

FINANCIAL ANALYSIS

A. Introduction

1. The financial evaluation of the proposed investment was carried out in accordance with the Financial Management and Analysis of Projects of the Asian Development Bank (ADB).¹ It covers the proposed improvements to the water supply system in Telavi, Georgia.

B. Historical Performance

2. The historic performance of United Water Supply Company of Georgia (UWSCG) has been poor since the company was formed in 2010. In 2010, the Cabinet of Ministers placed 66 municipal utilities under a single holding company with a view to achieving efficiencies of scale. No such efficiencies would appear to have emerged. UWSCG ceased preparing audited financial statements after 2013. An audit for the 2016, 2017, and 2018 financial years was completed in September 2019, and an audit for the 2019 financial year was completed in June 2020. Historic financial indicators and forward-looking cash flow projections are shown in Table 5.

3. UWSCG's revenue was GEL41.6 million in 2019 and operating expenses (excluding depreciation and amortization) totaled GEL60.2 million, resulting in an operating ratio of 1.45 because of operational inefficiencies and inadequate tariff levels. UWSCG reported negative operational cash flows from 2013 to 2019.²

4. UWSCG has experienced a rapid buildup of debt, from GEL148 million in 2013 to GEL996.5 million in 2019, to cover large-scale capital expenditures programs. As a result, the ratio of total debt to capital increased from 40% to 86% during this period. Capital expenditures totaled GEL60.1 million in 2019, further increasing the company's indebtedness. The government provided direct and indirect subsidies (including tax assets) to UWSCG to cover operational losses and debt service obligations that were not capitalized each year from 2013 to 2019. In 2019, electricity costs amounted to 26% of UWSCG's total operational expenditures (excluding depreciation and amortization). The average tariff is GEL0.68 per cubic meter (m³), or \$0.22 per m³, and has not changed since 2011.³

5. If UWSCG were to achieve an operating ratio of 1 in 2019, with all other parameters unchanged, the average tariff would have to be increased to GEL0.99 per m³ (or \$0.32 per m³), a one-time increase of 45%. To cover all operational expenditures of GEL76.7 million (including depreciation and amortization) and to fully cover debt service obligations of GEL46 million, the tariff for 2019 would have to be set at GEL1.95 per m³ (or \$0.64 per m³)—three times higher than the existing tariff and without any other revenue enhancements, cost reductions, or operational efficiency improvements.

6. Provisional risk-mapping indicates that attention should be given to the prevention of two serious risks—that tariffs will not be adjusted in a timely manner and that reductions in commercial losses will be delayed. To mitigate such risks, tariffs must be contractually indexed for cost recovery.

¹ ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

² Excluding tax refunds that UWSCG received in 2018.

³ Among the sector's nine water supply and sanitation operators (licensees), UWSCG has the highest tariff for metered households as of 2019.

C. Methodology

7. Incremental cost streams used to determine the financial internal rate of return (FIRR) are capital costs (excluding import duties and value-added tax) and operation and maintenance (O&M) costs. O&M costs consist of salaries, energy, and maintenance, among others. The weighted average cost of capital (WACC) was calculated and compared with the FIRR to ascertain the financial viability of the project. The anticipated capital mix of debt to equity was used to estimate the WACC. The sensitivity of the FIRR to adverse changes in the underlying assumptions was also assessed. The analysis was conducted for 2020–2060, i.e., 3 years of construction and 37 years of operations from entry into service.

8. The financial benefits of the Telavi project consist of (i) incremental revenue from additional customers, reduction in commercial losses, tariff due to improvement of service quality, and (ii) cost savings from reduced physical losses and operational efficiencies. The project will deliver additional cost savings relative to the current situation, notably a reduction in physical losses with a related decrease of energy consumption and an increase in staff efficiency. Financial benefits are valued in currency terms using the tariffs applied by UWSCG. Tariffs have been indexed in real terms by 5% every 3 years following a one-time increase of 50% in 2024.

D. Modeling Assumptions

9. All financial figures are calculated in 2020 constant prices. The foreign exchange rate of \$1 = GEL3.1 is used, with the GEL depreciation expected over time against United States dollars due to an anticipated differential in interest rates in accordance with interest rate parity theory. The general assumptions used in the analysis are shown in Table 1 and described in the following paragraphs.

Table 1: Modeling Assumptions

Key Inputs	Target Year	Unit	No Project	Project Implemented
Increase in the number of customers		%	1	2
Metering program complete	2024	%	50	100
Average consumption – metered households	2060	m ³	99	149
Consumption growth – metered customers		%	0	1
Tariff growth – 2024		%	0	50
Tariff growth – 2027 and every 3 years thereafter		%	0	10
Target nonrevenue water	2024	%	75	25
Bill collection efficiency	2024	%	98	98
Capital maintenance (book value)		%	2	2

m³ = cubic meter.

Source: Asian Development Bank estimates.

10. **Capital costs.** The costs of equipment, rehabilitation of networks, and related consulting services are based on engineering estimates in United States dollars, which were converted to GEL to standardize calculations.

11. **Population.** The population of Telavi is estimated to be 20,000 in 2020 based on demographic data. Population figures are characterized by seasonality because Telavi is a tourist destination whose population may double temporarily during the summer months. The average annual population growth was estimated to be 2%.

12. **Water consumption.** Average water consumption per unmetered customers was projected forward based on historic per-connection consumption figures for Telavi, and was

assumed to remain constant over the projection period. Metered households will increase their annual consumption by 1% on average, from 99 cubic meters (m³) in 2019 to 110 m³ in 2030. By comparison, unmetered households consume 198 m³ per year. All unmetered households are expected to install meters by December 2024, in line with the project objectives and consistent with the reform measure under the policy-based loan. Metering encourages water conservation, resulting in less per capita consumption and less revenue for UWSCG per household connection. Average water consumption for all commercial connections was assumed to increase by 1% per year.

13. **Nonrevenue water.** UWSCG estimates a 75% nonrevenue water (NRW) rate for Telavi in 2019, with about 60% of this related to physical losses and 40% related to commercial losses because of metering errors and illegal consumption. Without the project, the NRW level is assumed to remain unchanged. With the project, NRW is expected to fall to 30% upon project completion. It is forecast that UWSCG will be able to reduce physical losses from 45% to 30% and commercial losses from 30% to 10%. The reduction in commercial losses from illegal connections is expected to result in additional revenue, since a significant proportion of illegal water connections will be converted to new connections and additional billings.

14. **Staff costs.** The staff number is projected to remain constant in both scenarios. However, salaries and benefits are expected to double by 2060 in real terms.

15. **Bill collection efficiency.** Bill collection efficiency is assumed to remain steady at 98%, with uncollected receivables going into working capital and then being collected in subsequent periods, instead of being written off entirely.

16. **Tariffs.** Under the with-project scenario, water and wastewater tariffs are assumed to increase in real terms by 50% once (in 2024) and then by 5% every 3 years thereafter.

E. Weighted Average Cost of Capital

17. **Debt.** The WACC was calculated in real terms. ADB is providing an ordinary capital resources loan. The project loan has a 23-year term and a 14-year grace period. The commitment charge is 0.15% of the undisbursed principal, with a London interbank offered rate (LIBOR)-based floating interest rate yielding 1.04%. The real cost of debt adjusted for inflation is estimated at 0%, as inflation is higher (Table 2).

18. **Equity.** UWSCG's cost of equity is based on the equity risk premium and is equal to the risk-free rate of return of 8.5%, which is the yield on Georgia's long-term bonds. The real cost of equity adjusted for inflation is estimated at 5.34%.

Table 2: Weighted Average Cost of Capital

Financial Component	ADB Loan	UWSCG Equity	Total
A. Amount (\$ million)	20.0	3.5	23.5
B. Weighting	85.10%	14.90%	100.00%
C. Nominal cost	1.04%	8.50%	
D. Income tax rate	6.00%	0.00%	
E. Tax-adjusted nominal cost [C x (1 - D)]	0.97%	8.50%	
F. Inflation rate	1.60%	3.00%	
G. Real cost [(1+E) / (1+F) - 1]	0.00%	5.34%	
H. Weighted component of WACC	0.00%	0.80%	
Weighted average cost of capital	0.80%		

ADB = Asian Development Bank, UWSCG = United Water Supply Company of Georgia, WACC = weighted average cost of capital.

Source: Asian Development Bank estimates.

F. Financial Internal Rate of Return

19. The project aims to improve the quality of service, increase operational efficiencies, and maximize asset utilization in Telavi. The project will assist UWSCG in modernizing its equipment and network, develop capacity, and improve asset management. These solutions, together with program-related outcomes, will result in efficient, reliable, and sustainable delivery of water supply services in Telavi.

20. The financial benefits arising from the project consist of additional revenue as a result of a tariff increase and a reduction in NRW, which in turn enables UWSCG to bill more customers and to save on energy consumption arising from reduced water production.

21. **Overall evaluation.** The project is financially viable, with the base-case FIRR of 1.91% (Table 3) exceeding the WACC of 0.8%. The net present value is \$4.28 million over 40 years.

22. **Sensitivity analysis.** A sensitivity analysis was carried out on the FIRR by changing key variables. Since the FIRR values exceed the WACC, only adverse changes were tested: a 10% increase in investment cost, a 10% increase in O&M costs, a 10% decrease in benefits, and a 1-year construction delay. Table 4 shows the effects on the FIRR. The financial performance is robust for all sensitivities tested.

Table 3: Financial Internal Rate of Return
(\$1,000)

Year	Capital Expenditure	Without Project	With Project	Incremental Benefit
2020	(879.8)	48.3	50.7	(877.3)
2021	(5,572.7)	50.6	55.6	(5,567.8)
2022	(2,772.3)	53.2	85.9	(2,739.6)
2023	(4,106.7)	49.6	134.4	(4,021.9)
2024	(510.9)	52.3	260.6	(302.6)
2025	(54.5)	53.8	256.4	148.0
2026	(54.5)	51.2	261.0	155.3
2027	(54.5)	52.7	293.6	186.4
2028	(54.5)	55.5	304.7	194.6
2029	(54.5)	51.4	310.1	204.1
2030	(54.5)	54.3	347.2	238.4
2031	(54.5)	55.9	359.4	248.9
2032	(54.5)	52.9	366.3	258.8
2033	(54.5)	54.5	407.7	298.7
2034	(54.5)	57.5	422.0	309.9
2035	(54.5)	53.0	429.8	322.3
2036	(54.5)	56.0	477.1	366.5
2037	(54.5)	57.7	492.7	380.4
2038	(54.5)	54.3	502.6	393.8
2039	(54.5)	56.0	555.4	444.8
2040	(54.5)	59.2	573.6	459.9
2041	(54.5)	54.1	584.8	476.2
2042	(54.5)	57.3	645.1	533.2
2043	(54.5)	59.2	665.1	551.3
2044	(54.5)	55.2	679.0	569.2
2045	(54.5)	57.1	746.3	634.7
2046	(54.5)	60.4	769.6	654.7
2047	(54.5)	54.8	785.3	676.0

Year	Capital Expenditure	Without Project	With Project	Incremental Benefit
2048	(54.5)	58.2	862.1	749.4
2049	(54.5)	60.1	887.8	773.1
2050	(54.5)	55.6	906.9	796.8
2051	(54.5)	57.6	992.9	880.7
2052	(54.5)	61.1	1,022.8	907.1
2053	(54.5)	54.9	1,044.4	935.0
2054	(54.5)	58.4	1,142.4	1,029.4
2055	(54.5)	60.6	1,175.4	1,060.3
2056	(54.5)	55.4	1,201.5	1,091.5
2057	(54.5)	57.6	1,311.3	1,199.2
2058	(54.5)	61.3	1,349.8	1,234.0
2059	(54.5)	54.3	1,379.0	1,270.2
2060	(54.5)	58.0	1,504.3	1,391.7
FIRR	1.91%			
NPV	4,277			

() = negative, FIRR = financial internal rate of return, NPV = net present value.

Source: Asian Development Bank estimates.

Table 4: Sensitivity Analysis – Impact on Financial Internal Rate of Return

Sensitivity Parameter	Variation	IRR (%)	NPV (\$ million)
Base case	-	1.91	4.28
Increase in project capital costs	10.0%	1.48	2.76
Decrease in revenue	(10.0%)	1.17	1.35
Increase in operating expenses	10.0%	1.71	3.49
1-year construction delay	1 year	1.69	3.24

IRR = internal rate of return, NPV = net present value.

Source: Asian Development Bank estimates.

Table 5: Utility's Financial Performance and Projections, 2019–2030

(\$ million)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenue												
Water revenue	10.9	11.6	12.3	13.0	13.7	21.6	22.5	23.5	26.4	27.0	27.5	30.9
Revenue from wastewater	2.5	2.7	3.0	3.3	3.5	3.7	3.9	4.0	4.1	4.3	4.4	4.5
Revenue gained from reduced commercial losses	-	-	0.9	1.9	2.8	5.7	6.2	6.8	7.5	7.5	7.5	8.2
Total revenue	13.4	14.3	16.2	18.2	20.0	30.9	32.5	34.3	38.0	38.7	39.4	43.6
Operational Costs												
Utilities costs	5.1	4.9	4.8	4.7	4.5	4.4	4.4	4.3	4.3	4.3	4.2	4.2
Staff salaries and benefits	8.2	8.1	8.0	7.9	7.7	7.5	7.9	8.4	8.7	9.1	9.5	9.9
Costs of goods purchased	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.8
Depreciation and amortization	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4
Other expenses	4.6	3.9	4.1	4.4	4.3	4.4	4.5	4.5	4.6	4.7	4.8	4.9
Total operational costs	24.7	23.8	24.0	24.1	23.8	23.7	24.3	24.9	25.5	26.0	26.6	27.2
Operational profit (loss)	(11.3)	(9.4)	(7.8)	(5.9)	(3.8)	7.3	8.3	9.4	12.5	12.7	12.7	16.4

Source: Asian Development Bank estimates.