FINANCIAL ANALYSIS

A. Introduction

1. The financial analysis was undertaken in accordance with the relevant Asian Development Bank (ADB) guidelines. The rehabilitated and expanded regional water supply system will provide potable water to Yangiyul and Chinaz districts, and to five settlements of the adjacent Zangiota district. As a second phase to the original Tashkent Province Water Supply Development Project, the project will extend the water supply service coverage of the Tashkent economic growth corridor to the south. This corridor has been earmarked as a priority for water supply improvements because of its relative economic importance to the province, proximity to regional water sources, and poor water supply and sanitation standards. In addition, the project will provide supplemental capacity development assistance to the Tashkent Provincial Suvokova (state unitary enterprise) (TPS). Mandated by the Decree of Cabinet Ministers No. 306, the TPS was restructured in 2016 to take over the responsibility for managing the delivery of water supply and sewerage services in the province as a utility operator. As part of the streamlining process, the TPS absorbed the assets and liabilities of 19 city and district branches and assumed managerial responsibility for water supply and sanitation (WSS) services in Tashkent province.

B. Project Costs, Scope, and Implementation Schedule

2. The project which is estimated to cost $124.7 million, will be implemented from 2019 to 2025, and is planned to produce two major outputs:
   
   (i) **Output 1: VU-1 regional water supply system improved.** This includes the rehabilitation of the VU-1 groundwater well field and associated works; the construction of 65 kilometers (km) of new transmission mains, 27 km of distribution mains, 540 km of distribution network, 22 water distribution centers, 37 water reservoirs, and other associated works; 37,500 metered household water supply connections, and 4,000 individual wastewater disposal systems.

   (ii) **Output 2: Institutional capacity strengthened.** This output will improve the financial, operational, and system management of the TPS through implementation of (a) capacity and corporate development program; (b) pilot public–private partnership (PPP) program to explore PPP opportunities in the province's WSS sector; (c) sanitation and hygiene program to strengthen the TPS's sanitation management capacity and to pilot decentralized wastewater

---

2 The project also includes a sanitation and hygiene program to improve decentralized wastewater systems.
3 Driven largely by the Decree of Cabinet Ministers No. 306, enacted in October 2015, suvokovas have been established in each province of Uzbekistan with the responsibility to develop and implement water supply and sanitation (WSS) improvements in their respective jurisdictions. In conjunction with this, previously independent district water and sanitation enterprises (Suvokovas which are also called vodokanals) have also been restructured and absorbed as district branches into their respective provincial Suvokovas.
4 The term "VU-1" is the locally recognized name of the well field of the existing system.
5 To introduce performance-based management techniques; improve human resource management practices; strengthen information and communication technology applications; develop hydraulic modeling and supervisory control and data acquisition systems; improve operation and maintenance practices; strengthen public accountability; improve nonrevenue water management; implement training programs; and strengthen financial management, discipline, and accountability.
6 Including a review of PPP legislative and regulatory frameworks; identification and development of potential PPP initiatives; and, where appropriate, formulation of draft development road maps, requests for proposals, and draft contract documentation.
system best practices, (d) geographic information system, and (e) development of a training center for the TPS.

3. The project will be funded by a concessional loan of $105.3 million from ADB’s ordinary capital resources. The government will contribute $19.4 million in the form of taxes and duties. The implementing agency will be the TPS, operating under the guidance and supervision of Agency Kommunkhizmat, the project’s executing agency.

C. Methodology and Key Assumptions

4. The financial analysis was undertaken from the perspective of the TPS in two phases. In the first phase, a financial benefit–cost analysis was conducted to assess the financial viability of the project. This entailed the estimation of the project’s financial internal rate of return (FIRR) followed by a comparison of the resulting FIRR with the calculated weighted average cost of capital for the project. In the second phase of the analysis, the overall impact of the project on the financial sustainability of the TPS was assessed. The analysis demonstrates how the rehabilitation of the regional water supply system in the project areas, coupled with organizational and sector-wide improvements brought about by project interventions such as nonrevenue water management and metering, will positively impact the financial sustainability of the TPS.

5. Two financial models were subsequently developed using cost and financial parameters derived from the project design and the 3-year financial statements of the TPS. For the FIRR estimation model, incremental net revenues were calculated based on an analysis of the tariff regime and structure in Tashkent province, population and water consumption projections for the selected districts, and project cost estimates. For the financial sustainability assessment, the past income and expenditure patterns, financial statements, and the project cost and design parameters were used to build a model covering revenue forecasts, the project implementation period, and the first 5 years of operation. The underlying assumptions used in both models are as follows:
   (i) The models are presented in sum in mid-2018 prices.
   (ii) Physical contingencies were computed at 3% of base cost estimates for civil works and equipment.
   (iii) Price contingencies were computed in accordance with ADB’s published forecasts for escalation factors and were applied at an average of 1.6% for foreign exchange costs and 8.7% for local currency costs.
   (iv) An exchange rate of SUM7,944.07 = $1.00 was used to estimate price contingencies; however, in the financial sustainability model, provisions were made for potential exchange rate fluctuation under a purchasing power parity exchange rate regime for a more conservative approach.
   (v) Interest during implementation was calculated for the ADB loan at 2% per annum.
   (vi) The water supply demand and production used was based on the population growth forecast for the selected districts as prepared by the design institute of the Ministry of Housing and Communal Services.

D. Financial Internal Rate of Return Estimation: Financial Benefit–Cost Analysis

1. Estimation of Water Tariffs, Revenues, and Affordability Analysis

6. The Ministry of Finance, at the recommendation of the TPS and Tashkent province, reviews and adjusts tariff rates about twice a year in accordance with the tariff setting policy of the Government of Uzbekistan. The financial analysis was prepared considering the existing tariff
structure for water in Tashkent province, in which tariffs for residential, commercial, and industrial users have been increased twice a year on average since January 2016. For residential consumers, the average nominal increase per annum has been 16.5% while the average annual real rate of increase has been 7.2%. For commercial and industrial users, the average annual nominal increase has been 28.5% while the average annual real rate of increase has been 18.2%. The current tariff rates for water are as follows: SUM450 per cubic meter (m³) for residential users and SUM1,650 per m³ for commercial, industrial, and institutional establishments.

7. The financial revenues were derived primarily from tariffs to be charged to domestic consumers, commercial users, and institutional establishments. The population to be covered by the project is estimated to be 238,590 residents by 2025 and 267,050 by 2044.

8. For the FIRR estimation, the tariff adjustments assumed an increase in tariffs of 150%, in real terms, from SUM475 per m³ to SUM1,188 per m³ by 2026, when the benefit period of the project starts, increasing thereafter at the rate of 10% per year, except every 5 years when the rate increases by 20%. These tariff rates were considered reasonable given the high level of water demand in the project areas and the relatively low tariffs in the province. In addition, the socioeconomic survey conducted under the project preparatory technical assistance revealed that the targeted households had the willingness to pay up to SUM2,500 per m³ for the potential tariff increases, since most of them were only able to access clean and safe water through trucks or vendors at the higher cost of about SUM6,000 per m³. For the commercial and industrial establishments, the same rate of tariff increase had been assumed, in real terms, from SUM1,650 per m³ to SUM4,125 per m³ by 2026, increasing thereafter at the rate of 10% per year, except every 5 years when it increases by 20%. The increased tariff rates assumed are consistent with the principles of full cost recovery, which are in accordance with the latest economic and fiscal reforms being pursued by the government.

9. An affordability analysis was also conducted on the proposed tariffs. On the average, it was estimated that the poor households would consume about 70 liters per capita per day based on the socioeconomic survey conducted. With the tariff adjustment assumed by 2026, the monthly household water bill would amount to SUM14,960 per month. This constitutes about 1.5% of the average monthly income of the targeted households in the project districts, and is well within the international standards of 3%–4% of household monthly income considered affordable for water tariffs.

2. Financial Internal Rate of Return Calculation and Sensitivity Analysis

10. The resulting base case FIRR is 1.32% (Table 1). This exceeds the estimated weighted average cost of capital of 0.18% (Table 2). A sensitivity analysis, undertaken to further test financial viability, showed that the potential financial viability of the project under varying scenarios was highly vulnerable to increases in capital costs, decreases in tariff revenues, or a combination of both. The sensitivity analysis revealed that the FIRR is most vulnerable to decreases in tariff revenues, suggesting that the approval of water tariffs sufficient enough to facilitate the recovery of capital investments, debt servicing, and operation and maintenance should be carefully monitored.

A benchmarking assessment undertaken during the project preparatory technical assistance showed that Tashkent province, with its prevailing rate of SUM475 per m³ ($0.06 per m³) for residential households, had one of the lowest tariffs in the Central Asia region and among developing countries across Asia. The prevailing average water tariffs in Central Asia are as follows: Armenia, $0.34 per m³; Azerbaijan, $0.21 per m³; Kazakhstan, $0.22 per m³; and Kyrgyz Republic, $0.09 per m³. In Asia, the average water tariffs in selected developing countries include the following: Cambodia, $0.22 per m³; Mongolia, $0.25 per m³; Thailand, $0.39 per m³; and Viet Nam, $0.30 per m³.
### Table 1: Summary of Financial Evaluation and Sensitivity Analysis

<table>
<thead>
<tr>
<th>Scenario</th>
<th>FIRR (%)</th>
<th>NPVa (\text{SUM}^000)</th>
<th>Switching Value</th>
<th>Sensitivity Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base case</td>
<td>1.32</td>
<td>148,432</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case 1: 10% increase in capital cost</td>
<td>0.72</td>
<td>73,502</td>
<td>21.9</td>
<td>4.57</td>
</tr>
<tr>
<td>Case 2: 10% increase in O&amp;M costs</td>
<td>1.21</td>
<td>132,645</td>
<td>112.4</td>
<td>0.89</td>
</tr>
<tr>
<td>Case 3: 10% decrease in tariff revenues</td>
<td>0.53</td>
<td>42,871</td>
<td>16.7</td>
<td>6.00</td>
</tr>
<tr>
<td>Case 4: 10% increase in capital cost and 10% decrease in tariff revenues</td>
<td>(0.18)</td>
<td>(47,847)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case 5: 1-year delay in tariff revenues</td>
<td>0.36</td>
<td>21,957</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(\(\text{SUM}^000\) = negative, FIRR = financial internal rate of return, NPV = net present value, O&M = operation and maintenance.

\(\text{a} \) Calculated using a discount rate equal to the estimated weighted average cost of capital of 0.18%.

Source: Asian Development Bank estimates.

### Table 2: Derivation of Weighted Average Cost of Capital

<table>
<thead>
<tr>
<th>Item</th>
<th>ADB Loan Passed on to TPS as a Subloan</th>
<th>Government Share</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Amount of loan ($ million)</td>
<td>105.34</td>
<td>19.39</td>
</tr>
<tr>
<td>B.</td>
<td>Weight (%)</td>
<td>84.50</td>
<td>15.50</td>
</tr>
<tr>
<td>C.</td>
<td>Nominal cost (%)</td>
<td>2.00</td>
<td>14.00</td>
</tr>
<tr>
<td>D.</td>
<td>Tax rate (%)</td>
<td>14.00</td>
<td>0.00</td>
</tr>
<tr>
<td>E.</td>
<td>Tax adjusted nominal rate (%)</td>
<td>1.72</td>
<td>14.00</td>
</tr>
<tr>
<td>F.</td>
<td>Inflation rate (%)</td>
<td>1.50</td>
<td>14.00</td>
</tr>
<tr>
<td>G.</td>
<td>Real cost (%)</td>
<td>0.22</td>
<td>0.00</td>
</tr>
<tr>
<td>H.</td>
<td>Weighted component of WACC (%)</td>
<td>0.18</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>WACC (real) (%)</td>
<td></td>
<td>0.18</td>
</tr>
</tbody>
</table>

ADB = Asian Development Bank, TPS = Tashkent Provincial Suvokova, WACC = weighted average cost of capital.

Source: Asian Development Bank estimates.

#### E. Financial Sustainability Analysis

11. **Historical Performance of the Tashkent Provincial Suvokova**

   An assessment of the financial statements of the TPS from 2015 to 2017 indicates that its net sales from operations grew at an annual average rate of 23%. In 2017, the TPS’s net sales reached SUM77.6 billion, an increase of about 50% from its 2015 level. Meanwhile, its operating costs increased at a slower pace, averaging 20.4% annually from 2015 to 2017, resulting in positive operating income for the enterprise. The analysis also revealed that electricity costs and salaries account for as much as 70% of the TPS’s operating costs. In addition, the assessment showed that the TPS has not received subsidies from the government since its establishment.

12. As of 2017, the total assets of the TPS had reached SUM117.3 billion. Most of these assets were financed from highly concessional or interest-free debts amounting to SUM71.9 billion. The financial performance of the TPS, as evidenced by its financial ratios, has been moderately positive, culminating in 2017 with a current ratio of 2.71, days in receivables of 84, an operating ratio of nearly 1, and a debt–equity ratio of 1.45. A summary of the historical performance of the TPS during 2015–2017 is presented in Table 3.
The economic analysis due diligence indicates that robust economic growth at 5% per annum as well as fiscal and macroeconomic resilience are expected to continue in Uzbekistan.