KHOREZM REGION AND REPUBLIC OF KARAKALPAKSTAN WATER SUPPLY AND SEWERAGE PROJECT

NON-TECHNICAL SUMMARY

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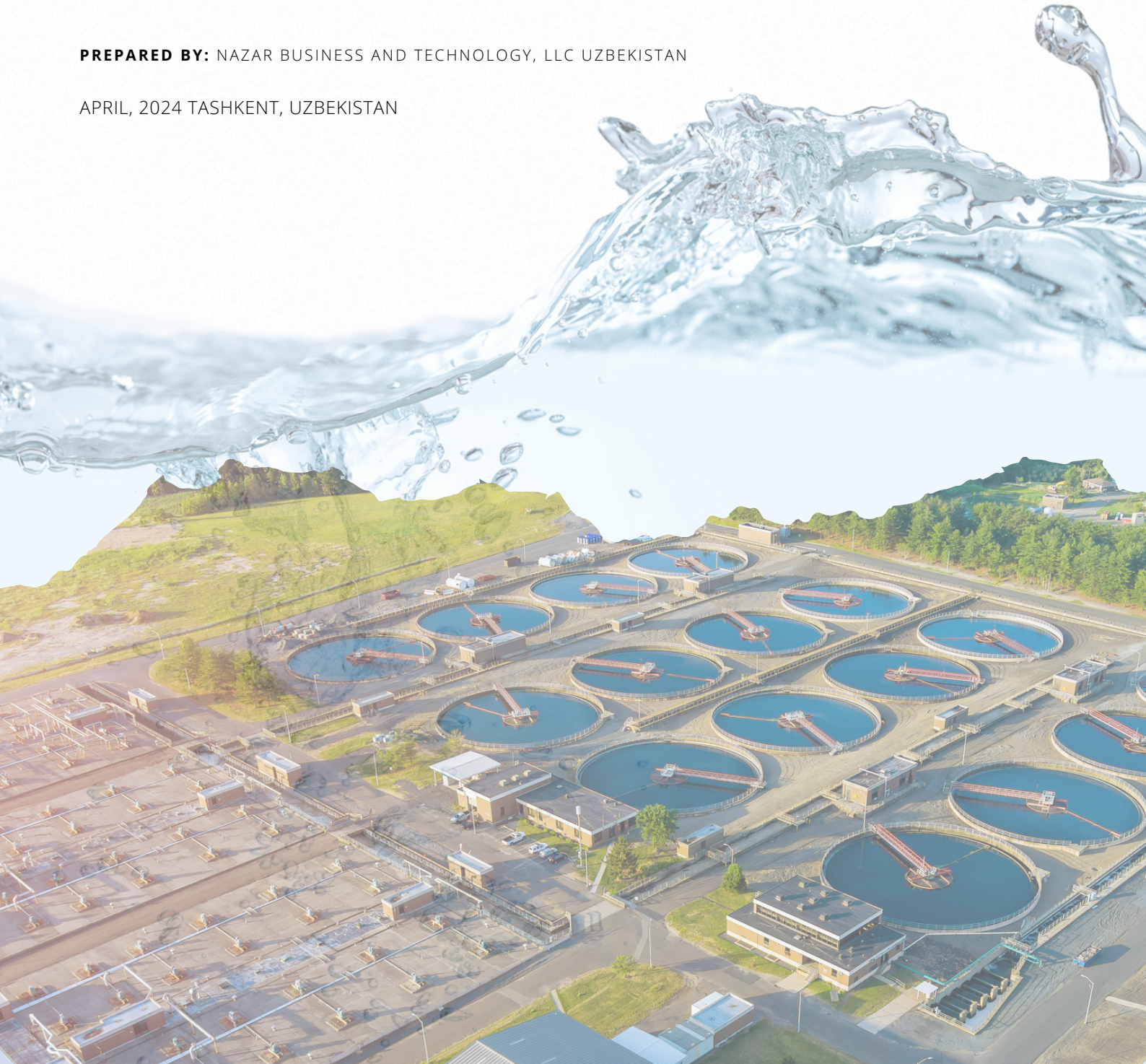


NON-TECHNICAL SUMMARY

The Government of the Republic of Uzbekistan is preparing to receive a proposed investment loan from the Asian Infrastructure Investment Bank (AIIB) to finance the Karakalpakstan and Khorezm Water Supply and Sanitation Project. The Project is expected to be implemented within a period of 5 years starting from 2024. Preparation and planning activities will be carried out during 2025. Physical works will start in 2025 and are expected to be completed as of 2029, the liability and insurance period extending through 2030.

Planned activities under the proposed AIIB-financed Project include investments in the water supply and sewerage infrastructure of cities and districts of the Republic of Karakalpakstan (RK). The measures of the water supply project include reconstruction (including reduction of water losses) and new construction of water treatment and distribution facilities (including general and home connection meters). The project also includes new sewerage systems for the district centers of the RK for the provision of centralized wastewater treatment services (collection, treatment, disposal). The Project consists four components.

Component 1. Investment in water supply infrastructure works. Construction and rehabilitation of well fields and intakes, reservoirs, main water lines, water treatment facilities, pumping stations and distribution networks including house connections. This component includes investments in the rehabilitation and/or extension of water supply systems in 6 districts in the RK, including its capital city Nukus as well as in 4 districts in Khorezm region.

Component 2. Investment in wastewater infrastructure works. Construction of centralized sewage systems in 10 district centers in the RK and 7 district centers in Khorezm region consisting of collectors, pumping stations, and new construction of sewerage systems and sewage treatment plants as well as discharge and water reuse facilities.

Component 3. Capacity building and implementation support. Activities to strengthen the capacity of the RWCs as effective, client-oriented and climate-resilient service providers will complement the infrastructure investments, increasing the financial performance, service quality and sustainability of operations. Activities were identified based on a capacity gap assessment conducted as part of the Feasibility Study and support the implementation of the national water sector targets to deliver results in line with Presidential Decree #158 dd: 11.09.2023 on Uzbekistan Strategy 2030. Under the component, activities under four impact areas are prioritized: 1) effective service provision, 2) sustainability of operations, 3) climate resilience and energy efficiency, and 4) gender mainstreaming. Technology-enabled solutions will be applied across the impact areas to increase the efficiency of RWC's business practices in terms of strategic planning, and technical operations and client management. Identified quick-win actions are expected to achieve early impacts in reducing non-revenue water, while strategic capacity building support will strengthen business practices in the four a.m. transversal impact areas in the mid-term.

Component 4. Project implementation and management support. Project management and implementation support to assist the Implementation Agency (IA) in ensuring seamless coordination, efficient implementation and compliance with the relevant policies.

The Project is expected to be implemented within a period of 5 years starting from 2024. Preparation and planning activities will be carried out during 2025. Physical works will start in 2025 and are expected to be completed as of 2029, the liability and insurance period extending through 2030.

To ensure fully compliance with AIIB safeguards requirements and national legislation, Environmental and Social Planning Framework (ESMPF), Resettlement Planning Framework (RPF) and Stakeholder Engagement Plan (SEP) have been developed for this project.

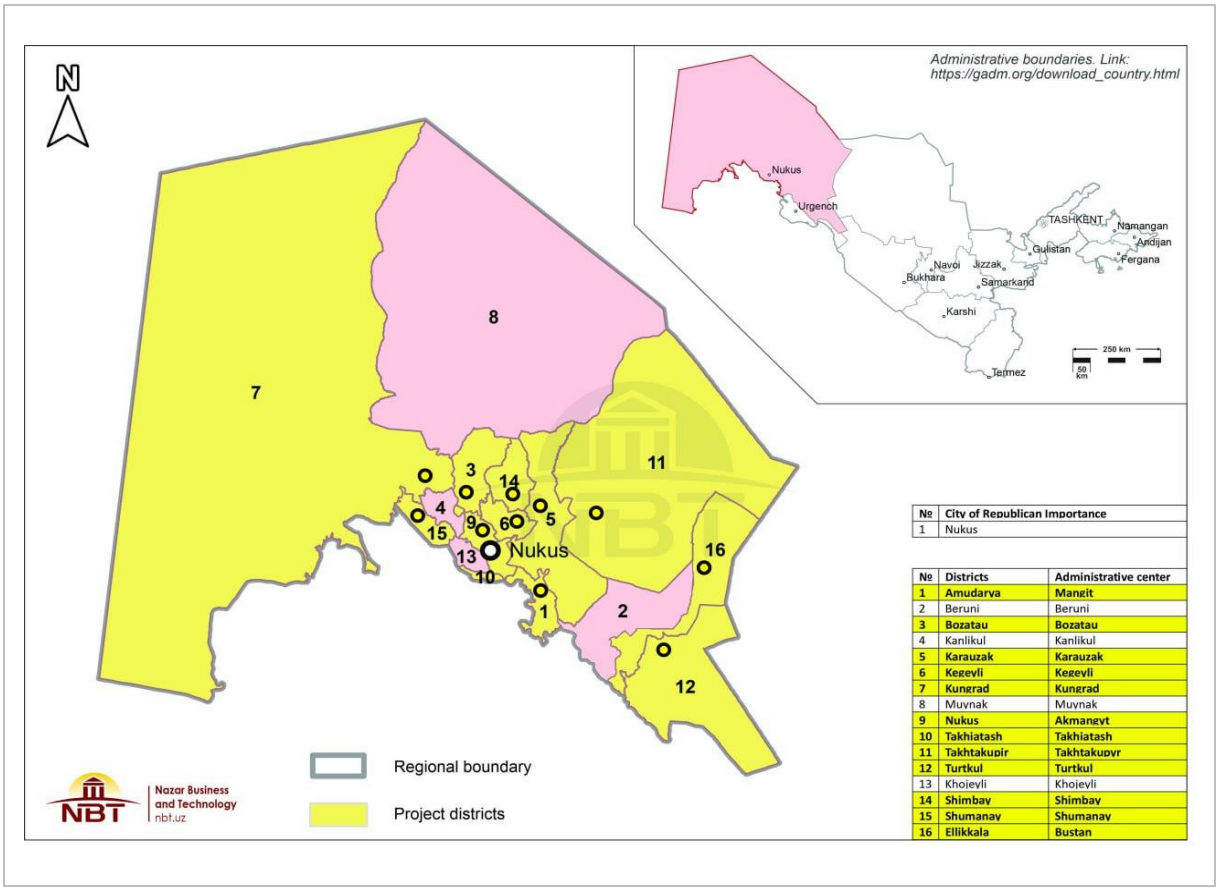
Project area. The project includes investments in the water supply and sewerage infrastructure of cities and districts of the RK. The intervention in water supply in 6 districts includes reconstruction (including reduction of water losses) and new construction of water treatment and distribution facilities (including general and home connection meters). The project also includes construction of new sewerage systems

in 10 districts of the RK having centralized wastewater treatment services (collection, treatment, and disposal).

The implementation of the project for the reconstruction of water supply networks and construction in the project area will significantly reduce unproductive leaks of drinking water, significantly improve the reliability of water supply systems, and improve sanitary and epidemiological safety and the level of well-being and culture of the population.

There is no centralized sewerage system in the project area. The population uses toilets with cesspools or septic tanks. The situation is further complicated due to the high-water table, which is polluted by infiltration from cesspools and septic tanks. Insufficient development of the centralized sewerage system hinders the development of the industrial capacity of the region, creates inconveniences to the population, and leads to environmental pollution. The implementation of the sewage construction project in the targeted project area will improve the sanitary and epidemiological situation, health, and living conditions of people living in the project area of the RK.

The primary beneficiaries of this project are the citizens living in the project area Bozatau, Kegeyli, Kungrad, Karauziak, Takhiatash, Takhtakupyr, Turtkul, Chimbai, Shumanai, Ellikkala districts and the cities of Nukus, Mangit and Akmangit. They will directly benefit from improvement of water supply and sewerage conditions through the construction and reconstruction of water intake structures, pumping stations, desalination plants, and water supply networks (including house connections). The location of project districts is shown in **Figure 1.**



№	City of Republican Importance
1	Nukus

№	Districts	Administrative center
1	Amudarya	Mangit
2	Beruni	Beruni
3	Bozatau	Bozatau
4	Kanlikul	Kanlikul
5	Karauzak	Karauzak
6	Kegeyli	Kegeyli
7	Kungrad	Kungrad
8	Muynak	Muynak
9	Nukus	Akmangyt
10	Takhiatash	Takhiatash
11	Takhtakupir	Takhtakupyr
12	Turtkul	Turtkul
13	Khojeyli	Khojeyli
14	Shimbay	Shimbay
15	Shumanay	Shumanay
16	Ellikkala	Bustan

Figure 1: Location of project districts

Planning works: The following main types of works under the water supply component are planned under the current project until 2029:

- Reconstruction/construction of water supply networks;
- Reconstruction/construction of water distribution units/pumping stations;

- Reconstruction/construction of water intake (for surface water);
- Reconstruction of ground water intakes;
- Reconstruction of administrative buildings;
- Construction of new laboratories.

Baseline data. The nature of the RK, located in the desert zone of the Central Asian region, is defined by a sharply continental desert climate with extremely low precipitation and high evaporation. Most of the territory is occupied by the deserts of Ustyurt and Kyzylkum. Between them is the drying Aral Sea and the delta of the Amudarya River, which, in turn, is separated by another desert (new) Aralkum. The climate in Karakalpakstan is sharply continental with hot and dry summers and cold winters. The average temperature in January is -5 to -8 C. The minimum temperature in winter is -40 C. The average temperature in June reaches +26 to +28 C, and the maximum temperature reaches +46 C in July and August. The average rainfall is 100-110 mm per year.

The main water bodies near the project area are the Amudarya River and Lake Akchakul. Some project networks are located near the Amudarya River, however the closest point is the site in Elikkalla that is located at a distance of 130 m from the river.

There are several types of groundwater resources in the project area; (i) shallow ground water, which is up to 20 meters from the surface, and (ii) deep ground water that is between 100 meters and 250 meters from the surface. Water from these aquifers is used for drinking purposes only. The below description of ground water table in the project districts have been prepared based on the official conclusion received from the Ministry of Mines and Geology of the Republic of Uzbekistan SUE "Uzbekhydrogeology" Aral Sea hydrogeological expedition (2023). The depth of groundwater levels near irrigated areas ranges from 2.0-2.5 to 3.0-3.5 m and 5.0-5.5 to 6.0-9.4 m away from irrigated areas.

According to seismic zoning, the territory of the project zone belongs to the 7-point zone.

Within the RK, there are several protected areas, and the closest to the project sites is the Low-Amudarya Biosphere Reserve (LARB), that has a total area of 6,8717.8 ha. It is located in the lower reaches of the Amudarya river on its right bank. From the south it is washed by the Amudarya river and borders with the Tugai Forest of Tallyk, and from the north and north-west it is surrounded by a tributary of the Amudarya - Kokdarya. The territory of the LABR is divided into three functional zones; reserved, buffer, and transitional.

The nearest point of the LARB to the economic zone is the project area of Karatau, located in 700 m.

The RK is located in the southwest part of Uzbekistan and occupies the northwest part of the Kyzylkum desert and Amudarya delta. The total area of the RK is 165 600 sq.m. and the total population is about 1 981 800 inhabitants (as of Apri1, 2023[1]). According to the preliminary data, there are several cultural sites within the project districts, however, they are not located in the actual sub-project areas. Considering the fact that the locations of sub-projects may change, there is a Cultural Heritage Committee responsible for the presence of cultural sites, and their statuses and the Contractor will be required to follow relevant national regulations and proposed mitigation measures.

Project implementation Arrangements. The Uzsuvtaminot Joint Stock Company (UJSC)[2] is the Executing Agency (EA) responsible for overall project coordination with government agencies, high-level decision-making authority to ensure timely implementation, and for liaison with AIIB and other development partners. Other related subcomponent stakeholders include hokimiyats, "Qoraqalpoq suv ta'minoti", LLC (servicing the RK), the Ministry of Ecology and Environment Protection and Climate Change of the Republic of Karakalpakstan (MEEPCC), and the Toza Hudud State Unitary Enterprise, which will be involved in the evaluation process to ensure their active involvement during project implementation.

[1]https://stat.uz/ru/press-tsentr/novosti-goskomstata/37684-qoraqalpog-iston-respublikasida-1-aprel-holatiga-doimiy-aholi-soni-2

[2] National water supply and sanitation agency

The EA and Project Coordination Unit (PCU) will be supported by a Project Management Consultant (PMC). The PCU will be responsible for the implementation of the ESMP to comply with AIIB safeguards requirements and environmental, social, labour and land acquisition national regulations. The present unit has a safeguard specialist (SS). It is planned that one PIU will be set up in the RK. To ensure compliance with AIIB safeguards requirements, it is proposed that one environmental specialist and one social specialist will be assigned on a fulltime base.

The PIU's ES and SS will be assisted by the environmental specialists of the project management consultant (PMC) in overseeing the development of ESIAs and/or ESMPs. The cost for the ESIA and ESMP will be financed by the project. The PCU is responsible for overall environmental and social compliance with the AIIB ESF (2019,2022).

Contractors will be responsible for implementing mitigation measures. Site-specific Environmental and Social Management plans (SSESMPs) will be developed by the Contractors under the guidance of the PMC, and be endorsed by the PMC before submission to the PCU (PIU) for approval. During construction, the Contractors will retain the expertise of a full-time and qualified Environmental Engineer and a full-time Environmental and Social Officer (ESO) to implement and continually update the SSESMPs, and to report on the implementation of mitigation measures throughout the contract period.

Project Category. In accordance with the AIIB's Environmental and Social Framework (ESF, 2022), the Project is classified as Category A, as it is likely to have significant adverse environmental and social impact that are irreversible, cumulative, diverse or unprecedent. These impacts may affect an area larger than the sites or facilities subject to physical works and may be temporary or permanent in nature.

The national Law "On Environmental Expertise" and RCM # 541 require preparation of the environmental assessment report for all types of activities which may have environmental impact. This project was classified as the Category III (low risk) - (construction of main pipeline, water supply and sewage networks). Therefore, a national EIA will be required prior commissioning of the construction works. Preliminary Environmental Impact Statements (PEIS, environmental assessment document required for Category III projects or PZVOS) were prepared by the PCU at UJSC (with support of a national company) and submitted by the Karakalpak Suvtaminot LLC to the MEEPCC situated in Nukus city in March 2024. Environmental Appraisals (Environmental Permission) are expected to be obtained in April 2024. The Uzsuvtaminot PCU will ensure that an Environmental Appraisal is obtained before the start of civil works. Before the commissioning of WWTPs, the next step of national environmental assessment – development of Statement Environmental Consequences (SEC) - needs to be prepared by the Karakalpak Suvtaminot and submitted for non-objections to the Karakalpak branch of the MEEPCC.

Project category and proposed safeguard instruments. In accordance with the AIIB ESF, the project is classified as Category A. All potential sub-project screening and due-diligence procedures will apply. PCU jointly with PMC will prepare screening report for each sub-project and will submit to AIIB for non-objections. After screening sub-projects ESIAs and ESMPs will have to be developed. If some of sub-projects will be categorized as category B, only an ESMP may need to be developed. ESMPF includes screening procedures, and guidance on the development of ESIAs and ESMPs. Hence, the project adopts a framework approach, and the corresponding instruments are: ESMPF and RPF.

The scope of the ESMPF. The ESMPF will guide the ESIA process and cover the following: (i) rules and procedures for environmental and social screening of subprojects; (ii) guidance for conducting subprojects' ESIA and/or preparing simple ESMPs; (iii) mitigation measures for possible impacts of different proposed activities and types of subprojects to be supported by the project; (iv) requirements for monitoring and supervision of implementing of ESIA/ESMPs, and (v) implementation arrangements. The ESMPF has also an overview of the capacity of the PIU and local involved institutions for E&S risk management. Based on this review, the ESMPF specifies capacity building activities that would include all the parties as well as activities on strengthening the capacity of participating local institutions on mitigating potential environmental and social risks and conducting subproject-level ESIAs.

Stakeholder Engagement Plan. The Project is responsible for ensuring that relevant processes are in place for stakeholder engagement in accordance with AIIB requirements. This is an ongoing obligation to ensure that the Stakeholder Engagement Plan (SEP) remains relevant throughout the lifetime of the Project. The SEP will act as a live document, requiring updates as Project circumstances or stakeholder dynamics evolve. The SEP is designed to ensure that the Project Company identifies all stakeholders and establishes an effective engagement strategy during the development and life of the Project. The goal of the SEP is to build meaningful and trusting relationships with the local community and other interested stakeholders based on a transparent and timely supply of information and open dialogue.

The following list of key stakeholders has been identified:

Table 1. Stakeholders List

Stakeholder Groups	Description of the Stakeholder
Project affected stakeholders	
Local Communities in the Project area	The local communities are expected to directly benefit from the project through improvements to the water supply and sewerage system. Local community residents are a potential workforce source for implementation of the project activities. Local communities within the project influence area to be affected by construction works and activities of the project. The activities associated with the project will directly influence the daily lives of the impacted residents.
Local companies and organizations in the Project area	These include private businesses interested in having better water supply and sewerage systems, farms who may use water for irrigation purposes (greenhouses), businesses that discharge their waste into the sewage system, or those who may extend their production with increased water supply (food processing for example) or open new businesses (car wash etc.).
Organizations and/or individuals to be displaced due to project activities	These include organizations (private farms, other entities) or individuals who might be impacted by physical or economic displacement due to the project activities (both formal and informal owners).
Other Interested Stakeholders	
Uzsuvtaminot JSC (UJSC)	Acts as the Client and is responsible for the implementation of the project, including the execution of works and overall management.
"Karakalpak Suvtaminot" LLC and its district branches	Subordinate organization of UJSC, the owner of the project and responsible for project implementation, and O&M of WSS system after project completion.
Local Government Organizations: Cabinet of Ministers of Karakalpakstan Republic; Ministry of Foreign and Trade Affairs; Ministry of Water Resources; The Agency for Strategic Reforms. Project District Khokimiats; Project District Land Cadastre Offices; Project District branches of the Ministry of Ecology, Environmental Protection and Climate Change; Sanitary-Epidemiological Peace and Public Health Service of Karakalpakstan and district branches;	▪ Interested in the development of the socio-economic situation in the region; ▪ Interested in business development in the region; ▪ Approvals for and assistance in Project activities within each of the authorities' remits (land issues, water use, energy, investment support, etc.) ▪ Potential assistance in interaction with other authorities and local population/organizations ▪ Assistance in monitoring of appliances with local labor and sanitary regulations.

Stakeholder Groups	Description of the Stakeholder
Karakalpakstan Ministry of Employment and Labour Relations.	
Local and regional Construction Companies	Construction Companies interested in participating in the bidding for project implementation
International Lenders/ International Organisations: Asian Infrastructure Investment Bank	Lenders are interested in the successful implementation of the project, while applying environmental and social requirements.
Regional and Local CSOs/NGOs	Interested in monitoring the impact of the project, monitoring the application with E&S requirements.
Media	This refers to news and information media which could influence public opinion.
Vulnerable Groups	
Low-income families in Project districts; Families with disabled members; Women headed families; Unemployed people in project area.	Groups or Individuals who may be disproportionately impacted or further disadvantaged by the project(s) as compared with any other groups due to their vulnerable status, and that may require special engagement efforts to ensure their equal representation in the consultation and decision-making process associated with the project.

Stakeholder engagement is an on-going process throughout the project's life cycle and there are three phases relevant to each selected project investments: (i) Project Preparation Phase; (ii) Construction Phase; and (iii) Operation Phase. Proposed strategy for information disclosure for different stakeholder groups and during all project phases is presented in Table 2.

The PCU has set up a project-level **Grievance Redress Mechanism (GRM)** following the policy requirements of AIIB[3] and laws of the Republic of Uzbekistan[4]. The GRM shall respond to the inquires and resolve appeals and complaints of people who believe they have been or are likely to be adversely affected by social and environmental impacts of the project activities, and/or have complaints about the project's information disclosure and public consultation process.

The project-level GRM shall respond to the inquiries and resolve appeals and complaints of people in prompt, impartial and mutual consensus manner at the project level. This will help to response to the issues of citizens, to track a problem and avoid potential escalation of project affected people's complaints, and risks for delay and complaint related to the costs in the project implementation.

The appeals/complaints eligibility for handling through the project-level GRM shall meet the following criteria: (i) issues related to the project's social, involuntary resettlement and environmental impacts and performance outcomes, and (ii) issues, related to the project's information disclosure and public consultations process. Appeals/complaints, related to crime, fraud, and corruption issues, will be registered in the grievance logbook, however they are not eligible for handling under the project-level GRM and shall be handled as defined by laws of the Republic of Uzbekistan and relevant policies of the AIIB.

The project-level GRM does not override the complainants' rights to demand grievance redress as defined by national legislation. The complainant at one's discretion may choose to seek the complaint consideration through the judicial system of the Republic of Uzbekistan at any time of the grievance

[3] https://www.aiib.org/en/policies-strategies/_download/environment-framework/AIIB-Environmental-and-Social-Framework_ESF-November-2022-final.pdf

[4] The Law of the Republic of Uzbekistan "On Appeals of individuals and legal entities" No. LRU-378 dated December 3, 2014 (No. LRU-445 as amended from 09 November 2017)

redress process provided hereby.

The “Uzsuvtaminot” JSC as an Implementing Agency will be responsible for effective operation of the project-level GRM, will establish a data base of all received grievances and ensure monitoring of its consideration, analysis and reporting in the project implementation, social and environmental safeguards reports. Other stakeholders of the project, as the “Karakalpak Suvtaminot” LLC, contractor(s), supervision and project management consultants shall take an active part in resolving grievances and appeals.

Contractor(s), supervision and project management consultants, and project district “Suvtamionot” shall register and report each case of grievance they received from complainants, to the PCU under the “Uzsuvtaminot”, who will have a general database of all grievances and monitoring their status, as described in below sub-sections.

Table 2. Stakeholder Engagement Plan

Project stage	List of information to be disclosed	Methods proposed	Timetable: Locations/ dates	Target stakeholders	Percentage reached	Responsibilities
Project Preparation Phase	Non-Technical Summary Potential impact on local communities and mitigation measures Grievance Mechanism	• Flyer or brochure with short project description. • Presentation and discussions during the public meetings. • Website publication • Announcements on local media (TV, newspaper, social media. • Bulletin boards in district centers and in affected settlements.	At least 20 days before the finalization of proposed project design. When draft version of the project design is ready.	Population of project area, Affected communities. Affected local groups and individuals.	Reach the maximum share of population in the project area through local media; Most of the population of affected communities through distribution of information materials and posters on bulletin boards	Project Preparation Team and Karakalpak Suvtaminot, and PCU
Construction Phase	Announcements about construction works and mitigation measures; Traffic management plan; Contractor's GRM	Community meetings Poster on community bulletin board Announcements on local TV	At least 3 days prior the event, twice a day during 2 days on local TV.	Residents of affected communities, including pedestrians and drivers	Announcement on local TV will reach 50% of population and poster on bulletin board reaches another percentage of the population	Safeguards specialists of Contractors, action to be steered by PCU Safeguard and Social Development Specialist
Operation Phase	Information about operation activities, changes in tariffs, potential disruptions in the services; GRM of Operator	Poster on Bulletin board at the facility Announcements on Local TV	At least 3 days before the event	Residents of affected communities	Announcement on local TV will reach 50% of population and poster on bulletin board reaches another percentage of the population	Office Manager of Operator

A two-tier project-level GRM will be established during the project preparation phase. **Tier-1: Local Grievance Redress Committee.** The Tier 1 Grievance Redress Committee (GRC) will comprise of: (Supervision engineer (with E&S staff in charge), Representative of the contractors (member), Head of the makhalla foundation (member), Representative of district "Suvtaminot".

Tier-2: Second Level Grievance Redress Committee. The Tier-2 includes the GRC at the PCU central level at "Uzsuvtaminot" that was formed on 1 April 2021 and include the followings: Project Coordinator, PCU, Chairperson; Social and environmental specialist, PCU, member; Chief specialist of Karakalpakstan Government department, member; Head of the department for the coordination of works on land acquisition and compensation of the Karakalpakstan, member; Staff of the information service of "Karakalpak Suvtaminoti" LLC member.

Resettlement Planning Framework. A project's resettlement planning begins during the feasibility studies and continues through final design studies and sometimes into project implementation. It may be possible at each point to avoid or minimize population displacement. This will be achieved by analysing design alternatives that yields the same or similar project benefits while requiring less land acquisition, less disruption of livelihood, and less resettlement plan implementation cost.
The design of each proposed sub-project will be prepared in accordance with required standards. During Land acquisition and resettlement plan preparation several actions will be undertaken. After scoping and feasibility survey several alternatives of project design alignment will be prepared.
Each alignment will be overlaid on to the official cadastre data, to determine potential impact on private property. On site surveys will be undertaken per each alignment to assess approximate magnitude of land acquisition, affected structures (residential and commercial facilities), supplementary structure, perennials and annual crops, business stoppage etc.
Alternative alignments will be assessed in respect with project impacts and the possibility of minimizing adverse impacts, to select the most efficient option in terms of minimum impacts in line with reasonableness of construction costs.
This will be done to avoid or minimize adverse impacts to the structures alongside the water pipeline supply system. Realignment of project ROW may foresee design change to reasonably limit land and assets acquisition, and avoid removal of structures located along the ROW.
Measures taken /proposed to minimize adverse impacts will be described in each prepared for specific sub-projects and publicly disclosed. Detailed description of required actions on land acquisition and resettlement is presented in Resettlement Planning Framework.

Project environmental and social impacts. Evaluation of the project impacts has been done using an impact significance matrix, which is a combination of receptors' sensitivity and impact magnitude. Further assessment of the impact magnitude was done with consideration of duration, probability, extent, and frequency of each impact. The following impacts were assessed for each type of project activity: direct, indirect, and cumulative. For operation phase transboundary and climate change impacts were reviewed and generic mitigation measures were proposed.

All anticipated environmental and social impacts have been assessed at three stages – pre-construction, construction, and operation. At the pre-construction stage, it will be imperative to ensure that all necessary permissions for the project are secured and received from government agencies, and that the ESMPF is updated if any unanticipated environmental impacts become apparent, to reflect any modifications, such as changes in the project design, scope etc., if any.

Construction Period. During the construction period, the main impact will be related to the generation of wastes, increased noise level and pollutant emissions from machinery. All impacts will be short term. However, due to location of the project sites within the populated areas, these impacts will have to be mitigated and monitored.

In accordance with preliminary data received from the Karakalpak Suvtaminot during initial site visits, the constructed/ rehabilitated water supply / inlet water networks could cross different canals at several

locations. Some parts of pipelines will go along the canals. The pollution of ground water may occur during the replacement of pumps installed at wells if protocols on replacement pumps will not be followed. Impact on water resources will not be significant. The appropriate mitigation measures for preventing pollution during the construction are specified in the ESMP.

The project sites are a combination of populated areas and agricultural lands represented by typical urban and agro- biocoenosis. Some impacts may occur during water supply and sewage networks construction and reconstruction. Construction works for pipe laying will be conducted along existing roads or canals. There is a possibility that some bushes and trees will also be cut.

Construction activities near or inside reserve areas may also negatively impact on the biodiversity of reserve areas. The nearest natural protection zone to the project sites is the Low-Amudarya State Biosphere Reserve (LABR). Water supply and wastewater facilities (WDU, WWTPs) are located at a distance of more than 2 km from the closest protected area. The locations of critical habitats were not identified within the sub-project areas. However, if during the detailed design stage of the project the location of facilities will be changed, then supplementary biodiversity screening needs to be undertaken.

It is anticipated that during the construction phase a substantial volume of wastes will be generated. Most of them will be non-hazardous and will be old pipes, removed asphalts covering roads (most of rehabilitated pipelines are under existing roads). Contractor will have to develop a Traffic Management Plan (TMP) in accordance with the provided template.

The project will involve the demolition of existing buildings on water intakes which have roofs and walls containing asbestos materials (in roofing slate). It is not anticipated, however, that the main pipeline and network to be rehabilitated contain asbestos pipes that could be hazardous to human receptors. The PMC, ESO together with Contractor will examine the buildings which are intended for removal and in case of presence of any asbestos materials, an Asbestos-Containing Materials Management Plan (ACMMP) will have to be developed, also in accordance with the recommended template. Asbestos wastes will be disposed at the local municipal landfill in accordance with procedure indicated in the national regulation.

The rehabilitated project facilities (WDUs, WISs and GWISs) may also include transformers which have been produced before 1994 and there is a possibility that oil contained Polychlorinated biphenyls (PCBs) was used for such equipment.

Another noticeable impact will be related to health and safety of the communities and Contractor workers. The impacts are related to the risks of opening trenches, more intensive movement of vehicles, and hindered access to houses and commercial facilities. Since a major part of the civil works will be implemented in the densely populated areas, the implementation of all relevant measures provided in the EMP will be crucial to avoid any negative impact.

During the construction phase, labor camps may be located within the residential areas, or suitable open spaces. Location of any camps within the premises of the groundwater intakes are prohibited. To ensure proper camp operation, the Contractor will develop a Construction Camp Management Plan (CCMP) and ensure its proper implementation.

Besides impacts on air, water and soil quality, some other risks also relate to both community and occupational worker health and safety. Safe working conditions, together with compliance with sanitary, fire protection and other construction norms and requirements, will be strictly adhered to prevent electrical shocks and other accidents during the construction period. Each Contractor will be required to develop an Occupation Health and Safety Plan, which will cover such requirements as the usage of Personal Protective Equipment (PPE), Code of conduct, and participation in a training program.

All national regulations related to the construction works and the World Bank Group's *Environment, Health and Safety Guidelines* (EHS Guidelines)[5] will have to be complied with. The PIU at UJSC will closely coordinate with the communities regarding the planning and implementation of project works.

Operation Phase. Some negative impacts may occur during operation phase as well. Mainly it will be related to waste generation from WWTPs operation. Both – Water Treatment Plants (WTPs) and WWTPs will have chemical laboratories, which workshops (on WWTPs) where hazardous wastes will be generated. It will be important to establish and effectively implement waste handling and disposal practice on these facilities.

Sludge generated on WWTPs may cause odor, which also negatively will impact on population living in surrounded areas. Proposing technologies for selection during detail design allow to minimize such impacts. However, to minimize such impacts and avoid all negative impacts WWTPs must operate in fully compliance with technical specification of selected technologies. Significant adverse impact may occur if waste water technology will not be operated properly and treated sewage will exceed established effluents standards. Due to fact that most of proposed WWTPs technologies are new the properly trained and educated staff have to maintain these facilities. Lack of knowledge and low responsibility of WWTPs staff may also lead to decreasing treatment efficiency.

During the operation, the project will have significant positive impact on water resources due to installation of water meters, SCADA system and promotion program which will contribute to rational water use and water saving. Reconstructed pipeline and water supply networks will eliminate leakages of water/non-revenue losses.

In general, the project will have a significant positive social effect since it will provide population of the project mahallas with safe and reliable potable water supply. This, in turn, will improve the socioeconomic indicators, and sanitary and epidemiological situation. By installing the SCADA system, significant savings in water resources will be achieved along with their more efficient management. Installation of bactericidal lamps and replacing of deteriorated pipes with high rate of leakages will ensure supplying of drinking water which meets standards.

Gender Action Plan. During the initial community meetings conducted early in April 2024, the Consultants identified several gender-related issues that have implications for the project. These included a high unemployment rate among local women, limited job opportunities, and inadequate hygiene facilities at local community centers, schools, and kindergartens.

In response to these challenges, local community leaders suggested addressing these issues by equipping unemployed women with the necessary tools to pursue self-employment opportunities in sewing, bakery, and hair styling. Additionally, they proposed the construction of improved toilets, baths, and heating systems at local schools and kindergartens. These enhancements would help decrease the spread of diseases among children and allow local women to allocate more time to other productive activities.

The proposed gender action plan is designed to address the current community issues and empower local women to improve their circumstances.

ESMPF disclosure and Public consultation. ESMPF and RPF preparation has been highly participatory. Extensive consultations have been held with various stakeholders including the public communities, local / district/ regional authorities, other departments and service providers. The stakeholders' expectations and the related issues/ concerns have been taken due note of while preparing these instruments. 20 consultation workshops were held in the participating regions on April 2-4, 2024. Based on suggestions received during the consultation workshops, the ESMPF and RPF documents have been updated, finalized and they will be published on the Karakalpak website and will be published on t

[5] Environmental, Health, and Safety Guidelines (ifc.org)