ASIAN INFRASTRUCTURE INVESTMENT BANK

PD000314-UZB
March 13, 2020

Project Document
of the Asian Infrastructure Investment Bank

Sovereign-backed Financing

The Republic of Uzbekistan

Bukhara Region Water Supply and Sewerage Project

Currency Equivalents
(As of Jan. 20, 2020)

Currency Unit – Uzbekistan Sum (UZS)
UZS1.00 = USD0.0001048
USD1.00 = UZS9,538

Borrower's Fiscal year
Jan. 1—Dec. 31

Abbreviations

ADB	Asian Development Bank
AIIB; the Bank	Asian Infrastructure Investment Bank
BWC	Bukhara Water Company, the water utility of Bukhara Region
DSCR	Debt Service Coverage Ratio
EIRR	Economic Internal Rate of Return
ENPV	Economic Net Present Value
ESMP	Environmental and Social Management Plan
ESMPF	Environmental and Social Management Planning Framework
ESP	Environmental and Social Policy
ESS	Environmental and Social Standards
FM	Financial Management
GAP	Gender Action Plan
GDP	Gross Domestic Product
GRM	Grievance Redress Mechanism
IFI	International Financial Institution
MDB	Multilateral Development Bank
MHCS	Ministry of Housing and Communal Services
MoF	Ministry of Finance
NRW	Non-Revenue Water
O&M	Operation and Maintenance
OCCR	Operating Cost Coverage Ratio
OHS	Occupational Health and Safety
PCU	Project Coordination Unit
PDS	Project Delivery Strategy
PIA	Project Implementing Agency
PP	Procurement Plan
RPF	Resettlement Policy Framework
SECO	Swiss State Secretariat for Economic Affairs
SDG	Sustainable Development Goal
TA	Technical Assistance
WSS	Water Supply and Sanitation

Contents

1. Summary Sheet

The Republic of Uzbekistan
Bukhara Region Water Supply and Sewerage Project

Project No.	PD 000314
Borrower	Republic of Uzbekistan
Project Implementation Entity	Ministry of Housing and Communal Services (MHCS)
Project Implementation Agency (PIA)	Kommunkhizmat Agency
Sector/ Subsector	Water and Waste / Water Supply, Sewage
Project Objective	Provide access to safely managed water and sanitation services in the Bukhara Region and strengthen the operational performance of the water utility of Bukhara Region.
Project Description	**Component 1. Investment in Water Supply Infrastructure**. Construction and rehabilitation of intakes, main water lines, water treatment facilities, pumping stations and distribution networks. **Component 2. Investment in Sewage Infrastructure**. Construction of centralized sewage systems in district centers, consisting of collectors, pumping stations and sewage treatment plants, as well as discharge facilities. **Component 3. Project Implementation and Management Support.** Project management and implementation support to assist the Implementation Agency in ensuring seamless coordination, efficient implementation and compliance with the relevant policies.
Implementation Period	Start Date: May 1, 2020 End Date: April 30, 2025
Expected Loan Closing Date	December 30, 2025
Cost and Financing Plan	Total cost USD437.62 million Government of Uzbekistan USD52.50 million AIIB loan USD385.12 million including capitalized interest and fees of USD15.61 million
Size and Terms of AIIB Loan	Size: USD385.12 million 25-year maturity, including a 5-year grace period
Environmental and Social Category	A
Risk (Low/Medium/High)	High
Conditions for	Project Coordination Unit (PCU) established with staffing satisfactory to

Effectiveness	the Bank. Adoption of Financial Management Manual. Grievance Redress Mechanism (GRM) established at PCU level.
Key Covenants	PCU support appointed within three months after effectiveness. Quarterly Project Implementation Reports, including follow-up on the Environmental Management Plan and the Social Management Plan.
Policy Assurance	The Vice President, Policy and Strategy, confirms an overall assurance that AIIB is in compliance with the policies applicable to the Project.
President	Jin Liqun
Vice President	Konstantin Limitovskiy
Director General, Investment Operations	Supee Teravaninthorn
Manager, Investment Operations	Gregory Liu
Project Team Leader	Zacharias Ziegelhöfer, Infrastructure Sector Economist
Project Team Members	Mirza Nadia Bashnin, Young Professional Somnath Basu, Principal Social Development Specialist Alexander Grieb, Sr. Water & Sanitation Specialist (Consultant) Omar Khalid, Sr. Env. and Social Development Specialist (Consultant) Giacomo Ottolini, Principal Procurement Specialist Yogesh Malla, Financial Management Specialist Shodi Nazarov, Financial Management Specialist (Consultant) Yenda Noeurm, Young Professional Julius Thaler, Senior Counsel Pulat Zakirov, Water & Sanitation Engineer (Consultant) Xiao Zhang, Project Assistant Zhixi Zhu, Environmental Specialist

2. The Project Description

A. Rationale

Country Context

1 The Republic of Uzbekistan is the geographic centre of the Central Asia region, and is bordered by five landlocked countries. It is one of two double-landlocked countries in the world. The climate of Uzbekistan is dry, with low annual precipitation. With a population of 32 million, it is the most populous country among the Central Asian countries. Half of the total population lives in rural areas and as of 2018, approximately 11.4 percent of the population lives below the national poverty line.

2 In 2017, following the first leadership change since the country's independence in 1991, an ambitious program of market-oriented reforms as well as institutional reforms was introduced, which is still ongoing. Though Gross Domestic Product (GDP) growth was 5.1 percent in 2018, it is projected to accelerate to 5.5 percent in 2019 and to converge to about 6 percent in 2020. There are three key factors to continued growth: (i) favourable terms of trade and high market prices of the key export commodities such as gold, natural gas and copper; (ii) the Government's macroeconomic management; and (iii) limited exposure to international financial markets which shielded the country from global financial crises.

Sector Context

3 Water is the key factor for socio-economic development in Central Asia. Virtually all the water resources of the region originate from the year-round snow and glaciers in the Kyrgyz Republic and Tajikistan. Irrigated agriculture is concentrated in the populous valleys of the Amudarya and Syrdarya rivers which carry their water to Uzbekistan, Kazakhstan, and Turkmenistan.

4 Uzbekistan has the largest irrigated land area (4.3 million hectares), and the highest density of population in the region, and is highly dependent on cross-boundary water originating from upstream neighbours. Furthermore, it has been identified as one of the most water-stressed countries by the World Resources Institute and will remain so through to 2040, with droughts expected to occur on average every 5 years.

5 Uzbekistan has undertaken significant efforts in upgrading its water supply and sanitation services since its independence. Though access to water supply and sanitation services has steadily increased among households in the bottom 40 percent, substantial disparities remain between urban and rural areas. Less than half of Uzbekistan's population (approximately 32 million people) remain unconnected to a piped water system, and only 17 percent of urban households receive water 24 hours per day. The situation is exacerbated in smaller cities and rural areas, with about 10 percent of the rural population without access to safely managed drinking water. About 15 percent of the 16 million rural population live below the national poverty line, and only half of all rural residents are connected to a centralized water supply network. Overall coverage of centralized sewage systems is only 14 percent for urban and rural areas. The infrastructure, mostly from the Soviet era, is highly degraded and

approximately 39 percent of water supply networks are deemed obsolete, and most of the sewage infrastructure is not operated properly. Additionally, high operating costs and low tariffs, combined with inefficient fee collection and organizational deficiences of water supply and sanitation (WSS) utilities result in the low quality of service delivery and poor cost recovery.

6 According to the World Health Organization (WHO), waterborne diseases play a major role in Uzbekistan's health status and is mostly related to water quality and availability. Furthermore, climate change is projected to increase temperatures and decrease water availability across the country, which will further increase the burden of waterborne diseases and exacerbate other health issues. Poor water quality is caused by microbial and chemical pollution due to insufficient infrastructure to treat waste water and purify drinking water. Bacterial pollution increases in warmer temperatures and is reflected in an increased number of cases of intestinal diseases during summer.

7 The water supply of the Bukhara Region is based on surface and ground water. The surface water comes from the Zarafshan River, the Amu Darya River into the Kuymazar reservoir through the Amu-Bukhara Canal. Without adequate treatment, the water quality of these sources does not meet the drinking water supply requirements for salinity and hardness and exceeds the maximum permissible concentration of the content of sodium, sulphate, phenols and petroleum products. The proposed project will address some of these challenges by improving availability of safe water.

Alignment with Country Priorities

8 Uzbekistan’s National Development Strategy (NDS) for 2017-2021 prioritizes investments in social infrastructure, specifically focusing on targeted programs to improve utility services and provide clean drinking water in urban and rural areas through construction of piped water supply systems. The Government of Uzbekistan[1] set the following two long-term targets for water supply and sanitation:

(i) Full coverage (from 64.8 percent in 2017 to 100 percent in 2035) of the population with access to piped water supply, and
(ii) Increased access (from 14 percent in 2017 to 42.5 percent in 2035) to the centralized sewerage network.

9 The Bukhara Region, which covers approximately 39,400 square kilometers (km^2) and hosts a population of 1.9 million people, has been identified as a priority region in terms of developing water and sanitation infrastructure as well as tourism. The Government of Uzbekistan is committed to increasing regional access to water supply (currently at 54 percent) and sewage services (currently at 34 percent) to 100 percent. The project is strongly aligned with the Government of Uzbekistan’s vision to provide water supply and sanitation to all in the Bukhara Region.

[1] Government of Uzbekistan. *Development Strategy Framework of the Republic of Uzbekistan by 2035*.

10 In October 2018, Uzbekistan adopted the UN Sustainable Development Goals 2030 (SDG 2030), The project is expected to directly contribute to the achievement of SDG 6 to "ensure access to water and sanitation for all", in particular, targets 6.1 "achieve universal and equitable access to safe and affordable drinking water for all" and 6.2 "achieve access to adequate and equitable sanitation and hygiene for all and end open defecation".

11 The water sector in Uzbekistan has been supported by several development partners such as the World Bank, Asian Development Bank (ADB), European Bank for Reconstruction and Development, the European Investment Bank and bilateral donors such as France and Switzerland. These programs have focused on different regions, prioritizing interventions in water supply and wastewater management. The World Bank is currently supporting the water sector in the Bukhara Region through the Bukhara Water Supply and Sewage Project and the Alat and Karakul Water Supply Project.

Institutional Context

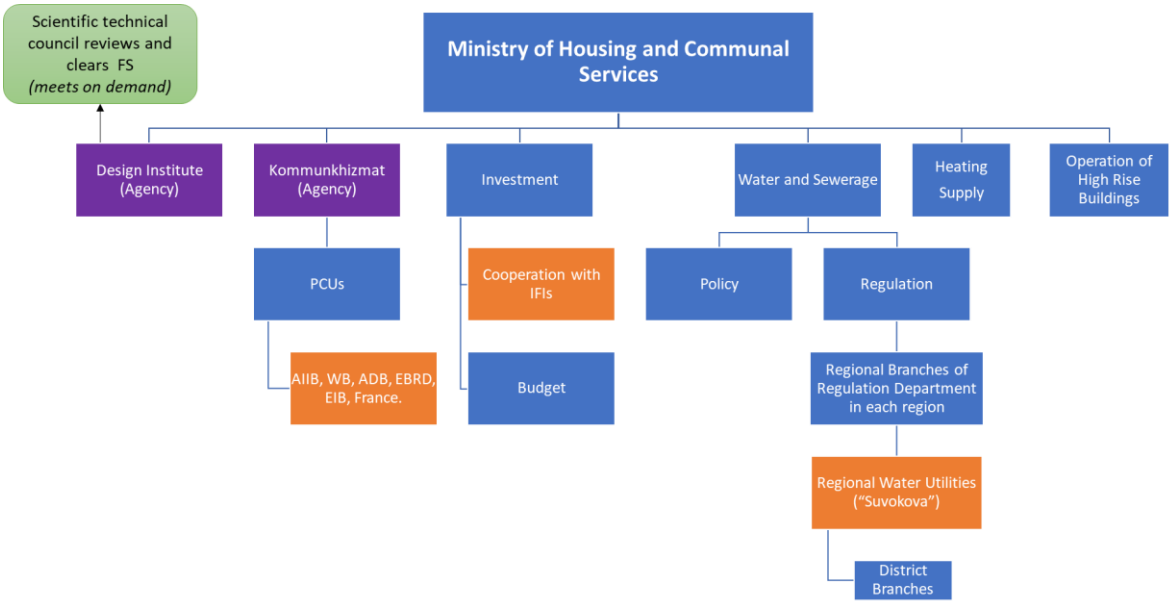
12 In Uzbekistan, the Ministry of Housing and Communal Services (MHCS), is responsible for water sector policy, oversight of the water utilities of respective regions and the preparation and implementation of investment projects in the water and sanitation sector. The MHCS was established in 2017, as part of larger institutional reforms in the country, and comprises a Directorate for Investment, a Directorate for Water and Sewerage, as well as other nonwater sector functions such as heat supply and high-rise housing. The Agency for Communal Services ("Kommunkhizmat"), formerly responsible for communal services in Uzbekistan, retains its own legal personality, but directly reports to the MHCS. The Kommunkhizmat is responsible for the implementation of projects financed by International Financial Institutions (IFIs). Similarly, the Design Institute, which is charged with developing feasibility studies, has an independent legal personality, but reports to the Minister of the MHCS.

13 Regionally organized state-owned water utilities (RWCs) are responsible for the provision of water supply and sanitation services to the end user. The RWCs, one per region, concentrate regional expertise in one utility and report to the respective regional branch of the MHCS, which monitors the performance of the RWCs. The current roles and responsibilities in the water and sanitation sector are illustrated in Figure 1.

14 **Corporatization of Water Utilities**. The ongoing reform program[2] aims to incorporate the RWCs under a new national holding company Uzsuvtaminot, a state unitary water supply enterprise which will be owned and managed by the MHCS. This reform is expected to be implemented in the second half of 2020. This constitutes a further centralization of water and sanitation service delivery after the regionalization of service delivery in 2016. Following the conclusion of the reform, Uzsuvtaminot is expected to function as a single operator for water supply and sanitation services in the country.

[2] Governent of Uzbekistan. 2019. Decree of the President of the Republic of Uzbekistan dated Nov. 26, 2019 No. PP–5883, "On Measures to Improve the Management of Water Resources of the Republic of Uzbekistan."

Figure 1: Roles and Responsibilities in the Water Sector



Comprehensive Program to Strengthen Financial Sustainability and Modernize the Water Supply and Sanitation Sector

15 The Government of Uzbekistan is implementing a comprehensive reform program to modernize the water supply and sanitation sector, strengthen its financial sustainability and improve water resource management. Key elements include a national tariff reform, a national metering strategy, the modernization of water utilities and introduction of innovative technologies ("Digital Water Utility"), and a systematic approach to the accounting and reporting of water (see also the Detailed Project Description in Annex 2).

16 **Tariff Reform**. A revised national tariff policy was adopted in April 2019[3] and is currently being rolled out. The policy was developed with Technical Assistance (TA) supported by the World Bank and, if implemented as planned, is expected to improve the financial sustainability of the sector. The policy sets the mechanism for tariff calculation of full cost-recovery tariffs inclusive of production operating costs, and financing cost. In addition to the recovery of operation, maintenance and financing costs, the new tariff will include a 10 percent profit margin to allow the utilities to finance investment costs for the extension and modernization of the system. As of January 20, 2020, the RWCs have submitted to MHCS for consideration the new proposed tariffs, calculated according to the new tariff methodology. The proposed tariff will be reviewed by MHCS and then submitted to the Ministry of Finance for final approval, which is expected by April 30, 2020.

[3] Govrnent of Uzbekistan. 2019. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 13, 2019, No. 309 "On Measures to Improve the Procedure for Establishing, Declaring (Approving) and Setting Regulated Prices (Tariffs) for Water Supply and Sewerage Services."

17 **Metering Strategy and Digital Water Utility.**[4] Under the vision of Digital Water Utility, the MHCS intends to foster the application of innovative technologies across the water sector to improve performance and efficiency, as well as water management system and business processes in the sector. An ADB-supported feasibility study is currently being conducted to define a countrywide approach to realize 100 percent metering of water production and distribution in Uzbekistan, including SCADA, bulk meters at production facilities as well as smart meters for households, budgetary institutions and businesses.[5] The meters are intended to interlink with the IT systems of the utilities and transmit water flow information remotely and automatically. This will allow utilities to react promptly to leaks in the system and reduce water losses considerably. The measures are further expected to increase their ability to improve the service delivery to clients and to improve the billing and collection of the water and sewage tariffs, thereby improving the financial sustainability of the sector.

Strategic Fit for AIIB

18 The project is aligned with AIIB's key priority area of promoting sustainable infrastructure and is expected to fit within the strategic focus of AIIB's water sector strategy, which is currently under development. The investments under this project will increase access to safe drinking water and sanitation and support the Government of Uzbekistan in addressing water supply and sanitation using a comprehensive and integrated approach. The overall infrastructure to be developed is expected to be technically sustainable, environmentally safe and financially viable, and will also strengthen the capacity and business practices of the Bukhara Water Company (BWC) in the effective provision of water supply and sanitation services and by involving end users to pay for the improved services, which aligns well with the key thematic priority of AIIB.

Value Addition by AIIB

19 **Sound technical preparation and implementation while ensuring financial viability**. The project team has provided substantial technical advice during project preparation (e.g. on the cost-effective solutions, use of energy efficient technology, and efficient use of water resources). To achieve a high quality of project implementation, clear roles and responsibilities for effective implementation were defined. During the implementation phase, the project team will closely monitor the borrower's progress in ensuring quality and safety through appropriate design. Further, AIIB's close engagement will facilitate achievement of a high technical quality and and financial sustainability of the planned WSS infrastructure through cost-effective implementation and strengthening the business practices in the effective provision of WSS services. Capacity Building activities financed through a development partner's program will be implemented in parallel with the Phase I project. Based on a capacity gap assessment under this project and the lessons learnt from the ongoing program, the plan is to scale up Capacity Building activities during the Phase II project.

[4] Governent of Uzbekistan. 2019. Decree of the President of the Republic of Uzbekistan dated Nov. 26, 2019, UP-5883 "On Measures to Improve the Water Management of Water Resources of the Republic of Uzbekistan in order to Increase the Level of Supply of Drinking Water to the Population and Improve Its Quality."

[5] The technical specifications for the metering approach will be determined by July 2020, based on the results of the ongoing study, which is expected to conclude before May 1, 2020.

20 **Integrated and Comprehensive Approach.** AIIB is supporting the balancing of water supply measures with the related sewage measures to cover the entire water cycle taking into consideration the impact on water resources. The need for financing in the water and sanitation sector in the Bukhara Region and beyond is enormous, and AIIB will play a pivotal role in addressing the WSS infrastructure gap. To maximize economic and health benefits and ensure a safe environment, it is essential that the investments in water supply and sewage services are carried out as an integrated approach.

21 **Enhancing the Quality of Environmental and Social Management**. AIIB will require adherence to the high standards of its Environmental and Social Policy during project implementation, including with reference to cultural heritage and sites of historical significance. A Gender Action Plan, which aims to involve women in planning, implementation and Operation and Maintenance (O&M) of water supply and sewage infrastructure has been developed.

22 **Adopting Lessons Learned**. AIIB is drawing lessons learned from similar projects implemented by other development financial institutions in Uzbekistan and AIIB-supported projects in other countries and taking steps to reflect them in the project design, implementation arrangements, Project Delivery Strategy (PDS), risk assessment and mitigation measures. Based on those lessons, the project has adopted a phased approach, including prioritization of project areas according to technical readiness and need, to expedite project preparation and implementation readiness and to manage implementation complexity.

Value Addition to AIIB

23 The project is a high priority for the Government of Uzbekistan and AIIB's first standalone investment in Uzbekistan; it is an opportunity to establish AIIB as a trusted partner in Uzbekistan.

24 As this is also AIIB's first investment in the water sector in Uzbekistan and the Central Asia Region, the project is a good opportunity for AIIB to gain experience in the water and sanitation sector, address new challenges and find solutions, which can then be replicated in other countries in Central Asia that have similar conditions.

B. Project Objective and Expected Results

25 The **Project Objective** is to provide access to safely managed water and sanitation services in the Bukhara Region and strengthen the operational performance of the water utility of Bukhara Region.

26 **Expected Beneficiaries.** The project is expected to benefit 1.15 million residents of the prioritized areas in the Bukhara Region. In the Rometan and Qorovulbazar districts, the households will benefit from both water supply and sewage components. The breakdown is then as follows:

- 540,000 people with new access to safely managed water supply
- 510,000 people with improved service quality

- 105,000 people with new access to safely managed wastewater services

27 This project constitutes a first phase of a larger government effort to comprehensively address water supply and sanitation in the Bukhara Region. A Phase II project to extend water supply and sanitation services to an additional 620,000 people is expected to follow, once technical preparation is successfully concluded. After the conclusion of the Phase II project, the Bukhara Region will be comprehensively covered in terms of piped water supply services with a connection rate of close to 100 percent and all district centers will be covered in terms of centralized sewage infrastructure achieving a regional coverage of 45 percent.

28 The **Expected Results** will be monitored through the following indicators:

- People provided with access to improved safely managed water supply in target areas,
- People provided with access to improved safely managed sanitation services through connection to sewage systems in target areas, and
- BWC is operating the WSS infrastructure in a sustainable manner (Operating Cost Recovery Ratio > 1).

29 A set of intermediate indicators will be used to track component level outputs and results. The Results Monitoring Framework, including monitoring indicators, is presented in Annex 1.

C. Description and Components

30 The Government of Uzbekistan has requested AIIB to finance a comprehensive WSS program covering investments in water supply and sewage systems in all districts of the Bukhara Region. The Government of Uzbekistan has, following discussions with AIIB, decided on a phased approach to the preparation and implementation of this program; each phase will constitute an individual project financed under a separate Sovereign-backed Loan to the Republic of Uzbekistan. The proposed project consists of the first phase (Phase I project) of this larger Government effort to extend water supply and sanitation services to all in the Bukhara Region. The geographical prioritization of the phasing was undertaken by the MHCS together with BWC based on selection criteria prepared in consultation with AIIB (see Annex 2, section F).

31 The phased approach has three distinct advantages: First, it allows the government to focus on activities that can be prepared and delivered under the Phase I project, while in parallel continuing to prepare the remaining program components for a possible future Phase II project. Second, it reduces implementation complexity and hence, the risks associated with concurrent implementation of a large scope of construction works. Third, the Government of Uzbekistan does not incur commitment fees on activities covered under the Phase II project that will not be prepared and assessed by the time of Board approval of the Phase I project.

32 The proposed project will comprise the following components (See Annex 2, section D for details):

33 **Component 1. Investment in Water Supply Infrastructure (USD284.54 million)**. Construction and rehabilitation of main water lines, well fields and intakes, associated electric facilities, water treatment plants, pumping stations, water reservoirs, distribution networks including house connections and equipment. The water supply component covers the districts

Bukhara, Rometan, Peshko, Jondor, Kogon and Qorovulbozor. To achieve financial sustainability, the provision of water meters is essential. The government recognizes metering as a priority and is currently developing its National Metering Strategy (see paragraph 17), including the technical specification for the standards of bulk meters and smart household meters, which will allow the remote and automatic transmission of flow information. To consider the results of this policy process, the MHCS plans for the installation of the meters to be carried out once the specifications have been defined under the future Phase II project. According to the current timeline, the water meters may be designed and tendered under this Phase I project, in which case, they could be ready to be installed as part of the future Phase II project, prior to the conclusion of construction activities of this Phase I project.

34 **Component 2. Investment in Sewage Infrastructure (USD104.80 million)**. Construction of centralized sewage systems in district centers consisting of house connections, collectors, pumping stations and mechanical-biological sewage treatment plants as well as discharge facilities, optionally tertiary treatment for reuse purposes. The sewage component covers the district centers of Qorakol, Olot, Qorovulbozor, Rometan and Gijduvon.

35 **Component 3. Project Implementation and Management Support (USD32.68 million).** Project management and implementation support to assist the Kommunkhizmat in ensuring seamless coordination, efficient implementation and compliance with the relevant policies and standards. Based on the feasibility study, the detailed design for this Phase I project will be prepared through the consulting services under this component. The consulting services will also ensure the construction supervision during implementation. In addition, this component will also include incremental cost for the Project Coordination Unit.

36 A capacity gap assessment will be carried out under this component. It will include the translation of the National Metering Strategy to the local context and define an adapted approach to rolling out smart bulk and consumer meters, which will be interconnected with the utility's IT systems. Based on the client's needs and in coordination with the activities of other development partners, a Capacity Building component could be carried out under the future Phase II project with a focus on activities to improve business practices and strengthen the technical and financial sustainability of the investments. Capacity Building areas may include asset management, O&M, client management and complaint handling, and billing and collection. The component has a close interface with activities of other development partners. The World Bank-supported projects in Olat, Karakol districts and Bukhara City, which also include Technical Assistance, are close to completion. The Swiss State Secretariat for Economic Affairs (SECO) is currently piloting corporate development activities in some district branches of BWC. If proven successful and where possible, some of the measures that are currently piloted under the SECO-financed Technical Assistance program could be scaled up in a future Phase II project.

D. Cost and Financing Plan

37 The detailed indicative project cost and financing plan for this Phase I project is shown below. The total project cost is USD437.62 million, including capitalized fees and interest. The estimated cost for construction and services is USD422.01 million. The Government of Uzbekistan requested a loan financing of USD385.12 million. The counterpart contribution by the Government of Uzbekistan is estimated at USD52.50 million through tax and customs exemptions, corresponding to 12 percent of the cost for construction and services. Interest during construction and other fees during construction will be capitalized under the loan up to an amount of USD15.61 million upon request of the client. The category table for disbursements is presented in Annex 2, Section E.

Table 1: Indicative Project Cost and Financing (USD million)

Project Components	Cost in USD million				
	AIIB	Share	Government of Uzbekistan	Share	Total
Component 1: Investment in Water Supply Infrastructure	249.18	88%	35.36	12%	**284.54**
Component 2: Investment in Sewage Infrastructure	91.77	88%	13.02	12%	**104.80**
Component 3: Project Implementation and Management Support	28.56	87%	4.12	13%	**32.68**
Project Cost	369.51	88%	52.50	12%	**422.01**
Capitalized fees and interest during construction	15.61				**15.61**
Total Cost, including capitalized fees and interest	385.12	88%	52.50	12%	**437.62**

All amounts in USD million, rounded to two digits.

38 **Loan Size**. The loan size is USD385.12 million, including capitalized fees and interest during the construction period.

39 **Financing Terms**. The loan will have a final maturity of 25 years including a five-years grace period. The client chose the fixed-spread loan product. The pricing will follow the standard terms for Sovereign-backed Loan.

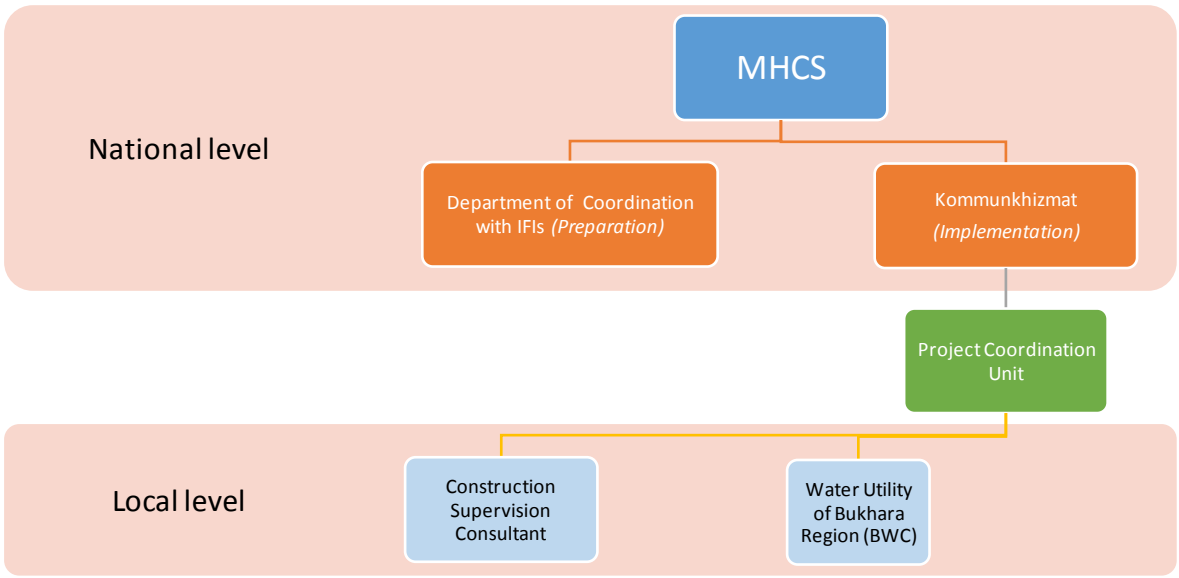
40 **Retroactive Financing**. The Loan provides for retroactive financing for payments made for eligible expenditures (services, works and incremental costs for the PCU) not more than 12 months prior to expected loan signing, not to exceed 20 percent of the loan amount.

E. Implementation Arrangements

41 The MHCS is responsible for overall project preparation and implementation. Within the MHCS, the Department of Cooperation with IFIs is the main counterpart for AIIB for project preparation and leads and coordinates all aspects of project preparation, including the preparation of the feasibility study, safeguards instruments, among others, until the approval of the project by the Cabinet of Ministers. For project preparation, the MHCS has designated a team, with staff borrowed from different MHCS departments, in the respective areas of specialization (including engineering, social and environmental safeguards, and procurement), and with previous experience working with Multilateral Development Banks (MDBs). A scientific technical council, chaired by the Minister, MHCS and comprising representatives of the departments as well as external experts, reviews and approves technical aspects of the project. The project is then submitted to other Ministries and eventually the Cabinet of Ministers for review and approval.

42 **Project Implementing Agency.** After formal government approval of the project, the Kommunkhizmat will be responsible for the implementation of the project (PIA), including tendering for works, goods and services, construction monitoring and supervision, ensuring quality controls, approval of payment certificates for works contracts, authorizations for payment supervision and safeguards implementation. The Kommunkhizmat will report to the Minister, MHCS, for seamless project implementation. A Project Coordination Unit (PCU) will be created under the Kommunkhizmat to coordinate and oversee all implementation activities.

Figure 2: Project Implementation Arrangements



IFI = International Financial Institution, MHCS = Ministry of Housing and Communal Services

43 **Project Coordination Unit (PCU).** The PCU will be staffed with experts in the requisite disciplines, which shall have experience with implementing MDB-financed projects. The PCU will comprise one full-time Project Coordinator, who will be responsible for overall project implementation, and personnel with specialization in requisite disciplines such as water and sanitation engineering, procurement, financial management, environment and social (E&S) safeguards, monitoring and accounting. The PCU experts, who regularly participate in onsite

supervision and monitoring (local coordinator, engineers, E&S experts), will be based in Bukhara. The Project Coordinator and the remaining experts will be based in Tashkent to ensure seamless coordination within the government. The PCU will be responsible for: (i) preparation of tender documents as per the Project Delivery Strategy; (ii) selection of consultants, (iii) tendering of works, and (iv) oversight of all implementation activities, including but not limited to tendering, contract management, construction monitoring and supervision and safeguards implementation. The PCU members will be assisted by experienced consultants in their respective field of activity. The PCU will report to the Kommunkhizmat. To reach implementation readiness as early as possible, the MHCS will be required to formally create and staff the PCU as a condition of effectiveness.

44 **Design and Supervision Consultants**. The design consultants and supervision consultants (separate contracts for design and supervision and for water supply and sewage, respectively) will report to the PCU and will support the PCU in all aspects of project management. The design consultants will support the PCU concerning the revision of the technical approach during the detailed design phase, quality check of technical solutions (fit for purpose), and preparation of the detailed design. The supervision consultants will support the PCU in finalizing the tender documents, supporting the tender process and evaluation of tenders, implementation monitoring, including construction supervision, progress monitoring, and quality control checks of the works, ensuring full compliance with safeguards implementation and periodical reporting. The Terms of Reference of the Consultants (which will be separate for water supply and sewage) are currently being prepared by the Department for Cooperation with IFIs and will be reviewed by AIIB prior to the start of the selection process, which will be done according to the Bank's Procurement Policy.

45 **Implementation Period.** The project is expected to be implemented over a five-year period from May 2020-April 2025. Subject to future approval by the Bank, the Phase II project is expected to commence within one year from the approval of the financing for this project and implemented within a five-year period.

46 **Hand-over of Assets for O&M after Completion.** After completion of construction of the water supply and sewage schemes under the supervision of the Kommunkhizmat, the systems will be handed over for O&M to the RWC responsible for the provision of water supply and sanitation services (in this case, BWC).

47 **Phased Implementation.** For this project, the tendering of contracts will be staggered in four batches, set three months apart, to ensure that the project can be managed adequately by the PCU who will deliver high quality outputs and within time based on the agreed implementation arrangements. The implementation period will thus be five years whereby each batch of contracts is estimated to be completed in four years. This project is expected to be followed by a future Phase II project. The prioritization of the activities for this Phase I project was proposed by MHCS based on selection criteria prepared in consultation with AIIB (see Annex 3, section F).

48 **Monitoring and Evaluation.** Project progress and performance will be monitored based on the indicators defined in Results Monitoring Framework (Annex 1).

49 **AIIB's Implementation Support.** The project team will conduct regular supervision missions, the frequency of which will depend on the implementation progress and complexity (at least two times per year).

50 **Procurement**. AIIB's Procurement Policy and its associated Procurement Instructions for Recipients (PIR) for public sector apply to the project. The Department of Cooperation with IFIs has prepared a Project Delivery Strategy (PDS) and a Procurement Plan (PP) in accordance with AIIB's requirements. These documents are considered acceptable to AIIB, however, it is anticipated that refinements will be agreed upon during the detailed design phase, aiming at an optimal and balanced approach and number of contracts based on size, scope, risk, complexity and market context. The past experience of the PIA in similar projects funded by MDBs was assessed during the preparation phase. In order to support the PIA in the initial stages of the implementation and until the PCU is in place, fully staffed and procedures set up, the support of individual consultants is deemed necessary.

51 **Financial Management.** Once established, the PCU will be responsible for the overall project financial management. It will be staffed with a qualified finance manager and accountant to ensure acceptable project financial management. The PCU will prepare annual project budgets as per the Procurement Plan and the financing agreement and have it approved. The PCU will share proposed project annual budgets with AIIB for its review and comments in July each year.

52 The PIA will, as a condition of effectiveness, prepare a Financial Management (FM) Manual, which will describe the project financial management arrangements, including key internal control mechanisms to be followed in the application and use of project funds, with specific focus on ensuring completeness of accounting transactions, reliability of accounting data, flow and accountability of funds, proper authorization and documentation of all project expenditures. A cash basis accounting system will be established and the PCU will maintain a separate project account and have custody of supporting documents. The financial progress of the project will be reported on a quarterly basis through interim unaudited financial reports to be submitted not later than 45 days after the end of each quarter. The project audited financial statement for each year of project implementation will be submitted not later than six months following the fiscal year-end.

53 The disbursement of loan proceeds will be made using direct payment, reimbursement and advance methods. The direct payment method will be used for USD payments only. The government will authorize PCU to open a designated account in USD in a financial institution acceptable to the Bank. The PCU will also open a sub-account in Uzbekistan Som (UZS) where loan proceeds from the designated account will be transferred to pay for eligible expenditures of an operating nature. The eligible project expenditures such as civil works, goods, consulting services, nonconsulting services, training and operating costs will be subject to documentation and using the Statement of Expenditure (SoE) format. The Disbursement Letter sets out instructions for the authorized signatories, designated account ceiling, process of submitting claims and other terms and conditions of disbursements related to the project.

Table 2: Expected Disbursements (in USD million)

Fiscal Year	2020	2021	2022	2023	2024	2025
Annual	1.93	9.63	19.26	115.54	154.05	84.73
Cumulative	1.93	11.55	30.81	146.35	300.39	385.12

3. Project Assessment

A. Technical

54 **Project Design.** The project will use surface water (river, reservoirs) as its main source. Source sustainability has been assessed appropriate by a hydrological assessment prior to project preparation. According to the national policy, drinking water has been given the highest priority for abstraction rights compared to other uses, e.g., possible irrigation requirements in case of water scarcity during summer. The current concept design is based on a feasibility study for the proposed water supply and sewage sub-projects approved by the Government of Uzbekistan and its technical and financial aspects are therefore sufficiently documented. The design and construction of the water supply and sewage infrastructure will comply with the national state standards for safe drinking water (Standards O'z DST 950-951) and environmentally adequate disposal of wastewater into drainage channels or rivers (Standards SanR&N RUz No 0088-99 and 0200-06), which are comparable to WHO standards for water and sanitation and thus considered to be adequate.

55 **Integrated Solution**. For public health and environmental considerations and in line with national policies, the project has been structured so that the investments in water supply will be accompanied by investments in sewage infrastructure to ensure an integrated solution. The targeted substantial increase in water supply will correspondingly lead to a proportionate increase in wastewater. At present, no sewerage network exists in the targeted districts, only septic tanks or latrines exist. The construction of a sewerage network requires high capital investments thus, initially, sewerage will only be implemented in the district centers since this is where wastewater increase is most significant. The Government of Uzbekistan policy for sanitation services as a three-level-concept is described in Annex 2, paragraph 10.

56 **Interface between Activities.** The water supply activities can generally be considered on a standalone basis as they provide water to a defined supply area. The water supply activities of this project and the future Phase II project will have distinct water sources (see Figure A2.1). The Kuymazar water reservoir and the correspondent intake and pumping station as well as the water intake facilities of Zarafshan will provide water for this project. On the other hand, the future Phase II project would have two water sources: the new Jilvon well field will supply water for the northern districts of Bukhara, while the Damkhuja water facility, which is conveying water from Samarkand region, will provide water for some districts in the northeast of Bukhara Region.

57 The sewage activities can also be considered on a standalone basis in each district with two exceptions: in Qorakol, the waste water will be conveyed to the Olat District for treatment, and in Kogan (which is expected to be part of the future Phase II project), the same concept will be applied to treat the sewage in the plant of adjacent Bukhara District.

58 The recommended option to be assessed during the detailed design stage is the potential use of treated wastewater for irrigation purposes or groundwater recharge to benefit at a maximum from these water resources. Additional treatment by filtration and disinfection would then be required to comply with the relevant standards.

59 The **technical project design** of the infrastructure components is summarized in Table 3. The details are presented in Annex 2, including the layout schemes of the WSS systems.

Table 3: Project Design Summary

No.	Main Infrastructure Components	Existing Facility (capacity/type)	Project Measure
1	**Component 1**: Water supply investments in Bukhara, Rometan, Peshko, Jondor, Kogon and Qorovulbozor	Water production (from Kuymazar and Zarafshan), treatment and distribution in south of the Bukhara Region: 130,000 m^3/d	Rehabilitation and extension of facilities: 125,000 m^3/d
2	**Component 2:** Sewage infrastructure in district centers of Qorakol, Olot, Qorovulbozor, Rometan and Gijduvon		Realization of district center sewage systems in prioritized districts to treat total sewage volume of 25,000 m3/d
3	**Component 3:** Implementation Assistance and Management Support		Support during revision of technical approach during detailed design phase, detailed design, tendering, procurement, implementation supervision. Assistance during initial operation period. Capacity gap assessment and translation of the National Metering Strategy to local context.

m^3/d = cubic meters per day

60 **Operational Sustainability.** After the completion of the construction works and trial runs, the assets will be handed over to the BWC for Operation and Maintenance. The water supply and sanitation (WSS) infrastructure will partly include facilities and technology that are new to BWC and it is planned that the contractors will operate and maintain the main water and sewage facilities (sewage treatment plants, water works, and pumping stations) for a period of two years after completion and end of the defect liability period. During this period, on-the-job training for the staff of BWC will be carried out. These activities will be coordinated with SECO's ongoing Capacity Building program for BWC, which mainly includes improving the operation of the water supply systems by reducing water losses and implementing enhanced data collection and management information systems, including training programs. With the ongoing water sector reform (see paragraph 14-17), the BWC is expected to be incorporated into the planned single national operator of water infrastructure, Uzsuvtaminot. This change in organization of the water sector is not expected to affect the operational sustainability, as the Operation and

Maintenance will continue to be carried out on a regional level by BWC, which then will form part of the national holding company Uzsuvtaminot.

B. Economic and Financial Analysis

61 **Project Costs and Benefits**. A cost-benefit analysis was carried out to assess the economic viability of the project comparing "with-" and "without-project" scenarios. The project costs considered in the cost-benefit analysis include initial construction costs and annual O&M costs. The expected project benefits include: (a) cost savings from avoiding direct coping costs of inadequate water supply (purchase of electric/ manual pumps for shallow wells, purchase of water from water vendors at a premium price, and costs of private water storage); (b) savings from indirect coping costs (time saved from handling water); (c) health benefits (sick days avoided); (d) increase in supply duration and availability (incremental water); (e) cost savings from reduced technical losses and improved energy efficiency and (f) benefits arising from access to wastewater services.

62 **Economic Analysis**. The Economic Internal Rate of Return (EIRR) was estimated at 19.4 percent and Economic Net Present Value (ENPV) at USD294.9 million based on a 9 percent discount rate. Given the strong socioeconomic benefits of the project, the EIRR largely exceeds the social discount rate and the project demonstrates strong economic viability. A sensitivity analysis of the EIRR and ENPV with respect to an increase in project costs by 20 percent, an increase in O&M costs by 20 percent and a 20 percent decrease in benefits, as well as a combined worst-case scenario, was carried out. The EIRR remained at or above 13 percent under all scenarios. The approach and detailed results are presented in Annex 3.

63 **Financial Analysis**. A detailed financial analysis was carried out assessing the financial performance of BWC. While the majority of costs of the capital investments will be borne by the Government of Uzbekistan (61 percent), BWC is expected to cover 39 percent of the capital investment costs. The financial analysis focuses on the cost recovery in terms of the total production costs of the WSS system. Achieving cost recovery of the total production cost is essential to ensure financial sustainability over the life cycle of the assets. Further analysis of the Operating Cost Coverage Ratio (OCCR) and the Debt Service Coverage Ratio (DSCR) has been conducted on the implication of the newly introduced tariff reform (Resolution No. 309 on the water and sewage tariff setting) to ensure the financial viability of BWC.

64 According to the new tariff policy, BWC's net profit is limited to 10 percent of the total production cost; therefore, water and sewage tariffs will be reviewed and revised twice per year to ensure sufficient cost recovery. The analysis on the OCCR and DSCR from the forecasted financial reports has shown that BWC will be able to cover its total production costs plus the 10 percent of net profit as a percentage of total production costs if the approved tariff policy will be implemented as planned along with the increase in capacity and efficiency improvement over the project implementation period. Over the expected 25 years tenor of the loan, the average OCCR is 110 percent and DSCR is 2.1 times. The detailed analysis is reported in Annex 3.

C. Fiduciary and Governance

65 **Procurement.** A Project Delivery Strategy (PDS) and a procurement plan have been prepared by the Client in accordance with AIIB's requirements. All contracts funded by AIIB will be procured in accordance with AIIB's Procurement Policy and its associated Procurement Instructions for Recipients (PIR). It is currently envisaged that all works and supply contracts will be procured following the International Open Competitive Tendering (IOCT) method, without prequalification, single stage and double envelope. This is a method the PIA is very familiar with and it is acceptable to AIIB. The PIA has agreed to use a trial version of AIIB's works tender documents. The Consultancy Service Contracts will be procured following the International Open Competitive Selection (IOCS) method. The PIA has agreed to use the trial version of the RfP document recently developed by the Bank. All contracts will be subject to prior review by AIIB. This might be revised during implementation based on the actual performance of the PCU and fitness for purpose of the agreed implementation arrangements.

66 The project team has worked very closely with all counterparts available during the project preparation. As the PCU will be established and staffed after the loan signing, it has been agreed that comprehensive training will be provided on AIIB's procurement policy requirements, contract management and on the use of AIIB tender documents. This will be made available to relevant staff from the Kommunkhizmat Agency and BWC. Participation by all parties and stakeholders involved with implementation of the project will be important to ensure a common understanding. It is anticipated this training will be delivered by AIIB's procurement specialist.

67 **Financial Management.** The financial management assessment focused on institutional capacity, staffing, planning/budgeting, funds flow, accounting, internal controls/audit, reporting and external audits of the PIA and its agencies (PCUs) in the absence of the project PCU. Based on the assessment, financial management capacity is considered acceptable, provided proposed mitigation measures are addressed. During the assessment, the FM risk is considered High as the PIA has no prior experience in implementing AIIB-supported projects; the PCU and FM arrangements are yet to be established. Once established, the PCU will be responsible for the overall project financial management (FM).

68 **Staffing.** The PIA is currently staffed with only the Chief Accountant and the cashier. They do not have prior work experience in MDB-funded projects. Under the PIA, however, there are three PCUs with experienced finance staff dedicated to manage other MDB-funded projects.

69 **Planning and Budgeting.** The PIA's budgeting process follows the regular annual budgetary cycle. The Chief Accountant collects budget-related information from different units and consolidates it for further review and decision making by the management. Each PCU is responsible for the preparation of the annual project budgets based on the procurement plan, the project agreement, and the annual forecast of operating expenses. The budgets are normally classified by categories, components, and sources of funds.

70 **Funds Flow and Disbursements.** The PIA receives its funds from the Ministry of Finance (MoF) through direct allocations as per requests. The payments are processed through the online system of the Treasury of MoF called UzASBO. Each PCU is responsible for project

funds flow and disbursements. Normally, PCUs use the direct payment and advance methods. Majority of contracts are through direct payments either paid directly to contractors or through project implementation entities like regional water utilities. PCUs have opened designated accounts in USD at the Joint Stock Commercial Bank with Foreign Capital ("Hamkorbank") and sub-accounts in Uzbekistan Som (UZS) to pay for eligible local expenditures.

71 **Accounting, Financial Reporting and Internal Controls.** The PIA uses the Chart of Accounts developed by the MoF. The PIA uses UzASBO, an automated accounting software for budget organizations, for its accounting, which does not support accounting of externally funded projects. Each PCU is responsible for maintaining separate project accounts. In particular, the World Bank PCU acquired 1C accounting software for accounting and reporting of financial statements. However, it is currently not fully operational and now the World Bank PCU maintains its accounting on Excel records and UzASBO (for funds channeled through the MoF). The PIA and PCUs meet external reporting requirements and statutory requirements that focus on budget execution, statistical needs, and tax information. The PCUs submit regular quarterly interim unaudited financial reports within 45 days from the end of each quarter. The PIA does not document its internal control mechanism and relies mainly on governmental regulations in its operation. The PCUs have adequate ex-ante controls that ensure the early detection of errors or fraud, but there is no systematic review of internal control procedures that will result in the design of an effective internal control system. There is no internal audit function at either the PIA or its PCUs. However, PCUs could be subject to inspections by the state authorities as required by laws and regulations.

72 **External Audit.** The PIA is audited by either the Chamber of Accounts or the MoF depending on their agreed work plans. Nevertheless, as per requirements of other MDBs, the external audits of project financial statements prepared as per Cash-Based IPSAS for PIA's MDB-funded projects have been conducted by eligible audit firms in accordance with the International Standards on Auditing. Overall, there are no pending audits for the projects implemented by the PIA.

73 **Supervision Plan.** The financial management of the project will be closely monitored by the PCU and the Bank. The FM Specialist will (i) participate in supervision missions to provide implementation support, (ii) advise on FM issues and required improvements; and (iii) review of financial/audit reports and preparing summaries of such reports for further actions if required.

74 **Institutional Capacity.** The MHCS, Kommunkhizmat Agency and BWC have previous experience in the implementation of MDB-financed projects and are familiar with MDB procedures in procurement and Financial Management.

75 **Reporting and Monitoring.** The PCU will be staffed with requisite experts to ensure quality of monitoring and reporting on implementation progress. Designated experts of the Supervision Consultants will assist the PCU during construction supervision and monitoring.

76 **AIIB's Policy on Prohibited Practices**. AIIB is committed to preventing fraud and corruption in its financing. It places the highest priority on ensuring that the projects it finances are implemented in strict compliance with the AIIB's Policy on Prohibited Practices (2016). Detailed requirements and reference to AIIB's Policy on Prohibited Practices have been

specified in the Loan Agreement and the project tender documents. AIIB will monitor the work related to tender preparation and evaluation under Bank financing.

D. Environmental and Social Aspects

77 **Environmental and Social Policy, Standards and Categorization.** The project has been prepared consistent with AIIB's Environmental and Social Policy (ESP), including the Environmental and Social Standards (ESSs), and Environmental and Social Exclusion List. ESS 1 (Environmental and Social Assessment and Management) and ESS 2 (Involuntary Resettlement) are applicable. The project is assigned Category "A," in accordance with the ESP due to large-scale construction activities spread over a vast geographical area that may have substantial environmental and social impacts.

78 According to the feasibility study of the project, a phased approach has been adopted and the activities will only be specified (e.g. exact locations) as a detailed design for different project components will be carried out during the implementation stage of the project. Therefore, a framework approach has been applied in accordance with AIIB's ESP, wherein an Environmental and Social Management Planning Framework (ESMPF) has been developed, which includes a generic Environmental and Social Management Plan (ESMP) and a Resettlement Planning Framework (RPF). The ESMPF elaborates the regulatory framework under which the project will be implemented, reviews the baseline in the project region, identifies environmental and social risks and impacts corresponding to the implementation of different project components, defines the screening process and categorization of site-specific activities, and establishes institutional arrangements for the management of the environmental and social impacts and risks of this project. The RPF sets out policies and procedures to address potential impacts of site-specific activities due to economic displacement and loss of livelihood. The ESMPF and RPF also provide methodology and procedures for E&S studies of the site-specific activities. The ESMPF prescribes that Environmental and Social Impact Assessments (ESIAs) including ESMPs shall be prepared for site-specific activities that are proportional to the risks and impacts associated with the activities. A Resettlement Plan (RP) will be prepared where it is applicable. The ESMPF also provides the Terms of Reference for site-specific E&S studies, i.e., EISA, ESMP and RP. The Borrower will ensure that the site-specific ESMPs are incorporated into the contractual agreement with the contractors and translated to site specific ESMPs.

79 **Environmental Aspects.** The project is expected to generate benefits in terms of improving the efficiency of water use and enhancing water environment and public health security in the Bukhara Region. According to the water balance analysis, the supply of surface water and groundwater can support the water consumption in the Bukhara Region until year 2045. The pressure on water resources could be further eased if tertiary treatment facilities are adopted on sewage treatment plants for water reuse purpose; this option will be assessed as site-specific designs are prepared. The temporary negative impacts during construction of the WSS subprojects are related to air pollution, noise, water pollution, disposal of wastes (including hazardous waste, e.g., asbestos), traffic disruption, access restriction for the community, and disturbance to the community due to influx of workers. The construction activities may affect cultural heritage in Bukhara if not managed well.

80 During the operation phase, the sewage discharge will increase due to the enhancement of water supply and water consumption in the Bukhara Region. According to the government's policy, a three-pronged approach will be adopted to address sanitation and wastewater management issues. First, the sewage system will be constructed for all district centers under this Phase I project (and the future Phase II project) in a phased approach, and priority given to district centers with recently increased water supply, although the centralized sewage system under this project will not cover rural areas. Second, sewage in rural areas will be treated by decentralized facilities, i.e. septic tanks or cesspits at households. The residual fecal sludge will be emptied on a regular basis through private or communal service providers. Third, the sewage network is expected to be expanded at the Bukhara city level, under the future Phase II project. The negative impacts of the operation of the project will include the discharge of effluent from sewage treatment plants in urban areas into surface water, generation of wastes (especially sludge) from sewage treatment plants and water treatment plant, air pollution (especially odor), noise from pumps and other facilities and potential contamination on soil and soil erosion. The sensitive receptors near the proposed facilities might be affected by these negative environmental impacts.

81 The generic ESMP in the ESMPF proposes mitigation measures to address the potential negative impacts, labor and occupational health and safety issues. It provides guidance on the development of ESMP for each type of site-specific activity and presents examples of an Asbestos Management Plan and a Traffic Management Plan. Chance Find Procedure and other mitigation measures have been prescribed for contractors to address any possible impacts involving cultural heritage in the Bukhara Region, in accordance with the ESP's requirements. The ESMPF also regulates specific management plans that should be prepared at the site-specific level.

82 In addition, the Ibn-Sino pumping station will be rehabilitated under this project to increase the water supply from the Kuymazar Reservoir to the Shokhrud Water Treatment Plant. A sluice gate at Kuymazar reservoir controls the outlet flow from the reservoir to the irrigation channels and the Ibn-Sino pumping station. Given that the details of the sluice gate are not available at this stage, an analysis of dam safety will be conducted during the detailed design of the rehabilitation of Ibn-Sino pumping station to evaluate the stability and reliability of the structure and its implication on the pumping station.

83 **Climate Change Risks and Opportunities.** Uzbekistan is among the countries most vulnerable to climate change. The rates of warming are higher than the average rates observed on a global scale. The Bukhara Region is considered a medium vulnerable region in the country. Climate change has caused low precipitation and high temperatures in the Bukhara Region, which result in heat waves, water deficit and drought. This project aims to improve the efficiency of water use and sustainable water management in the Bukhara Region in two ways. First, the components of the project wil be designed in an effective way (pumps, pipelines, etc.) to reduce water losses; second, the beneficiaries will be incentivized to economize water due to revised and enforced tariffs. These measures are expected to help the communities in this region to better adapt to the scarcity of water resources due to climate change. In addition, the water scarcity could be relieved if tertiary treatment is applied in the activities of sewage treatment plants and the treated effluent is reused. This option will be assessed during detailed design. Measures to improve the energy efficiency of the water supply and sanitation facilities in the

Bukhara Region are included in the project (mainly through the replacement of pumps and treatment plants with energy efficient options and designs), which will also contribute to reducing greenhouse gas emissions during operation.

84 **Social Aspects.** The availability of clean water and improved environmental sanitation are expected to bring material improvements in the standard of living and public health status at the community level. Household water supply and sewerage connections will ensure substantial social and economic productivity. The positive impacts due to improved water and sanitation will be supplemented by awareness generation of the community on (i) responsible consumption given that the resources are finite, (ii) appropriate environmental, domestic and personal hygiene for better health outcomes, (iii) appreciation of the fact that water is an economic good and for continued services sustainability warrants financial contributions from the user community, and (iv) better management of septic tanks in rural communities. During the implementation of the project, the PCU and BWC will carry out a campaign and engage with the communities to address these issues appropriately.

85 In Uzbekistan, the land is state property. During the due diligence, conducted for some proposed sites, it has been observed that people without title are carrying out agricultural activities or have constructed structures on the government land. In these sites, physical or economic displacement of nontitle holders is envisaged. Thus, in these areas, the affected people's income/livelihood loss will be compensated in accordance with the provisions of ESS 2. There are other locations of proposed new facilities, which are yet to be identified. It is possible that people using those lands, both title holders and nontitle holders will be physically or economically displaced. During the process of detailed design, efforts will be made to avoid or minimize the physical and economic displacement. A Resettlement Policy Framework (RPF) has been formulated to address such impacts and an entitlement matrix has also been developed. The RPF provides guidance on the development of site-specific RPs.

86 **Gender Aspects**. Women, especially in rural areas in the Bukhara Region, bear the responsibility for the collection of water. Children, particularly girls, are most vulnerable to unclean water and waterborne diseases. Thus, women and children will be specific beneficiaries of this project due to a household connection of clean and safe water supply. A survey has been carried out to prepare a Gender Action Plan (GAP), which included consultations with women to understand their concerns on water/health-related problems and aspirations from the project. The tentative GAP proposes a series of actions to enable a proactive role for women participating in the design, implementation and operation of the project. The GAP will be updated during the implementation of this project.

87 **Occupational Health and Safety, Labor and Employment Conditions**. The generic ESMP proposes measures to address occupational health and safety (OHS) issues during both the construction and operation phases of this project. In particular, the Environmental and Social Impact Assessments for site-specific activities like sewerage pipelines and sewage treatment plants will assess the OHS risks due to the Operation and Maintenance (O&M), review BWC's policy related to OHS and establish mechanisms for addressing OHS aspects during O&M.

88 The project will encourage contractors to utilize local labor in the construction and rehabilitation of facilities so the risk of migrant labor influx is limited. The site-specific ESMPs will

include Workers Camp Management Plans, if applicable, to address the potential impacts of labor influx. In addition, a Code of Conduct for workers will be incorporated into the bidding documents and the contracts with the contractors. Appropriate measures scaled to the potential risk of gender-based violence and sexual exploitation will also be prepared and incorporated in the contracts.

89 Forced labor is a potential issue in Uzbekistan. The national labor legislation strictly prohibits the use of forced labor. The ESMPF requires the site-specific ESMPs to address this issue and articulate that forced labor is illegal and a violation of the ESMPs. If any contractor is identified using forced labor, the PCU should report the case to the Ministry of Employment and Labor Relations for action, according to national legislation. In addition, the PCU has the right to suspend work or payments if the contractor is in breach of any of its obligations to implement an ESMP. This will also be addressed through training for PCU, BWC, SC and contractors.

90 **Stakeholder Engagement, Consultation and Information Disclosure.** Stakeholder consultations have been carried out during the preparation of the ESMPF in the form of focus group discussions, interviews and workshops. The ESMPF also sets out procedures and requirements on stakeholder engagement, public consultation and information disclosure at site-specific level during the implementation of this project. The ESMPF has been disclosed in English on the websites of MHCS[6] and AIIB[7] on Jan 31, 2020. The ESMPF in Russian and the Executive Summary in Uzbek are also disclosed on the website of MHCS.[8] The hardcopies of the documents in the two local languages are also available in project region. A public consultation meeting will be conducted and the ESMPF will be updated according to the feedback from the public.

91 **Project-level Grievance Redress Mechanisms.** The ESMPF proposes a two-level Grievance Redress Mechanism (GRM) at the field and PCU levels respectively for project-affected people in accordance with the requirements of the Bank's ESP. A separate GRM for workers has also been suggested in the ESMPF to deal exclusively with those complaints that involve workers employed by the contractors for construction activities. The two GRMs will be established prior to the implementation of this project. The public consultation and disclosure process would be used to disseminate information about the GRMs.

92 **AIIB Independent Accountability Mechanism.** AIIB established the Project-affected People's Mechanism[9] to provide an opportunity for an independent and impartial review of submissions from Project-affected people who believe they have been or are likely to be adversely affected by AIIB's failure to implement its ESP in situations when their concerns cannot be addressed satisfactorily through the Project-level GRM or the processes of AIIB's Management.

[6] http://mjko.uz/views.php?view=NDg4%20&sub=Mzc=
[7] https://www.aiib.org/en/projects/proposed/2019/bukhara-region-water-supply-sewerage.html
[8] http://mjko.uz/views.php?view=NDg5&sub=Mzc=
[9] For information on AIIB's Project-affected People's Mechanism, see https://www.aiib.org/en/policies-strategies/operational-policies/policy-on-the-project-affected-mechanism.html

93 **Monitoring and Supervision Arrangements.** The project's environmental and social issues will be monitored by the environmental and social professionals engaged by PCU and the SC. Third-party monitoring agencies will be engaged to monitor the implementation of the ESMPs and RAPs. The responsibilities and mechanism of reporting by the contractors, PMC and PCU are defined in the ESMPF. The third-party agencies and AIIB will monitor the project on a biannual basis.

E. Operational Policy on International Relations

94 **International Waterways.** The AIIB Operational Policy on International Relations (OP on IR) applies to the project, because it involves the Amu Darya River, an International Waterway, as defined in paragraph 2.1(b) of the OP on IR. Specifically, the project will draw water from the Kuymazar Reservoir, which has a volume of 3.2 million cubic meters (m^3). This reservoir extracts water from the Amu Bukhara Canal, an irrigation canal that draws its water from the Amu Darya River, and runs from the southwest (bordering Turkmenistan) to northeast in the Bukhara Region. The Amu Darya River, which flows from Tajikistan through Uzbekistan and into the eastern part of Turkmenistan, is also shared with the Afghanistan, the Kyrgyz Republic and Tajikistan. Bilateral agreements between Uzbekistan and Turkmenistan allow Uzbekistan to draw water from the Amu Darya through this irrigation canal.

95 Notification to these riparian states of the proposed project's details is required under the OP on IR unless one of the exceptions to notification specified in the OP on IR applies. Since this project is expected to have minimal or no effect on any of the other riparians, notification is not required under the exception in paragraph 3.3(c)(i) of the OP on IR, which provides that the notification requirement does not apply to "(i) projects that are expected to have minimal or no effect on any of the other riparians."

96 An assessment of the impact of this project on the use of the water of the Amu Darya River concluded that the volume of water to be pumped to the Kuymazar Reservoir from the Amu Darya River through the Amu Bukhara Canal will not be increased due to the extension of the water supply systems in the Bukhara Region under the project. The additional water allocation for drinking water can be accommodated within the current withdrawal of water from the canal. Drinking water usage after the project has been implemented will constitute 0.9 percent of the total actual capacity of the Amu Bukhara Canal, including the incremental withdrawal for drinking water under the project, as well as the drinking water that is already being withdrawn without the project. The amount of water extracted from the Amu Bukhara Canal for drinking water purposes after the project will then represent approximately 35 percent of the total amount of water extracted from the canal.

F. Risks and Mitigation Measures

97 Based on the assessment, discussions with the MHCS, Kommunkhizmat, and BWC, other key stakeholders and review of available documents, the project team has assigned an overall "High" risk rating to the project, which was confirmed during appraisal decision.

Table 5: Summary of Risks and Mitigating Measures

Risk Description	Assessment Ratings (High, Medium, Low)	Mitigation Measures
Governance Risk The Government of Uzbekistan has launched an ambitious reform program, including major institutional reforms, which has led to the creation of new institutions and changes in roles and responsibilities in the Government. As the reform process is still ongoing, changing institutional responsibilities can delay project approval and implementation.	Medium	The project team will monitor the ongoing reform process closely and is in dialogue with other stakeholders in Uzbekistan to stay abreast of recent developments and evaluate the implications.
Sector Policies The Government of Uzbekistan has adopted a new tariff policy and a metering strategy is expected to be developed by July 2020. New tariffs according to the policy are currently being considered by MHCS. A partial implementation or delay in the implementation of the tariff policy and/or the development of the metering strategy may affect the financial sustainability of the project.	High	The project team will monitor the ongoing reform process in the water sector closely and is in dialogue with other water sector stakeholders in Uzbekistan to stay abreast of recent developments and evaluate the implications (tariff policy as well as metering policy). Under Component 3, the national metering strategy will be operationalized to fit the local context to ensure that smart bulk and household meters and appropriate corresponding systems in line with the national policy will be developed and rolled out.
Technical Risk		Assessment if special

Construction The WSS project components in Bukhara City—and to a lesser extent, in district centers—include interventions in dense parts of the city, including rehabilitating and expanding networks and house connections, thus leading to limited mobility and obstruction for the population, business people and tourists.	High	construction methods, e.g. micro-tunneling through an experienced contractor, are feasible. Sensitization measures with stakeholders and engagement with respected community leaders to be conducted.
O&M Inadequate O&M due to the low technical and managerial capacity of BWC in maintaining and operating WSS infrastructure.	Medium	During final design, the most efficient and manageable technologies shall be selected to optimize technical and financial efforts required to run the WSS systems. An initial period of O&M with on-the-job training for utility staff is included as one of the responsibilities of the contractors.
Household Connections Due to the availability of alternative service options (e.g. alternative but unsafe water sources, existing septic tanks, low awareness) households may choose not to connect to the piped water supply system or sewerage network.	Low	The project will provide house connections outside the house plus the material for in-house installation. Additional sensitization measures to be undertaken by the contractors to make households aware of hygiene aspects.
Metering Delay in finalizing national metering strategy and thus missing specifications for meters to link with the digital water utility.	Medium	The Government of Uzbekistan plans that, if at the time of the scheduled installation of meters, the specification is not yet defined, upgradable meters with upward compatibility to smart metering will be installed.
Implementation	High	Creation of a PCU with

Limited capacity of the project implementation agency and unclear coordination mechanisms may lead to difficulties in coordination, control and supervision of services and works activities as well as proper reporting to the government and AIIB.		specific experts, e.g. for E&S safeguards, procurement, supervision/monitoring, and PCU support consisting of a team of experts will significantly reduce this risk.
Environmental and Social Insufficient capacity for development and implementation of site-specific E&S documents (ESMPs, RPs).	High	The PCU will include environmental and social experts to address E&S issues in the field, supported by consultants and third-party monitoring agencies. Third-party E&S monitoring during implementation will be carried out semi-annually.
Procurement and FM Limited capacities of relevant institutions in procurement operations and contract management due to many MDB-financed projects may lead to delays.	High	Establishment of a PCU, including a procurement expert and PCU support. Adequate staffing for procurement for internal control, documentation, management of contracts, payments and complaints. Adequate definition of lots to attract experienced contractor/s without overstraining their capacities.
PCU, which will be created for the project implementation, may delay recruitment of a finance staff. This may lead to shortcomings in financial reporting and compliance issues.	High	The establishment of a PCU with staffing satisfactory to the AIIB is set as a condition of loan effectiveness.
PCU, which will be created for the project implementation, may delay the adaptation of a Financial Management Manual. This document will include key internal control mechanisms to be followed in the application and use of project funds, with	High	The adaptation of FM Manual is set as a condition of Loan Effectiveness, which will stop PCU from processing of payments until this key internal control mechanism is

specific focus on ensuring completeness of accounting transactions, reliability of accounting data, safeguarding of assets of the projects, flow and accountability of funds, proper monitoring of contracts, proper authorization and documentation of all project expenditures, and full accountability for project funds.		developed.
Financial Sustainability Inefficient business practices in conjunction with low tariffs may lead to low financial sustainability.	Medium	Service improvement and awareness generation to increase willingness to pay for better service. Capacity Building through a development partner to strengthen the business practices of BWC on a pilot basis (e.g. asset management, handling client complaints and billing and collection) will foster institutional learning and increased efficiency.

Annex 1: Results Monitoring Framework

Project Objective:	Provide access to safely managed water and sanitation services in the Bukhara Region and strengthen the operational performance of the water utility of Bukhara Region.									
Indicator Name	**Unit**	**Baseline** Data Year: 2019	**Cumulative Target Values**					**End Target**	**Frequency**	**Responsibility**
			YR1	**YR2**	**YR3**	**YR4**	**YR5**			
Project Objective Indicators:										
People provided with access to safely managed water sources	No. (1,000)	0	0	0	300	600	1,050	1,050	Annually	MHCS
People provided with access to safely managed sanitation services	No. (1,000)	0	0	0	35	70	105	105	Annually	MHCS
O&M cost recovery ratio	No.	< 1	< 1	< 1	< 1	< 1	> 1	> 1	Annually	MHCS
Intermediate Results Indicators:										
Water Supply Activities										
Length of water supply pipelines **constructed**	km	0	0	200	600	900	1,260	1,260	Annually	
Length of water supply pipelines **rehabilitated**	km	0	0	100	400	600	850	850	Annually	
Number of water intake structures constructed/rehabilitated	No.	0	0	0	0	1	1	1	Annually	
Number of WDUs constructed and rehabilitated	No.	0	0	10	20	30	43	43	Annually	
Increase in the volume of water production capacity	m^3 (1,000)	0	0	30	55	80	125	125	Annually	

	Sewage Activites									
Length of sewage networks constructed	km	0	0	200	600	950	1,480	1,480	Annually	
Number of sewage pumping stations constructed	No.	0	0	5	25	40	54	54	Annually	
Number of sewage treatment plants constructed	No.	0	0	0	1	2	4	4	Annually	

km = kilometers, m^3 = cubic meters, MHCS = Ministry of Housing and Communal Services, No. = number, O&M = Operation and Maintenance, WDU – Water Distribution Unit, YR = year

Annex 2: Detailed Project Description

A. Water Sector Context

1. Uzbekistan has undertaken significant efforts in upgrading its water supply and sanitation (WSS) services since its independence in 1991. Though WSS access has steadily increased among households in the bottom 40 percent, substantial disparities remain between urban and rural areas. Less than half of Uzbekistan's population (approximately 32 million people) remain unconnected to a piped water system, and only 17 percent of urban households receive water 24 hours per day. The situation is exacerbated in smaller cities and rural areas, with over 10 percent of the rural population without access to safely managed drinking water. About 15 percent of the 16 million rural population live below the national poverty line, and only half of all rural residents are connected to a centralized water supply network. Overall coverage of centralized sewage systems is only 14 percent. The infrastructure, mostly from the Soviet era, is highly degraded and approximately 39 percent of water supply networks are deemed obsolete. Additionally, high operating costs and low tariffs, combined with inefficient fee collection and organisational deficiences of WSS utilities result in the low quality of service delivery and poor cost recovery.

2. The water supply of the Bukhara Region is based on surface and ground water. The surface water comes from the Zarafshan River and the Amu Darya river, through the Amu-Bukhara Canal into the Kuymazar Reservoir. During warmer periods, without adequate treatment, the water quality of these sources does not meet the requirements for the sources of drinking water supply for salinity, hardness and exceeds the maximum permissible concentration of the content of sodium, sulphate, phenols and petroleum products. The project will address some of these challenges by improving availability of safe water.

B. Institutional Structure

3. **Institutional Set-up.** The institutional set-up of the water sector is described in paragraphs 12-14 of the main text.

4. **Institutional Reform.** Currently the Government of Uzbekistan, with the involvement of foreign experts, is developing a strategy for the development of water supply and sanitation in the Republic of Uzbekistan. As part of this strategy, the Decree of the President of the Republic of Uzbekistan dated Nov. 26, 2019 No. UP–5883 "On Measures to Improve the Management of Water Resources of the Republic of Uzbekistan" was issued. The decree introduces state unitary water supply enterprises headed by the Ministry of Housing and Communal Services (MHCS) of the Republic of Uzbekistan; on this basis Uzsuvtaminot was established. This organization will act as a separate corporate structure that performs the function of a single national operator of water supply and sanitation facilities in the country. The water utilities, which are currently communal and regional, will be transformed into limited liability companies under the new Uzsuvtaminot. In this context, a

revised national tariff policy was adopted in April 2019[1] and is currently being rolled-out and further activities to modernize the sector are ongoing.

5. **Metering Strategy and Digital Water Utility.**[2] The MHCS intends to foster, under the vision of a digital water utility, the application of innovative technologies across the water sector to improve performance and efficiency, as well as improve the water management system and business processes in the sector. This will include metering of water production and distribution in Uzbekistan, including SCADA, bulk meters at production facilities as well as smart meters for households, budgetary institutions and businesses. The technical specifications for the metering approach will be determined by July 2020, based on the results of the ongoing study, which is expected to conclude before May 1, 2020.

6. **Water Resource Management**. Under the new legislation,[3] all relevant government entities are required to systematically submit data on quantitative and qualitative parameters in relation to all types of water uses to MHCS, which will establish a unified centralized system of accounting, monitoring, and ensuring the safety and quality of water, as well as maintaining a unified database of the water balance. Currently, no such unified system of water balance exists and its introduction is expected to provide a sound basis for water resource management.

C. Project Objectives

7. The project objective is to provide access to safely managed water and sanitation services in the Bukhara Region and strengthen the operational performance of the water utility of Bukhara Region. The implementation of this project is expected to improve water supply and sanitation services for about 1.15 million residents of the prioritized areas in the Bukhara Region.

D. Project Description and Components

8. This project is composed of three components:

Component 1. Investment in Water Supply Infrastructure.
Construction and rehabilitation of main water lines, well fields and intakes, associated electric facilities, water treatment plants, pumping stations, water reservoirs, distribution networks including house connections and equipment. This Phase I project includes priority area 1; and the future Phase II project would include priority areas 2 and 3. A detailed geographical representation is illustrated in Figure A2.1 below.

Component 2. Investment in Sewage Infrastructure.

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[1] Government of Uzbekistan. 2019. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 13, 2019, No. 309 “On Measures to Improve the Procedure for Establishing, Declaring (Approving) and Setting Regulated Prices (tariffs) for Water Supply and Sewerage Services.

[2] Government of Uzbekistan. 2019. Decree of the President of the Republic of Uzbekistan dated Nov. 26, 2019, UP-5883 "On Measures to Improve the Water Management of Water Resources of the Republic of Uzbekistan in order to Increase the Level of Supply of Drinking Water to the Population and Improve its Quality."

[3] Government of Uzbekistan. 2019. Decree of the President of the Republic of Uzbekistan dated Nov. 26, 2019, PP-4536 “On Further Improvement of the Water Supply System of the Republic”.

Implementation of centralized sewage systems in district centers consisting of house connections, collectors, pumping stations and mechanical-biological sewage treatment plants as well as discharge facilities, optionally tertiary treatment for reuse purposes. This Phase I project includes priority area 1; and the future Phase II project would include priority area 2. A detailed geographical representation is illustrated in Figure A2.2 below.

Component 3. Project Implementation and Management Support as well as Capacity Building.
Project management and implementation support by a Consultants will be provided under this Phase I project (as well as under the future Phase II project) to assist the Kommunkhizmat in ensuring seamless coordination, efficient implementation and compliance with the relevant policies and standards. Based on the feasibility study, the detailed design and tender documents for this Phase I project (as well as the future Phase II project) will be prepared through consulting services, which will also cover the construction supervision. In addition, this component will include two years of initial operation with Technical Assistance to strengthen the capacity of utility staff to adequately operate and maintain the new infrastructure, such as sewage treatment plants and pumping stations.

NB: While not covered under this Phase I project, it should be noted that under the future Phase II project, it is expected that Capacity Building will also be provided to improve business practices of BWC with regards to asset management, Operation and Maintenance, client management and complaint handling, billing and collection. A Geographic Information System (GIS), including a hydraulic simulation, may be developed to eventually feed into a country-wide system, where available. Appropriate laboratory equipment for water quality testing may be procured and training provided. The areas of Capacity Building for the Phase II project will be further defined based on a gap analysis study carried out during Phase I.

9. Concerning Component 1, the **Proposed Water Supply Activities** are as follows:

Two water supply priority activities are planned, one proposed for this Phase I project, and the other planned for the future Phase II project and are presented in Figure A2.1 below. These activities mainly include construction and rehabilitation of intakes, main water lines, distribution networks including house connections, power transmission lines and pumping stations.

Priority 1 Activities (proposed for Phase I project):

- Construction and rehabilitation of the main water pipeline from the Zarafshan water intake structure to Payjuy to provide the population of the southeastern part of the Rometan and Peshko Regions with drinking water.
- Rehabilitation and construction of the main water pipeline from the water intake Zarafshan to the water intake Yakkatut to provide the population of the Jondor District with drinking water.
- Construction and rehabilitation of the water intake and treatment structures Shoxrud and Kuymazar to provide the population of rural settlements in the northern part of the Kogon Region with drinking water.
- Construction and rehabilitation of water supply systems to provide the population of the Qorovulbozor District with drinking water.

- Construction and rehabilitation of the drinking water supply systems of the Bukhara and Kogon Districts, also fed by Kuymazar water reservoir.

Priority 2 Activities (planned for a future Phase II project):

- Provision of clean drinking water to the population of the northern and eastern parts of the Bukhara, Vobkent, Gijduvon, Shofirkon, Rometan and Peshko Districts of the Bukhara Region while increasing the capacity of the main resource facility Damkhuja.
- Rehabilitation of water supply systems in the northern and western parts of the Shofirkon and Peshko districts as well as the northern part of the Gijduvon District through the construction and rehabilitation of the water intake structure Jilvon in the Shofirkon District.

10. Concerning Component 2, the **Proposed Sewage Activities** are as follows:

Two sewage priority activities are proposed for the Bukhara Region, one proposed for this Phase I project, and the other planned for the future Phase II project. Each priority activity consists of one sewage system for each of the 11 districts plus Bukhara City, as presented in Figure A2.2 below. The capacity of each system is also indicated in Figure A2.2. The activities mainly include the implementation of a centralized sewage system in each district center consisting of house connections, collectors, pumping stations and mechanical-biological sewage treatment plants as well as discharge facilities and optional tertiary treatment for reuse purposes.

Priority 1 Activities (proposed for Phase I project):

- Qorakol District—construction of sewage networks and construction of sewage pumping station. The wastewater will then be conveyed to the sewage treatment plant in Olot for treatment and discharge.
- Olot District—construction of sewage networks, pumping station and construction of sewage treatment plant in Olot for the wastewater of both the Olot and Qorakol Districts.
- Qorovulbozor District—construction of sewage networks, sewage pumping station and sewage treatment plant near the Bukhara Oil Refinery.
- Rometan and Gijduvon Districts: construction of sewage networks, sewage pumping station and sewage treatment plant for each district center.

Priority 2 Activites (planned for a future Phase II project):

- Bukhara City—extension with sewage networks and sewage pumping station, based on an existing feasibility study and final design, to complete the existing sewage system.
- Bukhara District—construction of sewage networks, sewage pumping station and a sewage treatment plant in Gala-Osiyo.
- Jondor, Shofirkon, Vobkent Districts—construction of sewage networks, sewage pumping station and sewage treatment plant for each district center.
- Peshko District—construction of sewage networks, sewage pumping station and sewage treatment plant in Yangibozor.
- Kogon District—construction of sewage networks, sewage pumping station and conveyance to the Bukhara City sewage treatment plant.

In addition, equipment required for operation will be purchased in each phase: e.g., excavators, hydrodynamic cleaning devices for sewers and sewer waste removers.

The Government of Uzbekistan policy for sanitation services is a three-level-concept: In regional capitals communal sewage systems and in district towns, small local treatment plants are implemented; for villages, septic tanks or cesspits are provided to comply with the disease authority requirements. Adequate emptying and disposal of the fecal sludge will be carried out by communal or private service providers. Facilities in the rural areas are locally funded.

E. Financing Category Table

The below category table for disbursements under the loan was agreed between the Government of Uzbekistan and the Bank:

Category	Amount of the Loan Allocated (expressed in USD)	Percentage of Expenditures to be financed (exclusive of Taxes)
(1) Goods, works, non-consulting services, and consultants' services for Component 1 and Component 2 of the project	340,900,000	100%
(2) Non-consulting services, and consultants' services for Component 3 of the project	28,600,000	100%
(3) Front-end Fee	962,792.5	In accordance with Section 2.07(b) of the General Conditions
(4) Interest and other charges under the loan	14,654,207.5	Pursuant to Section 2.07(c) of the General Conditions
Total amount	385,117,000	

F. Selection of Activities

11. The geographical prioritization of the phasing with the different activities for water and sewage was undertaken by the MHCS together with BWC based on selection criteria prepared in consultation with AIIB (urgency, joint water resource, volume, packaging of works, expected increase wastewater volume):

Proposed Phase I project: The MHCS indicated a high need for water supply in priority area 1; further, it was indicated that the technical preparation can proceed more quickly than for other areas. For sewerage, the MHCS has prioritized areas that are expected to observe increases in wastewater in the near future or are currently most in need of sewage systems.

Planned future Phase II project: Given that the extension of the Damkhuja Water Facility is

currently under construction, and the increased water supply from this source will only be available after completion of the works, the areas supplied by Damkhuja were posteriorized. Priority area 2 for water has been allocated to the future Phase II project to achieve a balanced approach in terms of volume and implementation complexity. For sewage, the remaining district centers have been allocated to the future Phase II project. As there are current works under a World Bank-financed project ongoing in Bukhara City, which will be further extended to use the cost savings, it was decided to allocate Bukhara City to phase II, to ensure that the interfaces between the two projects are clear.

G. Operation and Maintenance

12. Bukhara water Company will be responsible for the Operation and Maintenance (O&M) of the existing and new water and sewage facilities. The WSS infrastructure will partly include facilities and technology that are new to BWC and it has been agreed that the works contracts also include, in the case of the more complex water and sewage facilities (sewage treatment plants, water works, pumping stations), the responsibility for O&M for an initial two-year period after commissioning. Within Component 3, on-the-job training will be included with the purpose of training the staff so that BWC can take over the O&M after this initial two-year Technical Assistance.

Figure A2.1: Planned Investments in Water Supply System in the Bukhara Region

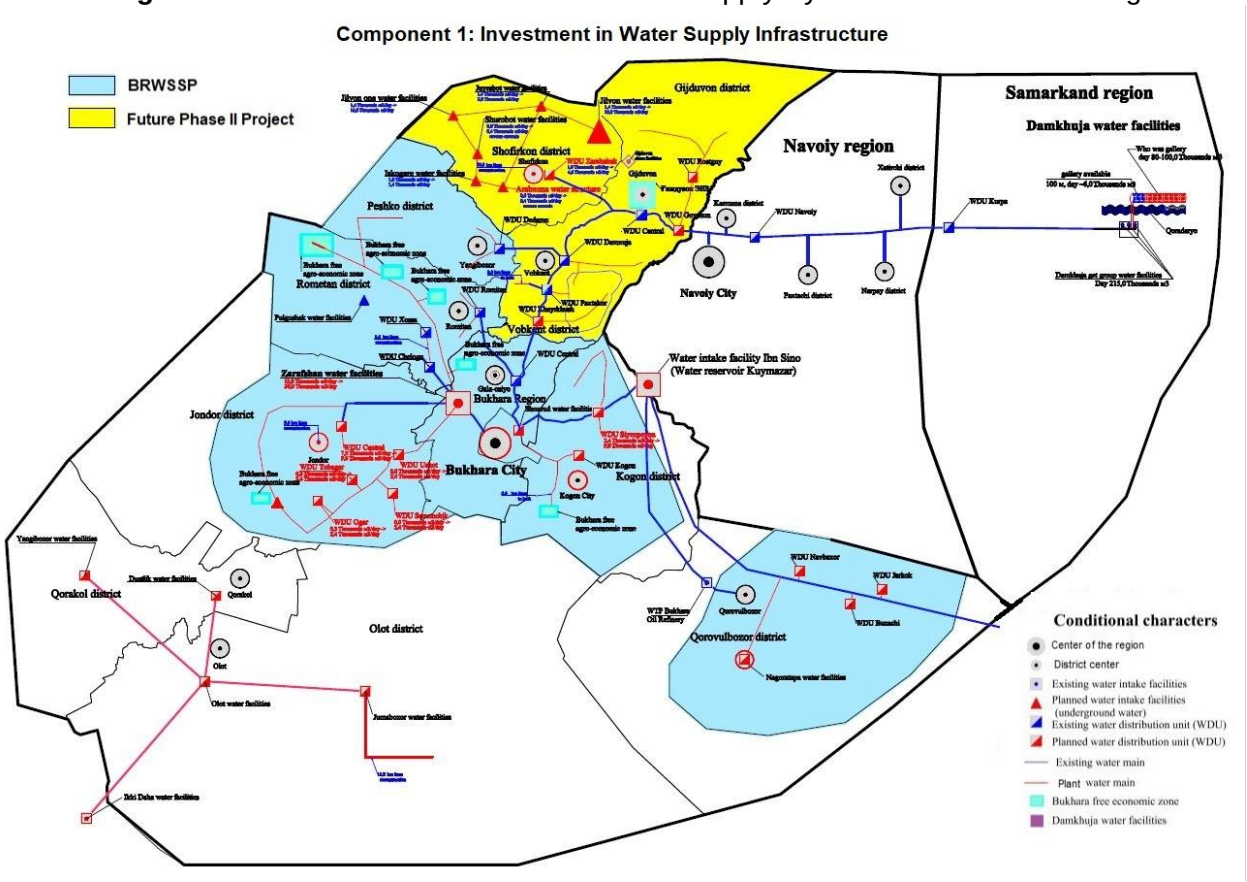
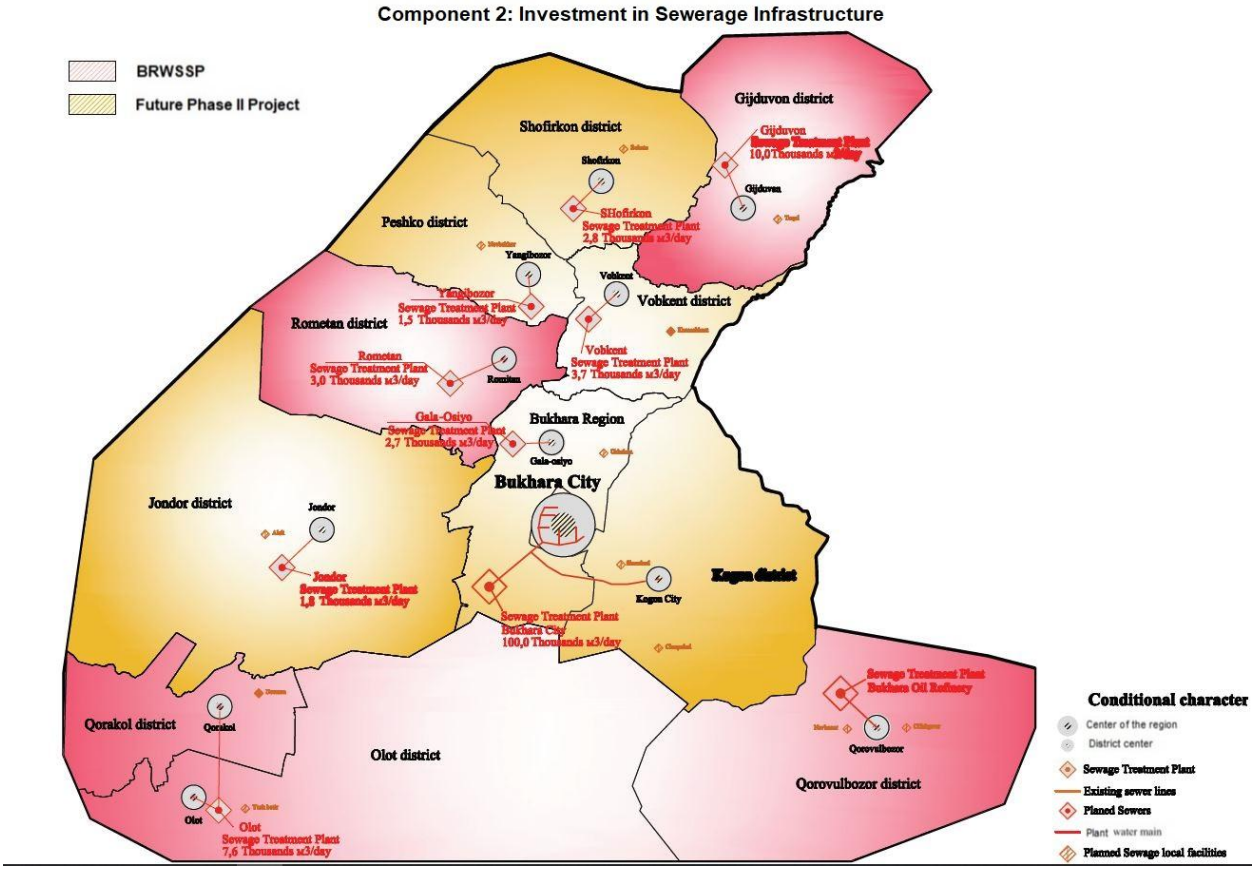


Figure A2.2: Planned Investments in Sewage System in the Bukhara Region



Annex 3: Economic and Financial Analysis

Economic Analysis

Background

1. The Government of Uzbekistan has identified the Bukhara Region as a priority for development and tourism, which would require significant investments to construct and rehabilitate the much-dilapidated water and sewage infrastructure. The Government of Uzbekistan aims to increase access to water supply and sanitation services in the region to 100 percent, from the current levels of 53.5 percent and 34.3 percent respectively.

2. This project will finance the construction of water supply and sewage systems in two cities and six districts of the Bukhara Region, benefitting 1.15 million end users. Construction is planned to commence in 2020 and the implementation period is estimated at five years.

3. To maximize socio-economic benefits, the project is delivered as part of an integrated approach including water supply and wastewater management.

Approach and Methodology

4. A cost-benefit analysis was carried out to assess the economic viability of the project comparing "with-" and "without-project" scenarios. The Economic Internal Rate of Return (EIRR) and Economic Net Present Value (ENPV) of the project was estimated based on a discounted cashflow analysis considering economic costs and benefits. A Sensitivity Analysis was performed taking into consideration (i) increased investment costs, (ii) increased Operation and Maintenance (O&M) costs, and (iii) decreased benefits, and (iv) a worst-case scenario, which combines the three previous scenarios.

5. **Data:** Primary information on project cost, households' current water consumption, expenditures and coping cost related to inadequate water supply was collected during the preparation of the Feasibility Study and the baseline household survey for the Environmental and Social Planning Framework (ESMPF). The primary data was complemented with demographic information, public health data, other household characteristics, and technical assumptions. Secondary sources include a socio-economic household survey,[1] and public health statistics of the region. Data was verified through multiple sources where possible, and the conservative end of the range of estimates were used.

[1] The household survey was conducted as part of the ESMPF preparation and included a representative sample of 200 participants across the cities and districts in Bukhara covered by the Project.

Key Assumptions

- **Population Growth**: 1.7 percent p.a.[2]
- **Standard Conversion Factor**: assumed to be 0.95[3]
- **Shadow Wage Rate**: 80 percent of unskilled wage for household members who engage in paid labor outside the household
- **Project Duration**: assumed to be 25 years
- **Project Implementation Period**: assumed to be five years.
- **Benefits**: assumed to accrue after completion of all construction works (after the fifth year or in the year 2025).
- **Discount Rate**: 9 percent.[4]

Key Technical Assumptions:

- **Lifetime of Household Storage and Pumps**: 5 years
- **Lifetime of Civil Works**: 30 years
- **Water Consumption after the project**: 147 liters per capita per day

6. **Project Benefits**. The expected project benefits from the investments in water supply include improved health outcomes (reduced water-related morbidity and mortality, reduced malnutrition in children), increased economic productivity, increased school attendance, improved scholastic achievement, time savings from water handling,[5] cost savings from reduced coping costs (storage tanks and pumps), and water purchase from water vendors. [6] Children carry a disproportionate burden of water-related diseases, which is one of the major preventable causes of death in children under five years of age in developing countries.[7] Investments will also support the reduction of technical losses through the rehabilitation of the network and procurement of modern equipment and machinery which is expected to increase energy efficiency. With regards to the investments in wastewater infrastructure, the newly connected households will result in positive environmental impacts, though they are difficult to quantify. The wastewater investments will also contribute to the expected health benefits. Only a part of the above-described benefits was quantified in this economic analysis, which can hence be interpreted as a conservative or lower bound estimate of the net economic benefit of this project.

7. For the purpose of valuation, the benefits of the project are distinguished benefits stemming from non-incremental water, incremental water, savings in water production and O&M and benefits of wastewater services. The valuation of project benefits is summarized in Table A3.1.

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[2] State Committee of the Republic of Uzbekistan on Statistics, United Nations World Population Prospects; Population growth rate of 2017.

[3] The same conversation factor as for other projects in Bukhara, notably the Bukhara Road Network Improvement Project was applied.

[4] The same discount rate is used for other projects in Bukhara, notably the Bukhara Road Network Improvement Project as well as Asian Development Bank-financed projects in Uzbekistan.

[5] Handling refers to total time spent boiling, manually pumping and hauling of water.

[6] Waddington et al. (2009) provides a comprehensive overview of rigorous impact evaluations in the water sector. Moore et al. (2001) and Niehaus et al. (2002) show the negative long-term consequences of early childhood diarrhea on nutritional status and cognitive development.

[7] World Health Organization. 2018. Drinking-water. http://www.who.int/news-room/fact-sheets/detail/drinking-water

8. Benefits from non-incremental water supply include the avoidance of direct and indirect coping costs from inadequate water supply. Household expenditures such as purchasing water from water vendors at higher prices, installation and operation of private water wells, water tanks and pumps are considered direct coping costs. Indirect coping costs comprise the time value lost through water handling or sickness (or caretaking of sick family members) related to water-related diseases. The lost time is valued at the shadow wage for unskilled labor, which is assumed at 80 percent of an unskilled wage, for household members that engage in economic activity outside the household.

9. **Benefits from Incremental Water Supply**. Households, which receive a household service connection or increased service quality through the project, are expected to consume more water than previously when water demand exceeded the supply of water. The additional or incremental water is valued at the revised water tariff, which reveals the observed willingness to pay of the household. Given that the water tariff, even after the upward revision as per the most recent tariff policy of January 2020, is low by international standards, the analysis underestimates the true willingness to pay of households, and hence, the economic value of the incremental water supply.

Table A3.1: The Valuation of Economic Benefits

1. Value of Non-incremental Water	**Valued at the Average Cost of Consumption in a "Without" Project Scenario, Including Tariffs Paid and Coping Costs (Both Direct and Indirect)**
1.1. Direct Coping Costs	
Installation and operation of private shallow water wells and water pumps **(electric)**	Proportion of households using private water wells and electric pumps and average investment and O&M costs
Installation and operation of private shallow water wells and water pumps **(manual)**	Proportion of households using private water wells and manual pumps and average investment and O&M costs
Purchase of water from tanker trucks	Cost difference of purchasing water through water vendor
Purchase of bottled water	Cost difference of purchasing bottled water
Installation and operation of private water tanks or underground water storage	Proportion of households using private water storage and average investment and O&M costs
1.2. Indirect Coping Costs	
Time	Valued as the time savings for time spent handling water and valued at the shadow wage rate (including time to boil, manually pump, and haul water)
Health (Children)	Valued as the time savings for caregiving of mothers at the shadow wage rate
Health (Adults)	Valued at adult sick days avoided and average daily wage for unskilled labor
2. Value of incremental water	

Increase in supply duration and available quantity	Valued at cost of water consumption of the piped water supply tariff scheme in with project scenario. Additional available quantity and willingness to pay/ cost of production.
3. Savings in Water Production and O&M	
Reduced technical losses	Valued at avoided production cost (reduced water losses) and production costs
Savings from energy efficiency	Valued at the difference in energy consumption per cbm before and after the project
4. Benefits from Sanitation Services	
Improved quality of life resulting from access to sewage infrastructure	Revealed willingness to pay wastewater tariffs for the beneficiaries newly connected to the centralized sewage systems

O&M = Operation and Maintenance

10. **Estimated Value and Disaggregation of Benefits**. Total project benefits are estimated at USD88.4 million per year which is approximately USD24 per household per month. The detailed composition of benefits is reported in the Table A3.2 below.

11. The benefits from safe and affordable non-incremental water supply accounts for most of the benefits of the project. Direct coping costs cumulatively account for 11.9 percent of the benefit, which can be further broken down to include avoided costs of purchasing and maintaining private shallow water wells with electric and manual pumps (1.8 percent) and reduced cost of purchasing water from tanker trucks and bottled water vendors (10.1 percent). Indirect coping costs, avoided through access to piped safe water supply at the household level, accounts for 49.4 percent of the project benefits. The targeted households are expected to save almost half an hour per day on average, or 13 hours per month[8] in hauling and handling water (13.5 percent of estimated project benefit). Households are also expected to benefit from improved health, resulting in reduced time lost for productive and domestic use due to diarrheal diseases, which includes approximately four days of wages lost for productive adults per year, as well as the lost time taken to care for sick children, estimated at four days per year per child. The health benefits also include the savings in doctor's consultation fees as well as the prescribed cost of medicines. The total benefits from savings in improved health corresponds to 36 percent of the total project benefit.[9]

12. Benefits accruing from the valuation of incremental water are also significant. Households are expected to benefit from increased availability of water quantity and continuity in water supply, valued at 19 percent of the total benefit. Water supply consumption is estimated to increase from 61 liters per person per day to 147 liters per person and day. Given that true willingness to pay is unknown, the increased quantity is valued through the revealed willingness to pay of the household, i.e. the proposed tariff as outlined in the new tariff regulation, approximately UZS3000 per month

[8] On average, a household will save approximately 25 minutes per day from water hauling and handling. It was assumed that all sick days are adult sick days leading to a direct loss in income and 80% of the sick days are spent by a nonsalaried household member caretaking for sick family members (mostly children).

[9] Households currently report on average 13 water-related sick days per year for household members.

per household, or USD0.32.[10] Given how low the level of water tariffs is in Uzbekistan, the estimate can be interpreted as a lower bound of the economic benefit of the increased water quantity, which can be expected to have a higher economic value.

13. Benefits from valuing savings in water production and O&M comprise 14 percent of total project benefits. Approximately 1.8 percent is due to reduced technical losses as a result of the rehabilitation of the network. The low valuation is in line with expectations given the very low cost of production. Savings in energy consumption per cubic meter produced will result in about 12.2 percent of the benefits.

14. The benefits from access to wastewater infrastructure account for 5.1 percent of the total benefit and is valued at the revised wastewater tariff. This is in line with expectations, given that wastewater tariffs have been historically very low, approximately half that of the water tariff.

15. **Project Costs:** The total investment cost for water and sewerage infrastructure of this Phase I project is estimated at USD389.3 million. For this cost-benefit analysis, only capital investment costs for the water supply and sewage infrastructure under this Phase I project is considered. The costs of the project management support have been excluded. The lifecycle O&M cost for the planned water supply schemes has been included in the project costs.[11] To convert financial costs to economic costs, GST has been removed and a standard conversation factor has been applied to correct for other taxes and distortions in the economy.

Table A3.2: Disaggregation of Project Benefits

Economic Benefit	Per Household and Month (USD)	Total Benefit per Household per Year (USD)	Total Benefit per Year (USD)	Proportion of Benefits (percent)
1. Value of Non-incremental Water	**20.4**	**245.3**	**54,477,817**	**61.6**
1.1. Direct Coping Costs				
Installation and operation of private shallow water wells and water pumps **(electric)**	0.4	4.3	963,279	1.1
Installation and operation of private shallow water wells and water pumps **(manual)**	0.1	1.1	253,212	0.3
Purchase of water from tanker trucks	1.1	13.0	2,878,031	3.3
Purchase of bottled water	2.3	27.3	6,060,243	6.9

[10] Government of Uzbekistan. 2019. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 13, 2019, No. 309, "On Measures to Improve the Procedure for Establishing, Declaring (Approving) and Setting Regulated Prices (tariffs) for Water Supply and Sewerage Services."

[11] The investment costs and O&M costs are based on the estimates provided in the feasibility studies.

Installation and operation of private water tanks or underground water storage	0.2	1.8	404,526	0.5
1.2. Indirect Coping Costs				
Time	4.5	53.9	11,972,608	13.5
Health (Children)	4.2	50.7	11,257,465	12.7
Health (Adults)	7.8	93.1	20,688,453	23.4
2. Value of Incremental Water	**2.8**	**33.4**	**17,016,260**	**19.3**
Increase in supply duration and available quantity	2.8	33.4	17,016,260	19.3
3. Savings in Water Production and O&M	**0.0**	**0.0**	**12,350,664**	**14.0**
Reduced technical losses	**0.0**	**0.0**	**1,547,584**	1.8
Savings from energy efficiency	**0.0**	**0.0**	**10,803,080**	12.2
4. Benefits from Wastewater Services	**0.7**	**8.9**	**4,545,549**	**5.1**
Improved quality of life resulting from access to wastewater infrastructure	0.7	8.9	4,545,549	5.1
Total Economic Benefit	**24.0**	**287.5**	**88,390,290**	**100.0**

Results of Economic Analysis

16. The analysis underlines the high economic value of this project. The EIRR is estimated at 19.4 percent, clearly exceeding the social discount rate of 9 percent. The Economic Net Present Value is estimated at USD294.9 million, based on a 9 percent discount rate. Given the strong socio-economic benefits of providing access to safe water supply and improved service quality through household connections to a large and currently underserved population in regional Bukhara, the high economic evaluation is in line with expectations. The results are summarized in Table A3.3 below.

Table A3.3: Results of Cost Benefit Analysis

	NPV in USD (Millions)
Project Costs	**295.3**
Construction	241.3
Operation & maintenance (O&M)	54.1
Project benefits	**590.2**
Nonincremental water supply	363.8
Incremental water supply	113.6
Savings in O&M and reduction of technical losses	82.5
Benefits from Wastewater services	30.4
Economic Valuation of Project	

Economic Net present value (ENPV)	**294.9**
Economic Internal Rate of Return (percent)	**19.4%**

17. A Sensitivity Analysis was performed taking into consideration: (i) a cost over-run in investment costs by 20 percent; (ii) a cost over-run in O&M costs by 20 percent; (ii) lower than expected benefits by 20 percent, and (iv) a worst-case scenario, which combines all three previous scenarios.

18. The cashflow of costs and benefits and the net-flow under the sensitivity analysis are presented in Table A3.4 below. The sensitivity analysis shows that the project remains economically viable under all sensitivity analysis scenarios. The economic viability of the project is most sensitive to a decrease in project benefits, followed by cost over-run in investment costs. Increased O&M cost only marginally affect the EIRR and ENPV of the project.

Table A3.4: Cashflow and Sensitivity Analysis

	Cost		Economic benefits					Base Case	Sensitivity Analysis			
Year	Construc-tion	Operation & Maintenance	Non-incremental water supply	Incre-mental water supply	Savings in O&M and from reduced technical losses	Benefits from waste-water services	Total Benefits	Net Benefits	20% increase in investment cost	20% increase in O&M cost	20% decrease in benefits	Combined effect - worst case scenario
2020	12.0	-	-	-	-	-	-	-12.0	-14.5	-12.0	-12.0	-14.5
2021	49.5	-	-	-	-	-	-	-49.5	-59.4	-49.5	-49.5	-59.4
2022	87.7	-	-	-	-	-	-	-87.7	-105.3	-87.7	-87.7	-105.3
2023	125.2	-	-	-	-	-	-	-125.2	-150.2	-125.2	-125.2	-150.2
2024	49.5	-	-	-	-	-	-	-49.5	-59.4	-49.5	-49.5	-59.4
2025	-	9.1	54.5	17.0	12.4	4.5	88.4	79.3	79.3	77.5	61.6	59.8
2026	-	9.1	55.4	17.3	12.6	4.6	89.9	80.8	80.8	79.0	62.8	61.0
2027	-	9.1	56.3	17.6	12.8	4.7	91.4	82.3	82.3	80.5	64.0	62.2
2028	-	9.1	57.3	17.9	13.0	4.8	93.0	83.9	83.9	82.0	65.3	63.4
2029	-	9.1	58.3	18.2	13.2	4.9	94.6	85.4	85.4	83.6	66.5	64.7
2030	-	9.1	59.3	18.5	13.4	4.9	96.2	87.0	87.0	85.2	67.8	66.0
2031	-	9.1	60.3	18.8	13.7	5.0	97.8	88.7	88.7	86.9	69.1	67.3
2032	-	9.1	61.3	19.1	13.9	5.1	99.5	90.3	90.3	88.5	70.5	68.6
2033	-	9.1	62.3	19.5	14.1	5.2	101.2	92.0	92.0	90.2	71.8	70.0
2034	-	9.1	63.4	19.8	14.4	5.3	102.9	93.8	93.8	91.9	73.2	71.4
2035	-	9.1	64.5	20.1	14.6	5.4	104.6	95.5	95.5	93.7	74.6	72.8
2036	-	9.1	65.6	20.5	14.9	5.5	106.4	97.3	97.3	95.5	76.0	74.2
2037	-	9.1	66.7	20.8	15.1	5.6	108.2	99.1	99.1	97.3	77.5	75.6
2038	-	9.1	67.8	21.2	15.4	5.7	110.0	100.9	100.9	99.1	78.9	77.1
2039	-	9.1	69.0	21.5	15.6	5.8	111.9	102.8	102.8	101.0	80.4	78.6
2040	-	9.1	70.2	21.9	15.9	5.9	113.8	104.7	104.7	102.9	81.9	80.1
2041	-	9.1	71.3	22.3	16.2	6.0	115.8	106.6	106.6	104.8	83.5	81.7
2042	-	9.1	72.6	22.7	16.4	6.1	117.7	108.6	108.6	106.8	85.1	83.2
2043	-	9.1	73.8	23.0	16.7	6.2	119.7	110.6	110.6	108.8	86.7	84.8
2044	-	9.1	75.0	23.4	17.0	6.3	121.8	112.6	112.6	110.8	88.3	86.5
Total	**323.9**	**182.3**	**1,284.8**	**401.3**	**291.3**	**107.2**	**2,084.7**	**1,578.5**	**1,513.7**	**1,542.0**	**1,161.5**	**1,060.3**
NPV	241.3	54.1	363.8	113.6	82.5	30.4	590.2	294.9	246.6	284.1	176.8	117.8
IRR								**19.4%**	**16.7%**	**19.1%**	**15.8%**	**13.0%**

Financial Analysis

19. As a regional water supply utility, BWC's revenue is regulated by a national tariff policy. Historically, the tariff policy is aimed at protecting water consumers, leaving the water utility starved of the necessary resources to provide water supply and sanitation services to the population while also expanding coverage. In April 2019, a new national tariff policy, which was developed with Technical Assistance from the World Bank, has been introduced through the Cabinet of Ministers Resolution No. 309.[24] The new tariff policy allows BWC to recover its costs for Operation and Maintenance as well as financing costs.

1. Historical Break-even Revenue Tariff Level

20. In the past, the tariffs were reviewed twice a year, considering the utility's production costs (COGS, administration costs, and financing cost). Instead of increasing the tariffs to fully recover costs, the Government of Uzbekistan subsidized BWC's operation, maintenance and capital expenditures. In recent years, BWC had significant losses in 2017 and 2018 due to the depreciation of the Uzbekistan Som against interest and loan repayment on foreign currency-denominated debt. To cover the operating cost and existing financing cost, the revenue of BWC should have increased by 965 percent in 2017 from UZS35.3 billion (USD3.7 million) to UZS376 billion (USD40 million) and by 204 percent from UZS40 billion (USD4.3 million) to UZS122 billion (USD13 million) in 2018.

Table A3.5: Breakeven Revenue 2017-2018

	Unit : '000 UZS		**Unit : '000 USD**	
	2017	**2018**	**2017**	**2018**
Revenue	35,289,822	40,235,890	3,762.2	4,289.5
	Increase by 965%	**Increase by 204%**	**Increase by 965%**	**Increase by 204%**
		⇩		
Break-even Revenue	375,953,653	122,259,790	40,080	13,034

Exchange rate (UZS/USD): 9,380
Source: 2018 audited report

21. The government's subsidy of UZS3.8 billion (USD0.4 million) and UZS11.6 billion (USD1.2 million) in 2017 and 2018 respectively were inadequate to offset the financing cost from the depreciation of the UZS against USD in September 2017. The exchange rate had depreciated from UZS3,017 per USD in 2016 to UZS5,670 in 2017 and depreciated even more in 2018 to UZS8,193 per USD. As of 2019, the current exchange rate hovered around UZS9,500 per USD. The exchange rate had more than tripled the financing cost of BWC in 2017 as a result of wider economic reforms, which allowed for a floating exchange rate. The total financing amount in 2017 increased to UZS338 billion (USD36 million) then decreased to UZS84 billion (USD9 million) in 2018 as the exchange rate

[24] Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 13, 2019, No. 309 "On Measures to Improve the Procedure for Establishing, Declaring (Approving) and Setting Regulated Prices (tariffs) for Water Supply and Sewerage Services."

was leveling off. Based on the audited financial statement in 2017 and 2018, the entity has positive operating profit before financing cost, and the net profit turned negative after deducting the financing cost with a loss of UZS82 billion (USD36.3 million) and UZS82 billion (USD8.7 million) in 2017 and 2018 respectively. This loss was mainly due to the financing costs, which increased substantially due to the depreciation of the exchange rate in light of the broader economic reforms (introduction of a free float of the exchange rate).

Table A3.6: Income Statement 2017—2018

	Audited				Common Size (percent)	
	Unit : '000 UZS		Unit : '000 USD			
Income Statement	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**
Revenue	35,289,822	40,235,890	3,762.2	4,289.5	100	100
Cost of Sales	(27,951,651)	(34,959,310)	(2,979.9)	(3,727.0)	(79)	(87)
Gross Profit	**7,338,171.0**	**5,276,580.0**	**782.3**	**562.5**	21	13
Government Subsidies	3,785,671	11,550,714	403.6	1,231.4	11	29
Operating Profit	**3,063,027.0**	**7,521,778.0**	**326.5**	**801.9**	9	19
Finance Cost	(337,841,198)	(83,958,366)	(36,017.2)	(8,950.8)	(957)	(209)
Net Loss before Tax	**(340,663,831.0)**	**(82,023,900.0)**	**(36,318.1)**	**(8,744.6)**	(965)	(204)

Exchange rate (UZS/USD): 9,380
Source: 2018 audited report

Table A1.7: Balance Sheet Statement 2017-2018

Balance Sheet	**Audited**				**Common Size**	
Assets	**Unit : '000 UZS**		**Unit : '000 USD**			
	2017	**2018**	**2017**	**2018**	**2017 (%)**	**2018 (%)**
Property, Plant and Equipment	236,508,236	434,308,441	25,214.1	46,301.5	83	7
Total Non-current Assets	**236,576,363**	**435,561,285**	**25,221.4**	**46,435.1**	83	79
Current Assets						
Inventories	2,128,607	3,378,083	226.9	360.1	1	1
AR and Other Receivables	44,818,284	90,807,077	4,778.1	9,680.9	16	17
Cash and Cash Equivalents	1,065,900	20,458,717	113.6	2,181.1	0	4
Total Current assets	**48,012,791**	**114,643,877**	**5,118.6**	**12,222.2**	17	21
Total Assets	**284,589,154**	**550,205,162**	**30,340.0**	**58,657.3**	100	100
Liability						
Current Liability						
Interest Payable	1,701,867	3,557,310	181.4	379.2	1	1
Current Portion of Long-term Borrowings	25,516,939	17,781,151	2,720.4	1,895.6	9	3
AP and Other Payables	33,297,163	62,016,573	3,549.8	6,611.6	12	11
Total Current Liability	**60,515,969**	**83,355,034**	**6,451.6**	**8,886.5**	21	15
Long-term Liability						

Borrowings	588,023,289	869,682,136	62,689.1	92,716.6	207	158
Total Long-term Liability	**588,023,289**	**869,682,136**	**62,689.1**	**92,716.6**	207	158
Total Liability	**648,539,258**	**953,037,170**	**69,140.6**	**101,603.1**	228	173
Equity						
Chartered Capital	3,369,845	3,369,845	359.3	359.3	1	1
Accumulated Gain/(Loss)	(406,595,482)	(488,636,989)	(43,347.1)	(52,093.5)	(143)	(89)
Restricted Capital	39,275,533	82,435,135	4,187.2	8,788.4	14	15
Total Equity	**(363,950,104.0)**	**(402,832,009.0)**	**(38,800.7)**	**(42,945.8)**	(128)	(73)
Total Liability and Equity	**284,589,154.0**	**550,205,161.0**	**30,340.0**	**58,657.3**	100	100

Exchange rate (UZS/USD): 9,380
Source: 2018 audited report

22. The key asset of BWC is Property Plant and Equipment (PPE) which accounts for around 80 percent of the total asset in 2017 and 2018, and the remaining assets are account receivables and cash account. Long-term debt accounts for more than 100 percent of the total liabilities and equity; this is mainly due to the negative equity and the result of net loss added on to the accumulated loss, which is more than the invested equity of the government. To fund the equity deficit, the government continuously provided subsidies to pay off the current portion of debt obligation and working capital on an annual basis.

Table A3.8: International Financial Institutions and Commercial Loans

Lenders	Unit: USD million		Weight (percent)
	2017	2018	
IDA—Reconstruction of sewage treatment plant	35.79	64.32	69
ADB	13.88	13.93	15
Asaka Loan	7.08	8.16	9
IDA	3.48	3.60	4
IBRD	2.45	2.71	3
Total	**62.69**	**92.72**	**100**

Exchange rate (UZS/USD): 9,380
Source: 2018 audited report

23. Table A3.8 above provides an overview of loans from other International Financial Institutions (IFIs), mainly the World Bank and ADB. The cost of servicing loans is split between BWC and Government of Uzbekistan to lessen the financing cost burden. The amount of loan outstanding to lenders in Table A3.8 only accounts for BWC's share of the loan at the end of 2018. The loans from IDA accounts for 73 percent (USD68 million) of the overall IFI loans, followed by the ADB, Asaka and IBRD loans at 15 percent (USD14 million), 9 percent (USD8 million), and 3 percent (USD2.7 million) respectively. Based on the currently proposed cost split, BWC will cover an average of 39 percent[25] (USD54 million) of the financing cost and principal repayment (USD152 million) for the proposed Phase I project. The remainder will be financed by the Government of

[25] The percentage is the average over the loan tenure.The yearly loan payments percentage on interest and principal percentage is determined by the agreement between BWC and the Government of Uzbekistan.

Uzbekistan with the objective to extend service coverage in the Bukhara Region, which was identified as a national priority for tourism.

2. Tariff Reform

24. As part of its broader economic reforms, and to ensure the financial sustainability of water utilities, the Government of Uzbekistan has issued Resolution No. 309 (April 30, 2019), setting the mechanism for tariff calculation of full cost-recovery inclusive of production costs, financing cost and inflation rate, plus a 10 percent net profit margin limit of the total production costs.

$$The\ net\ profit\ ceiling = \frac{Expected\ year\ end\ net\ profit}{Expected\ total\ production\ costs} = 10\%$$

25. The new tariff of water supply and sewage should be set on a full cost-recovery basis incorporating the needed future infrastructure expansion and modernization of both water supply and sewage systems. The tariff reform is only applicable to the infrastructure expansion and modernization plan that has been approved by the MHCS. The average tariffs will be determined by the "cost-plus" methodology divided by the expected volume of water sold annually.

26. Based on the analysis, the estimated average water supply tariff will change as follows:

2020 — increase by 7 percent
2021 — decrease by 8 percent
2022 — increase by 13 percent
2023 — increase by 23 percent

On the other hand, the sewage rates will change as follows:

2020 — increase by 40 percent
2021 — decrease by 25 percent
2022 — increase by 54 percent
2023 — increase by 23 percent

Both the water and sewage tariffs will be adjusted twice per year to cover the total production costs and meet the 10 percent net profit limit. The future proposed tariff adjustement by MHCS to the MoF is expected to meet the full total production cost recovery and the net profit limit of 10 percent on the total production costs.

Table A3.9: Estimated Water Tariffs

Water Supply Tariff (UZS/cbm)					
Tariff	**2019**	**2020**	**2021**	**2022**	**2023**
Population	1,100				
Budgetary institutions	2,900				
Wholesale	2,900				
Average Tariff	**2,300**	**2,461**	**2,013**	**2,279**	**2,798**
Expected Avg increase/decrease—10% limit		7%	(18%)	13%	23%

Table A3.10: Estimated Sewage Tariffs

Sewage Tariff (UZS/cbm)					
Tariff	**2019**	**2020**	**2021**	**2022**	**2023**
Population	640				
Budgetary institutions	1,600				
Wholesale	1,600				
Average Tariff	**1,280**	**1,796**	**2,243**	**3,446**	**4,250**
Expected Avg increase/decrease—10% limit		40%	25%	54%	23%

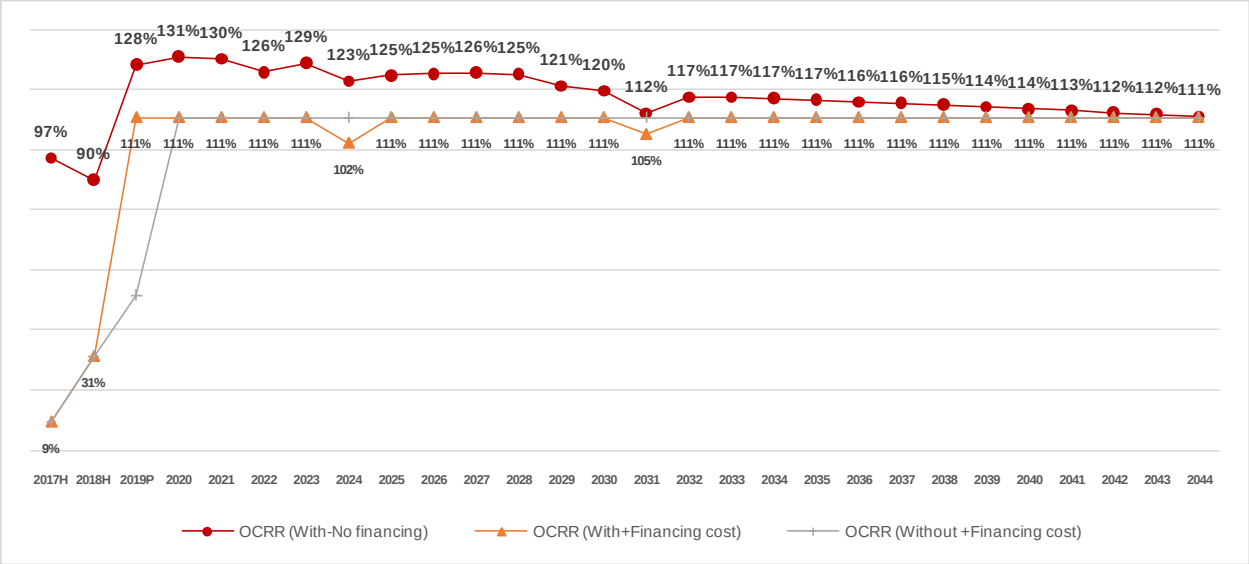
3. Historical and Projected OCRR and DSCR Ratios

(i) OCRR

27. The operating cost recovery ratio (OCRR) is derived from total revenue over the total production costs exclusive of interest for existing loans and AIIB loan. Decree No. 309 stated that the new tariff must include all the relevant interest expense of the project; thus the OCRR in this analysis is inclusive of all interest expenses associated with the current and future capital expenditure of the project. If BWC achieves an OCRR that is equal to 100 percent in any fiscal year, this means that it has earned sufficient revenue to cover the total production costs and also secured a 10 percent net profit as a percentage of total production costs.

28. In 2017, the OCRR (with financing cost) dropped significantly due to the depreciation of UZS against USD and increased in 2018 and 2019 due to the tariffs adjustment and stabilizing exchange rate. Based on Resolution No. 309 above, BWC will be able to fully recover all operating costs (inclusive of financing costs) and 10 percent net profit margin on total production costs. Thus it is expected that the OCRR of future years will be above 100 percent because BWC will be able to readjust the tariffs twice per year by submitting the tariffs proposal to the MHCS and obtaining approval from the MoF.

Figure A3.1: OCRR Comparison



29. The tariffs considered in the OCRR calculation have taken into account the net profit 10 percent limit and expected tariffs approval by relevant authorities under the condition that the tariff approval will only allow BWC to retain 10 percent net profit as a percentage of total production costs. The OCRR in 2024 (dip in the graph) decreased to 102 percent (With + Financing Cost scenario) with a net profit of 2.7 percent. The net profit also falls below 10 percent in 2031 resulting in an OCRR of of 105 percent.

30. Even though the OCRR of the Without scenario the project is relatively similar to the With scenario project case, it is important to note that the total revenue and production costs plus the financing costs of the Without scenarios are smaller than the With scenario as in Table A3.11: OCRR Inputs.

Table A3.11: OCRR Inputs

	OCRR Inputs (USD mil)	2020	2021	2022	2023	2024	2025
Without	Revenue	8.5	8.6	9.0	9.4	9.9	9.8
	Total COGS	6.1	6.2	6.6	6.9	7.3	7.1
	Total Admin Cost	0.7	0.8	0.8	0.9	1.0	1.1
	Financing Cost	0.9	0.8	0.7	0.7	0.7	0.6
	OCRR (With financing cost)	111%	111%	111%	111%	111%	111%
With	Revenue	8.1	8.3	12.5	18.6	25.3	48.3
	Total COGS	5.5	5.6	9.1	13.5	19.6	37.6
	Total Admin Cost	0.7	0.8	0.8	0.9	1.0	1.1
	Financing Cost	1.1	1.1	1.4	2.4	4.1	4.9
	OCRR (With-no financing)	131%	130%	126%	129%	123%	125%
	OCRR (Financing cost)	111%	111%	111%	111%	102%	111%

Exchange rate: UZS/USD = 9380

Table A3.12. Key Assumptions of With and Without Scenarios

Assumptions			
Items	**Unit**	**With**	**Without**
Water produced	mil cbm	Increases with the construction progress	Increases with the population growth of 1.4 percent per year
Sewage water	mil cbm	Captures 52.7 percent of water produced after the construction is complete, 70 percent in 10 years after construction	Captures a 40 percent flat rate over the project period
NRW	%	15 percent reduction, reduce with construction progess	Increases with depreciation rate
Collection rate	%	Current rate of 71.4 percent will increase by 15 percent over the construction period, and 5 percent over the next 20-year period.	Increases from the current rate of 71.4 percent, by half of the increase in the collection rate of a With scenario
Tariffs	UZS	Increase subject to 10 percent of total production costs	Increase subject to 10 percent of total production costs
Interest expense	UZS (in millions)	BWC accounts for 39 percent over the loan tenure	No AIIB financing, pay interest on existing loans
Principal repayment	UZS (in millions)	BWC accounts for 39 percent over the loan tenure	No AIIB financing, pay principal on existing loans

31. The following factors drive the revenue of BWC:

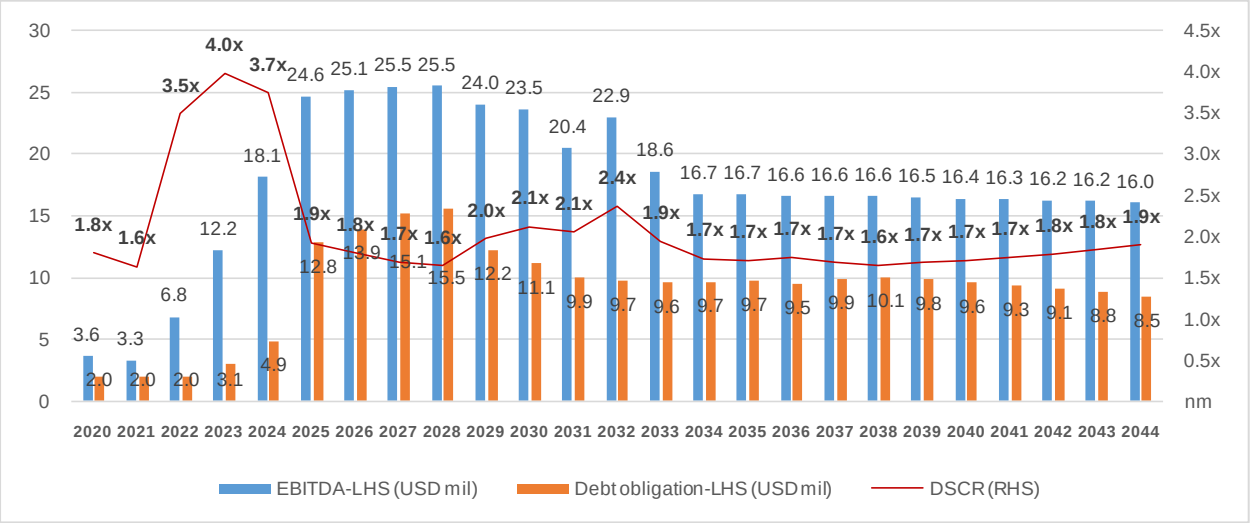
- Increased consumer base (new water and sewerage connections)
- Increase in revenue from the annual tariff rate adjustment with the future expected inflation but subject to the 10 percent net profit on the total production costs ceiling
- Improvement in collection rate and meter installation
- 15 percent reduction in total Non-Revenue Water (NRW) from estimated 40 percent in 2019 to 25 percent from 2025 (saving of 7.3 million cbm, equivalent to 62,600 household connections) over the project construction period
- Increased water production and sale to meet the growing demand of the increasing population
- BWC only records 39 percent of the loan on its books and will account for 39 percent of interest and principal payments while the Government of Uzbekistan will carry the 61 percent loan allocation. However, BWC will be able to retain the full benefits of the infrastructure built over the whole loan tenure.

Debt Service Coverage Ratio

32. The debt service coverage ratio (DSCR) ratio measures BWC's ability to service the current debt obligation from the cash generated from its operations. In this analysis, EBITDA can be considered as the proxy of cash generated from the business operations, which can be used for maintenance and capital expenditures, and servicing the current debt obligation. The revenue (top line of EBITDA) has been accounted for the tariff collection rate. Therefore, only the cash revenue is considered in the EBITDA calculation. Based on a conservative estimate, the annual O&M of USD15.7 million (from 2025), which may also include future capital expenditure amount of the current project, has been considered as a yearly expense in the projected income statement.The

current indicative loan terms include a five-year grace period during the construction phase from 2020 to 2024 and a loan repayment period of 20 years from 2025 to 2044.

Figure A3.2: Debt Service Coverage Ratio



33. Based on the projected EBITDA and debt obligations, the DSCR of the proposed financing is 2.1x on average and will remain above 1.0x throughout the loan tenure. Between 2020-2024 (construction period), DSCR is 2.9x on average and, after the grace period, DSCR will be 1.83x on average. This is because BWC can adjust the tariff rates each year so that all operating costs are covered and 10 percent of net profit as a percentage of total production costs will be retained as net profit. The drop of the DSCR in 2025 onward is mainly due to the rising operational and maintenance expenses which are estimated at 4 percent (USD15.7 million per year) of the USD369.5 million total investment.

Table A3.13. DSCR Inputs

(USD mil)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
EBITDA	3.6	3.3	6.8	12.2	18.1	24.6	25.1	25.5	25.5	24.0
Debt Obligation	2.0	2.0	2.0	3.1	4.9	12.8	13.9	15.1	15.5	12.2
DSCR	1.8x	1.6x	3.5x	4.0x	3.7x	1.9x	1.8x	1.7x	1.6x	2.0x

4. Collection Efficiency and Impact on Non-Revenue Water

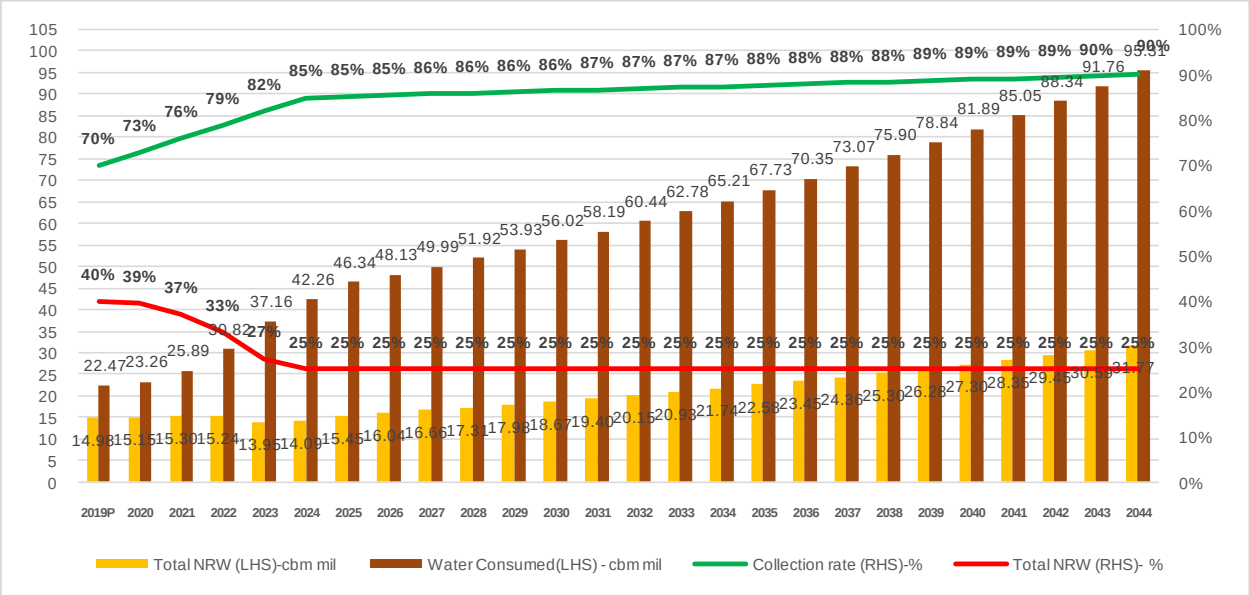
Table A3.14. Collection Efficiency and Impact on Non-Revenue Water

	2016 (USD in thousands)			2017 (USD in thousands)			2018 (USD in thousands)		
	AR	Collection	Percent	AR	Collection	Percent	Percent	Collection	Percent
Total	3,751	3,799	**101**	4,113	4,064	**99**	4,781	4,654	**97**
Population	1,950	1,978	101	2,052	1,914	93	2,216	1,791	81
Bugeted Institution	1,283	1,313	102	1,485	1,553	105	1,803	2,093	116
Wholesales	518	508	98	576	597	104	763	770	101

34. Even though in 2016, the collection ratio is more than 100 percent, this does not mean that BWC efficiently collected all receivable from its customers. On the contrary, this means that some of the receivables in arrears were collected in 2016. Ongoing reforms and TA measures, which aim at the corporatization of the utility and the strengthening of its business practices, are expected to improve the collection capability and efficiency of BWC by introducing client management and complaint handling along with the billing and collection capacity improvement.

35. It is estimated that the current collection rate is around 70 percent and will improve further as a new billing system, which had been developed under an ADB-financed project, is introduced countrywide. The collection rate is expected to increase by 15 percent after the construction period (2020-2024) and 5 percent over the next 20 years period of the loan tenure. Therefore, over the 25 years of the loan, BWC will improve the collection rate by close to 20 percent from 70 percent in 2020 to 90 percent in 2044.

Figure A3.3: Efficiency Improvement



36. During the construction period, it is expected that the NRW rate will drop gradually from 40 percent in 2019 to 25 percent after the completion of construction as efficiency and water management capability improves. The recovered NRW can be captured and provided to the new connections which, in turn, will contribute to the increase in revenue as the collection rate steadily increases from year to year with the improved bill collecting system.

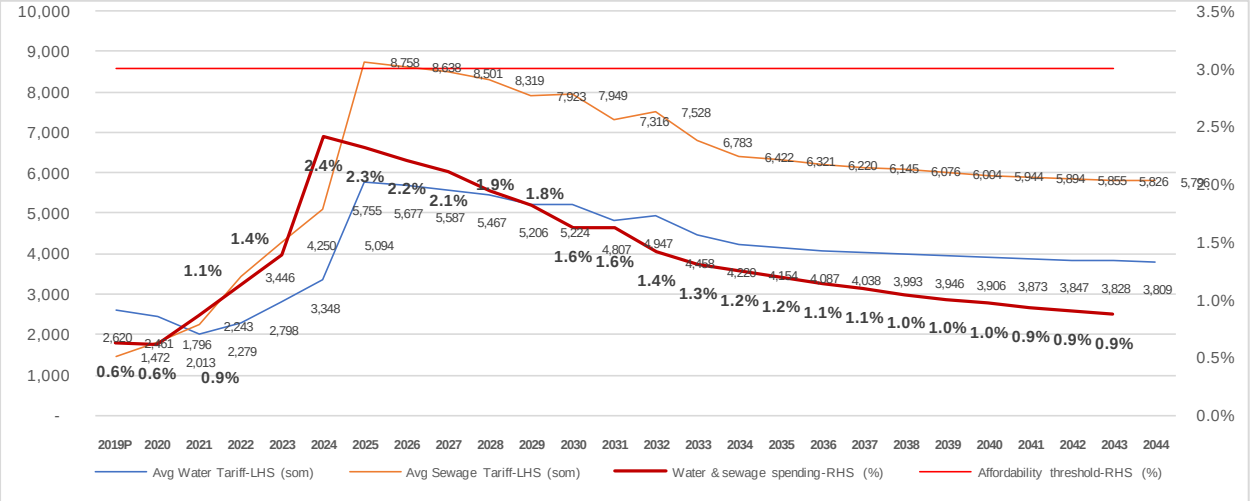
5. Affordability of Tariff

37. The Government of Uzbekistan has imposed a limit on the net profit of the water tariffs at 10 percent of total production costs. Therefore, BWC cannot adjust the annual tariff that will generate a net profit of more than the indicated cap on net profits. All calculations in this report have considered this limit and adjusted the total revenue level each year so that the ceiling net profit is capped at 10 percent of the total annual production cost. The average future tariff rates of both water and sewage

can be recalculated by limiting the net profit for each year to 10 percent on the production cost and reverse calculated for the break-even total revenue.

38. From the forecasted operation data, both the water and sewage tariffs will peak in 2025 (water at UZS8,758/cbm, sewage UZS5,755/cbm) because the full-year O&M expense, depreciation and financing costs will be recorded as parts of the total production cost. Therefore, the tariffs need to be adjusted to cover these expenses and ensure the 10 percent net profit ceiling throughout the loan tenure. The affordability rate which is defined as spending on water and sewage of the retail customers to the average income level of the 20 percent lowest earners (assumed at 5 percent GDP growth after 2021), is below commonly used affordability benchmark thresholds. The United Nations Development Programme considers 3 percent[26] of total monthly income as affordable. The World Bank considers household expenditures of 3 - 5 percent of total monthly income as affordable.[27]

Figure A3.4: Tariffs and Affordability



[26] Pacific Institute. Water Rates: Water Affordability. https://pacinst.org/wp-content/uploads/2013/01/water-rates-affordability.pdf

[27] See World Bank (2002). "Sourcebook for poverty reduction strategies, core techniques and crosscutting issues". Washington DC.

Annex 4: Sovereign Credit Fact Sheet

A. Recent Economic Development

1. Uzbekistan is a lower-middle income country with GDP per capita at USD1,534 and a population of 32.4 million.[1] The country's GDP growth picked up moderately to 5.1 percent in 2018 even as bad weather reduced agricultural production, and binding intermediate input bottlenecks, such as energy and water shortages, constrained economic growth, despite a robust investment growth.[2] Driven by the exchange rate depreciation, inflation peaked at 20.5 percent at the beginning of 2018 and receded to 14.5 percent by end-2018, averaging at 17.5 percent. The fiscal stance remained prudent with the overall fiscal deficit [3] staying around 2 percent of Gross Domestic Product (GDP) in 2018.

2. Since taking office in 2016, the new government has started reforms to transform Uzbekistan from a state-led to a more market-based economy.[4] Foreign exchange market liberalization,[5] the removal of trade restrictions, especially restrictions on regional trade,[6] and booming investments

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[1] The income group classification for the fiscal year 2019 is based on World Bank criteria, details are as below: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519; GDP Per Capita and population use World Bank 2017 data.

[2] Nominal credit to the economy expanded by about 50 percent in 2018, which was to finance a massive increase in imports of capital goods as well as to fund investment in housing and infrastructure following decades of underinvestment.

[3] Overall fiscal balance is equal to consolidated fiscal balance minus policy lending. Consolidated fiscal balance is budget balance adjusted for operations of the Fund for Reconstruction and Development (FRD), equity injections, externally financed expenditures, and policy lending.

[4] The President was elected on Dec. 4, 2016 and the Prime Minister was appointed on Dec. 14, 2016. President Shavkat Mirziyoyev's development strategy 2017-2021 laid out an agreement that major structural reforms are needed across all economic policy areas and institutions.

[5] On Sept. 5, 2017, Uzbekistan unified its official and parallel exchange rates and liberalized access to foreign exchange. The official nominal exchange rate depreciated from UZS4,250 to UZS8,100 per USD.

[6] The previous state-led growth model sought to minimize regional trade and infrastructure interdependencies. Since the start of the reforms, significant progress has already been made in boosting regional trade and promoting regional

shifted the current account balance from a surplus of 2.5 percent of GDP in 2017 to a deficit of 7.1 percent in 2018. Nonetheless, Uzbekistan has substantial external buffers with reserves at around 13 months of imports and external debt at a moderate 34.5 percent of GDP in 2018. External stability risks remain low due to high foreign exchange reserves and low external debt.

integration, including reconnecting regional energy and transportation networks as well as defusing the region's age-old disputes about water rights.

B. Economic Indicators

Table A4.1. Selected Macroeconomic Indicators—Uzbekistan (2016-2021)

Economic Indicators[7]	2016	2017	2018	2019*	2020*	2021*
Real GDP growth	6.1	4.5	5.1	5.5	6.0	6.0
CPI Inflation (% change, average)	8.8	13.9	17.5	14.7	14.1	10.6
Current account balance (% of GDP)	0.4	2.5	-7.1	-6.5	-5.6	-4.8
Overall fiscal balance (% of GDP)	-0.5	-1.9	-2.1	-1.6	-1.8	-1.8
Nominal gross public debt (% of GDP)	8.6	20.2	20.6	23.2	24.7	24.7
Public gross financing need (% of GDP)	0.3**	3.1**	2.6	2.7	3.0	3.0
External debt (% of GDP)	18.6	34.1	34.5	34.0	33.5	32.2
Gross external financing need (% of GDP) ***	0.6**	0.4**	11.9	9.0	7.7	6.2
Foreign Direct Investment (% of GDP) +	-2.0	-3.1	-1.3	-1.7	-1.9	-2.0
Gross official reserves (months of imports)	19.3	14.4	12.8	12.3	12.0	11.1
Broad money (M2, % change)	23.5	40.3	14.4	21.0	20.3	18.4
Exchange rate (NPR/USD, EOP) ****	3,198	8,115	8,331	8,474	—	—

Note: * denotes projected figures. + Refer to foreign direct and portfolio investment. Negative values mean inflows.

** Data from IMF Country Report No. 18/117

*** IMF and self-calculation **** Forex rate data from Thomson Reuters. 2019 data as of June 5, 2019.

Source: IMF Country Report No. 19/129.

C. Economic Outlook and Risks

3. Looking ahead, Uzbekistan's growth is expected to pick up to 5.5 percent in 2019 and to 6.0 percent in 2020, mainly reflecting the higher investment and normalization of agricultural production growth. Its current account deficit is expected to remain high at 6.5 percent of GDP in 2019. Over the medium term, the current account is projected to gradually converge to a deficit level close to 4.5

[7] Due to statistical revisions and structural reforms, comparisons with previous debt sustainability analysis may not be informative. Significant historical revisions of national accounts and balance of payments statistics hinder the comparability. Public gross financing need and gross external financing need data in 2016 and 2017 are from previous DSAs.

percent of GDP.[8] Inflation is projected to gradually decline to low double-digits by end-2020, under the continued pressures from price liberalization[9] and public wage adjustments.[10]

4. Given its growing working-age population,[11] creating more and better jobs is the country's overarching priority. Uzbekistan has anchored its development agenda to the Sustainable Development Goals (SDGs) and total additional spending to reach the SDGs in social and infrastructure sectors is estimated at about 8.7 percent of GDP in 2030, with a focus on health and roads.[12]

5. On debt sustainability, the International Monetary Fund suggested that the risk of both external and overall debt distress remain low. Over the medium term, the public debt-to-GDP ratio is expected to increase moderately from 23.2 percent of GDP in 2019 to 24.8 percent in 2024, while the total external debt-to-GDP ratio is expected to decline from 34.0 percent of GDP in 2019 to 30.6 percent in 2024. Large foreign exchange reserve mitigates potential distress concerns. The debt sustainability analysis suggests that the most significant risks could result from worse-than-expected external inflow (mostly lower remittances) and significantly lower exports.[13]

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[8] A relatively high and persistent current account deficit has been a typical feature of transitions from state-led to more market-based economies.

[9] During the second half of 2018, the government liberalized bread prices and brought energy prices for businesses closer to the cost recovery levels. But significant cost recovery gaps still remain. Continued price adjustments are needed, especially in the energy sector, so to reduce SOE losses, save energy, and attract foreign investors to the energy sector.

[10] The government plans to significantly expand active labor market policies (ALMPs) to encourage temporary employment by providing a wage subsidy to employers.

[11] The working-age population as a share of the total population in Uzbekistan has surged since the 1990s. It's predicted to peak around 2040 and then start to decline. The ratio will stay at around 70 percent during 2020-2050. The bulge in labor supply offers an opportunity window for rapid and inclusive catch-up growth.

[12] A presidential resolution adopted in October 2018 sets 16 of the 17 SDGs as national goals to attain by 2030, including 127 related targets. The additional spending needs on health, education and infrastructure-related are estimated at 2.3 percent, 0.3 percent and 6.1 percent of GDP in 2030 respectively.

[13] International Monetary Fund (IMF). 2019. 2019 Article IV Consultation. Press release and staff report. No. 19/129, May 2019.