FINANCIAL ANALYSIS

1. Introduction and Methodology

1. The project finances basic urban services improvements and aims to improve the capacity of *pourashavas* (municipalities) for sustainable administrative and financial management in accordance with the Local Government (*Pourashava*) Act, 2009. Thirty *pourashavas* will receive finance under the project, and will receive investments in three phases. The total project amount is estimated to be $236 million, and the implementation period is 6 years. This financial analysis appraises the financial sustainability and viability of the subproject investments for three sample *pourashavas*—Lalmonirhat, Magura, and Naogaon. The financial analysis was prepared in accordance with the Asian Development Bank (ADB) *Financial Management and Analysis of Projects*.[1]

2. Financial sustainability and viability analysis of subprojects assesses the capacity of each *pourashava* to meet future costs including capital expenditures, operation and maintenance (O&M) costs, debt service, and provision for uncollectable debt. A financial discounted cash flow analysis was conducted in real terms to determine the weighted average cost of capital (WACC), financial internal rate of return (FIRR) for revenue-generating subprojects, and financial net present value (where applicable) to assess the financial viability of each subproject and incremental tariffs required. For non-revenue-generating subprojects, the financial analysis focused on the *pourashavas'* financial capacity to meet recurrent costs. Financial projections for sample *pourashavas* were conducted to assess their overall financial capacity to sustain and provide urban services and provide for incremental costs associated with project investments.

2. Discounted Cash Flow Analysis and Subproject Viability

3. The discounted cash flow analysis was conducted on a with- and without-project basis by estimating incremental costs and revenues over a 20-year period. Subproject capital and O&M costs were derived from the engineers' estimates, including (i) capital expenditures under the project including physical contingencies and tax and duties, (ii) O&M expenditures, and (iii) additional capital expenditures to repair and rehabilitate the assets developed under the project. The FIRR is then compared to the WACC and is computed in real terms over a 20-year period, including all capital and operating cash flow and physical but not price contingencies.[2]

4. The WACC calculation considers various funding sources and their relending terms between the government and *pourashavas*. Although ADB loan terms are lower, the relending rate from the government to *pourashavas* is expected to be 6%. The loan–grant ratio of the *pourashavas* is expected to be 15:85. The equity return rate is considered at the 13% that is currently given on bonds issued by the government. A domestic inflation rate of 7.2%[3] is assumed to convert nominal rates into real rates. The WACC is computed for the project to be 4.6% in real terms (Table 1).

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[1] ADB. 2005. *Financial Management and Analysis of Projects*. Manila.
[2] Interest and other financing charges during construction are excluded from the costs.
[3] Consumer price index inflation is used as the domestic cost escalation factor in Bangladesh.

Table 1: Weighted Average Cost of Capital Calculation for *Pourashavas* (Municipalities)

Item	Financing Arrangements (%)	
	Equity	Debt
Weightage	85.00	15.00
Nominal rate	13.00	6.00
Tax rate (no tax implication for *pourashava*)	0.00	0.00
Tax adjusted rate	13.00	6.00
Inflation	7.20	7.20
Real cost	5.41	(1.12)
Weighted component	4.60	0.00
WACC	**4.60**	

( ) = negative, ADB = Asian Development Bank, WACC = weighted average cost of capital.
Source: ADB Estimates

3. Direct Revenue-Generating Components

5. The following are the project assumptions:
   (i)   The value of benefits arising from water sales was calculated by multiplying the volume of water sold each year by the proposed tariffs used for each year in constant prices. The revenues and receipts for other revenue-generating components are conservatively estimated at the rates prevailing in the respective towns.
   (ii) Water losses, or nonrevenue water, in the project *pourashavas* are identified to be 35%–40% in the without-project situation and are projected to gradually reduce to 20% by 2030 with the project.
   (iii) The implementation period of the project is 6 years (2014–2020). Phase-wise implementation is planned, with the first phase of 18 months, second phase of 30 months, and third phase of 24 months. The implementation period for the water supply component is 48 months; for other components it is 24–30 months. The year-wise project implementation for revenue-generating components is assumed as 20%, 30%, 30%, and 20% for water; and 30%, 40%, and 30% for others if in the second phase or 40% and 60% if in the third phase.
   (iv) Collection efficiency has been assumed to be 95% of current demand and 85% of arrears demand.

6. **Water supply system.** The financial analysis of water supply subprojects assumes that 26% of the population of Lalmonirhat, 35% of the population of Magura, and 37% of the population of Naogaon are presently served and connected to the system. It is projected that by 2030, 90% of the population of Lalmonirhat and Magura and 95% of the population of Naogaon will be served and connected to the system. Revenue projections are based on the proposed volumetric water tariff, water demand and consumption,[4] number of connections, continual nonrevenue water reduction, and the collection efficiency mentioned above. A tariff revision is proposed to recover full O&M costs, debt service, and a provision for uncollectible debt for water supply systems. This tariff proposal includes (i) determining effective water tariffs per cubic meter under existing fixed rate tariffs for calculating revenue until introduction of metered volumetric tariffs; (ii) introducing volumetric tariffs in all towns; (iii) setting initial volumetric tariffs for all towns; and (iv) a gradual tariff increase in subsequent years to cover O&M costs,

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[4] Water demand has been projected on the basis of population projection of the respective towns.

replacement costs, and debt service. Based on these assumptions, the proposed tariff structure estimated for three sample towns is shown in Table 2.

Table 2: Proposed Estimated Water Tariff Structure for Sample *Pourashavas*
(Municipalities)

| | Water Tariff per Cubic Meter (Tk) | | | | | |
| | Lalmonirhat | | Magura | | Naogaon | |
Proposed Water Tariff in Nominal Terms	**Domestic**	**Other**	**Domestic**	**Other**	**Domestic**	**Other**
Effective rate under existing fixed tariff	8.00	10.00	7.50	10.00	7.00	10.00
From the year of completion of investment	12.00	15.00	10.50	13.00	10.00	13.00
From the 5th year of completion of investment	15.00	18.00	12.50	16.00	13.00	16.00
20% increase at 5-year intervals (FY2029–FY2030)	18.00	21.00	15.00	19.00	15.00	18.00

FY = financial year.
Source: Asian Development Bank Estimates

7.   **Affordability of proposed water tariff.** It is estimated that, with the proposed volumetric tariff, the average domestic monthly water bill[5] for a household would be Tk195 for Lalmonirhat, Tk170 for Magura, and Tk162 for Naogaon, which is about 3% of the average household income of the poorest 10% of the population. Therefore, this is considered affordable even for the poor. The socioeconomic survey also revealed that they showed willingness to pay more than the estimated bill amount for uninterrupted supply of good potable water.

8.   The base O&M costs for water supply are estimated by engineers considering full recovery of O&M costs. The FIRR of water supply subprojects is 4.98% in Lalmonirhat, 6.75% in Magura, and 4.67% in Naogaon.

9.   **Market development and community centers.** It is projected that the market and community halls fetch one-time possession money and monthly rentals. The rates of one-time fee and rent vary from town to town with the location of the markets, and are conservatively estimated. The increase in monthly rent is projected at 10% with 3-year intervals. The base O&M costs are estimated by engineers considering full recovery of costs.

10.   **Bus–truck terminal.** The financial analysis of the bus–truck terminal covers facilities available in the terminal such as rentals from ticket counters, shops, public toilets, and parking fees from vehicles. The number of vehicles that will use the terminal per day has conservatively been estimated on the basis of available information. For calculating parking fees, 300 days are considered per year. In all cases the increase in rent and fees is projected at 2% per annum. The base O&M costs for the bus–truck terminal are estimated by engineers considering full recovery of costs.

11.   **Consolidated analysis.** Based on the above parameters and assumptions, the FIRRs of the respective direct revenue-generating subprojects have been calculated. The project O&M costs and debt service are fully recovered as per the projections for the three sample *pourashavas*. Sensitivity analysis shows that FIRRs are generally robust but most sensitive to revenue and costs fluctuation. The analysis also shows that the subprojects are financially viable and sustainable as the revenue account will be in surplus for the years of analysis.

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5   Monthly water bill based on 80 liters per capita per day consumption.

12. Taking all income-generating components into account, a consolidated FIRR combining the three *pourashavas* as well as a combined FIRR for each *pourashava* has been calculated (Table 3).

Table 3: Consolidated and Individual Financial Internal Rate of Return of Three Sample
***Pourashavas* (Municipalities)**

| SI. No. | Level of FIRR | Consolidated for 3 Towns | FIRR in Percentage | | |
| | | | Combined | | |
			Lalmonirhat	Magura	Naogaon
1	Base case	5.06	4.76	5.41	5.00
2	Sensitivity: Cost increase by 10%	2.17	2.33	2.72	1.68
3	Sensitivity: Benefits decrease by 10%	1.86	2.07	2.43	1.32
4	Sensitivity: Cost–benefit increase-decrease by 10%	(1.20)	(0.42)	(0.41)	(2.31)
5	Cost–Benefit Ratio	1.02	1.01	1.03	1.01

( ) = negative, FIRR = financial internal rate of return.
Source: Asian Development Bank estimates.

13. **Financial projections.** The projections for the sample *pourashavas* demonstrate that the *pourashavas* from their operating surplus can sustain the non-revenue-generating components by maintaining the assets, paying arrears, providing the improved services, and meeting the debt service payment obligations to the government. Table 4 shows a summary of the projections for Magura *pourashava*. Financial projection statements for the remaining sample towns indicate similar trends.

Table 4: Summary of the Financial Projections for Magura Pourashava (Municipality)
(Tk million)

Head of Accounts	Actual			Projection					
	2012–2013	2013–2014	2014–2015	2019–2020	2024–2025	2029–2030	2034–2035	2039–2040	2040–2041
Own-Source Revenue Income									
Collection of holding tax	13.757	17.666	18.675	20.826	26.710	35.960	48.412	65.178	67.450
Collection of fees and property income	27.437	27.270	28.600	36.305	46.118	58.620	74.550	94.855	99.542
Income from income-generating components of the project	0	0	0	12.249	13.802	15.289	17.179	19.414	19.700
Water supply	5.125	6.802	9.381	24.838	39.311	56.607	64.618	75.629	76.120
Total Own-Source Income	**46.319**	**51.739**	**56.656**	**94.219**	**125.941**	**166.475**	**204.760**	**255.075**	**262.812**
Revenue grants from government and others	0.216	0.210	0.214	0.236	0.261	0.288	0.318	0.351	0.358
Total Revenue Income	**46.535**	**51.949**	**56.870**	**94.455**	**126.202**	**166.763**	**205.078**	**255.426**	**263.170**
Expenditure									
General establishment expenses	38.091	42.060	47.836	54.123	67.067	83.379	103.968	129.991	135.941
Repairs and maintenance of infrastructure	2.506	3.000	3.150	4.020	5.131	6.549	8.358	10.667	11.200
O&M of Infrastructure components under the project	0	0	0	6.467	19.580	26.826	36.754	50.356	53.629
O&M of income-generating components under the project	0	0	0	2.653	3.635	4.980	6.823	9.349	9.956
Water supply O&M costs	5.560	6.900	9.876	13.531	18.539	25.400	34.800	47.678	50.777
Total Operating Expenses	**46.157**	**51.960**	**60.862**	**80.794**	**113.951**	**147.133**	**190.703**	**248.041**	**261.505**
Repayment of Loan (Debt service)	0	0.520	0.500	0	2.090	1.731	1.373	0	0
Total Expenses including Debt Service Payment	**46.157**	**52.480**	**61.362**	**80.794**	**116.041**	**148.865**	**192.076**	**248.041**	**261.505**
Revenue Cash Surplus / (Deficit)	0.378	(0.531)	(4.492)	13.661	10.161	17.898	13.002	7.385	1.665
Cumulative Cash Balance	0.378	(0.153)	(4.645)	16.776	50.884	98.468	47.979	159.713	161.378
Operating Ratio	99%	101%	108%	86%	92%	89%	94%	97%	99%

O&M = operation and maintenance.
Assumptions (i) Arrears of electricity dues up to June 2013 considered to be repaid in 3 years from 2014–2015; (ii) Debt service from other loans have been included; (iii) holding tax assumed to increase by 2% on interim assessment and changes in properties and overall demand will increase by 25% at 5-year intervals; and (iv) nontax revenue and other O&M increase at 5% per annum, other income and expenditure by 2%.
Source: Asian Development Bank estimates.