CWASA, (ii) the provision of financial, commercial and operational equipment, (iii) the provision of technical assistance in the fields of utility management, financial management, procurement and contracts

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1 The subsequent improvement of the traceability of CWASA’s operations is expected to strengthen accountability, operational control and governance within CWASA.
management, environment and social safeguards, and (iv) training. In addition, this component will also provide project management support to CWASA. These include the establishment of the PMU, provision of technical expert to the PMU as needed, supporting the operational cost of the PMU, and provisioning for management of environmental and social aspects (including land acquisition and resettlement). Assistance will be provided to assist CWASA prepare projects/programs towards future phases of Bank support.

Financing

14. The project financing is expected to be as follows:

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<tr>
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<td>International Development Association (IDA)</td>
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<td>Total</td>
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Implementation

15. **Project Implementation.** As the appropriate existing sector institution in line with the sector legislative framework, CWASA will be the project implementing agency. No special purpose project implementation agencies. CWASA will form a Project Management Unit (PMU) led and staffed by appropriate CWASA personnel and supported where necessary by specialist consultants. The project will support specific technical assistance supervision consultancies for the large / complex infrastructure or service provision works where CWASA either does not have the required expertise or experience. Project investments in the design, construction and operations of the Modunaghat Water Treatment Plant and the rehabilitation and extension of CWASA’s water distribution network will be complemented by specialist contracts management, engineering design and reviews, and supervision engineers dedicated to the specific activities. The provision of water and sanitation services to slum areas in Chittagong will be carried utilizing reputable support organizations with direct prior experience in working on slum related water and sanitation issues in Bangladesh.

Sustainability

16. The following factors would promote and enhance sustainability:

- **Consistency with Government policies and plans.** The Government commitment to the long term sustainability of the project is likely since the project objective is in line with the NSAPR-II. The project is also consistent with the Sector Development Program – Water and Sanitation Sector in Bangladesh (SDP-WSSB), the National Policy for Safe Water Supply (1998) and associated policies and strategies. The sustainability of the project will be further enhanced through the Letter of Sector Policy which lays out the longer term sector actions for Chittagong water, sewerage and drainage services.
**Sustainability of CWASA operations and investments.** The sustainability of the operations of the project investments is dependent on CWASA’s efficiency and operational performance. A core component of the project will include a substantial and comprehensive support towards project management, overall operational reorganization and operational strengthening of CWASA. A minimum set of institutional pre-requisites have been obtained to ensure adherence to adequate corporate governance and commercialized institutional setups per the WASA Act (1996). With the key institutional framework in place, the project can focus on supporting the modernization of the operational, commercial, financial and organizational systems and capabilities of CWASA, aimed at turning CWASA into a modern, efficient and viable service provider. The phased support strategy adopted for project implementation and longer term support allows for continuous reviews and feedback, thus enhancing the chances of success at every phase and reducing the risk of unsustainable investments.

**Lessons Learned from Past Operations in the Country/Sector**

17. The project is consistent with lessons learned from previous Bank’s WSS operation in Chittagong, Dhaka, and the overall Bank support to Bangladesh. Key lessons include:

- **The high cost of Bank disengagement from the sector.** The Bank closed the Second Chittagong Water Supply Project in 1987, where CWASA achieved the infrastructure but not the institutional targets of the project. In the subsequent years until about 2006, there had been no significant investments in CWASA as its institutional capacity continued to decline and its ability to meet growing demand for services lagged. While some institutional improvements were achieved in each operation, key reversals occurred in the absence of continued support to improve, solidify and stabilize these gains. The Bank will now take a longer term phased support approach, with a view towards addressing issues in realistic scopes and timeframes and maintaining a sustained effort and long term partnership with development partners towards investment support, technical assistance and dialogue.

- **Major investments in the WSS sector are likely to be unsustainable if not accompanied by an institutional development program that is both realistic and owned by the client.** Both the Second Chittagong Water Supply Project and the Fourth Dhaka Water Supply Project were successful in constructing major new water treatment plants and distribution lines and improving some of operational performance. But both closed with unsatisfactory ratings as the full scope of institutional changes originally envisaged were not achieved. The Performance Audit and ICR for these projects emphasized that real change requires a gradual improvement process and warned against institutional development objectives that were too ambitious and not owned by the client. This project would include a comprehensive institutional development support to CWASA, which would be anchored and aligned with the existing sector policy and legislative framework. Simultaneously, the Partnership Framework and a Letter of Sector Policy would be utilized as means to leverage and ensure further institutional strengthening over a realistic timeframe.
• **Overall, a strong service delivery institution is required for maintaining and improving the services.** The need to ensure that the project’s institutional development activities and objectives are not too ambitious is countered by the fact that sustainability of CWASA as a whole depends on its autonomy and the overall performance of the entire CWASA institution. Through the Partnership Framework, the project will seek to cooperatively contribute to improving the overall operational performance of CWASA.

• **Achieving policy reform through a traditional investment project requires a cautious approach since many key decisions would be taken outside the ambit of the project implementing utility.** Agreement on the longer term sector policy actions for Chaka water, sewerage and drainage would be spelled out in a specific Letter of Sector Policy. Furthermore, the Partnership Framework will cooperatively seek common time-bound policy actions by the GOB and CWASA to fully implement the WASA Act (1996) which would provide the operational autonomy for CWASA to fulfill its mandate to provide water, wastewater and stormwater drainage services on a commercialized footing.

• **Intensive supervision directed mainly at institutional development objectives would demonstrate to the Borrower the serious concern with which the objective is viewed by the donors.** The Bank’s project team will include a substantial number of team members based in-country in order to provide continuous and close supervision. The Bank will seek to conduct cooperative and/or joint reviews with development partners of progress in their respective projects as well as in the Partnership Framework, to enhance the oversight and impact of common institutional development activities and objectives.

### Safeguard Policies (including public consultation)

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<td>Environmental Assessment <em>(OP/BP 4.01)</em></td>
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<td>Projects on International Waterways <em>(OP/BP 7.50)</em></td>
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### List of Factual Technical Documents

18. Bank Staff Assessments
   - Project Preparation Back to Office Reports and Aide Memoires
   - Financial Management Assessment

*By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas.*
• Procurement Capacity Assessment
• Project Information Document (PID)
• Integrated Safeguards Data Sheet (ISDS)
• Financial and Economic Analysis Data

19. Project Preparation and Implementation Documents
• Environmental and Management Framework (EMF)
• Resettlement Policy Framework (RPF)

20. Other documents/Studies carried out
• WASA Act (1996)

Contact point:
Contact: Fook Chuan Eng
Title: Sr Financial Analyst
Tel: (202) 473-8506
Fax:
Email: feng@worldbank.org

For more information contact:
The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Email: pic@worldbank.org
Web: http://www.worldbank.org/infoshop