



# Completion Report

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Project Number: 26427-013  
Loan Number: 2117  
September 2015

## Bangladesh: Secondary Towns Integrated Flood Protection Project (Phase 2)

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Asian Development Bank

## CURRENCY EQUIVALENTS

Currency Unit – taka (Tk)

		<b>At Appraisal</b>	<b>At Project Completion</b>
		2 November 2004	12 December 2012
Tk1.00	=	\$0.0169	\$0.0123724095
\$1.00	=	Tk59.30	Tk80.825

## ABBREVIATIONS

ADB	–	Asian Development Bank
BWDB	–	Bangladesh Water Development Board
CDC	–	community development committee
EIRR	–	economic internal rate of return
FAP	–	Flood Action Plan
GAP	–	Gender Action Plan
GDP	–	gross domestic product
IEE	–	initial environmental examination
IPSC	–	interministerial project steering committee
LGED	–	Local Government Engineering Department
LPUPA	–	Local Partnerships for Urban Poverty Alleviation
MDS	–	management design and supervision
MLGRDC	–	Ministry of Local Government, Rural Development and Cooperatives
MOWR	–	Ministry of Water Resources
NGO	–	nongovernment organization
O&M	–	operation and maintenance
OPEC	–	Organization of the Petroleum Exporting Countries
PCR	–	project completion review
PPMS	–	project performance monitoring system
PRAP	–	Poverty Reduction Action Plan
SCG	–	savings and credit group
STIFPP II	–	Secondary Towns Integrated Flood Protection Project Phase 2
UGIAP	–	Urban Governance Improvement Action Program

## WEIGHTS AND MEASURES

km (kilometer)	–	(1,000 meters)
kg (kilogram)	–	(1,000 grams)
ha (hectare)	–	(10,000 square meters)

## GLOSSARY

<i>groyne</i>	–	a rigid structure that protects shorelines from coastal erosion
<i>thana</i>	–	a subdistrict, now known as an <i>upazila</i> , that represents the lowest administrative unit in Bangladesh
<i>pourashava</i>	–	an urban administrative division of local government having corporate status and usually powers of self-governance or jurisdiction

## NOTES

- (i) The fiscal year (FY) of the government and its agencies ends on 30 June. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2015 ends on 30 June 2015.
- (ii) In this report, "\$" refers to US dollars unless otherwise stated.

<b>Vice-President</b>	W. Zhang, (Operations 1)
<b>Director General</b>	H. Kim, South Asia Regional Department (SARD)
<b>Country Director</b>	K. Higuchi, Country Director, Bangladesh Resident Mission, SARD
<b>Team leader</b>	Z. U. Ahmad, Senior Water Resources Officer, SARD
<b>Team members</b>	N. Selim, Social Development Officer (Gender), SARD
	M. N. Alam, Associate Project Officer, SARD
	R. J. Gomes, Sr. Operations Assistant, SARD

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## BASIC DATA

### A. Loan Identification

1.	Country	Bangladesh
2.	Loan Number	2117-BAN(SF)
3.	Project Title	Secondary Towns Integrated Flood Protection Project (Phase 2)
4.	Borrower	People's Republic of Bangladesh
5.	Executing Agency	1. Bangladesh Water Development Board (Lead) 2. Local Government Engineering Department
6.	Amount of Loan	SDR54,321,000.00
7.	Project Completion Report Number	BAN-1533

### B. Loan Data

1.	Fact-Finding/Appraisal	
	– Date Started	15 June 2004
	– Date Completed	30 June 2004
2.	Loan Negotiations	
	– Date Started	25 October 2004
	– Date Completed	27 October 2004
3.	Date of Board Approval	2 December 2004
4.	Date of Loan Agreement	12 January 2005
5.	Date of Loan Effectiveness	
	– In Loan Agreement	11 April 2005
	– Actual	12 June 2005
	– Number of Extensions	1
6.	Closing Date	
	– In Loan Agreement	31 December 2009
	– Actual	30 June 2012
	– Number of Extensions	2
7.	Terms of Loan	1% per year during the grace period and 1.5% per year thereafter
	– Interest Rate	
	– Maturity (number of years)	32 Years
	– Grace Period (number of years)	8 years
8.	Terms of Relending (if any)	Not Applicable
	– Interest Rate	
	– Maturity (number of years)	
	– Grace Period (number of years)	
	– Second-Step Borrower	

#### 9. Disbursements

##### a. Dates

Initial Disbursement	Final Disbursement	Time Interval
20 December 2006	12 December 2012	72 months
Effective Date	Original Closing Date	Time Interval
12 June 2005	12 December 2012	90 months

## b. Amount (SDR)

Category	Original Allocation (SDR) A	Last Revised Allocation (SDR) B	Amount Canceled C=(A-B)	Net Amount Available D=B	Amount Disbursed E	Undisb- ursed Balance F
01 Civil Works	34,802,000	37,517,637	- 2,715,637	37,517,637	37,517,637	0
02 Equipment	1,334,000	1,449,428	-115,428	1,449,428	1,449,428	0
03 Slum Improvement	2,037,000	1,633,099	403,901	1,633,099	1,633,099	0
04 Project Management Expenditure	3,212,000	1,702,514	1509,486	1,702,514	1,702,514	0
05 Consulting Services	2,838,000	3,655,709	- 817,709	3,655,709	3,655,709	0
06 Feasibility Study Financing	577,000	0	577,000	0	0	0
07 Interest Charge	1,365,000	1,223,965	141,035	1,223,965	1,223,965	0
08 Unallocated	8,156,000	0	8,156,000	0	0	0
<b>Total</b>	<b>54,321,000</b>	<b>47,182,352</b>	<b>7,138,648</b>	<b>47,182,352</b>	<b>47,182,352</b>	<b>0</b>
<b>Equivalent \$</b>	<b>80,000,000</b>	<b>72,856,032</b>	<b>11,142,818</b>	<b>72,856,032</b>	<b>72,856,032</b>	<b>0</b>

10. Local Costs (Financed)	
- Amount (\$)	7,883,733
- Percent of Local Costs	37
- Percent of Total Cost	8

## C. Project Data

## 1. Project Cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	9.13	78.85
Local Currency Cost	119.75	21.12
<b>Total</b>	<b>128.88</b>	<b>99.97</b>

## 2. Financing Plan (\$ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	33.78	13.24
ADB Financed	77.99	70.95
OPEC Financed	15.00	13.88
Beneficiaries	0.10	0.00
<b>Total</b>	<b>126.87</b>	<b>98.07</b>
IDC Costs		
Borrower Financed	0.00	0.00
ADB Financed	2.01	1.90
Other External Financing	0.00	0.00
<b>Total</b>	<b>128.88</b>	<b>99.97</b>

ADB = Asian Development Bank, IDC = interest during construction, OPEC = Organization of the Petroleum Exporting Countries, SDR = special drawing rights.

## 3. Cost Breakdown by Project Component (\$ million)

Component	Appraisal Estimate	Actual
<b>A. Base Cost</b>		
1. Flood Protection Works	51.36	52.78
2. Urban Drainage System Improvements	25.91	29.86
3. Urban Environmental Improvements	9.34	4.53
4. Capacity Building and Implementation Assistance	11.62	10.90
<b>Subtotal (A)</b>	<b>98.21</b>	<b>98.07</b>
<b>B Contingencies</b>		
1. Physical Contingencies	9.34	0.00
2. Price Contingencies	6.35	0.00
<b>Subtotal (B)</b>	<b>15.69</b>	<b>0.00</b>
<b>C. Taxes and Duties</b>	<b>12.98</b>	<b>0.00*</b>
<b>D. Interest Charges</b>	<b>2.01</b>	<b>1.90</b>
<b>Total</b>	<b>128.88</b>	<b>99.97</b>

\*Included in the Government of Bangladesh's counterpart fund under a different component.

## 4. Project Schedule

Item	Appraisal	Actual
<b>Component A : Flood Control</b>	Q2,2005-Q9,2009	Q1,2007-Q1,2012
<b>Component B: Drainage</b>	Q1,2005-Q2,2009	Q1,2007-Q2,2012
<b>Component C: Urban Environment Improvements</b>	Q2,2005-Q2,2009	Q3,2006-Q2,2012
<b>Component D: Implementation Assistance</b>	Q1,2005-Q3,2009	Q3,2006-Q2,2012

## 5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From July 2005 to June 2012	Satisfactory	Satisfactory

## D. Data on Asian Development Bank Missions

Name of Mission	Date(s)	No. of Persons	No. of Person-Days	Specialization of Members
Fact-Finding	15–30 Jun 2004	4	40	a, b, c, d, g, h, i
Inception	1–8 Aug 2005	4	16	a, b, c, d
Special Project Administration	26 Nov–5 Dec 2006 (Intermittent)	1	2	e
Project Review 1	7–14 Aug 2007	3	14	a, b, d
Project Review 2	16–27 Mar 2008	3	20	a, b, d
Project Review 3	18–28 Aug 2008	3	20	a, b, f
Midterm (Intermittent)	22 Feb–12 Mar 2009	3	25	a, b, d
Project Review 4 (Intermittent)	1–15 Dec 2010	3	20	a, b, f
Project Review 6	11–21 Dec 2010	3	20	a, b, d
Project Review 7	21 Apr–3 May 2011	2	14	a, b
Project Review 8	14–24 Nov 2011	2	14	a, b
Project Review 9	4–17 May 2011	2	18	a, b
Project Completion Review	2–28 March 2015	3	45	a, b, f

a = mission leader, b = project analyst, c = project implementation officer, d = social safeguard specialist (gender), e = head, project administration unit, f = consultant, g = counsel, h = economist, i = counselor.

## I. PROJECT DESCRIPTION

1. In 2004, the Government of Bangladesh implemented the Secondary Towns Integrated Flood Protection Project Phase 2 (STIFPP II) of \$128.88 million with financial assistance from the Asian Development Bank (ADB) and the Organization of the Petroleum Exporting Countries (OPEC).<sup>1</sup> The project aimed to promote economic growth and reduce poverty in nine selected secondary towns<sup>2</sup> by providing a flood-free and secure living environment within an integrated flood protection framework.

2. The project design and implementation was based on the findings of the Flood Action Plan (FAP)<sup>3</sup>, which suggested that frequent flooding is severely undermining urban growth in Bangladesh. The FAP identified 15 extremely flood-prone secondary towns that required immediate flood protection. During 1993–2000, with assistance from ADB, the government designed and implemented the Secondary Towns Integrated Flood Protection Project Phase 1<sup>4</sup> covering six<sup>5</sup> of these 15 towns. The project resulted in economic and environmental improvement, and the towns remained free from flooding. The STIFPP II provided flood and environmental protection and improved living conditions in the remaining nine secondary towns.<sup>2</sup>

3. The project had four outputs: A – flood protection works, B – urban drainage system improvement, C – urban environmental improvement, and D – capacity building and implementation assistance. Output A included flood embankments (typically earthen), reinforced concrete flood walls, drainage regulators, and river training or bank protection works including *groynes* and *revetments*. Output B consisted of improvements to existing town drainage works to reduce flooding in low-lying urban areas and improve environmental conditions. Output C was environmental improvement through solid waste management, improved sanitation, and slum development, including roadworks to connect the slums with solid waste disposal facilities. Output D covered consulting services, including feasibility studies regarding a third phase to follow up on the project.

## II. EVALUATION OF DESIGN AND IMPLEMENTATION

### A. Relevance of Design and Formulation

4. The project design was relevant to the FAP (para. 2), which identified the nine secondary towns covered by the project as vulnerable, along with six others. The project used the same design as the first phase that effectively mitigated flooding and drainage congestion, along with an integrated approach combining river protection works with drainage and basic sanitation services. Furthermore, it incorporated the lessons learned from the first project by focusing more on improving the urban environment through such means as solid waste management, low-cost sanitation, and poverty reduction.

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<sup>1</sup> ADB. 2004. *Report and Recommendation of the President on a Proposed Loan to Bangladesh for the Secondary Towns Integrated Flood Protection Project Phase 2*. Manila.

<sup>2</sup> Brahmanbaria, Gaibandha, Jamalpur, Kushtia, Manikganj, Munshiganj, Mymensingh, Rajshahi, and Sunamganj.

<sup>3</sup> The Government of Bangladesh, with technical assistance from the World Bank, carried out a study called the Flood Action Plan that examined chronically flood-prone secondary towns in Bangladesh in the mid-1980s.

<sup>4</sup> ADB.1992. *Report and Recommendation of the President on a Proposed Loan to Bangladesh for the Secondary Towns Integrated Flood Protection Project Phase 1*. Manila.

<sup>5</sup> Dinajpur, Habiganj, Khulna, Kurigram, Moulvibazar, and Panchagarh.



5. The project design was relevant to and consistent with the ADB Country Program Strategy and development policy, sector development plans, and the government's Poverty Reduction Strategy Paper. The formulation emphasized lessons learned, coordination and complementarity of the co-financier with other donors, and extensive consultations with and participation of a wide range of stakeholders. The design was sound and was not changed significantly during the midterm review or before completion. It adequately addressed gender issues, particularly through urban environmental improvements targeting women's empowerment, access to employment, and urban services.

6. It was twice necessary to revise the scope of the works and actual outputs of all four components during implementation due to delays in fielding Management Design and Supervision (MDS) consultants and later, an increase in the prices of construction materials and services. However, this did not change the project outcome. The project performance monitoring results, achievements of the development monitoring framework, and target outputs are summarized in Appendix 1.

## **B. Project Outputs**

7. The project aimed to (i) provide integrated flood protection through a civil works network of flood control structures including flood walls and embankments, riverbank protection through rivetment, regulators, *groynes*, and crossroads; and (ii) improve urban environmental conditions and communication systems through large numbers of civil works such as footpaths, community latrines, community-based water supplies, and drainage and solid waste disposal systems. The status of project outputs are in the following paragraphs and in Appendixes 1, 2, and 3.

8. **Output A: Flood protection works.** The Bangladesh Water Development Board (BWDB) implemented Output A, which aimed to implement 10 of the 11 activities covered by the project. By June 2012, it had achieved the following: 167 km of alignment surveys, 89 structure surveys, geotechnical investigations (598 holes drilled), one physical model test, the finalization of 44 km of embankment alignments, one instance of land acquisition and resettlement, the provision of detailed designs (103 packages), the preparation of tender documents (103 packages), and the tendering of 95 packages. The remaining physical implementation and supervision work was fully achieved by 31 December 2012, within an extension. The output included a considerable amount of civil works construction—2.3 million labor-days of which 28% was provided by female laborers—using local laborer.

9. The scale of the flood protection works decreased during implementation. The project constructed 12.36 km of flood embankments as compared with the original estimate of 17.3 km, and 35.4 km of actual re-sectioning work compared with 79.5 km. Similarly, the project's road metaling, riverbank and embankment revetments, and flood walls extended for 10.50 km, 34.94 km, 5.47 km, and 2.78 km respectively, as compared to the original estimates of 37.3 km, 32.57 km, 6.5 km, and 16.45 km. These changes occurred primarily because the initial estimates were not based on the actual site conditions; they did not affect the overall scope of the project.

10. **Output B: Urban drainage system improvement.** The BWDB implemented part of output B (drainage system improvement outside *paurasava*/City Corporation). The Local Government Engineering Department (LGED) implemented part of outputs B (drainage system improvement inside *paurasava*/City Corporation) and C. All eight activities under output B were fully implemented by June 2012 as per the revised target. These included a drainage channel survey (82.49 km), a town drainage survey (282 km), the finalization of the main and carrier drain alignments (282 km), one instance of land acquisition and resettlement, the provision of

detailed designs (182 packages), the preparation of tender documents (182 packages), the awarding of contracts (182 packages), and physical implementation with supervision (182 packages).

11. **Output C: Urban environmental improvement.** All five activities under output C were fully implemented by June 2012. These included the finalization of sites (31 packages), provision of detailed designs (31 packages), preparation of tender documents (31 packages), tendering and awarding of contracts (31 packages), and physical implementation with supervision (31 packages).

12. A sub-output of output C integrated slum improvement and poverty reduction. The sub-output aimed to improve the quality of life of the urban poor by increasing their income and improving certain non-income aspects of poverty, including health and sanitation, literacy, access to safe water, and solid waste management, as well as ensuring the participation of both men and women in designing and implementing programs to improve their living conditions. The LGED also ensured women's participation in social mobilization, community activities, related civil works construction (landfills, approach roads, etc.), and solid waste collection and disposal. Women were also encouraged to participate in slum development to reduce poverty through microcredit group activities, public health and hygiene campaigns, and all activities implementing Urban Governance Improvement Action Plans (UGIAP).

13. To achieve these aims and objectives, the LGED identified members of the urban poor through surveys in the slums of five *pourashavas*<sup>6</sup> (other *pourashavas* were excluded to avoid overlap with similar ongoing programs supported by different agents). A community level Poverty Reduction Action Plan (PRAP)<sup>7</sup> was prepared, and total 195 community development committees (CDCs) were formed in nine secondary towns. Within the CDCs, primary groups and savings and credit groups (SCGs) were formed, and the members of all of these groups, of whom about 95% were women, met very regularly and worked together. The 1,175 SCG members saved weekly installments, with which they rewarded income-generating activities, enabling most of them to escape poverty. The members also formed Community Action Plans (CAPs) for poverty reduction through such physical works as the installation of tube wells for safe water, twin-pit latrines, footpaths, drains, waste bins, and streetlights in the slums.

14. The output pursued improved transparency and accountability to build the institutional capacity of *pourashavas* in urban governance management to enable urban local bodies to provide citizens with better municipal facilities. To this end, an Urban Governance Improvement Action Plan (UGAIP) was prepared and implemented, creating a wider space for citizen participation and enabling the *pourashavas* to make more informed decisions.

15. **Output D: Capacity building and implementation assistance.** The project provided consulting services to (i) survey, design, and estimate urban infrastructure such as flood control systems, drainage, footpaths, and public toilets; (ii) prepare tender documents; (iii) supervise construction and carry out quality control; (iv) implement the UGIAP and slum improvement activities; and (v) examine the feasibility of a follow-up project. Specific capacity building to address gender, poverty, and environmental issues is needed in both the BWDB and LGED.

16. The project provided 64 person-months of international consultants and 1,125 person-months of national consultants to support project implementation and capacity building.

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<sup>6</sup> Brahmanbaria, Gaibandha, Jamalpur, Munshiganj, and Sunamganj.

<sup>7</sup> Each secondary town had a separate community-level PRAP.

Ultimately, 67 international person-months and 1,653 national person-months were used. The consulting services were instrumental to designing and supervising infrastructure development and urban environment improvement, including building the capacity of the *pourashavas*.

17. Most interventions were physical in nature, including the construction of infrastructure for urban flood protection, improvement and management of drainage systems, and improvement of environmental sanitation and of minor infrastructure like footpaths. The project helped the urban towns to manage the facilities effectively, efficiently, and sustainably. The progress of the outputs, including training and capacity building initiatives (outlined in Appendix 4), is significant and sustainable.

18. **Gender and equity.** The potential scope of the project included gender and equity issues in terms of employment in the huge civil works and follow-on operation and maintenance (O&M) activities associated with flood protection, urban drainage system improvement, and urban environmental improvement including slum development and waste management. During implementation, it employed 2.3 million labor-days—of which 28% were provided by female laborers—in civil works, and in most cases ensured equal access to jobs with equal pay for both genders. Furthermore, several noteworthy gender, equity, and mainstreaming issues arose relating to access to training and skill development, microcredit and income generating activities, and hygiene and sanitation facilities. Town-specific Gender Action Plans (GAPs) were developed and implemented within the UGIAP framework, and all *pourashavas* carried out gender activities in keeping with these. In addressing gender issues, the project fully achieved its targets (outlined in Appendix 5).

19. Moreover, women's active participation in urban governance as well as the provision of urban benefits as stakeholders was ensured. Within the overall GAP, the project particularly addressed gender issues in the slums (outlined in Appendix 5). Actions taken under the UGIAP framework included: (i) the formation of town and ward level coordination committees with citizen participation, including women; (ii) development of a participatory municipal infrastructure development plan; (iii) strengthening of the role of elected female ward commissioners; (iv) implementation of a slum improvement program; and (v) operation of a community fund to generate income and improve infrastructure.

20. **Land acquisition and resettlement, indigenous people's development, and environmental issues.** The project acquired 44.906 hectares of urban, semi-urban, and agricultural land for the construction of flood mitigation, drainage congestion mitigation, and solid waste disposal structures. This affected 1,500 households. The land was acquired by settling with due compensation being awarded following standard government procedures and ADB requirements. The affected households were resettled amicably through the payment of adequate compensation. The secondary towns acquired the minimum amount of land through the district administration legally responsible for acquiring private land for public use. As no indigenous people were included in and or affected by the project there was no need to consider indigenous people's development or to resolve related issues. Furthermore, flood control measures and drainage and sanitation-related activities were designed and implemented in an environmentally friendly manner.

### C. Project Costs

21. The actual cost of the project at completion was \$99.97 million as compared with the original estimate of \$128.88 million, a decrease of 22.4%. The borrower provided \$13.24 million,

60.8% less than the appraisal estimate. ADB provided \$72.86 million, 9.0% less than the original estimate, and OPEC provided \$13.88 million, 7.5% less than the original estimate.

22. The local currency cost was \$21.12 million (82.4% less than the original estimate) and the foreign currency cost was \$78.85 million (763.6% higher than the original estimate). The total cost was reduced by 22.4%; this was primarily due to the considerable reduction in the volume of civil works (Appendix 3, Table A.1.2) and rates as originally envisaged. In addition, exchange rate fluctuations<sup>8</sup> and the cost-effective procurement of vehicles and office equipment played important roles in reducing the actual project cost. In all, \$11.14 million was cancelled from ADB loan proceeds, and \$1.12 million from OPEC loan proceeds. Details of this are in Basic Data.

#### **D. Disbursements**

23. Separate imprest accounts were established for ADB and OPEC funds and the statement of expenditure procedure was followed for disbursements. According to ADB's loan financial information system, \$72.86 million (\$64.97 million in foreign currency and \$7.88 million in local currency) was disbursed out of ADB loan proceeds of \$80.00 million; and \$13.88 million was disbursed out of OPEC loan proceeds of \$15.00 million. The ADB disbursements went smoothly, but, the OPEC disbursements were irregular, negatively affecting project implementation. Disbursement from the borrower was smooth and project fund management was efficient with a high imprest fund turnover rate (5.2) of the ADB loan as of 30 June 2015.

#### **E. Project Schedule**

24. The loan agreement was signed on 12 January 2005 and became effective on 12 June 2005. Project implementation was scheduled to start on 12 January 2005 and end on 31 December 2009 (see Basic Data). While the project began as scheduled, the loan closing dates were extended twice and it was completed on 30 June 2012 after an extension of 2.5 years. The main reasons for the delay were: (i) a 20 month delay in the engagement of MDS consultants; (ii) a decrease in the volume of civil works from original estimates; (iii) the rapidly increasing price of essential construction materials; (iv) lengthy procedures required to mitigate land acquisition problems; and (v) changes of design of certain infrastructure due to hydrological and morphological changes of river courses. The status of project implementation is summarized in Appendix 6.

#### **F. Implementation Arrangements**

25. The BWDB under the Ministry of Water Resources (MOWR) was the executing agency for output A (flood protection works), while the LGED under the Ministry of Local Government, Rural Development and Cooperatives (MLGRDC) was the executing agency for output B (urban drainage system improvement) and output C (urban environmental improvements). The BWDB was the lead executing agency. An interministerial project steering committee (IPSC) was established at the MOWR with members representing the MLGRDC, Ministry of Land, Ministry of Environment and Forests, Economic Relations and Finance Divisions of the Ministry of Finance, Planning Commission and the Implementation Monitoring and Evaluation Division of the Ministry of Planning, Ministry of Women and Children Affairs, BWDB, LGED, Department of Environment, and Water Resources Planning Organization of the MOWR. Representatives from

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<sup>8</sup> \$1 = Tk59.30 at appraisal (2 November 2004) and Tk80.825 at completion (12 December 2012).

the Bangladesh Resident Mission and the nine secondary towns participated in the IPSC meetings as observers.

26. The BWDB established a separate project management unit (PMU) headed by a superintending engineer while the LGED established another PMU headed by a senior executive engineer. The BWDB implemented output A and part of output B (Drainage improvement outside City Corporation/*Paurasava*), and LGED implemented outputs B (Drainage improvement within City Corporation/*Paurasava*) and C through respective local bodies. The BWDB and LGED jointly implemented output D. The consultants engaged under output D supported both the BWDB and LGED. A project management team (PMT) was formed with the Project Director (PD)-BWDB, PD-LGED, and the management design and supervision (MDS) team leader and deputy team leaders. The PMT prepared programs for outputs A and B, monitored the overall progress of implementation, and ensured coordination among interrelated project activities. The IPSC met five times while the PMT met monthly during implementation. The implementation arrangement was effective and satisfactory, and it remained unchanged.

#### **G. Conditions and Covenants**

27. Out of 26 major loan covenants, 24 were complied with satisfactorily and largely on time. Two covenants related to the midterm review and project performance monitoring system were only partially met. This did not affect project implementation (Appendix 7).

#### **H. Consultant Recruitment and Procurement**

28. MDS consulting services (67 person-months of international consultants and 81.75 person-months of national consultants) were procured under the loan (Appendix 3). A large number of technical support services were also procured. The procurement of MDS consultants took 20 months due to the lengthy procurement process and the replacement of one expert due to a conflict of interests. All consultants were procured in keeping with the ADB Guidelines on the Use of Consultants.

29. All goods were procured following the ADB Guidelines for Procurement of Goods and Services. There was no major problem with the procurement of goods such as vehicles, furniture, and office equipment (Appendix 3).

30. The project utilized 293 different contracts grouped in packages arranged for civil works and administered by the BWDB and LGED (Appendix 3). The BWDB administered 80 contracts under output A, and 4 contracts under output B; and the LGED administered 178 contracts under output B and 31 contracts under output C.

#### **I. Performance of Consultants, Contractors, and Suppliers**

31. The MDS consultants' performance was satisfactory and contributed to the successful project implementation, although this suffered from long delays in engaging the consultants. The performance of the civil works contractors and of the suppliers was generally satisfactory.

#### **J. Performance of the Borrowers and the Executing Agencies**

32. The borrower performed satisfactorily during project design and implementation, especially in providing necessary guidance, counterpart funds, and prompt administrative and financial approvals, and in setting up several committees to monitor project implementation. The

performance of the BWDB as executing agency was satisfactory, especially in the following activities: (i) establishing and staffing a project management unit (PMU) in its headquarters and separate project implementation implementation units (PIU) in each district; (ii) managing outputs A, part of A, and D; and (iii) efficiently coordinating with relevant ministries, departments, and local level agencies, particularly the *pourashavas*. The performance of the LGED was similarly satisfactory in successfully implementing outputs B, C, and D, having established a separate PMU at its headquarters and PIUs in eight paurasavas, and in one City Corporation. The LGED satisfactorily completed the planned activities and coordinated with the BWDB and local level agencies in the nine towns, particularly the *pourashavas*. Both executing agencies submitted the necessary reports, including the project completion reports, in a timely fashion.

## K. Performance of the Asian Development Bank

33. ADB effectively supported the project implementation through its Bangladesh Resident Mission and promptly responded to requests from the borrower and executing agency for approvals, disbursements, and monitoring. ADB fielded 12 missions including inception, annual review, periodic review, midterm review, final review, and project completion review missions. Moreover, ADB together with OPEC encouraged a project implementation and policy dialogue with the government. ADB satisfactorily coordinated with OPEC and the government in administering the loan and consulting services. ADB's overall performance is rated *satisfactory*. Apart from some delays in fund disbursements and closing the loan account, OPEC as co-financier effectively coordinated with ADB in all respects, and OPEC's performance as co-financier was satisfactory.

## III. EVALUATION OF PERFORMANCE

### A. Relevance

34. The project design and implementation were *relevant*. The design was based on FAP<sup>2</sup> recommendations for flood protection in 15 secondary towns vulnerable to floods, and the lessons learned from the earlier phase were incorporated in the design of the project. ADB provided total three loans<sup>9</sup> for urban flood protection covering Dhaka and 15 secondary towns including STIFPP II. Two devastating floods in 1987 and 1988 confirmed the relevance of the project design and identified the towns requiring sustainable and comprehensive flood protection.

35. The project design was relevant and justified as it was necessary to mitigate flood and drainage problems for nine of the 15 highly vulnerable towns. Under the project, the government invested heavily in integrated flood protection, and improved drainage facilities for the nine towns prone to regular flooding and drainage congestion, poor waste disposal, and an unhygienic environment. The project design was also relevant as the respective *pourashavas* lacked the financial, technical, and institutional capacity to undertake the necessary integrated flood protection and environmental improvement measures. The project provided external

<sup>9</sup> ADB. 1991. *Report and Recommendation of the President to the Board of Directors on a proposed Loan and Technical Assistance Grant to Bangladesh for the Dhaka Integrated Flood Protection Project*. Manila covering Dhaka; ADB. 1992. *Report and Recommendation of the President to the Board of Directors on a proposed Loan to Bangladesh for the Secondary Towns Integrated Flood Protection Project*. Manila covering six secondary towns; and ADB. 2004. *Report and Recommendation of the President to the Board of Directors on a proposed Loan to Bangladesh for the Secondary Towns Integrated Flood Protection Project PHASE 2*. Manila covering nine secondary towns.

financial and technical assistance for the sustainable mitigation of frequent flooding, chronic drainage congestion, and poor environmental sanitation; waste management; the provision of public toilets; and the improvement of revenue administration through reforms and training to develop human resources. The project's relevance remained unchanged from implementation through the midterm review and closing.

36. The project adopted a proactive action plan and conducted the baseline survey prior to project approval. The proactive action plan was helpful in designing different physical structures and would have supported an early start up although this was delayed by the lengthy process of engaging MDS consultants. Land acquisition and necessary resettlement, the engagement of contractors, and the execution of civil works were completed late but within the extended closing date of 31 December 2012.

37. The project design estimates for physical infrastructure facilities under outputs A and B were unrealistic as these substantially exceeded the volume of actual works under all 11 items. Furthermore, the volume of actual works under five of the six items in output D also fell considerably below the original estimates. Of the six items in output C, the volume of works in three items fell below the original estimates, two items increased, and one item remained same (Appendix 3).

38. The technological design of sanitary latrines and the estimated demand for urban environmental improvements was inappropriate and not based on the preferences of the local population. The project established 13,200 individual latrines, a number calculated according to the existing coverage of 58% of households. The stipulated terms and conditions to acquire a sanitary latrine included a 10% contribution from the interested household, with the remaining 90% to be paid in installments. However, it was found that there was no demand for individual household latrines, as people were not interested in acquiring them due to the cumbersome terms and conditions when several other sources offered more favorable terms. Therefore, with the approval of ADB, the project decided to establish community latrines in busy areas of the secondary towns instead. A total of 21 public toilets were established in nine secondary towns (Appendix 3). A study by the Department of Public Health and Engineering<sup>10</sup> in 2008 showed that overall coverage of sanitary latrines in the project towns had increased to 88% through other sources, including own funds.

## **B. Effectiveness in Achieving Outcomes**

39. The project design and implementation was *effective* in achieving the expected outcomes of a flood-free and secure living environment and improved urban governance (Appendixes 1, 2, and 10). The project also achieved the targeted outcomes of (i) improved living conditions and increased economic opportunities for urban dwellers to reduce poverty, (ii) a flood-free and secure living environment within an integrated and planned flood protection framework, and (iii) improved urban governance for sustainable urban service delivery.

40. The project outcome in terms of ensuring a relatively flood-free and secure living environment within the integrated flood protection framework is effective and sustainable. After the project, river floodwaters did not enter any of the nine project towns during the monsoons as they had in the past. BWDB experts, other professionals, and local inhabitants believe that, due to the project interventions, the project towns will not flood even in exceptional cases such as occurred in 1987 and 1988.

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<sup>10</sup> Department of Public Health and Engineering. 2009. *Study of Access to Sanitation*. Dhaka.

41. The average coverage of sanitary latrines in the nine project towns increased from 58% in 2004 to 88% households in 2008, indicating the achievement of project targets and a sustainable upward trend. The primary drainage systems were repaired, rehabilitated, and cleaned during the project. Their maintenance is not satisfactory and requires further intervention. Solid waste transfer stations were also set up in the secondary towns and made operational. These and their service systems were maintained sustainably after the project but require further intervention.

42. The project constructed 45 transfer stations for hygienic solid waste disposal in eight towns<sup>11</sup> (Appendix 1). While these are useful they must be used hygienically, cleaned properly, and emptied regularly. Nine landfill sites were developed but lack proper sanitary provisions and management. Furthermore, all nine *pourashavas* continue to dispose of some waste outside the landfills as before. Estimates of the total amount of solid waste generated, collected, and disposed of in landfills indicate that only a small percentage of all solid waste is managed hygienically.

43. The UGIAP was prepared and signed, consultants engaged, and facilitators recruited. The UGIAP was useful and effective. It provided training for people involved in municipal services including elected representatives, officials, and staff, which increased accountability, transparency, commitment, participation, and revenue income.

44. Revenue income of the nine secondary towns increased between 2005 and 2012 at an average rate of 10% per year on a sustainable basis. The project raised the tax revenue base by introducing regular tax reassessment and an improved tax administration system, building the capacity of the relevant staff through training, and building awareness among city dwellers.

### **C. Efficiency in Achieving Outcomes and Outputs**

45. The BWDB utilized 1,151,980 labor-days including 300,613 labor-days of female labor (26%) for flood protection works, and the LGED utilized 1,162,555 labor-days including 351,306 labor-days of female labor (30%) for urban drainage system improvement works (Appendix 5). Therefore, the project created an estimated 2,314,535 labor-days including 651,919 female labor-days (28%) worth a total of \$3.98 million in wages. Furthermore, the costs of standard O&M labor required by the flood control and drainage facilities are estimated at \$390,314 per year. Therefore, the project created employment opportunities both during and after construction for both male and female laborers (Appendix 5).

46. The project completion review (PCR) mission estimated higher economic returns to project investments (Appendix 8), above the opportunity cost of funds, which was estimated at 12% per year (Table 1). The achievement of outputs and outcomes is robust, efficient, and sustainable, and likely to remain unaffected by critical risk factors such as an increase in O&M costs and a reduction in revenue income. The project outputs were reduced during implementation and remained incomplete at project completion. The project period was also extended 2.5 years, which lowered the final cost by 22.4%. Based on these facts, the project is rated *less than efficient*.

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<sup>11</sup> Gaibandha, Kushtia, Jamalpur, Mymensingh, Manikganj, Sunamganj, and Brahmanbaria.



**Table 1: Summary of Economic Returns**

Secondary Town(s)	EIRR (%)		O&M Costs Increased by 10%	Benefits Reduced by 10%	Both O&M Costs and Benefits Increased by 10%
	Original	PCR	PCR	PCR	PCR
<b>Overall Project</b>	22.8	26.02	25.98	24.02	27.85
Brahmanbaria	20.4	16.01	15.99	14.57	17.36
Gaibandha	16.3	14.27	14.22	12.65	15.77
Jamalpur	44.6	29.37	29.34	26.82	31.69
Kushtia	14.3	15.15	15.12	13.95	16.25
Manikganj	33.7	20.32	20.28	18.18	22.29
Munshiganj	18.6	16.34	16.30	14.86	17.70
Mymensingh	30.4	19.16	19.12	17.32	20.86
Rajshahi	13.5	18.94	18.91	17.58	20.19
Sunamganj	13.5	14.52	14.48	13.21	15.72

EIRR = economic internal rate of return, O&M = operation and maintenance, PCR = project completion review.  
Source: PCR mission estimates.

#### **D. Preliminary Assessment of Sustainability**

47. The sustainability of the project is constrained by a lack of initiatives and sources of funds for proper O&M of the physical facilities such as river protection works, drainage systems, and waste disposal and management systems.

48. The scope of the urban drainage system improvements was reduced significantly (Appendix 1) due to initial over-estimation in the absence of a real-time design. The project established extensive high quality primary, secondary, and tertiary drainage networks covering each of the nine secondary towns thoroughly. However, the drainage facilities are not cleaned regularly or properly maintained. Nearby residents throw waste into the drains and land grabbers have encroached on the systems. It is important to motivate residents to only dispose of household liquid wastes year round to keep the drains clean, and to discourage encroachment.

49. Project sustainability is highly dependent on policy changes as well as political will and commitment to urban development priorities and strategies. Changing environmental conditions, natural calamities, river course changes, increasing urban populations, unplanned and inordinate urban growth, the dependence of city corporations on public funds, and low tax revenue income are major constraints on sustainability. To ensure the sustainability of the project outputs and outcomes, the project towns must be financially, technically, and institutionally self-reliant so that the facilities established under the project are properly maintained. Given the present level of O&M of flood control infrastructure, drainage facilities, and solid waste management systems, the project is rated as *less than likely sustainable*.

50. The City Corporation Ordinance scheduled for amendment in 2006 was amended and made effective in 2009. The Holding Tax Rules and Schedules planned for revision by 2007 were revised in 2012. The UGIAP scheduled to be adopted in 2005 was adopted in 2012. Although project efforts and initiatives to increase political commitments to introduce municipal transparency and accountability, decentralize authority, and devolve resources to secondary towns were initially considered as potential risks and threats, the government has introduced these initiatives through the project on a limited basis. However, while the city corporation's contributions to the O&M funds for the facilities and services established under the project has

enhanced overtime, these remain insufficient. The city corporations remain heavily dependent on local government support. Inadequate O&M funds are a major constraint on the sustainable maintenance of flood control infrastructure and drainage facilities in particular. City corporations are unable to keep the drains clean year round while the local inhabitants are not yet aware enough to refrain from throwing household wastes into nearby drains and open spaces.

## **E. Impact**

51. The project made a moderate impact on poverty and gender, living conditions of city dwellers, public health and environmental sanitation, and institutional capacity and governance of the nine secondary towns (Appendixes 3, 9, and 10). The project promoted economic growth and reduced poverty in the towns by providing a flood-free and secure living environment within an integrated flood protection framework. The project design and implementation followed an integrated approach, combining river protection works with drainage and basic municipal services appropriate for flood-prone urban areas, particularly in low-lying parts with poor drainage systems.

52. The incidence of waterborne diseases for the nine project towns declined from 40% of city dwellers in 2005 to 30% in 2012 as compared with the 2010 target of 30%. The annual average household income of the city dwellers in the project area at current prices increased from 10% in 2005 to 12% in 2012 as compared with the 2010 target of 10%. Land and property values also increased by 10% per year between 2005 and 2012 as compared with the 2010 target of 10%.

53. There were both direct and indirect impacts of poverty reduction among the slum dwellers who were the primary victims of floods in the project towns almost every year. Their income increased due to flood mitigation, improved infrastructure within the slums (approach roads, internal roads, improved water safety and sanitation, and waste disposal systems). The project introduced microfinance to generate income for the poor and slum dwellers, particularly the women. The household income of slum dwellers increased due to an increase in workdays during the monsoon, additional income from family members engaged in livelihood activities through project-supported microfinance, and reduced medical expenses due to the declining incidence of waterborne diseases during floods. The income of city traders particularly in the low-lying areas increased due to higher sales of commodities year-round as compared with poor sales during the two monsoon months due to prolonged flooding before the project. This increase in income and improved infrastructure enhanced the city dwellers' living conditions and living standard. The increased purchasing power of poor slum dwellers was noted from increased food consumption, increased household assets including improved houses with furniture and electric and electronic appliances, and increasing expenditure on the education of children and clothing for families.

54. Before the project, flooding made it necessary to close schools located in low-lying parts of the project towns for some time, which affected the education of the children. The academic performance of students, especially girls and young children, in low-lying flood-prone areas of the project towns improved due to year-round school attendance.

55. The project prevented damage to standing crops through flood mitigation resulting in savings estimated at \$35 million per year in all nine project towns. The project also eliminated additional O&M costs due to flooding estimated at \$0.64 million per year. The asset value of agricultural and non-agricultural lands increased by 5% and 10% respectively per year due to integrated flood protection measures, the overall improvement of the urban living environment,

and the enhanced potential for economic activities including industry and trade. Improved urban facilities also significantly enhanced the city dwellers' living conditions.

56. The commercial importance of the project towns has increased. Both local and outside entrepreneurs have shown interest and set up new enterprises and industries in the project towns due to the assured safety from floods and the availability of suitable land for trade and industry. The land area of all nine towns has expanded on average by 20% since the project completion, partly due to the project interventions. The population and number of households in all nine towns also increased due in part to the project developments, with an average population growth estimated at 5% per year. The average income of the project beneficiaries, particularly the slum dwellers, increased by 2.5% per year as compared with the project target of 1% per year (Appendix 10).

57. The STIFPP II is a gender equity project designed to include a Gender Action Plan (GAP). Each of the nine towns prepared its own GAP and carried out gender activities accordingly. The project introduced the UGIAP as a means of mainstreaming gender into municipal development activities by encouraging the increased participation of women as beneficiaries and agents and thereby enhancing the productivity and quality of municipal services. In all nine towns, gender committees were formed and headed by one female elected representative to guide and support the committee activities wherever needed. On average, the gender committees (except the Rajshahi City Corporation) held 82% of their scheduled meetings. The gender committees monitored and promoted gender-based activities within the towns. Furthermore, the committees held courtyard meetings in poor areas especially in the slums and to raise awareness of critical social issues such as dowries, "Eve-teasing", early marriage, violence against women, birth and death registration, child care, and adolescent girls' issues.

58. The project had a considerable impact on women's development and poverty reduction by supporting increased participation in municipal activities, equal access to employment, wage equality and other forms of social development, and economic activities such as child care, child education, personal hygiene and healthcare, female friendly sanitation facilities in work and public places, and education institutions. Women, especially those from poor households and from slums, were motivated to participate in community activities; sanitation, safe water, and hygiene practices; and income-generating activities. The PCR survey estimated that the monthly income of participating women in the slums rose by 50% due to increased employment opportunities. The PCR mission noted that during the implementation of civil works, 26% of laborers were women; however, daily wage rates for male and female laborers differed (Appendix 10), with men being paid on average Tk170 and women Tk145 (15% less for the same job in quantity and quality).

59. In all, 195 community development committees were formed and operated as originally planned. Targeted primary groups and savings and credit groups (SGCs) were formed and operated. More than 95% of the group members were women. On average, the primary groups held 82% of scheduled meetings and 85% of the women participated in the courtyard meetings. However, the PCR Mission noted that gender issues were only partially mainstreamed in the municipal activities and that related efforts have been less than sustainable. The GAP implementation under the project positively impacted gender equity and addressed gender issues including equal wages for female laborers.

60. The project had a substantial positive impact on environmental conditions in the towns by mitigating regular floods, erosion, the submergence of a large area of the towns, particularly

the low-lying areas, drainage congestion, and poor public sanitation. The incidence of waterborne diseases and medical expenses per household, especially in poor slum households, has declined by 10%, resulting in an improvement in public health, increased work hours and income, and savings on additional medical expenses, which have also declined by 10% (Appendix 10). Overall environmental and living conditions in the towns improved due to developed footpaths, drains, waste bins, streetlights, public toilets, tube wells, and solid waste disposal systems.

61. The project helped build the capacity of the agencies responsible for maintaining the flood protection, drainage, and environmental improvement facilities by providing appropriate training and equipment to strengthen their capability to provide effective O&M services. The local BWDB and city corporations benefited from this useful equipment (Appendix 9).

62. The PCR mission assessed the overall socioeconomic and other benefits and impacts of the project using both primary and secondary data collected through sample surveys in all nine towns. The assessment indicated that flood mitigation, improved drainage systems and environmental conditions, and effective urban services provided by the local BWDB and the respective city corporations significantly impacted the towns. The assessment noted considerable economic growth, poverty reduction, improved environmental and living conditions, and good public health and hygiene (Appendix 10).

#### **IV. OVERALL ASSESSMENT AND RECOMMENDATIONS**

##### **A. Overall Assessment**

63. There were no major difficulties during implementation other than delays in acquiring land, recruiting consultants, obtaining funds from OPEC, and completing civil works at a number of sites in several *pourashavas* particularly in Brahmanbaria, Jamalpur, and Mymensingh. The lengthy procedure for land acquisition was further exacerbated by the lack of necessary land in the towns.

64. The design and monitoring framework was followed to meet the project goal and purposes by achieving the revised output targets. These were mostly achieved, leading to the achievement of the target outcomes. The project design was appropriate, and the monitoring system followed during project implementation was suitable. The design and monitoring framework target was revised due to an initial start-up delay of 22 months, the slow disbursement of OPEC funds, and land acquisition issues. The district administrators and mayors of the city corporations were supportive in resolving the land acquisition problems. ADB helped coordinate and co-finance the OPEC funds. The MDS consultants helped survey, design, estimate, and prepare tender documents, and expedited the process of civil works through systematic monitoring and supervision. The project is rated as *less than successful*.

##### **B. Lessons**

###### **1. Related to Project Design**

65. The BWDB and LGED lacked the expertise to prepare tender documents and accurately survey, design, estimate, monitor, and supervise the construction of flood control and drainage structures. Thus, consultant services are needed to ensure the timely completion of all activities to a high standard.

66. A design focusing on both physical and logistical issues and outputs and involving highly qualified experts was key to mitigate flooding and drainage congestions thoroughly and sustainably, improving living conditions in the towns as well as their economic.

## **2. Related to Project Implementation**

67. Land acquisition in secondary towns can be a lengthy process and can cause significant delays in startup and implementation. Addressing the issue requires strong support from the relevant city corporations and district administrators, motivational campaigns, and adequate compensation packages. Advancing the preparation and approval of the Development Project Proforma to secure necessary funds for land acquisition early in project processing can reduce project startup delays.

68. Project implementation delays could be reduced reasonably through careful and efficient recruitment of consultants, early land acquisition and resettlement, proper surveys, and the motivation of city corporations.

## **C. Recommendations**

### **1. Project Related**

69. **Future Monitoring.** The BWDB will ensure that flood control infrastructure is established and/or repaired, and the MOWR will monitor routine and periodic O&M measures. The Ministry of Local Government, Rural Development and Cooperatives (MLGRDC) will monitor and relevant city corporations ensure routine and periodic O&M of drainage systems, footpaths, bridges and culverts, and other internal structures. The city corporations will ensure that the participatory urban development systems introduced in the slums are maintained.

70. The MLGRDC will ensure that the city corporations (i) operate and manage the solid waste disposal systems and community latrines established under the project to improve environmental sanitation, and (ii) continue the tax administration reform measures and ensure that the growth trend of revenue collection attained under the Project is sustained.

71. The MLGRDC will ensure that the city corporations continue the women's development initiatives sustainably and mainstream gender issues in all applicable municipal activities, guaranteeing equal access to public health facilities and employment, equal wages, and women's rights.

72. **Covenants:** The MOWR and the MLGRDC will monitor compliance with loan covenants and report annually to ADB, with a special focus on the performance of post-project O&M measures (Covenant 25).

73. **Future Action or Follow-up.** The MOWR and the MLGRDC will monitor the level of routine and periodic O&M of infrastructure and facilities established under output A and part of output B by the BWDB. Those established under outputs B and C will be monitored by the relevant city corporations. The BWDB and LGED will continue supporting the city corporations financially and technically and will suggest measures for sustainable O&M of the facilities.

### **2. General**

74. The government will continue to (i) strengthen the financial capacity of city corporations through specific development plans for systematic and regular tax assessment and collection,

(ii) build human resources capacity through recruitment and training of staff, and (iii) strengthen sustainability by providing necessary equipment for O&M.

75. In future similar projects, equal wages for male and female laborers should be made mandatory, and tender documents and contract agreements with contractors should mention this clearly. The contractors should also be briefed on this particular point of compliance and later monitored.

## PROJECT PERFORMANCE MONITORING RESULTS

Table A1.1: Project Performance Monitoring Results by Secondary Towns – Kushtia

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of waterborne diseases	%	30	12.6	-	6.4	5.25	4.56	3.61
	(ii) Higher rate of income growth	%	1	Tk86,592	-	-	-	-	-
	(iii) Higher land and property values	%	10	100	-	-	-	-	-
<b>PURPOSE:</b> A relatively flood-free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers of in flooded areas of the town	%	Full protection against 1 in 50 year flood	No significant flooding	No flooding	No flooding	No flooding	No flooding	No flooding
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained.	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up and made operational	nos.	8	-	-	-	-	37.5	-

nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.

Table A1.2: Project Performance Monitoring Results by Secondary Towns – Rajshahi

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of waterborne diseases	%	30	29.4	-	1.02	1.01	1.01	0.63
	(ii) Higher rate of income growth	%	1	-	-	-	-	-	-
	(iii) Higher land and property values	%	10	-	-	-	-	-	-
<b>PURPOSE:</b> A relatively flood-free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers in flooded areas of the town	%	Full protection against 1 in 50 year flood	No significant flooding	No flooding	No flooding	No flooding	No flooding	No flooding
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained.	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up and made operational	nos.	15	-	-	-	-	4	-

nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.

**Table A1.3: Project Performance Monitoring Results by Secondary Towns – Gaibandha**

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of waterborne diseases	%	30	18.3	-	11.17	7.91	4.04	3.07
	(ii) Higher rate of income growth	%	1	Tk103,398	-	-	-	-	-
	(iii) Higher land and property values	%	10	100	-	-	-	-	-
<b>PURPOSE:</b> A relatively flood-free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers in flooded areas of the town	%	Full protection against 1 in 50 year flood	No significant flooding	No flooding	No flooding	No flooding	No flooding	No flooding
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained.	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up made operational	nos.	5	-	-	-	-	-	-

nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.**Table A1.4: Project Performance Monitoring Results by Secondary Towns – Jamalpur**

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of waterborne diseases	%	30	16.9	-	4.15	4.05	0.93	0.77
	(ii) Higher rate of income growth	%	1	Tk99,354	-	-	-	-	-
	(iii) Higher land and property values	%	10	100	-	-	-	357	-
<b>PURPOSE:</b> A relatively flood-free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers in flooded areas of the town	%	Full protection against 1 in 50 year flood	No significant flooding	No flooding	No flooding	No flooding	No flooding	No flooding
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained.	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up and made operational	nos.	5	-	-	-	-	-	-

nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.



**Table A1.5: Project Performance Monitoring Results by Secondary Towns–Mymensingh**

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of waterborne diseases	%	30	14.5	-	0.32	0.22	0.17	0.19
	(ii) Higher rate of income growth	%	1	Tk124,524	-	-	-	-	-
	(iii) Higher land and property values	%	10	100	-	-	-	475	-
<b>PURPOSE:</b> A relatively flood free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers in flooded areas of the town	%	Full protection against 1 in 50 year flood	Part of town flooded to 0.80m	No flooding	No flooding	No flooding	No flooding	-
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up and made operation	nos.	8	-	-	-	-	-	100

m = meters, nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.**Table A1.6: Project Performance Monitoring Results by Secondary Towns – Manikganj**

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of waterborne diseases	%	30	14.6	-	1.83	2.39	2.74	2.89
	(ii) Higher rate of income growth	%	1	Tk88,947	-	-	-	-	-
	(iii) Higher land and property values	%	10	100	-	-	-	444	-
<b>PURPOSE:</b> A relatively flood-free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers in flooded areas of the town	%	Full protection against 1 in 50 year flood	Severe flooding. DL exceeded by 2m	No flooding	No flooding	No flooding	No flooding	No flooding
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up and made operational	nos.	-	-	-	-	-	-	-

DL = danger level, m = meters, nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.

**Table A1.7: Project Performance Monitoring Results by Secondary Towns – Munshiganj**

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of waterborne diseases	%	30	13.7	-	3.79	4.18	3.48	2.89
	(ii) Higher rate of income growth	%	1	Tk3,07,438	-	-	-	-	-
	(iii) Higher land and property values	%	10	100	-	-	-	-	-
<b>PURPOSE:</b> A relatively flood-free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers in flooded areas of the town	%	Full protection against 1 in 50 year flood	Severe flooding. DL exceeded by 1.69 meters	No flooding	No flooding	No flooding	No flooding	No flooding
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up and made operational	nos.	3	-	-	-	-	-	100

DL = danger level, nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.**Table A1.8: Project Performance Monitoring Results by Secondary Towns – Brahmanbaria**

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of water diseases	%	30	23	-	-	-	-	-
	(ii) Higher rate of income growth	%	1	Tk1,11,740	-	-	-	-	-
	(iii) Higher land and property values	%	10	100	-	-	-	-	-
<b>PURPOSE:</b> A relatively flood-free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers in flooded areas of the town	%	Full protection against 1 in 50 year flood	Severe flooding. DL exceeded by 1.74m	No flooding	No flooding	No flooding	No flooding	No flooding
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up and made operational	nos.	4	-	-	-	-	-	100

DL = danger level, nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.

**Table A1.9: Project Performance Monitoring Results by Secondary Towns – Sunamganj**

Design Summary	Performance Indicators	Unit	Project Target	Baseline data in 2004	% Achievements				
					FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
<b>GOAL:</b> Improved living conditions and increased economic opportunities for urban dwellers in nine project towns	(i) Reduced incidence of waterborne diseases	%	30	21	-	2.07	2.07	-	-
	(ii) Higher rate of income growth	%	1	Tk1,16,073	-	-	-	-	-
	(iii) Higher land and property values	%	10	100	-	-	-	-	-
<b>PURPOSE:</b> A relatively flood-free and secure living environment within the integrated flood protection framework	(i) Substantially reduced entry of floodwaters from rivers in flooded areas of the town	%	Full protection against 1 in 50 year flood	Severe flooding. DL exceeded by 1.35m	-	-	-	-	-
Improved urban governance for sustainable urban service delivery	(i) Primary drainage system cleaned and maintained	%	100	-	-	-	-	-	-
	(ii) Solid waste transfer station set up and made operational	nos.	3	-	-	-	-	-	33

DL = danger level, nos. = numbers.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.

### STATUS OF ACHIEVEMENT OF DEVELOPMENT MONITORING FRAMEWORK TARGETS

Design Summary	Performance Targets/Indicators	Project Achievements
<b>Impact</b> The project will promote economic growth and reduce poverty in nine selected towns by providing a flood-free and secure living environment within the framework of integrated flood protection. The integrated approach, combining river protection works with drainage and basic municipal services, is appropriate for urban areas in Bangladesh, which are prone to frequent river flooding, particularly in low-lying areas with poor drainage systems. The urban sector remains a priority for ADB because it presents a greater opportunity for both pro-poor economic growth and targeted poverty reduction, particularly in secondary towns.	Incidence of waterborne diseases reduced by 30% by 2012.  Rate of income growth in the project towns increased by 1% per year by 2012.  Land and property values in the project towns increased by 10% by 2012.	40%  10%  50%
<b>Outcome</b> 1. A relatively flood-free and secure living environment within the framework of integrated flood protection  2. Improved urban governance for sustainable urban service delivery	Substantially reduced entry of floodwaters from rivers into the nine project towns by 2012 (e.g. full protection against a 1-in-50-years flood).  Over 80% coverage of sanitary latrines in all towns by 2012.  Primary drainage system cleaned and maintained by 2012.  Solid waste transfer station set up and made operational.  Cabinet approval of National Urban Sector Policy 2012.  Amendment of <i>Pourashavas</i> (secondary town) Ordinance by 2012.  Revision of holding tax rules and schedules by 2012.  Adoption of urban governance action program by towns by 2012	9  80%  100%.  100%.  Approved.  Amended.  Revised.  Adopted.
<b>Outputs</b> 1. Flood protection facilities	Flood embankment, 30.55 kilometers (km) Flood walls, 8.70 km Riverbank protection, 56.0 km Regulators, 83 (new)	46.45 2.78 41.10 70.00

Design Summary	Performance Targets/Indicators	Project Achievements
	Groynes, 10 (repaired) Access road, 58 km Regulators, 18 (repaired)	4.00 11.55 67
2. Improved drainage system	Re-excavation of drainage channel, 85.25 km Drains repaired and rehabilitated, 46.68 km New drains, 225.52 km Bridges and culverts, 281.50 km Improvements of existing pump houses at Rajshahi, 80	109.57 43.44 217.55 69 63
3. Urban environmental improvements	Sanitary latrines, 13,200 numbers  Solid-waste management (for 8 towns)	No demand. Instead, 16 public toilets constructed.  9 towns.
4. Improvement of basic amenities in urban slums	Provision of footpaths, community latrines community-based water supplies, income-generating activities and other poverty reduction programs as agreed upon within the community	All outputs achieved except sanitary latrines. Instead, 21 public toilets established. This was due to lack of demand for cost bearing twin-pit latrines in the cities. Slum dwellers received latrines free of charge from different civil societies.
5. Urban governance improvement through UGIAP implementation	Follow UGIIP procedures to achieve the following: (20)	20
(i) Increased accountability and transparency in municipal management	Training of municipal tax staff (10–20) Training of accounting staff (10–20) Training of town chairpersons (9) Training of ward commissioners (40–70) Training of female ward commissioners for social and gender development (20–30) A minimum 5% increase in holding tax collection each year after 2007	20 20 9 70 30
(ii) Improved financial accountability and sustainability	Positive increase in nontax revenue each year after 2007 Regular and interim holding tax appraisal Payment of power bills (minimum 60% for current bills and 40% for arrears in 2 years)  A minimum of 20% of the development budget reserved for O&M	Achieved. Achieved. Achieved. Current 60% and arrears 40%. Achieved.

Design Summary	Performance Targets/Indicators	Project Achievements
(iii) Increased citizen awareness and women's participation in urban affairs	Computerization of tax and accounting records by 2007. Infrastructure inventory assessed and mapped by 2007. Formation of town level committees by 2007 and regular meetings thereafter. Formation of gender and environment committees by 2007. Implementation of activities related to the GAP Introduction of GAP monitoring system by 2007.	Achieved.  Achieved.  Committees formed.  Was in place.

GAP = Gender Action Plan, O&M = operation and maintenance, UGIAP = Urban Governance Improvement Action Program, UGIIP = Urban Governance and Infrastructure Improvement Project

## STATUS OF PHYSICAL PROGRESS OF IMPLEMENTATION

Table A3.1: Overall Weighted Progress – Target and Actual

	Major Activities	Unit	Assigned Weight (%)	Status of Progress (Quantity)		% Achievement per	
				Target	Achieved	Activity	Overall
	<b>Preparatory Activities</b>						
1	Establish PMOs and PIUs	no.	1.50	20	20	100%	1.50
2	Inception report	item	0.50	1	1	100%	0.50
	<b>Sub-total: Preparatory Activities</b>		<b>2.00</b>				<b>2.00</b>
	<b>Output A: Flood Control</b>						
1	Alignment surveys	km	1.50	167	167	100%	1.50
2	Structure surveys	no.	1.00	89	89	100%	1.00
3	Geotechnical investigations	hole	1.00	596	596	100%	1.00
4	Physical model tests	item	0.75	1	1	100%	0.75
5	Mathematical model tests	item	0.25	1	1	100%	0.25
6	Finalization of embankment alignment	km	1.50	44	44	100%	1.50
7	Land acquisition and resettlement	item	6.00	1	1	100%	6.00
8	Detailed designs	pkg	10.00	103	103	100%	10.00
9	Preparation of tender document	pkg	3.00	103	103	100%	3.00
10	Tendering	pkg	3.00	95	95	100%	3.00
11	Physical implementation and supervision	pkg	17.00	84	78	93%	15.79
	<b>Sub-total: Output A</b>		<b>45.00</b>				<b>43.79</b>
	<b>Output B: Urban Drainage Improvement</b>						
1	Drainage channel survey	km	0.50	82.49	82.49	100%	0.50
2	Town drain survey	km	0.50	282	282	100%	0.50
3	Finalization of main and carrier drain alignments	km	2.00	282	282	100%	2.00
4	Land acquisition and resettlement	item	1.00	1	1	100%	1.00
5	Detailed designs	pkg	8.00	182	182	100%	8.00
6	Preparation of tender document	pkg	3.00	182	182	100%	3.00
7	Contract award	pkg	3.00	182	182	100%	3.00
8	Physical implementation and supervision	pkg	12.00	182	182	100%	12.00
	<b>Sub-total: Output B</b>		<b>30.00</b>				<b>30.00</b>
	<b>Output C: Urban Environmental Improvement</b>						
1	Finalization of sites	pkg	1.00	31	31	100%	1.00
2	Detailed designs	pkg	5.00	31	31	100%	5.00
3	Preparation of tender document	pkg	1.00	31	31	100%	1.00
4	Tendering and contract award	pkg	1.00	31	31	100%	1.00
5	Physical implementation and supervision	pkg	7.00	31	31	100%	7.00
	<b>Sub-total: Output C</b>		<b>15.00</b>				<b>15.00</b>
	<b>Output D: Implementation Assistance</b>						
1	Fielding of consultants	item	2.00	1	1	100%	2.00
2	Consultancy services – international	mon	6.00	67.66	67.66	100%	6.00
	Consulting services - national	mon	81.75	81.75	81.75	100%	
	<b>Sub-total: Component D</b>		<b>8.00</b>				<b>8.00</b>
	<b>Total of Outputs A, B, C, and D</b>		<b>100.00</b>				<b>98.79</b>

km = kilometer, mon = month, no. = number, PIU = project implementation unit, pkg = package, PMU = project management unit.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka

Table A3.2: Physical Progress – Target and Actual

Output(s)/Sub-output(s)	Unit(s)	Target			Actual
		Original	1st Revision	2nd Revision	
<b>Outputs A &amp; B</b>					
Flood embankment	km	17.30	30.55	22.57	12.36
Re-sectioning of embankment	km	79.50	60.11	35.48	35.48
Road metalling	km	37.30	14.25	11.55	10.50
Revetment on riverbank	km	32.57	37.89	34.94	34.94
Revetment on embankment slope	km	6.50	-	6.42	5.47
Flood wall	km	16.45	8.70	2.78	2.78
Re-excavation of drainage channel	km	48.50	42.85	45.81	45.81
Rehabilitation of revetment	km	6.83	3.22	1.45	1.12
Construction of regulators	no.	81.00	83.00	68.00	67.00
Repair of <i>groynes</i> /spurs/siphons	no.	10.00	11.00	4.00	4.00
Repair of regulators	no.	34.00	18.00	2.00	-
<b>Output B</b>					
Re-excavation and cleaning	km	169.35	169.35	110.19	109.57
Repair and rehabilitation of drain	km	76.90	76.90	46.65	43.44
Construction of new drain	km	281.50	281.50	225.52	217.55
Drainage facilities under roads	km	0.90	0.90	0.75	0.75
Railings	km	3.00	3.00	38.00	36.89
Bridges and culverts	no.	80.00	80.00	69.00	69.00
<b>Output C</b>					
Approach road	km	10.50	10.50	10.09	9.29
Solid waste transfer station	no.	35.00	35.00	51.00	51.00
Development of solid waste landfill	no.	9.00	9.00	9.00	9.00
Public toilets	no.	19.00	19.00	21.00	21.00
Mobile toilet	no.	1.00	1.00	1.00	1.00

km = kilometer, no. = number.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.



Table A3.3: Procurement of Vehicle and Equipment

Type of Vehicle(s)	Number as per Latest Approved DPP	Number Procured	Date of Procurement	Remarks
Four-wheel drive jeep	3	3	15 Nov 2006	Now being used in the Local Government Engineering Department
Double cabin pickup truck	8	8	30 Nov 2006	Handed over to 8 project <i>pourashavas</i>
Motorcycle	35	35	4 Jun 2006	Handed over to 9 project <i>pourashavas</i>
Mechanical sweeping equipment	2	2	30 Jun 2010	Handed over to Rajshahi City Corporation and Mymensingh City Corporation
Compost plan	8	8	Different date*	Handed over to 8 project <i>pourashavas</i>
Bulldozer	8	8	16 Mar 2008	Handed over to 8 project <i>pourashavas</i>
Vacuum tanker	8	8	30 Jun 2010	Handed over to 8 project <i>pourashavas</i>
Rickshaw van	250	250	4 Jun 2006	Handed over to 9 project <i>pourashavas</i>
Garbage truck	11	11	16 Mar 2008	Handed over to 9 project <i>pourashavas</i>
Office furniture	1 lot	1 lot	Different date*	Handed over to 9 project <i>pourashavas</i>
Office equipment	1 lot	1 lot	Different date*	Handed over to 9 project <i>pourashavas</i>

DPP = Development Project Proforma.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.

\*Works completed and items procured in different dates for different *paurasavas*.

### PROGRESS OF TRAINING AND CAPACITY BUILDING

Training/ Study Tour/ Workshop/ Seminar(s)		Achievement(s)	
		Persons	Person-days
1	Computerization of Base and Land Use Maps using GIS Software Training (9 batches)	340	988
2	Final Report Presentation Meeting for UGIAP Facilities	17	17
3	Gender Workshop (5 batches)	262	436
4	GAP and Implementation of Activities (10 batches)	233	556
5	Orientation Workshop on PRAP Preparation Guidelines (5 batches)	214	914
6	Orientation Workshop on the UGIAP (4 batches)	62	62
7	Training on Solid Waste Management (2 batches)	57	114
8	Training on UGIAP activities for Project Facilitators under the STIFPP II	86	172
9	Orientation Workshop on the GAP Monitoring Format	54	54
10	Training on Health and Sanitation	50	50
11	Training on Gender and Leadership ( 3 batches)	231	231
12	Skill Development Training (Beautician) (2 batches)	20	600
13	Skill Development Training (Computer Training) (6 batches)	248	13,680
14	Skill Development Training (Cow Fattening) (2 batches)	60	900
15	Skill Development Training (Mobile Servicing) (2 batches)	60	1,800
16	Skill Development Training (Tailor and Swing) (14 batches)	1,283	51,930
17	Training on CAP Preparation	3,888	11,664
18	Training on Capacity Building for Female Ward Commissioners	147	294
19	Training on PRAP Implementation (4 batches)	54	171
20	Training on Savings and Credit Management for Group Leaders under the CDC (5 batches)	3,870	3,240
21	Training on Tube Well Maintenance (5 batches)	100	100
22	Workshop on Implementation of Community Contracts and Savings and Credit Management Training (9 batches)	39	78
23	Workshop on Preparation of a City Corporation and Municipal Development Plan (2 batches)	75	75
<b>Total</b>		<b>11,450</b>	<b>88,126</b>

CAP = Collective Action Plan, CDC = Community Development Committee, GAP = Gender Action Plan, GIS = Geographic Information System, PRAP = Poverty Reduction Action Plan, STIFPP II = Secondary Towns Integrated Flood Protection Project Phase 2, UGIAP = Urban Governance Implementation Action Plan,  
 Note: There was no original target but courses were conducted and arranged as per the approved annual training plan.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.

## ACHIEVEMENTS OF IMPLEMENTATION OF GENDER ACTION PLAN

### A. Key Gender Equity Results of STIFPP II

1. The project is categorized as gender equity, as services for expanding urban populations in the future will create employment opportunities for women as well as men, and women should have equal access to employment, wages, credit facilities, training, and skill development project related activities especially in city corporations and *pourashavas*. In fact, at present a considerable number of conservancy staff are female. Furthermore, 26.1% of laborers in flood protection works were female (37,575 of 143,997 laborers), and women composed 30.2% of workers in drainage system improvement works (300,613 labor-days of a total of 1,151,980 labor-days). Moreover, the slum improvement component was largely based on women, particularly the microfinance and income-generating activities. Thus, women play a significant role in the project in terms of construction, management, and maintenance. The project aimed more broadly to mainstream gender in the development and maintenance of urban facilities year round through a Gender Action Plan (GAP). Each city corporation and *pourashava* of the nine secondary towns, including the local offices of the Bangladesh Water Development Board and related private service providers has a large number of employees.

2. The overall project objectives were to reduce poverty by mitigating floods and saving lives, property, crops, and the enormous repair and maintenance-related expenditures borne by city dwellers, the city corporations and *pourashavas*, and the government at large. The project also planned to reduce poverty by improving urban drainage systems to mitigate drain congestion, property damage and expenditure on repairing and maintaining houses and shops due to overflow during heavy rains and monsoon. The project also planned to improve the drainage of liquid wastes and to provide a scientific and sanitary solid waste management system to improve the health, hygiene, sanitation, and living standards of the urban population. This approach was multifaceted and unique. The project planned to reduce poverty directly in the urban slum population. The project provided training on awareness building, skill development, income-generating activities, and improved sanitation through the supply of sanitary latrines, cement surfaces in the home, and safe water supplied by pipes or tube wells.

3. These poverty-focused interventions increased awareness of improved living conditions and facilities, provided skills for better employment and higher income, and supplied safe water and sanitation facilities to improve health and hygiene. The interventions targeted women to motivate families and the community. The women formed female-only gender groups and shared benefits. Their group activities enabled them to access the local job market, and to sell their own goods at both local and non-local markets. They also formed groups to sell their handicraft goods and were able to fetch good prices.

4. The project design emphasized the promotion of gender equality or women's empowerment and poverty reduction by improving women's access to local planning and administration and local bodies. The project completion review mission survey and field visits found that many female beneficiaries had become local leaders and had also been elected as counselors in the city corporations and *pourashavas*. Many also became members of the local market management and intercity trading syndicates. The women's roles and commitments are highly appreciated by their male counterparts and relevant administrations.

5. Equality for women in the family, community, commercial market, labor market, local politics, and local administration has been partially attained, but there is still a need for effective gender mainstreaming to ensure equal access to all spheres of society. Women must be given equal access to and opportunities in education and skill training to guarantee equal entry and equal pay in the labor market. It is necessary to create a suitable and sustainable environment for women at all levels of society, including those who live in underserved, difficult to access, or disadvantaged areas, such as the slums, sweeper colonies, and areas inhabited by indigenous and ethnic minorities.

6. The project completion review mission analyzed the achievements of the three components and outputs based on objectives and targets stated in the GAP and summarized in the outcome emphasizing

the need for further opportunities and the mainstreaming of gender issues. The Key Gender Equity Results have been outlined:

### Summary of Key Gender Equality Results of the STIFPP II

Key Gender Equality Results of the STIFPP II	Targeted Results	Project Achievements of Targets	Risks and Future Actions
1. <b>Human Capacity Development</b> (based on gender equity and a balanced sex ratio) with increased access to social services such as education, social protection, training, female teachers, skill gains, etc.	<p>The project design provided increased access to social services in the community, and projected the towns from floods that caused death, property damage, and huge expenses to rebuild and maintain facilities every year.</p> <p>The project created opportunities for training and skill development in urban maintenance, especially in huge urban conservation works such as roads, pavements, drainage, slums improvements, and waste management systems.</p> <p>The project provided opportunities to access training and skill development in microcredit and the operation and management of microenterprises using funds, knowledge, and skills provided by the project.. This offered scope to generate income for the family and empower the women</p>	<p>The project increased women's access to employment in civil works related to flood protection, including earthworks, and construction, at wage rates equal to those of male laborers. The project utilized 1,151,980 labor-days of which 300,613 were provided by female laborers (26.1%). Male and female laborers received equal wages.</p> <p>The project increased women's access to employment in civil works related to drainage system improvements, including earthworks and construction, at wage rates equal to those of male laborers. The project utilized 1,162,555 labor-days labor, of which 351,306 were provided by female laborers (30.2%) an increase of 35%. While it is understood from the female laborers that they generally received equal wages, lower rates were also reported beyond the knowledge of executing agencies.</p>	<p>Ensure the sustainability of existing government policies that aim to empower women by increasing women's employment in all areas of the job market at equal wage rates. Conducive working conditions supported at appropriate levels and the requirements of the project formulated by the donors.</p> <p>There is also a need for legal means of policy enforcement and a planned and systematic social awareness campaign for all employers and supervisors to ensure sustainability and continued growth.</p>

	<p>economically in both the family and the community.</p> <p>The project also provided access to social services in the community and offered women equal opportunities to take on political and market leadership roles.</p>		
<b>Key Gender Equality Results of the STIFPP II</b>	<b>Targeted Results</b>	<b>Project Achievements of Targets</b>	<b>Risks and Future Actions</b>
<p><b>2. Economic Empowerment</b> with improved access to economic resources and opportunities such as employment and income-generating activities.</p>	<p>The project targeted opportunities that increased access to economic resources such as flood control structures, drainage systems, waste disposal and management systems, and slum development interventions to ensure gender equality.</p>	<p>Women in the nine secondary towns benefited the most from 100% flood protection as they suffered most from regular flooding. During floods, women looked after moveable property including livestock, food for the family especially the children and elders, furniture, equipment, safe drinking water, toilets, children's education, and the health and care of children and elders. Full flood protection has benefited city dwellers in general and women in particular due to the economic resources provided by flood protection infrastructure, which also saved crops, lives, assets, and O&amp;M costs.</p> <p>Likewise, city dwellers benefited from improved drainage systems, which are an important economic resource and source of savings for city dwellers in general and women in particular. Women are most affected by poor drainage systems through regular overflow of drains, especially during monsoons. Poor drainage systems invite disease, pollute the environment, and attract mosquitoes,</p>	<p>Public investment in urban areas will improve the living conditions of the poor and low income groups living in relatively underserved and underdeveloped areas on the periphery of the secondary towns. Local government policies and strategies to add more areas to the secondary towns and improve the living conditions on the city outskirts need to be made sustainable and must supported by plans to achieve self-sufficiency and acquire government patronage.</p> <p>Government policies and strategies for public-private partnerships may be strengthened and used in urban development, especially for the maintenance of drainage systems and the management of liquid and solid waste. The government should subsidize solid waste management until it becomes a commercially viable economic activity.</p>

		<p>harmful poisonous insects, and snakes.</p> <p>The nine towns had poor waste disposal and management systems, which caused environmental and health hazards for city dwellers in general and women in particular. Women had to carry solid waste to distant waste bins and open drains for disposal, facing various social and physical difficulties and wasting time and energy. Solid waste was rarely collected from homes. The new waste disposal system is thus an indirect economic resource. Proper waste management including sorting, cleaning, and processing may also offer direct economic benefits.</p> <p>The project provided poor city dwellers, especially women, with access to economic resources like a supply of safe drinking water via tube wells, sanitary latrines, paved homes, and skill training and credit to participate in income-generating activities. More than 80% of the target beneficiaries who accessed these economic resources are women from low-income, ethnic, or minority families, including sweepers and cleaners.</p>	
Key Gender Equality Results of the STIFPP II	Targeted Results	Project Achievements of Targets	Risks and Future Actions
3. <b>Reduction of Poverty</b> with affordable access to infrastructure and services (clean water, sanitation, and reliable sources of electricity and energy)	The project generated income for poor men and women in the secondary towns. by creating jobs in civil works and related O&M during the project construction	The project completion mission agreed with the executing agencies' estimates on employment during the construction of flood protection and drainage improvement systems and found that the project utilized a total of	<p>The female labor remains under-used and the provision of equal wages for women requires monitoring and supervision.</p> <p>The labor benefits in O&amp;M will continue but</p>

	as well as in later operation and management	<p>2,314,535 labor-days of which 651,919 were provided by female laborers (28%).</p> <p>Laborers (both male and female) were engaged in the construction of waste disposal and management facilities for an estimated 600,000 labor-days, of which 30% were provided by female laborers.</p> <p>Regular, periodic, and occasional O&amp;M of the infrastructure currently utilizes about 150,000 labor-days per year due to the newness of the facilities and a lack of funds. Future labor inputs will increase at a rate of 10% per year.</p> <p>Total wages earned during construction are estimated at Tk322,734,005 (Tk239,043,185 for male laborers and Tk.83,690,870 for female laborers). Future labor costs are estimated at Tk75,00,000 per year with an annual increase of 20% (10% for an increased workload and 10% for inflation). Thus, the project has contributed towards poverty reduction by creating employment opportunities for men and women. This has reduced money-poverty but increased time-poverty. However, the project also provided easy access to urban facilities, reducing time-poverty.</p>	the number of available jobs will depend on the amount of O&M funds available and the capability of the respective agencies, including the BWDB, city corporations, and <i>pourashavas</i> .
<b>Key Gender Equality Results of the STIFPP II</b>	<b>Targeted Results</b>	<b>Achievement of Targets</b>	<b>Risks and Future Actions</b>
<b>4. Voice and Decision Making</b> with the enhancement of women's voices and rights (participation,	Women had very limited access to local institutions such as city corporations and	The project's slum improvement activities enabled women to access local institutions such as city corporations and	Government policies and strategies for women in development appear to be sustainable for quite

representation in decision making, local governance, leadership, and access to grievance mitigation mechanisms)	<p><i>pourashavas</i>, the BWDB, and LGED. They also lacked access to local community organizations. Moreover, there were no programs for community development, awareness development, skill training, or microcredit. The project established local community self-help units for women, providing them with opportunities to build awareness, gain skills through training, generate income through self-employment and other means, and access safe water and sanitation.</p> <p>Women previously lacked opportunities to participate in decision-making at both the family and community level. The project empowered women through slum improvement activities, particularly by enabling women to participate in Gender Groups and Community Organizations</p>	<p><i>pourashavas</i>, the BWDB, LGED, and local community organizations.</p> <p>Poor women received training in social work, handicraft skills, microcredit, and marketing.</p> <p>The women formed their own community development groups, credit groups, marketing groups, and savings and credit groups.</p> <p>Women gained access to local government units, were elected as councilors, worked for the community, and participated in local planning and development forums and activities.</p> <p>Women gained considerable bargaining skills in the decision-making process and were able to voice their opinions within the community and family.</p>	<p>some time despite of regime changes. However, risks are posed by local male-dominated agencies and institutions. Strict compliance with and the enforcement of equal access to employment (both public and private) and the provision of equal wages are necessary, as these are critical problems requiring proper interventions.</p>
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BWDB = Bangladesh Water Development Board, LGED = Local Government Engineering Division, O&M = operation and maintenance, STIFPP II = Secondary Towns Integrated Flood Protection Project Phase 2.



## B. STATUS OF GENDER ACTION PLAN IMPLEMENTATION ACHIEVEMENT MATRIX

The project belongs to the Gender Equality Theme Project. The project was extended twice but the gender specialist position was not extended. Therefore, the gender specialist was only engaged for the first 3 years of the 6 years of the project period. In the last 3 years the project director directly managed the implementation of the GAP in close cooperation with the community development officer and *pourashava* staff members. The absence of a gender specialist from 2008 onwards caused some difficulties in the effective implementation, monitoring, and reporting of the GAP.

Component(s)	Activity, Indicator, and Target	Status of Progress in 2012
Flood Protection Works	<ul style="list-style-type: none"> <li>• Ensure consultation with women affected by land acquisition and resettlement.</li> <li>• Ensure special compensation packages for affected women.</li> <li>• Ensure the participation of female ward commissioners and citizens in resettlement activities.</li> <li>• Create employment opportunities for poor women (50%) and men in earthworks related to flood-protection.</li> </ul>	<ul style="list-style-type: none"> <li>• Resettlement and land acquisition required by the BWDB works were handled by an NGO, the CCDB, at the initial stages of the project.</li> <li>• The CCDB consulted with all affected persons (914 households consisting 4,387 persons including 2,060 women) and ensured that they received special compensation packages. Over 25% of the created jobs were allocated to women.</li> <li>• Female ward commissioners (40 female commissioners out of total 160 commissioners) were involved in resettlement activities.</li> <li>• A total of 2,314,435 labor-days (5,143 labors) of civil works employment were created, of which 651,919 labor-days (1,440) were for women labor (28%).</li> </ul>
Urban Drainage System Improvement	<ul style="list-style-type: none"> <li>• Promote wage parity and the employment of both women and men in the construction and O&amp;M of infrastructure.</li> <li>• Providing women with skill training to enable them to take part in construction and O&amp;M works.</li> <li>• Direct contractors to employ women laborers and to pay women and men equal wages.</li> <li>• Set up an LCS to ensure employment opportunities for women in construction and O&amp;M</li> <li>• Form women's LCS groups and engage in tree planting and routine maintenance of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Wage parity was introduced and women were given opportunities for construction work.</li> <li>• 125 women received training to take part in community O&amp;M.</li> <li>• The terms and conditions of the tender document asked the contractor to pay men and women equal wages.</li> <li>• The BWDB was unable to establish the LCS as this was outside of its scope.</li> <li>• Tree planting and the maintenance of infrastructure engaging LCS has not yet begun in areas affected by STIFPP II infrastructure.</li> </ul>
Urban Environmental Improvement	<ul style="list-style-type: none"> <li>• Raise awareness among women and other stakeholders about their roles in solid waste management.</li> </ul>	<ul style="list-style-type: none"> <li>• The primary group, CDC, and courtyard meetings all discussed raising awareness of solid waste management. The <i>pourashavas</i> conducted 25 rallies about solid waste management during the annual celebration of environment day.</li> </ul>

	<ul style="list-style-type: none"> <li>• Organize periodic campaigns informing households of proper disposal methods for solid waste.</li> <li>• Conducts ward rallies involving FWCs to raise awareness about the environment, sanitation, and hygiene.</li> <li>• Ensure women's participation in the sanitation program as motivators.</li> <li>• Ensure the signing of a completion certificate for household sanitation by female members and heads of the households.</li> <li>• Public toilets located to suit women's needs and including provisions for women.</li> <li>• A suitable clause to be incorporated in lease deeds to include women in management positions.</li> </ul>	<ul style="list-style-type: none"> <li>• Seven <i>pourashavas</i> and one City Corporation carried out ward rallies to raise awareness of environment, sanitation and hygiene.</li> <li>• These two activities were implemented jointly. Primary group members were 22,928 women and 414 men. Beneficiaries of the urban program component were 97.48% women</li> <li>• 2,898 women group leaders worked as motivators.</li> <li>• Only Kushtia <i>pourashava</i> ensured completion certificate to the house hold sanitation signed by FWC and heads of the HHs.</li> <li>• Considering women's needs project has planned, drawing &amp; designed 16 public toilets.</li> <li>• All seven <i>pourashavas</i> and one City Corporation ensured 85,230 Primary group meeting, 7,534 CDC meeting and 770 courtyard meeting conducted in the project towns on mentioned issue.</li> </ul>
Capacity Building and Implementation Assistance	<ul style="list-style-type: none"> <li>• Recruit women as staff, consultants, and facilitators.</li> <li>• Ensure a congenial work environment for both men and women.</li> <li>• Ensure GAD orientation for BWDB, LGED, and <i>pourashava</i> officials.</li> <li>• Train project staff and consultants regarding the GAD Plan and UGIAP.</li> <li>• Delineate the responsibilities of FWCs by city corporations.</li> <li>• Form Gender and Environment Committees headed by FWCs.</li> <li>• Delineate the responsibility of the first panel chair to FWCs.</li> </ul>	<ul style="list-style-type: none"> <li>• 91 staff members were recruited, of which 35 were women.</li> <li>• Seven <i>pourashavas</i> and 1 city corporation ensured a female friendly good work environment for both men and women.</li> <li>• Eight mayors (no female) and 160 councilors including 40 FWCs (25%) and 1,373 <i>pourashava</i> staff, including 147 women (11%) were trained in gender and development.</li> <li>• 148 project staff, including 42 women members and consultants received orientation training regarding the GAD Plan and UGIAP.</li> <li>• The project provided FWCs with the Local Government Circular 2002 by notifying the respective chairpersons in June 2007.</li> <li>• Eight Gender and Environment Committees headed by FWCs were formed.</li> <li>• The responsibilities of the first panel chair to FWCs were delineated.</li> </ul>

	<ul style="list-style-type: none"> <li>• Include FWCs in TLCCs and other committees (law and order, disaster, protection of women and children, and social and environmental awareness).</li> <li>• Prepare the UGIAP and ensure its implementation.</li> <li>• Prepare a town GAP.</li> <li>• Prepare a town PRAP and Solid Waste Management Plan that consider gender aspects.</li> <li>• Ensure that the location of infrastructure and facilities takes into account the needs of women and the poor.</li> <li>• Involve women in community development and poverty reduction activities as per the PRAP.</li> <li>• Ensure equal access for women to poverty reduction funds, slum infrastructure development, and community empowerment activities.</li> <li>• Training for chairpersons and ward commissioners in both regular and reserved seats to build their capacity for decentralized governance and gender responsive urban development.</li> <li>• Organize the networking of <i>pourashava</i> representatives through the Bangladesh Association of Municipalities.</li> <li>• Ensure that all training is gender sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>• All operational <i>pourashavas</i> ensured the inclusion of FWCs in the TLCCs and committees on law and order, disasters, protection of women and children, and social and environmental awareness.</li> <li>• The UGIAP was planned and implemented in a timely fashion.</li> <li>• All operational <i>pourashavas</i> developed a GAP under the STIFPP II.</li> <li>• 451 female community leaders and FWCs took part in preparing a gender responsive PRAP and Solid Waste Management Plan.</li> <li>• Due consideration was given in selecting infrastructure sites.</li> <li>• 3,390 women were involved in preparing CAPs that considered the needs of women and the poor.</li> <li>• 2,898 women were involved in implementation of the CAP and PRAP. <ul style="list-style-type: none"> <li>i) Microfinance established from the society of primary group members is treated as a poverty reduction fund, which can be accessed by all primary group members.</li> <li>ii) Slum infrastructure was built through community contracting systems where all participating member are women. They are also responsible for regular O&amp;M.</li> <li>iii) 2,944 primary group leaders and treasurers were trained in savings and credit programs and microfinance as well as O&amp;M for slum infrastructure.</li> </ul> </li> <li>• Eight mayors and 160 commissioners including 40 FWCs were trained on 'gender and development in STIFPP II'.</li> <li>• Campaigns were held to raise awareness of the trafficking of women and child labor among slum dwellers, and displaced and migrant people.</li> <li>• All training were designed as gender sensitive.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Provide skills training especially for women, who should compose at least 50% of the trainees.</li> <li>• Provide women with microfinance for self-employment.</li> <li>• Raise awareness among displaced and migrant people about the risks of the trafficking of women and child labor.</li> <li>• Organize rallies and advocacy measures regarding gender and development, environmental, sanitation, and health issues for women citizens.</li> <li>• Involve women in motivational activities for tax collection and resource mobilization.</li> <li>• Involve women citizen in <i>pourashava</i> activities and decision making.</li> <li>• Develop the capacity of the executing agencies and PIUs for gender-based monitoring.</li> <li>• Ensure sex-desegregated data and gender-based monitoring, evaluation, and reporting.</li> </ul>	<ul style="list-style-type: none"> <li>• 837 persons, of which 770 were women received skills training, exceeding the target of 50% women's participation in skill training.</li> <li>• 1,888 women and 10 men received microfinance in addition to their own savings.</li> <li>• Awareness raising training was organized for 458 displaced and migrant people including women and children with focus of risks of trafficking.</li> <li>• Seven <i>pourashavas</i> and one city corporation carried out ward level rallies and advocacy measures pertaining to gender and development, environmental, sanitation, and health issues for women.</li> <li>• Out of 147 female staff, 75 women were involved in motivational activities for tax collection and resource mobilization.</li> <li>• Women were involved in decision making committees such as TLCCs, WLCCs, gender committees, and CDCs.</li> <li>• 20 training courses provided to PMO and PIU focal persons on GAP monitoring.</li> <li>• Gender forum of LGED monitored gender-based activities of all LGED projects irrespective of funding sources.</li> </ul>
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BWDB = Bangladesh Water Development Board, CAP = Collective Action Plan, CCDC = Christian Commission for Development in Bangladesh, CDC = community development committee, GAD = gender and development, FWC = female ward commissioner, LCS = labor contracting society, LGED = Local Government Engineering Division, PRAP = Poverty Reduction Action Plan, TLCC = Thana Level Coordination Committee, UGIAP = Urban Governance Improvement Action Plan, WLCC = Ward Level Coordination Committee.

### UPDATED IMPLEMENTATION SCHEDULE – ORIGINAL AND ACTUAL

[illegible]

Description	Year	04	2005				2006				2007				2008				2009				2010				2011				2012				2013			
	Quarter	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					1	2	3	4	1	2	3	4
<b>Output C : Urban Environment Improvement</b>																																						
Determination of an Administrative Arrangement with UNDP and UGIIP	Original																																					
	Actual																																					
Slum Improvement (Deposit Work through the LPUPAP and UGIIP)	Original																																					
	Actual																																					
Determination of Number, Location, and Construction of Transfer Stations for Solid Waste	Original																																					
	Actual																																					
Determination of Number, Location, and Construction of Disposal Areas	Original																																					
	Actual																																					
Design of Connecting Roads	Original																																					
	Actual																																					
Construction of Connecting Roads	Original																																					
	Actual																																					
Fixing of the Location of Public Toilets	Original																																					
	Actual																																					
Distribution of Private Latrines	Original																																					
	Actual																																					
<b>Output D: Implementation Assistance</b>																																						
Preparation and Implementation of , and Training related to the UGIAP	Original																																					
	Actual																																					
Fielding of Consultants	Original																																					
	Actual																																					
Consultancy Services	Original																																					
	Actual																																					
Training	Original																																					
	Actual																																					
Procurement of Equipment	Original																																					
	Actual																																					
Implementation of the GAP	Original																																					
	Actual																																					

GAP = Gender Action Plan, LPUPAP = Local Partnership for Urban Poverty Alleviation Project, PIU = project implementation unit, PMO = project management office, UGIAP = Urban Governance Improvement Action Program, UGIIP = Urban Governance and Infrastructure Improvement Project, UNDP = United Nations Development Programme,

Original   
Actual 

## STATUS OF COMPLIANCE OF LOAN COVENANTS

Covenant(s)	Reference (Loan Agreement)	Status of Compliance
<b>1. Quarterly Reports</b> The Borrower shall furnish, or cause to be furnished to ADB quarterly reports on the carrying out of the Project and on the management of the Project facilities.	Section 4.03	Complied with.
<b>Annual Project Financial Statement</b> The Borrower shall (i) maintain, or cause to be maintained, separate accounts for the Project; (ii) have such accounts and related financial statements audited annually, in accordance with appropriate audit standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB; (iii) furnish to ADB, as soon as available but in event not later than nine months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the financial covenants of this Loan Agreement as well as on the use of procedures for imprest account and statement of expenditures), all in the English language; and (iv) furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.	Section 4.02 (a)	The annual project financial statements were received in a timely manner each year from both BWDB and LGED. The APFSs were unqualified for all the fiscal years.
<b>2. Fielding of Consultants</b> The services of consultants shall be utilized in the carrying out of the Project, particularly with regard to: (a) Management, design and supervision; (b) UGIAP Implementation comprising consultants for UGIAP preparation; and (ii) UGIAP facilitators for each <i>pourashava</i> ; and Implementation assistance for slum improvement.	Schedule 5 para. 1	Complied with.
If any substantial amendment of the contract is proposed after its execution, the proposed changes shall be submitted to the Bank for prior approval.	OAGI Recommendation	Complied with.
<b>3. Project Executing Agency (EA)</b> BWDB and LGED shall be the EAs, responsible for overall implementation and carrying out of the Project. BWDB shall be the lead EA as well as the EA for Components A, B(i), D(i), D(iii) and D(v). LGED shall be the EA for Components B(ii), B(iii), B(iv), C, D(ii), and D(iv).	Schedule 6 para. 1	Complied with.
<b>4. Inter-Ministerial Project Steering Committee (IPSC)</b> Within one month of the Effective Date, BWDB shall establish the IPSC, chaired by the Secretary MOWR and including representatives of MLGRDC, Ministry of Land, Ministry of Environment & Forests, Economic Relations Division (ERD) of the Finance Division (FD) of the Ministry of Finance, Implementation, Monitoring and Evaluation Division (IMED) of Ministry Planning, Planning Commission (Irrigation and Physical Infrastructure Division), Ministry of Women and Children Affairs, BWDB, LGED, Department of Environment, and Water Resources Planning Organization (WARPO).	Schedule 6 para. 2	Complied with.
Other members may be co-opted as necessary Representatives from the ADB, OPEC, and the project towns may participate in		Complied with.

Covenant(s)	Reference (Loan Agreement)	Status of Compliance
<p>the IPSC meeting as observers.</p> <p>The first meeting of the IPSC shall be held within two months from the Effective Date. Thereafter it shall meet whenever necessary, but not less than once a year, to provide overall coordination and guidance.</p>		Complied with.
<p><b>5.Procurement</b></p> <p>If any substantial amendment of the contract is proposed after its execution, the proposed changes shall be submitted to the Sank for prior approval (no reference in Loan Agreement, but recommended by OAG).</p>		Complied with.
<p><b>6.Town-level Project Coordination Committee (TPCC)</b></p> <p>Borrower shall ensure that within three months of the Effective Date, each project town shall have constituted a TPCC to guide both BWDB PIU and the Municipal PIU in (i) preparing annual development programs; (ii) timely awarding of contracts; (iii) monitoring progress and quality of works; (iv) resolving local issues; (v) implementing UGIAPs. PRAPs and GAPs and (vi) preparing an action plan for sustainable maintenance of the Project facilities; and</p> <p>The TPCC for Rajshahi City Corporation (RCC) shall be headed by the Major of RCC and shall include the following members: executive engineers and sub-divisional engineers from BWDB, heads of engineering, revenue, health and conservancy sections of RCC, the Additional Deputy Commissioner (Land), the Executive Engineer of LGED, a representative of the regional UMSU representatives from NGOs and community based organizations (CBO's), and with the Chief Executive Officer as Member-Secretary.</p> <p>The TPCC for each of the other eight project towns shall be headed by the <i>pourashava</i> Chairperson and shall include the following members; Executive Engineers and sub-divisional engineers from BWDB, heads of engineering, health and revenue sections of the <i>pourashavas</i>, the Additional Deputy Commissioner (Land), the Executive Engineer of LGED, a representative of the regional UMSU, representatives from NGOs and CBO's, and the Chief Executive Officer as Member-Secretary</p>		<p>Complied with.</p> <p>Complied with.</p> <p>Complied with.</p>
<p><b>7. Established, Staffed, and Operating PMU/PIU, Project Management Offices (PMOs) and Project Management Team (PMT)</b></p> <p>The two PMOs established by BWDB and LGED separately shall remain operational at all times during Project implementation in the same location acceptable to both BWDB and LGED. The PMO of BWDB shall be headed by a Superintending Engineer while the PMO of LGED shall be headed by a senior level Engineer. Both shall be full-time Project Directors and work exclusively for the Protect. BWDB and LGED shall ensure that the PMOs shall at all times be provided with appropriate staffed in accordance with the staffing plan agreed upon with ADB.</p>	Schedule 6 paras. 3–5	Complied with.
<p><b>8. Prepare and Implement UGIAP and GAP and RPAP</b></p>	Schedule 6	Complied with.







Covenant(s)	Reference (Loan Agreement)	Status of Compliance
(attached to the RRP for the Project as supplementary Appendix C) as well as the PRAP and shall ensure their full implementation throughout the entire project period. To this end, the PMOs shall be required to prepare field manuals for the GAP and PRAP and conduct training for all staff of the PMO PIUs and Municipal PIUs. The implementation of the GAP and PRAP shall be closely monitored and the progress shall be reported in the quarterly reports to the ADB. Town-level GAPs and PRAPs shall be prepared with primary stakeholder participation.		
<b>18.Environment</b> The Borrower shall ensure that all environmental mitigation measures identified in the Initial Environmental Examination and agreed with ADB shall be incorporated into the Protect design and implementation during project construction and operation and maintenance in accordance with the Borrowers environmental laws and regulations and ADB Environmental Policy (2002).	Schedule 6 para. 18	Complied with
<b>19.Counterpart Fund</b> The Borrower shall ensure that all counteracts funding required for the Project in accordance with the financing plan, including the cost of land acquisition, cost of other resettlement compensation, implementation and monitoring activities under the land acquisition and resettlement plans, and general project management expenses, shall be fully provided through approved annual development plan allocations.	Schedule 6 para. 19	Complied with.
<b>20.Co-Financing by OPEC</b> In the event the co-financing through the OPEC Fund Loan cannot be obtained within six months of the Effective Date, the Borrower shall take all necessary and appropriate steps to make other arrangements to cover the shortfall, either through budget allocations or through other arrangements acceptable to ADB. If such arrangement cannot be made, the Borrower and ADB shall agree on the components or activities under the Project to be scaled down.	Schedule 6 para. 20	Complied with.
<b>21.Filling Vacant Positions</b> BWDB shall ensure that all its vacant positions in field divisions shall be filled within one month of loan effectiveness with qualified staff and that all positions shall remain filled throughout the duration of the Project.	Schedule 6 para. 20	Complied with
<b>22.Operation and Maintenance (O &amp; M)</b> The Borrower shall take all necessary and appropriate measures to ensure adequate O&M funding and implementation. This shall include but not be limited to the preparation of field manuals by BWDB for flood protection works, the adoption of existing field manuals for municipal works as well as a strict implementation of provisions in the UGIAP related to O&M.  By December 2008, the Borrower shall have reviewed O&M funding for BWDB works and shall have prepared recommendations.	Schedule 6 para. 22          Schedule 6 para. 23	Complied with.          Complied with.
<b>23.Project Review</b> At least twice a year, ADB, BWDB, LGED and the OPEC Fund shall jointly conduct a detailed review of the Project. The reviews	Schedule 6 para. 24	Complied with.



## ECONOMIC ANALYSIS

### A. Introduction

1. The project completion review (PCR) mission carried out an economic analysis of the project based on its performance during the mission. The mission collected data pertaining to operating conditions and outputs. The assessment also used secondary data sources as required. The analysis used secondary data and survey data collected during the PCR mission. The assessment is an economic re-evaluation of the project benefits and followed assumptions similar to those made during the project preparation.

### B. Economic Benefits and Valuation

2. Basic assumptions included (i) the cost of project implementation obtained from the project completion report prepared by SMEC International Pty. Ltd., Australia; (ii) the O&M cost obtained from the LGED PCR; and (iii) data on the mitigation of flood damage to buildings and different types of property, municipal infrastructure facilities, and cultivated land, and data on enhanced economic activities collected during field visits and surveys by the PCR mission.

#### 1. Mitigation of Flood Damage to Buildings and other Properties

3. The amount of flood damage has been determined according to the severity and frequency of floods in the project area. Direct damage is caused by the effects of physical floodwaters on houses, other buildings, and infrastructure. This data is generally estimated as the cost of replacing, repairing, or rehabilitating property damaged by flooding.

4. The PCR mission conducted the survey to determine the cost of flood damages in the project towns. The collected data were used in an economic analysis of flood damage. The survey data covered private buildings, houses, shops, factories, and social infrastructure such as schools, religious establishments, and hospitals. The average annual cost of flood damage is presented in Table A8.1.

**Table A8.1: Summary of Annual Flood Damage to Property**

Project Secondary Town(s)	Tk million	\$ million
Project	765.84	9.42
Brahmanbaria	49.84	0.61
Gaibandha	27.76	0.34
Jamalpur	25.04	0.31
Kushtia	24.00	0.29
Manikganj	60.32	0.74
Munshiganj	29.28	0.36
Mymensingh	79.84	0.98
Rajshahi	450.96	5.56
Sunamganj	18.80	0.23

Sources: *Project completion review mission survey and review of project documents.*

#### 2. Mitigation of Flood Damage to Infrastructure Facilities

5. Economic re-evaluation considered frequent floods that damage municipal infrastructure including drains and culverts, and sanitation and solid waste management facilities. The average amount of flood damage to drainage infrastructure is estimated from the survey data and review of the secondary documents and focus group discussions. Annual flood damage to drainage infrastructure is presented in Table A8.2.

**Table A8.2: Summary of Annual Flood Damage to Infrastructure**

<b>Project Secondary Town(s)</b>	<b>Tk million</b>	<b>\$ million</b>
Project	52.32	0.645
Brahmanbaria	5.88	0.072
Gaibandha	2.76	0.034
Jamalpur	5.16	0.064
Kushtia	3.96	0.049
Manikganj	2.40	0.029
Munshiganj	2.28	0.028
Mymensingh	9.96	0.123
Rajshahi	17.64	0.218
Sunamganj	2.28	0.028

Sources: *Project completion review mission survey and secondary data.*

### **3. Mitigation of Flood Damage to Cultivated Land**

6. The PCR mission and the survey team noted that agricultural land lies within the flood protection wall in several towns. Before the project, crops especially Aman paddy were vulnerable to flood damage. The PCR mission estimated the anticipated flood damage to crops in flood protection areas in seven of the nine project towns, taking into consideration crop savings for five years after project completion. Reduction of production of crops by 20% per year is considered for benefit from savings of crops. In seven towns, a significant amount of agricultural land is included within the town boundaries. The annual value of these crops is summarized in Table A8.3.

**Table A8.3: Estimated Value of Crops in Cultivable Lands**

<b>Project Secondary Town(s)</b>	<b>Tk million</b>	<b>\$ million</b>
Project	2852.93	35.219
Brahmanbaria	195.62	2.414
Gaibandha	274.25	3.385
Jamalpur	1108.22	13.677
Kushtia	0.00	0.000
Manikganj	526.97	6.503
Munshiganj	196.56	2.426
Mymensingh	414.65	5.117
Rajshahi	0.00	0.000
Sunamganj	136.66	1.697

Sources: *Project completion review mission survey and secondary data.*

### **4. Indirect Benefits**

7. Other project benefits include reductions in (i) household expenditures on medical services; (ii) solid waste removal costs; (iii) costs of road repair and flooding damage to vehicles; (iv) travel delays caused by water-logging; and (v) the loss of productive activity due to illness or poor health. The main indirect benefit is increased worker productivity due to improved hygiene. These indirect benefits are estimated from the PCR mission survey, existing documents, and focus group discussions. Additional and indirect benefits are summarized in Table A8.4.

**Table A8.4: Additional and Indirect Benefits**

<b>Project Secondary Town(s)</b>	<b>Tk million</b>	<b>\$ million</b>
Project	783.11	9.664
Brahmanbaria	115.67	1.427
Gaibandha	52.66	0.650
Jamalpur	25.95	0.320
Kushtia	138.02	1.703
Manikganj	11.37	0.140
Munshiganj	136.37	1.683
Mymensingh	48.69	0.601
Rajshahi	83.44	1.030
Sunamganj	170.94	2.110

Sources: *Project completion review mission survey and secondary data.*

### **C. Economic Rationale**

8. All project components have a strong economic rationale as they provide minimum standards for living conditions and help remove constraints on social development and economic growth. Similarly, all components were designed based on sound principles of needs prioritization, consultation, and targeting, and require management and rehabilitation before new investments can be made. The PCR mission carried out an economic analysis of all project components acknowledging the overall benefits of the project.

9. Based on the investments made, the PCR mission estimated operation and maintenance (O&M) costs over a 30-year period after project completion, benefit flows, and 10% leftover (salvage value of all infrastructures) after the project life economic returns have been estimated in terms of net percentage economic internal rates of return (EIRRs). The assessed EIRRs of the project and nine secondary towns are presented in Table A8.5. The EIRRs of the nine towns varied from 14.27% in Gaibandha to 29.37% in Jamalpur. The PCR mission also tested the returns under different conditions with an increased O&M cost coupled with reduced revenue. These were found to be stable and to exceed a 12% opportunity cost of interest. Based on economic considerations, the project appears to be robust and viable.

**Table A8.5: Summary of Economic Internal Rates of Return**

<b>Project Secondary Towns</b>	<b>Original EIRR at Appraisal (%) (Base)</b>	<b>EIRR Actual at PCR (%) (Base)</b>	<b>O&amp;M Costs Increased by 10%</b>	<b>Benefits Reduced by 10%</b>	<b>Both O&amp;M Costs and Benefits Increased by 10%</b>
Project	22.80	26.02	25.98	24.02	27.85
Brahmanbaria	20.40	16.01	15.99	14.57	17.36
Gaibandha	16.30	14.27	14.22	12.65	15.77
Jamalpur	44.60	29.37	29.34	26.82	31.69
Kushtia	14.30	15.15	15.12	13.95	16.25
Manikganj	33.70	20.32	20.28	18.18	22.29
Munshiganj	18.60	16.34	16.30	14.86	17.70
Mymensingh	30.40	19.16	19.12	17.32	20.86
Rajshahi	13.50	18.94	18.91	17.58	20.19
Sunamganj	13.50	14.52	14.48	13.21	15.72

EIRR = economic internal rate of return, O&M = operation and maintenance, PCR = project completion report.

Source: *PCR Mission estimates.*

## PROJECT BENEFITS FOR CAPACITY BUILDING WITH PHYSICAL FACILITIES

Output(s)	Unit	Estimate	Actual
<b>Land Acquisition and Resettlement</b>	ha	3.63	1.91
Land acquisition for drainage canals			
<b>Output B: Drainage Improvement</b>			
Excavation and cleaning	km	110.19	109.57
Repair and rehabilitation of existing drains	km	46.65	43.44
Construction of new drains	km	225.52	217.55
Culverts and bridges	no.	69.00	69.00
Construction of railings along drains	km	38.00	36.89
Construction of drain and road (at Munshiganj)	km	0.75	0.75
<b>Output C: Urban Environmental Improvement</b>			
<b>A1. Sanitation</b>			
Sanitary pit latrines, community latrine, and septic tank	no.	5.00	5.00
Public toilets	no.	21.00	21.00
Mobile toilets (pilot for Rajshahi)	no.	1.00	1.00
<b>C2. Solid Waste Management</b>			
Transfer station development	no.	51.00	51.00
Landfill area development	no.	9.00	9.00
Approach roads to landfill	km	10.09	9.29
Sanitary landfill land purchase	ha	16.29	14.23
<b>C3. Slum Improvement</b>			
Infrastructure (footpaths, tube -wells, latrines, waste bins, lighting)	ha	21,325.00	22,981.00
Connecting roads	km	6.23	5.98
<b>Transport</b>			
Four-wheel drive jeep	no.	3.00	3.00
Double cabin pickup truck	no.	8.00	8.00
Motorcycle	no.	35.00	35.00
<b>Equipment</b>			
Mechanical sweeping equipment	no.	2.00	2.00
Bulldozer	no.	8.00	8.00
Compost plant	no.	8.00	8.00
Vacuum tanker	no.	8.00	8.00
Rickshaw van	no.	250.00	250.00
Garbage truck	no.	11.00	11.00
Office furniture and decoration	item	1.00	1.00
Office equipment (fax, computer, photocopier, etc.)	item	1.00	1.00

km=kilometer, ha=hectare, no.=number.

Source: Local Government Engineering Department. 2012. *Project Completion Report*. Dhaka.



## SUMMARY OF PROJECT BENEFITS AND IMPACTS

### A. Scope and Design of Sample Survey

1. The PCR mission collected data on project benefits and impacts through sample surveys in all nine secondary towns to gather information on the physical condition of infrastructure, facilities, and systems developed under the project. It also examined operating conditions, maintenance, and beneficiary perceptions of the project impacts. The data primarily pertained to the benefits and sustainability of the facilities and services, particularly the flood mitigation measures, improvement of drainage systems and facilities, municipal services including waste management and sanitation services, and overall benefits and impacts.

2. The survey covered all nine secondary towns and collected secondary data from the relevant city corporations and *pourashavas*. It also consulted people who benefited from or were affected by flood protection infrastructure, drainage and waste disposal facilities, and slum development through improved sanitation and the provision of microcredit. In all, 450 respondents (50 per secondary town) were interviewed. Moreover, officials from the relevant city corporations, Bangladesh Water Development Board (BWDB), Local Government Engineering Departments (LGEDs), and other support agencies such as NGOs were consulted and data was collected. The respondents were primarily drawn from the low-income population. The survey findings are summarized in the following paragraphs.

### B. Survey Findings

3. **Positive Occupational Change due to Improved Urban Services.** The survey data indicated that the developments resulted in occupational changes for the city dwellers, particularly those living near affected areas. These changes are positive meaning that occupations such as laboring, homemaking, and rickshaw pulling are being replaced by more skill-based occupations including skilled work, tailoring, and food processing (Table A10.1). Notably, unemployment increased from 3.11% before the project to 6.00% after the project.

**Table A10.1: Dynamics of Main Occupations of Respondents**

Occupation	Before Project				After Project				Total			
	Male		Female		Male		Female		Before		After	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. Public services	55	13.99	2	3.51	49	12.47	3	5.26	57	12.67	52	11.56
2. Day labor	62	15.78	7	12.28	48	12.21	5	8.77	69	15.33	53	11.78
3. Skilled worker	58	14.76	1	1.75	61	15.52	0	0.00	59	13.11	61	13.56
4. Food processing	12	3.05	0	0.00	15	3.82	0	0.00	12	2.67	15	3.33
5. Maidservant	0	0.00	5	8.77	0	0.00	5	8.77	5	1.11	5	1.11
6. Business and petty trading	125	31.81	4	7.02	124	31.55	3	5.26	129	28.67	127	28.22
7. Artisan and cottage industries	2	0.51	0	0.00	2	0.51	0	0.00	2	0.44	2	0.44
8. Tailoring and embroidery	3	0.76	0	0.00	3	0.76	2	3.51	3	0.67	5	1.11
9. Poultry	1	0.25	0	0.00	0	0.00	0	0.00	1	0.22	0	0.00
10. Rickshaw van-puller	57	14.50	0	0.00	54	13.74	0	0.00	57	12.67	54	12.00
11. Housewife	2	0.51	30	52.63	0	0.00	25	43.86	32	7.11	25	5.56
12. Student	3	0.76	0	0.00	0	0.00	0	0.00	3	0.67	0	0.00
13. Disabled	0	0.00	2	3.51	13	3.31	4	7.02	2	0.44	17	3.78
14. Unemployed	8	2.04	6	10.53	21	5.34	6	10.53	14	3.11	27	6.00
15. Other	5	1.27	0	0.00	3	0.76	4	7.02	5	1.11	7	1.56
<b>Total</b>	<b>393</b>	<b>100.00</b>	<b>57</b>	<b>100.00</b>	<b>393</b>	<b>100.00</b>	<b>57</b>	<b>100.00</b>	<b>450</b>	<b>100.00</b>	<b>450</b>	<b>100.00</b>

Source: Project completion review mission survey estimates. 2015.

4. **Signs of Escape from the Poverty Trap.** Survey respondents were predominantly drawn from low-income groups, as most of the people directly affected by flood mitigation and drainage are from low-lying areas of the towns (Table A10.2). Rich and middle class persons account for 48.44% of the respondents, with the middleclass accounting for 46.44%. Before the project, these classes only accounted for 19.11% (18.44% middle class) indicating the movement of the poor into the middle class. The percentage of persons dwelling in the slums decreased from 40.44% to 23.11%

**Table A10.2 Upward Shift of Surveyed Households in Poverty and Wealth Ranking**

Wealth Ranking	Before Project		After Project	
	Number	%	Number	%
Rich	3	0.67	9	2.00
Middle class	83	18.44	209	46.44
Poor	182	40.44	128	28.44
Slum dwellers	182	40.44	104	23.11
Total	450	100.00	450	100.00

Source: *Project completion review mission survey estimates*. 2015.

5. **Economic Rise – Increased Income and Spending:** The average income of respondent households increased by 37.2% from 2006 to 2012 (an average increase of 3.7% per year). Households with an annual income of Tk80,000 account for 68% of all households, including 12.44% with an annual income above Tk200,000 (Table A10.3). On the other hand, the annual average expenditure per household only increased by 27.6% (Table A10.3) in last 10 years (2.6% annual increase), This indicates that the average annual income exceeded average annual expenditure, demonstrating the economic opportunities created by the project to some extent.

**Table A10.2: Annual Income of Surveyed Households**

Annual Income (Tk) per Surveyed Household	Before Project		After Project	
	Number	%	Number	%
<21,000	14	3.11	13	2.89
21,000–40,000	75	16.67	18	4.00
41,000–60,000	110	24.44	69	15.33
61,000–80,000	72	16.00	44	9.78
81,000–100,000	42	9.33	92	20.44
101,000–120,000	34	7.56	55	12.22
121,000–140,000	20	4.44	13	2.89
141,000–200,000	68	15.11	90	20.00
200,000+	15	3.33	56	12.44
Total	450	100.00	450	100.00
<b>Average Annual Income (Tk)</b>	<b>90,648.89</b>		<b>1,24,412.22</b>	

Source: *Project completion review mission survey estimates*. 2015.

**Table A10.3: Annual Expenditure of Surveyed Households**

Annual Expenditure (Tk) per Surveyed Household	Before Project		After Project	
	Number	%	Number	%
<21,000	11	2.44	10	2.22
21,000–40,000	86	19.11	28	6.22
41,000–60,000	117	26.00	71	15.78
61,000–80,000	65	14.44	55	12.22
81,000–100,000	54	12.00	96	21.33
101,000–120,000	40	8.89	47	10.44
121,000–140,000	15	3.33	21	4.67
141,000–200,000	49	10.89	90	20.00
200,000+	13	2.89	32	7.11
Total	450	100.00	450	100.00
<b>Average Annual Expenditure (Taka)</b>	<b>87,777.56</b>		<b>1,12,040.66</b>	

Source: *Project completion review mission survey estimates*. 2015.

6. **Economic Development – Increased Spending:** The survey data indicated that due to increased income and the improved parity of respondent households, expenditure on important commodities increased by 57.2% during the last 10 years, partly as a result of the project and partly due to inflation (Table A10.4). The data also indicated that, household consumption of essential commodities increased partly due to an increase in income (Table A10.5). Increased consumption and income indicates improved living conditions and a higher living standard due in part to the project.

**Table A10.4: Average Monthly Consumption of Important Commodities**

Important Expenditure (Heads/Month)	Before Project (Tk)	After Project (Tk)
Rent	1.066.78	1.910.89
Food	3.556.48	5.296.94
Education	470.16	921.38
Electricity	229.49	510.32
Water	34.02	67.61
Gas/Fuel	347.01	424.80
Medical	445.32	536.25
<b>Total Expenditure on Important Items/year</b>	<b>6,149.26</b>	<b>9,668.19</b>

Source: *Project completion review mission survey estimates*. 2015.

**Table A10.5: Average Monthly Household Consumption of Essential Commodities**

Average Monthly Household Consumption of Essential Commodities	Before Project	After Project
Rice (kg)	39.28	47.55
Bread (kg)	3.31	5.06
Fish (kg)	4.57	6.81
Meat (kg)	1.98	2.83
Vegetables (kg)	12.90	16.59
Oil (litre)	2.69	3.66
Milk (litre)	2.30	3.56
Medicines (Tk)	301.50	427.14
Clothes (Tk)	615.74	883.76

kg = kilogram.

Source: *Project completion review mission survey estimates*. 2015.

7. **Flood-Free Secondary Towns.** The survey found that 99.56% of households benefiting from the resources of the secondary towns are located within the towns, and 90.90% of surveyed households indicated that the town is free from regular flooding. Furthermore, the number of households that cannot send their children to school during the monsoon decreased from 12.4% to 4.6% (Table A10.6).

**Table A10.6: Children's Access to Schools in Low-lying Areas Before and After the Project**

Location of Surveyed Households	Before Project		After Project	
	Number	%	Number	%
Households located within the city corporation and <i>pourashava</i> areas	444	98.67	448	99.56
Households free from regular flooding	197	43.80	409	90.90
Households that can send children to school in the monsoon	56	12.44	427	95.00

Source: *Project completion review mission survey estimates*. 2015.

8. **Increased Value of Land Resources.** The survey data indicated that the value of all five land categories within the towns has increased rapidly due to project interventions. This represents an increase in capital resources for all landowners living in the towns (Table A10.7). 89.5% of respondents stated that the drain systems remain effective at all times, 87.1% reported that the systems remain effective even during heavy rains, and 77.1% reported that the systems are effective even during floods (Table A10.8). These statements were drawn from multiple respondents in different areas, with different perceptions of the drainage system improvements.

**Table A10.7: Increase of Land Value Due to Project-Driven Developments**

Land Categories	Average Cost of Land Before Project (Tk)	Average Cost of Land After Project (Tk)
Agricultural land	123,955.56	218,573.33
Fallow land	107,888.44	217,423.89
Residential area land	428,988.89	623,506.67
Commercial area land	634,797.78	952,495.56
Industrial area land	499,504.44	795,100.00

Source: *Project completion review mission survey estimates*. 2015.

**Table A10.8: Status of Drainage Congestion – Before and After the Project**

Status of Drainage Congestion Improvement	Before Project		After Project	
	Number	Percentage	Number	Percentage
Improved always	123	27.33	403	89.56
Improved during heavy rains	20	4.44	392	87.11
Improved during floods	25	5.56	347	77.11

Source: *Project completion review mission survey estimates*. 2015.

9. **Status of Solid Waste Management.** The management of solid waste has been significantly improved as compared with the situation before the project when 70.9% households had to collect and preserve waste at home and either dispose of it in outside bins or at random. City corporations collected waste from households in only 69.3% of cases (Table A10.9). After the project, the rate of regular waste collection from households by city corporations has increased from 66.7% to 94.2% (Table A10.10) and the disposal of solid waste in landfills has increased from 22.4% to 76.7%. However, the processing of solid waste is still underdeveloped and it may take longer to interest entrepreneurs in the industry (Table A10.11).

**Table A10.9: Status of Solid Waste Management and Disposal**

Solid Waste Disposal Method	Before Project		After Project	
	Number (N=450)	%	Number (N=450)	%
Home collection by municipality	55	12.22	312	69.33
Home transferal to waste bins by family members	319	70.89	129	28.67
No existing system	76	16.89	9	2.00

Source: *Project completion review mission survey estimates*. 2015.

N = sample size

**Table A10.10: Frequency of Solid Waste Collection**

Frequency of Solid Waste Collection	Before Project		After Project	
	Number (N=450)	%	Number (N=450)	%
Regularly	299	66.44	424	94.22
Daily	58	19.40	88	20.75
Alternate days	37	12.37	175	41.27
Once a week	123	41.14	65	15.33
Fortnightly	36	12.04	74	17.45
Irregularly	45	15.05	22	5.19

Source: *Project completion review mission survey estimates*. 2015.

N = sample size

**Table A10.11: Places of Solid Waste Disposal**

Places of Solid Waste Disposal	Before Project		After Project	
	Number (N=450)	%	Number (N=450)	%
Landfill	101	22.45	345	76.67
Processing plants	2	0.44	12	2.67
Rivers/ canals/ open spaces	174	38.67	87	19.33
Elsewhere	173	38.44	6	1.33
Total	450	100	450	100

Source: *Project completion review mission survey estimates*. 2015.

N = sample size

**10. Sanitary Standards of Solid Waste Management.** Before the project, solid waste management systems were very unsanitary. This improved slightly after the project but did not meet the required sanitary standard. Although solid waste is generally disposed of in landfills, these do not meet sanitation standards. Household access to solid waste bins and the cleaning of transfer bins at transfer stations has increased after the Project (Table A10.12). Solid waste collection, transportation, and disposal at landfills using mechanical transport and handling equipment have also increased (Table A10.13).

Table A10.12: Cleaning of Waste Bins

Frequency of Waste Bin Cleaning	Before Project		After Project	
	Number (N=450)	Percentage	Number (N=450)	Percentage
Every day	33	7.33	47	10.44
Alternate days	23	5.11	158	35.11
Once a week	112	24.89	100	22.22
Once every 15 days	105	23.33	118	26.22
Once a month	56	12.44	27	6.00

Source: *Project completion review mission survey estimates. 2015.*

N = sample size

Table A10.13: Sanitary Standards of Solid Waste Disposal System

Access to Solid Waste Disposal Systems and Types of Transport Used	Before Project		After Project	
	Number (N=450)	%	Number (N=450)	%
Access to solid waste disposal systems	292	64.88	445	98.88
By mechanical transport	64	14.00	181	40.67
By manual transport	228	50.67	264	59.32
Covered van	231	51.33	367	81.56
Fully covered vans	12	5.19	48	13.07
Partially covered vans	219	94.80	319	86.92
Foul smells spread during transportation	292	64.89	415	92.22

Source: *Project completion review mission survey estimates. 2015.*

N = sample size

11. **Status of Operation and Maintenance of the Drainage Systems.** One major achievement of the project was the construction, repair, and renovation of primary, secondary, and tertiary systems to eliminate drain congestion in the towns and facilitate the disposal of liquid waste. The project established a strong network of modern drains, but its capacity has been undermined by (i) nearby households who use the drains to dispose of solid waste, (ii) encroachment by nearby households, (iii) growth of thick vegetation, and (iv) lack of periodic cleaning and regular repair and maintenance ensuring continuous flow. More campaigns are necessary to motivate city dwellers to use the drainage system correctly and instill a sense of responsible ownership in them. The PCR mission survey and field visits found that the drainage system is being threatened by encroachment and land grabbing, vegetation, and possible congestions during monsoons. None of the nine city corporations and *pourashavas* is active enough to maintaining the drainage system. However, the survey data indicated a slight increase in the frequency with which the drains are cleaned (Table A10.14). All nine city corporations and *pourashavas* indicated that they clean the drains inexpensively during the monsoon with flush water.

Table A10.14: Status of Cleanliness of Drains and its Maintenance

Level of Drain Cleanliness	Before Project		After Project	
	Number (N=450)	%	Number (N=450)	%
Drains are cleaned and free from sludge	251	55.78	387	86.00
Drains are cleaned weekly	21	8.37	26	6.72
Drains are cleaned fortnightly	20	7.97	96	24.81
Drains are cleaned monthly	51	20.32	190	49.10
Drains are clean once every 3 months	109	43.43	65	16.80
Drains are clean once every 6 months	50	19.92	10	2.58

Source: *Project completion review mission survey estimates. 2015.*

N = sample size

12. **Reduced Incidence of Waterborne Diseases:** The PCR mission survey estimated the incidence of waterborne diseases before and after the project to assess the benefits and impact of flood mitigation and improvements in drainage and waste management systems. The number of work-days lost due to flooding declined sharply after regular flooding was eliminated. Furthermore, the improvement of drainage and solid waste management systems has significantly reduced the incidence of waterborne diseases such as diarrhea, dysentery, jaundice, and typhoid (Table A10.15). However, the survey data indicated that medical expenses (at current prices) of the surveyed households related to waterborne and other diseases had increased by 50% after the project due in part to inflation and city dwellers' increased awareness of medical treatment (Table A10.16).

**Table A10.15: Workdays Saved and Lost and Incidence of Common Waterborne Diseases**

Workdays and incidence of waterborne diseases	Before Project	After Project	Change (%)
Average number of workdays saved during the floods	4.66	0.41	91.20
Average number of workdays saved due to road improvements	5.04	1.68	66.67
Average number of workdays lost due to illness	2.46	0.47	80.89
Number of household members suffering from diarrhea	0.84	0.40	52.38
Number of household members suffering from dysentery	0.60	0.41	31.67
Number of household members suffering from jaundice	0.39	0.15	61.54
Number of household members suffering from typhoid	0.46	0.21	54.35

Source: *Project completion review mission survey estimates. 2015.*

**Table A10.16: Annual Average Expenditure on Treatment of Waterborne and Other Diseases**

Annual Family Expenditure for Treatment of Illnesses	Average Expenditure (Tk)/Family/Year	
	Before Project	After Project
Diarrhea, dysentery, jaundice, and typhoid	621.58	1,004.47
All diseases	2,348.29	4,342.87

Source: *Project completion review mission survey estimates. 2015.*

13. **Increased Participation in Income-Generating Activities:** The PCR mission survey and field visits found that community participation in project-driven income-generating activities was lower than expected, as most of the target city dwellers were involved in their preferred economic activities that offer higher returns or wages. It was also found that fewer beneficiaries joined the credit group, and many of those who initially received loans and deposited savings later dropped out or did not participate in regular group meetings (Tables A10.17 and A10.18).

**Table A10.17: Participation of Households in Income-Generating Activities**

Types of Households	Before Project		After Project	
	Number	%	Number	%
Households with members engaged in income-generating activities	32	7.11	14	3.11
Households with members who continued income-generating activities up to the close of project	8	57.11	20	75.4
Households with members who became members of a gender committee	79	17.56	50	11.11

Source: *Project completion review mission survey estimates. 2015.*

**Table A10.18: Surveyed Households with Members in a Microcredit Group**

Surveyed Households' Access to Microcredit Groups	Before Project		After Project	
	Number	%	Number	%
Households with members in microcredit groups	27	6.00	22	4.89
Households with members in gender committees	79	17.56	50	11.11
Households with members who benefited from microcredit activities	28	6.22	22	4.89
Households with members who continued microcredit activities	21	4.67	17	3.78

Source: *Project completion review mission survey estimates*. 2015.

14. **Increased Access to and Use of Household and Community Sanitary Latrines.** Before the project, only 47.8% of households had access to sanitary latrines; this increased to 94.0% after the project, partly due to the project but mostly due to several other programs, as well as the households' own initiatives and funds. Furthermore, 63.6% of surveyed households had access to community latrines after the project, as compared with 34.2% before the project. The concept of community latrines was found to be popular in low-income areas of the towns (Table A10.19).

**Table A10.19: Access of Surveyed Households to Sanitary Latrines**

Status of Sanitary Latrine Facilities of Surveyed Households	Before Project		After Project	
	Number	%	Number	%
Households with sanitary latrines	215	47.78	423	94.00
Households with access to community latrines	154	34.22	286	63.56

Source: *Project completion review mission survey estimates*. 2015.

15. **Increased Payment of Holding Tax.** The survey found that among the low income city dwellers 48.0% of respondents used to pay holding taxes before the project as compared with 60.0% after the project. The holding tax reported as paid by the surveyed households is too low as they live shanties in low-income areas of the towns (Table A10.20).

**Table A10.20: Status of Surveyed Households in Payment of Holding Tax**

Holding Tax Payment Status of Surveyed Households	Before Project		After Project	
	Number	%	Number	%
Households paying holding tax	216	48.00	270	60.00
Households paying holding tax of <Tk100	40	8.89	15	3.33
Households paying holding tax of Tk100 to Tk300	141	31.33	183	40.67
Households paying holding tax of Tk301 to Tk600	22	4.89	35	7.78
Households paying holding tax of Tk600 and above	12	2.67	34	7.56

Source: *Project completion review mission survey estimates*. 2015.

16. **Increased Savings and Investment.** The survey estimated that 60.9% of surveyed households save money on a regular basis but that the amounts that they save are minimal ranging from Tk500 to Tk30,000 or more per year. The rate of saving and average amount of savings per household has declined since the project (Table A10.21). The survey also found that the beneficiaries use these savings to meet essential family needs such as purchasing land, furniture, and ornaments, repaying loans, educating children, and repairing houses (Table A10.22).



**Table 10.21: Status of Surveyed Households with Savings**

Amount of Annual Savings per Household (Tk)	Before Project		After Project	
	Number	%	Number	%
Households with savings	161	35.77	270	60.89
Households with annual savings of Tk500–1,000	6	1.33	10	2.22
Households with annual savings of Tk1,100–3,000	33	7.33	30	6.67
Households with annual savings of Tk3,100–6,000	42	9.33	41	9.11
Households with annual savings of Tk6,100–11,000	26	5.78	65	14.44
Households with annual savings of Tk11,100–20,000	25	5.56	54	6.67
Households with annual savings of Tk20,100–30,000	13	2.89	27	6.67
Households with annual savings of Tk30,000 and above	16	3.56	43	6.67
<b>Average savings per year</b>	<b>152.39</b>		<b>315.19</b>	

Source: Project completion review mission survey estimates. 2015.

**Table A10.22: Areas of Savings Investments**

Areas of Savings Investments	Before Project		After Project	
	Number	%	Number	%
Land purchases	56	12.44	105	23.33
Furniture purchases	110	24.44	156	34.67
House repairs	114	25.33	167	37.11
Loan repayment	69	15.33	76	16.89
Children's education	55	12.22	106	23.56
Purchase of ornaments	12	2.67	50	11.11
Expenditure on a daughter's wedding	17	3.78	21	4.67
Others	7	1.56	15	3.33

Source: Project completion review mission survey estimates. 2015.

17. **Increased Access to Urban Facilities.** The survey data indicated the increased access of the low-income city dwellers to essential urban facilities, which are major indicators of improved living standards. Access to adequate supplies of water and electricity, drainage and sewage facilities, sanitation system and solid waste disposal systems, and primary healthcare services has improved considerably (Table A10.23).

**Table A10.23: Status of Access of Surveyed Households to Urban Facilities**

Types of Facilities	Before Project								After Project							
	Sufficient		Inadequate		Poor		Not available		Sufficient		Inadequate		Poor		Not available	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Water supply	3	0.67	82	18.22	40	8.89	325	72.22	53	11.78	106	23.56	21	4.67	270	60.00
Electricity	121	26.89	170	37.78	130	28.89	6	6.44	280	62.22	136	30.22	9	2.00	25	5.56
Drainage facility	5	1.11	87	19.33	146	32.44	212	47.11	68	15.11	280	62.22	51	11.33	51	11.33
Sewage facility	3	0.67	56	12.44	88	19.56	303	67.33	56	12.44	210	46.67	36	8.00	148	32.89
Sanitation system	50	11.11	107	23.78	196	43.56	97	21.56	172	38.22	240	53.33	31	6.89	7	1.56
Solid waste disposal	33	7.33	93	20.67	132	29.33	192	42.67	156	34.67	219	48.67	41	9.11	34	7.56
Primary health services	8	1.78	127	28.22	194	43.11	119	26.44	117	26.00	252	56.00	32	7.11	49	10.89
Others					2	0.44	57	12.67	1	0.22	5	1.11	45	10.00	8	1.78

no. = number.

Source: Project completion review mission survey estimates. 2015.

18. **Improvement of Economic Activities and Employment, and Availability and Sale of Commodities.** The survey obtained perceptions of the city dwellers regarding the relative status of economic activities and employment, and availability and sale of commodities as compared with the situation before the project. All of the respondents believed that overall economic activity had increased. Employment opportunities increased by 23.6% (through enhanced economic activities in the secondary towns due to flood-free environment), the availability of commodities increased by 26.9%, and the sale of

commodities increased by 27.8% during the project period (Table 10.24). According to the estimate of surveyed households, 22.4%, 17.1%, and 17.1% respondent city dwellers reported increase of economic activities as 20%, 30%, and 40% respectively after the project (Table A10.25).

**Table A10.24: Increase in Economic Activities, Availability and Sale of Commodities, and Employment Opportunities**

<b>Increases in Activities, Commodities, and Jobs</b>	<b>Before Project</b>	<b>After Project</b>
Increase in economic activities in the town	100	100.00
Increase in employment opportunities	100	123.58
Increased availability of commodities	100	126.91
Increased sale of commodities	100	127.85

Source: *Project completion review mission survey estimates. 2015.*

**Table A10.25: Percentage Distribution of the Increase in Economic Activities**

<b>% Increase Reported by Respondents</b>	<b>After Project</b>	
	<b>Respondents</b>	<b>Percentage</b>
110.00	15	3.33
115.00	40	8.89
<b>120.00</b>	<b>101</b>	<b>22.44</b>
122.00	2	0.44
123.00	2	0.44
124.00	1	0.22
125.00	37	8.22
128.00	1	0.22
<b>130.00</b>	<b>77</b>	<b>17.11</b>
132.00	1	0.22
134.00	1	0.22
135.00	38	8.44
139.00	1	0.22
<b>140.00</b>	<b>77</b>	<b>17.11</b>
145.00	3	0.67
150.00	34	7.56
160.00	14	3.11
165.00	1	0.22
170.00	3	0.67
150.00	1	0.22
<b>Mean =</b>	<b>450</b>	<b>99.97</b>
Average	30.58	

Source: *Project completion review mission survey estimates. 2015.*