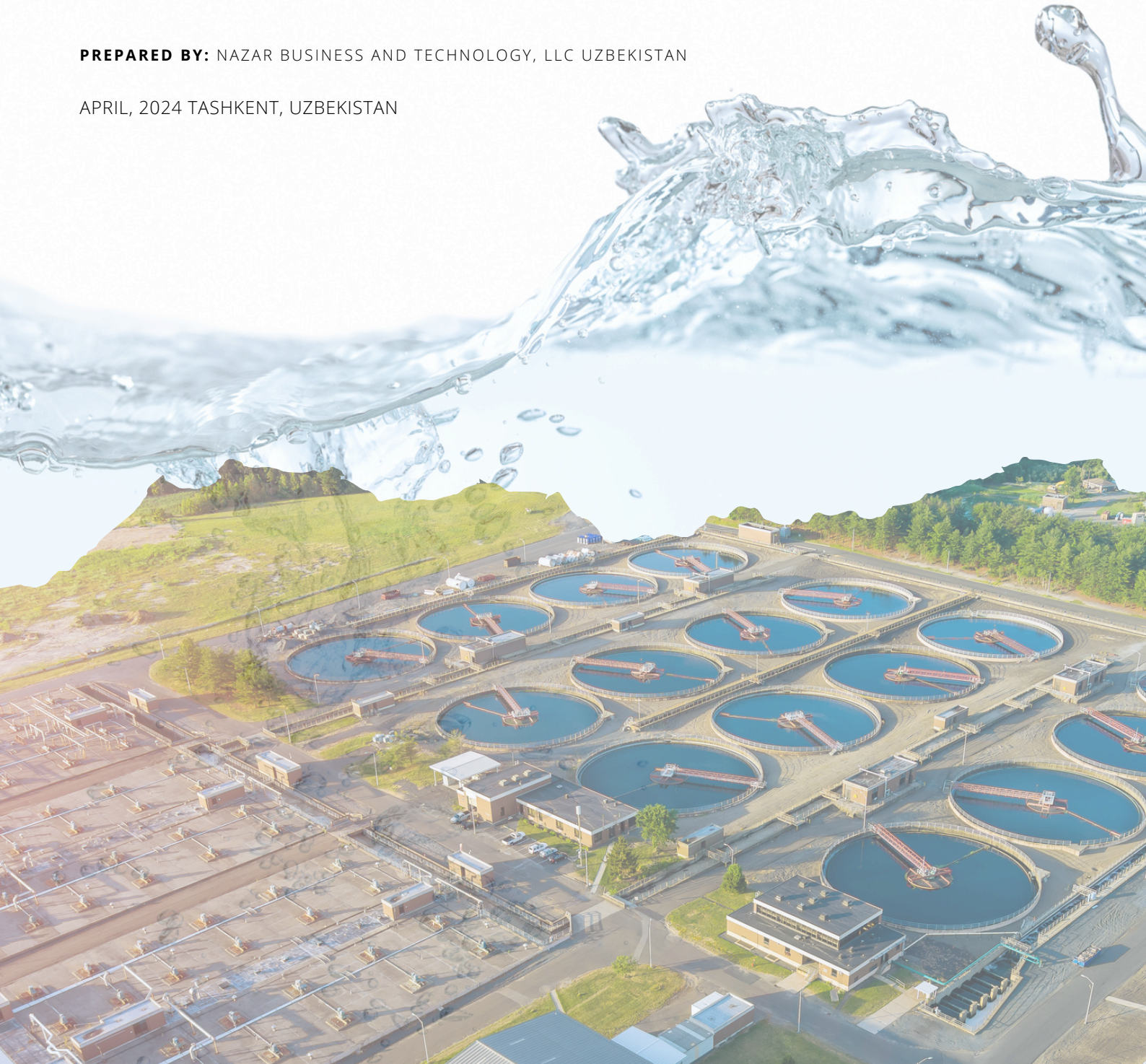
KHOREZM REGION AND REPUBLIC OF KARAKALPAKSTAN WATER SUPPLY AND SEWERAGE PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANNING FRAMEWORK FOR WATER AND SANITATION ACTIVITIES IN THE REPUBLIC OF KARAKALPAKSTAN

FINAL REPORT

PREPARED BY: NAZAR BUSINESS AND TECHNOLOGY, LLC UZBEKISTAN

APRIL, 2024 TASHKENT, UZBEKISTAN



Document Information and Control

Document Title	Environmental and Social Management Planning Framework
Project	Karakalpakstan and Khorezm Water Supply and Sewerage Project
Project No.	
Financier	Asian Infrastructure Investment Bank
Assignment	*Preparation of Environmental and Social Management Planning Framework for Water and Sanitation Activities in the RoK*
Client	Uzsuvtaminot JSC

Contact information:

Project Director / Social Development Specialist	Madina Khalmirzaeva	madina.khalmirzaeva@nbt.uz
Environmental Team Leader / Senior Environmental Specialist	Darya Chuprinina	darya.chuprinina@nbt.uz
Project Coordinator	Azam Azimov	azam.azimov@nbt.uz

Nazar Business and Technology LLC
14/7 Belarik St., Rakat massif, Yakkasaray district,
Tashkent city 100100,
Uzbekistan.
Tel.: + 998 71 203 79 97
www.nbt.uz

TABLE OF CONTENTS

TABLES:

FIGURES:

LIST OF ABBREVIATIONS

ACMMP	Asbestos-Containing Materials Management Plan
AIDS	Acquired Immune Deficiency Syndrome
AIIB	Asian Infrastructure Investment Bank
ASB	Activated Sludge Basin
BOD	Biochemical Oxygen Demand
CCMP	Construction Camp Management Plan
CET	Cavitation-Enzyme Treatment
CI	Cast Iron
CNR	Construction Norms and Rules
COD	Chemical Oxygen Demand
CPR	Common Property Resources
CSEE	The Center of State Environmental Examination
DDR	Due Diligence Report
DI	Ductile Iron
EA	Extended Aeration
EBRD	The European Bank for Reconstruction and Development
EHS	Environmental, Health, and Safety
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
ESEL	Environmental and Social Exclusion List
ESF	Environmental and Social Framework
ESG	Environmental, Social and Governance
ESMPF	Environmental and Social Management Planning Framework
ESP	Environmental and Social Policy
ESS	Environmental and Social Standards
FAO	Food and Agriculture Organization of the United
GAP	Gender Action Plan
GHG	Greenhouse Gas
GRM	Grievance Redress Mechanism
HIV	Human immunodeficiency virus
IA	Implementation Agency
IFC	International Finance Corporation
IFI	International Financial Institutions
IUCN	International Union for the Conservation of Nature
LABR	Low-Amudarya Biosphere Reserve
LARP	Land Acquisition and Resettlement Plan
LAIR	Land Acquisition and Involuntary Resettlement
LLA	Land Lease Agreement
MCHCS	The Ministry of Construction and Housing and Communal Services of the RUz
MEEPCC	Ministry of Ecology, Environmental Protection and Climate Change
MoELR	The Ministry of Employment and Labor Relations of the RUz

MPC	Maximum Permissible Concentrations
MSW	Municipal Solid Waste
NGO	Non-Governmental Organization
OHSP	Occupational Health and Safety Plan
PCB	Polychlorinated biphenyl
PCU	Project Coordination Unit
PE	Polyethylene
PEIS	Preliminary Environmental Impact Statement
PIP	Priority Investment Program
PIU	Project Implementation Unit
PMC	Project Management Consultant
PS	Pumping Station
RAP	Resettlement Action Plan
RCM	Resolution of the Cabinet of Ministers of RUz
RoK	The RoK
RPF	Resettlement Planning Framework
RUz	The RUz
SanR&N	Sanitary Rules and Norms
SBR	Sequence Batch Reactor
SEC	State Environmental Consequences
SEE	State Environmental Expertise
SHC	Sodium Hypochlorite
SMP	Spoil Management Plan
SRP	Spill Response Plan
SSESMP	Site-specific Environmental and Social Management plan
TA	Technical Assistance
TDS	Total Dissolved Solids
TMP	Traffic Management Plan
TOR	Terms of reference
TRTA	Transaction Technical Assistance
UN	The United Nations
UZRDB	The Red Data Book of Uzbekistan
UzWJSC	“Uzsuvtaminot” Joint Stock Company
WDU	Water Distribution Unit
WHO	The World Health Organization
WMP	Waste Management Plan
WSS	Water Supply and Sewage
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

The Government of the Republic of Uzbekistan (RUz) 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 (RoK). 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 RoK 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 RoK 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 RoK and 7 district centers in Khorezm region consisting of collectors, pumping stations, 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, 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.

Implementation Arrangements. UzWJSC[1] is the Executing Agency (EA) responsible for overall project coordination with government agencies and high-level decision-making authorities to ensure timely implementation, and for liaison with AIIB and other development partners. Other related to this subcomponent stakeholders include hokimiyats, “Qoraqalpoq suv ta’minoti”, LLC (servicing the Karakalpakstan Republic), The Ministry of Ecology and Environment Protection and Climate Change of the RoK (MEEPCC), Toza Hudud State Unitary Enterprise, which will be involved in evaluation process to ensure their active involvement during project implementation.

Executive Agency (EA) and Project Coordination Unit (PCU) will be supported by a Project Management Consultant (PMC). The PCU will be responsible for implementation of ESMP to comply

[1] National water supply and sanitation agency

with AIIB safeguards requirements and environmental, social, labour and land acquisition national regulations. Present unit has Safeguard Specialist (SS). It is planned one PIU will be set up in Karakalpakstan. To ensure compliance with AIIB safeguards requirements, it is proposed that one environmental specialist and one social specialist will be hired on fulltime base.

The PIU's ES and SS will be assisted by the environmental specialists of the PMC in overseeing the development of ESIAs and/or ESMPs. The cost for ESIA and ESMP will be financed by the project. PCU is responsible for overall environmental and social compliance with 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 PMC before submission to PCU (PIU) for approval. During construction, the Contractors will retain their 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 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 type 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, national EIA will be required prior commissioning of the construction works. 14 Preliminary Environmental Impact Statements (PEIS, environmental assessment document required for Category III projects or PZVOS) were prepared by PIU at UzWJSC (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) is expected to be obtained in April 2024. UzWJSC PIU will ensure that Environmental Appraisal is obtained before start of civil works. Before commissioning of WWTPs, next step of national environmental assessment – development of Statement Environmental Consequences (SEC) needs to be prepared by Karakalpak Suvtaminot and submit for non-objections to Karakalpak branch of MEEPCC.

Project category and proposed safeguard instruments. In accordance with the AIIB ESF, the project is classified as Category A. For all potential sub-project screening and due-diligence procedure will apply. After screening for selected sub-projects ESIAs and ESMPs. If some of sub-projects will be categorized as B, only ESMP may need to be developed for category B sub-projects. ESMPF includes screening procedure, guidance on 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 covers the following: rules and procedures for environmental and social screening of subprojects; guidance for conducting subprojects' ESIA and/or preparing simple ESMPs; mitigation measures for possible impacts of different proposed activities and types of subprojects to be supported by the project; requirements for monitoring and supervision of implementing of ESIA/ESMPs, 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 these 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 Project Company identifies all stakeholders and establishes an effective engagement strategy during the development and life of the Project. The goal of this 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 have 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 potential source as workforce 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 to have better water supply and sewerage system, 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 project activities (both formal and informal owners).
Other Interested stakeholders	
UzWJSC	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 Ministries 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 (MEEPCC); Sanitary-Epidemiological Peace and Public Health Service of Karakalpakstan and district branches; Karakalpakstan Ministry of Employment and Labour Relations.	▪ Interested in developing of 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' remit (land issues, water use, energy, investment support, etc.) ▪ Potential assistance in interaction with other authorities and local population/organizations ▪ Assistance in monitoring of appliance with local labor and sanitary regulations.
Local and regional Construction Companies	Construction Companies interested to participate in the bidding for project implementation

Stakeholder Groups	Description of the Stakeholder
International Lenders/ International Organisations: AIIB	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[2] and laws of the RUz[3]. 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 RUz 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 RUz at any time of the grievance redress process provided hereby.

The UzWJSC 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 PMCs shall take an active part in resolving grievances and appeals.

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

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

Contractor(s), supervision and PMCs, and project district “Suvtamionot” shall register and report each case of grievance they received from complainants, to the PCU under the UzWJSC, 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", Representative of district "Suvtaminot" as a GFP for the subject district.

Tier-2: Second Level Grievance Redress Committee. The Tier-2 includes the GRC at the PCU central level at UzWJSC 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

Project 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 EMP.

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 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)[4] 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.

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

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 GAP 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 the external AIIB website.

1. INTRODUCTION

1. The Government of the RUz is preparing to receive a proposed investment loan from the AIIB to finance the Karakalpakstan and Khorezm Water Supply and Sanitation Project.

2. Uzbekistan is strategically located in the heart of Central Asia, bordering Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan. The country has a markedly arid climate, with rainfall averaging only 8 inches (200 mm) annually. Most of the population is concentrated in the fertile Fergana Valley and the southern provinces that have been important trade settlements since antiquity.

3. The major water resources are concentrated in more than 600 streams crisscrossing Uzbekistan that are adversely affected by the dry climate. Disastrous depletion of the flow of the two historic rivers—the Syrdarya and Amudarya—has brought rapid change in the Aral Sea and greatly altered the delta of the Amudarya. Most streams of the delta have dried up, and the Aral Sea, once the fourth largest inland body of water in the world, has lost as much as nine-tenths of both its water (volume) and its surface area since 1961. The shrinkage has resulted in intense salinization of the sea, which also has suffered tremendous pollution from insecticides and chemical fertilizers during the past several decades. Demographic pressure on and catastrophic mismanagement of water resources have also exacerbated water scarcity. Current conditions of water resource management are in need of systemic improvements both in terms of infrastructural augmentation and institutional arrangements.

4. The RoK, occupying an area of more than 165.0 thousand km2, covers the entire north-western tip of Uzbekistan. Its dispersed population is around 1.8 million and its main economic drivers are agriculture, natural gas and minerals. The natural environment of the RoK is primarily an arid desert consisting of rare, barren lands subject to severe drought. Thus, the RoK is experiencing an acute shortage of surface water. Although aquifers exist, groundwater is mainly saline solutions and has limited value. Therefore, the water supply conditions are critical.

5. Within the framework of the investment program of the RUz and with the support of the World Bank (Reconstruction of the sewerage system of the cities of Nukus and Takhiatash), the Asian Development Bank (Development of the water supply system in the western part of Uzbekistan) and the European Investment Bank ("Development of the sewerage system in the cities of Beruniy and Buston of the RoK"), the above and other projects are being implemented.

6. Planned activities under the proposed AIIB-financed Project include investments in the water supply and sewerage infrastructure of cities and districts of the RoK. 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 RoK for the provision of centralized wastewater treatment services (collection, treatment, disposal).

7. At present, 52.4% of the population of the RoK is covered by centralized water supply. The water supply networks and facilities on the project territory were built and developed in the period 1970-2001. Due to the long-term operation of the networks (20-50 years). Losses of drinking water due to accidents and leaks on the district's water supply networks account for about 40-50% of the total volume of water supply.

8. 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 increase the reliability of water supply systems, increase sanitary and epidemiological safety and the level of well-being and culture of the population.

9. There is no centralized sewerage system in the project area. As a sewage system, the population uses toilets with cesspools or septic tanks. The situation is complicated by the high level of groundwater, 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 for the population and leads to environmental pollution.

10. The implementation of the sewage construction project in the project area will improve the sanitary and epidemiological situation, health and living conditions of people living in the project area of the RoK.

11. The Project consists of the following Components:

- **Component 1 -** Investment in Water Supply Infrastructure: 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 RoK including its capital city Nukus as well as in 4 districts in Khorezm region.
- **Component 2 - Investment in Sewerage Infrastructure:** Construction of centralized sewage systems in 10 district centers in the RoK and 7 district centers in Khorezm region consisting of collectors, pumping stations, 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, 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 IA in ensuring seamless coordination, efficient implementation and compliance with the relevant policies.

12. 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.

2. REGULATORY REVIEW

A. National Environmental Requirements

1. National Institutional Framework

1. In accordance with UP-81 "On measures to transform the sphere of ecology and environmental protection and organize the activities of the authorized state body" dated May 31, 2023, the Ministry of Natural Resources (until 2023 - State Committee for Ecology) was renamed to the MEEPCC.

2. The MEEPCC of the RUz is the primary environmental regulator. The MinEcology reports directly to the Parliament and is responsible at national, regional (oblast) and local (rayon) levels for the development and enforcement of the national environmental and conservation policy, environmental compliance, integrated environmental management across various sectors, and securing healthy environment conditions across the country.

3. According to its structure, the MEEPCC has a central body in Tashkent, and regional branches and agencies providing research and technical support. Regional environmental authorities are structured similarly to the MinEcologiya.

4. From July 1, 2023, the *"Public Environmental Controller" system* is being introduced in the RUz, in accordance with which the rights and obligations of controllers are defined as follows:

- Identification of environmental violations, execution and introduction of the relevant act into the Environmental Control Platform;
- Obtaining free education and advanced training in order to acquire special knowledge and skills in the implementation of activities;
- Obtaining information about the measures taken in relation to the identified offenses, participation in the processes related to the sentencing of the offender;
- Receiving remuneration for effective activity in the manner and in the amount established by law.

5. Public environmental controllers are required to ensure transparency, counteract corruption, as well as objectively prepare reliable data in the process of identifying and reporting offences.

6. The other state agencies involved directly or indirectly in the regulation and protection of the environment are:

7. **Ministry of Housing and Communal Services of the RUz**[5] is the authorized state body for: (i) implementation of a unified state policy and intersectoral coordination in the field of housing and communal services; (ii) performing customer functions for the construction of heat supply facilities, organizing the demolition of dilapidated and emergency housing; (iii) development and organization of high-quality implementation of programs for the development, modernization and reconstruction of water supply and sewerage facilities, heat supply systems in conjunction with development schemes and master plans of settlements, ensuring coordination and management of the activities of organizations in this area; (iv) introduction of resource- and energy-saving technologies and equipment into the housing and communal services system, including equipping housing and communal services with modern measuring instruments, widespread use of modern and high-quality domestic building materials, products that reduce the cost of construction and installation work; (v) development of proposals for improving the regulatory framework in the field of housing and communal services, development and implementation, taking into account the best practices of developed foreign countries, of modern forms and methods of housing and communal services; (iv) ensuring the creation of strategic reserves of drinking water and others.

[5] https://mc.uz/ru/about/structure

8. The Minister of Housing and Communal Services of the RoK is appointed and dismissed from office by the Jokargy Kenes of the RoK in agreement with the Minister of Housing and Communal Services of the RUz.

9. The **Inspectorate for Control over the Use of Drinking Water** under the Ministry of Housing and Communal Services of the RUz and its territorial inspections are the body exercising state control in the field of drinking water supply and wastewater disposal.

10. **"Uzsuvtaminot" Joint Stock Company (UzWJSC)** - the main areas of its activity are further improvement of the drinking water supply and sewerage system, rational use of drinking water, construction and reconstruction of water supply and sanitation facilities, timely elimination of accidents and organization of participation in the implementation of other unforeseen services and other services provided for by law. UzWSJSC includes 17 system organizations, including "Karakalpak suv taminot"[6].

11. **Ministry of Water Resources**. The main tasks of the Ministry are the implementation of a unified state policy in the field of water resources management, as well as the coordination of the activities of state bodies, economic management bodies and other organizations in the field of rational use and protection of water resources, prevention and elimination of the harmful effects of water.

12. **Ministry of Health**. This ministry develops and approves sanitary regulations, rules, and hygienic standards, and carries out state sanitary supervision over their observance as well as methodological supervision of the work of sanitary and epidemiological services, regardless of their departmental subordination.

13. State sanitary supervision is carried out by the **Service for Sanitary and Epidemiological Welfare and Public Health of the RUz** under the Sanitary and Epidemiological Welfare and Public Health Committee of the RUz, the departments of sanitary and epidemiological welfare and public health of the RoK, regions and the city of Tashkent, district (city) departments of sanitary and epidemiological welfare and public health.

14. **Innovative Development Agency under the Ministry of higher education, science and innovation** is a government body that implements a unified state policy in the field of innovative and scientific and technical development of the RUz, aimed at the comprehensive development of public and state life, increasing the intellectual and technological potential of the country. The Ministry is an authorized state body in the field of science, scientific and innovative activities.

2. National Environmental Legislation

15. The Constitution of RUz (2023), under its nature protection and management framework, defines the rights and responsibilities of its citizens to include the following:

(i) Everyone has the right to a favorable environment, reliable information about its condition.

The government creates conditions for the implementation of public control in the field of urban planning in order to ensure the environmental rights of citizens and prevent harmful effects on the environment.

Draft urban planning documents are subject to public discussion in the manner prescribed by law.

The state, in accordance with the principle of sustainable development, implements measures to improve, restore and protect the environment, maintain ecological balance (Article 49);

(ii) Citizens are obliged to take care of the natural environment. (Article 62);

(iii) The land, its subsoil, water, flora and fauna and other natural resources are national wealth, are subject to rational use and are protected by the state;

(iv) Land may be privately owned on the terms and in the manner prescribed by law and ensuring its rational use and protection as a national wealth. (Article 68).

[6] https://uzsuv.uz/ru/tizimdagi-tashkilotlar

16. Uzbekistan has enacted the following natural resources and media-specific environmental management laws:

17. **Law "On Nature Protection"** (1992, amended in 2021) states legal, economic, and organizational foundations for the conservation of the environment and rational use of natural resources. Its purpose is to ensure balanced relations between humans and nature to protect the environmental system and to guarantee the rights of the population to live in a safe environment. Article 25 of the law states that the SEE is a mandatory measure for environmental protection, preceded to a decision-making process. In addition, Article 25 says that the implementation of a project without Positive Conclusions on the SEE is prohibited.

18. **Law "On Ambient Air Protection"** (1996, amended in 2006). This law specifies regulations on air protection and its objectives. It also includes standards, quality and negative impact, norms, and requirements on fuels and lubricants, the production and operation of vehicles and other machinery and equipment, ozone layer protection requirements, the obligations of enterprises, institutions and organizations toward air protection, and compensations for damages from air pollution.

19. **Law "On Water and Water Use"** (1993 the latest amended in 2021). This law regulates water relations, and efficient water use by the population and economy. The law regulates the protection of water from pollution and depletion, prevention, and elimination of harmful impacts on water, the improvement of water bodies, and the protection of the rights of enterprises and institutions, organizations and dehkan farms and individuals in the field of water relations.

20. **Law "On Wastes"** (2002, amended in 2011). This law addresses waste management, exclusive of emissions and air and water pollution, and confers authority to the MEEPCC concerning inspections, coordination, and environmental expertise. It also establishes certain parameters regarding locations for waste disposal. The key objective of this law is to prevent negative effects of solid wastes on people's lives and health, as well as on the environment, reduce waste generation, and encourage rational use of waste reduction methods in household activities.

21. **Law "On Environmental Audit"** (2021). This law was adopted to regulate environmental audits in the field of environmental protection and rational use of natural resources, including voluntary or mandatory environmental audits. The law states that 'an environmental audit can be carried out on a voluntary form by businesses with low or insignificant (local) risk of environmental impact and on a mandatory form on an annual basis for businesses with high and medium risk of environmental impact.'

22. **Law "On Environmental Control"** (2013, amended 2021). This law provides the approach regarding: (i) prevention, detection and suppression of violation of the requirements of legislation in the field of environmental protection and rational use of natural resources; (ii) monitoring the state of the environment, identifying situations that can lead to environmental pollution, poor use of natural resources, and create a threat to life and health of citizens; (iii) determination of compliance with the environmental requirements of planned or ongoing economic and other activities; and (iv) ensuring compliance with the rights and legitimate interests of legal entities and individuals, performing their duties in the field of environmental protection and rational use of natural resources.

23. **Law "Drinking Water Supply and Wastewater Disposal"** (2022). The purpose of this Law is to regulate relations in the field of drinking water supply and wastewater disposal.

24. **Law "On the Sanitary and Epidemiological Welfare of the Population"** (2015, amended 2022). This law regulates relations in the field of sanitary and epidemiological welfare of the population.

25. **Law "On Protection of Flora"** (1997, amended in 2016). This law regulates relations in the field of protection and use of the plant world growing in natural conditions, as well as wild plants contained in the conditions of culture for their reproduction and conservation of genetic resources.

26. **Law "On Protection and Use of the Wildlife"** (new edition - 2016). This law regulates relations in the field of protection, use, restoration and reproduction of wildlife in order to ensure the conditions of its existence, conservation of species diversity, integrity of natural communities and habitat.

27. **Land Code of the RUz** (1998). The Land Code aims to regulate land relations to ensure that present and future generations have evidence-based sustainable use and conservation of land and improvements of soil fertility, conservation and improvement of the environment and conditions for equitable development of all forms of management, protection of individuals and legal entities' rights for land, as well as strengthening the rule of law in this area.

28. **Housing Code of the RUz** (1999, last amended in 2022). The Land Code aims to regulate land relations to ensure that present and future generations have evidence-based sustainable use and conservation of land and improvements of soil fertility, conservation and improvement of the environment and conditions for equitable development of all forms of management, protection of individuals and legal entities' rights for land, as well as strengthening the rule of law in this area.

29. **The Red Data Book of Uzbekistan (UZRDB)** is the main document containing aggregate information on the state of rare, population decreasing, and endangered species of plants and animals in the territory of Uzbekistan. The first edition of the Red Data Book of the RUz (1984) included 163 species of plants; the second edition (1998), 301 species; the third edition (2006), 302 species of higher plants and three fungi species; the fourth edition (2009), 321 species of higher plants and three fungi species. The first edition of the UZRDB (1983) included 63 species; the second edition (2003), 184; the third edition (2006), 184; the fourth edition (2009), 184 animal species and subspecies. In the last 10-15 years, according to the International Union for the Conservation of Nature (IUCN), the threat of extinction of species in the wild has grown for a number of species and subspecies, which is connected with the reduction of their habitats and decline in population size. This primarily concerns hoofed mammals as the most vulnerable and susceptible to anthropogenic influences of components of fauna. The latest version of the UZRDB was released in 2019 and included 202 species of fauna, and 314 species of flora, however it is understood it has not been completed in conjunction with the IUCN.

30. **Other regulations and standards** applicable for the Project are:

(i) Decree of the President of the RUz #5863 "On Approval of Concept of Environmental Protection of the RUz till 2030";

(ii) Decree of the Cabinet of Ministers of the RUz #343 "On further improvement of the environmental pollution assessment system" (2021);

(iii) Decree of the President of the RUz #UP-151 "On measures for the effective organization of public administration in the field of construction and housing and communal services within the framework of administrative reforms" (2023);

(iv) Decree of the President of the RUz #5883 "On measures to improve water resources management in the RUz to increase the level of population security with portable water and to improve its quality" (2019);

(v) Decree of the President of the RUz #6074 "On measures for further improvement of the portable water supply and sewerage system, as well as increasing the efficiency of investment projects in this sphere" (2020);

(vi) Decree of the Cabinet of Ministers of the RUz #11 "On additional measures to improve environmental activities in the municipal service system" (2010, amended in 2019);

(vii) Decree of the Cabinet of Ministers of the RUz #981 "On approval of the regulations on the order of establishment of water protection zones and sanitary protection zones of water bodies in the territory of the RUz" (2019);

(viii) Decree of Cabinet Ministries of RUz #255 "On approval of some administrative regulations for rendering public services in the sphere of nature use" (2018);

(ix) Decree of the Cabinet Ministries of RUz #82 "On approval of the regulations on the order of water use and water consumption in the RUz" (2013, amended in 2018);

(x) Decree of the Cabinet of Ministers of RUz #14 "On approval of the regulations on the procedure for developing and approving draft environmental standards" (2014, amended in 2022);

(xi) Decree of the President of the RUz #UP-165 “On approval of the strategy of innovative development of the RUz for 2022-2026” (2022, amended in 2023);

(xii) Law on Protection and Use of Archaeological Heritage (2009);

(xiii) Law of the RUz #ZRU-537 “On public-private partnership” (2019, amended in 2022);

(xiv) SanR&N No 0297-11 - Sanitary Rules and Regulations on cleaning the territories of populated areas from solid household waste in the conditions of the RUz;

(xv) SanR&N No 0158-04 - Collection, transportation and disposal of asbestos contained materials in condition of Uzbekistan;

(xvi) SanR&N No 0350-17 - Sanitary rules and norms for the protection of atmospheric air in places of the RUz;

(xvii) SanR&N No 0339-16 - Sanitary rules and norms for planning and development of populated areas of Uzbekistan;

(xviii) SanR&N No 0127-02 - Sanitary rules for inventory, classification, storage and disposal of industrial wastes;

(xix) SanR&N No 0022-22 - Sanitation rules hygiene requirements for the organization of construction production and construction work;

(xx) SanR&N No 0318-15 - Hygienic and anti-epidemic requirements for the protection of water in reservoirs on the territory of the RUz;

(xxi) SanR&N No.0267-09 - Sanitary norms and rules for ensuring permissible noise in the premises of residential, public buildings and on the territory of residential buildings;

(xxii) SanR&N No 0255-08 - Main criteria for hygienic assessment of the water bodies contamination for assessing health risks for population in Uzbekistan;

(xxiii) SanR&N No 0202-06 - The procedure for issuing permits for special water use, development and approval of projects of maximum permissible discharges (MPD) of substances entering with wastewater into water bodies and on the terrain;

(xxiv) SanR&N No 0293-11 - Hygienic standards list of maximum permissible concentrations (MPC) of pollutants in the atmospheric air of populated areas on the territory of the RUz;

(xxv) SanR&N No 0212-06 - Hygienic assessment of the degree of soil pollution of different types of land use under specific conditions of Uzbekistan;

(xxvi) SanR&N No 0183-05 - Hygienic requirements for the quality of the soil in settlements areas in specific natural and climatic conditions of Uzbekistan;

(xxvii) KMK 2.04.02-97 - Water Supply. External networks and utilities;

(xxviii) KMK 3.01.02-00 - Construction safety;

(xxix) RH 84.3.6:2004 - Instructions for the regulation of discharges of pollutants into water bodies and onto the terrain, considering technically achievable treatment indicators;

(xxx) O’z DSt 951:2011 - Sources of centralized drinking water supply. Hygienic, technical requirements and selection rules;

(xxxi) O’z DSt 950:2011 - Drinking water. Hygienic requirements and quality control;

(xxxii) O’z DSt 1057:2004 - Vehicles. Safety requirements for technical conditions;

(xxxiii) CR&N No 2.01.08-96 – Noise protection;

(xxxiv) CR&N No 3.01.02-00 - Construction Safety Standards.

3. National Environmental Impact Assessment

31. The national environmental assessment procedure is regulated by the law "On State Environmental Expertise" (SEE) and the regulation “On further improvement of the environmental impact assessment mechanism”, approved by Resolution of the Cabinet of Ministers No. 541 (2020, last amended 30.04.2022). The resolution specifies the legal requirements for environmental assessment documents in Uzbekistan. According to the Law, SEE is a type of environmental examination carried out by specialized expert bodies to (i) ensure compliance of the planned activities with environmental requirements. and (ii) determine permissibility of project implementation.

32. The MEEPCC is the authorized state body in the field of the SEE. The Center of State Environmental Examination (CSEE) under the MEEPCC carries out the SEE for projects classified under Categories I and II to assess their environmental impact (high and medium risk).

33. The CSEE in the regions and in the RoK carries out the SEE for projects classified as Category III and IV (low risk and local risk) to assess their environmental impacts.

34. The regulation sets out a procedure of arrangement and carrying out the SEE (Annex 2 to RCM). The environmental assessment stages and their required results are summarized as follows:

(i) **Stage I**: A PEIS shall be prepared during preparation of a proposed project prior to any fund allocation for development.

(ii) **Stage II**: An Environmental Impact Statement (EIS) shall be carried out on a basis of a conclusion of the environmental expertise issued at the first stage of the assessment. The second stage of the assessment is also submitted to the CSEE, and the conclusion must be received before the start of construction.

(iii) **Stage III**: State Environmental Consequences (SEC) is the final stage of the SEE process and shall be carried out prior to the project start. The report will include (i) a detailed description of changes to be made to the project design as a result of the CSEE review during the first two stages of the environmental assessment process, (ii) comments received during public consultations, (iii) environmental standards applicable to the project, (iv) environmental monitoring requirements related to the project, and (v) the key opinion.

35. Types of economic activities assessed by SEE are classified as one of four categories:

(i) Categories I and II are "high and medium risks of environmental impact" (all stages of environmental assessment are required);

(ii) Category III is "low risk of impact" (all stages of environmental assessment are required); and

(iii) Category IV - "local impact" (only the first stage of environmental assessment - PEIS is required).

36. The SEE opinion is valid for three years from the date of its issuance. If a project is not implemented within three years from the date of issuing the opinion, the environmental assessment reports (PEIS or EIS) need to be revised and re-submitted to the CSEE for revision and approval.

37. The opinion of the SEE shall be shared with the relevant regional (city) Control Environmental Inspectorates for their follow up and supervision. Such Inspectorates under the MEEPCC supervise the compliance with the requirements and terms specified in the SEE’s opinion.

38. The national Law “On Environmental Expertise” and RCM # 541 require preparation of the environmental assessment report for all type 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, national EIA will be required prior commissioning of the construction works.

39. 14 PEIS (environmental assessment document required for Category III projects or PZVOS[7]) were prepared by PIU at UzWJSC (with support of a national company) and submitted by the Karakalpak Suvtaminot LLC to the MEEPCC situated in Nukus city in March 2024. Mitigation measures identified in the PEISs are included in this ESMPF. Environmental Appraisals (Environmental Permission) is expected to be obtained in April 2024. UzWJSC PIU will ensure that Environmental Appraisal is obtained before start of civil works.

40. The environmental appraisal will be valid for three years. If reconstruction/construction activities do not start until month, year, the revised version of PEISs will be submitted for approval to the Nukus city branch of the MEEPCC.

41. Before the project facilities come into operation, the third stage of the national environmental appraisal process – development of the Statement on Environmental Consequences (SEC) will be completed. The SEC will be prepared by Karakalpak Suvtaminot LLC and will be submitted to the MEEPCC for approval.

42. **Table 3** presents permissions from the national agencies needed to be received prior to commencement of civil works and prior to the project operation:

Table 3. List of required approvals and permissions

#	Name of the document	Time of receiving permission	Agency issuing permission	Responsible entity
1	Permission/license for using existing borrow pits or opening new ones (if any)	Prior to commencement of the construction works	Provincial Land Cadastre Department. MEEPCC	Contractor
2	Permission for cutting or replanting trees (in case of necessity of cutting trees which are not belonged to population and not part of RPF)	Same as above	Provincial MEEPCC	Contractor
3	Permission on water use during construction phase	Prior setting construction camps	Provincial MEEPCC, Karakalpak Suvtaminot LLC	PCU
4	Hydrogeological conclusion on available ground water deposits for ground water intakes	At the design stage of ground water intakes	State Committee on Mineral Resources	PCU
5	Non-objection from all municipal utilities on conduction of project works	Prior construction works	Karakalpak Suvtaminot LLC	Contractor
6	SEC	Prior to commissioning of WWTPs	Provincial MEEPCC	Karakalpak Suvtaminot LLC
7	Permission on water use for operation phase	Prior to starting use of water from wells	Provincial MEEPCC	Karakalpak Suvtaminot LLC

Karakalpak Suvtaminot LLC = Company in charge for water supply and sanitation in Nukus city, LARP = Land Acquisition and Resettlement Plan, MEEPCC= Ministry of Ecology, Environmental Protection and Climate Change, SEC = Statement on Environmental Consequences

[7] PZVOS is Russian translation of Preliminarily Environmental Impact Statement (PEIS) – 1st stage of national Environmental Impact Assessment Procedure

B. Environment Quality Standards

1. Air Quality Standards

43. The following regulatory documents define standards for the main pollutants in air in the living area: **SanR&N 0293-11 "Hygienic standards. The list of MPCs of pollutants in the ambient air of settlements in the territory of the RUz"** (**Table 4**).

Table 4. Summary of Relevant Ambient Air Quality Standards for Protection of Human Health (mg/m^3)

Air quality parameter	Maximum allowed during 30 min	Maximum allowed average daily	Maximum allowed average monthly	Maximum allowed average yearly
NO_2	0.085	0.06	0.15	0.04
NO	0.6	0.25	0.12	0.06
SO_2	0.5	0.2	0.1	0.05
CO	5	4	3.5	3
Dust (PM_{10})	0.15-0.5	0.1-0.35	0.08-0.2	0.05-0.15

44. The WHO standards8 for air quality are presented in **Table 5** below.

Table 5. WHO Air Quality Standards

Air Quality Parameter	Period	Norm (mg/m^3)
SO_2	24 hours 10 minutes	20 500
NO_2	1 year 1 hour	40 200
PM_{10}	1 hour 24 hours	50 20
$PM_{2.5}$	1 hour 24 hours	25 10

45. The air quality standards recommended for assessment of ambient air quality are presented in **Table 6.**

Table 6. Ambient Air Quality Standards

Pollutant	Average Period	Norm in mg/m^3	Norm mg/m^3	Source of standards
SO_2	10 min	500	0.5	EHS Guidelines
	30 min	500	0.5	Uzbekistan
	24 hours	20	0.02	EHS Guidelines/
	1 month	500	0.5	Uzbekistan
	1 year	50	0.05	Uzbekistan
NO_2	10 min	200	0.2	EHS Guidelines/ Uzbekistan
	30 min	85	0.085	Uzbekistan
	24 hours	60	0.06	Uzbekistan
	1 month	50	0.05	Uzbekistan

[8] WHO Air Quality Guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide, Global Update 2005, Summary Risk Assessment.

Pollutant	Average Period	Norm in mg/m^3	Norm mg/m^3	Source of standards
	1 year	40	0.04	EHS Guidelines/ Uzbekistan
NO_x	30 min	600	0.6	Uzbekistan
	24 hours	250	0.25	Uzbekistan
	1 month	120	0.12	Uzbekistan
	1 year	600	0.6	Uzbekistan
CO	30 min	5000	5.0	Uzbekistan
	24 hours	4000	4.0	Uzbekistan
	1 month	3500	3.5	Uzbekistan
	1 year	3000	3.0	Uzbekistan
PM_{10}	1 year	20	0.02	EHS Guidelines
	24 hours	50	0.05	EHS Guidelines
PM_{25}	1 year	10	0.1	EHS Guidelines
	24 hours	25	0.025	EHS Guidelines

2. Water Quality Standards

46. There are different standards for various type of water bodies in Uzbekistan. Depending on the purpose of use, water bodies are categorized as for domestic use (could be used as a source for potable water after treatment), fisheries, municipal use, and irrigation purposes. **Table 7** and **Table 8** present the national general effluent standards into the water bodies classified by type of use.

Table 7. General Requirements for Water Quality[9]

<table>
<tr><th rowspan="3">Indicators</th><th colspan="4">Purpose of Water Use</th></tr>
<tr><th rowspan="2">Domestic Use</th><th rowspan="2">Recreation and Service</th><th colspan="2">Fishery Needs</th></tr>
<tr><th>Highest and First Category</th><th>Second Category</th></tr>
<tr><td>Suspended solids</td><td colspan="4">Depending on natural conditions, the content of suspended solids in wastewater discharge shall not exceed</td></tr>
<tr><td></td><td>0.25 mg/dm^3</td><td>0.75 mg/dm^3</td><td>0.25 mg/dm^3</td><td>0.75 mg/dm^3</td></tr>
<tr><td></td><td colspan="4">For reservoirs and watercourses containing at low water above 30 mg/dm^3 of suspended solids, there may be an increase to 5%. Discharge of suspensions with fallout rate of more than 0.4 mm/s for watercourses and more than 0.2 mm/s in water reservoirs are prohibited.</td></tr>
<tr><td>Floating matter</td><td colspan="4">There shall not be a film of oil products and concentrations of other contaminants on the water surface</td></tr>
<tr><td rowspan="2">Color</td><td colspan="2">Shall not be detected in the column of height</td><td colspan="2" rowspan="2">There shall be no adulterants</td></tr>
<tr><td>20 cm</td><td>10 cm</td></tr>
<tr><td>Smell and test</td><td colspan="2">Intensity of more than 1 point is not permitted</td><td colspan="2">Water must not give extraneous odors and flavors to fish meat</td></tr>
<tr><td>Temperature</td><td colspan="2">Temperature of water at the discharge point shall not exceed 3ºC as compared with average monthly temperature of the hottest month</td><td colspan="2">Temperature of water at the discharge point shall not exceed 5ºC as compared with average monthly temperature of the hottest month. Increasing of temperature more than</td></tr>
</table>

[9] SanR&N No 0172-04 “Hygiene requirements for protection of surface waters in RUz” and Attachment to Construction Norms and Rules (CNR) 1.03.01-96 “Guidelines on content, order, approval and endorsement of design estimate for enterprises, building construction”.

<table>
<tr><th rowspan="3">Indicators</th><th colspan="4">Purpose of Water Use</th></tr>
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<tr><th>Highest and First Category</th><th>Second Category</th></tr>
<tr><td></td><td colspan="2"></td><td colspan="2">28ºC in summer and till 8ºC in winter is not allowed</td></tr>
<tr><td>Hydrogen exponent (pH)</td><td colspan="2">Shall not be beyond 6.5...8.5 pH</td><td colspan="2">Shall not be beyond 6.5...8.5 pH</td></tr>
<tr><td>Water salinity</td><td colspan="2">Dry residue shall not exceed 1000 mg/dm^3, including chlorides – 350 mg/dm^3 and sulphate - 500 mg/dm^3</td><td colspan="2">Rated according to water bodies intoxications</td></tr>
<tr><td rowspan="2">Dissolved oxygen</td><td colspan="2" rowspan="2">No less than 4 mg/dm^3 in any period of the year in a sample taken by 12 a.m. on the same day</td><td>In winter shall be no less than 6 mg/dm^3</td><td></td></tr>
<tr><td colspan="2">No less than 6 mg/dm^3 in any period of the year in a sample taken by 12 a.m. on the same day</td></tr>
<tr><td rowspan="2">BOD</td><td colspan="2">At 20ºC shall not exceed</td><td colspan="2" rowspan="2">At 20ºC shall not exceed 3.0 mg/dm^3. if in winter the dissolved oxygen content in water of the first* category fishing water bodies falls to 6.0 mg/dm^3, and in the second** – to 4 mg/dm^3, then discharge is only permitted to wastewater that does not change the BOD</td></tr>
<tr><td>3.0 mg/dm^3</td><td>6.0 mg/dm^3</td></tr>
<tr><td rowspan="2">COD</td><td colspan="2">Shall not exceed</td><td></td><td></td></tr>
<tr><td>15.0 mg/dm^3</td><td>30.0 mg/dm^3</td><td>-</td><td>-</td></tr>
<tr><td>Causative agent (of a disease)</td><td colspan="4">Not allowed</td></tr>
<tr><td>Chemicals (pollutants)**</td><td colspan="4">Shall not be contained in concentrations exceeding the MAC</td></tr>
</table>

*- The first category includes water bodies, where valuable fish species are highly sensitive to oxygen are kept and reproduced)

** - The second group includes water bodies used for other aquatic economy needs.

47. The maximum allowed concentrations of most spread chemical pollutants are presented in Table 8**.** As shown in the table, the national standards for irrigation water fully comply with FAO standards. Therefore, the national standards for fishery are taken as a basis for this ESIA.

Table 8. Maximum Permissible Concentration of Pollutants in Water Bodies by Water Use Category (mg/m^3)

Pollutants	Water Use Category (Handbook of Environmentalist, Tashkent 2010)					
	Fishery	Munic-ipal	Potable Water		Irrigation water for direct use without blending	
			Nat	WHO[10]	Nat	FAO[11]
COD	15	30	30	-	40	-
BOD_{20}, mg_{O2}/L	3	3-6	3-6	-	10	-
pH	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5
Water salinity	1,000	1,000	1,000-1,500	1,000	1,000	0-2,000
Including: sulphates	100	500	400-500	-	-	1,900
Chlorides	300	350	250-350	-	-	300
Ammonium nitrogen (ammonium salt) (NH_4^+)	0.5	2	0.5	-	1.5	0-5
Nitrogen	9.1	25	45	-	25	-
Nitrogen nitrite	0.02	0.5	3	-	0.5	0-10
Nitrite	0.08	3.3	3	3	-	-
Nitrate	40	45	45	50	-	-
Phosphate (PO_4^{3-})	0.3	1	3.5	-	1	0-2
Ether soluble	0.05	0.8	0.8	-	0.8	-
Oil products	0.05	0.3	0.1	-	0.3	-
Sodium alkyl sulfates (SAS)	0.1	0.5	0.5	-	0.5	-
Phenol	0.001	0.001	0.001-0.1	-	0.001	-
Fluorine (F)	0.05	1.5	0.7	1.5	1	-
Arsenic (As)	0.05	0.05	0.05	0.01	0.1	-
Iron (Fe)	0.05	0.5	0.3-3	-	5	-
Chromium (Cr^{6+})	0,001	0.1	0.05	0.05	0.1	-
Copper (Cu)	0,001	1	1	2	1	-
Zinc (Zn)	0.01	1	3	-	5	-
Cyanides	0.05	0.1	0	0	-	-
Lead (Pb)	0.03	0.1	0.03	0.01	0.2	-
Nickel (Ni)	0.01	0.1	0.1	0.07	-	-
Cadmium (Cd)	0,005	0.01	-	0,003	-	-
Cobalt (Co)	0.1	1	-	-	-	-
Molybdenum (Mo)	0.0012	0.5	0.25	-	-	-
Strontium (Sr^{2+})		2	7	-	-	-
Selenium (Se)	0.001		0.01	0.04	-	-
Mercury (Hg)		0.005	0.0005	0.006	-	-
Boron (B)		0.53		2.4	0.53	0-7.3

48. **Buffer zones for groundwater intakes and single wells** are defined in KMK 2.04.02-97 “Water supply. External networks and facilities for ground water sources used for drinking purposes.

[10] WHO, Guidelines for drinking water quality, Fourth edition, 2017.
[11] FAO Guidelines for interpretations of water quality for irrigation, http://www.fao.org/3/t0234e/t0234e01.htm

Waste water standards:

49. Design work for the construction, reconstruction, and modernization of WWTPs is carried out in compliance with the requirements and standards established in the national standard named Construction Norms and Rules (KMK) KMK 2.04.03-19, Sewerage. External networks and structures.

50. The requirements for the design of WWTPs are mandatory for implementation during the design and construction of WWTPs in Uzbekistan, regardless of their (i) organization and legal structure, (ii) departmental affiliation and form of ownership, (iii) participation in the design and construction of new and (or) changes (expansion, modernization, technical re-equipment, reconstruction, capital repair) of existing engineering structures and their complexes, and (iv) drainage.

51. Selection of the site and construction of sewage facilities has to be implemented in accordance with technological requirements indicated in the Sanitarian Norms and Rules (SNiP) II-89-80 and general requirements indicated in Urban Planning Norms (ShNK) 2.04.02-97.

52. Maximum allowed discharge (MAD, mg/hour) - the mass of pollutants in wastewater, the maximum permissible for disposal in the established mode at a given point per unit of time in order to ensure water quality standards at the control point.

53. Maximum allowed concentration (MAC, mg/m3) - concentration of a pollutant in air, water, or soil, which should not cause reflex reactions in the human body.

54. SanN&R № 0318-15 also defines only two categories of water use: (i) as a source of potable water and/or use by the food industry and (ii) for recreation and sport. The document also provides requirements for water quality in these two types of water courses.

55. Besides this, the document defines the location of the sampling point for quality control - at 500m above the nearest downstream intake water use point (**Figure 1**).

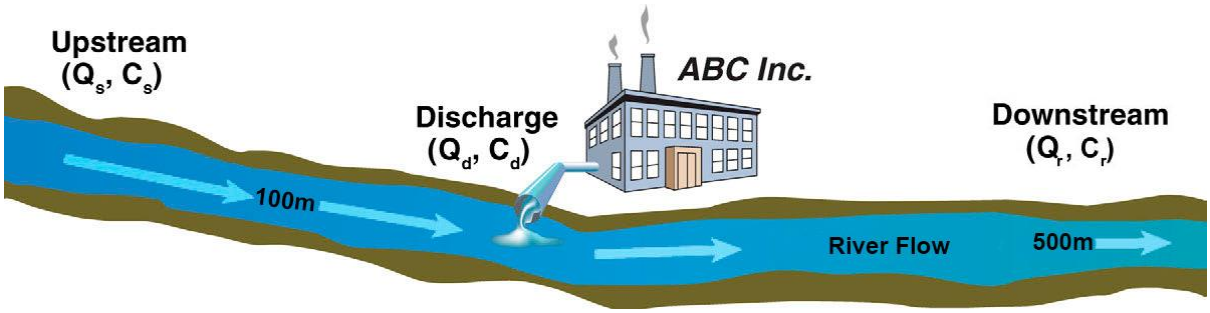


Figure 1: Location of control points for wastewater quality

56. According to this document, the condition for the discharge of effluents in water courses has to be defined with consideration of mixing and dilution effects with water in the watercourse in the pathway between the discharge point and the nearest water intake.

57. It is strictly prohibited to discharge wastewater into water courses without registration and receiving permits from the relevant authorities and approval by sanitarian-epidemiological services and fish protection agencies12.

58. The permits on water use include norms and limits for water withdrawal from the watercourse, norms for water discharge, and maximum allowed discharges.13

59. SanN&R № 0202-06 describes a method of calculation of maximum allowed discharge (MAD). According to the document, MAD is calculated by multiplying the maximum hourly discharge of wastewater (Qw) by the concentration of pollutants in wastewater (Cpw):

$$\mathrm{MAD} = \mathrm{Q_w} \times \mathrm{C_{pw}}$$

[12] Law of RUz on "Water and Water use", clauses 26-27;
[13] SanN&R # 0202-06, para 2.4.

60. If discharge points are located in areas defined as highly polluted or located within the territory of settlements, a CPW has to be taken at the same as the MAC.

61. Results of benchmark analysis of different approaches used in the various parts of the world for calculation of effluents standards: USA, EU and Japan and in a neighboring country – Kazakhstan (as ia country with similar natural conditions and technological base for WWTP design) are presented in **Table 9.**

Table 9. Benchmark analysis of different approaches used in the various parts of the world for calculation of effluents standards

Location/Situation	Biochemical Oxygen Demand (BOD5 at 20 °C) Without Nitrification		Biochemical Oxygen Demand (BOD20 at 20 °C) Without Nitrification		Chemical Oxygen Demand (COD)		Total Suspended Solids		Comments
	Concentration Mg/l	Minimum % reduction	Concentration	Minimum % reduction	Concentration	Minimum % reduction	Concentration	Minimum % reduction	
European Union	25 mg/l	70-90%	-	-	125 mg/l	75%	35 mg/l	90%	
US EPA									
30-day average	30 (25) mg/l	85%	-	-	-	-	30mg/l	85%	pH within 6.0-9.0
7-day average (BOD_5/$CBOD_5$)	45 (40) mg/l	-	-	-	-	-	45mg/l	-	
Texas									
30-day average		35%						85%	
7-day average ($CBOD_5$)	(15)						25		
Japan									
National	160 (120) mg/l	-	-	-	160 (120) mg/l	-	200 (150) mg/l		pH river/lake 5.8-8.6 pH coast 5.0-9.0
Shiga Prefecture	15 (120) mg/l	-	-	-	15 (120) mg/l	-	60 (150) mg/l		pH river/lake 6.0-8.5
Lake (conservation)	5 (3) mg/l	-	-	-	5 (3) mg/l	-	15 (5) mg/l		pH not measured
United Kingdom									
Compliance limits	25 mg/l	70-90%	-	-	125 mg/l	75%			
Maximum compliance	50 mg/l	-	-	-	250 mg/l	-			
Kazakhstan									
A. Protected area									
B. Here									
C. Water streams (P, N)									

Location/Situation	Biochemical Oxygen Demand (BOD5 at 20 °C) Without Nitrification		Biochemical Oxygen Demand (BOD20 at 20 °C) Without Nitrification		Chemical Oxygen Demand (COD)		Total Suspended Solids		Comments
	Concentration Mg/l	Minimum % reduction	Concentration	Minimum % reduction	Concentration	Minimum % reduction	Concentration	Minimum % reduction	
D. Others									
Uzbekistan									
Primary treatment		-	-	20%	-	-		40-45%	
Secondary treatment		-	25-15 mg/l	-	-	-	20 mg/l		
Tertiary treatment		-	4-6 mg/l	-	-	-	6-3 mg/l		
Fisheries	-	-	3 mg/l	-	15 mg/l	-	15 mg/l		
Drinking (potable)	-	-	3 mg/l	-	30 mg/l	-	30 mg/l		
Recreation	-	-	6 mg/l	-	40 mg/l	-	30 mg/l		
Irrigation	-	-	10 mg/l	-	40 mg/l	-	50 mg/l		
Chirqik WWTP	3 mg/l	-			15 mg/l		15 mg/l		

3. Noise and Vibration Standards

62. National and international noise standards are presented in **Table 10**. National norms comply with international standards for both daytime (55 dB) and nighttime (45 dB) periods in residential areas. They are more stringent for offices by 10 dB.

Table 10. Maximum Allowable Noise Standards: Comparison of National and International Maximum Allowable Noise Standards

Receiver	National[14]		General EHS Guidelines[15]	
	Day time (7.00 am – 11 pm) (dB)	Night time (11.00 pm – 7.00 am) (dB)	Day time (7.00 am – 10.00 pm) (dB)	Night time (10.00 pm – 7.00 am), (dB)
Residential	55	45	55	45
Offices, commercial	60	-	70	70

63. There are some differences in defining daytime and nighttime noise standards between General EHS Guidelines and the national standards. General EHS Guidelines consider that a nighttime period is from 10 pm to 7 am, while the national standards define this period between 11 pm and 7 am. On this aspect, more stringent standards (General EHS Guidelines) will be applied for this Project.

64. The national standards for vibration levels in residential houses are provided in **SanR&N 0331-16 "Residential house design in climatic conditions of Uzbekistan"**. For residential houses, the standard is 67 dB for nighttime and 72 dB for daytime, with a frequency of 37 and 61 Hz. For non-continuous vibration, the standards should be decreased by 10 dB (**Table 11**). However, the standard does not provide any coefficient/allowance for non-frequent events such as passing trains. For the construction phase, the vibration limit will be 72 dB.

Table 11. National Vibration Standards

	Permanent Vibration, dB
Daytime	72
Nighttime	67

65. Therefore, as a result of comparison of both national and international standards for vibration, it was accepted that national standards for vibration in residential areas are more stringent, and therefore will be applied for the project, i.e. 72 dB during daytime and 65 dB during nighttime.

4. Soil Quality Standards

66. The soil quality standards are defined in the **SanR&N # 0191-05 "Sanitary maximum permitted concentrations (MPC) and tentatively acceptable concentration of exogenous pollutants in the soil".** The national standards have been compared with international standards (**Table 12**).

Table 12. Maximum Allowable Concentration of Pollutants in Soil

Parameter	Unit	Uzbek Standard (1)	Dutch Intervention Values (2)	EHS Guidelines[16]
Antimony	mg/kg	4.5	22	There are no detailed numerical requirements
Arsenic	mg/kg	2.0	76	

[14] Sanitarian Norms and Rules (SanPiN) # 0331 (2016) Admissible noise level into the living area, both inside and outside the buildings, Table 10.2.4.2

[15] *World Bank Group, Environmental, Health, and Safety Guidelines*, April 30, 2007, Washington, USA. https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=nPtguVM in English. https://www.ifc.org/wps/wcm/connect/be37221a-fc47-4379-b539-eca3fe72c3e6/General%2BEHS%2B-%2BRussian%2B-%2BFinal_.pdf?MOD=AJPERES&CVID=nPtgFKk&ContentCache=NONE&CACHE=NONE in Russian.

Parameter	Unit	Uzbek Standard (1)	Dutch Intervention Values (2)	EHS Guidelines[16]
Cadmium	mg/kg		13	to soil quality established by EHS Guidelines
Chromium	mg/kg	6.0		
Chromium VI	mg/kg		78	
Cobalt	mg/kg	5.0	190	
Copper	mg/kg	3.0	190	
Mercury (organic)	mg/kg	2.1	4	
Lead	mg/kg	32.0	530	
Molybdenum	mg/kg	10.0	190	
Nickel	mg/kg	4.0	100	
Selenium	mg/kg		100	
Zinc	mg/kg	23.0	720	
Cyanides	mg/kg		20 (free) 50 (complex)	
Benzene	mg/kg	0.3	1.1	
Ethylbenzene	mg/kg		110	
Toluene	mg/kg	0.3	32	
Xylenes (sum)	mg/kg		17	
Styrene (vinylbenzene)	mg/kg	0.1	86	
Phenol	mg/kg		14	
Vanadium	mg/kg	150.0	250	
Nitrates	mg/kg	130.0	-	
Sulphate (H_2SO_4)	mg/kg	160.0	-	
Total Petroleum Hydrocarbons (Mineral Oil)	mg/kg		5,000	
PAHs (total)	mg/kg		40	
Ammonia Nitrogen	mg/kg		1.5	

Notes: General EHS Guidelines (footnote 15), Wastewater and Ambient Water Quality).
SanR&N #0191-05. Sanitary Permissible Concentrations (MPC) and Indicative Acceptable Concentrations (IAC) of Exogenous Harmful Substances in the soil (November 5, 2005).

5. Waste Management

Municipal Solid Waste (MSW)

67. Related to **SanR&N RUz No. 0297-11**[17], the composition of MSW is usually divided into the following main groups: paper, food waste, wood, metal, textiles, leather, rubber, glass, stones, coal and ash, room and yard estimates, fallen leaves, other unclassified parts and screenings (particles smaller than 15 mm).

68. In the conditions of Uzbekistan, the average annual rate of accumulation of solid waste per person in different cities varies, their composition is characterized by an increased accumulation of garbage due to street estimates, fruit and vegetable waste, and packaging material (including plastic). The largest part of the waste is made up of such fractions as paper, kitchen waste, metal, textiles, glass and stones.

69. The volumetric weight of MSW must be specified for individual populated areas of a particular region of the RUz. The norms of solid waste accumulation in settlements per 1 inhabitant should be taken on average at the level of 1.17 kg/day (0.003 cubic meters) or 437.7 kg per year (1.09 cubic meters per year).

70. MSW in terms of its physical and chemical parameters (humidity, calorific value, content of organic substances) is quite specific, contains a large amount of combustible material, nitrogen and carbon, which makes it possible to neutralize them in various ways (burning, use as fertilizer, neutralization by biofermentation on factory settings and special polygons).

[17] SanR&N RUz No. 0297-11 (27.08.2011) - Sanitary Rules and Regulations on cleaning the territories of populated areas from solid household waste in the conditions of the RUz

Hazardous waste

71. The authorized bodies in the field of hazardous waste management related to the Project are:

- **The Cabinet of Ministers of the RUz** (1 - approves the list of hazardous waste and waste, the transboundary transportation of which is subject to state regulation; 2 - resolves issues regarding the provision of land plots for hazardous waste disposal);
- **Ministry of Health of the RUz** (1 - determines measures to protect the life and health of citizens from the harmful effects of waste; 2 - issues conclusions of the state sanitary and hygienic examination of waste management facilities; 3 - establishes sanitary and hygienic requirements for goods (products) produced from waste) and issues a hygienic certificate for them; 4 - provides methodological support in determining the degree of danger of waste to the life and health of citizens).

72. **Law of the RUz No. 362-II "On Waste"** (2002, updated in 2021) regulates relations in the field of waste management, including hazardous waste. The main objectives of this Law are to prevent the harmful effects of waste on the life and health of citizens, the environment, reduce the generation of waste and ensure their rational use in economic activities.

73. According to the Law "On Waste", the concept of "hazardous waste" is waste containing substances that have at least one of the hazardous properties (toxicity, infectivity, explosion hazard, fire hazard, high reactivity, radioactivity) and are present in such quantities and in in such a form that they pose an immediate or potential danger to the life and health of citizens, the environment, both independently and in contact with other substances.

74. The project could include project activities related to the generation of asbestos-containing wastes and asbestos dust. These wastes mostly generated during rehabilitation works on water supply networks and old roofs of reconstructed administrative buildings on the territory of WDUs and GWISs could pose a serious health hazard to people living in houses near construction sites. National regulation requires that asbestos wastes be disposed on the municipal landfills in compliance with requirements of **SanR&N 0158-04 "Collection, transportation and disposal of asbestos contained materials in condition of Uzbekistan"**. This SanR&N regulates a procedure of wasted asbestos handling and describes the procedure of collecting wasted asbestos.

75. Asbestos wastes belonging to Hazard Class IV could be disposed on MSW without limitations (quantity). Disposal of asbestos wastes under Hazard Class III is limited and the amount of such wastes should not exceed 30% of the general amount of solid wastes. Asbestos wastes should be disposed of in landfills with engineered liner systems. This legislation also provides specifications of landfill locations and organization (arrangement and structure).

76. In case of presence of asbestos materials, the Project Contractor will develop ACMMP that includes identification of hazards, the use of proper safety gear and disposal methods. Sample ACMMP is provided in Appendix 1.

77. Inventory of waste generation and disposal is carried out in accordance with the requirements of the **Decree of the Cabinet of Ministers of the RUz. No. 14 "On approval of the regulations on the procedure for developing and approving draft environmental standards" (2014, updated in 2022)** and includes:

- results of a survey of sources of waste generation with obtaining data on their qualitative and quantitative characteristics, while to determine the amount of waste generated, the following are used:
- analytical method, which consists in determining the quantitative yield of waste under conditions close to existing technological processes;
- statistical method, which is a set of statistical techniques and methods that reveal the conditions for waste generation;
- balance sheet and technological schemes of main, auxiliary and other production;

- information on the composition of raw materials (materials, fuel), nomenclature and volumes of products, operating mode of technological equipment (submitted in the form of an official certificate);
- a plan diagram in a coordinate system on which the sources of waste generation and their locations (temporary storage) are plotted;
- passports for each type of waste indicating the place and technological process of their formation, physical-mechanical, physical-chemical, sanitary-hygienic and consumer properties, education standards in accordance with Appendix No. 14 to this Decree.

78. The environmental hazard class of waste is determined by the classification catalog of waste in the form in accordance with Appendix #15, and the obtained data on all generated production and consumption waste is summarized in an inventory sheet in the form in accordance with Appendix #16. In order to improve the process of temporary disposal of waste, reduce its extent the danger of impact on humans and the environment, as well as solving issues of their possible further processing and disposal, planned environmental protection measures are being developed in accordance with Appendix #18[18].

79. Transportation of hazardous waste is carried out by vehicles specially equipped for this purpose in the presence of an environmental waste certificate and a permit issued in the manner prescribed by law. The transport organization is responsible for the safe transportation of hazardous waste.

C. National Social and Labor Requirements

80. The **Constitution of the RUz (1.05.2023)** includes a chapter on the economic and social rights of citizens. According to it, everyone has the following rights:

(i) Everyone has the right to decent work, to free choice of profession and occupation, favorable working conditions that meet the requirements of safety and hygiene, to fair remuneration for work without any discrimination and not below the established minimum wage, as well as protection from unemployment in the manner prescribed by law.

The minimum wage is determined taking into account the need to ensure a decent standard of living for a person.

It is forbidden to refuse to hire women, dismiss them from work and reduce their wages for reasons related to pregnancy or the presence of a child. (Article 42).

(ii) The state takes measures to ensure the employment of citizens, protect them from unemployment, and reduce poverty.

The state organizes and encourages professional training and retraining of citizens. (Article 43).

(iii) Forced labor is prohibited except in the execution of a sentence imposed by a court decision, or in other cases provided for by law.

Any form of child labor that poses a threat to the health, safety, morals, mental and physical development of a child, including those that prevent him from receiving an education, is prohibited. (Article 44).

(iv) Everyone has the right to rest.

Employees have the right to rest by establishing the length of working hours, days off and non-working holidays, paid annual leave. (Article 45).

(v) Everyone has the right to social security in old age, in case of loss of ability to work, unemployment, as well as loss of a breadwinner and in other cases provided for by law.

[18] Decree of the Cabinet of Ministers of the RUz No. 14 "On approval of the regulations on the procedure for developing and approving draft environmental standards" (2014, updated in 2022)

The amounts of pensions, benefits and other types of social assistance established by law cannot be lower than the officially established minimum consumer expenses. (Article 46).

81. **Decree of the President of RUz # UP-5876 "On Approval of the Concept of the State Policy of the RUz in the Sphere of International Relations"** (15.11.2019). The decree noted that the provisions of the Constitution of the RUz are being actively implemented, proclaiming, and guaranteeing that the people of Uzbekistan are citizens of the RUz, regardless of their nationality, and the RUz ensures respect for the languages, customs and traditions of nations and nationalities living on its territory, creating conditions for their development. The decree also states that the representatives of more than 130 ethnic groups are living in Uzbekistan, using the same rights and opportunities provided by the Constitution and laws of the RUz, working fruitfully in various sectors of the economy and the social sphere, the fields of science and culture, making a worthy contribution to the prosperity of Uzbekistan and strengthening its independence, increasing the authority and image of the republic in the international arena. The decree approves: (i) the Concept of the state policy of the RUz in the field of interethnic relations; (ii) the "Roadmap" for the implementation of the Concept of the state policy of the RUz in the field of interethnic relations in 2019 – 2021; and (iii) establishes that coordination of implementation and monitoring of the high-quality and timely implementation of the Concept and the Roadmap are carried out by the Committee on Interethnic Relations and Friendly Relations with Foreign Countries under the Cabinet of Ministers of RUz.

82. **Decree of the President of RUz # UP-6012 "On Approval of the National Strategy of the RUz on Human Rights"** (22.06.2020) states that the RUz has acceded to more than 80 international human rights instruments, including 6 major treaties and 4 optional protocols of the United Nations (UN), on an ongoing basis submits to the Human Rights Council and UN treaty committees the national reports on their implementation. In addition, practical measures are being taken to harmonize national legislation with international legal standards in the field of human rights. Appendix 2 to the Decree presents the "Road Map on the Implementation of the National Strategy of the RUz on Human Rights" and in it line 17 includes the provisions on "Implementation of the Concept of the state policy of the RUz in the field of interethnic relations for 2019-2021, ensuring the social and cultural rights of national minorities."

83. **Joint Resolution of the Kengash of the Legislative Chamber of the Oliy Majlis of RoU and the Kengash of the Senate of the Oliy Majlis of RUz "On the National Action Plan for the implementation of concluding comments and recommendations of the UN Committee on the Elimination of Racial Discrimination Following the consideration of the tenth - twelfth periodic reports of the RUz to fulfill the provisions of the International Convention on the Elimination of All Forms of Racial Discrimination at 2020-2022"** № 513-IV dated 1510.2020. The joint resolutions approved the "National Action Plan for the implementation of the Concluding Observations and Recommendations of the UN Committee on the Elimination of Racial Discrimination following the consideration of the Tenth - Twelfth periodic reports of the RUz on the implementation of the provisions of the International Convention on the Elimination of All Forms of Racial Discrimination for 2020 – 2022." The National Action Plan includes provision on Definition of racial discrimination and legislation, as well as the rights of ethnic minorities and required to "take immediate action to develop and enact legislation on the rights of persons belonging to ethnic minority groups, in consultation with all ethnic groups" through "studying the issue of the development and adoption of the law of the RUz on Equality and Non-Discrimination."

84. **The Ministry of Employment and Labor Relations of the RUz (MoELR)** is the main state institution responsible for labor, employment, and social protection policy making. The ministry is tasked with the development and regulation of the labor market and ensuring the employment of the population, the regulation of labor relations and labor protection, the provision of social services for the population, and medical-social rehabilitation of persons with disabilities.

85. The supervision and monitoring of compliance with Labor Code requirements and the protection of labor rights of citizens is implemented by **the State Labor Inspection under the MoELR of the**

RUz, and its territorial subordinate structures according to the Statement on the State Labor Inspection.[19]

86. The key social legal documents are presented further in this section and briefly summarized in the **Table 13** below.

Table 13. List of key social laws

Law/regulation	Date of adoption	Date of last amendment
Civil Code	29.08.1996	12.10.2021
Labor Code	21.12.1995	10.02.2022
Law on Population Employment	13.01.1992	20.10.2020
Law on Public Health	29.08.1996	03.08.2021
Law on Sanitary and Epidemiological Welfare of the Population	26.08.2015	27.04.2021
Law on Industrial Safety of Hazardous Production Facilities	28.09.2006	03.01,2018
Law on Licensing, Permission and Notification Procedures	14.07.2021	
Law on Labor Protection	06.05.1993	04.12.2019
Law on Appeals of Individuals and Legal Entities	03.12.2013	11.03.2020

87. **The Civil Code of the RUz** (adopted on 29.08.1996, last amended on 12.10.2021) defines the legal status of participants of civil relations, the grounds and procedure of implementation of property rights and other proprietary rights, rights on intellectual property, regulates the contractual and other obligations, as well as other property and related personal non-property relations.

88. **The Labor Code of the RUz**. The Labor Code of the RUz, introduced in April, 1996, is considered as a base document for work relations. It addresses provisions relating to non-discrimination in labor relations, protection of labor rights, subjects of labor relations, representation of workers and employers, collective agreements and collective bargaining, job placement, labor contracts, working time, rest and leave, wages, guarantee and compensation payments, labor discipline, the material responsibilities of labor contract parties, labor protection, additional guarantees and advantages to certain categories of workers, labor disputes, and State social security.

89. The Code regulates the labor relations and ensures a balance of the interests of employees, employers, and the state. The main principles of the code are: (i) equality of labor rights, prohibition of discrimination in the sphere of labor and occupation; (ii) freedom of labor and the prohibition of forced labor; (iii) social partnership in the sphere of labor; (iv) guarantee of ensuring labor rights and performance of labor duties; (v) inadmissibility of deterioration of the legal status of the employee.

90. Age of employment. Article 5 of the Labor Code states that forced labor, that is, compulsion to perform work under the threat of any punishment is prohibited. The right to work is given to persons aged 16 and over (Article 20). Article 25 states employers' responsibility to prevent the use of forced and worst forms of child labor. Articles 49 and 51 of the Administrative Code Uzbekistan impose fines for violation of the above rules on forced and child labor.

91. Wages and deductions. Agreements and collective agreements establish the form and amount of compensation for the works performed. Minimum wage provided to employee cannot be less than the minimum monthly wage established by legislation (no maximum pay is legally specified). Changing the conditions of remuneration in the direction unfavorable for the employee is not allowed without the consent of the employee. Payment in goods is prohibited, except in cases established by the Government of the RUz.

[19] Attachment #3, Resolution of the Cabinet of Ministers #1066 of 31.12.2018 "On measures to improve the performance of the Ministry of Employment and Poverty Reduction of the RUz."

92. Women. The law emphasizes prohibition of discrimination in the field of wages and ensuring equal pay for men and women for work of equal value. Code prohibits refusing to hire or reducing wages for reasons of pregnancy or having children, includes additional measured for labor protection for women, transfer of pregnant women to work that is easier or excludes the impact of adverse production factors, transfer to easier work of the parent taking care of the child under 2 years, right to shortened duration of work, provision of additional day off and other provisions.

93. Work time. The standard workweek is 40 hours, less allowed for persons under 18 years of age, workers with disabilities of I and II groups, employees working in unfavorable conditions, certain workers (medical workers, teachers and other) whose work is associated with increased emotional / mental / nervous tension, one of the parents (guardian) of a child under the age of three working in a budget-funded organization. For employees with regular working hours, duration of the daily shift is 8 hours for a five-day working week and 7 hours for a six-day working week. Number of hours per day and days per week is set in the contract/agreement between employer and employee. The law also includes provisions regarding type and time for rest provided to employee (e.g., breaks for rest and meal, weekends, holidays), as well as on time of release from work not counted as rest time (e.g. maternity leave, temporary disability period, etc.).

94. Vacation. In addition to public holidays, employees must receive at least 21 working days of paid leave per year, employees under 18 and disabled employees (groups I and II) – 30 calendar days. Additional vacation days are provided to those who work in unhealthy and unfavorable working conditions, in adverse climatic conditions, long-term employees of company/sector, other groups.

95. Overtime work. The law establishes that compensation for overtime work is paid at least twice the regular wage. The duration of overtime work should not exceed 4 hours for 2 consecutive days (in jobs with unfavorable working conditions - 2 hours a day) and o120 hours a year. The employer is obliged to ensure that the employee's overtime hours are accurately recorded. Overtime work is not allowed when the working shift lasts 12 hours, as well as when working in harmful and dangerous conditions.

96. Labor disputes. The procedure for considering individual labor disputes on the application of labor legislation and other legal acts on labor, an employment contract is determined by the Labor Code, and the procedure for considering cases on labor disputes in courts is determined, in addition, by the Civil Procedure Code. Individual labor disputes are considered by commissions on labor disputes or by court. An employee has the right, at his choice, to resolve a labor dispute with a labor dispute committee or directly with a court. Any individual labor dispute at any stage of consideration can be referred to a mediator in accordance with the Law of the RUz "On Mediation".

97. **Law on population employment** (13.01.1992, new edition #ZRU-36 dated 21.06.2006, new edition last amendment 20.10.2020). It regulates labor relations of individuals employed with labor contracts by enterprises, institutions, organizations of all types of ownership forms, including those contracted by individuals. This law is considering interests of employees and employers provide the efficient function of the labor market, just and secure labor conditions, protection of labor rights and employees health, promote to the growth of labor productivity, increase of work quality, raising on this matter welfare and social livelihood level of the population.

98. **Law on Public Health** (29.08.1996, last amendment 03.08.2021). The main objectives of legislation on the protection of public health are: guaranteeing the rights of citizens to health care from the state; the formation of a healthy lifestyle of citizens; legal regulation of the activities of state bodies, enterprises, institutions, organizations, public associations in the field of public health.

99. **Law on Sanitary and Epidemiological Welfare of the Population** (26.08.2015, last amended on 27.04.2021). It regulates social relations on sanitary-epidemiological well-being and radiation safety, the right person to a healthy environment, the rights and guarantees of their implementation. Law prohibits the production, use and sale of new types of raw materials, chemicals, technological equipment, processes and tools, etc, not registered in the Ministry of Health of the RUz. In addition, law restricts the use of chemicals, means and methods used in the practice of household and drinking water supply, in the production and processing of food products, stimulants and growth regulators of agricultural plants and animals, pesticides, perfumes and cosmetic products in the case of adverse

effects on human health until the developer provides scientifically based data on the safety of these substances, means and methods.

100. **Law on Industrial Safety of Hazardous Production Facilities** (28.09.2006, last amended in 03.01.2018). This law provides the legal basis for the environmental requirements for handling hazardous substances related to the impact on the living organism to I, II and III classes of danger, explosives, industrial wastes containing substances in concentrations which are hazardous to human health and the environment.

101. **Law on Licensing, Permission and Notification Procedures** (14.07.2021). The purpose of this Law shall be to regulate relations in the field of licensing, permitting and notification procedures. This Law shall not apply to relations with respect to: use of objects of intellectual property, as well as entrepreneurial activities which is carried out on the basis of a complex business license agreement (franchising agreement); state registration and recording of business entities, transactions, rights and property; accreditation, certification, standardization, metrology and technical regulation; state ecological expertise; etc.

102. **Law on Labor Protection** (06.05.1993, new edition № ZRU-410 dated 22.09.2016, new edition last amendment 04.12.2019). The law is aimed at regulating the relations in the field of labor protection. The law determines the main directions of state policy in the field of labor protection, defines the powers of a specially authorized state body in the field of labor protection, specifies rights and obligations of an employee and an employer, as well as includes provisions on certification of workplaces according to working conditions, mandatory medical examinations, investigation and registration of accidents at work and occupational diseases, state supervision and control over compliance with labor protection, rights of trade unions.

103. Resolution of Cabinet of Ministers of RUz #349 **"On Additional Measures on the Elimination of Forced Labor in Uzbekistan"** (10.05.2018, last amended on 31.12.2018) and Resolution of the Cabinet of Ministers of the RUz #1066 **"On Measures to Improve Activities Ministries of Employment and Labor Relations in the RUz"** (31.12.2018, last amended on 02.03.2022) prohibit and provide detail information on types of forced labor, types of governmental organizations and its staff, monitoring mechanism of local governorates (khokimiyats). According to this decree, financial resources of the Public Works Fund, which was established under the Ministry of Employment and Labor Relations, will be used for any public works in Uzbekistan.

104. **Law on Appeals of Individuals and Legal Entities** (03.12.2013, new edition № ZRU-445 dated 11.09.2017, new edition last amended on 11.03.2020). The purpose of this Law is to regulate relations in the field of appeals of individuals and legal entities (hereinafter referred to as appeals) to state bodies and state institutions (hereinafter referred to as state bodies), as well as to their officials. Article 5 specifies the applications, suggestions and complaints as the types of appeals that can be submitted in verbal, written or electronic forms. An appeal received by a state body, organization or their official is subject to registration on the same day, and in case of receipt after the end of working hours, on the next business day. Refusal to register an appeal is not allowed. Registration of verbal appeals is not required (Article 23). Article 28 states that the application or complaint is considered within fifteen days from the date of receipt by the state body, organization or their official, and within one month in case the additional study and (or) verification is required (in the latter care the information is provided to the individual or legal entity that submitted the appeal within ten days). It was noted, that according to the law anonymous appeals are not considered (Article 29).

D. National Land Use Requirements

105. The key land use documents are presented further in this section and briefly summarized in the **Table 14** below.

Table 14. List of key land use laws

Law/regulation	Date of adoption	Date of last amendment
Civil Code	29.08.1996	12.10.2021

Law/regulation	Date of adoption	Date of last amendment
Land Code	30.04.1998	17.08.2021
Law on Lease	19.11.1991	21.04.2001
Law on Farms	30.04.1998	24.02.2004
Resolution of Cabinet of Ministers of RUz # 911 "On Additional Measures to Ensure Guarantees of Property Rights of Individuals and Legal Entities and to Improve the Procedure for Withdrawal of Land Plots and Payment of Compensation"	16.11.2019	
Resolution of Cabinet Ministers of RUz # 1060 "On measures to improve the procedure for state registration of rights to real estate"	29.12.2018	
Resolution of Cabinet Ministers of RUz # 3857 "On measures to improve the effectiveness of training and realizing projects with participation of IFIs and foreign government financial organizations"	17.07.2018	
Decree of the President of RUz # 5495 "On measures on cardinal improvement of investment climate in the RUz"	01.08.2018	
Decree of the Cabinet of Ministers of RUz # 476 "On Measures to Implement the Farms Development Concept for 2004-2006"	30.10.2003	
Decree of the Cabinet of Ministers of RUz # 97 "On Compensation of Losses to individual and Legal Entities as a Result of Land Plots Expropriation for State and Public Needs"	29.05.2006	
Decree of the Cabinet of Ministers of RUz # 146 "In Improvement of the Procedure for Provision of Land Plots, Protection of the Rights of Legal Entities and Individual to Land Plots for Improvement of the Architectural Appearance of Residential Areas of the Republic, Optimal Use of their Lands for Development"	25.05.2011	
Decree of the Cabinet of Ministers of RUz # 22 "On Approval of the Regulation on the Farm and Optimisation and Liquidation procedure"	31.01.2013	

106. **Civil Code of RUz** (adopted on 29.08.1996, last amended on 12.10.2021) defines general rules of property seizure, determination of property cost and rights for compensation, terms of rights termination.

107. **Land Code of RUz** (dated 30.04.1998, last amendment 17.08.2021). The Land Code is the main regulatory framework for land related matters in Uzbekistan. The land code regulates allocation, transfer and sale of land plots, defines ownership and rights on land. It describes responsibilities of different state authorities (Cabinet of Ministers, region, district, and city khokimyats) in land management; rights and obligations of land possessor, user, tenant, and owner; land category types, land acquisition and compensation issues, resolution of land disputes and land protection. The land code also defines the terms of rights termination on land plot, seizure, and land acquisition of land plot for state and public needs, and terms of seizure of land plot in violation of land legislation:

- Legal entities can have rights for land in the form of permanent tenure, permanent use, fixed term (temporary) use, lease, and ownership (Article 17):
- Permanent land tenure is granted to enterprises, institutions and organizations for agriculture and forestry, as well as for other purposes if allowed by law (Article 20).
- Permanent or fixed-term land use may be granted to non-agricultural entities, international companies/associations/organizations (Article 20).
- Land lease is a fixed-term, chargeable tenure, and use of the land under the terms of a Lease Agreement. The land is leased by khokims of districts and cities to legal entities in the RUz (Article 24, Article 1 of the Law on Lease).

- Land ownership results, by law, from privatization of trade and service facilities together with the land plot on which they are located (Article 18).
- Agricultural land may be allocated to individual farmers to run a farm (treated as a legal entity) and companies involved in agricultural production (Article 46). Land allocated to a farm may not be subject to privatization, sale, donation, or exchange. Land tenants or users need to pay for the land and are charged with annual land tax estimated based on quality, location, and availability of irrigation systems (Article 28). Leaseholders are paying a lease fee that equals to the land tax. The Land Code identifies that land tenants, leaseholders, users, and owners, are eligible for compensation for losses and damages in connection with land acquisition or expropriation, including lost profit (Article 41).

108. **Law on Lease** (No 427-XII, dated 19.11.1991 and last amended on 21.04.2001) regulates lease arrangements related to chargeable possession and use of land, other natural resources as well as assets required to independently carry out economic and other operations by the tenant (Article 1). Land and other natural resources may be leased. Agricultural land may be leased only for agricultural production (Article 3).

109. According to Article 13, any changes in the terms and conditions of the Land Lease Agreement (LLA) and its termination are to be agreed by the parties. At the request of one of the parties, the LLA can be terminated by the decision of the court should the other party violate the terms and conditions of the LLA.

110. **Law on Farms** (No 602-I, dated 30.04.1998 and last amended 24.02.2004) regulates the process of establishment, operation, reorganization, and liquidation of farms. The law treats a farm as a business entity engaged in the farming of agricultural products using leased land. Farms may only lease land for agricultural production and other farming activities. The right to lease is granted based on an open competition for a period of up to fifty years or minimum thirty years (Articles 1, 5 and 7).

111. The Law on Farms states (Article 7) that a farm is considered to be established as soon as the state registration process is completed, and the farm founder (Farm Manager) has concluded a long-term LLA. A farm is entitled to open and maintain bank accounts and have a seal with the name of the farm. The Law on Farms stipulates rights (Article 16) inter alia to run a farming business, plant and harvest crops on the leased land in line with the farm statute and LLA provisions, enter into future contracts and request advance payments for farming products, sell products to consumers, set prices for farm products as well as works and services, award supply contracts (for instance for electricity, fuel and lubricants, mineral fertilizers, chemicals, water, technical and other services), generate and dispose of unlimited income (profit) from the farming business including money in the bank account, purchase shares and other securities, obtain loans, raise money and benefit from any privileges and preferences granted to small and private enterprises, and file legal actions to protect these rights and legitimate interests.

112. **Resolution of Cabinet of Ministers of RUz # 911 "On Additional Measures to Ensure Guarantees of Property Rights of Individuals and Legal Entities and to Improve the Procedure for Withdrawal of Land Plots and Payment of Compensation"** (16.11.2019). This resolution deals with regulations that determine the procedure for withdrawal/redemption of a land plot or its part, as well as the procedure for calculating the amount of compensation to citizens and legal entities for demolished residential, industrial, and other buildings, structures and trees and crops in connection with the withdrawal/redemption of land plots for state and public needs. The resolution envisages procedures for acquisition of lands for state and public needs that belong to individuals (individual entrepreneur, citizen of the RUz, foreign citizen, and stateless persons) and legal entities (business entities, non-governmental organizations) based on ownership, permanent use or temporary use, as well as in the framework of investment projects and compensation for property owners including for the properties located on impacted lands.

113. **Resolution of Cabinet Ministers of RUz # 1060 "On measures to improve the procedure for state registration of rights to real estate"** (29.12.2018). The resolution is aimed at creating the favorable conditions for registering rights to real estate, includes the Regulation on the procedure for

state registration of rights to real estate, providing for: definition of uniform rules for state registration of rights to real estate, provision of free access to the information of the State Register to legal entities and individuals, introduction of information and communication data exchange between authorized bodies in order to create favorable conditions for legal entities and individuals to register their rights to real estate, state registration of rights to unfinished buildings and structures, issuance of an electronic extract from the State Register of Rights to Real Estate, introduction of a pre-trial dispute resolution mechanism.

114. According to this Regulation presented in the Annex 1 to Resolution, information on the right of ownership and other real rights to real estate, including the occurrence, transfer, restriction and termination of these rights, as well as transactions with them from February 1, 2019, is provided through information and communication systems to the body carrying out state registration, bodies local executive authorities, state notary offices, territorial divisions of the Ministry of Construction of the RUz, as well as other authorized bodies within one day from the date of the relevant actions (Article 7).

115. Article 21 lists the documents based on which the emergence of rights to land plots is registered, and among them mentions the following "registration of the right of lifelong inheritable possession of a land plot - a decision of local government bodies, adopted within the limits of authority, on the provision of a land plot or a certificate of the right to inheritance issued by a state notary's office, or a state warrant issued by the khokim of the district (city), about acquiring this right on the basis of an auction".

116. **Resolution of Cabinet Ministers of RUz # 3857 "On measures to improve the effectiveness of training and realizing projects with participation of IFIs and foreign government financial organizations"** (17.07.2018). The resolution provides that payment of compensation for the land acquisition, demolition of houses, other structures, plantings within the framework of projects with the participation of IFIs, if it is agreed and stated in agreements, then will be carried out by authorized bodies in accordance with the requirements of IFIs or Foreign Governmental Finance Organizations.

117. **Decree of the President of RUz # 5495 "On measures on cardinal improvement of investment climate in the RUz"** (01.08.2018). The resolution provides that the adoption of decisions on the seizure of land for state and public needs is allowed only after an open discussion with interested parties whose land plots are planned to be seized, as well as assessing the benefits and costs; demolition of residential, industrial premises, other structures and structures belonging to individuals and legal entities, with the withdrawal of land plots is allowed after the full compensation of the market value of immovable property and losses caused to owners in connection with such withdrawal.

118. **Decree of the Cabinet of Ministers of RUz # 476 "On Measures to Implement the Farms Development Concept for 2004-2006"** (30.10.2003) approves the Programme for Implementation of the 2004-2006 Farms Development Concept and approves the Regulation on the Long- Term Lease of Land by Farmers (Appendix No.7). This Regulation sets out the procedure for allocating land to farmers based on long-term lease arrangements and provides a template of the Long-Term LLA (Appendix No.8).

119. **Decree of the Cabinet of Ministers of RUz # 97 "On Compensation of Losses to individual and Legal Entities as a Result of Land Plots Expropriation for State and Public Needs"** (29.05.2006). The Decree regulates the compensation of losses to individuals and legal entities resulted from expropriation of land plots for state and public needs. This regulation determines the procedure for land expropriation and sets out the procedure for calculating compensations for individuals and legal entities for the loss of residential, industrial, and other buildings and structures in connection with the land expropriation.

120. **Decree of the Cabinet of Ministers of RUz # 146 "On Improvement of the Procedure for Provision of Land Plots, Protection of the Rights of Legal Entities and Individual to Land Plots for Improvement of the Architectural Appearance of Residential Areas of the Republic, Optimal Use of their Lands for Development"** (25.05.2011). This Decree is aimed at improving the land allocation procedure for, ensuring the protection of the right of legal entities and individuals to land plots to improve the architectural appearance of residential areas in the country, the optimal use of their

land for development in accordance with the Land Code and the Urban Development Code. The resolution approved two regulations: i) the Regulation on Land Allocation for Urban Development and Other Non- agricultural Purposes, and ii) Regulation on the Compensation Process for Landowners, Users, Tenants, and Owners, including for losses in trees and crops.

121. **Decree of the Cabinet of Ministers of RUz # 22 "On Approval of the Regulation on the Farm and Optimization and Liquidation procedure"** (31.01.2013) approves the Regulation on the Farmland Optimization and Liquidation Procedure. According to Clause 4 of the Regulation, the voluntary reduction of the size of the farmland is to be completed against a respective application of the Farm Manager to be submitted to the district (city) khokim. If the farm wants to increase the size of the farmland, it should participate in the tender for long-term lease of state-owned land.

122. The Regulation determines (Clause 9) that land optimization is to be completed against a respective approval by the Regional Land Commission of the khokim's Decree to modify the size of the farmland and introduction of respective amendments in the LLA signed between the District (City) khokim and the Farm Manager.

E. National Gender related Requirements

123. From the first days of independence of the RUz, its President and Government identified the problem of legal, economic and social protection of motherhood and childhood, creating conditions for the comprehensive development of women and increasing their role in society as a priority task.

124. The Basic Law of the RUz - the **Constitution (2023)**, contains provisions designed to protect women's rights:

- In the RUz, human rights and freedoms are recognized and guaranteed in accordance with generally recognized norms of international law and in accordance with this Constitution. Human rights and freedoms belong to everyone from birth.

  In the RUz, all citizens have the same rights and freedoms and are equal before the law, regardless of gender, race, nationality, language, religion, beliefs, social origin, or social status (Article 19).

- Everyone has the right to decent work, to free choice of profession and type of activity, favorable working conditions that meet safety and hygiene requirements, to fair remuneration for work without any discrimination and not lower than the established minimum wage, as well as to protection from unemployment in the manner prescribed by law.

  It is prohibited to refuse to hire women, dismiss them from work or reduce their wages for reasons related to pregnancy or the presence of a child (Article 42).

- Women and men have equal rights.

The state ensures equal rights and opportunities for women and men in managing the affairs of society and the state, as well as in other spheres of public and state life (Article 58).

125. The RUz acceded to the **Convention on the Elimination of All Forms of Discrimination against Women** in accordance with the Resolution of the Oliy Majlis of the RUz dated May 6, 1995 No. 87-I "On the accession of the RUz to the Convention on the Elimination of All Forms of Discrimination against Women, adopted in the New York December 18, 1979."

126. The purpose of the **Law of RUz #ZRU-562 "On guarantees of equal rights and opportunities for women and men" (2019, amended in 2023)** is to regulate relations in the field of ensuring equal rights and opportunities for women and men.

127. According to this Law, women and men have equal rights and opportunities guaranteed by the state. The state guarantees women and men equal rights in the exercise of personal, political, economic, social and cultural rights. The state guarantees women and men equal participation in managing the affairs of society and the state, the electoral process, ensuring equal rights and opportunities in the field of health, education, science, culture, labor and social protection, as well as in other areas of state and public life.

128. In accordance with this Law the main directions of state policy in the field of ensuring equal rights and opportunities for women and men are:

- formation and improvement of the regulatory framework in this area;
- development and implementation of state programs, national action plans and strategies in this area;
- creating a culture of equal rights and opportunities for women and men;
- ensuring equal participation of women and men in managing the affairs of society and the state;
- ensuring equal rights and opportunities for women and men in combining work and family responsibilities;
- social protection and support for family, childhood, formation of responsible motherhood and fatherhood;
- protecting society from information aimed at direct and indirect discrimination based on gender;
- involvement of citizens' self-government bodies, non-governmental non-profit organizations and other civil society institutions in the development and implementation of state programs, national action plans and strategies in this area;
- financing of measures to ensure equal rights and opportunities for women and men from the State Budget of the RUz and other sources not prohibited by law;
- development of effective cooperation at the national, regional and international levels in order to achieve equal rights and opportunities for women and men.

129. Public administration in the field of ensuring equal rights and opportunities for women and men is carried out by the Cabinet of Ministers of the RUz, the Republican Commission on Increasing the Role of Women in Society, Gender Equality and Family, as well as government bodies within their powers. The powers of the main bodies guaranteeing the rights of women, according to the Law “On guarantees of equal rights and opportunities for women and men”, are presented below.

130. The powers of the **Cabinet of Ministers of RUz** in the field of ensuring equal rights and opportunities for women and men:

- ensures the implementation of a unified state policy aimed at achieving equal rights and opportunities for women and men in all spheres of society;
- ensures the development, approval and implementation of state programs, national action plans and strategies in the field of ensuring equal rights and opportunities for women and men and the allocation of the necessary funds for their financing;
- ensures interaction between state and economic management bodies, local government bodies in the field of ensuring equal rights and opportunities for women and men;
- establishes temporary special measures to ensure the implementation of gender policy.

131. Powers of the **Republican Commission on increasing the role of women in society, gender equality and family**:

- participates in the implementation of government policy aimed at increasing the role of women in society, achieving gender equality between women and men, strengthening the family, protecting motherhood, paternity and childhood;
- promotes the achievement of de facto equality between women and men in all spheres of society, ensuring the principle of non-discrimination on the basis of gender when promoting to senior positions in the public service;

- participates in the development and implementation of state programs, national action plans and strategies in the field of ensuring equal rights and opportunities for women and men;
- takes measures to study the current state of affairs in ensuring gender equality, the rights and legitimate interests of women, critically analyze existing problems and eliminate them;
- takes measures to provide social and legal support for women, increase the socio-economic and socio-political activity of women on an equal basis with men;
- coordinates the activities of government bodies aimed at achieving equal rights and opportunities for women and men in all spheres of society;
- develops proposals for the creation of special institutions to protect the rights and provide assistance to persons who find themselves in difficult life situations due to direct or indirect discrimination based on gender;
- submits to the Cabinet of Ministers of the RUz proposals for the adoption of temporary special measures to ensure the implementation of gender policies and their abolition;
- exercises control over the implementation of legislation guaranteeing equal rights and opportunities for women and men;
- receives, considers and analyzes requests from individuals and legal entities on issues of ensuring equal rights and opportunities for women and men and takes measures to restore violated rights;
- approves the plan for conducting a gender audit and determines the methodology for conducting a gender audit;
- cooperates with international organizations, relevant bodies of foreign countries in the field of ensuring equal rights and opportunities for women and men and compliance with international standards in this area;
- annually hears information from the chairman of the Committee on Family and Women under the Ministry of Employment and Poverty Reduction of the RUz on the activities of the committee and on systemic problems in the field and their solutions.

132. Powers of the **Committee on Family and Women under the Ministry of Employment and Poverty Reduction of the RUz** and its territorial divisions:

- participates in ensuring the implementation of a unified state policy aimed at achieving equal rights and opportunities for women and men in all spheres of society;
- takes measures to ensure guarantees of equal rights and opportunities for women and men established by law;
- participates in the development and implementation of state programs, national action plans and strategies in the field of ensuring equal rights and opportunities for women and men;
- ensures regular collection and analysis of statistical data and information on the provision of guarantees established by legislation on guarantees of equal rights and opportunities for women and men;
- submits mandatory warnings to government bodies, organizations and their officials about violations of legislation on guarantees of equal rights and opportunities for women and men, as well as proposals for taking measures to eliminate the causes and conditions conducive to the manifestation;
- submits statements (complaints) and lawsuits to the courts on the rights and legitimate interests of women;
- develops proposals to ensure equal rights and opportunities for women and men, as defined by law;

- where necessary, attracts managers and specialists from government agencies, scientific institutions and other organizations, creates working groups on issues of ensuring equal rights and opportunities for women and men.

133. The legislative system of the RUz, regulating the rights of women, in addition to the above-mentioned normative documents, consists of the Family Code, the Code of Administrative Responsibility, the Civil, Criminal, Labor Codes, the Laws "On Citizenship" (2020, amended in 2023), "On Education" (2020, amended in 2023), "On the protection of the health of citizens" (1996, amended in 2023), "On employment" (2020, currently being amended), as well as a number of other legislative acts.

F. National Community Health and Safety Requirements

134. In ensuring the rights and freedoms of citizens, the RUz is not limited only to domestic actions, but also carries out a number of actions to apply international norms governing individual rights and freedoms. This is evidenced by Uzbekistan's accession to more than 60 international legal documents to this day, in particular, the **Universal Declaration of Human Rights** adopted by the UN in December 10, 1948, which is one of the main documents providing a guarantee of rights and freedoms, as well as the right to information.

135. This Declaration is the most leading of all normative legal acts, regulating and ensuring guarantees of human rights and freedoms. Despite the fact that it is not generally binding, its norms have been reflected in the constitutions of various countries. The norms of the "Universal Declaration of Human Rights" are widely used in the development and organization of national legislation of the RUz to ensure guarantees for qualified medical care. Thus, according to Article 25 of the Universal Declaration of Human Rights: "Everyone has the right to food, clothing, housing, medical care and such social services as are necessary for the health and well-being of himself and his family".

136. According to the **Constitution of the RUz (2023)**, the following articles state:

- Every person has the right to privacy, personal and family secrets, and protection of his honor and dignity.

  Everyone has the right to privacy of correspondence, telephone conversations, postal, electronic and other messages. Restriction of this right is permitted only in accordance with the law and on the basis of a court decision.

  Everyone has the right to the protection of their personal data, as well as to demand the correction of inaccurate data, the destruction of data collected about them illegally or that no longer has a legal basis.

  Everyone has the right to the inviolability of their home.

  No one may enter a home against the will of the persons living there. Penetration into a home, as well as seizure and inspection thereof, is permitted only in cases and in the manner prescribed by law. A search of a home is permitted only in accordance with the law and on the basis of a court decision. (Article 31).

- Everyone has the right to health protection and qualified medical care.

  Citizens of the RUz have the right to receive a guaranteed volume of medical care in the manner prescribed by law at the expense of the state.

  The state is taking measures to develop the healthcare system, its state and non-state forms, various types of health insurance, and ensure the sanitary and epidemiological well-being of the population.

  The state creates conditions for the development of physical culture and sports, the formation of a healthy lifestyle among the population. (Article 48).

- The rights of disabled and lonely elderly people, persons with disabilities and other socially vulnerable categories of the population are protected by the state.

The state is taking measures aimed at improving the quality of life of socially vulnerable categories of the population, creating conditions for them to fully participate in public and state life and expanding their ability to independently provide for their basic life needs.

The state creates conditions for persons with disabilities to have full access to objects and services in the social, economic and cultural spheres, promotes their employment, education, and ensures the opportunity to freely obtain the information they need. (Article 57).

137. In order to implement this article, a number of regulatory documents were adopted by the competent government bodies. In particular, on August 29, 1996 (and updated in 2023), the **Law of the RUz "On the Protection of Citizens' Health"** was adopted. With the adoption of this law, the guarantee of citizens' rights to qualified medical care was further strengthened.

138. Article 13 of the above Law states that citizens of the RUz have an inalienable right to health care. The state provides citizens with health protection regardless of age, gender, race, nationality, language, attitude to religion, social origin, beliefs, personal and social status. The state also guarantees citizens protection from discrimination, regardless of whether they have any form of disease. Persons guilty of violating this provision are liable in the manner prescribed by law.

139. Article 3 of the same Law defines the basic principles of protecting the health of citizens, which are: respect for human rights in the field of health protection; accessibility of medical care for all segments of the population; priority of preventive measures; social protection of citizens in case of loss of health; unity of medical science and practice.

140. Article 24 of this Law defines the fundamental rights of patients and it is within the framework of the implementation of these norms that the rights of citizens to medical care are guaranteed.

141. Also, on March 18, 2008 (updated in 2022), the **Presidential Decree "On measures to improve the organizational structure and activities of territorial healthcare institutions"** was adopted. It paid great attention to improving the quality of medical care provided by private medical institutions.

142. As a result of the implementation of measures to implement reforms in the healthcare system in the republic, structures for providing medical care to the population were formed. This includes starting from rural medical centers providing health care, district and city medical associations, regional multidisciplinary medical centers, ending with republican high-tech specialized medical centers.

143. In Uzbekistan, where there is a strong social policy, medical care is guaranteed by the Constitution of the country. Free medical care from the state is provided not only to children and pregnant women, but also to everyone who needs first necessary medical care throughout the republic, including remote rural villages.

144. Today, one of the main tasks is the development of medical care to the population, including emergency medical care, patronage services provided by family clinics, strengthening the health of women, motherhood and childhood, as well as the activities of medical institutions in general, as well as the prevention of crime by official powers, indifference to patients and other issues related to the provision of qualified medical care.

145. In order to prevent and prevent such problems, having studied the foreign experience of leading countries, it is important to develop, using the latest information and communication technologies, a single centralized electronic database of medical records, which will contain information about the medical records of all citizens of the country.

146. To ensure all these tasks, a number of legislative acts have been adopted and are regularly updated in Uzbekistan, such as:

- Decree of the President of the RUz #PP-4055 "On measures for organizing the activities of the Ministry of Health of the RUz" (2018, amended in 2022);
- Decree of the President of the RUz #PP-4847 "On measures for further improvement of the system of public health administration" (2020, amended in 2023);

- Decree of the President of the RUz #PP-5000 “On measures for the effective organization of digitalization in the field of healthcare” (2021).

147. In the process of improving medical care and developing the medical system as a whole, the introduction of information and communication technologies is an important stage in the sustainable development of the state.

G. AIIB Environmental and Social Framework (2016, last amended in November 2022)

148. The AIIB’s Environmental and Social Framework (ESF) is a system that supports the Bank and its clients in achieving environmentally and socially sustainable development outcomes. The AIIB’s ESF includes an introductory overview, an aspirational Vision Statement, a mandatory Environmental and Social Policy (ESP), accompanied by three mandatory Environmental and Social Standards (ESSs) and an Environmental and Social Exclusion List (ESEL). The three ESSs comprise: ESS 1: Environmental and Social Assessment and Management, ESS 2: LAIR and ESS 3: Indigenous Peoples.

149. The ESF was approved in February 2016 and amended in February 2019. Revisions to the ESF were approved by AIIB’s Board of Directors in May 2021 and in November 2022.

150. The gap analysis between AIIB environmental safeguard requirements and national legislation is provided in **Table 15**. The table also presents information on how the identified gap has been harmonized.

Table 15. Gap analysis between AIIB safeguard requirements and Uzbek national environmental legislation

Aspect	Asian Infrastructure Investment Bank	National Regulations	Harmonized Framework
Environmental Policy and Regulations	The ESP comprises mandatory environmental and social requirements for each Project and is accompanied by: a. Three associated mandatory Environmental and Social Standards (ESSs) setting out requirements applicable to Bank Clients on, respectively, Environmental and Social Assessment and Management; LAIR; and Indigenous Peoples; and b. An Environmental and Social Exclusion List (ESEL).	Environmental assessment and permitting procedure in Uzbekistan are set out in the following laws and regulations: • Law on Nature Protection (1992); • Law on Environmental Expertise (2000), and • Resolution of Cabinet Ministries (RCM) "On the further improvement of the environmental impact assessment mechanism" No. 541 (2020)	
Screening	The Bank screens and categorizes each Project as early as feasible at the outset of its due diligence assessment of the Project in order to determine the nature and level of the required environmental and social assessment, information disclosure and stakeholder engagement required of the Client for the Project. As part of this process, the Bank also screens the Project to determine which of the ESSs applies and which of the environmental and social instruments are required for the Project. The Bank determines the Project's category on the basis of the Project's component presenting the highest environmental or social risk and potential impacts (including direct, indirect, cumulative and induced impacts, as relevant, in the Project area). The Bank reviews these environmental and social risks and impacts, regardless of the categorization being considered. As an element of the categorization process, the Bank may conduct field-based reviews of the Project to provide for a refined understanding of the environmental and social risks and impacts and to support the Client's preparation of a site-specific approach to assessment of these risks and impacts. Categories A, B, C, FI	A project category is classified in accordance with Appendix 1 to RCM No. 541. The Appendix provides a list of activities split for 4 categories.	The project is classified as Category B (AIIB classification) and Category III (low risk) (national legislation).

Aspect	Asian Infrastructure Investment Bank	National Regulations	Harmonized Framework
Scoping	The scope and depth of the Client's analysis is proportional to the nature and magnitude of the Project's potential environmental and social risks and impacts. The environmental and social assessment applies a mitigation hierarchy to: (a) anticipate and avoid risks and impacts; (b) where avoidance is not feasible, minimize or reduce risks and impacts to acceptable levels; (c) once risks and impacts have been minimized or reduced, mitigate them; and (d) where residual risks or impacts remain, compensate for or offset them, where technically and financially feasible. The Bank requires the Client to make information on the Project available during preparation and implementation, including the environmental and social assessment and ESMP and ESMPF, if applicable.	The environmental and social assessment should evaluate: (i) compliance of a proposed project with the environmental requirements, (ii) level of risk related to project implementation on people's health and environment, and (iii) efficiency of developed measures to mitigate identified impacts.	Conduct a process of Environmental and Social Impact Assessment that will consider potential environmental (including labor, health, and safety) risks and project impacts.
	Executing Agency considers potential impacts (direct, indirect and cumulative) and risks on physical, biological, resettlement, socio-economic (including health and safety), and physical cultural resources	Environmental assessment considers the project's potential impacts on physical, biological, socio-economic, and cultural resources, including cumulative impacts.	The EIA will consider natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous people, and physical cultural resources).
Alternatives	Examination of financially and technically feasible alternatives to the project location, design, technology and components, their potential environmental and social impacts Consider "without project" scenario.	For the EIS (national Environmental Impact Assessment), consideration of alternatives is required. Alternatives that may be assessed include alternatives of processing, technical design, location of a facility, architectural and planning options. Another mandatory requirement is consideration of the **zero option**.	Assessment of alternatives will include alignment of the pipeline, waste water treatment technologies, disinfection of treated portable and drinking water, type of water meters and "without project" project scenario.
Environmental Assessment Report	The AIIB requires the Client to prepare appropriate environmental and social assessment documents. If the Project includes activities whose details are not yet identified, and thus, whose specific physical location is not known at the time the Project is approved by the Bank, the Bank requires the Client to use an ESMPF. The ESMPF includes an RPF.	The RCM No.541 defines activities to be undertaken under EIS preparation. Description of undertaken activities should be included into the PEIS report. The RCM requires the following: (i) assessment of the existing environmental and socio- economic conditions, (ii) project description, (iii) anticipating discharges, emissions, wastes, their impact on environment and disposal methods, (iv) collection,	The ESMPF and EMP reports will follow the table of contents proposed in AIIB ESF. PEIS will be prepared separately following the national regulation, but in line with the ESMPF.

Aspect	Asian Infrastructure Investment Bank	National Regulations	Harmonized Framework
	The Bank requires the Client to prepare the environmental and social assessment report and ESMP for each of the activities during their development, in conformity with the ESMPF. The AIIB requires the Client to undertake an environmental and social assessment that consists of the following elements in varying degrees, depending on the categorization, and reflecting the nature, scale and potential risks and impacts of the Project: (a) description of the Project, including, as applicable, a map of the Project area; (b) policy, legal and administrative framework, including the international and national legal framework applicable to the Project; (c) scoping, including stakeholder identification and consultation plan; (d) analysis of alternatives, including the "without Project" alternative; (e) baseline environmental and social data; (f) evaluation of environmental and social risks and impacts; (g) analysis of risks and impacts related to climate change; (h) public consultation and information disclosure; and (i) development of mitigation, monitoring and management measures and actions in the form of an ESMP or ESMPF or other Bank-approved document. The assessment also identifies the GRMs required for the Project	storage and waste disposal (v) review of alternatives, (vi) institutional, technical and technological mitigation measures, (vii) emergency risk assessment, probability of occurrence and emergency response measures, (vii) forecast of changes in the environment after project operation. The complexity of the report depends on the project category.	
Public Consultations	Carry out meaningful consultation with Project-affected people and other stakeholders and facilitate their informed participation in the consultations. Meaningful consultation is an interactive process to provide information and facilitate informed decision-making that: (a) begins early in the preparation stage of the Project to provide accurate information on the proposed Project, minimize misinformation and unsupported expectations, and obtain initial views on the Project; (b) is carried out on an ongoing basis throughout the implementation and life cycle of the Project; (c) is designed so that all relevant parties have	Public meetings are mandatory only for the projects under Categories 1 and 2.	Consultations will be carried out with stakeholders, affected people and NGOs. Questions and concerns raised during public consultations held during FS stage have been considered. All questions and concerns raised during public consultation will be included in ESMPF. Also, signed list of participants, photos from meetings will be attached to this ESMPF.

Aspect	Asian Infrastructure Investment Bank	National Regulations	Harmonized Framework
	a voice in consultation, including national and subnational governments, the private sector, nongovernmental organizations and people affected by the Project, including, as applicable, Indigenous Peoples; (d) provides additional support as needed so that women, elderly, young, disabled, minorities and other vulnerable groups participate; (e) provides timely disclosure of relevant and adequate information, including availability of the Project's GRMs and of the PPM or other Bank-approved IAM, which is understandable and readily accessible to the people affected by the Project and other relevant stakeholders; (f) is undertaken in an atmosphere free of intimidation or coercion; (g) is gender sensitive, inclusive, accessible, responsive and tailored to the needs of vulnerable groups; and (h) enables the consideration of relevant views of people affected by the Project and other concerned stakeholders in decision-making.		
Public Disclosure	ESMPF will be disclosed on the AIIB's website. The borrower needs to provide relevant environmental information in a timely manner, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.	National environmental legislation does not require disclosure of PEIS/EIS.	The Draft ESMPF report (including RPF as Annex) including the Draft Executive summary in sufficient quality translated into English, Uzbek and Karakalpak/Russian (Karakalpak or Russian – to be confirmed) will be disclosed. A final report will be translated into Russian and both documents will be posted on UzWJSC PCU website .The final ESMPF report translated into Russian and Uzbek will be sent to the Karakalpak branch of the MinEcologiya, and administrative units in the project area.
Monitoring and Reporting	The AIIB requires the Client to: (a) implement the Project in compliance with the ESMP, ESMPF, RPF or other Bank-approved documentation, and any other environmental and social obligations in the Legal Agreements for the Project; and (b) prepare and furnish to the Bank periodic monitoring reports on the Client's performance under the Project relating to	Monitoring of mitigation measures developed under ESMPF is a responsibility of design consultant developed Feasibility Study (design supervision). External monitoring could be conducted by representatives of the MinEcologiya. There are no requirements to submit report during construction phase. The report on waste generation	Environmental and Social Monitoring Plan (EMP) will be developed under this ESMPF to monitor implementation of ESMP requirements. The ESMPF also includes requirements on preparation of periodic monitoring reports and their submission to AIIB for further disclosure on AIIB and PIU UzWJSC websites.

Aspect	Asian Infrastructure Investment Bank	National Regulations	Harmonized Framework
	environmental and social risks and impacts. This may include information on health and safety issues as well as implementation phase consultations.	will have to be submitted by the Implementing Agency to MinEcologiya.	
Grievance Redress Mechanism	The AIIB requires the Client to establish, in accordance with the ESP and applicable ESSs, a suitable Project-level GRM to receive and facilitate resolution of the concerns and complaints of people who believe they have been adversely affected by the Project's environmental or social impacts, and to inform Project-affected people of its availability. The GRM is scaled to the risks and impacts of the Project. The AIIB also requires the Client (including an FI Client) to establish or maintain a GRM for contracted Project workers under the Project to address workplace concerns, and reflect this in the tender documents for contracted Project workers.	A grievance redress procedure in Uzbekistan is also regulated by the national legislation, by the Law **"On applications by individuals and legal entities"** (new edition in accordance with the law, # ZRU-445 On amendments and additions to the Law of the RUz "On applications of individuals and legal entities" dated 11.09.2017 and amended in 11.03.2020) and others.	The GRM for this Project will be developed in accordance with AIIB and national requirements.

H. International Legislation

1. World Bank Group's Environment, Health and Safety Guidelines

151. In this project, the following EHS Guidelines have been considered:

- *General EHS Guidelines (2007)* – (i) provides prevention and control measures for each source of pollution applicable to this type of industry Environmental Monitoring Programs; and (ii) provides occupational health and safety sources of threats, prevention and control measures and monitoring;
- *EHS Guidelines for Water and Sanitation (2007)*[20] - includes information relevant to the operation and maintenance of (i) potable water treatment and distribution systems, and (ii) collection of sewage in centralized systems (such as piped sewer collection networks) or decentralized systems (such as septic tanks subsequently serviced by pump trucks) and treatment of collected sewage at centralized facilities;
- *A guidance Note by International Finance Corporation (IFC) and the EBRD: Workers' accommodation: processes and standards*[21].

2. International Agreements

152. The Government of Uzbekistan has ratified the following international conventions relevant to this ESMPF. These are shown in **Table 16** below. Fulfillment of these commitments contributes to environmental sustainability, promotes external funding for stabilization and prevention of degradation of natural resources and cultural heritage, and enhances the country's capacity to use its natural and cultural resources as a basis for poverty reduction and socio-economic development.

Table 16. Participation of Uzbekistan in International Conventions Relevant to the Project

International Conventions and Treaties	Date of Ratification	Date of coming into force for Uzbekistan	Main Objectives
United Nations Framework Convention on Climate Change	20 June 1993 (acceptance)	21 March 1994	Stabilizing greenhouse gas concentrations at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system.
Kyoto Protocol	20 August 1999	16 February 2005	Setting internationally binding emission reduction targets.
United Nations Convention Combat Desertification	31 August 1995	29 January 1996	Reversing and preventing desertification and land degradation in affected areas to support poverty reduction and environment sustainability.
United Nations Convention on Biological Diversity	6 May 1995 (accession)	17 October 1995	Conservation of biodiversity, sustainable use of its components, and equitable sharing of the benefits.
Convention on the Conservation of the World Cultural and Natural Habitats	22 December 1995	15 June 1996	Protection of natural and cultural heritage.

[20] World Bank Group, Environmental, Health, and Safety Guidelines for Water and Sanitation, 2007, Washington, USA. <https://www.ifc.org/wps/wcm/connect/0d8cb86a-9120-4e37-98f7-cfb1a941f235/Final%2B-%2BWater%2Band%2BSanitation.pdf?MOD=AJPERES&CVID=nPtk0wW> in English. <https://www.ifc.org/wps/wcm/connect/eedfad60-8972-494c-8f95-34ec51291b5f/Water_and_Sanitation%2B-%2BRussian%2B-%2BFinal_.pdf?MOD=AJPERES&CVID=nPtk1Ek&ContentCache=NONE&CACHE=NONE> in Russian.

[21] A guidance note by IFC and the EBRD Workers' Accommodation: Processes and Standards (August 2009)

International Conventions and Treaties	Date of Ratification	Date of coming into force for Uzbekistan	Main Objectives
Convention on International Trade in Endangered Species of Wild Fauna and Flora	25 April 1997 (accession)	8 October 1997	Ensuring that international trade does not threaten wild animals and plants.
Convention on the Conservation of Migratory Species	1 May 1998 (accession)	1 September 1998	Global platform for the conservation and sustainable use of migratory animals and their habitats.
Ramsar Convention on Wetlands of International Importance Especially as Wildlife Habitat	30 August 2001 (accession)	8 February 2002	Conservation and wise use of all wetlands through local and national actions and international cooperation to achieve sustainable development.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	22 December 1995 (accession)	7 May 1996	Regulation, reduction, and restriction of hazardous wastes transboundary movement.
Stockholm Convention on Persistent Organic Pollutants	22 May 2001	8 May 2019	Convention is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.

3. International Labor Organization

153. Uzbekistan acknowledges the issue of child and forced labor in the country[22]. It is now implementing the Decent Work Country Program that has been established as the main vehicle for delivery of International Labor Organization support to the country in implementing its standards.

154. **ILO core labor standards.** The RUz ratified 18 ILO conventions and 1 Protocol including key labor standards, such as freedom of association, prohibition of child labor, prohibition of discrimination, and prohibition of forced labor. In total all 8 Fundamental and 4 Governance (Priority) Conventions were ratified, as well as 6 of 178 Technical Conventions were ratified. The list of conventions adopted by the RUz is provided in **Table 17** below (additional details are provided in Annex III)[23].

Table 17. ILO conventions adopted by RUz

Convention	Date	Status
Fundamental		
C029 - Forced Labour Convention, 1930 (No. 29) Protocol of 2014 to the Forced Labour Convention, 1930 ratified on 16 Sep 2019 (In Force)	13 Jul 1992	In Force
C087 - Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)	12 Dec 2016	In Force
C098 - Right to Organise and Collective Bargaining Convention, 1949 (No. 98)	13 Jul 1992	In Force
C100 - Equal Remuneration Convention, 1951 (No. 100)	13 Jul 1992	In Force

[22] Decree of the Cabinet of Ministers No.349 of 10.05.2018 No.349 "On Additional Measures to Eradicate Forced Labor in Uzbekistan."

[23] https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103538

Convention	Date	Status
C105 - Abolition of Forced Labour Convention, 1957 (No. 105)	15 Dec 1997	In Force
C111 - Discrimination (Employment and Occupation) Convention, 1958 (No. 111)	13 Jul 1992	In Force
C138 - Minimum Age Convention, 1973 (No. 138)Minimum age specified: 15 years	06 Mar 2009	In Force
C182 - Worst Forms of Child Labour Convention, 1999 (No. 182)	24 Jun 2008	In Force
Governance (Priority)		
C081 - Labour Inspection Convention, 1947 (No. 81)	19 Nov 2019	In Force
C122 - Employment Policy Convention, 1964 (No. 122)	13 Jul 1992	In Force
C129 - Labour Inspection (Agriculture) Convention, 1969 (No. 129)	19 Nov 2019	In Force
C144 - Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144)	13 Aug 2019	In Force
Technical		
C047 - Forty-Hour Week Convention, 1935 (No. 47)	13 Jul 1992	In Force
C052 - Holidays with Pay Convention, 1936 (No. 52)	13 Jul 1992	In Force
C103 - Maternity Protection Convention (Revised), 1952 (No. 103)	13 Jul 1992	In Force
C135 - Workers' Representatives Convention, 1971 (No. 135)	15 Dec 1997	In Force
C154 - Collective Bargaining Convention, 1981 (No. 154)	15 Dec 1997	In Force
C187 - Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)	14 Sep 2021	Not in force

3. DESCRIPTION OF EXISTING SITUATION AND PLANNING WORKS

3.1. Existing situation

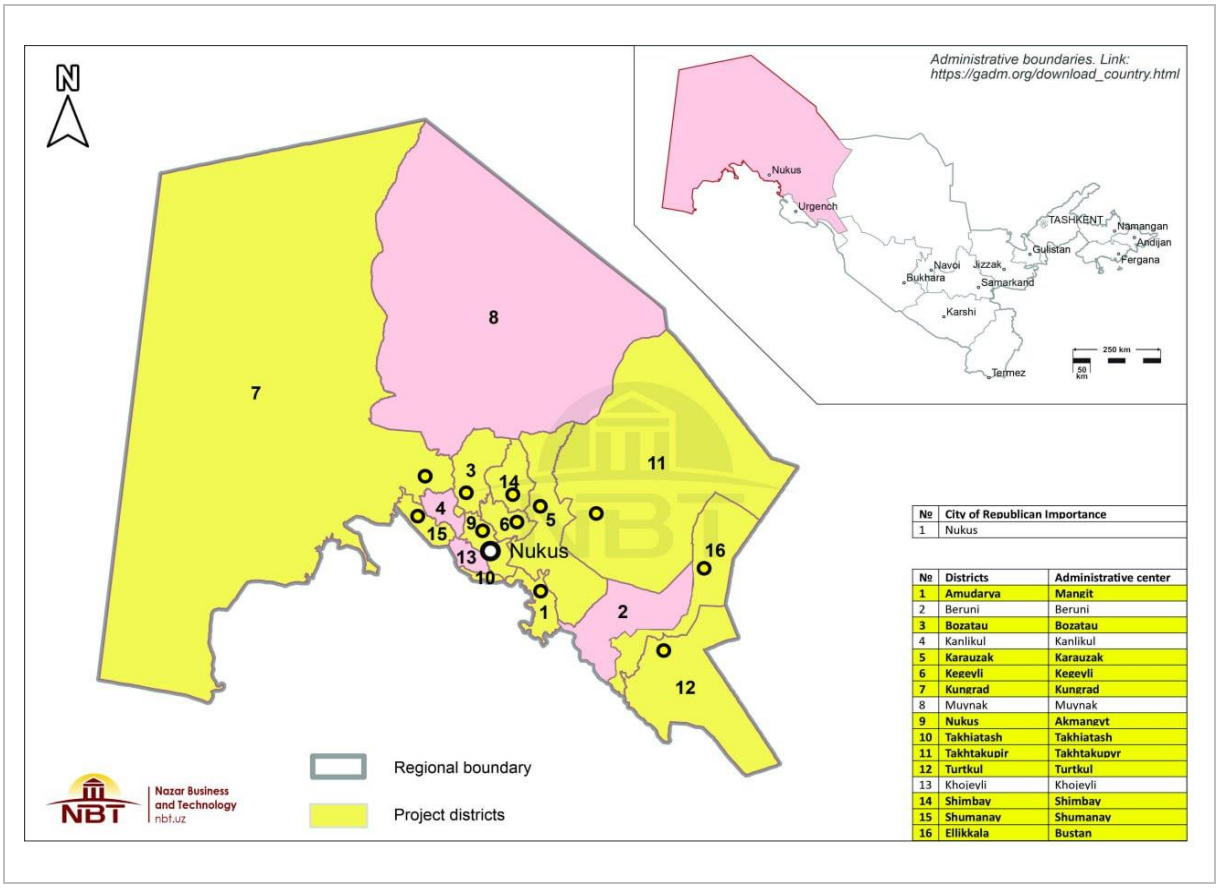
155. The project includes investments in the water supply and sewerage infrastructure of cities and districts of the RK. The intervention in water supply in 6 districts, project includes reconstruction (including reduction of water losses) and new construction of water treatment and distribution facilities (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).

156. 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.

157. 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.

158. 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 (both male and female inhabitants), who 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); Karakalpakstan Water Supply LLC, the State Committee for Ecology and Environmental Protection of the RoK, the Ministry of Water Management of the RoK, the sanitary-epidemiological service of the RoK, local governments and community assemblies.

159. The location of project districts is shown in **Figure 2.**



№	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 2: Location of project districts

160. This section provides general information on project sites, economic development, coverage with water supply and sewage (WSS) systems. Also, the section includes information on technical conditions of WSS systems in the project site, proposing activities under the current project.

3.2. Water supply infrastructure in the project area

161. The Amu Darya River has been and continues to be main source of water for water supply and irrigation in the Region. The flow of the Amu Darya is regulated by means of a complex of reservoirs (Tuyamuyun, Kaparas, Sutansanjar and Koshbulak reservoirs) in the semi-arid desert of Central Asia. The secondary sources of water supply are constituted by groundwater contained in local aquifers in and along the Amu Darya floodplains replenished by infiltration from the Amu Darya River's banks or in form of pockets of fresh water trapped in permeable lenses of soil. The groundwater is used in areas where no surface water is available through water supply or canals and constitutes a minor source of domestic water in the entire project area, but a major source in remote or scattered areas outside the district centre towns.

162. The majority of existing water supply infrastructure in the region has been built during soviet era and has faced several challenging issues such as, inadequate budgets for proactive operation and maintenance and expansion, insufficient capacity of technical and financial management, relatively higher losses because of non-revenue water and lack of fund allocations for capacity & capability development. This prolonged situation has resulted into deterioration of the entire regional water supply infrastructure which in turn resulted into frequent system outage.

163. The overall population for Nukus, Takhiatash, Turtkul, Chimbay, Shumanay and Ellikqala connected to the existing centralized water supply system by means of either in-house connections or street standpipes averages 61%. Connectivity is significantly higher in the urban centres i.e., 76% and is much lower in the settlements at 46%. The lowest level of piped water service is at 30% in the settlements of Turtkul and Ellikqala. About 15% of the rural population use unsafe water from shallow wells with handpumps due to the unavailability of water supply service.

164. The proportion and percentage of the population that benefit from existing and short-term solutions with the water supply system are illustrated in **Table 18.**

Table 18. The proportion and percentage of the population that benefit from existing and short-term solutions with the water supply system[24]

Districts	Cities/Administrative Centers/Settlements	Number of population and percentage	
		Current state (2023)	Short-term (2029)
Nukus city		318.420 (95.16%)	374.448 (100%)
Chimbay	Chimbay city	35.796 (60.67%)	56.473 (90.67%)
	Chimbay settlements	18.169 (32.44%)	36.915 (62.44%)
Ellikkala	Buston city	18.398 (89.31%)	23.057 (100%)
	Ellikkala settlements	44.530 (30.27%)	99.234 (60.27%)
Shumanay	Shumanay city	11.926 (78.98%)	16.122 (100%)
	Shumanay settlements	21.485 (50.55%)	36.553 (80.55%)
Takhiatash	Takhiatash City	54.556 (99.92%)	58.321 (100%)
	Takhiatash settlements	8.112 (37.38%)	15.619 (67.38%)
Turtkul	Turtkul city	44.472 (52.51%)	77.315 (82.51%)
	Turtkul settlements	42.039 (30.03%)	92.978 0.03%)

3.2.1. Nukus city

165. The city of Nukus is included in the **2nd category** in the list of cities and regions of the RUz, divided into 5 categories based on specialization and existing conditions for small businesses25. In January-September 2023, 47.1% (6,223.0 billion soums) of industrial products produced in the RoK and 22.6% (444.1 billion soums) of consumer goods were produced in Nukus. Information on the number of enterprises and organizations operating in the city of Nukus is presented in **Table 19**.

Table 19. Number of enterprises and organizations operating in Nukus as of October 1, 2023 [26]

Field of activity	No. of enterprises & organizations	Percentage of the total No. of enterprises & organizations in Karakalpakstan
Agriculture, forestry and fisheries	135	4.2%
Industry	646	18.2%
Construction	847	44.7%
Trade	2 088	28.2%
Healthcare and social services	185	37.9%
Accommodation and food service industry	385	28.8%

[24] The information in this section has been prepared using Consultant's PIP report (2024).

[25] In accordance with Decree of the President of the RUz No. PF-287 dated December 30, 2022, districts and cities for the purpose of their development are divided into the following categories, based on their conditions, potential and capabilities: Category 1: comprehensively developed; Category 2: good infrastructure; Category 3: conditions are relatively satisfactory; Category 4: lack of attractiveness; Category 5: serious condition.

[26] Statistical Bulletin of the RoK, January-September 2023;

166. Nukus receives its water supply from both the WTP Takhiatash and its own local surface sources, though the town's infrastructure is currently in a state of disrepair, which has the capacity to ensure the flow required by the consumers.

167. The main source of water in Nukus district (including settlements of Karatau and Akmangit) is 8,541 cum/day water from the interregional Tuyamuyun-Nukus-Tahtakupyr transmission main, 65,000 cum/day from Nukus water treatment plant, 15,260 cum/day from Takhiatash WTP and 1,150 cum/day from other groundwater wellfields to meet the daily demand amounts to 102,286 cum /day.

168. The first water supply system in the district center was commissioned in 1976. The network of water distribution mains in Nukus district comprises of 981 km. About 61% of this length are less than 30 years old. 53 km of the water distribution network are of steel, 289 km of ductile iron (DI), and 638 km of polyethylene (PE).

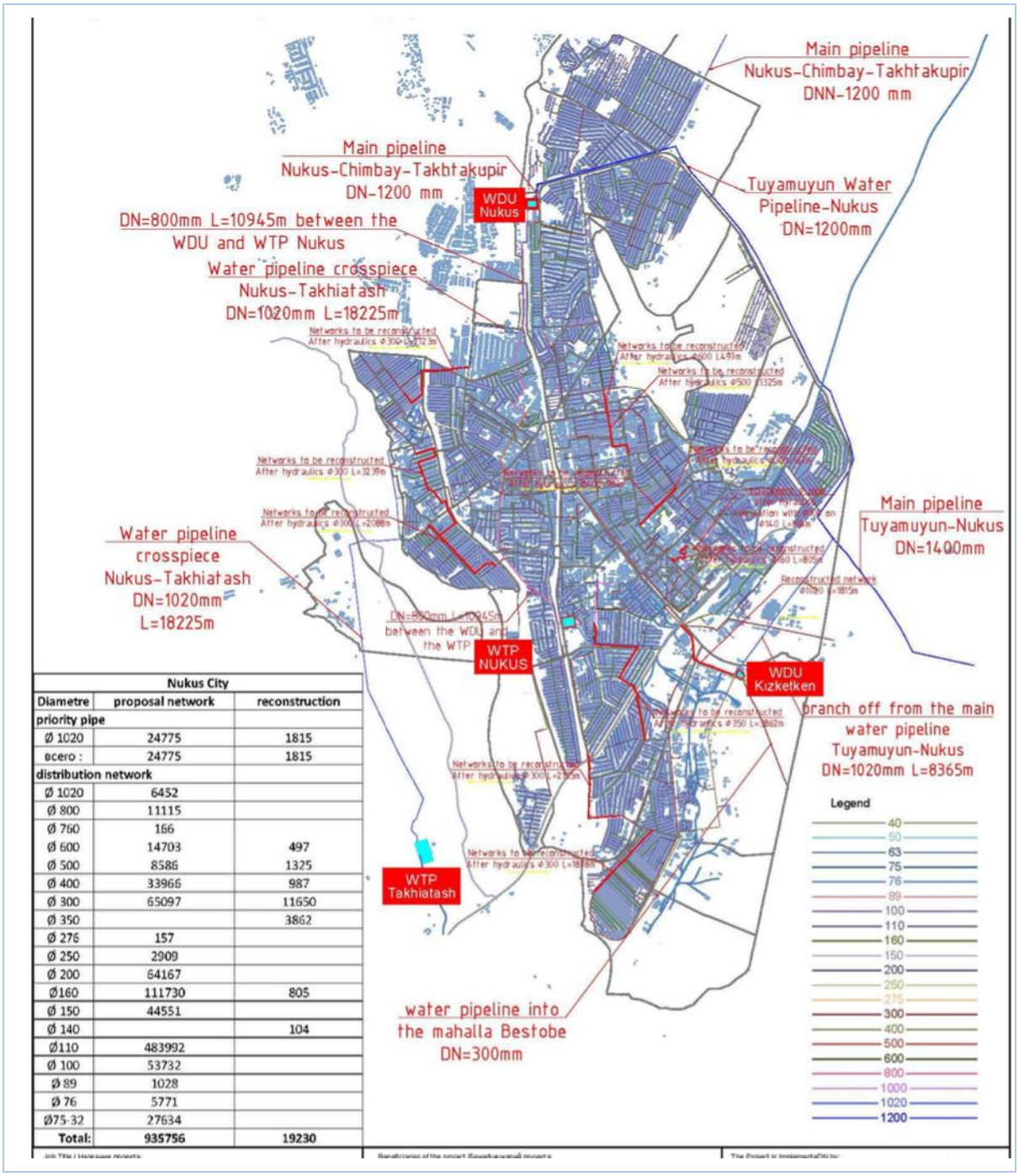
169. Nukus WDU was commissioned in 1992 and was subsequently rehabilitated in 2004. In the pumping station have 2 pumps one working and one stand-by with a design capacity of 2,500 cum/hr and currently working in a good condition. There are 2 reservoirs with capacity of 10,000 cum each.

170. Overall, Nukus city is fed from three surface sources i.e. Nukus WTP, Takhiatash WTP &Tuyamuyun through two reservoirs WDU at Nukus and Kizketken.

171. Kizketken WDU was commissioned in 2001. In the pumping station have 5 pumps (3 working and 2 standby) one with a design capacity of 2,500 cum/hr and currently working in a good condition. There are 2 reservoirs with capacity of 1,500 cum each.[27]

172. Below is a map of the city's existing water supply system (**Figure 3**).

[27] The information in this section has been prepared using Consultant's PIP report (2024).



Nukus City		
Diametre	proposal network	reconstruction
priority pipe		
Ø 1020	24775	1815
всего :	24775	1815
distribution network		
Ø 1020	6452	
Ø 800	11115	
Ø 760	166	
Ø 600	14703	497
Ø 500	8586	1325
Ø 400	33966	987
Ø 300	65097	11650
Ø 350		3862
Ø 276	157	
Ø 250	2909	
Ø 200	64167	
Ø160	111730	805
Ø 150	44551	
Ø 140		104
Ø110	483992	
Ø 100	53732	
Ø 89	1028	
Ø 76	5771	
Ø75-32	27634	
Total:	935756	19230

Figure 3: Map of the existing water supply system of the city of Nukus[28]

173. The scope of work includes:

- construction/reconstruction of the main pipeline and distribution network;
- WDU constructions/reconstructions;
- automatization for a drinking water pumping station WDU-1 and WDU-2 in the city of Nukus:
    a) rehabilitation of pumping:

[28] Consultant's PIP report (2024)

- dismantling of old pumps and steel pipes, installation of new pumps, valves and pipes, refurbishment of pumping stations buildings, duty and storage rooms, excavations works, electrical works;
- replacement of manual type valves with automated ones.

b) SCADA: The water pumping station communicates with a central SCADA through GSM/GPRS data transmissions.

3.2.2 Takhiatash district

174. Takhiatash district is included in **the 3rd category** in the list of cities and regions of the RUz, divided into 5 categories based on specialization and existing conditions for small businesses. In January-September 2023, 11.7% (1,542.1 billion soums) of industrial products produced in the RoK and 11.9% (233.6 billion soums) of consumer goods were produced in Takhiatash. Information on the number of enterprises and organizations operating in Takhiatash is presented in **Table 20**.

Table 20. Number of enterprises and organizations operating in Takhiatash as of October 1, 2023 [29]

Field of activity	No. of enterprises & organizations	Percentage of the total No. of enterprises & organizations in Karakalpakstan
Agriculture, forestry and fisheries	99	3.1%
Industry	127	3.6%
Construction	53	2.8%
Trade	237	3.2%
Healthcare and social services	15	3.1%
Accommodation and food service industry	24	1.8%

175. Takhiatash receives its water supply from both the WTP Takhiatash and its own local surface sources, though the town's infrastructure is currently in a state of disrepair, which has the capacity to ensure the flow required by the consumers.

176. The main source of water in Takhiatash district (including settlements) is Takhiatash-Nukus - Muynak pipeline and other groundwater wellfields to meet the daily demand amounts to 15,422 cum/day.

177. The network of water distribution mains in Takhiatash district comprises of 202 km. About 67% of this length are less than 30 years old. 43 km of the water distribution network are of steel, 50 km of DI, and 109 km of PE.[30]

178. Below is a map of the city's existing water supply system (**Figure 4**).

[29] Statistical Bulletin of the RoK, January-September 2023;
[30] The information in this section has been prepared using Consultant's PIP report (2024).

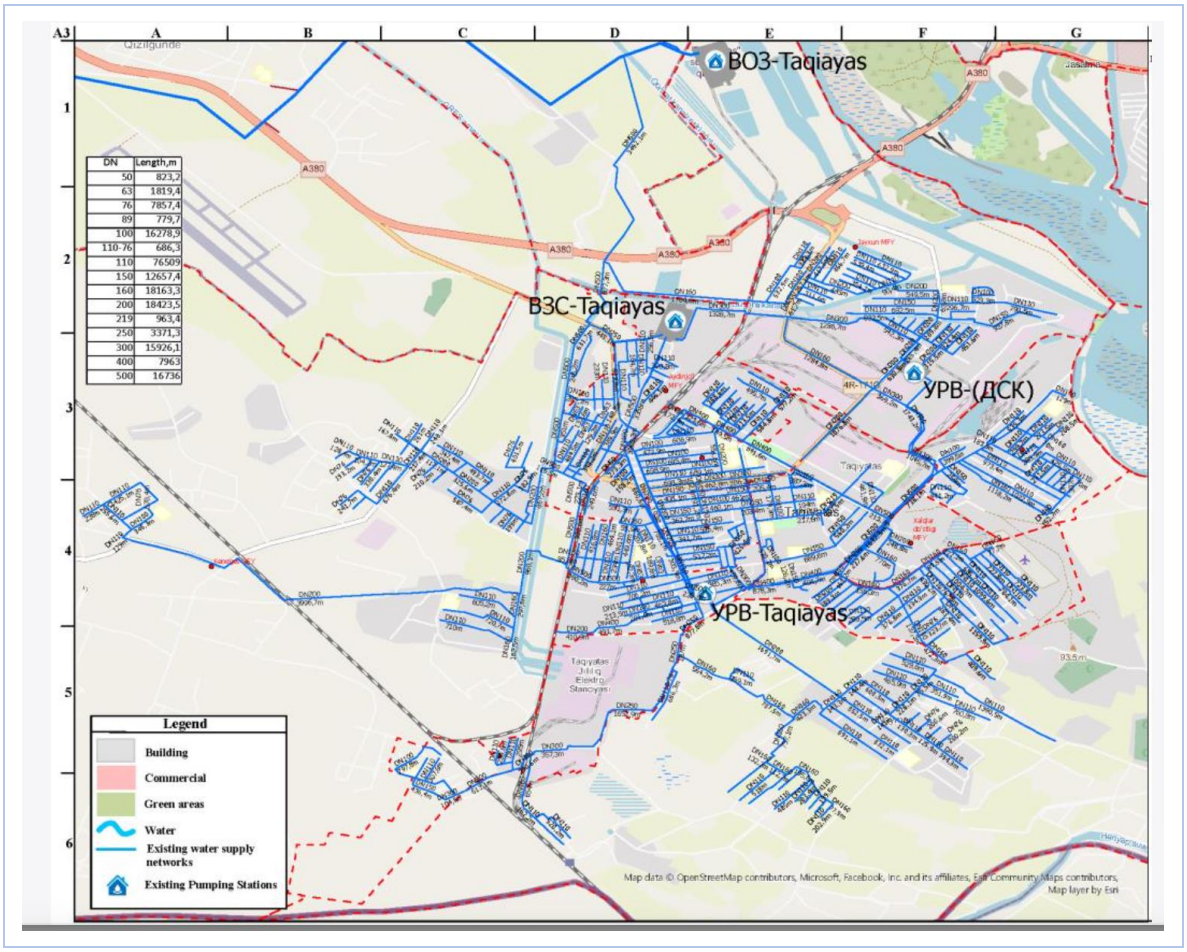


Figure 4: Map of the existing water supply system of Takhiatash district[31]

179. The current state of some water intake structures in Takhiatash district is shown in **Figure 5**.

[31] Consultant's PIP report (2024).


Figure 5: The water intake "Aydin-Zhol" located in Takhiatash district

180. The scope of work includes:

- construction/reconstruction of the main pipeline and distribution network;
- WDU constructions/reconstructions.

3.2.3 Turtkul district

181. Turtkul district is included in **the 3rd category** in the list of cities and regions of the RUz, divided into 5 categories based on specialization and existing conditions for small businesses. In January-September 2023, 4.6% (609.8 billion soums) of industrial products produced in the RoK and 7.2% (141.8 billion soums) of consumer goods were produced in Turtkul. Information on the number of enterprises and organizations operating in Turtkul is presented in **Table 21**.

Table 21. Number of enterprises and organizations operating in Turtkul as of October 1, 2023 [32]

Field of activity	No. of enterprises & organizations	Percentage of the total No. of enterprises & organizations in Karakalpakstan
Agriculture, forestry and fisheries	330	10.4%
Industry	333	9.4%
Construction	145	7.6%
Trade	855	11.5%
Healthcare and social services	33	6.8%
Accommodation and food service industry	130	9.7%

182. Turkul district water supply system has 2 water sources, water collection being carried out from the source (underground and surface). Currently, the Braila Zonal Water Supply System serves a number of 122,102 inhabitants (54.3%). Water from the interregional Tuyamuyun-Nukus-Tahtakupyr transmission main and some groundwater wellfields delivered to Turtkul District amounts to 17,232 cum/day.

183. The water source for the entire Turtkul Zonal System will be provided by the existing surface hydrographic basin at Amudarya (WTP Tuyamuyun) as well as by Sh. Rashidov-1 & 2 and Shurahon-1 & 2 underground sources, which has the capacity to ensure the flow required by the consumers.

[32] Statistical Bulletin of the RoK, January-September 2023.

184. The network of water distribution mains in Turtkul district comprises of 378 km. About 39% of this length are less than 30 years old. Approximately 118 kms are within the urban perimeter of Turtkul district center. The predominant material of pipe works is cast iron (CI)/PE whereas asbestos pipes are about 12 km.[33]

185. Below is a map of the city's existing water supply system (**Figure 6**).

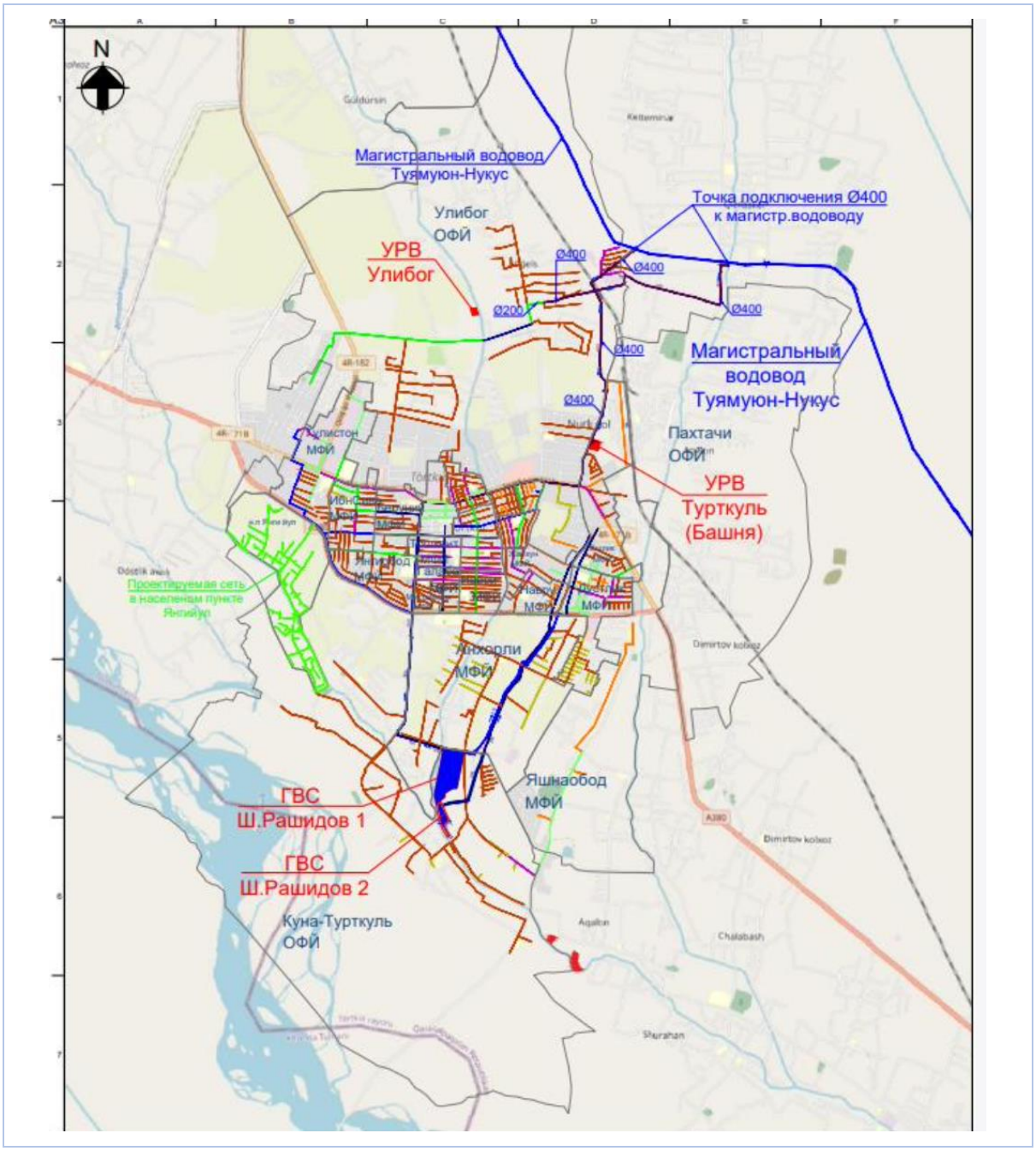


Figure 6: Map of the existing water supply system of Turtkul district[34]

186. The current state of some water intake structures and pumping stations in Turtkul district is shown in **Figure 7**.

[33] The information in this section has been prepared using Consultant's PIP report (2024).
[34] Consultant's PIP report (2024).

Figure 7: The pumping station in the Sh.Rashidov water intake facility located in Turtkul district

187. The scope of work includes:

- construction/reconstruction of the main pipeline and distribution network;
- WDU Constructions/reconstructions.

3.2.4 Chimbay district

188. Chimbay district is included in **the 3rd category** in the list of cities and regions of the RUz, divided into 5 categories based on specialization and existing conditions for small businesses. In January-September 2023, 2.2% (292.9 billion soums) of industrial products produced in the RoK and 5.2% (102.4 billion soums) of consumer goods were produced in Chimbay. Information on the number of enterprises and organizations operating in Chimbay is presented in **Table 22**.

Table 22. Number of enterprises and organizations operating in Chimbay as of October 1, 2023 [35]

Field of activity	No. of enterprises & organizations	Percentage of the total No. of enterprises & organizations in Karakalpakstan
Agriculture, forestry and fisheries	169	5.3%

[35] Statistical Bulletin of the RoK, January-September 2023.

Field of activity	No. of enterprises & organizations	Percentage of the total No. of enterprises & organizations in Karakalpakstan
Industry	151	4.2%
Construction	48	2.5%
Trade	373	5.0%
Healthcare and social services	18	3.7%
Accommodation and food service industry	50	3.7%

189. The main source of water in Chimbay district (including settlements) is Takhiatash-Nukus - Muynak pipeline and other groundwater wellfields (about 6,643 cum/day) to meet the daily demand amounts to 11,809 cum/day.

190. The ground water extracted from 20 production wells is being distributed (without any treatment) from GWPS "Chimbay" within the four sectors of Chimbay City. Additionally for settlements the ground water extracted from 34 production wells is being distributed (without any treatment) from GWPS Kenes, GWPS Kyzylozek, GWPS Kamsarik, GWPS Kishi kuyin and GWPS K.Avezov. In additional to direct ground water distribution there are 9 desalinations plants. The treated surface water is provided through 23 tap-ins connections from Tuyamuyun-Nukus-Takhtakupyr (TNTM) Interregional Water Transmission Pipeline via 1 WDU and 9 pumping stations.

191. The network of water distribution mains in Chimbay district comprises of 429km. About 70% of this length are less than 30 years old. 115 km of the water distribution network are of steel pipeline.[36]

192. Below is a map of the city's existing water supply system (**Figure 8**).

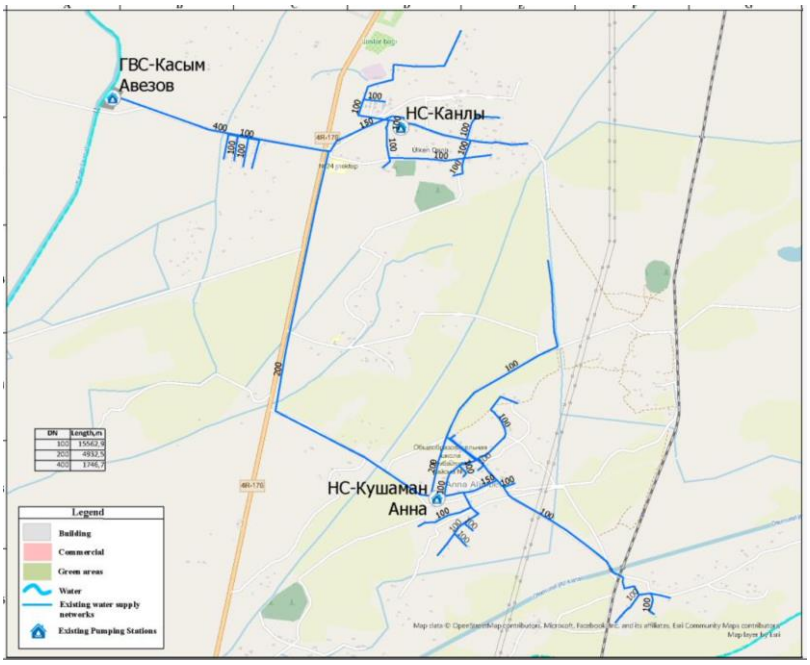


Figure 8: Map of the existing water supply system of Chimbay district[37]

[36] The information in this section has been prepared using Consultant's PIP report (2024)
[37] Consultant's PIP report (2024).

193. The current state of some water intake structures and pumping stations in Chimbay district is shown in **Figure 9**.

The main entrance to the Kenes water intake facility

The room for security personnel of the water intake facility

The pumping station (only one pump unit is in working condition)

1 of 2 drinking water storage tanks at the water intake facility (in unusable condition)

Figure 9: Kenes water intake facility and the pumping station located in Turtkul district

194. The scope of work includes:

- construction/reconstruction of the main pipeline and distribution network;
- WDU Constructions/Reconstructions.

3.2.5 Shumanay district

195. Shumanay district is included in **the 5th category** in the list of cities and regions of the RUz, divided into 5 categories based on specialization and existing conditions for small businesses. In January-September 2023, 1.6% (209.2 billion soums) of industrial products produced in the RoK and 1.4% (26.9 billion soums) of consumer goods were produced in Shumanay. Information on the number of enterprises and organizations operating in Shumanay is presented in **Table 23**.

Table 23. Number of enterprises and organizations operating in Shumanay as of October 1, 2023 [38]

Field of activity	No. of enterprises & organizations	Percentage of the total No. of enterprises & organizations in Karakalpakstan
Agriculture, forestry and fisheries	109	3.4%
Industry	89	2.5%

[38] Statistical Bulletin of the RoK, January-September 2023.

Field of activity	No. of enterprises & organizations	Percentage of the total No. of enterprises & organizations in Karakalpakstan
Construction	31	1.6%
Trade	200	2.7%
Healthcare and social services	5	1.0%
Accommodation and food service industry	21	1.6%

196. The source for water distribution in Shumanay is from Shumanay Channel, which is treated at Shumanay WIS. Water from the Shumanay channel is taken by the onshore pumping station and fed into 2 horizontal earthen sedimentation tanks with a two-stage sedimentation. After sedimentation, water is fed into 3 collecting tanks with a capacity of 1000m3 – 2 pcs., 600m3 - 1pc. Raw water disinfection with liquid chlorine. Chlorine water is supplied to the clean water reservoirs. Drinking water pumps of the pumping station of the second lift are supplied by two groups of pump units to Shumanay town and rural settlements.

197. The treated surface water is provided through 5 tap-ins connections from Takhiatash-Shumanay-Muynak (TSMM) Interregional Water Transmission Pipeline WDU-1 and 2, WDU-1 in the treatment works for intake and distribution.

198. Water is additionally supplied here from the Takhiatash-Kungrad main water pipeline systems Tuyamuyun-Nukus if necessary. Coagulant (aluminium sulphate) is used to treat raw water, the amount of reagent used depends on the time of year and the flow of the channel, currently, water is supplied from the main water pipeline Takhiatash-Kungrad.

199. The network of water distribution mains in Shumanay district comprises of 121 km. About 99% of this length are less than 20 years old. Overall, 0,88 kms of the water distribution network are of steel, remaining network is of PE.[39]

200. Below is a map of the city's existing water supply system (**Figure 10:** Map of the existing water supply system of Shumanay district**Figure 10**).

39 The information in this section has been prepared using Consultant's PIP report (2024).

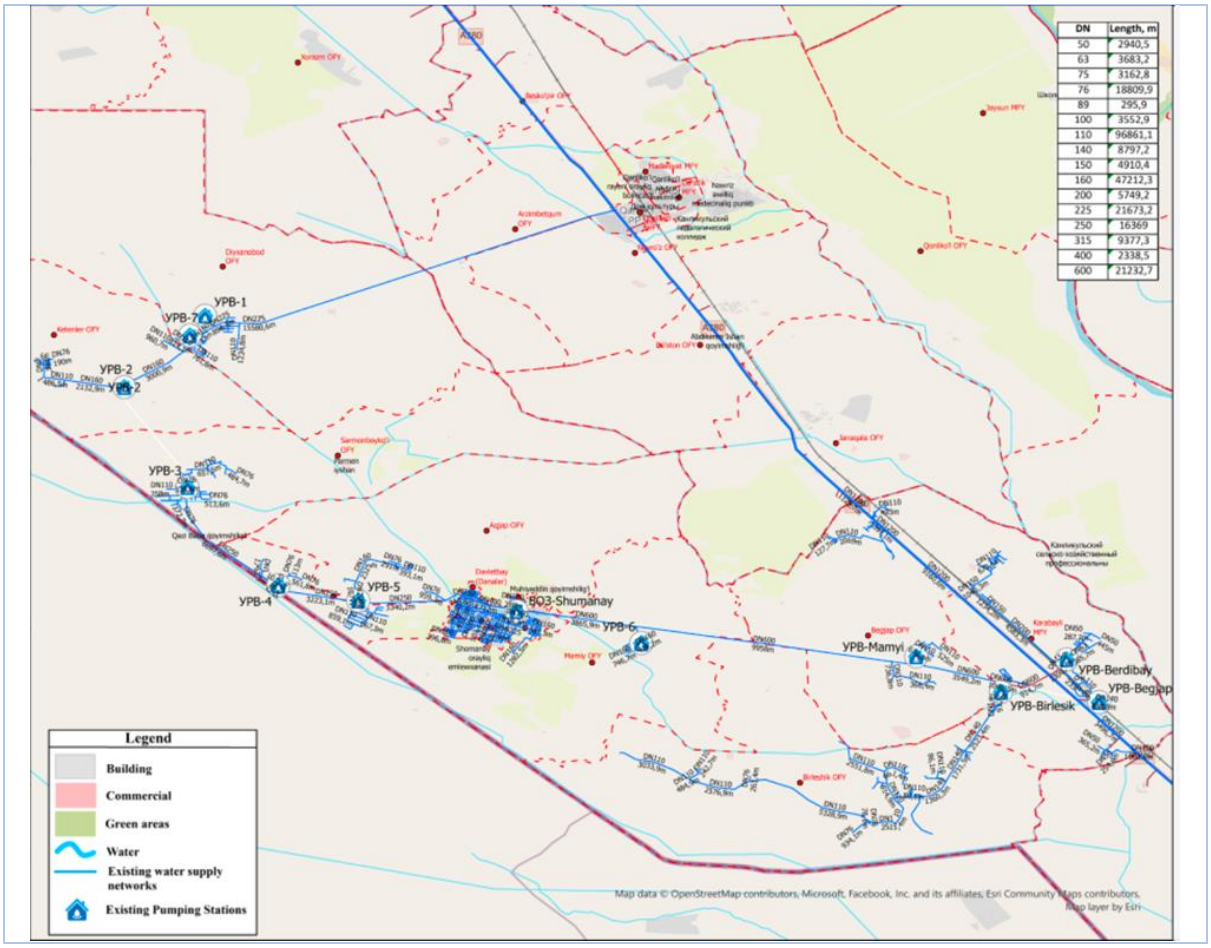


Figure 10: Map of the existing water supply system of Shumanay district[40]

201. The current state of some water intake structures and pumping stations in Shumanay district is shown in **Figure 11**.

The pumping station in the water intake facility

[40] Consultant's PIP report (2024).

	
Electronic device that calculates water consumption (inside the pumping station)	Control and measuring instruments and automation (inside the pumping station)
	
The ground water well in the water intake facility located	The laboratory in the water intake facility

Figure 11: The current state of some water intake structures and pumping stations in the Shumanai district

202. The scope of work includes:

- construction/reconstruction of the main pipeline and distribution network;
- WDU Constructions/reconstructions.

3.2.6 Ellikkala district

203. Ellikkala district is included in **the 3rd category** in the list of cities and regions of the RUz, divided into 5 categories based on specialization and existing conditions for small businesses. In January-September 2023, 3.3% (431.9 billion soums) of industrial products produced in the RoK and 7.6% (149.6 billion soums) of consumer goods were produced in Ellikkala. Information on the number of enterprises and organizations operating in Ellikkala is presented in

204. **Table 24**.

Table 24. Number of enterprises and organizations operating in Ellikkala as of October 1, 2023 [41]

Field of activity	No. of enterprises & organizations	Percentage of the total No. of enterprises & organizations in Karakalpakstan
Agriculture, forestry and fisheries	172	5.4%
Industry	335	9.4%
Construction	111	5.8%
Trade	522	7.0%
Healthcare and social services	35	7.2%
Accommodation and food service industry	106	7.9%

205. Ellikkala district water supply system has 2 water sources, water collection being carried out from the source (underground and surface). Currently, the Braila Zonal Water Supply System serves a number of 62.934 inhabitants (37.5%). Water from the interregional Tuyamuyun-Nukus-Tahtakupyr transmission main and some groundwater wellfields delivered to Ellikqala District amounts to 9,436 cum /day.

206. The network of water distribution mains in Ellikqala district comprises of 254 km. About 94% of this length are less than 40 years old. The predominant material of pipe works is CI/Steel whereas asbestos pipes are about 36%.[42]

207. Below is a map of the city's existing water supply system (**Figure 12**).

[41] Statistical Bulletin of the RoK, January-September 2023.
[42] The information in this section has been prepared using Consultant's PIP report (2024).

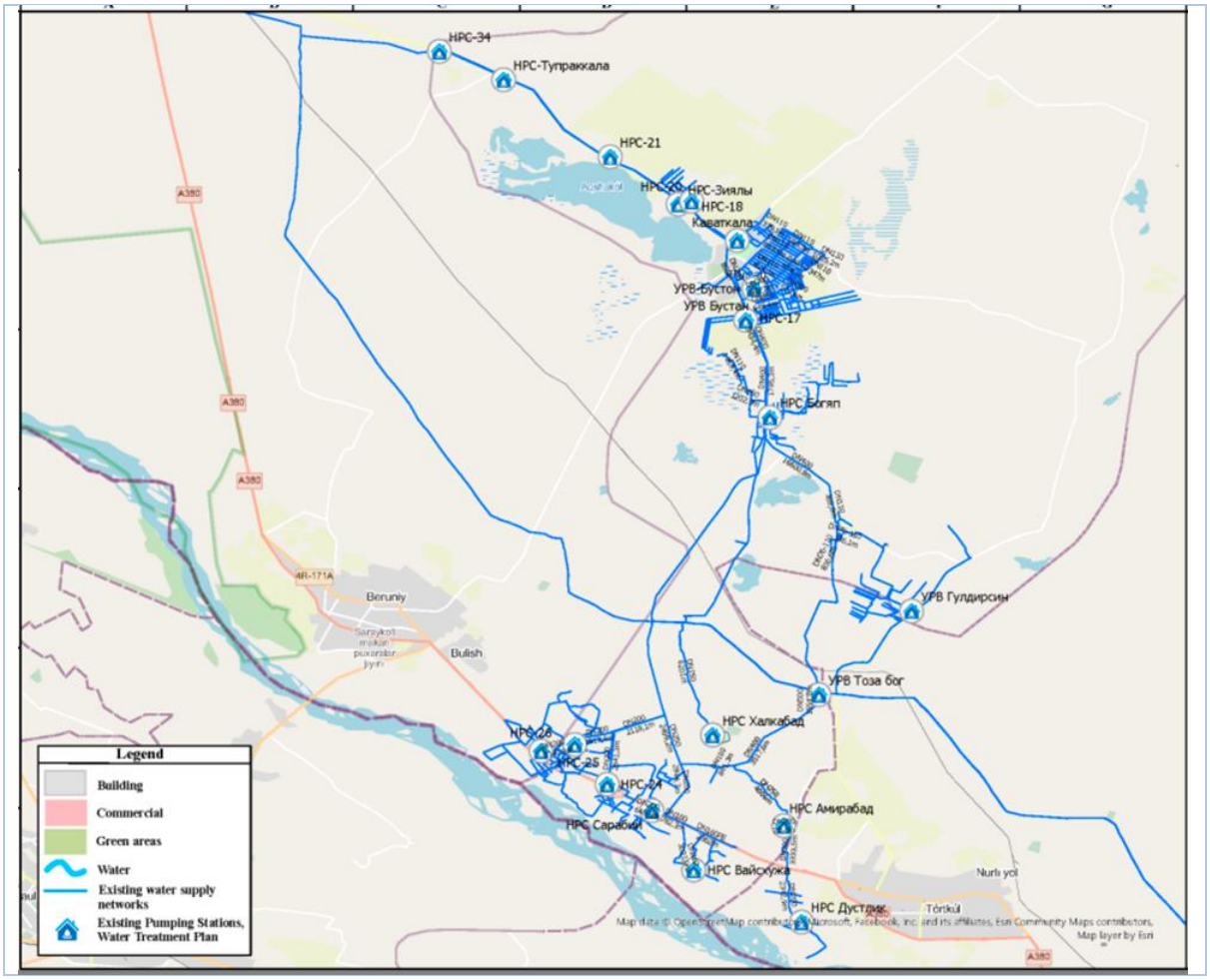


Figure 12: Map of the existing water supply system of Ellikkala district[43]

208. The scope of work includes:

- rehabilitation GWPS, with the drilling of new wells, with the rehabilitation of the existing ones based on the hydrogeological study. with the drilling of new wells, with the rehabilitation of the existing ones based on the hydrogeological study. Expanding the capacity of the pumping station with the installation of the water disinfection station;
- construction/ reconstruction of the main pipeline and distribution network;
- construction/ reconstruction WDU/ PS;
- construction/reconstruction of the main pipeline and distribution network;
- WDU constructions/reconstructions.

3.3. Wastewater infrastructure

209. There is currently no centralized sewerage system in the project area which includes Chimbay, Kungrad. Akmangit, Turtkul, Bozataw, Kegeili, Karauziak, Takhtakupyr, Shumanay, and Mangit. The existing sewage collection and treatment systems are fragmented, covering only a small portion of the locations or, in some cases, being completely absent. Furthermore, only densely populated areas are connected to these scattered systems.

210. Most of the existing sewerage infrastructure has been built during the last 5 years except the district/town centres of Kungrad City which have sewerage infrastructure from the soviet era and has faced several challenging issues such as, inadequate budgets for proactive operation and maintenance

[43] Consultant's PIP report (2024).

and expansion, insufficient capacity of technical and financial management and lack of fund allocations for capacity & capability development.

211. The majority of the population for city centres of Turtkul, Chimbay, Mangit, Akmangit, Takhtakupyr, Karauziak, Bozataw, Shumanay, Kegeili, and Kungrad do not have access to municipal sewage system and therefore uses pit latrines or septic tanks.

212. The investment focuses on implementing centralized sewage systems in district centres comprising house connections, collectors, pumping stations, mechanical-biological sewage treatment plants, discharge facilities, and optionally, tertiary treatment for reuse purposes.

3.4. Project components and proposed investments [44]

213. To enhance the drinking water supply and sewage systems in Karakalpakstan, the priority investment program (PIP) aims to attract and utilize investment funds in two stages:

I. Short-term – until year 2029;

II. Long-term – until year 2045.

This document pertains to short-term projects, implementing until year 2029, which will be financed by investment funds totaling $182.95 million.

214. **The Short-term investment plan (up to 2029) includes 4 components such as:** (i) Investment in water supply infrastructure works; (ii) Investment in wastewater infrastructure works; (iii) Goods predominantly comprising of machines, equipment and office supplies and (iv) Capacity development and institutional strengthening support.

215. An overview of the project components, proposed investments and indicative activities is given in **Table 25** below.

Table 25. Overview of project components

Components	Activities
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 RoK 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 RoK and 7 district centers in Khorezm region consisting of collectors, pumping stations, 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

[44] The information in this section has been prepared using Consultant's PIP report (2024).

	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, 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 IA in ensuring seamless coordination, efficient implementation and compliance with the relevant policies.

3.4.1. Component 1. Investment in water supply infrastructure works.

216. Following main types of works under the water supply component are planning 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.

A. Reconstruction/construction of water supply networks:

217. Extensions of distribution networks will be foreseen in localities where the existing network is insufficient. Rehabilitation of the distribution network will be foreseen in the localities where sections made of unsuitable material (ex. azbo), old (over 30 years) were identified, where repeated breakdowns were recorded with interruptions in water supply and water losses.

218. Construction of the main pipeline will be carried out in parallel with the existing one which is mainly underground. The existing pipeline will not be removed from the ground. In accordance with national regulation, the right of way for this type of pipeline is 30 m. As per engineering team, in fact, construction works will be implemented within 10 m from the trench. Excavated soil, pipes will be placed within these 10 m, all necessary construction equipment will also move within this distance.

219. The depth of the trenches for laying pipeline will vary between 2.2 and 2.3 m. Sand or sifted local soil will be filled in at the base of the trench. When passing the route near residential buildings, inventory boards will be installed for safety purposes.

220. The depth of trench inside the mahalla networks will vary from 1.2 to 1.7 m, the pipelines with a range of diameters from 63 mm to 225 mm will be used, the material of the pipe is PE with 50-years of service life.

221. The schematic drawing of pipelines and their location inside ground is presented in below **Figure 13**.

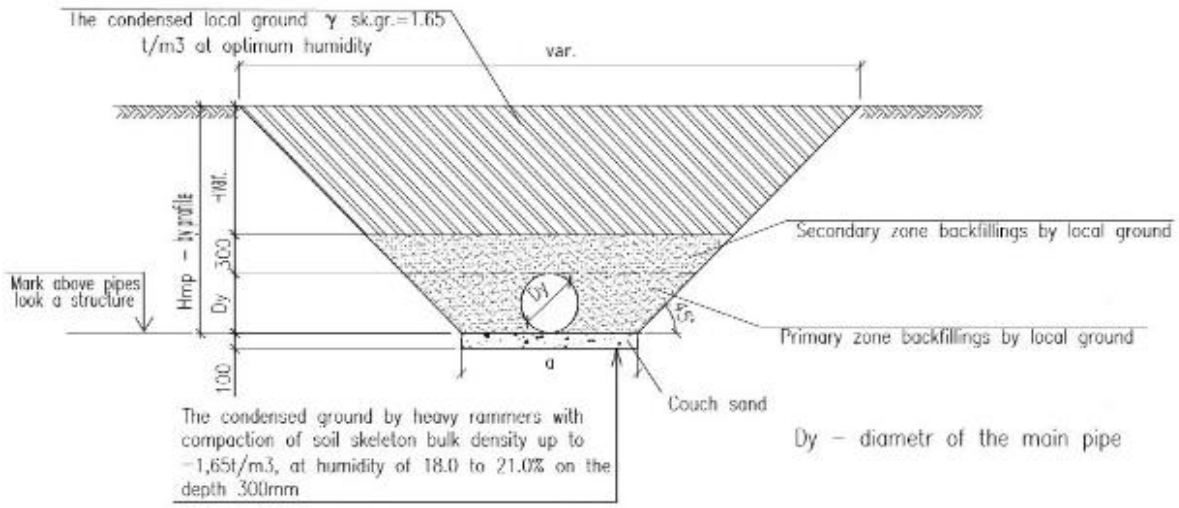


Figure 13: The schematic drawing of pipeline under the ground

B. <u>Reconstruction/construction of water distribution units/pumping stations</u>:

222. WDU/PS will be equipped with a pumping group that ensures the necessary pressure in the distribution networks.

223. The provided pumping stations will ensure the necessary pressure on the route of the adduction pipeline up to the last water supply and, as the case may be, the water pressure required for consumers, in these situations, the pumping stations will be provided with a frequency converter to achieve a pressure constant at a variable flow rate and a low amount of energy consumed. In the cases where two pumping stations will be needed in the same location (for adduction and for the network), the option of placing two appropriately equipped pumping groups in a single building will be chosen.

224. Rehabilitation of pumping stations includes:

- dismantling of old pumps and steel pipes, installation of new pumps, valves and pipes, refurbishment of pumping stations buildings, duty and storage rooms, excavations works, electrical works;
- replacement of manual type valves with automated ones.

225. The typical layout for WDU/PS is presented in **Figure 14**.

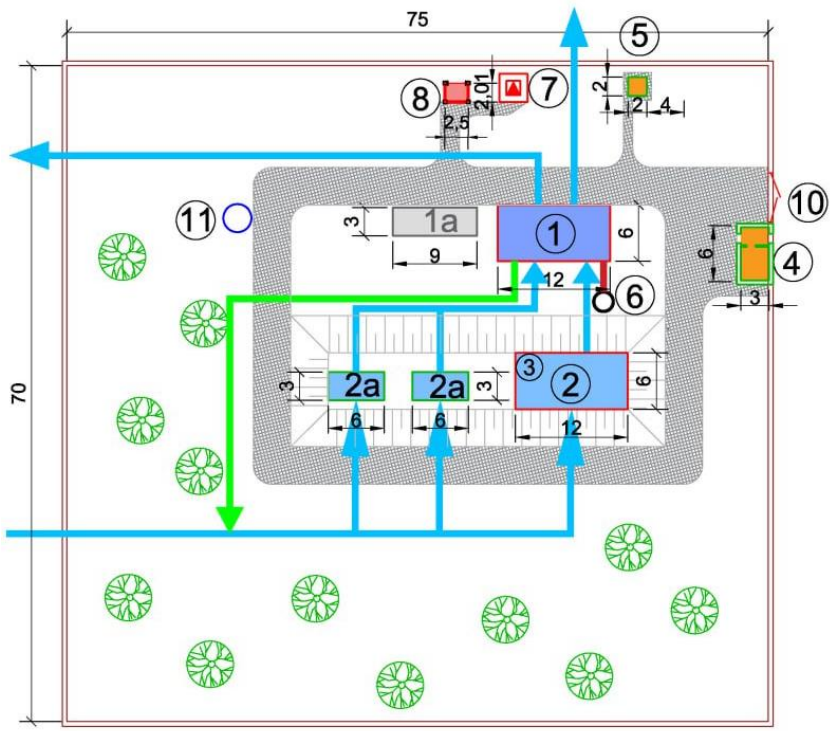


Figure 14: The typical layout for WDU/PS
1- pumping station combined with chlorination station; 1a- existing pumping station; 2-water tank; 2a- existing water tank; 3- simplified absorber filter; 4-checkpoint; 5- outhouse with cesspool; 6- mud well; 7- transformer substation; 8- diesel substation with canopy; 9-fencing; 10-gates; 11- existing water tower.

226. The typical layout for PS is presented in **Figure 15**.

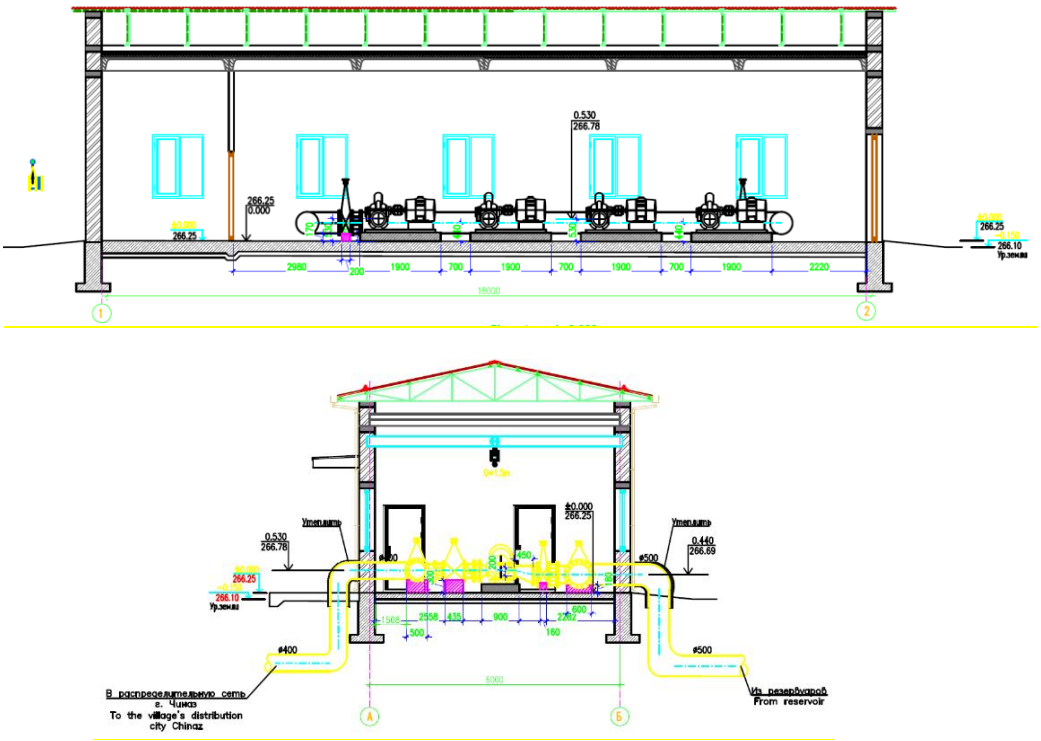


Figure 15: Typical drawings for water supply pumping station

C. Reconstruction/construction of water intake (for surface water):

227. The description of the works will be defined at the detail design stage

D. Reconstruction of ground water intakes:

228. It is planned that under these activities, certain amount of operating water wells, old pumps will be replaced with new more energy efficiently pumps. The old pumps will be transferred to Karakalpakstan Suvtaminot LLC for further usage. After checking technical conditions of the pumps, they could be installed on other wells with less capacity or could be disposed at appropriate disposal site in the city.

229. Besides new pumps, the wells will be equipped with new water flow meters, in some locations new fence and entering gates will be installed.

E. Reconstruction of administrative buildings:

230. The description of the works will be defined at the detail design stage

F. Construction of new laboratories:

231. The description of the works will be defined at the detail design stage

3.4.2 Component 2. Investment in waste water infrastructure works

232. Following main types of works under the water supply component are planning under the current project until 2029

Sewage system:

- Construction of sewage pumping stations;
- Construction of sewage networks;
- Construction of sewage treatment facilities;
- Individual connections.

A. Construction of sewage treatment facilities:

233. To select most suitable technology for waste water treatment the engineering team under the project has studied several available technologies. Based on the technical-commercial evaluation of the most suitable wastewater treatment methods in the project areas the most appropriate sewage treatment technology was chosen according to the following criteria:[45]

- Quality of treated wastewater: Ensure compliance with established standards;
- Power Requirement: Minimize power consumption;
- Land Requirements: Minimize spatial footprint;
- Cost of capital: optimize the use of resources;
- O&M Cost: Minimize ongoing operational expenses.

234. The techno-commercial analysis has guided the specific technology recommendations for each city center. Two types of technologies are proposed by the engineering team:

(i) Extended Aeration (EA);

(ii) Sequence Batch Reactor (SBR).

235. **Extended Aeration (EA).** The EA process is one modification of the activated sludge process which provides biological treatment for the removal of biodegradable organic wastes under aerobic conditions. An EA plant is a type of package plant that, as the name implies, includes EA. An EA plant consists of a flow equalization, aeration, clarification, disinfection, and an aeration sludge holding/digestion segment all of which are compartmentalized.

[45] Consultant PIP report (2024), Chapter 4.1

236. EA is a part of the activated sludge process where oxygen is mixed with the wastewater resulting in a mixed liquor where the oxygen is used for the biodegradation of organic wastes.

237. The mixed liquor then flows to a clarifier or settling chamber where most microorganisms settle at the bottom and a portion are pumped back to the incoming wastewater at the beginning of the plant. The clarified wastewater then flows over a weir and into a collection channel before it goes to the disinfection system.

238. For the current project, the following EA process is proposed. Wastewater from the Main Sewage Pumping Station is supplied to a mechanical treatment facility, where it is cleaned of small impurities through fine screens. After the screens, the wastewater flows to sand traps with a circular movement of water, where sand and other small particles of contaminants are captured, and then through a distribution tray they reach biological treatment facilities.

239. In a pool with free-floating aeration systems, the process of denitrification and nitrification occurs with complete biological treatment. The process itself takes place automatically according to a given program. Next, the water passes through the built-in clarifier, where the process of water clarification occurs due to the separation of activated sludge and purified water. After clarification, wastewater undergoes additional purification using disc filters with a gap of 10 microns, after which it is disinfected with UV installations. Return activated sludge is sent back to the biological treatment facility, and excess activated sludge goes to the sludge treatment facility.

240. The purified water is discharged through the outlet pipeline into the nearest collector. To use water for irrigation, storage tanks and a pumping station for irrigation are provided (**Figure 16**).

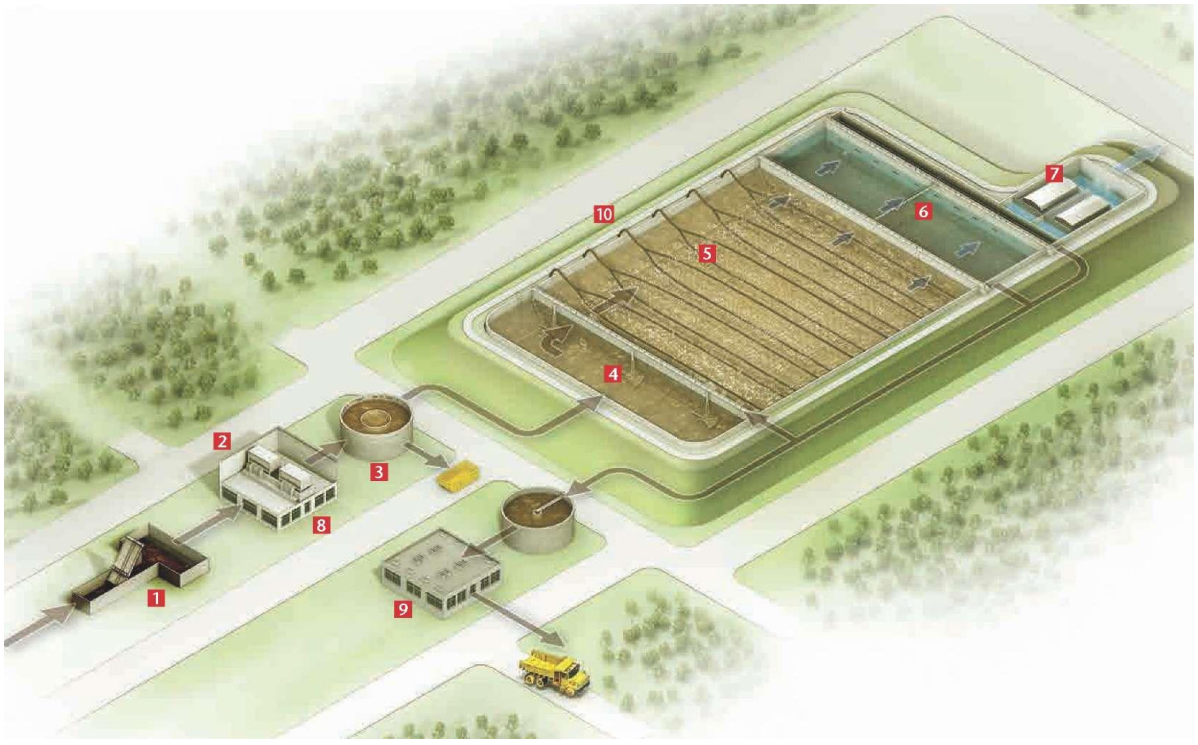


Figure 16: The typical layout of Extended Aeration.

1- Receiver with gratings for removing large suspended solids from wastewater, 2 - Fine rotating drum-type screens, 3 - Sand trap, 4 - Biological Phosphorus Removal Zone (BIo-P), 5 - Aerotank with OXIWORKS aeration system and OXIRISE automatic washing system, 6 - Secondary settling tank (clarifier), 7 - Filtration of treated wastewater for post-treatment of wastewater (microfilters), 8 - Production building with central control point, 9 - Dewatering of sewage sludge and further processing using KFO technology

241. More detail explanation of treatment process is provided below.

242. Mechanical treatment: The mechanical treatment system combines sieving and sand separation with the ability to remove grease (such as grease and oil).

243. The wastewater enters a screen section where solids are removed from the stream, optionally washed, compacted and dewatered. Depending on the properties of the solids, a reduction in the volume of dry solids of approximately 40% or more can be achieved before discharging the waste into the container. By washing the waste, an organic matter washing efficiency of >90% can also be achieved.

244. The screened runoff is then dumped into a section of the hopper where the sand settles. Sand is removed from the bottom by a conveyor screw and discharged into a container. To improve the separation of organic compounds from sand, an air distributor is installed, which increases flotation and degreasing. After separation, the lubricant enters the flotation chamber.

Figure 17: Example of mechanical treatment

245. The sand trap is followed by a split box. In the separating device, the flow is divided and supplied before biological treatment to a phosphorus removal tank, where the dephosphorization process occurs using an anaerobic method.

Figure 18: Example of distribution unit

246. Biological treatment: An activated sludge system is designed to remove carbon, nitrogen and phosphorus. The main biological treatment takes place in an activated sludge basin (ASB). Carbon removal occurs through aerobic digestion in a pool. To ensure simultaneous nitrification/denitrification, the activated sludge pond will automatically operate to provide anoxic and oxid zones throughout the biological treatment. Aeration is carried out using blowers that supply air to a fine bubble aeration system consisting of automatically driven silicone membranes.

Figure 19: Example of aeration tanks

247. After the biological tanks, the water passes through a clarifier to separate clean water from sludge. The clarifiers are designed as built-in clarifiers directly connected to the ASB.

248. A mixture of sludge and water enters the settling tank through holes on the front wall. Sludge and purified water are separated in a settling tank. In an environment without turbulence, sludge settles to the bottom of the tank. Clean water leaves the settling tank through the overflow weir, enters the drain channel and is combined with wastewater from other settling tanks into a common channel. The return sludge is pumped back to the inlet of the ASB using return sludge pumps.

249. Excess sludge is aerobically stabilized and, at certain intervals, is pumped out by a pump and sent from the pit for pumping out excess sludge into a sludge buffer tank and then for processing using the cavitation-enzyme method.

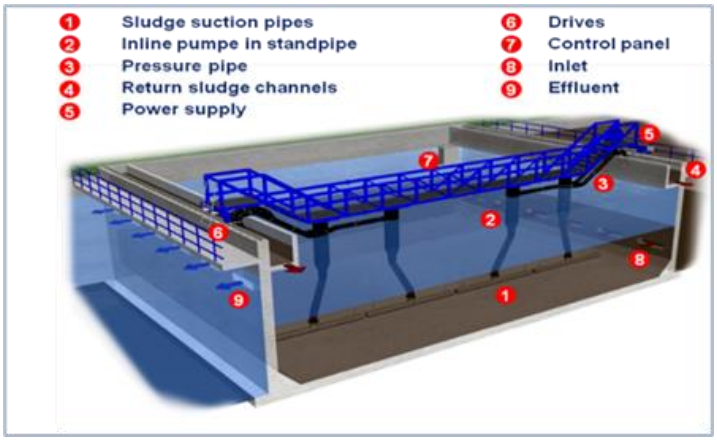


Figure 20: Example of clarifiers

250. Tertiary treatment – Microfiltration. Microfiltration using a disc filter is planned to meet the requirements for further BOD/COD and particulate matter removal and parasite egg retention. Disc filters use woven fabric filters mounted on multiple discs located on a central shaft, providing a large filtration area in a small footprint. Filter media on a partially submerged disc filters particulates from the water flowing from the central shaft into the discs.

251. The device is installed in a concrete tank, and the discs are partially submerged in water. Accumulated solids are cleared using a counter-current backwash system with wash water supplied by a high-pressure pump. The filtered water passes through a disc filter and is collected in a holding tank. Filters materials are replaced every 7-8 years.

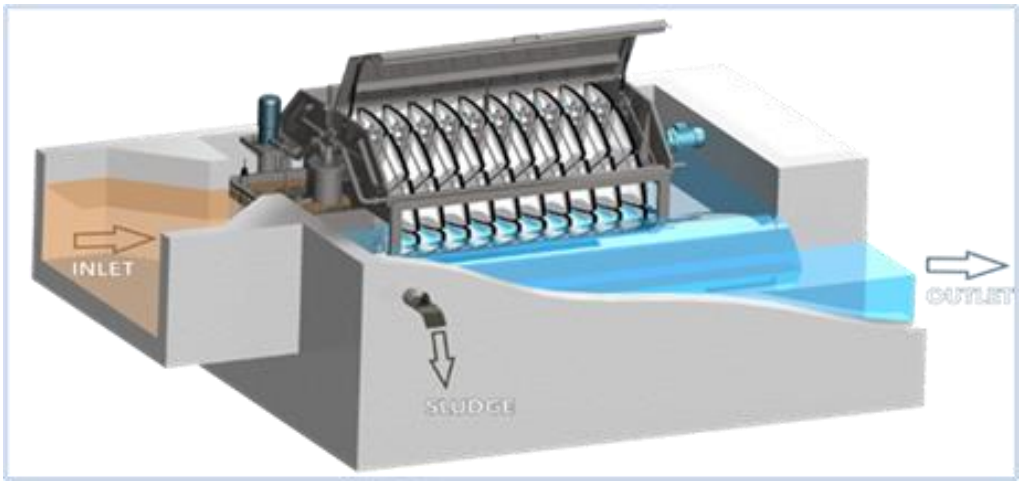
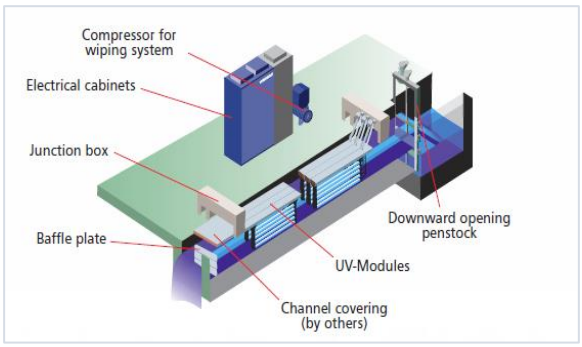


Figure 21: Example of disk filters

252. Disinfection. UV treatment is proposed as a disinfection step to reduce the number of pathogens in treated effluent. The proposed design is a closed pipeline system with a self-cleaning system. The UV rays are collected into a module and placed in a UV pipe system. The water coming from the clarifiers passes through the UV module, where it comes into contact with ultraviolet radiation. UV radiation penetrates the cell walls of microorganisms and damages the genetic material of the cells and, therefore, inactivates the microorganisms.



Schematic view of UV-installation	Example of UV-installation

Figure 22: Example of UV installation

253. Sludge processing: It is planned to use the innovative technology of cavitation-enzyme treatment (CET) of excess sludge. The CET installation produces fully processed, disinfected and ready-to-use fertilizer for agriculture. The operating principle of the reactor is similar to an aerobic stabilizer. The process is aerobic and is based on the method of enzymatic cavitation action on the mixture.

254. Raw sediments and excess activated sludge processed by the aerobic enzyme-cavitation method can be used as a fertilizer in agriculture, industrial floriculture, green construction, forestry and ornamental nurseries, as well as for the purpose of biological reclamation of degraded lands and solid waste landfills. In terms of its qualities, it meets the SanR&N of the RUz No. 0181-05 “Hygienic requirements for the quality of wastewater and its sediments used for irrigation and fertilization in the climatic conditions of Uzbekistan”.

Figure 23: Example of CET

255. The typical layout for EA is presented in **Figure 24**.

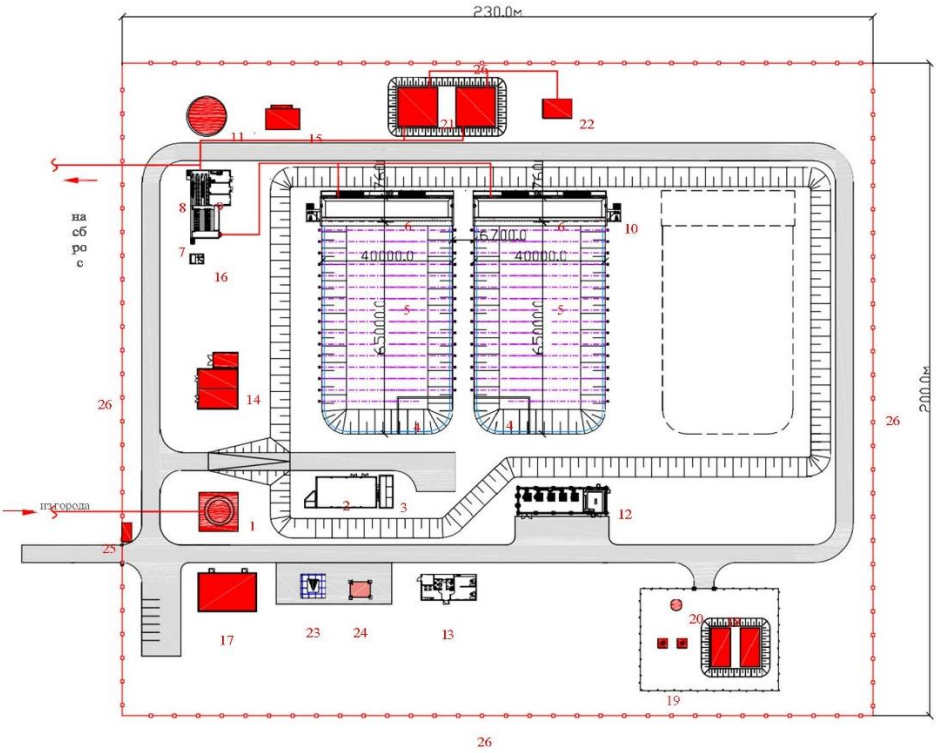


Figure 24: The typical layout for EA

1- Main sewage pumping station, 2- mechanical processing building, 3 – split box (distribution unit), 4 – phosphorus removal facilities, 5-activated sludge pool, 6 - clarifier, 7 – microfilters, 8 – UV disinfection unit, 9 – Clean water tank, 10 - Sludge pumping station, 11 – sediment storage shed, 12 – blower station, 13 – administration building, 14 – garage and repairing workshop, 15 – sludge treatment facilities, 16 – drainage water collections container, 17 – sanitary inspection station, 18 – Fire protection tank, 19 – pumping station above the wells, 20 – water tower with capacity 25 m^3, 21 – storage tank for irrigation 500 m^3, 22 – pumping station for supplying treated water for irrigation, 23 – transformer substation, 24 – diesel generator set, 24 – checkpoint, 25 – fence

256. SBR - is a fill-and draw activated sludge system for wastewater treatment. In this system, wastewater is added to a single “batch” reactor, treated to remove undesirable components, and then discharged. Equalization, aeration, and clarification can all be achieved using a single batch reactor. To optimize the performance of the system, two or more batch reactors are used in a predetermined sequence of operations. SBR systems have been successfully used to treat both municipal and industrial wastewater. They are uniquely suited for wastewater treatment applications characterized by low or intermittent flow conditions.

257. The treatment technology is based on biological processes of anaerobic and aerobic treatment using activated sludge in the form of suspended biocenosis. Activated sludge microorganisms use organic and mineral contaminants present in the wastewater as food. The selected technological treatment scheme provides constant support for the viability of aerobic and anaerobic microorganisms of activated sludge to ensure the quality of the treated wastewater up to standard values.

258. The duration of each cycle is determined taking into account the properties of the wastewater entering the structures, the required indicators for purified water and other conditions. In the presence of two reactors, the beginning of the cycles is shifted relative to each other so that the filling and draining phases do not intersect in time.

259. Duration of phases when changing the characteristics of wastewater, taking into account seasonal fluctuations, expansion, etc. adjustable in certain ranges using the control system interface. This feature is one of the main technological advantages of SBR, as it provides maximum flexibility in controlling the cleaning process.

260. The treatment technology consists of the following stages:

- mechanical cleaning of wastewater from sand and debris;
- collection, sewage regulation and pressure supply of wastewater for treatment;
- reagent treatment of raw wastewater;
- biological treatment – batch reactors SBR (Sequencing Batch Reactor);
- post-treatment of wastewater using pressure filtration;
- disinfection of waste water;
- sludge dewatering.

261. The typical layout for SBR is presented in **Figure 25**.

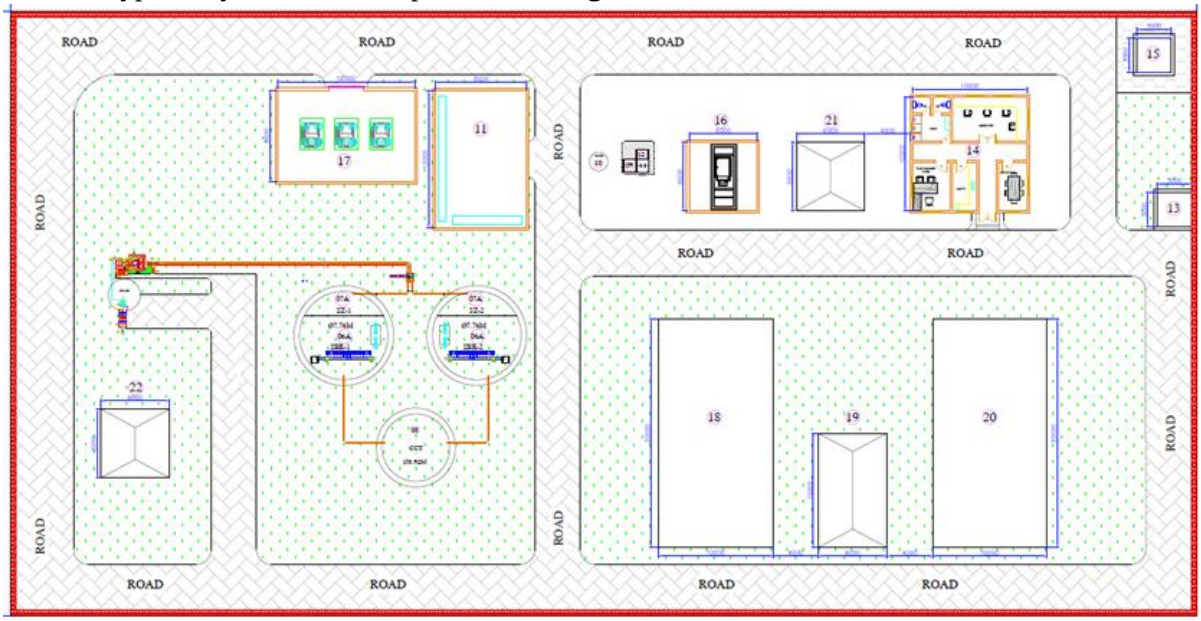


Figure 25: The typical layout plan for SBR.

1 – coarse screen channel, 2- receiving sump, 3 – stilling chamber, 4- Fine screen, 5- grit chamber, 6 – SBR basins, 7-selector compartments, 8- chlorination tank, 9 - sludge sump, 10- sludge thickener, 11

– MCC & Control Building/Blower room, 12 – Centrifuge/Volute Press house, 13 – security Cabin, 14 – Admin Building, 15- Transformer Yard, 16 – Disc Building filter, 17 – Boiler House, Mechanical Repair Workshop building, 20 – Material and Technical Workshop, 21 – Garage for Cars, Platform for Sewage ruck

262. SBR wastewater treatment technology for low-capacity facilities (up to 2 thousand m^3/day). From the city's main sewage pumping station, wastewater flows into the receiving chamber of the treatment plant. After undergoing mechanical cleaning on screens and sand traps, the wastewater is sent to an equalization tank for averaging flows. Their surge tank effluents are fed cyclically to each section of the SBR reactor. In the rector, wastewater is purified in the mode of filling, aeration, settling and removal of decanted purified water into a purified water reservoir.

263. Next, the waste liquid is sent for post-treatment to disk filters. Completely treated wastewater enters the tank for disinfection; after disinfection, the wastewater is sent by gravity to be discharged into the nearest drainage collector. Sodium hypochlorite (SHC), obtained on site by electrolysis of table salt, was used as a disinfecting reagent.

264. The activated sludge mixture formed in the reactor has stabilizing properties and is periodically removed from each section of the reactor by pumps at the landing stage and supplied for compaction to the activated sludge collection tank. After compaction, the mixture is distributed by pumps to sludge beds for drying and further disposal.

265. The process of wastewater treatment at high-capacity facilities (from 8 to 14 thousand m^3/day): From the city's main sewage pumping station, wastewater flows into the receiving chamber of the treatment plant. After undergoing mechanical cleaning on screens (coarse and fine cleaning) and sand traps, the wastewater is supplied in a cyclic mode to the SBR reactors by an intermediate pumping station. There are 4 reactors at the WWTP site; installation of a surge tank is not required since the capacity of each reactor allows the accumulation of the volume of incoming wastewater during the shutdown period of the reactors in which settling occurs.

266. In the reactor, wastewater is purified in the mode of filling, aeration, settling and removal of decanted purified water into purified water reservoirs. Next, the waste liquid is sent for post-treatment to disk filters. Completely treated wastewater enters tanks for disinfection; after disinfection, the wastewater is sent by gravity to be discharged into the nearest drainage collector. SHC, obtained on site by electrolysis of table salt, was used as a disinfecting reagent.

267. The activated sludge mixture formed in the reactors has stabilizing properties and pumps installed in each reactor are removed at the dewatering stage and supplied to the dewatering unit. After dewatering, the sludge is collected in containers and transported by special vehicles to a solid waste disposal site in the prescribed manner or used as fertilizer.

268. Biological treatment in SBR reactors. SBR reactors treat wastewater from mechanical biological treatment plants in specified batches. There are five processing stages:

- Filling
- Aeration
- Sedimentation
- Decantation
- Idle mode.

269. Filling Cycle: - During the period of the fill/aeration cycle, liquid is supplied to the SBR tank up to the set operating water level. Blowers are started to aerate the wastewater. The wastewater first enters the selector zone and is mixed with recirculating activated sludge (at low speed of the blower turbine) under anaerobic conditions. This phase is very important for systems with a large content of organic contaminants. At this phase, the quality of activated sludge is monitored. The rate of supply of wastewater does not matter; it can be supplied very quickly from the homogenizer, or wastewater can be supplied gradually as it arrives. The flow of wastewater continues under conditions of mixing and aeration (at high speed of the blower turbine). Aeration may be stopped (low turbine speed and blower shutdown). The alternation of aerobic and anaerobic conditions determines the processes of

nitrification, denitrification and biological dephosphoration. The speed of the turbine (or mixer) is changed automatically depending on the signal from the oxygen sensor.

270. Aeration cycle: - When the bioreactor is full, the water supply stops. Newly incoming wastewater is supplied either to the next bioreactor or to a homogenizing storage tank. Cycles of mixing and aeration continue until the sludge completely stops consuming oxygen. This means that the sludge has oxidized all organic contaminants entering the bioreactor. Intermittent operation of the turbo aerator leads to significant energy savings. When activated sludge is of sufficient age and favorable conditions, autotrophic bacteria carry out the nitrification process. The aeration system is equipped with high-quality diffusers with a fine-bubble membrane. This system is the most important core part that plays an important role in saving energy when using this technology.

271. Sedimentation cycle: - After turning off aeration, sedimentation of activated sludge begins. The rate and duration of sedimentation depend on the value of the sludge index, which characterizes the rate of sedimentation of activated sludge.

272. Decantation cycle: - The supernatant after settling is removed from the tank using movable stainless steel drainage vessels - decanters. During draining, there is no water flow into the tank. The decanter is driven by a motor and slowly moves from its original position to a predetermined bottom water level. To control the speed of movement of the decanters, variable frequency drives are provided. After removing the required level of supernatant liquid, the decanter returns to its original position by reverse movement of the drive. Excess activated sludge is removed from the tanks during the draining stage.

273. Idle mode cycle: - Once the decanting cycle is completed, the reactor is again filled with raw sewage and the process is repeated. Between the decanting and filling phases there is an idle phase. The idle time varies depending on the inflow flow and operating strategy.

274. The work cycle of traditional SBR process is presented in **Figure 26**.

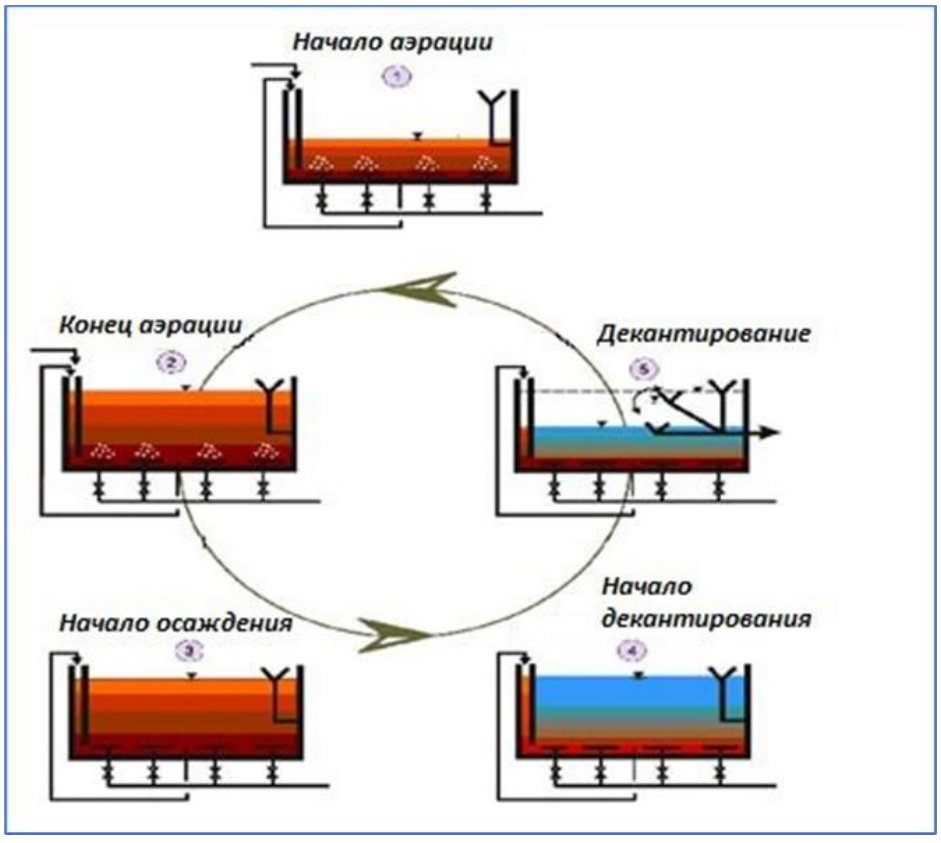


Figure 26: The work cycle of traditional SBR process

275. The guaranteed degree of purification using SBR technology is presented in the **Table 26**.

Table 26. The guaranteed degree of purification using SBR technology

#	Name	Unit	Значение
1	BOD5 (after post-treatment)	mg/l	3,0
2	COD	mg/l	15,0
3	Suspended solids (after post-treatment)	mg/l	5,0
4	Ammonium nitrogen	mg/l	9,1
5	Nitrate nitrogen	mg/l	0,5
6	Phosphates	mg/l	0,3

276. EA is deemed suitable for Mangit, Turtkul, Kungrad, and Chimbay, while SBR is recommended for Shumanay, Kegeyli, Karauziak, Tahtakupyr, Bozataw, and Akmangit. In both cases, the proposal includes the incorporation of advanced energy-saving equipment at each treatment stage, ensuring sustainable and efficient operation. Additionally, it is determined that nitri-denitrification is unnecessary for the region's conditions. The sludge treatment strategy takes into account local climatic conditions, favoring stabilization in aerobic stabilizers and sludge thickening. These recommendations aim to address the unique requirements of each locality, emphasizing effectiveness, sustainability, and adaptability in the pursuit of wastewater treatment excellence.

277. Summary of planning works is presented in **Table 27**.

Table 27. Summary of planning works in the project area

#	Planning works	Unit	Types	
			Rehabilitation	New construction
Water supply				
1.	**Nukus city**			
1.1	Water supply network	km	21.05	–
1.2	Water distribution unit	ea	–	–
1.3	Individual connections	km	–	180.00
1.4	Laboratory	ea	1.00	–
1.5	Administrative buildings	ea	1.00	–
1.6	SCADA/Control systems	ea	–	1.00
2.	**Takhiatash district**			
2.1	Water intake	m^3/day	21,900.00	–
2.2	Water distribution unit	ea	–	–
2.3	Water supply network	km	3.51	1.02
2.4	Laboratory	ea	–	–
2.5	SCADA/Control systems	ea	–	1.00
3.	**Turtkul district**			
3.1	Underground water intake	ea	3.00	–
3.2	Water distribution unit/Water tower	ea	1.00	3.00
3.3	Water supply network	km	9.06	386.11
3.4	Individual connections	ea	–	6,362.00
3.5	SCADA/Control systems	ea	–	1.00
4.	**Chimbay district**			
4.1	Underground water intake	ea	2.00	–
4.2	Water intake	m^3/day	–	–
4.3	Water distribution unit/Pumping station	ea	1.00	–
4.4	Desalination plants	ea	–	–
4.5	Administrative buildings	ea	–	1.00
4.6	Laboratory	ea	–	1.00
4.7	SCADA/Control systems	ea	–	1.00
4.8	Individual connections	ea	–	1,366.00

#	Planning works	Unit	Types	
			Rehabilitation	New construction
4.9	Water supply network	km	138.60	26.38
5.	**Ellikalla district**			
5.1	Water distribution unit/Pumping station	ea	8.00	1.00
5.2	Desalination plants	ea	–	–
5.3	Water supply network	km	83.00	378.11
5.4	Administrative buildings	ea	1.00	–
5.5	Individual connections	ea	–	7,515.00
5.6	SCADA/Control systems	ea	–	1.00
6.	**Shumanay district**			
6.1	Water intake	m^3/day	–	–
6.2	Water distribution unit	ea	3.00	1.00
6.3	Water supply network	km	7.71	101.27
6.4	Administrative buildings	ea	–	1.00
6.5	Individual connections	ea	–	663.00
6.7	Laboratory	ea	–	–
6.8	SCADA/Control systems	ea	–	1.00
	Sewage system			
1.	**Turtkul city**			
1.1	Sewage pumping station	ea	–	12.00
1.2	Sewage networks	km	–	102.70
1.3	Sewage treatment facilities	m^3/day	–	13.902
1.4	Individual connections	ea	–	7600.00
2.	**Chimbay city**			
2.1	Sewage pumping station	ea	–	17.00
2.2	Sewage networks	km	–	131.00
2.3	Sewage treatment facilities	m^3/day	–	9,376.80
2.4	Individual connections	ea	–	5,739.00
3.	**Mangit city (Amudarya District)**			
3.1	Sewage pumping station	ea	–	12.00
3.2	Sewage networks	km	–	95.00
3.3	Sewage treatment facilities	m^3/day	–	8,306.00
3.4	Individual connections	ea	–	4,710.00
4.	**Akmangit district center (Nukus region)**			
4.1	Sewage pumping station	ea	–	4.00
4.2	Sewage networks	km	–	39.00
4.3	Sewage treatment facilities	m^3/day	–	1,582.70
4.4	Individual connections	ea	–	1,354.00
5.	**Takhtakupir district center**			
5.1	Sewage pumping station	ea	–	8.00
5.2	Sewage networks	km	–	62.00
5.3	Sewage treatment facilities	m^3/day	–	2,130.20
5.4	Individual connections	ea	–	1,950.00
6.	**Karauzyak district center**			
6.1	Sewage pumping station	ea	–	4.00
6.2	Sewage networks	km	–	39.00
6.3	Sewage treatment facilities	m^3/day	–	1,823.00
6.4	Individual connections	ea	–	462.00
7.	**Bozatau District center**			
7.1	Sewage pumping station	ea	–	5.00
7.2	Sewage networks	km	–	36.00
7.3	Sewage treatment facilities	m^3/day	–	589.30

#	Planning works	Unit	Types	
			Rehabilitation	New construction
7.4	Individual connections	ea	–	409.00
8.	**Shumanai Disstrict Center**			
8.1	Sewage pumping station	ea	–	4.00
8.2	Sewage networks	km	–	33.00
8.3	Sewage treatment facilities	m^3/day	–	2,093.20
8.4	Individual connections	ea	–	1,903.00
9.	**Kegeili District Center**			
9.1	Sewage pumping station	ea	–	5.00
9.2	Sewage networks	km	–	28.00
9.3	Sewage treatment facilities	m^3/day	–	1,328.80
9.4	Individual connections	ea	–	1,586.00
10.	**Kungrat District Center**			
10.1	Sewage pumping station	ea	–	12.00
10.2	Sewage networks	km	–	96.00
10.3	Sewage treatment facilities	m^3/day	–	7,430.70
10.4	Individual connections	ea	–	5,522.00

4. BASELINE DESCRIPTION

A. Introduction

278. This section presents the baseline of the project area under the following headings:

- Physical Environment
  - Climatic conditions
  - Soils
  - Water Resources
  - Geology, Topography and Seismicity
- Biological Environment
  - Flora
  - Fauna
  - Protected Areas & Habitats
- Social Environment
  - Administrative Structure
  - General Information on the RoK
  - Ethnicity & Language
  - Religion
  - Economy and Livelihoods
  - Land Use & Ownership
  - Cultural Heritage.

279. Baseline data has been collated from desktop research of available data. Secondary data was collected from various government agencies. Socio economic data was obtained from yearbooks. Data on cultural resources was collected from available sources.

B. Physical Environment

1. Climatic conditions

280. The nature of The RoK (further Karakalpakstan), 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 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.

281. 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 maximum temperature reaches in July and August +46 C. The average rainfall is 100-110 mm per year.

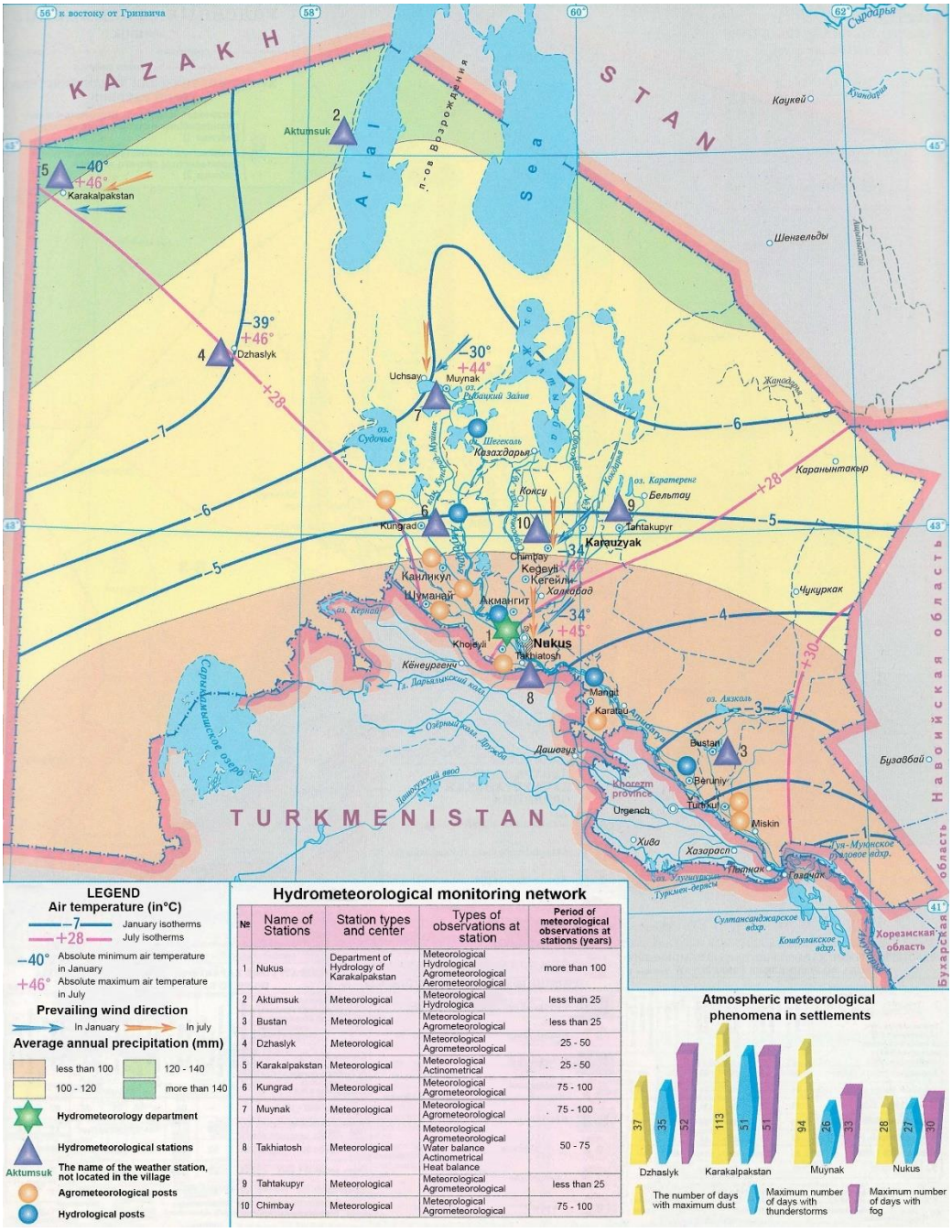


Figure 27: Climatic map of Karakalpakstan[46]

2. Soils

282. The RoK is located in the northwestern part of Uzbekistan, its area being estimated at 167,100 square kilometres or over 37 percent of Uzbekistan's entire territory. The territory of Karakalpakstan can be conditionally divided into 4 geographical districts: Karakalpak part of the Ustyurt, Karakalpak part of the Kyzyl Kum, lower reaches of Amudarya, and relatively newly emerged solonchak sands of the Aral Sea.

283. Karakalpakstan has a wide range of soils, from sandy soils of the deserts with hummocky and barkhan sands to marshy soils of the floodplain forests in Amudarya mouth. Karakalpakstan's soils are

[46] Atlas, Published by Yergoedezkadastr, 2016

characterized by different salinity degrees and are subdivided into non-saline, weakly saline and highly saline (salt content of more than 0.5 g per 100 cm3 of soil).

284. Boggy floodplain-and-alluvial soils occupy narrow bands around the lakes and in the topographic lows with meadow-and-bog vegetation. Most of the year, these soils are water- logged. By the texture, there are various soils: sandy, clayey, loamy, ever-stratified. Meadow soils are most widespread in the territory of Karakalpakstan. Depending on water regime, they can be divided into two types: meadow floodplain-and-alluvial and meadow residualand-marshy. The drying out part of the floodplain is predominated by the humus-rich mildly saline option. Sulphates predominate in the salts composition.

285. In addition to the above, clean sandy soils, i.e. sands, also occur in Karakalpakstan's territory. The sands of the Northwestern Kyzyl Kum emerged as a result of aeolian reprocessing of alluvium, and those in the region of Sultan Wa'is Taui upland and southeastern Aral seaboard – as a result of bedrock weathering.

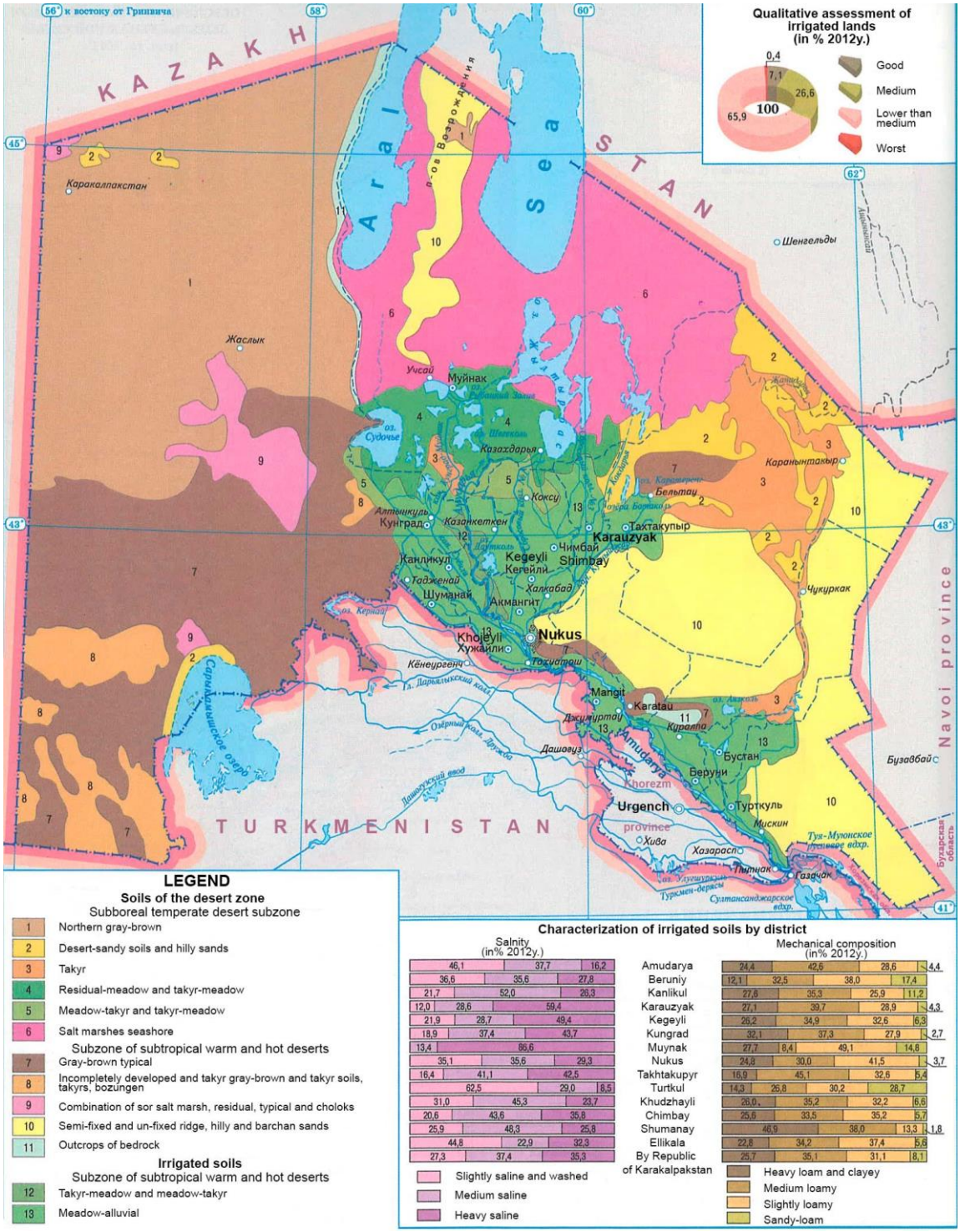
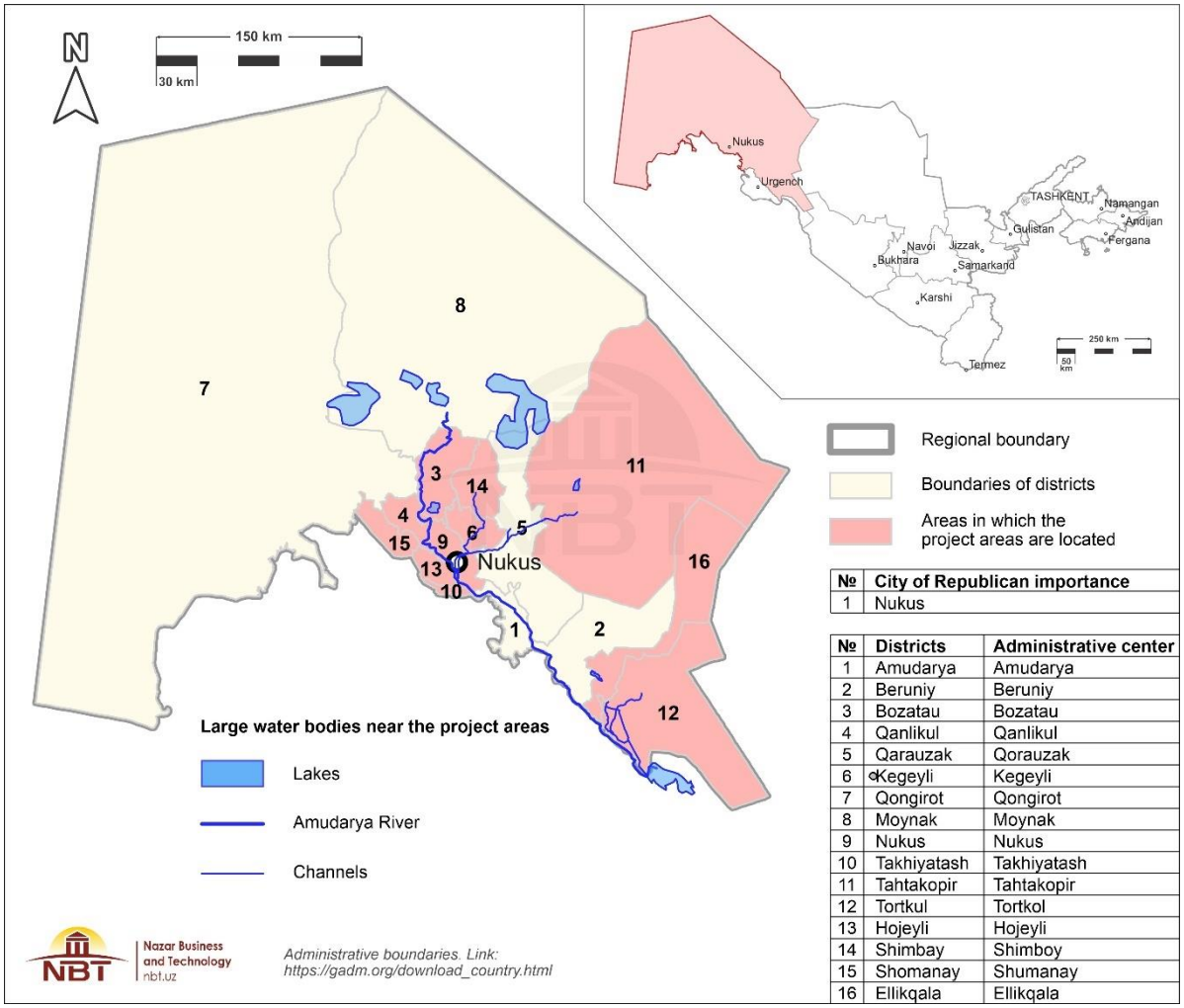


Figure 28: Soil map of Karakalpakstan

3. *Water Resources*

a) Surface Water Resources

286. The main water bodies near the project area are the Amudarya River and Lake Akchakul.



№	City of Republican importance
1	Nukus

№	Districts	Administrative center
1	Amudarya	Amudarya
2	Beruniy	Beruniy
3	Bozatau	Bozatau
4	Qanlikul	Qanlikul
5	Qarauzak	Qorauzak
6	Kegeyli	Kegeyli
7	Qongirot	Qongirot
8	Moynak	Moynak
9	Nukus	Nukus
10	Takhiyatash	Takhiyatash
11	Tahtakopir	Tahtakopir
12	Tortkul	Tortkol
13	Hojeyli	Hojeyli
14	Shimbay	Shimboy
15	Shomanay	Shumanay
16	Ellikqala	Ellikqala

Figure 29: Main water bodies near the project area

Lake Akchakul

287. Akchakul is located in the north-west of the Ellikkalla district. The total area is 1149 hectares. The depth locally reaches 35 meters. On the initiative of the President of Uzbekistan Shavkat Mirziyoyev, Akchakul was designated a tourist and recreational zone, and large-scale work was carried out. All conditions for recreation are created for local and foreign tourists.

Amudarya

288. The Amudarya is the longest river in Central Asia: 2,540 km from the sources of the Pyandj and Vakhandarya rivers in the Pamir Mountains or 1,415 km directly from the confluence of the Vakhsh and Pyandj. Known in the Hellenistic world as the Ox, and in Arabic as Jeyhun, since ancient times the Amudarya was not only a source of irrigation of vast arid areas, that is, a source of life, but also a transport artery. In modern conditions, the irrigation network in the basins of the right-bank tributaries of the Amudarya, Surkhandarya, Sherabad, Kashkadarya, and the Amudarya itself within Uzbekistan includes large and small irrigation canals, many collectors and springs (mainly in Sherabad basin).

289. The Amudarya is partially a regulated river. In the upstream there is the Nurek dam on the Vaksh River, which is currently run mainly for all-the-year-round production of hydroelectric power. The Tuyamuyun dam in the upper delta of the Amudarya provides inter-seasonal storage of water, and the Takhiatash dam located to the north provides gravity distribution of water for irrigation of lands bordering the Sub-Aral area.

290. The flow of the Amudarya is regularized by means of a complex of reservoirs (Channel, Tuyamuyun, Kaparas, Sutansanjar and Koshbulak reservoirs) impounded with four main dams

completed between 1981 in 1983 in Tuyamuyun, some 300 km upstream of the former geographical boundaries of the Aral Sea and extending over the territories of Uzbekistan and Turkmenistan. Based on planning, the reservoir complex is used to regularize the flow of the Amudarya mainly for agriculture (98%), and partly for industry and drinking water supply (up to 2%).

291. Some project networks are located near from the Amudarya River, however the closest point is the site in Elikkalla and is located at a distance of 130 m from the river.

Figure 30: Closest point to the Amudarya river

b) **Ground Water Resources**

292. In accordance with data provided by Aral Hydrogeological Expedition, there are four recognized groundwater aquifers in Karakalpakstan: i) the lower Amudarya aquifer, extending in both right and left bank of the Amudarya; ii) the Karakalpak aquifer in the left bank of the River; iii) the Khorezm aquifer; and iv) the Turtkul aquifer.

293. Generally, groundwater in RK is salinized due to the high salinization of the groundwater bearing sediments. Shallow aquifers of generally limited extension are found within old alluvial River channels, constituted by alluvial sediments and recharged mainly by water seepages from irrigation canals. Due to the recharge of surface water from canals, which generally exhibits moderate mineralization content, these lenses of groundwater can be exploited for local water supplies. The exploitable reserves of these aquifers are limited in quantity due to the limited and variable recharge and also in time due to the upcoming invasion of salinized groundwater from the peripheral zones of the lenses of fresh groundwater. This is why the term “fresh groundwater” is commonly used in the hydrogeological context of the lower Amudarya area to identify groundwater bearing units or even small extension with a total dissolved solids (TDS) concentration in water up to 1.5 g/l16. These groundwater lenses are generally exploited by means of small discharge wells for the supply of remote settlements, and in amounts carefully planned in order to relent as much as possible the diffusion of the surrounding salinized groundwater.

294. Regarding the hydraulic regime of water use and quality in the canals can be distinguished into three different periods in the year.

295. The period of recharge, from December to May, during which TDS in surface waters averages 1.2 to 1.7 g/l, with peaks up to 2.3 g/l. In December-January the irrigation canals flow full and recharge groundwater with rather salinized water. From mid-January to midMarch the water in the canals is

generally frozen while a baseflow is maintained in the canals bottoms by drainage of groundwater. From March to end of May the canals are flowing again and supplied with not conditioned water.

296. During the vegetative period, June to September, the salinity of water in canals decreases to 1 g/l. During the regression period, between October and November, flow in canals falls to minimum annual discharges generally sustained only by the baseflow contributed by groundwater; the TDS averages 1.2 g/l.

297. The analysis of several years of monitoring indicate that shallow aquifers are recharged by main canals during the 3 to 4 months high waters period. During the 3 to 4 months recession period flow in canals is generally sustained by drainage of groundwater.

The Lower Amudarya – Right and Left Bank - Aquifer

298. Surveys carried out at different stages in time revealed a total of 24 groundwater bearing lenses with quality acceptable for water supply. The estimated renewable reserves in the northern Karakalpakstan amounted to 199,590 m3/day including 156,140 m3/day categorized for industrial use. Effective withdrawals as of 01.01.1994 were assessed at 37,600 m3/day.

299. As of 01.01.2005, intakes were reduced to 8,340 m3/day produced from 38 wells. Degradation of water quality was the reason for such reduction. In the last 35 years, due to increasing of water withdrawals from the Amudarya and to the return of drainage waters into the River, the overall quality of surface waters degraded steadily while reserves of fresh groundwater decreases accordingly.

Alluvial Deposits in Right Bank of the Amudarya

300. The Nukus aquifer is located along the channel “Kyzketken” and is constituted by sediments of upper Cretaceous period. It has a length of 7 km and width from 800 m to 3 km. At the time of the first survey in 1965, the TDS in groundwater ranged 0.5-0.75 g/l. Surveys in 1990 showed that reserves of fresh water had decreased by 10% due to poor recharge occurring from the canal. Renewable reserves were assessed at 16,800 m3/d (194.4 l/s) and approved by the State Committee of USSR of Mineral Resources in 1965 for industrial use. The exploitable reserves were estimated at 2.41 m3/day or 27.9 l/s. Part of the city of Nukus was supplied with water from this aquifer.

301. In 2005 the salinity of groundwater was in the still acceptable range of 1-1.5 g/l for water supply. However, the production wells are not operated due to high fluorine content.

Khorezm Aquifer (RoK)

302. This aquifer is located in the Amudarya district, in the RoK, on the left bank of the Amudarya. The perimeter of the aquifer is bound by the Amudarya River, the Kara-Kum desert and the national borderline with Turkmenistan. Medium and lower Neogene sediments are a local aquitard at depth of 25-100 m. Their lithological composition is constituted by clays, siltstones with interbedded sandstone layers. Pliocene sandstones with thickness ranging 20 to 30 m are found everywhere at depths of 17 to 35m. 161. The groundwater bearing unit Beruniy is also, located on the right bank of the Amudarya, 5 km south-west from Beruniy city, in the Beruniy district. In 1982 State Reserves Committee of Soviet Union approved exploitation of reserves of fresh ground waters responding to requirements for industrial categories in the amount of 12,800 m3/d (148 l/s). From 1967 the well field Beruniy is operated for household drinking water supply of Beruniy city.

c) **Ground Water Table**

303. There are several types of ground water in the project area. Shallow ground water, which is located on the level up to 20 meters from surface, deep ground water, which in some cases could be used for drinking purposes and aquifer where ground water is located below 100 up to 250 meters. 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 RUz SUE “Uzbekhydrogeology” Aral Sea hydrogeological expedition (2023)

304. Groundwater regime in the virgin and adyr areas of the Left Bank of the river. 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.

305. On the massifs of the predominant cultivation of rice crops, which cover the territories of the Shumanai (along the Amudarya River) region, the maximum level of groundwater in the seasonal section occurs, in August, 0.92-1.84 m, and the minimum, at depths of 4.0-5.95 m above the ground in November-December. The minimum level in the territory of Kanlykul, Kungrad regions is noted at a depth of 3.6- 4,2 м, and in the Muynak region at 7.0-7.2 m.

306. On these arrays, the groundwater level in 2018-19 lay in the range from 5.9m to 7.4m with an amplitude of fluctuations of 1.0-1.5m, an increase in the level of groundwater was observed, from March to May in the month of 2021-22, a decrease in the level of groundwater which continues until the end of the year within 8.02-8.21m .

307. On the arrays, the traditional predominance of cotton crops (the territory of the Sarykamysh delta of the Amudarya River), where the territories of the Kanlykul, Kungrad and Muynak administrative regions are located, for the observation period of 2018-2021, the maximum level of groundwater is noted in May - August at a depth of 0.6 - 1,5 m during the period of water-charging irrigation and vegetation irrigation of winter crops. The minimum groundwater level occurred in late October and early November at a depth of 3.5- 4,2 m from the earth's surface.

308. The amplitude of groundwater level fluctuations was 2.7 - 3,0 м depending on the water content of the year. It should be noted that only from September to mid-November, all channels are closed, and water supply to irrigated lands stops completely. From the second half of November, autumn-winter leaching irrigations begin, which continue in the spring of the next year - spring leaching water-charging irrigations.

309. For the observation period 2018-2022. due to a change in the structure of crops, i.e. with the increase in winter crops, the time of the onset of maximum groundwater levels changed to March-April in 2019 and was noted at depths of 0.95-1.8 m from the earth's surface. The timing of the onset of minimum groundwater levels remained unchanged. The average annual levels of groundwater in the long-term context have a downward trend due to the above factors.

310. An exception to the rule is the lands located in the middle and tail parts of the main canals Suenli and Shumanai, where in the dry season of 2020-2021. average monthly groundwater levels decreased from 2.0 - 2.63 m to 3.7 - 5.04 m, respectively.

311. In the period following the low-water high-water period, groundwater levels on these lands intensively recovered at a rate of rise of 0.5-3.0 m/year, depending on the intensity of irrigation of cultivated crops

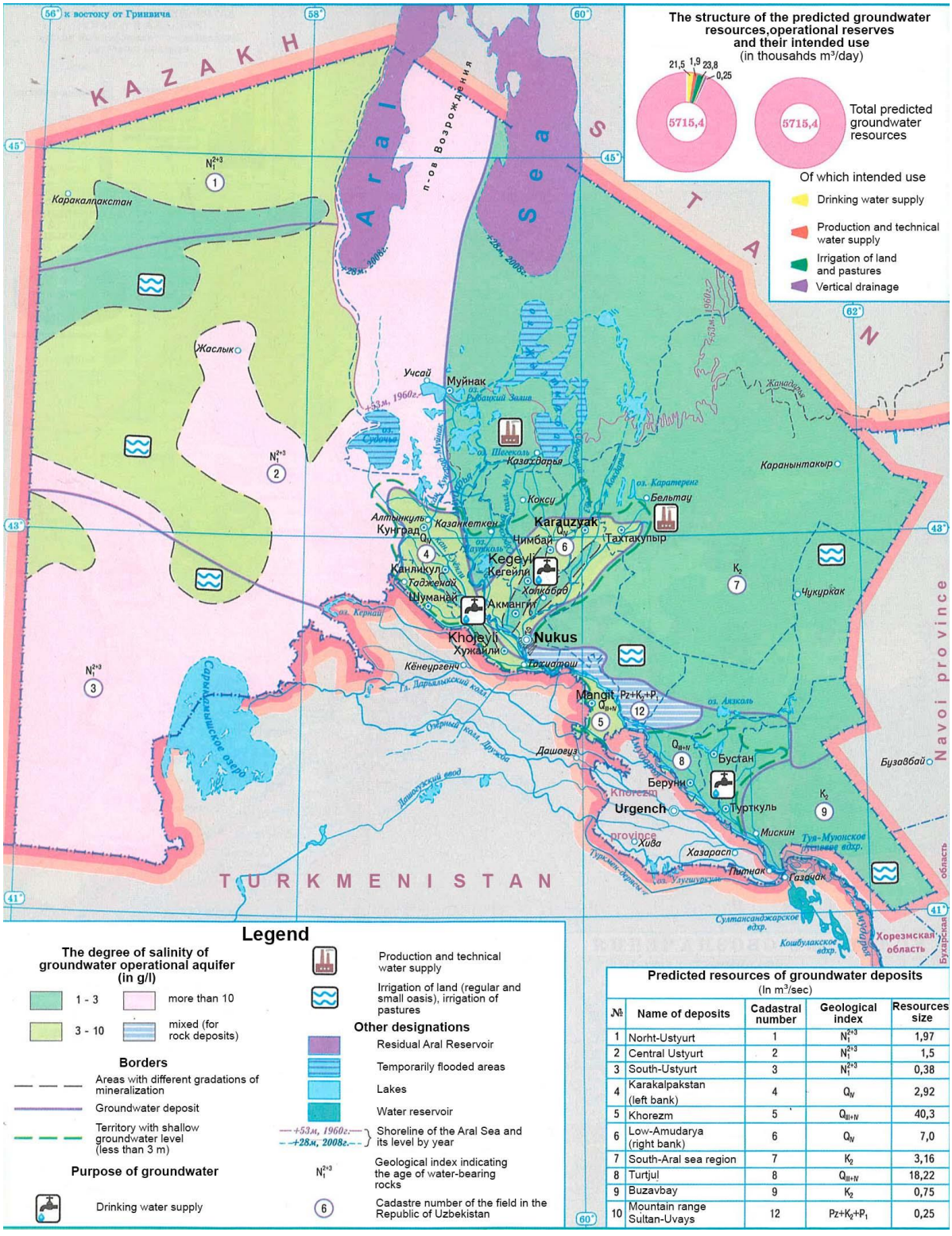


Figure 31: Map of ground water of the Karakalpakstan

4. Geology, Topography and Seismicity

312. The territory of the RoK is a plain with clearly defined small enclosed depressions and a general slope to the north, northwest and southwest. In the southern part of the territory there is a low mountain range Sultanuizdag, and in the north - small hills Kushkanatau and Beltau. In the north-west of Karakalpakstan is the eastern part of the Ustyurt plateau, which is a waterless, deserted clay plain, which in the delta of the Amudarya and near the Aral Sea breaks a 100-110 m high ledge. In the peripheral

areas of the left-bank part of the delta, as well as near its border with the Kyzylkum, the relief of the plain is somewhat hilly, with sands overhanging the cultivated lands. Muddy-hilly sands with heights of 5 to 10 m and more are found in separate massifs among irrigated areas.

313. The geological structure of the Amudarya delta in Karakalpakstan consists of many types and types of deposits of Cretaceous, Tertiary and Quaternary periods. Cretaceous deposits take place on the right bank of the river. Tertiary deposits are found near Tyuyamuyun, Kyzylkum, Ustyurt and other areas in the form of red and red-yellow clay deposits. Quaternary sediments are widespread in the present and emerging delta of the Amudarya River and consist of sands, sandy loam, loams and clays brought in by water. These sediments have relatively good water permeability, friable structure, unstable to spillage processes. Quaternary sediments are the object of amelioration, groundwater and its regime are formed in them. The complexity of the geological structure of the Amudarya delta, the presence and economic use of irrigated land in the delta determine the features of its hydrogeological conditions of formation of the groundwater regime.

314. According to seismic zoning, the territory of the project zone belongs to the 7-point zone (**Figure 32**).

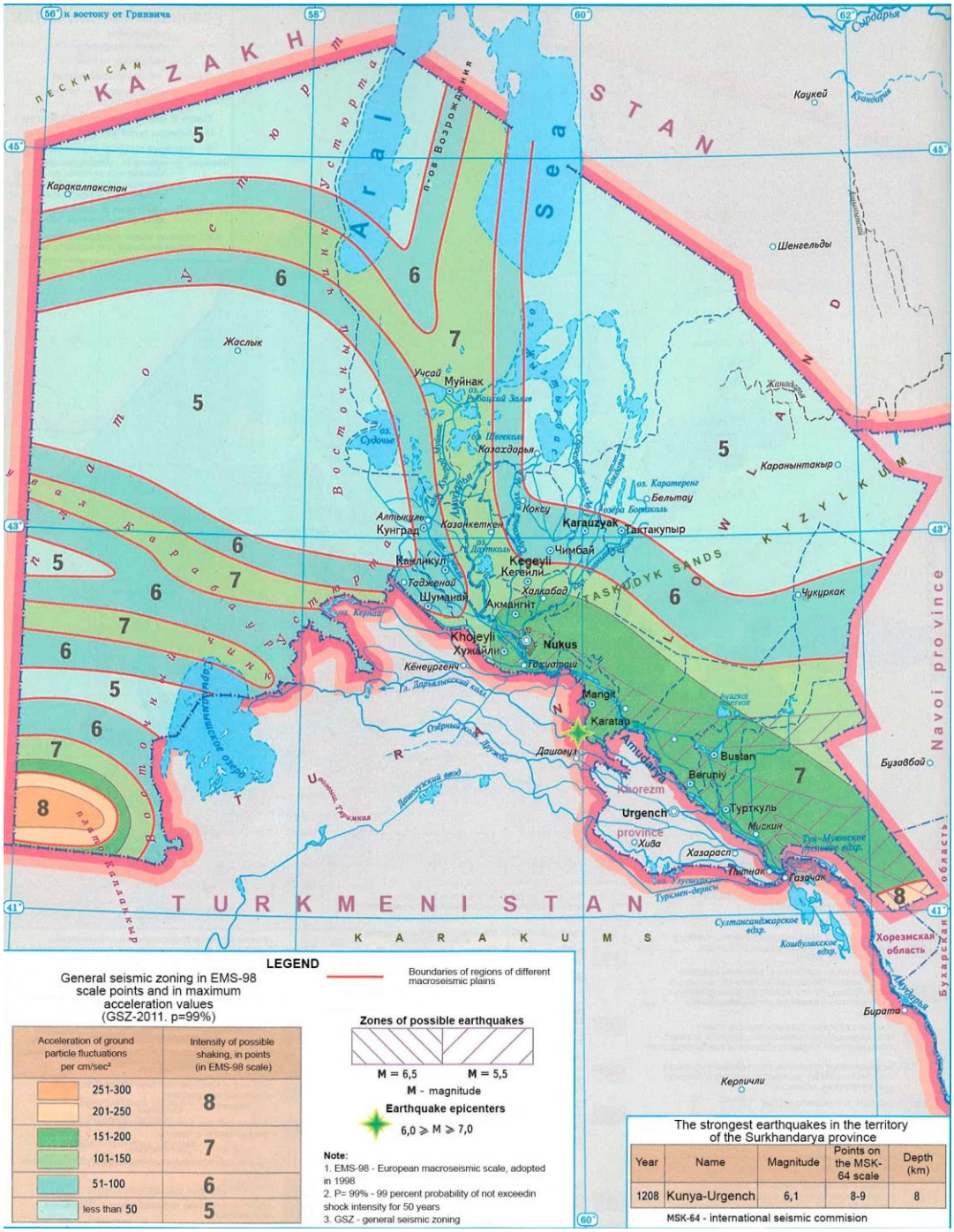


Figure 32: Seismic map of Karakalpakstan

C. Biodiversity

315. Individual peculiarity of the nature of Karakalpakstan located in a desert zone of the Central Asian region is defined by extremely continental, desert climate with extremely small amount of precipitation given large evaporation rate. A large part of the territory is occupied by the deserts of Ustyurt plateau and Kyzyl Kum. The drying Aral Sea and Amudarya river delta intervene between them and are, in their turn, divided by another (new) desert named Aral Kum.

316. The flora and fauna of the deserts reveal their adaptation to rather unfavourable ambient conditions.

1. Fauna

317. The deserts' vegetative cover sharply changes depending on the substrate: psammophytic vegetation commands the sands, gypsophyte vegetation – the rocky substratum, halophytic vegetation

– the solochak soils, and sagebrush and sagebrushand-saltwort and ephemeral vegetation – the loamy soils.

318. Overall, the flora of the Aral Sea's desiccated floor is characterized by a small number of species. Only a small portion of the dried-up part of the Aral Sea floor is occupied by sparse desert vegetation. Biyurgun [anabasis salsa/eriopoda] and keyreuk [salsola orientalis] communities form the basis of the vegetation.

319. Black saxaul, kuyandyk, kandym, [calligonum junceum], and stipa are found in the sand. However, a considerable part of the Aral Kum is represented by wet solonchaks at places where bays were formerly located, as well as by sandy-clayey solonchaks. This territory is barren of flora and fauna. The surface is normally armoured with up to 5 cm thick salt crusts.

320. The Kyzyl Kum desert in the northwest has merged with the new desert of Aral Kum composed of the entire territory of the string of islands ranging from Muynak Upland (Tokmok Ata island) in the south up to Kulandy peninsula in the north: these are the former islands of Lazarev, Konstantin, Vozrozhdeniya [Renaissance], Komsomolsky, and the 'banks [shoals]' of Bellingshausen, Komsomolskaya, and Beninga.

321. Of Karakalpakstan's wild flora (a little over a thousand species), about 700 species are in the Kyzyl Kum. They are represented by typical desert life forms. Herbaceous plants (representatives of the families goosefoot, buckwheat, and composite) account for more than half of them, bushes – just under a quarter of the species, and semishrubs and dwarf semishrubs – the remaining portion.

322. The valley and delta of Amudarya, like those of other Central Asian rivers, are characterized by individually peculiar tugai [riparian woodland] landscape. Tugais are tree and shrubbery forests, development of which is ensured by optimal soil moistening conditions due to river water overflows and high groundwater level. They grow linearly along the river banks, islands, and the lowland topographic lows. In its most typical form, a tugai represents a dense, heavy-going thicket of turanga [Asiatic/Euphrates poplar], willow, and oleaster that are enlaced with lianas, and large shrubs - tamarisk, and chingil [salt tree]. While, in damp habitat areas there is a mass of common reeds [phragmites australis] and kendir [dogbane] amid the trees.

323. The tugais of Amudarya's lower reaches currently feed 61 species of tugai plants. Of which, the main group of tugai plants includes turanga [Asiatic/Euphrates poplar], willow (5 species), oleaster (1 species), tamarisk, chingil [salt tree], clematis, vincetoxicum, and glycyrrhiza. The tugais' shrub zone is mainly represented by species associated with permanent ground moistening and the process of salinization. These are tamarisk, ajiriq [cynodon dactylon], atriplex, zygophyllum, kermek [limonium], aqbash [karelinia], qarabaraq [halostachys], and various salsolas.

2. Flora

324. The desert's animals also adjust to excessive heat and moisture shortage in a number of ways. Some of them shift to nocturnal way of life and escape from the day heat hiding in holes or burrowing in the sand or sitting out on the bush branches. What water shortage in the desert has led to is that some desert animals do not drink water at all and do not even know how to drink (yellow ground squirrel). They obtain the necessary moisture from plants, and predators – from their preys' blood. The animals of ephemeral deserts that lead strenuous life in the spring go into aestivation during the hot summer period.

325. The RoK records 498 vertebrate species spread over its territory, including 68 mammals, 307 birds (of which, 141 breeding, 20 wintering, and 14 migratory birds), 33 reptiles, 2 amphibians, and 49 fish species. There is roughly 7 times as many invertebrate animals, but they have been very poorly studied. Insects are the most diverse – 1,392 species that fall into 23 orders. Other invertebrates – the parasites of fish, birds, crustaceans, and shellfish are the most fully investigated. Thus, the fish are known to have 436 parasite species, the birds – 133 helminth species alone. 45 flea species and 16 mite species have been found on rodents. The tugai biocoenosis records 420 invertebrate species, 264 – in gypsum desert, and 180 – in sandy desert.

326. Species composition of Karakalpakstan's vertebrate animals has undergone noticeable changes in recent decades. A considerable part of the terrestrial species has greatly reduced in number and is now

listed as vulnerable, rare or endangered. Uzbekistan's Red Book (2006) includes 10 species of mammals, 37 – birds, 12 – fish, and 4 – reptiles. Of Karakalpakstan's mammals, the Red List of the International Union for Conservation of Nature (IUCN) includes 2 extinct (Asiatic cheetah and Turanian tiger) and 4 critically endangered species (Indian ratel, Turkmenistan caracal [caracal Schmitzi], Turkmenian kulan, Ustyurt mountain sheep); of its birds – 5 endangered and critically endangered species (marbled duck, stiff-tailed duck, Asiatic white crane, bustard, slender-billed curlew), and of its fish – 5 species (Aral bastard sturgeon, large and small Amudarya false shovelnose sturgeon, Aral spined loach [sabanejewia aurata aralensis], and Aral Sea trout).

327. At the same time, 14 fish species have emerged in Karakalpakstan's water bodies as a result of acclimatization activities and the fish resettlement. However, only 4 of them are of commercial importance and even take the lead in fishery.

328. Almost all of the indigenous fish inhabiting Amudarya's plain areas are suppressed endemics of the Aral Basin. All sturgeons are on the verge of extinction: Amudarya's relict endemics – large and small Amudarya shovelnose, and bastard sturgeons. Just as all sturgeons of the world fauna, these three species are globally protected. They were included in the Red List of the International Union for Conservation of Nature and in Uzbekistan's Red Book (2006). A total of 15 species and subspecies of the Amudarya Basin fish were listed in Uzbekistan's Red Book (2006). Along with that, Amudarya's role is also important as a transit canal for breeding of such commercial fish in the riverbed as silver carp, grass carp, white Amur bream, and their juveniles migrating downstream from the spawning grounds to the delta zone lakes.

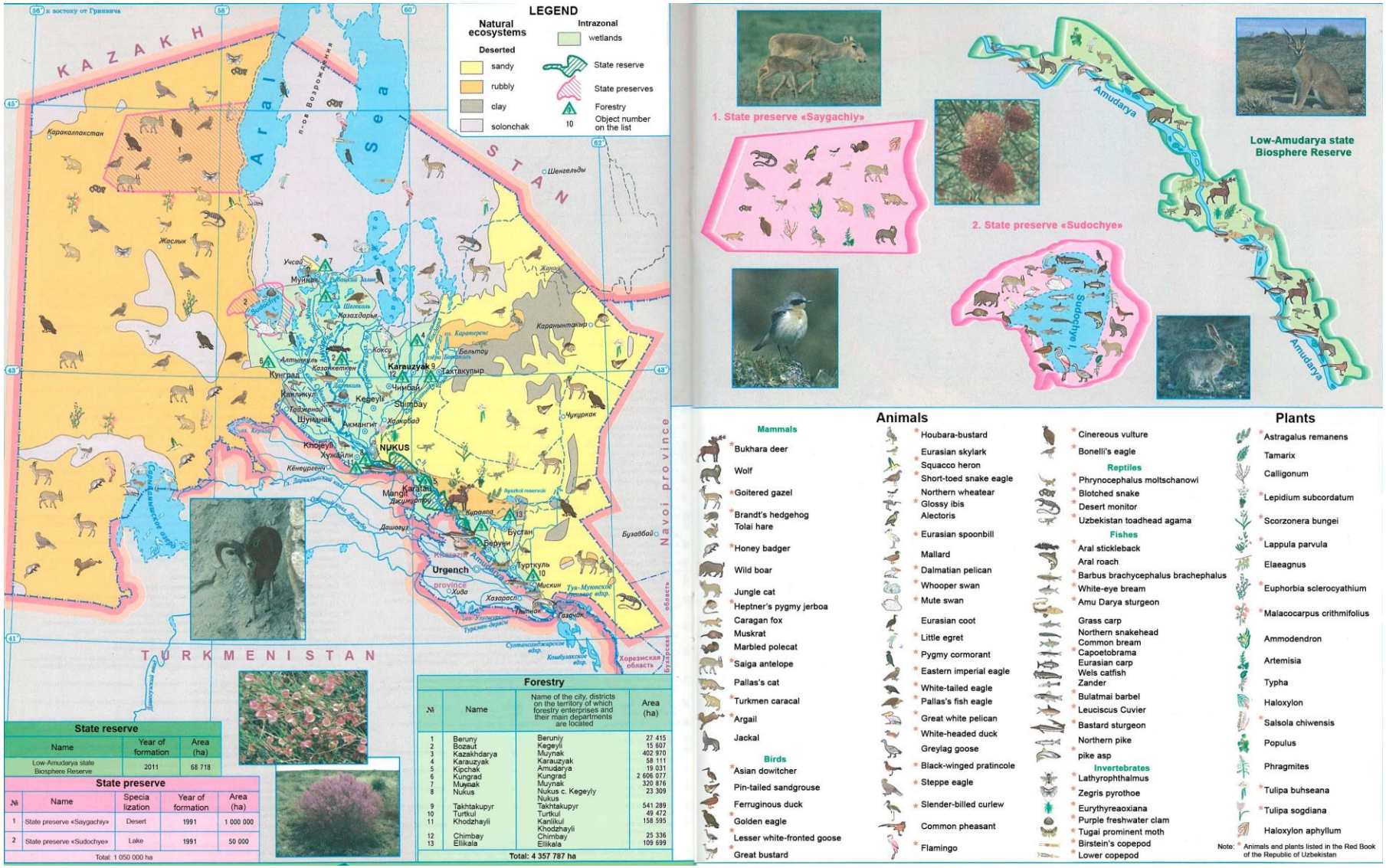
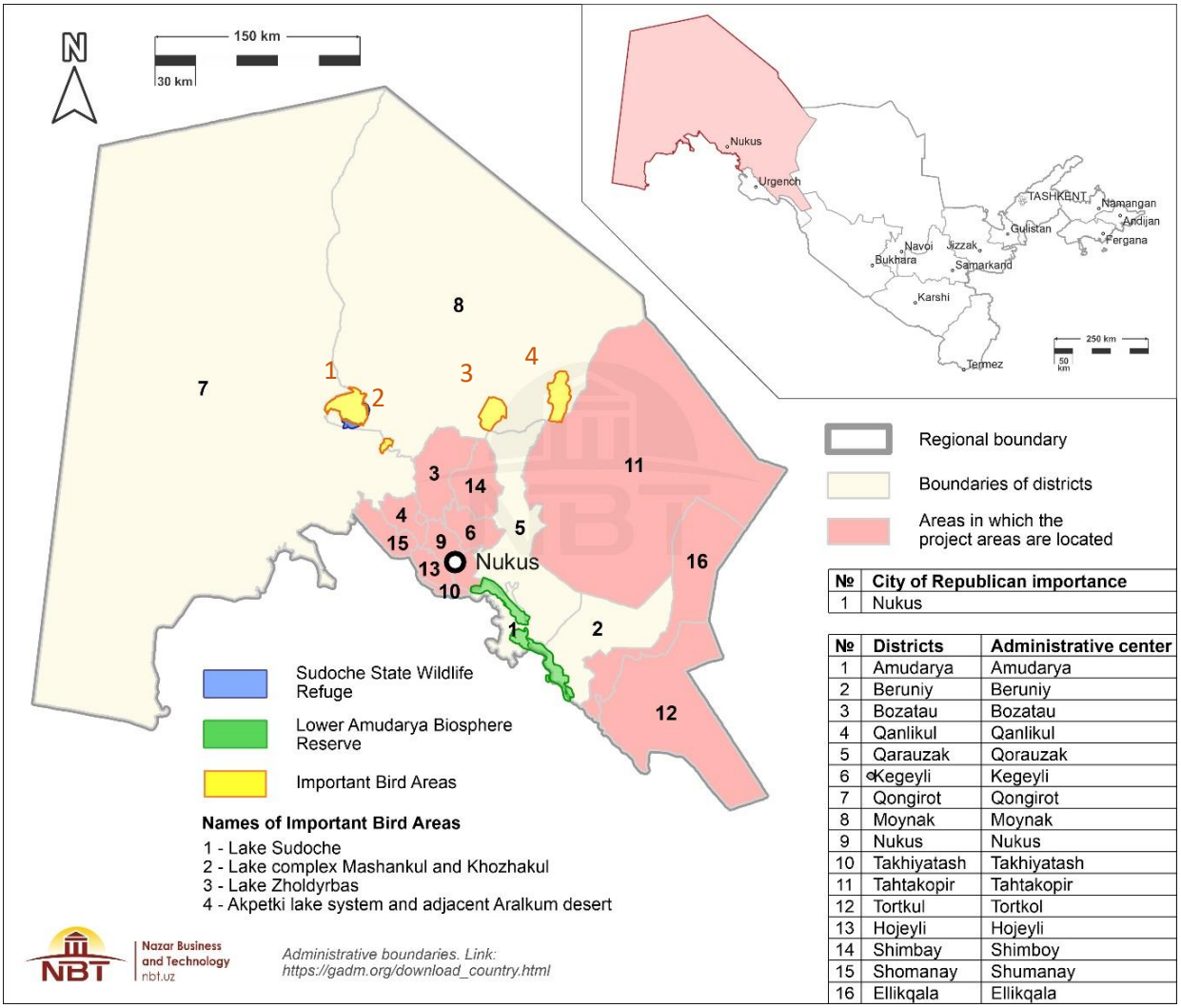


Figure 33: Wildlife Map of Karakalpakstan

3. Protected Areas & Habitats

329. Within Karakalpakstan there are several protected areas and the closest to the project sites is the **Low-Amudarya Biosphere Reserve (LARB)**.



№	City of Republican importance
1	Nukus

№	Districts	Administrative center
1	Amudarya	Amudarya
2	Beruniy	Beruniy
3	Bozatau	Bozatau
4	Qanlikul	Qanlikul
5	Qarauzak	Qorauzak
6	Kegeyli	Kegeyli
7	Qongirot	Qongirot
8	Moynak	Moynak
9	Nukus	Nukus
10	Takhiyatash	Takhiyatash
11	Tahtakopir	Tahtakopir
12	Tortkul	Tortkol
13	Hojeyli	Hojeyli
14	Shimbay	Shimboy
15	Shomanay	Shumanay
16	Ellikqala	Ellikqala

Figure 34: Main protected areas closed to the project territories

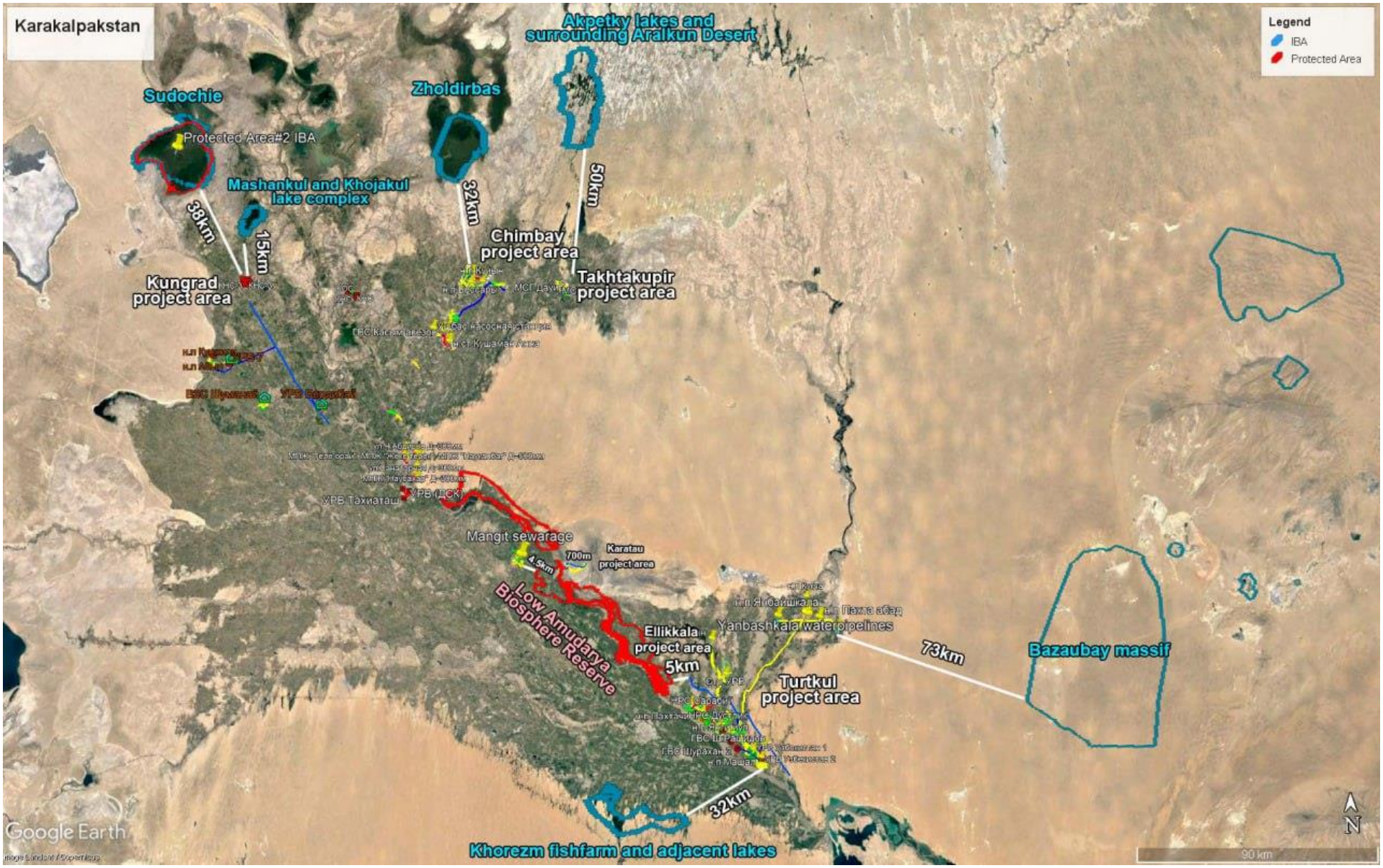


Figure 35: Location of IBAs closed to the project areas

330. **Low-Amudarya state Biosphere Reserve (LABR)**[47]. The LABR was created in 2011 under a joint project of the United Nations Development Program, the Global Environment Facility and the Government of the RoK "Conservation of riparian forests of Karakalpakstan in the Amudarya river Delta" based on the reserve "Baday-Tugay". In addition to the territory of the former reserve, tugai forests of Beruni and Amudarya districts of Karakalpakstan were transferred to the biosphere reserve.

331. The total area of the LABR is 68717.8 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.

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

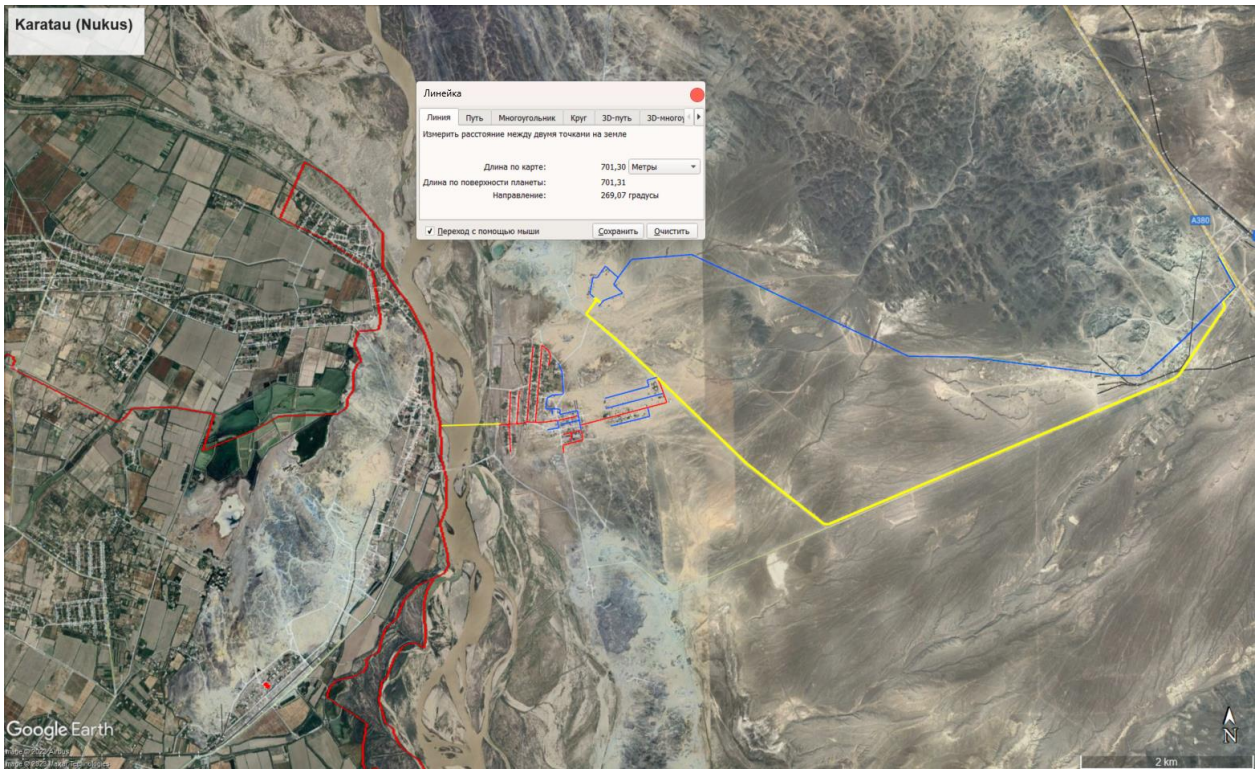


Figure 36: Location of the LABR within the project areas

333. As shown on the **Figure 35**, main IBAs are located not very close to the project areas (from 15 to 75 km), which suggests negligible impact of the project objects on these protected areas.

D. Social Environment

1. Administrative Structure

334. This section describes the administrative structure in Uzbekistan.

335. Uzbekistan is divided into 12 provinces (viloyats), one autonomous republic Karakalpakstan and one independent city, Tashkent City, which is the capital. The provinces in turn are divided into districts, and province level cities (subordinate to province Khokimiyat), and districts that comprise of urban and rural mahallas (or avuls) – local self-governing organizations. Below (**Figure 37)** outlines the administrative structure in Uzbekistan.

[47] http://tugai.uz/

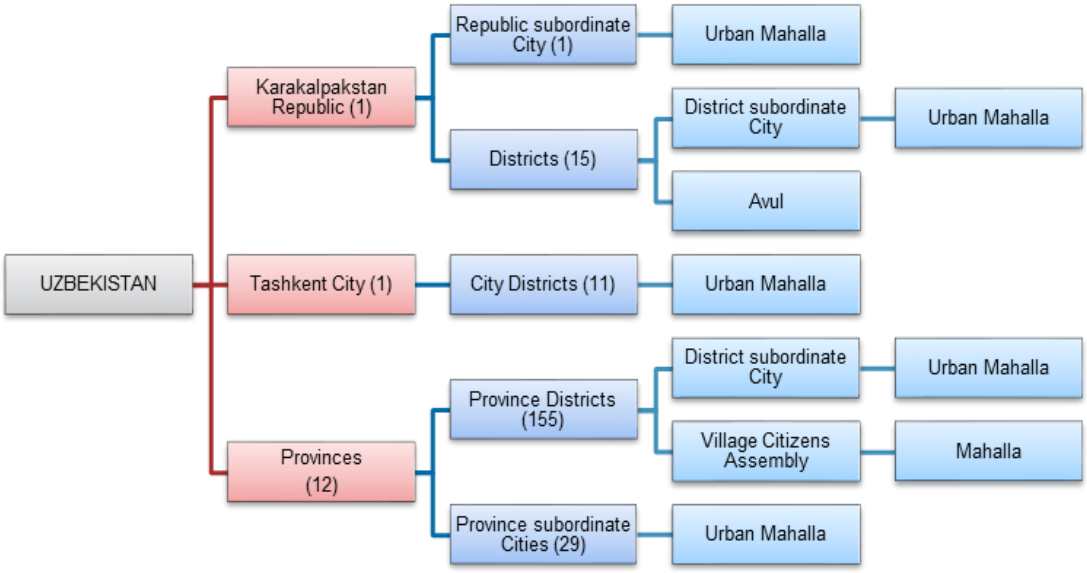


Figure 37: Governmental Administrative Structure of Uzbekistan

336. In total there are 170 districts and 30 province subordinate cities located in 14 regions of Uzbekistan, with 8,973 mahallas and avuls throughout the Republic. The following section describes the mandates and roles of the main administrative bodies.

1) Regional Administration

337. Each Province is headed by a Governor (Khokim) who represents the Government at the province level. The Khokim is appointed (or dismissed) by the President of Uzbekistan and confirmed by the Counsel of Peoples' Deputies of the respective province. The executive body at the regional level is the province Khokimiyats comprising the Khokimiyat apparatus and ministry line departments.

2) District Administration

338. The district Khokimiyat is headed by a Khokim who reports to the Province Khokimiyat. The Khokimiyat has a leading role in the public administration of the country. Approval, support and participation of the district Khokimiyat is important for every development activity in the respective rayon. The district Khokimiyat is appointed and dismissed by the Province Khokim and confirmed formally by the appropriate Council of Peoples' Deputies. The apparatus structure of each district consists of district Khokim, 3 deputy Khokims (economic issues, spirituality and enlightenment and women's issues); the main specialists, organizational and control group and chancellery.

3) City Administration

339. The role of the city Khokimiyat is the public administration body in the country with a role similar to that of the district Khokimiyat, to which the city Khokimiyat is subordinated. The head of the city Khokimiyat is the Khokim who is the highest official on the territory. City Khokimiyats usually include several urban mahallas.

4) Mahalla Committee

340. The mahalla committee is the lowest level of local self-government and the one linked directly to households. The committee is made up of four members: the chairperson who is elected by the mahalla households for 2.5 years, the secretary who is selected by the chairperson, the 'posbon' who is responsible for security and is appointed by the district Department of the Interior, and the women's advisor who is nominated by the District Women's Committee. The mahalla committee is directly accountable to the district Khokimiyat. In urban-type settlements, the mahalla committee is supported by volunteers who have been selected by the local people jointly with the mahalla committee. In each

mahalla committee, several sub-committees may be established to support the work of the mahalla committee, such as for youth, crime prevention, municipal / land improvement etc. In practice, committees are established based on the actual needs and priorities of the respective mahalla and usually deal with the resolution of family conflict, pension distribution, resolving women's issues, organizing weddings, funerals and other social events.

5) Street Elders

341. The street elder / head is a respected person who lives on one of the streets in the neighbourhood. She/he organizes the traditional events. These people know all the families on the territory and are able to provide valuable support for example in identifying households who could be in difficulty for the payment of utility bills. They can also play a useful role in organizing meetings and disseminating information.

6) Senior Women Counsellors / Female Assistants to Women's Advisor

342. Senior women counsellors are selected by the households of the territory together with the mahalla committee from those local women who are the most respected, active and educated. They act as a link between the women of the neighbourhood and the mahalla committee / women's advisor. They focus on solving issues concerning women, children and vulnerable people, organizing traditional events, supervision of children and participating in the distribution of social support. They are also involved in informing women about official notices and information.

2. General information on the RoK

343. The RoK is located in the southwest part of Uzbekistan and occupies northwest part of Kyzylkum desert and Amudarya delta. The total area of Karakalpakstan is 165 600 sq.m. and total population is about 1 923 700 people (as of January1, 2021).

344. Administrative divisions of the Karakalpakstan is presented in **Table 28**.

Table 28. Administrative divisions of the Karakalpakstan

#	District/City	Population (people)	Administrative center
1	Nukus city	334 600	
2	Amudarya district	208 600	Mangit city
3	Beruni district	201 200	Beruniy city
4	Bozatau district	21 900	Bozatau semi-urban center
5	Kanlykul district	53 100	Kanlykul semi-urban center
6	Karauzyak district	54 100	Karauzyak semi-urban center
7	Kegeyli district	74 200	Kegeyli semi-urban center
8	Kungrad district	134 600	Kungrad city
9	Muynak district	33 400	Muynak city
10	Nukus district	52 900	Akmangit semi-urban center
11	Takhiatash district	76 300	Takhiatash city
12	Takhtakopir district	39 0000	Takhtakupyr semi-urban center
13	Turtkul district	224 700	Turtkul city
14	Khodzheyli district	127 200	Khodzheyli city
15	Chimbay district	115 100	Chimbay city
16	Shumanay district	57 600	the Shumanay city
17	Ellikkala district	167 700	Bustan city

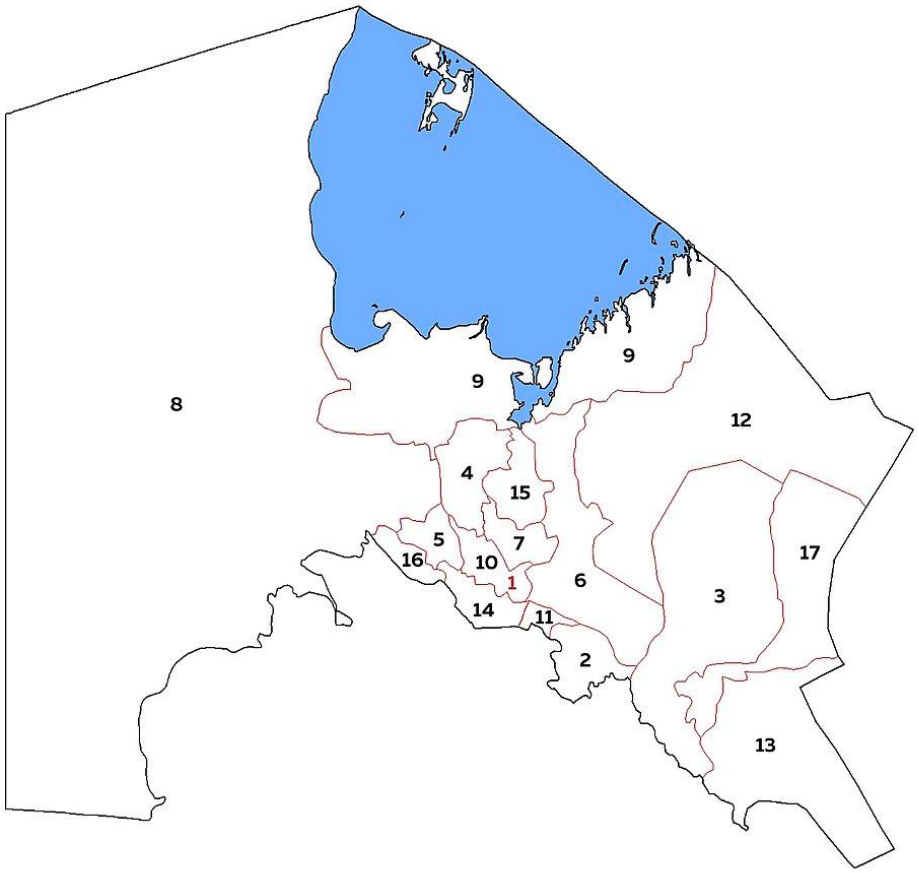


Figure 38: Administrative map[48] of Karakalpakstan

a) Project districts

Nukus City

345. Nukus is the sixth-largest city in Uzbekistan and the capital of the autonomous RoK, modern city, founded in 1932. The population of Nukus as of 1 January 2022 was 329,100. The Amudarya river passes west of the city. Administratively, Nukus is a district-level city, that includes the urban-type settlement Karatau. Nukus experiences a cold desert climate with summers that are long, dry and very hot, and winters that are short, though quite cold and snowy, having a very dry type of a continental climate. Due to the Aral Sea and Amudarya drying up, the climate has become much hotter and drier since 1960, and health conditions resulting from salt and other chemicals in the air have become more common.

Amudarya District

346. The Amudarya district is a district of Karakalpakstan in Uzbekistan. The capital lies at Mangit. Its area is 1,020 km2 (390 sq m), and it had 204,700 inhabitants in 2022. There are one city Mangit, four towns Jumurtov, Kipshak, Kilishbay and Xitay and 16 village councils Nazarxan, Orta-kala, Kipshak, Kuyuk-kopir, Xitay, Aq altin, Shaykul, Kilishbay, Kanli, Amir Temur, Durman, Bobur nomli, Buzyop, Tolqin, Tashyop and Xolimbeg.

Beruni District

[48] Source: Adilbek310, CC BY-SA 4.0 https://creativecommons.org/licenses/by-sa/4.0/

347. Beruni is a city in the autonomous RoK, Uzbekistan. It is located on the northern bank of the Amudarya near Uzbekistan's border with Turkmenistan. Beruniy received city status in 1962. Beruniy is an important industrial city in Karakalpakstan. It is home to an asphalt plant, a brick factory, a cotton plant, and a shoe factory. There are also many textile factories. Beruniy received the status of a city in 1962. By road it is 936 kilometres (582 mi) west of Tashkent and 55.6 kilometres (34.5 mi) northeast of Khiva. Beruniy has a cold desert climate with sharp continental influences. It has cold winters and hot summers.

Bozatau District

348. Bozatau district is a district of Karakalpakstan in Uzbekistan. The seat lies at the urban-type settlement Bozataw. It was created in September 2019 from parts of the Kegeyli district and the Shimbay district. Its area is 2,040 km2 (790 sq mi) and it had 21,800 inhabitants in 2022. The district contains one town Bozataw and four village councils Aspantay, Erkindarya, Kok-suw and Kuskanataw.

Kanlikul District

349. Kanlikul district is a district in the RoK. The seat lies at the urban-type settlement Kanlikul. Its area is 740 km2 (290 sq mi) and it had 52,400 inhabitants in 2022. The district consists of one town Qanlıkul and seven rural councils Arzimbet qum, Beskópir, Jańa qala, Bostan, Kosjap, Nawriz, Qanlıkul.

Kegeyli District

350. Kegeyli district is a district of Karakalpakstan in Uzbekistan. The capital lies at the town Kegeyli. Its area is 920 km^2 (360 sq mi) and it had 73,600 inhabitants in 2022. The origin of Kegeyli is associated with the Kegeyli canal, which flows through the town itself and through the district of Kegeyli also. Both sides of this canal are called Kegeyli because they were surrounded by kegay trees and turquoise. This was later generalized to the town. Kegeyli district was created in 2004 by the merger of former Bozataw district and former Kegeyli district. As of 2021, the district contains one city Xalıqabat, one town Kegeyli and eight rural communities Abat, Aktuba, Jańabazar, Jalpaq jap, Kók Ozek, Kumshunkól, Júzim baǵ, Iyshan kala.[1]

Kungrad District

351. Kungrad district is an administrative unit in the RoK, the administrative center is the city of Kungrad. The westernmost municipality of Uzbekistan. Kungrad district was established in 1927. Kungrad district is bounded on the west by the Ustyurt plateau, on the east by the Amudarya River, on the north by the old coastline of the disappearing Aral Sea, and on the south by the border of the Republic and the Khorezm region. Its territory accounts for almost half of the area of Karakalpakstan and 12% of the area of Uzbekistan. It has 6 urban settlements: Aksholak, Altynkul, Bekabad, Zhaslyk, Karakalpakia, Kubla-Ustyurt. 10 rural residents: Adabiyat, imeni Azhiniyaza, Kungrad, Kipshak, Nauryz, Ornek, Raushan, Suuenli, Ustyurt, Khorezm. The Ustyurt Gas Chemical Complex and the Kungrad Soda Plant are located in the Kungrad district. The Kungrad district, like the whole of Karakalpakstan, is an environmental disaster zone due to the drying up of the Aral Sea.

Muynak District

352. Muynak district is an administrative unit in the RoK. The administrative center is the city of Muynak, it was established on September 19, 1931. The district borders Kazakhstan from the north and partly from the northeast through the Aral Sea, from the west and southwest - with Kungrad, from the east - with Takhtakupyrsky, from the south — with Kegeli, Chimbai and Karauzyak districts of Karakalpakstan. The official area of the district is 37,900 km^2, but in recent decades, due to the decrease in the level of the Aral Sea, the area of the district has increased dramatically. Muynak district occupies the second place in terms of occupied area (Kungrad district with an area of 74,400 km^2 is in the first place) among the districts of Karakalpakstan.

Nukus District

353. Nukus district is an administrative unit in Karakalpakstan, Uzbekistan. The administrative center is the urban—type settlement of Akmangit. The district was established on December 25, 1968. According to official data, the population of the district in 2018 was 54,491 people. According to the national composition, Karakalpaks made up 60.8%, Kazakhs — 30%, Uzbeks — 8.7%, other nationalities — 0.5%. and there are 6 rural gatherings of citizens: Arbashi, Bakanshakly, Kerber, Krantau, Samanbai, Takyrkol. There are 3 colleges, 33 secondary schools, 1 children's school of music and art, 11 kindergartens and 2 information resource centers in the district.

Takhiatash District

354. Takhiatash district is an administrative unit in the RoK Uzbekistan. The administrative center is the city of Takhiatash. The district was formed on August 9, 2017 by allocating part of the Khojeyli district. It is located on the left bank of the Amudarya, 12 km south of Nukus. The border with Turkmenistan is about 5 km away. The city of the district subordination of Takhiatash. The urban settlement of Naimankul. 3 rural gatherings of citizens: Keneges, Naimankul, Saratkul. The area of the city is 40.7 hectares. In terms of ethnic composition, the city is predominantly inhabited by Karakalpaks, Uzbeks, Turkmens, followed by Russians, Tatars, Koreans and other national minorities.

Takhtakopir District

355. Takhtakopir district occupies the northern part of Uzbekistan and is an integral part of Karakalpakstan. The urban settlement of Takhtakopir, which serves as an administrative center, and 8 rural gatherings are concentrated on its territory. local area has great potential for the development of the resort area and tourist infrastructure. The area has long been famous for underground thermal springs that come to the surface in different places of the area.

Turtkul District

356. Turtkul is a city in Karakalpakstan, the administrative center of Turtkul district. It is located on the right bank of the Amudarya River. Currently, Turtkul is one of the largest cities in Karakalpakstan. There are 6 colleges in Turtkul district. It has its own television.

Khojeyli District

357. Khojeyli district is an administrative unit in Karakalpakstan, Uzbekistan. Formed in 1927. The administrative center is the city of Khojeyli. Khojeyli district includes 2 urban villages and 7 rural gatherings, formed in the 1930s. Located 10 kilometers west of Nukus and 5 km from the border with Turkmenistan. Khodjeyli was a famous center of Khorezm ceramics. Other industries were created. Cotton ginning and cotton weaving factories, carpet and cotton spinning factories were built..

Shimbay District

358. Shimbay is a city, the administrative center of the Shimbay district in Karakalpakstan. Shimbay was built in the XVII century as a fortress for fishermen and cattle breeders. It is located 56 km from the capital of the Republic — the city of Nukus.

Shumanay District

359. Shumanai district is an administrative unit in the RoK (Uzbekistan). The area is 78.3 km. The administrative center is the city of Shumanai. Shumanai district was established on October 7, 1950. On February 5, 1960, the district was abolished, and its territory was transferred to the Kungrad and Khojaly districts. In 1967, the area was restored. The population is 54,800 people. Nationalities: Karakalpaks, Kazakhs, Uzbeks. 7 rural gatherings of citizens: Akzhar, Begzhap, Birleshik, Diykhanabad, Kettler, Samy, Sarmanbaykol.

Ellikkala District

360. Ellikqala District is a district of Karakalpakstan in Uzbekistan. The capital lies at the city Bo‘ston. Its area is 5,420 km^2 (2,090 sq m) and it had 164,600 inhabitants in 2022. There is one city (Bo‘ston), one town (Saxtiyon) and 13 rural communities (Amirobod, Guldursun, Guliston, Navoiy, Okchakul, Sarabiy, Tozabog, Shark Yulduzi, Ellikkalla, Kyzylkum, Kilchinok, Kyrkiz

Fortress, Dustlik). The district takes its name from the Elikkalla (Karakalpak fifty fortresses), a series of ancient desert castles in the district.

b) Ethnicity and Language

361. Most of the population of the RoK are Uzbeks (38.8%), Karakalpaks (35.8%) and Kazakhs (11.8%), the rest are Turkmens (5%), Russians (1.7%), others (1.3%) (For 2022). The main language spoken in the district is Uzbek and Karakalpak, however some people speak Russian. The RoK and particularly in the project area there are no ethnic or cultural groups which are identified or classified as “indigenous people” according to the IFC’s guidance note.

c) Religion

362. The majority of Uzbeks are Muslims, mainly of the Sunni branch; there are also small groups practicing orthodox Christianity and Judaism.

3. Economy and Livelihoods

363. The RoK has large natural, mineral and agricultural resources, labor potential, road, transport and engineering and communication networks, industrial infrastructure, convenient geographical location and large territory. The main sectors of agriculture in the RoK are grain farming (production of wheat and raw rice), cotton growing, cattle breeding and silkworm breeding, industry and construction.

364. By the end of 2022, the GRP of the RoK increased by 4.0% and amounted to 29,925.4 billion soums. GRP growth is due to positive growth rates in the main sectors of the region's economy, such as agriculture, forestry and fisheries – 103.3% (share in the GRP structure – 29.6%), industry – 100.6% (23.6%), construction – 107.7% (8.3%) and services – 106.0% (38.5%). GRP per capita increased by 2.6% and amounted to 15,249.4 thousand soums.

365. In terms of social protection of the population and the creation of decent living conditions, it is of great importance to solve such problems as providing the population with decent housing. In particular, over the past five years, 4,390 thousand sq.m. have been put into operation in the region. housing, 15.2 thousand places were created in preschool institutions, 38.3 thousand places in schools. During the same period, about 127 thousand jobs were created.

4. Cultural Heritage

366. The Aral Sea region under consideration has for millennia been at the crossroads of great cultures connected by the Great Silk Road. From the north, through the Ustyurt plateau ran the Great Silk Road, which played a major role in the development of cultural and economic ties between the peoples of Europe, Caucasus, West Asia, Central Asia and China. Thus, several historical and architectural monuments related to the history of the Great Silk Road are located in the area from the study site.

367. By the beginning of the 1st century AD. Ancient Khorezm came under the influence of the culture of the Kushan Empire, which was most vividly reflected in the construction of earthen fortresses "Caravan-Sarai" (made of earthen bricks "PAKHSA is a mixture of clay and straw"). During that period, new construction models emerged that included smaller fortresses inside the settled areas, as Caravan-Sarajs, and as fortifications and defences in case of attack by enemy troops, storage of provisions (foodstuffs) and security for civilians.

368. All monuments in the project area are attributed to the period of Ancient Khorezm, the culture of which is also the birthplace of Zoroastrianism. This is evidenced by the numerous archaeological and historical reminders that have survived. With the advent of Islam in the 8th century AD, not only the way of life, religion, but also architecture changed. In the Islamic period, burnt bricks appear, which also indicates that the historical buildings are of older origin.

369. Karakalpakstan has a unique and rich cultural heritage. It is represented by ancient monuments of archeology and architecture, a kind of oral folk art, performing arts, rituals and customs, traditional crafts.

370. Thus, on the territory of Karakalpakstan there are many archaeological and architectural monuments, which are mainly represented by structures of defensive importance, including a number

of impressive fortresses along the borders of inhabited lands. Most of the earliest of them date back to the IV century BC — the time of the withdrawal of Ancient Khorezm from the Achaemenid Empire.

371. According to the preliminary data, and site visit observation in provinces there are cultural sites within the project districts located in project districts, presented in the **Figure 38**.

372. However, according to the bibliography, the research it number of sites in Turkul district is more than twenty six sites; Chimboy is more thatn sixteen sites, most of them cemeteries; in Shumanay around eight sites; in Mangit city four cultural heritage sites and most of them monuments; in Okmangit four monuments and one kala (fortress); in Takhtakupir more than fifteen sites; in Korauzyak six sites; in Keygeli ten sites; in Kungrad more than seventeen sites; in Takhiatash more than five sites; in Ellikkala more than thirty five sites like presented in Figure 38; and in Nukus city approximately nine sites.

Figure 39: Dumankala

373. Based on the findings and observations, the main recommendation is during the detailed feasibility studies work, the consultant should cooperate and close work with the representative of the Agency of Cultural Heritage of the RUz, Department of Cultural Heritage of the RoK.

Table 29. List of cultural heritage sites in RoK

#	Name	Description
1	Chiplik	Chilpik (I–IV, IX–XI centuries) is located on top of a butte at the right bank of Amudarya, 43 kilometres south of the city of Nukus.
2	Sultan Uvays Dag Gyaur-Kala	Sultan Uvays Dag Gyaur-kala (IV century B.C. – III century A.D.) is situated on the left bank of the Amudarya River between the Chilpik and Jampik-kala monuments. The Fortress was constructed in an early ancient period and today only the southern and part of the western walls remain.
3	Jampik-Kala	This ancient settlement is located on the southwest branches of the Sultan Uvays Dag mountain range. This is one of the most picturesque and magnificent monuments on the right bank of the Amudarya River.
4	Kizil-Kala	Kizil-kala, translated as a “Red Fortress” lies 1.3 kilometres west of Toprak-kala. It has almost a square shape with towers on both sides. Initially the Kizil-kala Fortress was built in the late antiquity period (I-IV centuries A.D.)

#	Name	Description
5	Toprak-Kala	Toprak-kala (I–VI centuries A.D.) is located several kilometres south of the Sultan Uvays Dag moun-tain range.
6	Akshakhan-Kala	Akshakhan-kala (III century B.C. – VI century A.D.) situated on the ancient bed of the Amudarya River is one of the largest and most sophisticated monu-ments of the Ancient Khorezm period.
7	Ayaz-Kala	Ayaz-kala (IV-III centuries B.C.) is one of the most beautiful and picturesque monuments in Karakalpakstan. Actually, Ayaz-kala is not a single fortress but a group of three that surround a dominant hill up to 100 meters high and located on the east side of the Sultan Uvays Dag mountain range.
8	The Big Kirik-Kiz-Kala	The Big Kirk-Kiz-kala (IV-III centuries B.C. to III-IV centuries A.D.) is a sublime fortress located on the border of irrigated lands. It is part of a frontier chain situated east of the Ayaz-kala monument.
9	The Small Kirik-Kiz-kala	Fortified constructions of the Small Kirk-Kiz-kala monument (IV-III centuries B.C.) consist of differently shaped western and eastern parts that adjoin each other. The Small Kirk-Kiz-kala frontier located not far from the Big Kirk-Kiz-kala monument was part of the defensive system constructed on the outskirts of the oasis.
10	Kurhashin-Kala	The Kurgashin-kala Fortress (IV-III centuries B.C.) is situated 17 kilometres north of the Djanabas-kala monument. It has a rectangular shape.
11	Bazar Kala	Bazar-kala (VI–V centuries B.C. – I century A.D.) was constructed during the archaic period and existed until the beginning of the Kushan period. In ancient times the Bazar-kala Fortress was the centre of the agricultural areas irrigated by the Bazarkalin canal waters.
12	Djanbas Kala	The Djanbas-kala frontier dates back to the IV century B.C.-I century A.D. Today it is known as spectacular and magnificent ruins located on a hillside overlooking the old branch of the Amudarya River.
13	Koy-Krilgan Kala	Koy-Krilgan-kala is one of the few largest, fully excavated ancient sites of Karakalpakstan. The Fortress from the other monuments by its original planning.
14	Angka-Kala	The Angka-kala settlement (I–III centuries, X–XII centuries A.D.) is situated 22 kilometres north of Turtkul city.
15	Eres Kala	Eres-kala is located 12 kilometres southwest of Turtkul city. Once these city ruins were a magnificent complex consisting of a settlement and palaces.
16	The Big Guldursun	The Big Guldursun (IV–III centuries B.C. – III cen-tury A.D., XII–XIII centuries A.D.) is one of the most splendid monuments of the Khorezm Shahs Dynasty. It is one of the largest Ancient Khorezm fortresses.
17	Pil Kala	The Pil-kala Settlement (IV-II centuries B.C., VII-VIII centuries A.D.) is situated in the northern part of the city of Beruni. Its shooting semi-oval towers are constructed thickly along its walls.
18	Duman Kala	The Duman-kala Fortress (I–III centuries A.D.) is located several kilometres from the city of Beruni. Remnants of the main irrigation canal that was constructed during the archaic peri-od were found within the vicinity of the for-tress.
19	Mizdahkan	Mizdahkan Settlement is situated on the hills along the western outskirts of the city of Khodjeyli, stretching on both sides of the road leading to Kunya-Urgench. The ancient city of Mizdahkan was founded on the western hill in the IV–III centuries B.C.
20	Mazlumkhanm Sulu Mausolen	The Mazlumkhan-sulu mausoleum (XII-XIV centu-ries) is a semi-underground architectural monument.

#	Name	Description
21	Beleuli	The medieval Beleuli Complex (XIV century A.D.) is located on the Ustyurt Plateau. It consists of several buildings, including a caravansarai, a burial ground, quarries and sardobas.
22	Kurgancha	The Kurgancha Complex (XII to the beginning of the XIII centuries A.D.) consists of a settle-ment, a tower, a pottery kiln and separate con-structions. It is located under the chink of the Ustyurt Plateau, 105 kilometres northwest of the city of Muynak.
23	Narindjan-Baba	The Narindjan-baba Complex (XIII-XIV centuries A.D.) is one the most sacred and worshipped places in Karakalpakstan. It is represented by a multicompartment group of buildings.
24	Sultan Uvays-Baba	The Sultan Uvays-baba complex (XVII-XIX centuries A.D.) is one of the most revered sites in the lower reaches of the Amudarya River. Its name is associated with the name of Uvays al-Karani.

5. ANTICIPATED ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATE MEASURES

374. The project's anticipated environmental and social impacts were reviewed at the three stages – pre-construction, construction and operation stages.

5.1. Pre-construction stage

Direct Impacts

375. During the pre-construction stage, the following aspects may impact on the effectiveness of implementation of environmental safeguards during the whole project cycle: (i) project design and procurement procedure, (ii) the conduct of bidding and contracting processes with consideration of environmental aspects, (iii) institutional set up for environmental performance, and (iv) receiving all required permissions.

376. Civil works will be implemented inside settlements with developed utility networks, and outside of the settlements. Most utility networks traverse underground, and implementation of construction works without obtaining approvals from agencies (gas supply, communication, etc.) prior to the commissioning of civil works may damage such facilities.

377. Without proper assessment of anticipated risks and developing ESMPs after finalizing the project design and the exact location of sub-projects and water supply and sewage networks, the project may lead to numerous environmental and social risks. Screening procedures defining the documents to be prepared, and the contents of the ESIA and ESMP, are provided in Chapter 7. Therefore, prior to commissioning of the project works on selected sub-projects, an ESIA or ESMP will be developed, and submitted to the AIIB for non-objection.

378. At the stage of ESMPF development, 14 national PEIS (ZVOS[49]) have been prepared by the PCU Technical Consultant and submitted by the Karakalpak Suvtaminot LLC to the MEEPCC in Karakalpakstan. If substantial changes in the project design, or additional sub-projects are subsequently included in the projects, a new national EIA will need to be developed and approval received from the MEEPCC.

379. Prior commissioning of WWTPs, Positive Conclusions on the SEC from the MEEPCC must be received. The SEC will include information on permitted water discharges, air emissions and waste generation during the operation.

380. Non-compliance with national regulations for the purchase of equipment and machinery under the project may lead to prohibition of usage of such techniques.

381. Permissions to cut or replant trees need to be obtained from the MEEPCC prior to the commencement of civil works, as indicated in Decrees of President of RUz #46 (2021) and # 199 (2023). Failure to comply with these requirements will result in penalties, potentially including the suspension of the project.

5.2. Construction stage

a) Physical resources

(1) Impact on air quality

Direct Impacts

382. In most cases, the construction/rehabilitation of main water pipelines will traverse through populated areas along roads, while water supply and sewage networks will be constructed and rehabilitated inside living areas. During the construction stage, pollutant emissions (SO_2, NO_x, CO and dust) will be generated due to earthworks, construction/demolishing activities, and the movement of

[49] PZVOS is Russian translation of Preliminarily Environmental Impact Statement (PEIS) – 1st stage of national Environmental Impact Assessment Procedure

vehicles. It is expected that dust pollution will occur more frequently during windy weather and due to any high-speed truck movements inside settlements.

383. Equipment and vehicles with improper technical characteristics or in poor condition may also lead to pollution by exhausted gases. Improper waste management, particularly the burning of construction and domestic wastes may lead to air pollution.

384. *Asbestos dust* generated during rehabilitation works on water supply networks and old roofs of reconstructed administrative buildings on the territory of WDUs, WIS and GWISs could also pose a serious health hazard to people living in houses near construction sites.

385. For those WDUs/WIS/GWISs located next to living houses additional measures will be needed such as: development of a Site Specific Environmental and Social Management Plan (SSESMP) with consideration of the locations of sensitive receptors (living houses), and specific dust protection measures during demolition works (including, for example, the installation dust prevention screens).

Indirect Impacts

386. The quality of crops (fruits, vegetables) and other plants growing around construction sites may also be affected by indirect air pollution impacts. Settled areas may also suffer from negative economic impacts and impacts to the functioning of ecosystems.

Cumulative Impact

387. Cumulative impacts may also occur in project districts when the construction of water supply/inlet networks will be implemented in parallel with other sub-components: construction/rehabilitation of sewage networks or during the windy weather. In that case, amount of discharging air pollutants emissions could significantly increase.

(2) Increasing of noise level

Direct Impacts

388. During construction works, the following activities could generate noise:

a. Earth moving activity/digging trenches
b. Pipeline laying
c. Movement of vehicles used for material transport
d. Demolition works
e. Roads repairs (if required)

389. Noticeable noise level increases are anticipated during the demolition of existing buildings. If the facilities to be demolished are located close to or inside settlements, noise levels could exceed the allowed norms.

390. Construction works conducted in populated areas with sensitive receptors (schools, kindergartens, and hospitals/polyclinics) may cause excessive noise levels, above the allowed parameters.

391. Project workers will be exposed to noise from construction machinery as well as, potentially, hand-arm vibration from hand-held power tools, or whole-body vibrations from surfaces on which a worker stands or sits.

Indirect Impacts

392. Indirect impacts from noise may also impact on the functioning of sensitive ecosystems. Since, in most of the cases, the construction sites are located remotely from the sensitive natural areas, obvious indirect impacts from noise are not anticipated.

Cumulative Impacts

393. Cumulative impacts may occur in project districts when the construction of water supply/inlet networks will be implemented in parallel with other sub-components: construction/rehabilitation of sewage networks. In that case, noise levels and consequent impacts could increase significantly.

(3) Impact on water resources

Direct Impacts

394. Surface waters may become polluted due to the improper placement of excavated soil, poor management of construction camps, improper storage of construction materials, leakage of fuel and lubricates from construction machinery, and washing of vehicles and equipment without proper maintenance. These risks may occur when construction works are implemented close to waterways or when new/rehabilitated pipelines cross waterways.

395. In accordance with preliminary data received from the Karakalpak Suv Ta'minot 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.

Indirect Impacts

396. The pollution of water in waterways will lead to a deterioration of the water quality, which will potentially impact on the health of people who may use the canals in downstream areas for recreation purposes or irrigation.

397. In waterways with a permanent water presence and used for fisheries, any polluted water could cause ecosystem degradation and the pollution of fishes which further could be consumed by people. [50]

Cumulative Impact

398. Cumulative impacts may occur in project districts when the construction of water supply/inlet networks will be implemented in parallel with other sub-components: construction/rehabilitation of sewage networks. In such cases, impacts on water quality could significantly increase.

(4) Ground water

Direct Impacts

399. The pollution of ground water may occur during the replacement of pumps installed at wells if protocols on replacement pumps will not be followed.

400. The location of any construction camps on the territory of the project ground water intakes could potentially increase the pollution of groundwater which is used for drinking purposes.

401. The improper construction and management of labor camps, including improper maintenance, refueling, and improper collection and disposal of domestic wastewater, may also lead to groundwater pollution.

Indirect Impacts

402. The pollution of groundwater may also lead to the pollution of water in wells which are used by local population for drinking or communal use, negatively impacting on their health.

Cumulative Impact

403. There are no other activities anticipated on the project site which may lead to the pollution of groundwater. Therefore, cumulative impact is considered to be negligible.

(5) Impact on soil

Direct Impacts

404. The main anticipated impacts on soil during the construction stage will be the disturbance or loss of top soil, its compaction, and pollution. For pipe lying works, earth excavations, pipe laying and the backfill of material including compaction will be implemented. Excavated soil will be temporarily stored alongside each trench and refilled after pipe laying. Gravel will be used as a bed for the pipes, and excavated soil will be placed back in each trench and compacted. Gravel and sand will be required

[50] Some waterways are irrigation canals that are only utilized during the irrigation season.

for pipe laying and for the rehabilitation of damaged roads. Unauthorized excavations of such construction materials and improper restoration works on used carriers could negatively impact on soil.

405. The maintenance of machinery and refueling of techniques in non-appropriate and not-equipped places could also lead to the pollution of soil.

Indirect Impacts

406. The pollution of soil could lead to the pollution of groundwater which are used by population for drinking or domestic use.

407. Unauthorized excavation of soil especially from agricultural lands may lead to losses in crops and the consequent income of land users operating in the project area.

Cumulative Impact

408. There are no other activities to be conducted on the project site which may lead to the pollution of groundwater. Therefore, cumulative impacts are considered to be negligible.

(6) Waste management

409. During the construction of the main pipeline and water supply/inlet water networks, both municipal/general waste from the site offices, construction camps, and possibly hazardous wastes from the items of machinery on site, will be generated.

(a) Hazardous construction wastes

Direct Impacts

410. During the construction phase, the following hazardous wastes will be generated from vehicle operations and maintenance: engine, hydraulic and transmission oils along with oil filters and absorbents. In the case of the improper handling and disposal of such materials, the pollution of soil, ground and surface water may occur. Along with this, such materials are hazardous to human health. In addition, there is also a possibility of the presence of asbestos materials in remaining buildings and facilities of rehabilitated WDUs and water intake structures.

411. The rehabilitated project facilities (WDUs, WISs and GWISs) may also include transformers which have been produced before 1994[51] and there is a possibility that oil contained PCBs was used for such equipment.

412. The project will involve the demolition of existing buildings 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.

Indirect Impacts

413. The pollution of soil could lead to the pollution of groundwater which is used by the population for drinking or domestic use.

414. Unauthorized excavations of soil, especially from agricultural lands, may lead to losses in crops and the subsequent income of land users operating in the project area.

Cumulative Impact

415. There are no other activities to be conducted on the project site which may lead to the pollution of groundwater. Therefore, cumulative impacts are considered to be negligible.

(b) Non-hazardous wastes

Direct Impact

Municipal wastes

[51] In Russia, last transformer contained PCB was produced in 1993. All transformers used at WDUs were produced in Russia.

416. MSWs and wastewater will be generated at the construction and camp sites. Mainly this is rubbish, plastic or glass bottles, glasses, waste food, etc. Improper wastes management may cause the spread of infectious diseases, and the emergence of insects and parasites in construction camp sites. In addition, it may lead to conflicts with the local population.

417. In some areas, the rehabilitation of the main pipeline, water supply and inlet water networks will require the excavation of existing pipes and their replacement with new ones. According to data provided by the local water supply agency (Karakalpak Suvtaminot LLC), all existing pipes are made from steel. Therefore, after their excavation, they will be transferred to the operation entity Karakalpak Suvtaminot LLC for their reuse or sale to the local company Vtorchermet [52] for further disposal.

Construction wastes

418. Construction wastes will be generated during the demolition of existing buildings, and during the construction/rehabilitation of the main pipeline, water supply and inlet water networks. These wastes may consist of broken bricks, glasses, and used woods. Besides these wastes, used welding rods, packing materials, and other woods will be generated.

Scrap materials

419. In some areas, old, rehabilitated iron pipes etc. will be handed over to the Karakalpak Suvtaminot LLC for further use or disposal. Other demolished metal construction waste will be sold to the respective disposal company – Vtorchermet.

Indirect Impacts

420. Improper waste management, especially domestic wastes, may lead to the pollution of groundwater and spreading of diseases among the population.

Cumulative Impact

421. Cumulative impact may occur in project districts when the construction of water supply/inlet networks will be implemented in settlements with improper waste management. The improper and non-timely disposal of wastes from construction sites and adjusted areas may lead to a situation where the local population dispose of their wastes in the same places. This may lead to a substantial increase in the magnitude of the impact.

b) Biological resources

Direct Impact

422. 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.

423. In addition to this, the greening of WDUs, WISs and GWISs territory (which considers the planting of trees as well) after completion of the civil works are included in the project design. In the case of the cutting of trees for construction purposes all valid regulations on this topic have to be fulfilled.

424. The implementation of civil works related to pipe laying along canals and canal crossings, and the location of campsites close to canals, may impact on the aqua fauna of the canals.

425. Water supply and wastewater facilities (WDU, WWTPs) are located at a distance of more than 2 km from the closest protected area (LABR). The locations of critical habitats were not identified within the sub-project areas.

426. 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.

Indirect Impacts

52 National company responsible for collection and processing ferrous metals.

427. Indirect impacts may occur if vegetation will be cut without proper monitoring, which may lead to the unnecessary loses of trees and vegetation. In case of commercial use of these trees, population may have economical losses.

Cumulative Impact

428. Cumulative impacts may occur in project districts when the construction of water supply/inlet networks will be implemented without consideration of the entire works schedule and areas necessary for construction activities.

c) Socio-economic **aspects**

429. Construction works may have both positive and negative effects on socio-economic aspects.

Impacts on livelihoods.

430. The preliminarily locations of sub-project facilities (WDUs, water pumping stations and sewage stations areas, WWTPs) have been selected with consideration of two main conditions: (i) to minimize impacts on agricultural lands and crops, and (ii) to ensure compliance with national standards on buffer zones for water supply facilities and WWTP.

431. Nevertheless, if during the detailed design stage, any facilities will be located on agricultural lands, due diligence of social aspects including land acquisition and resettlement aspects will need to be implemented.

432. The cutting of trees may also lead to a loss of income, especially for trees of commercial value. The quality of crops (fruits, vegetables) and other plants growing around construction sites may also be affected by indirect air pollution impacts.

433. The construction of water supply and inlet water and sewage networks will be implemented inside of Nukus city and in project districts of the populated area. Therefore, access to some commercial facilities (shops, service centers) may be limited during construction works, causing decreasing of population income.

434. Besides the economic impacts, civil works may also create risks related to the safety of the population. These risks are described in the following paras. The impacts related to the potential disturbance of the population caused by noise from construction and mitigation measures are presented in Chapter 5.2.

Local economy.

435. Other, more indirect impacts include the possible need for additional housing, catering, and other types of services. These economic benefits will likely contribute to overall project positive impacts.

436. Personnel with different qualifications will be required for construction works, and local population could be hired for some of activities, resulting in the creation of new jobs.

Influx of Workers and Labor Issues.

437. The influx of workers from other parts of the country can potentially cause conflict between the project personnel and the local community. This could be because of differences in culture, religion, social norms and acceptable social behavior. In addition, the construction activities can potentially affect the women act

438. ivities and movement. Any such impact can be detrimental to the project since it can potentially cause tension between the project and local communities and even disruption of construction works. Given the cultural and social attributes in Uzbekistan and many unskilled workers for this project will be from Karakalpakstan, the risk of social conflict due to labor influx is considered as moderate.

439. The World Bank Guidance Note53 could be used to address potential impacts caused by temporary project induced labor influx. The contractor will prepare and implement a Code of Conduct for all site personnel and provide training on the Code of Conduct. Awareness raising materials such as posters

[53] http://pubdocs.worldbank.org/en/863471511809509053/ESS2-FactSheet-WB-ESF.pdf.

and signage will be used as appropriate. All site personnel will be provided awareness and training to prevent communicable diseases, sexually transmitted infections, Human immunodeficiency virus (HIV) infections / Acquired Immune Deficiency Syndrome (AIDS). Privacy of women will be respected; routes and places used by them will be avoided as far as possible. If the measures are implemented, the residual impact is estimated as low.

440. The national labor legislation strictly prohibits the use of forced labor. If any contractor is identified using forced labor, the PCU should report the case to the Ministry of Employment and Labor Relations (MoELR) and actions will be taken, 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, Karakalpak Suvtaminot, PMC and Contractors. No child labor will be engaged by the project or its contractors.

Community Health and Safety

441. Inadequate lighting and fencing of construction sites inside of settlement areas can be dangerous for pedestrians and vehicles, especially during the nighttime. Increasing traffic due to truck and other vehicle movements to construction sites, and the temporary closing of roads during pipe-laying inside settlements may also cause inconveniences for the local population as well. In addition, pipe-laying will cause temporary blockages of household vehicular access.

442. The untimely and inefficient disposal of solid waste and improper sanitary conditions generated by construction workers at construction sites may cause pollution of the surrounding environment and affect the health of local people.

443. During the construction phase, traffic will have the potential to impact on local community safety, workforce safety and traffic flows in the project sites.

444. There could also be some social problems due to the irresponsible behavior of the outside work force such as gambling, alcoholism and disrespect to local people and their culture. Cultural interference workers with local communities may cause HIV and sexually communicable diseases spreading in case of law awareness about these diseases among workers and community.

d) Traffic disturbance

Increasing traffic intensity is also anticipated, including increases in heavy machinery. In addition to causing a nuisance for the population, increasing traffic will also increase the potential of road accidents. A movement of heavy tracks may destroy or deteriorate conditions of roads inside settlements.

e) Cultural heritage

445. The vegetation clearing and earthmoving activities during construction works may affect the archaeological heritage in the project areas. 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 some Cultural Heritage Committee for the presence of cultural sites and their statuses and the Contractor will be required to follow relevant national regulations and proposed mitigation measures.

2. Operation stage

Maintenance of the main pipeline, water supply and inlet water networks, WDUs/WISs/GWISs

a) Impact on the air

446. Impacts on air quality and noise levels during the project operation phase could be caused by rehabilitation works which may be required during the maintenance of damaged or leaking pipes. However, taking in account the quality, methods and lifetime of the installed pipes, the probability of this impact is considered to be negligible. The design of WDUs/WISs/GWISs will be done to ensure compliance with national and IFC's standards on noise and vibration levels for public and worker places.

447. In general, most areas of a wastewater treatment facility contain some level of odor. Depending on the location of WWTP site, most commonly odor comes from primary treatment and sludge-handling

areas, in addition to these areas: headworks; clarifiers; sedimentation basins; lift stations; lagoons; biosolids treatment; wastewater septage dumping

448. These processes can produce various odors, the most common of which found include hydrogen sulfide, ammonia, sulfur dioxide, skatoles, mercaptans, amines and indoles which will negatively impact on people health.

b) Impact on water resources

Impact on surface water

Direct Impacts

449. Potential impact on water resources could be caused by increased consumption of water due to continuous supply of water with population currently using water on intermittent base. Increasing of water consumption will lead to increasing generation of sewage which will require proper collection and disposal.

450. In general, increasing the use of surface water for drinking purposes may lead to conflict with other water users - irrigation, industry and energy.

451. A decrease in the efficiency of wastewater treatment at WWTPs can lead to pollution of water bodies where the discharge will be made.

452. Operation of chemical laboratories for monitoring drinking water quality, WWTPs and without proper treatment of chemical's reagents residual may pollute surface and ground water.

Indirect Impacts

453. In the areas with insufficient coverage of sewerage services, projects activities related to improvement of water supply, may to lead to the risk of diseases spread among the population due to increasing of amount of generating wastewater.

454. Emergency discharge of untreated wastewater or permanent discharge of insufficiently treated wastewater can lead to deterioration of ecosystems in water ways (receivers of wastewater), contamination of fish and increasing risks to the health of people.

455. Deterioration of water quality in water bodies creates great risks for the population using these water bodies for recreational purposes.

Cumulative Impact

456. If other water supply or irrigation projects will be implemented or are already being implemented in the project areas, this may negatively impact on water availability in the Amudarya river and other water bodies that are used as sources of water supply in this project.

Impact on ground waters

Direct Impact

457. Overuse of available ground water deposits may lead to depletion of water resources.

458. Improved and extended water supply service will lead to increasing waste water discharge. It may create problem of ground water pollution due to low level of connection to sewage network houses, usage of non-concrete pit latrine in the project districts. Even there are no wells using as a drinking water source in the project area, risk of ground water pollution exists.

459. Operation of chemical laboratories for monitoring drinking water quality without proper treatment of chemical's reagents residual may pollute surface and ground water.

Cumulative Impact

460. If other water supply or irrigation projects will be implemented or are already being implemented in the project areas, this may negatively affect the availability of water in the Amudarya river and other water bodies that are used as sources of water supply in this project.

461. Overall, 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 avoid leakages of water/non-revenue losses.

c) Waste management

(a) Non-hazardous waste

Direct Impacts

462. During operation of main pipeline and water supply networks, generation of wastes is not anticipated. The lifetime of the iron pipeline is around 30 years and plastic pipes – more than 40 years. Some maintenance could be required for installed water meters; however, it will not lead to generation of the wastes. During operation of installed SCADA system, wastes will not be generated as well.

463. Some amount of domestic wastes will be generated in WDUs and WWTPs. Without proper handling and disposal may cause harm to personal of facilities and surrounded areas.

(b) Hazardous waste

464. Hazardous wastes will be generated during operation of surface and ground water intakes and WDUs. Depending on types of selected technology various hazardous wastes could be generated from disinfection - bactericidal lamps, used packages from chemicals, and others. Improper handling and disposal of such lamps may lead to poisoning of operating personnel, other persons who will be in contact, and pollution of environment.

465. Used oil could be generated during rehabilitation or regular maintenance equipment at WWTPs, pumping stations and WDUs.

Indirect Impacts

466. Improper disposal of hazardous and non-hazardous wastes may impact on personal health but also lead to pollution of water in ground water wells located on the territory of water intakes.

Cumulative Impact

467. Similar activities which may impact on hazardous wastes management in the project area is not anticipated in the project area, therefore, cumulative impact is considered to be as negligible.

d) Social impacts

468. Overall, 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 avoid leakages of water/non-revenue losses.

469. 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 replacement of deteriorated pipes with high rate of leakages will ensure supplying of drinking water which meets national standards.

Direct Impacts

470. During operation phase the main impacts from water supply infrastructure on community health and safety will be related mainly to quality of supplying water. Improper treatment of water, infiltration through damaged pipes and ground water wells will lead to increasing diseases among population.

471. In addition, as it was mentioned above, improper waste management on water supply and waste water treatment facilities, odor from WWTPs may negatively impact on community health and safety.

e) Operational Health and Safety

472. Electricity equipment will be used at the WDUs, WISs and GWISs, which may cause of fire and electric shocks for workers.

473. Even SHC is less dangerous than gas chlorine, the special prevention measures need to be undertaken to minimize possibility of SHC leakage and consequently negative impact on facilities personnel, population from vicinity and environment.

474. It is unlikely that maintenance of the main pipeline, water supply and inlet water networks will create substantial risk for population. Some maintenance works could be required due to accidents and leakage. However, considering lifetime of the installed pipe, the probability of such accident is very low, and therefore, anticipated impact is negligible.

3. Transboundary Impact

475. In accordance with IFC Guidance Note[54], transboundary impacts are impacts that extend to multiple counties, beyond the host country of the project, but are not global in nature.

476. In the Convention on EIA in a Transboundary Context (Espoo, 1991), the notion of "transboundary impact" is defined as any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party.

477. Within current ESMPF, it was accepted that transboundary impact is an impact that affects receptors, beyond the boundaries of the country in which the project is located and produces transboundary effects, including global effects.

478. Since all project districts are located in the downstream of Amudarya river basin, there are no water users located further along the river on the territory of other countries. Although, according to preliminary assessments, no additional water withdrawals from the Amudarya are envisaged, transboundary impacts on neighboring countries are not expected.

479. The ground water intakes will extract water only from lenses and underground deposits located within the territory of Uzbekistan. Thus, there will also be no transboundary impact on this aspect. Other types of impacts on air, noise, soil, etc. will have a local nature, which will have an impact mainly within the project areas.

480. Therefore, the project will not have transboundary impact during both phases – construction and implementation.

4. Climate Change Impact

a) Impacts of project on climate change

481. No climate impact is expected during the Project construction and operation phases. So, greenhouse gas emissions from the operation of equipment will be insignificant. Requirements for contractors included in the EMP for the use of at least Euro-4 class equipment, the limit for the operation of equipment at idle speed will minimize carbon dioxide emissions.

482. As a result of the replacement of pumping equipment with new energy-efficient pumps, it is expected that during operation phase fuel consumption will decrease, and, accordingly, carbon dioxide emissions into the atmosphere will decrease as well.

483. According to the assessment of the impact of climate change on the project carried.

b) Risks induced by climate change on the Project

484. The following potential impacts on project performance due to Climate change were identified:

- Increase in the length of drought periods may lead to shortage of drinking water;

54 International Finance Corporation's Guidance Notes: Performance Standards on Environmental and Social Sustainability, 2012.

- Moderate increases in precipitation intensity and maximum 1-day precipitation events which may exceed urban water cycle capacity;
- Increasing of temperature extremums: during the winter the very low temperature may cause the situation when water pipes may be threatened by damage from freezing. Maximum temperature during the summer may impact on operation of techniques and lead to breakdown or stoppage.

Table 30. Summary of environmental and social impacts

#	Project Components and Activities	Expected Environmental and Social Risks And Impacts	Receptors (Low, Medium, High)	Magnitude (Negligible, Low, Medium, High)
1.	**Pre-construction stage**			
	(i) Project design and procurement procedure, (ii) the conduct of bidding and contracting processes with consideration of environmental aspects, (iii) institutional set up for environmental performance, and (iv) receiving all required permissions.	• Most utility networks traverse underground, and implementation of construction works without obtaining approvals from agencies (gas supply, communication, etc.) prior to the commissioning of civil works may damage such facilities. • ESMP for each sub-project has not developed or does not consider the final design. • Permissions from relevant agencies are not obtained.	Medium or high Medium or high High	Medium or high Medium or high High
2.	**Construction stage**			
	Construction/rehabilitation of water supply networks, WDUs, WIS and GWISs, water pump station, WWTPs and sewage pump stations	**Air Quality** • Pollutant emissions (SO_2, NOx, CO and dust) will be generated due to earthworks, construction/demolishing activities, and the movement of vehicles. • Improper waste management, particularly the burning of construction and domestic wastes may lead to air pollution. • Asbestos dust generated during rehabilitation works on water supply networks and old roofs of reconstructed administrative buildings on the territory of WDUs, WIS and GWISs could also pose a serious health hazard to people living in houses near construction sites.	Medium or high Medium or high High	Medium Medium Medium
	Construction of water supply/inlet networks and construction/ rehabilitation of sewage networks	• Indirect air pollution impacts may affect the quality of crops (fruits, vegetables) and other plants growing around construction sites. • Parallel implementation of different sub-components in project districts may significantly increase amount of discharging air pollutants emissions.	Medium or low Medium or low	High High

	Construction and rehabilitation works; earth moving activity/digging trenches; pipeline laying; movement of vehicles used for material transport; demolition works; roads repairs (if required)	**Noise Pollution** • Noticeable noise level increases are anticipated during the demolition of existing buildings. • Construction works conducted in populated areas with sensitive receptors (schools, kindergartens, and hospitals/polyclinics) may cause excessive noise levels, above the allowed parameters. • Project workers will be exposed to noise from construction machinery as well as, potentially, hand-arm vibration from hand-held power tools, or whole-body vibrations from surfaces on which a worker stands or sits. • Parallel implementation of different sub-components in project districts may significantly increase noise level.	Medium High Medium and high High	Medium or Low Medium Low Medium
	Construction/ rehabilitation works occurred close to waterways; crossing waterways by new/rehabilitated pipelines *Construction of water supply/inlet networks and construction/ rehabilitation of sewage networks*	**Surface Water Resources Quality** • Surface waters may become polluted due to the improper placement of excavated soil, poor management of construction camps, improper storage of construction materials, leakage of fuel and lubricates from construction machinery, and washing of vehicles and equipment without proper maintenance. • The pollution of water in waterways will lead to a deterioration of the quality of water, which will potentially impact on the health of people who may use the canals in downstream areas for recreation purposes or irrigation. • In waterways with a permanent water presence and used for fisheries, any polluted water could cause ecosystem degradation and the pollution of fishes which further could be consumed by people. • Parallel implementation of different sub-components in project districts may significantly increase water resources pollution.	Medium or High High Medium or high Medium or high	Low Medium Medium Medium

	Replacement of pumps installed at wells	**Ground Water Quality** • The pollution of ground water may occur if protocols on replacement pumps are not followed. • The location of any construction camps on the territory of the project ground water intakes could potentially increase the pollution of groundwater which is used for drinking purposes. • The improper construction and management of labor camps (improper maintenance, refueling, and improper collection and disposal of domestic wastewater) may also lead to groundwater pollution. • The pollution of groundwater may also lead to the pollution of water in wells which are used by the local population for drinking or communal use, negatively impacting on their health.	Medium High Medium High	Medium Medium Medium Medium
	Pipe lying works and rehabilitation of damaged roads	**Soil Quality** • Unauthorized excavations of gravel and sand and improper restoration works on used carriers could negatively impact on soil. • The maintenance of machinery and refueling of techniques in non-appropriate and not-equipped places could also lead to the pollution of soil. • The pollution of soil could lead to the pollution of groundwater which are used by population for drinking or domestic use. • Unauthorized excavation of soil especially from agricultural lands may lead to losses in crops and the consequent income of land users operating in the project area.	Medium Medium High Medium	Medium Medium Medium Medium
	Construction/ rehabilitation of the main pipeline and water supply/inlet water networks	**Waste Management** *(a) Hazardous waste* - engine, hydraulic and transmission oils, oil filters and absorbents • Improper handling and disposal of hazardous materials, may lead to the pollution of soil, ground and surface water. Along with this, such materials are hazardous to human health.	High	Medium

	Rehabilitation of project facilities (WDUs, WISs and GWISs)	• There is also a possibility of the presence of asbestos materials in remaining buildings and facilities of rehabilitated WDUs and water intake structures. • 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 PCB was used for such equipment. *(b) Non-hazardous waste* - MSWs (rubbish, plastic or glass bottles, glasses, waste food, etc.); construction wastes (used welding rods, packing materials, and other woods); scrap materials (old, rehabilitated iron pipes) • Improper wastes management may cause the spread of infectious diseases, and the emergence of insects and parasites in construction camp sites. In addition, it may lead to conflicts with the local population. • Improper waste management, especially domestic wastes, may lead to the pollution of groundwater and spreading of diseases among the population. • Improper and non-timely disposal of wastes from construction sites and adjusted areas may lead to a situation where the local population dispose of their wastes in the same places.	High High High and medium High and medium High and medium	Medium Low Medium Medium or low Medium
	Water supply and sewage networks pipe laying along canals and canal crossings	**Biological Resources** • Cutting trees and bushes along existing roads and canals. • The implementation of civil works related to pipe laying along canals and canal crossings, and the location of campsites close to canals, may impact on the aqua fauna of the canals. • 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). • Lack of proper monitoring of vegetation may lead to the unnecessary loses of trees and vegetation	High High High High	Medium or Low Medium or Low Low Medium

	Construction of water supply and inlet water networks	**Socio-economic resources** • Creation of new jobs for local population. • The cutting of trees may also lead to a loss of income, especially for trees of commercial value. • Temporary access to some commercial facilities (shops, service centers) may be limited during construction works, causing decreasing of population income. • Civil works may also create risks related to the safety of the population. • Increasing traffic intensity increases the nuisance for the population and the potential of road accidents.	High Medium or high Medium or high High High	Medium or high Medium or low Medium or high Medium or high
	Construction/ rehabilitation of the main pipeline and water supply/inlet water networks	**Occupational and Community Health and Safety Issues** *(a) Community Health and Safety* • Inadequate lighting and fencing of construction sites inside of settlement areas can be dangerous for pedestrians and vehicles, especially during the nighttime. • Increasing traffic due to truck and other vehicle movements to construction sites, and the temporary closing of roads during pipe laying inside settlements may also cause inconveniences for the local population. • Temporary blockages of household vehicular access due to pipe-laying. • The untimely and inefficient disposal of solid waste and improper sanitary conditions generated by construction workers at construction sites may cause pollution of the surrounding environment and affect the health of local people. • Some social problems may occur due to the irresponsible behavior of the outside work force such as gambling, alcoholism and disrespect to local people and their culture. • Cultural interference workers with local communities may cause HIV and sexually communicable diseases spreading in case of law awareness about these diseases among workers and community. • Movement of heavy tracks may destroy or deteriorate conditions of roads inside settlements.	High High or Medium High High High High High	Medium or Low Medium Medium or high Medium or Low Medium Medium Medium of High

		(a) Occupational Health and Safety • Violations of OHS regulations can result in personal injury or accidents. • The lack of PPE and overall OHS implementation in the Contractors budgets may lead to increasing risks of improper implementation of waste collection and disposal procedures, poor construction camp operations, and reduced living facilities for workers.	High High	Medium Medium
		Cultural heritage • The vegetation clearing and earthmoving activities during construction works may affect the archaeological heritage in the project areas	High	Medium or Low
3.	**Operation stage**			
	Maintenance of the main pipeline, water supply and inlet water networks, WDUs/WISs/GWISs	**Air Quality** • Impacts on air quality and noise levels could be caused by rehabilitation works which could be required during the maintenance of damaged or leaking pipes. • Most areas of a wastewater treatment facility contain some level of odor. These processes can produce various odors, the most common of which found include hydrogen sulfide, ammonia, sulfur dioxide, skatoles, mercaptans, amines and indoles which will negatively impact on people health.	Medium or High Medium or High	Medium or Low Medium
	Maintenance of the main pipeline, water supply and inlet water networks, WDUs/WISs/GWISs	**Surface Water Resources Quality** • Potential impact on water resources could be caused by increased consumption of water due to continuous water supply with population currently using water on intermittent base. Increasing of water consumption will lead to increasing generation of sewage which will require proper collection and disposal. • In general, increasing the use of surface water for drinking purposes may lead to conflict with other water users - irrigation, industry and energy. • A decrease in the efficiency of wastewater treatment at WWTPs can lead to pollution of water bodies where the discharge will be made.	High or medium High or medium High or medium	High or medium High or medium High or medium

		• Operation of chemical laboratories for monitoring drinking water quality, WWTPs and without proper treatment of chemical's reagents residual may pollute surface and ground water. • In the areas with insufficient coverage of sewerage services, project activities related to improvement of water supply, may lead to the risk of diseases spread among the population due to increasing of amount of generating wastewater. • Emergency discharge of untreated wastewater or permanent discharge of insufficiently treated wastewater can lead to deterioration of ecosystems in water ways (receivers of wastewater), contamination of fish and increasing risks to the health of people. • Deterioration of water quality in water bodies creates great risks for the population using these water bodies for recreational purposes.	High High High or Medium High	High or medium High or medium High or medium High or medium
	Maintenance of the main pipeline, water supply and inlet water networks, WDUs/WISs/GWISs	**Ground Water Quality** • Overuse of available ground water deposits may lead to depletion of water resources. • Improved and extended water supply service will lead to increasing waste water discharge. It may create problem of ground water pollution due to low level of connection to sewage network houses, usage of non-concrete pit latrine in the project districts. • Operation of chemical laboratories for monitoring drinking water quality without proper treatment of chemical's reagents residual may pollute surface and ground water.	Medium or high Medium Medium or High	Medium Medium Medium or Low
	Operation of main pipeline, water supply networks, WDUs and WWTPs	**Waste Management** *(a) Non-hazardous waste* • Maintenance will not lead to generation of the wastes. During operation of installed SCADA system, wastes will not be generated as well. • Some amount of domestic wastes will be generated in WDU and WWTPs. Without proper handling and disposal may cause harm to personal of facilities and surrounded areas.	N/a Low or medium	N/a Medium or Low

	Operation of surface and ground water intakes and WDUs, maintenance equipment at WWTP, pumping stations	*(b) Hazardous waste* • Depending on types of selected technology various hazardous wastes could be generated from disinfection - bactericidal lamps, used packages from chemicals, and others. • Improper handling and disposal of such lamps may lead to poisoning of operating personnel, other persons who will be in contact, and pollution of environment. • Used oil could be generated during rehabilitation or regular maintenance equipment at WWTP, pumping stations, WDU. • Improper disposal of hazardous and non-hazardous wastes may impact on personal health but also lead to pollution of water in ground water wells located on the territory of water intakes.	High High Medium or high High or Medium	Medium or Low Medium or Low Medium or Low Medium or High
	Operation of main pipeline, water supply networks, WDUs and WWTPs	**Occupational and Community Health and Safety Issues** *(a) Community Health and Safety* • Improper treatment of water, infiltration through damaged pipes and ground water wells will lead to increasing diseases among population. • Improper waste management on water supply and waste water treatment facilities, odor from WWTPs may negatively impact on community health and safety. *(b) Operational Health and Safety* • Electricity equipment will be used at the WDUs, WISs and GWISs, which may cause of fire and electric shocks for workers. • Possibility of SHC leakage may have consequently negative impact on facilities personnel, population from vicinity and environment.	High High High High or medium	Medium or High Medium or High Medium or Low Medium or High
		Social aspects *Influx of Workers and labor issues* • The influx of workers from other parts of the country can potentially cause conflict between the project personnel and the local community.	Medium or high	Medium

		• The construction activities can potentially affect the women activities and movement.	Medium or high	Medium
		Climate Change • Increase in the length of drought periods may lead to shortage of drinking water. • Moderate increases in precipitation intensity and maximum 1-day precipitation events which may exceed urban water cycle capacity. • Increasing of temperature extremums: during the winter the very low temperature may cause the situation when water pipes may be threatened by damage from freezing. Maximum temperature during the summer may impact on operation of techniques and lead to breakdown or stoppage.	High High or medium High or medium	High High High

6. STAKEHOLDER CONSULTATIONS AND INFORMATION DISCLOSURE

6.1 Objectives of Stakeholder Engagement and Information Disclosure

485. Stakeholder engagement is fundamental for building trust with local communities. The purpose of this stakeholder engagement is to enable the Project to identify key stakeholders, ensure women and vulnerable people are identified early on and included in consultation activities, have access to information that is disclosed and can provide feedback via the complaints mechanism, understand the sensitivities within each stakeholder group and develop an appropriate engagement mechanism to ensure communities are aware of the Project and its impacts, and are consulted on a regular basis.

486. As per the requirements of AIIB Environmental and Social Standards (ESS) and applicable national regulations the project will enable stakeholder engagement to be undertaken in a systematic and meaningful manner, where the various stakeholder groups are able to express their individual views, opinions, and concerns, while allowing the Project to appropriately respond to them.

487. The objectives of the stakeholder engagement include:

- To identify the key stakeholders that may be affected by the Project.
- To define processes to inform the identified stakeholders about the Project and to manage stakeholder expectations.
- To understand current and potential emerging issues and to capture views and concerns of the relevant stakeholders regarding the Project.
- To provide a basis for stakeholder participation in social impact identification, prevention and mitigation including impacts and risks relating to gender
- To establish a grievance mechanism that will be implemented for the Project.

488. In Uzbekistan, public hearings as part of EIA are mandatory only for the projects belonged to Category I and II. The Resolution No. 54155 describes a procedure of conduction of public consultation. The minutes of public consultations have to be attached to the report on EIA. This project belongs to the category II. Therefore, it will require conduction of public consultations in accordance with national legislation as well.

489. Announcement of public consultation meeting with indication of date, time and venue should be done through local mass media or disseminated any other way among affected stakeholders at least 20 days in prior the event. During the public consultations at least 10 stakeholders must participate, if less than 10 participants the public consultation should re-scheduled. The project owner should present Non-Technical Summary (NTS) including the key findings of the Environmental and Social Impact Assessment for the solar park, both positive and negative.

6.2 Stakeholder Identification

490. Stakeholders are typically categorized into two main groups based on their level of involvement and impact on a project. The first group includes project affected stakeholders, who are directly/indirectly impacted by the project and may experience changes to their environment, livelihood, or well-being as a result of its implementation. The second group consists of other interested stakeholders, who may have a vested interest in the project but are not directly affected by its implementation. Nevertheless, for the purposes of effective, tailored, and inclusive engagement, stakeholders of the project can be divided into the following three core categories:

- **Project affected stakeholders** – persons, groups and other entities within the Project Area of Influence that are directly/indirectly influenced (actually or potentially) by the project and/or have been identified as most susceptible to change associated with the project, and who need to be closely engaged in identifying impacts and their significance, as well as in decision-making

[55] Resolution of the Cabinet of Ministers № 541 "On further improvement of Mechanism of the Environmental Impact Assessment dated 07.09.2020 (last amendment № 774 dated 27.12.2021)

on mitigation and management measures.

- **Other interested stakeholders** – individuals/groups/entities that may not experience direct impacts from the Project but who consider or perceive their interests as being affected by the project and/or who could affect the project and the process of its implementation in some way. These stakeholders could include government agencies, non-governmental organizations (NGO), or other groups with a general interest in the project's outcomes. While their level of impact may not be as immediate as project affected stakeholders, their input and support can still be valuable in shaping the project's design and implementation.
- **Vulnerable groups** – persons 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.

491. The proposed project is planned to improve water supply conditions in Karakalpakstan Republic in the districts of Bozatau, Kanlykul, Kegeyli, Takhiatash, Takhtakupyr, Turtkul, Khodzheli, Chimbai, Shumanai, Ellikkala districts and the city of Nukus as well as construction of sewerage system of the cities and centers of Mangit, Bozatau, Karauzyak, Kegeili, Akmangit, Takhtakupyr, Turtkul, Chimbay and Shumanai districts, therefore the number of project stakeholders is large and includes all project impacted settlements and organizations located in the above mentioned project districts.

492. Stakeholder identification is conducted based on available primary and secondary data information, a review of available Project documentation, input from the Project consultants, as well as being informed by the results of site visits. The stakeholder list will be continuously updated throughout the life of the Project.

493. The following list of key stakeholders have been identified and are presented in the Table 31 below:

Table 31. Identified Project Stakeholders

Stakeholder Groups	Description of the Stakeholder
Project affected stakeholders	
Local Communities in the Project area (Listed in Section **Ошибка! Источник ссылки не найден.**)	The local communities are expected to directly benefit from the project through improvements to the water supply and sewerage system. Local community residents are potential source as workforce 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 to have better water supply and sewerage system, 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 project activities (both formal and informal owners).
Other Interested stakeholders	
UzWJSC	Acts as the Client and is responsible for the implementation of the project, including the execution of works and overall management.

Stakeholder Groups	Description of the Stakeholder
"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 Ministries 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 MEEPCC; Sanitary-Epidemiological Peace and Public Health Service of Karakalpakstan and district branches; Karakalpakstan Ministry of Employment and Labour Relations.	▪ Interested in developing of 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' remit (land issues, water use, energy, investment support, etc.) ▪ Potential assistance in interaction with other authorities and local population/organizations ▪ Assistance in monitoring of appliance with local labor and sanitary regulations.
Local and regional Construction Companies	Construction Companies interested to participate in the bidding for project implementation
International Lenders/ International Organisations: AIIB	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.

6.3 Stakeholder Mapping Analysis

494. Stakeholder Analysis is the process of identifying the individuals or groups that are likely to affect or be affected by a proposed Project and sorting them according to their impact on the Project and the impact the Project will have on them. This information is then used to assess the way the interests of the stakeholders should be addressed in the Project plan, policy, program, or other action.

495. The purpose of a stakeholder mapping is to:

- Study the profile of the stakeholders identified and their roles for the Project;

- Understand each group's specific issues, concerns as well as expectations from the Project that each group retains;
- Gauge their influence on the Project or the impact of the Project on them;
- Understand their vulnerabilities; and
- Understand the most effective means to communicate with the different stakeholder groups.

496. The significance of a stakeholder group is categorized considering the magnitude of impact of the Project on the stakeholder or degree of influence (power, proximity) of a stakeholder group on the Project functioning. The significance of the stakeholder group importance for the Project and the requirement for engaging with them is identified as an interaction of the impact and influence. The matrix for significance is depicted in **Table 32.** and the description the stakeholder analysis and influence are depicted in **Table 33** below.

Table 32. Stakeholder Significance and Engagement Requirement

		Likelihood of Influence on/ by Stakeholder		
		Low	**Medium**	**High**
Magnitude of Influence/ Impact	**Negligible**	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Urgent
	Large	Moderate	Urgent	Urgent

Table 33. Stakeholder Analysis & Influence

Nature of Influence	Implication
High Influence	High Influence implies a high degree of influence of the stakeholder on the Project in terms of participation and decision making or high priority to engage with the stakeholder.
Medium Influence	Medium Influence implies a moderate level of influence and participation of the stakeholder in the Project as well as a priority level to engage the stakeholder which is neither highly critical nor are insignificant in terms of influence.
Low Influence	Low Influence implies a low degree of influence of the stakeholder on the Project in terms of participation and decision-making or low priority to engage that stakeholder.

497. The intermediary categories of low to medium or medium to high primarily imply that their influence and importance could vary in that range subject to context specific conditions or also based on the responses of the Project towards the community.

498. The coverage of stakeholders includes any person, group, institution, or organization that is likely to be impacted (directly or indirectly) or may have interest/influence over Project. Though this document has attempted to be inclusive of all categories of stakeholders across the entire Project cycle, it is difficult to identify all potential stakeholders and gauge their level of influence over the entire Project cycle. Therefore, the project owners will revise stakeholder's list and their profiles in a timely manner to ensure applicability for any given period of the Project cycle as shown in **Table 34.**

Table 34. Stakeholder Profiles and Influence Mapping

Stakeholder Group	Brief Profile of the Stakeholder	Interest of the Stakeholders	Impact of the Project on the Stakeholders	Influence of the stakeholder on the Project	Magnitude of Impact/ Influence	Stakeholder Significance
Local Affected Communities	This stakeholder comprises communities residing in the vicinity of the Project area and impacted directly by Project activities.	Information about the project site and its potential impacts; Access to quality WSS services; Employment opportunities during the Project Construction period; Minimum impacts to the community in case of noise, air and water pollution; and Mechanism for raising grievances or concerns.	The stakeholders have been affected by physical and/or economic displacement because of Project activities. The Project will lead to increased access to clean water for drinking and sanitation, improved public health, enhanced economic opportunities, and overall improvement in quality of life for the community members. The Project may also lead to an increase in job opportunities and subsequently increase in incomes. Employment opportunities are openly displayed and accessible to local community members.	This stakeholder plays a critical role in the formation of public opinion towards the Project and allowing for the smooth functioning of the Project. The stakeholder group may potentially be engaged as local resources such as skilled/ semi-skilled jobs in the Project facilities.	Impact of Project on Stakeholder: **Large** Influence of Stakeholder on Project: **Medium**	**Urgent**
Makhalla Leaders	This stakeholder is an institution holding traditional power. It is headed by a chief/ chairman and play an important role in Uzbek community.	Having access to relevant information on the Project (e.g., grievances, emergency procedure and management measures); Benefiting from social investment; Training of local population on skill	The impacts of the Project on this stakeholder group will be in case of potential for social disruptions, between local inhabitants and the working population migrating into the area creates a potential for social disruption.;	This group thus could influence the perception of the community in regard to the Project and its activities.	Impact of Project on Stakeholder: **Medium** Influence of Stakeholder on Project: **Medium**	**Moderate**

Stakeholder Group	Brief Profile of the Stakeholder	Interest of the Stakeholders	Impact of the Project on the Stakeholders	Influence of the stakeholder on the Project	Magnitude of Impact/ Influence	Stakeholder Significance
		enhancement, in case of opportunities.				
Vulnerable people	This stakeholder group refers to the vulnerable group such as Women headed families, families with many children (more than 5), Low-income families, disabled persons, elderly people with nobody to care etc.	Information about the project site and its potential impacts; Access to quality public services and other community development services; Employment opportunities; Information about project support components for vulnerable people (if any); Mechanism for raising grievances or concerns.	In view of the poor social and economic conditions of the Vulnerable people, the PCU may have to provide engagement avenues for the group; This stakeholder group can benefit from potential employment opportunities and/or project support components.	The influence of this stakeholder group on the Project is limited.	Impact of Project on Stakeholder: **Medium** Influence of Stakeholder on Project: **Medium**	**Moderate**
Workforce	This stakeholder comprises of Project employees, contractors, and their workers engaged in the project construction activities.	Opportunities for direct employment; Economic benefits such as payment of minimum wages; Training and induction programs; Receiving relevant information on the Project; Working in a safe environment, free of	The Project provides employment opportunity to this group. The Project may pose health and safety concerns if proper safety measures are not adopted by the workers.	This stakeholder engagement is critical for the smooth implementation of the Project. This group has an important role in formation of public opinion. In case the labour requirements and health and safety measures are not complied with, there may be a risk of	Impact of Project on Stakeholder: **Medium** Influence of Stakeholder on Project: **High**	**Urgent**

Stakeholder Group	Brief Profile of the Stakeholder	Interest of the Stakeholders	Impact of the Project on the Stakeholders	Influence of the stakeholder on the Project	Magnitude of Impact/ Influence	Stakeholder Significance
		conditions that foster inequality.		conflict and protest which may affect the image of the Project.		
Supplier & Contractors	This stakeholder group comprised of the contractors to be involved in the Project such as those supplying materials and/or construction.	Economic benefits due to dynamism of regional and municipal economic activity; Receiving information on relevant business opportunities; Sharing of Emergency response and Compliance to E&S requirements; Response to grievance and emergencies raised by the suppliers and contractor; Increased of opportunities for indirect employment.	The Project provides a sustained business opportunity to this group in the area.	This stakeholder group is critical for the smooth functioning and timely implementation of the Project; This group may also play an important role in the formation of public opinion towards the Project. This group will be a stakeholder in the implementation of the benefit sharing plans formulated for the Project.	Impact of Project on Stakeholder: **Small** Influence of Stakeholder on Project: **Medium**	**Minor**
Lenders & Investors	This stakeholder group includes investors who may be evaluating investment opportunities into the Project.	E&S compliances; Providing a safe environment for all workers; Adherence to safety protocol; Regular monitoring and reporting.	The impact of the Project on this stakeholder group will primarily pertain to Project's performance.	This stakeholder group's influence on the Project will primarily pertain to the determination of the Project's financial feasibility. In addition to the national rules and regulations, the Project is required to comply	Impact of Project on Stakeholder: **Small** Influence of Stakeholder on Project: **High**	**Moderate**

Stakeholder Group	Brief Profile of the Stakeholder	Interest of the Stakeholders	Impact of the Project on the Stakeholders	Influence of the stakeholder on the Project	Magnitude of Impact/ Influence	Stakeholder Significance
				with the internal standards of these financial institutions.		
Government and Regulatory Authorities	This stakeholder group comprised regulatory authorities at the district, state and national level that are responsible for various permits and licenses pertaining to the Project.	Receiving information on Projects (timeline, potential impacts, benefits) Promoting economic development Establishing clear channels of communication Compliance to national laws and requirements.	The impact of the Project on this stakeholder group will be negligible. However, it is expected that the project will abide with all applicable national guidelines, policies and laws.	This stakeholder group is high in priority as this group provides the permits and licenses essential for the functioning of the Project. This stakeholder group can result in Project shut down or stop-work for a few days and/ or penalties and fines being levied on the Project.	Impact of Project on Stakeholder: **Small** Influence of Stakeholder on Project: **High**	**Urgent**
Media	This stakeholder group is comprised of the regional and national press (both print and audio-visual). This stakeholder group can play an extremely important role in the generation of awareness and public opinion	Receiving relevant information on the Project (timeline, potential impacts, benefits) to inform the population; Disseminating relevant and attractive information for their audience on Project development.	The impact of the Project on the stakeholder is likely to be extremely limited due to the nature of the Project activities.	The influence of the stakeholder group on the Project is likely to pertain to the opinion formation amongst the local, national and potentially international stakeholders towards the Project. Reporting on the Project's poor environmental and social performance.	Impact of Project on Stakeholder: **Small** Influence of Stakeholder on Project: **High**	**Moderate**

Stakeholder Group	Brief Profile of the Stakeholder	Interest of the Stakeholders	Impact of the Project on the Stakeholders	Influence of the stakeholder on the Project	Magnitude of Impact/ Influence	Stakeholder Significance
	towards the Project.					
NGOs/CSOs operating in the area	This stakeholder group comprises of regional, national operating in the sphere of human rights, advocacy and community development.	Receiving information on Projects status; Potential adverse environmental and social impacts; Improvement of public service and economic development.	The impact of the Project on the stakeholder is likely to be limited due to the nature of the Project activities; Establishment of strategic social investment alliances.	The influence of the stakeholder group on the Project is likely to pertain to the opinion formation amongst the local, national and potentially international stakeholders towards the Project.	Impact of Project on Stakeholder: **Small** Influence of Stakeholder on Project: **Medium**	**Moderate**

6.4 Up-to-Date Stakeholder Engagement Activities

499. The project is currently in the preparation stage, and the final design for the construction works has not yet been completed. This means that the Government and project preparation team are currently in the process of conducting meetings with local water supply organizations to discuss and finalize the project's design. This is a crucial step in ensuring that all stakeholders are aligned and that the project can proceed smoothly once construction begins.

500. These meetings are essential for obtaining input and feedback from the local water supply organizations, as they will be directly impacted by the project. By involving these organizations in the design process, the Government and project preparation team can ensure that the final project design considers any specific requirements or considerations that may be unique to the local water supply infrastructure. This collaborative approach helps to minimize potential issues or conflicts that could arise during the construction phase.

501. After the completion and approval of the final design, the team will proceed to prepare a non-technical summary and organize public hearings. This non-technical summary will provide a clear and easily understandable overview of the project for the general public. It will outline the key aspects of the project, its potential impact, and the benefits it will bring to the community.

502. The public hearings will serve as an opportunity for the community to voice their opinions, concerns, and ask questions about the project. This process ensures that the public has a chance to participate in the decision-making process and provides a platform for open dialogue between the project team and the community. By actively engaging with the public, the project team can address any potential issues or misunderstandings, ultimately leading to a more informed and transparent decision-making process.

503. The Consultant prepared and submitted draft Stakeholder Engagement Plan (SEP) with proposed record templates. The centralized record will serve as a valuable resource for tracking the various interactions and engagements with stakeholders throughout the project's lifecycle, ensuring that all pertinent information is documented and easily accessible for reference and analysis. Regular updates to this database will be essential for maintaining an accurate and comprehensive record of stakeholder engagement efforts, enabling the project team to effectively track progress, identify trends, and make informed decisions based on the insights gathered from these engagements.

504. The Consultant have conducted series of meetings with identified stakeholders at the project area level. At the first stage in December 2023, the Consultants conducted meetings with the regional and district branches of Karakalpak Suv Taminot, the drinking water and sewerage operator in the project area. During the meetings, the Consultants introduced the project goals and planned activities. The main concerns and questions raised by the branches included inquiries about the project timeline, detailed project design and coverage, management of the new systems, and the specific organizations such as schools, kindergartens, and production companies that would be covered by the project.

505. And at the second stage later in April 2024, the Consultant's team held preliminary community meetings with the heads of makhallas (communities) and local leaders in the project villages. A total of 20 project rural settlements were visited. The local community members expressed a high level of enthusiasm for the planned project, as they were facing serious issues with drinking water supply and sewerage. They were hopeful that the project would assist in addressing these problems. Additionally, the community members expressed interest in obtaining temporary employment opportunities during the construction phase, supporting self-employment initiatives for local women, and enhancing hygiene facilities in local schools and kindergartens.

506. Details of the meetings conducted are presented in the SEP submitted separately.

6.5 Stakeholder Engagement Program

507. Since the project is in preparation phase and the list of stakeholders that have a stake in the project is not final, the specific for preparing a detailed SEP is not available. Therefore, this SEP is being prepared, which will be updated and adopted as soon as possible during the next project phases. The

scope and level of detail of the SEP will commensurate with nature and scale, potential risks, and impacts of the project and the level of concern in the project area.

508. The document will guide the update of a SEP during the project preparation and implementation phase. Stakeholder Engagement will include the following: (i) stakeholder identification and analysis; (ii) planning for stakeholder engagement; (iii) consultations and disclosures; (iv) grievance mechanism; (v) consultations on ESMPF, and (vi) continuous interface with and reporting to the stakeholders.

509. Stakeholder engagement within the project preparation phase is critical for supporting the project's risk management process, specifically the early identification and avoidance/management of potential impacts (negative and positive) and cost-effective project design.

510. Stakeholder engagement is an on-going process throughout the project's life cycle and there are three phases relevant to each selected project investments:

1. Project Preparation Phase;
2. Construction Phase; and,
3. Operation Phase.

511. **Project Preparation Phase.** During the project preparation phase, the focus of engagement is primarily on gathering information and opinions from stakeholders. Engagement activities will therefore include interviews with stakeholder representatives (informal leaders) and key information organizations (communities, authorities, NGOs) using face-to-face meetings, workshops, and smaller focus group meetings.

512. Within the overarching project preparation objectives, the specific objectives of engagement during this phase are to:

- Introduce the project and ESIA process to key stakeholders
- Identify potential impacts and issues that will be covered in subsequent phases
- Further identify stakeholders related to the Project
- Identify and gain access to relevant data for the baseline
- To gather stakeholder opinions on the proposed project and ensure that these opinions are fed into the assessment process
- To gather stakeholder feedback on the development of management and mitigation measures of potential impacts, particularly where stakeholders have a potential role to play in these measures.
- Provide feedback to the stakeholders on the draft impact assessment and associated management/mitigation measures (disclosure); and,
- Gather stakeholder input on the initial impact assessment and identified mitigation and enhancement measures (consultation).

513. During this engagement phase, disclosure and consultation activities will be designed along the following general principles:

- Consultation events and opportunities must be widely and proactively publicized, especially among project affected parties, at least 2-3 weeks prior to any meeting;
- The non-technical summary must be accessible prior to any event to ensure that people are informed of the assessment content and conclusions in advance of the meeting;
- The location and timing of any meeting will be designed to maximize accessibility to project affected stakeholders;
- Information presented will be clear and non-technical, and will be presented in the local language understood by those in the communities;
- Facilitation will be provided to ensure that stakeholders are able to raise their concerns; and
- Issues raised are answered at the meeting or actively followed up.

514. **Construction Phase.** To ensure effective consultation with community members during construction of the Project, PIU and each selected project investment owner will establish a project information center at the local district Khokimiat and at the project site, aiming to disseminate project information to community members and receiving grievances, if any.

515. At the project site project investment owner and PIU will install notice boards, these notice boards will be regularly updated with the Project information and used to inform community members about project activities, employment opportunities and impact management measures including the grievance mechanism. Noticeboards will also include the grievance/suggestion box, including responsible contact names for additional inquiries.

516. **Operation Phase.** After the completion of the construction works and handover process, project investment owner (or operation agency) shall become the only responsible entity for SEP implementation. The owner company will be responsible for continuous implementation of GM, and maintain relations with local stakeholders, updating them about project activities and mitigation measures (if any) carried out. This can be done through the publication of annual or quarterly reports, announcements on important events through local mass media (TV, radio, newspapers), updating noticeboards with indication of contacts of responsible staff for further clarifications.

517. Proposed strategy for information disclosure for different stakeholder groups and during all project phases is presented in Table 2.

518. The project will take special measures to ensure that disadvantaged and vulnerable groups have equal opportunity to access information, provide feedback, or submit grievances. Focus groups dedicated specifically to vulnerable groups may also be envisaged as appropriate. Where necessary (e.g., for minority or migrant population) information will be provided in the language that can be understood by them.

519. Convenient venues and small target meetings will be organized for vulnerable groups where they will feel comfortable asking questions and raise issues. Vehicles will be provided for transportation of residents of remote areas to nearest venues of meetings. If required, contacts with medical institutions in project areas will be established to obtain information about marginalized groups and most effective methods of interaction with them. All factors preventing vulnerable groups from participation (for example, language distinctions, unavailability of transport for participation in activities, accessibility of venues where activities take place, physical limitations, insufficient understanding of the consultation process) will be addressed by means of solution of all problematic issues by the consultants.

Table 35. 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

7. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANNING FRAMEWORK

7.1 Institutional Arrangement

520. The UJSC was established in 2020 (registered with No.827035 on 11 March 2020) as a nationwide water supply and sanitation operator in accordance with Presidential Decree No. UP-5883 of 26 November 2019. It is 100% state-owned. The Ministry of Economy and Finance is its single shareholder on behalf of the state pursuant to Presidential Decree No. UP-6096 of 27 October 2020 "On Measures of Accelerated Reforming of Enterprises with State Share and Privatization of State Assets." According to Presidential Decree UP-6096, the UJSC is included in the list of large state-owned enterprises and business associations subject to transformation. Its charter capital was formed by transferring the assets and state shares in the authorized capital of former provincial water utilities (suvokavas) of the MHCS.

521. The former suvokavas (formed in 1991 after the break of the Soviet Union) were transformed into 17 LLC suvtaminots (reregistered in 2020). These subsidiary LLCs suvtaminots comprise 12 provincial water utilities, one LLC "Qoraqalpoq suv ta'minoti," servicing the Karakalpakstan Republic, one LLC "Toshkent shahar suv ta'minoti," servicing Tashkent city, two suvtaminots—LLC "Chimgan-Chorbog suv ta'minoti" and LLC "Musaffo Obi Hayot"—servicing some parts of the Tashkent province, and one interregional bulk water supplier─ LLC "Damxo'ja suvta'minoti." The provincial suvtaminots have branches (called departments since they are not separate legal entities) in each district and town within its territory (province). Their charter capital was formed by transferring the assets of the former suvokavas at their carrying cost. In addition, the UJSC also has a subsidiary Management Company "Engineering Company on Construction of Water Supply and Sanitation Water Facilities," LLC "Sayin Suv Inshootlari," LLC "Samarqand suv qurilish," JSC "Suvo'lchagich xizmati" (water metering service) and PCUs for ADB, AIIB, European Bank for Reconstruction and Development (EBRD) and Arab Coordination Group's projects.

522. The activities of the UJSC in the field of WSS services are coordinated by the Ministry of Construction and Housing and Communal Services (MCHCS). The UJSC is governed by a supervisory council that consists of six members. The First Deputy Minister of MCHCS is the Chairman of the Supervisory Council. Other members are the Deputy Minister of MEF and other state servants from the Cabinet of Ministers, MEF and the State Assets Management Agency. There is no independent member. The Management Board of the UJSC represents its executive body and consists of five members – the Chairman, its three deputies and the lawyer. They are elected for 3 years. The provincial suvtaminots are wholly owned subsidiaries of the UJSC and managed by an executive director.

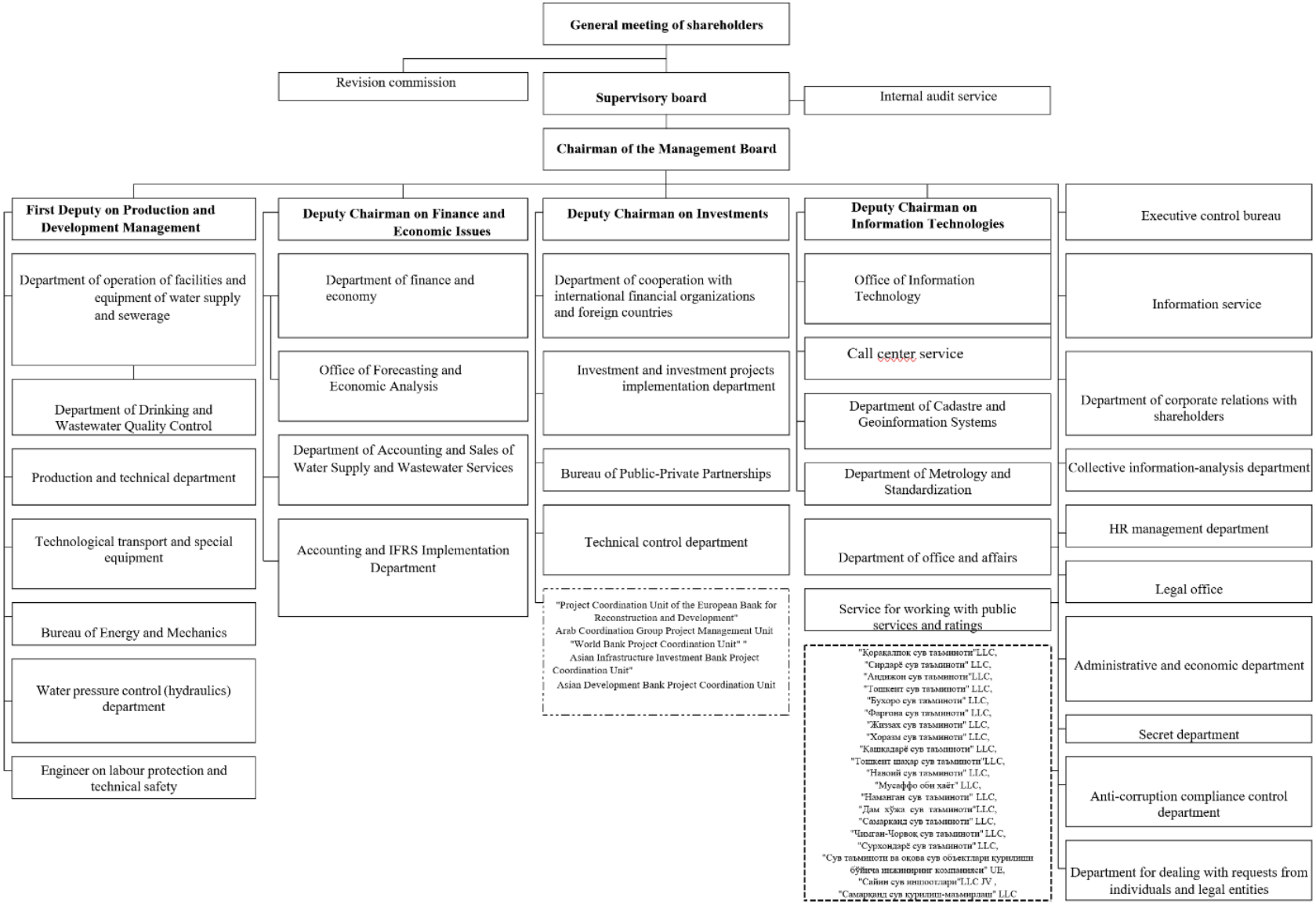


Figure 40: Organizational structure of UzWJSC, in red – Karakalpak Suvtaminot

523. Executive Agency (EA) and PCU will be supported by a PMC. A project organizational structure is provided in **Figure 40**.

524. The PCU will be responsible for implementation of ESMP to comply with AIIB safeguards requirements and environmental national regulations. Present unit has Safeguard Specialist (SS). It is planned one PIU will be set up in Karakalpakstan. To ensure compliance with AIIB safeguards requirements, it is proposed that one environmental specialist and one social specialist will be hired on time base.

525. The PIU's ES and SS will be assisted by the environmental specialists of the PMC in overseeing the development of ESIAs and/or ESMPs. The cost for ESIA and ESMP will be financed by the project, specifically: the costs for development of ESIAs will be included in PMC budget and cost for mitigation measures and environmental monitoring will be included in the construction contracts, and the cost for environmental supervision will be included in the consulting service of the PMC. PCU is responsible for overall environmental compliance with AIIB ESF (2019,2022).

526. Contractors will be responsible for implementing mitigation measures. Within 30 days after contract award and prior to commencing any physical works, SSESMPs will be developed by the Contractors under the guidance of the PMC, and be endorsed by PMC before submission to PCU (PIU) for approval. The SSEMP is the document that the Contractors shall prepare outlining how he intends to implement the ESMP and ensure that all of the mitigation and monitoring is completed according to the implementation arrangements specified in this ESMP. SSESMPs will be needed for major environmental issues and most critical sites relating to sensitive receptors. During construction, the Contractors must retain the expertise of a full-time Environmental and Social Officer (ESO) to implement and continually update the SSEMPs, and to report on the implementation of mitigation measures throughout the contract period.

527. The PMC is tasked with specific responsibility to assist PCU (PIU) in ensuring safeguard compliance of civil works – with particular emphasis on the monitoring of implementation of ESMP through the Contractors SSESMP and related aspects of the project. PMC shall retain the use of Environmental Specialist, both national (NES) and international (IES), to ensure that the Contractors are compliant with his environmental obligations. It is required that the IES provides a short training program to the PCU and PIUs safeguard person and Contractors ESO prior to the start of construction to develop their knowledge and understanding of the environmental, social, health and safety aspects of the Project. The IES will also be responsible for developing a comprehensive proposal for establishment and operations of the Environmental awareness centers. Training EHS for contractors need to be conducted throughout project implementation, at every visit of the IES. TORs for IES and NES can be found in the PMC contract.

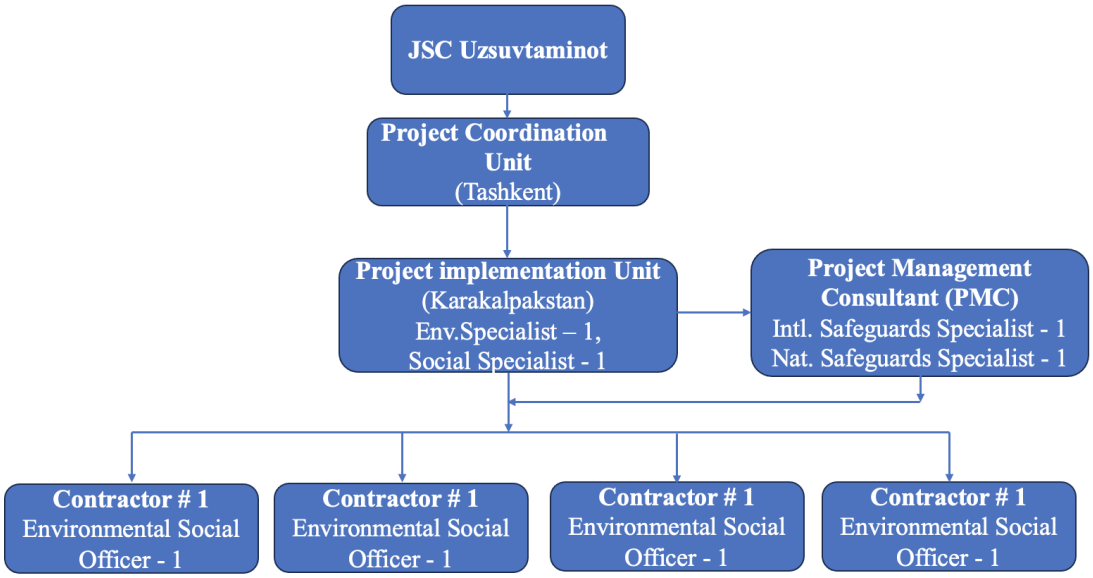


Figure 41: Institutional set up of safeguards performance within the project

528. In addition to the Contractor's full-time ESO and the PMC's part-time NES backed up with an IES, it is required that PCU designate a full-time safeguard position to manage and coordinate the contractors and PMC in reporting to PCU IA and AIIB on safeguard performance of the project. The PCU's environmental and social responsibilities include the following, but not limited to:

- Assist to PCU in the screening of new sub-projects on compliance with AIIB Environmental and Social Exclusion List;
- Assist to PCU in development of ESIA, LARP/LAP/RP for the sub-projects categorized as category A (environmental or social), receive non-objections from AIIB;
- Assist to PCU in development of national EIA for new sub-projects, as required by national regulations and to receive non-objections from MEEPCC.

529. PCU's ES will be in charge for:

- Ensure the bidding documents of PMC and Contractors include all tasks as described in the approved ESMP;
- Supervise the PMC and Contractors in ESMP implementation for overall compliance with ESF AIIB (2019, 2022) requirements and project environment-related legal covenants;
- Ensure all necessary government permits and license, including ecological expertise opinion, permission for cutting or replanting trees for all civil works are obtained;
- Approve SSESMPs which will be prepared by the Contractors and endorsed by the PMC With assistance of the PMC, prepare, submit to the EA and AIIB, and disclose semi- annual environmental and social monitoring reports on AIIB website and in Karakalpakstan Uzsuvtaminot websites;
- Report in a timely manner to AIIB of any non-compliance or breaches with AIIB safeguard requirements and take corrective actions promptly. Update the ESIA and ESMP in case of technical design changes or unanticipated impacts

- Establish a GRM after the project effectivity and act as the GRM secretary to make sure that the GRM is operational to effectively handle environmental and social concerns of project affected persons.

530. The Ministry of Ecology and Environment Protection and Climate Change of the RoK through will be also involved in the process of project implementation and further operation. Karakalpakstan branch of MEEPCC will review new national EIAs (ZVOS) if substantial changes in the project design or new sub-projects will be selected. The MEEPCC will approve it if the ZVOS complies with national requirements. Moreover, requirements indicated in Environmental Appraisal will be mandatory for implementation and it will be monitored by inspectors from district branches of MEEPCC.

531. All procedures related to trees catting and replanting (if needed) will be implemented under the supervision of MEEPCC biodiversity specialists.

532. Representatives of the Ministry will also participate into the hand- over process as member of State Acceptance Commission.

7.2 Screening Methodology

7.2.1 Environmental Screening

Conducting subprojects Environmental and Social Assessment requires the following steps:

533. **Step 1: Screening.** PCU and PIU in will carry out screening of sub-projects in categories A, B or C. It is expected that all selected sub-projects will be Categories B, but there is still possibility that category A sub-project could be proposed.[4] In general, a project will be classified as a Category A project if it: creates an impact affecting an ecologically sensitive area, especially if the project is located less than 1000 meters from any designated wildlife sanctuary, national park, other sanctuary, or area of international importance or cultural heritage and archaeological sites identified by UNESCO and/or the Government of RUz; and exists and already passes through any ecologically, culturally and archaeologically sensitive areas.

534. Sub-projects that do not relate to any of these conditions defined above are classified as B. The PCU Environmental Safeguards Specialist will also verify the suitability of the subproject for the AIIB Environmental and Social Exclusion List (Appendix 2) before deciding to include the subproject in the program.

535. After completion screening, PCU safeguards specialist will prepare screening report which will be submitted and revidwed by AIIB for no objection. The templates for screening checklist and screening reports are presented in Appendix 3.

536. PCU Environmental and social specialists defines category of the project and required environmental and social due diligence in accordance with ESF and national legislation.

537. The project category must be determined in accordance with both RCM No. 541 (2020) and AIIB ESF (2019, 2022).

Table 36. Environmental category of the projects in accordance national categorization

#	Type of facility	Category in accordance RCM #541 (2020)	Required environmental documents
1	Water pipelines - Republic level importance or inter-provincial level	I	PEIS (IES), SEC
2	WWTPs with capacity from more than 250 m^3/day	I	PEIS (IES), SEC

#	Type of facility	Category in accordance RCM #541 (2020)	Required environmental documents
3	WWTPs with capacity from 80 up to 250 m^3/day	II	PEIS (IES), SEC
4	Ground water intakes inter-provincial level	II	PEIS (IES)
5	Ground water intakes in Karakalpakstan and provincial level (within one province)	III	PEIS (IES)
6	WWTPs with capacity up to 80 m^3/day	III	PEIS (IES), SEC
7	Water supply and sewage networks	III	PEIS (IES)

538. In accordance with national environmental categorization, water and waste water facilities will belong to category 3, since capacity of all new WWTPs will be below 80 m3/day, ground water intakes will be local level facilities and all water supply and sewage networks will be within one province.

539. Once the environmental assessment process confirms that a subproject proposal can be included in the project, the PIU Environmental Safeguards Specialist will identify the necessary tools to conduct the ESA. The Category B projects are subject to have in place a site-specific ESMP.

540. **Step 2: Subprojects Environmental and Social Impact Assessment.** For subprojects that are identified under Category III (or Category B according AIIB classification), a national PEIS (and IES). SEC environmental assessment document will be prepared for WWTPs only. For such projects, in order to comply with AIIB standards, the subproject beneficiary or on its behalf an PCU with support of PMC will conduct, if needed, an ESIA and/or will prepare the site specific ESMP. As a rule, project designers, subcontract a specialized firm licensed to conduct ESIA in accordance with the legislation of the RUz, and, as a rule, the final reports are passed through the Karakalpak MEEPCC.

541. **Step 3: Public Consultation.** Once the ESIA is conducted and an ESMP is prepared these documents are subject to public consultation. During the public consultation process, ESIA and/or ESMP documents will be distributed to all interested parties and local population, by posting them on the web sites and by sub itting them to the local councils. Minutes of public meetings will be kept and will be included in the final ESMP/ or ESMP checklists. During the consultation session, the PCU's and PMC's environmental and social team in cooperation with the PIU ESS will present the ESIA/ESMP (project, its location and implementation schedule, overview of the ESA process, and any conclusions on impacts, proposed mitigation measures and benefits). These data should be defined as preliminary or intermediate, indicating that input from participants can still be applied to project planning. Participants will be invited directly (not by order) to submit comments and corrections to what is presented. Adequate and convenient contact information will be provided for use by participants.

542. **Step 4: AIIB acceptance.** The ESIA/ESMPs documents will be prior reviewed by the AIIB. After that such prior review will be requested only for full B subprojects which would require a partial ESIA and ESMP.

543. **Step 5: ESA Information Disclosure.** For all approved sub-projects, the PIU/Regional will ensure that printed copies of the final ESIA/ESMP in the local language are available in a public place. The PIU will post the final documents on the website of the Karakalpak Suvtaminot. Before the final approval of the sub-project, the Karakalpak Suvtaminot will also submit to the AIIB the English versions of the ESMP final documents for its own records.

544. **Step 6: Integration of ESIA requirements into project documents.** All sub-project bidding documents shall include a requirement for implementation of the ESMP/checklist, and the documents shall be attached to the bidding documents and then to the construction contracts.

545. **Step 7:** ESA Monitoring. PIU/Regional will carry out regular monitoring of sub-projects during construction and operation to ensure that ESMP/checklists are properly implemented. If PIU/Regional notices any problems in implementation, it will inform the relevant contractor and agree with him on corrective action to be taken. The PIU will present its findings to the AIIB in the project progress report twice a year or more frequently, and bring issues to the attention of the AIIB as necessary. The AIIB project team will also visit the sub-project sites as part of the project supervision, as appropriate and appropriate.

Table 37. Screening of categories for proposed types of sub-projects and suggested EA instrument

#	Project activity	Proposed Category		Remarks	Proposed AIIB instrument	Requirements of national legislation
		AIIB	National			
1	Construction of WWTPs	B	III		ESIA, ESMP	PEIS (EIS), SEC
2	Construction/rehabilitation water supply and waste water networks	B	III		ESMP	PEIS
3	Construction of new GWIs, WDU	A or B	III		ESIA, ESMP	PEIS (EIS)
4	Rehabilitation of existing WDUs, GWIs, pumping stations	B	III	If rehabilitation works do no required extension, no further actions in accordance with national regulations	ESMP	For category III projects - PEIS
5	Construction of new laboratories on the territory of existing WTPs	B	N/a	The same as above	ESMP	N/a

546. In parallel, national EIA will need to be conducted for each new sub-project or new location.

7.2.2 Social Screening

Screening on social aspects is mainly relevant to the resettlement activities, The full description of screening process, required actions and preparation of relevant documents is presented in RPF.

7.3 Generic content of ESIA and mitigation plan

7.3.2 Generic content of ESIA

Content of ESIA is provided in Appendix 4.

7.3.3 Generic ESMP

547. The primary objective of the Generic ESMP is to propose possible measures to mitigate adverse environmental and social impacts and enhance positive impacts resulting from the subprojects activities that are identified in Chapter 5. Besides, it also addresses any unexpected or unforeseen environmental and social impacts that may arise during construction and operational phases of the subprojects.

548. The Generic ESMP clearly lays out:

a) the measures to be taken during design, pre-construction, construction and operation phases of a subproject to eliminate adverse environmental and social impacts, or reduce them to acceptable levels;

b) the actions needed to implement these measures; and

c) indicates parties responsible for implementation of mitigation measures.

549. According to the analysis in Chapter 4, most of the adverse impacts of subprojects could be minimized or eliminated by adopting standard mitigation measures. This section describes the standard mitigation measures that could be applied to the subprojects under KWSSP. **Table 38** shows "general impacts" and suggested mitigation and enhancement measures. It also assigns responsibility for implementation of mitigation and enhancement measures. The subproject specific impacts need to be identified during the ESIA of the subproject and a subproject ESMP will be prepared in line with the Generic ESMP. This is to be conducted by the PMC Consultant who prepares the subproject detailed design.

Table 38. Generic Mitigation measures plan

#	Project Components and Activities	Expected Environmental and Social Risks and Impacts	Mitigation Measures	Responsibility
1.	**Design/Pre-construction stage**			
	(i) Project design and procurement procedure, (ii) the conduct of bidding and contracting processes with consideration of environmental aspects, (iii) institutional set up for environmental performance, and (iv) receiving all required permissions.	• Conflict in water use among other water users: current and future. Impact future regional development of water use; • Lack of water in groundwater deposits due to change in water use and on-going/planning irrigation projects in the region; • ESMP for each sub-project or ESIA for new sub-projects have not developed or do not consider the final design; • Requirements on ESMP implementation are not included in the bidding documents for Contractors; • Most utility networks traverse underground, and implementation of construction works without obtaining approvals from agencies (gas supply, communication, etc.) prior to the commissioning of civil works may damage such facilities; • Permissions from relevant agencies are not obtained; • If there are any unanticipated impacts, the ESIA/ESMP will be updated to account for any additional or new environmental	✓ Conduct water balance for the project area with consideration future development other sectors (irrigation, energy, industry and etc.) to make sure water availability ✓ Receive conclusion of hydrogeological expedition on available ground water deposits for reconstruction and new water intakes ✓ Communicate with Ministry of Water Resources and evaluate potential risks; ✓ Ensure that bidding documents include the latest version of ESMP and Contractors' proposals include efficient allocation of staffing and budget for ESMP implementation; ✓ Conduct screening of new sub-projects on compliance with AIIB ESF and develop necessary documents (ESIA, ESMP). Approve non-objection from AIIB ✓ Prior to commencement of civil works permissions to cut or replant trees need to be obtained from the MEEPCC as indicated in Decrees of President of RUz #46 (2021) and # 199 (2023); ✓ Permission/license for using existing borrow pits or opening new ones (if any); ✓ Permission on water use during construction phase; ✓ Conduct examination of demolishing facilitates on presence of asbestos materials. In case of presence such materials develop ACMMP); ✓ Conduct examination of existing transformers and check production date. If transformers were produced before 1993, apply PCBs management procedure for such transformers; ✓ Prior to commencing any physical works, SSEMPs including TSEMPs, will be developed by the	PCU with assistance of PMC PCU with assistance of PMC PCU with assistance of PMC PCU with assistance of PMC PCU with assistance of PMC Contractors Contractors Contractors PMC examine, Contractors develop Plan with assistance of PMC, PIU approves the Plan PMC examine, Contractors develop Plan with assistance of PMC, PIU approves the Plan

		impacts and relevant corrective actions.	Contractors before submission to PIU for approval. The proposed list of TSEMPs is presented below: • Traffic Management Plan (TMP); • Wastes Management Plan; • Spoil Management Plan; • Spill Response Plan; • CCMP; • Occupational Health and Safety Plan (OHSP); ✓ Sewage network design is able to cope with the moderate increases in precipitation intensity and maximum 1-day precipitation events; ✓ Materials selection and further design are able to cope with low winter temperatures.	Contractors develop, PMC reviews and PCU approves PCU with assistance of PMC PCU with assistance of PMC
2.	**Construction stage**			
	Construction/rehabilitation of water supply networks, WDUs, WIS and GWISs, water pump station, WWTPs and sewage pump stations *Construction of water supply/inlet networks and construction/ rehabilitation of sewage networks*	**Air Quality** • Pollutant emissions (SO_2, NOx, CO and dust) will be generated due to earthworks, construction/demolishing activities, and the movement of vehicles. • Improper waste management, particularly the burning of construction and domestic wastes may lead to air pollution. • Asbestos dust generated during rehabilitation works on water supply networks and old roofs of reconstructed administrative buildings on the territory of WDUs, WIS and GWISs could also pose a serious health hazard to people living in houses near construction sites. • Indirect air pollution impacts may affect the quality of crops (fruits, vegetables) and other	✓ Apply watering of construction sites and roads inside settlements during dry season; ✓ Cover transported bulk materials; ✓ Control speed limitation for vehicles during movement inside of settlements - no more than 30 km/h; ✓ All vehicles and equipment will comply with technical requirements and will pass regular inspection as indicated in the national standards; ✓ Restrict demolition activities during the period of the high winds or under more stable conditions when winds could direct dust towards adjacent houses;	Contractors implement measures PIU and PMC monitor implementation

		plants growing around construction sites. • Parallel implementation of different sub-components in project districts may significantly increase amount of discharging air pollutants emissions.		
	Construction and rehabilitation works; earth moving activity/digging trenches; pipeline laying; movement of vehicles used for material transport; demolition works; roads repairs (if required)	**Noise Pollution** • Noticeable noise level increases are anticipated during the demolition of existing buildings. • Construction works conducted populated areas with sensitive receptors (schools, kindergartens, and hospitals/polyclinics) may cause excessive noise levels, above the allowed parameters. • Project workers will be exposed to noise from construction machinery as well as, potentially, hand-arm vibration from hand-held power tools, or whole-body vibrations from surfaces on which a worker stands or sits. • Parallel implementation of different sub-components in project districts may significantly increase noise level.	✓ Establish limits on speed for vehicles inside of settlements (30 km/h); ✓ In the settlement areas, construction works generating noise will be undertaken during period from 8:00 in the morning and until 8:00 in the evening; ✓ Avoid construction works in front of schools during the period from 8:30 until 15:00 during the weekdays and Saturday. Apply additional mitigation measures (installation of acoustic screens, mufflers for machinery, etc.) in case of urgency or technical needs of such works; ✓ Prepare and implement OHSP; ✓ Schedule construction to minimize the multiple use of noisier equipment near sensitive receptors (houses, schools); ✓ Use of PPE by workers involved in demolishing and construction works in conditions of increased noise level is mandatory; ✓ Inform population about anticipated works at least one week before.	Contractors implement measures PIU and PMC monitor implementation

	Construction/ rehabilitation works occurred close to waterways; crossing waterways by new/rehabilitated pipelines *Construction of water supply/inlet networks and construction/ rehabilitation of sewage networks*	**Surface Water Resources Quality** • Surface waters may become polluted due to the improper placement of excavated soil, poor management of construction camps, improper storage of construction materials, leakage of fuel and lubricates from construction machinery, and washing of vehicles and equipment without proper maintenance. • The pollution of water in waterways will lead to a deterioration of the quality of water, which will potentially impact on the health of people who may use the canals in downstream areas for recreation purposes or irrigation. • In waterways with a permanent water presence and used for fisheries, any polluted water could cause ecosystem degradation and the pollution of fishes which further could be consumed by people. • Parallel implementation of different sub-components in project districts may significantly increase water resources pollution.	✓ Construction camp (if any) will have to be located at a safe distance from water courses (no closer than 100 meters); ✓ Ensure that refueling, oil replacement or repairing works of the machinery will be conducted in the specially equipped places. Prohibit conduct these works in the area within 50 m from water streams; ✓ Management and storage of fuel, waste oil, hazardous waste will be planned in accordance with EHS General Guidelines on Hazardous Materials Management. This includes the use of appropriate secondary containment structures capable of containing the larger of 110 % of the largest tank or 25% of the combined tank volumes in areas with above-ground tanks with a total storage volume equal or greater than 1,000 liters; ✓ Labor camps and construction sites will be equipped with sanitary latrines that do not pollute surface waters. Domestic wastewater from labor camps and construction sites will be canalized into septic tanks which will be installed by the contractors. The septic tanks will be timely emptied by hired septic trucks and transported to the closest WWTP; ✓ Keep copies of the transportation company's licenses and provide waste transfer manifests at its camp site for routine inspection by the engineer; ✓ No wastewater will be dumped into any ditches or streams; ✓ Construction wastewater arising on the site will be collected, removed from the site via a suitable and properly designed temporary drainage system and disposed of at a location and in a way that will cause neither pollution nor nuisance ✓ For the works implemented remotely from the construction camps, Contractor will use bio toilets. The Contractor will conclude the agreement with local agency responsible for the collection wastewater from the toilets and its disposal; ✓ Topsoil stripped material will not be stored where natural drainage will be disrupted;	Contractors implement measures PIU and PMC monitor implementation

			✓ Ensure presence on the construction site spoil collection kits.	
	Replacement of pumps installed at wells	**Ground Water Quality** • The pollution of ground water may occur if protocols on replacement pumps are not followed. • The location of any construction camps on the territory of the project ground water intakes could potentially increase the pollution of groundwater which is used for drinking purposes. • The improper construction and management of labor camps (improper maintenance, refueling, and improper collection and disposal of domestic wastewater) may also lead to groundwater pollution. • The pollution of groundwater may also lead to the pollution of water in wells which are used by the local population for drinking or communal use, negatively impacting on their health.	✓ Avoid location of construction camps within territory of ground water intake or buffer zone (30m) along staying wells which are used for drinking purposes; ✓ During replacement of pumps on wells, strictly follow the protocol described in Construction Norms and Rules (KMK) 2.04.03-2019 – External Network and Facilities; ✓ Other measures as it is indicated for soil protection and waste management	Contractors implement measures PIU and PMSC monitor implementation
	Pipe lying works and rehabilitation of damaged roads	**Soil Quality** • Unauthorized excavations of gravel and sand and improper restoration works on used carriers could negatively impact on soil. • The maintenance of machinery and refueling of techniques in non-appropriate and not-equipped places could also lead to the pollution of soil. • The pollution of soil could lead to the pollution of groundwater	✓ The topsoil of about 30 cm depth will be removed and stored separately during excavation work, not higher than 2m with 45o edge, fenced at least with special tapes and after the construction of the main trunk pipes the same soil will be placed on the top, in unpaved areas; ✓ To minimize soil compaction, movement of all type of vehicles will be allowed only through identified access roads; ✓ Contractors will be required to use only authorized carriers with getting all necessary permissions per respective national legislation; ✓ Contractor will prepare Spoil Management Plan as part of SSEMP and will ensure its properly implementation.	Contractors implement measures PIU and PMSC monitor implementation

		which are used by population for drinking or domestic use. • Unauthorized excavation of soil especially from agricultural lands may lead to losses in crops and the consequent income of land users operating in the project area.		
	Construction/ rehabilitation of the main pipeline and water supply/inlet water networks *Rehabilitation of project facilities (WDUs, WISs and GWISs)*	**Waste Management** *(a) Hazardous waste* - engine, hydraulic and transmission oils, oil filters and absorbents • Improper handling and disposal of hazardous materials, may lead to the pollution of soil, ground and surface water. Along with this, such materials are hazardous to human health. • There is also a possibility of the presence of asbestos materials in remaining buildings and facilities of rehabilitated WDUs and water intake structures. • 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 PCB was used for such equipment. *(b) Non-hazardous waste* - MSWs (rubbish, plastic or glass bottles, glasses, waste food, etc.); construction wastes (used welding rods, packing materials, and other woods); scrap	*Hazardous wastes* ✓ A Waste Management Plan will be developed by Contractor, endorsed by PMC and approved by PCU for the construction sites with demolishing works. The Plan will include information about type of generating wastes, amount, procedure of their collection and disposal. The plan also will include information about responsible person, training, action plan for emergency; ✓ Develop and implement spill response plan; ✓ Refueling vehicles and replacement oils also will be conducted in special designated and properly equipped places. Emergency facilities will be at the place for elimination of accident of oil spills; ✓ Used oil from vehicles and machinery will be collected into containers placed at the concreted sites and disposed to national oil company designated for accepting and handling of used oils; ✓ Used batteries will be collected separately and transferred to the local branches "Cvetmet"[56] for further disposal. *Asbestos containing materials waste* ✓ Prior to commencement of construction works, PMC will conduct visual observation of demolishing buildings on presence of asbestos materials. ✓ In case of presence of asbestos materials, the Contractor will develop ACMMP that includes identification of hazards, the use of proper safety gear and disposal methods. (Sample ACMMP is provided in **Ошибка! Источник ссылки не найден.**). Any activities	Contractors implement measures PIU and PMSC monitor implementation

56 Local entity responsible for collection and treatment non-ferrous metals.

		materials (old, rehabilitated iron pipes) • Improper wastes management may cause the spread of infectious diseases, and the emergence of insects and parasites in construction camp sites. In addition, it may lead to conflicts with the local population. • Improper waste management, especially domestic wastes, may lead to the pollution of groundwater and spreading of diseases among the population. • Improper and non-timely disposal of wastes from construction sites and adjusted areas may lead to a situation where the local population dispose of their wastes in the same places.	involving asbestos materials will be prohibited until the ACMMP is approved by PMSC and the PIU; ✓ Conduct all works on demolishing in accordance with approved ACMMP; ✓ Conduct awareness program on safety during the construction work. *Non-hazardous wastes* ✓ Conclude contract with waste disposal organization for the timely transportation and disposal of non-recyclable wastes, prior to the commencement of any civil works; ✓ Put proper waste bins at a related areas of construction sites and workers camps; ✓ Segregation of wastes on recyclable and non-recyclable wastes; ✓ Selling recyclable wastes to relevant organizations (paper, scraps, accumulators) and timely disposal of non-recyclable wastes to the municipal landfill. ✓ Providing bio toilets for workers at the construction sites and timely disposal of waste waters to the closest WWTP; ✓ Undertake the construction work stretch-wise; excavation, pipe laying and trench refilling will be completed within no longer than five days; ✓ Waste disposal will be done in accordance with agreement concluded between Contractor and waste disposal organization in timely manner (no more than 3 days) only on official landfills; ✓ Burning of waste on any construction site is forbidden.	
	Water supply and sewage networks pipe laying along canals and canal crossings	**Biological Resources** • Cutting trees and bushes along existing roads and canals. • The implementation of civil works related to pipe laying along canals and canal crossings, and the location of campsites close to canals, may impact on the aqua fauna of the canals. • Construction activities near or inside reserve areas may also	✓ During the Detailed Engineering Design, select an alignment of pipeline in a way which allows to minimize cutting of trees and bushes; ✓ Prior to starting civil works, all trees which will be cut will be marked to avoid unnecessary cutting trees; ✓ Conduct joint revision of the project sites with representatives of inspectors from relevant district branches of MEEPCC to identify number of cutting bushes and trees if any and to receive permission from MEEPCC and city/district Khokimiyats (for trees cut inside and outside city) on cutting trees as it is indicated	Contractors implement measures PIU and PMC monitor implementation

		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). • Lack of proper monitoring of vegetation may lead to the unnecessary loses of trees and vegetation	in Decrees of President of RUz #46 (2021) and # 199 (2023); ✓ Do not use chemical and burning for removing vegetation.	
	Construction of water supply and inlet water networks	**Socio-economic resources** • Creation of new jobs for local population. • The cutting of trees may also lead to a loss of income, especially for trees of commercial value. • Temporary access to some commercial facilities (shops, service centers) may be limited during construction works, causing decreasing of population income. • Civil works may also create risks related to the safety of the population. • Increasing traffic intensity increases the nuisance for the population and the potential of road accidents.	✓ Construction during agricultural off- season will minimize the impact (loss of agricultural income). Major crops in the project area that could be affected are sunflower, rice, and vegetables which growing seasonally; ✓ If cutting trees is unavoidable, to compensate losses as indicated in the RPF for this project and in cost for trees. ✓ Hire local population with suitable qualifications for works to the extent possible; ✓ Prepare a work plan of construction works in a way allowing to minimize impact on economical income of commercial facilities. If works in front of commercial facilities will be conducted for longer than 3 days, install temporary bridges; ✓ Inform population in advance about planning works.	Contractors implement measures PIU and PMC monitor implementation
	Construction/ rehabilitation of the main pipeline and water supply/inlet water networks	**Occupational and Community Health and Safety Issues** *(a) Community Health and Safety* • Inadequate lighting and fencing of construction sites inside of settlement areas can be dangerous for pedestrians and vehicles, especially during the nighttime.	*For community* ✓ Contractor will inform population about anticipated works in the settlement in advance. Prior to starting construction works, Contractors will share work plan with indications timeline and places. The works will be planned in the way, ensuring that trenches will not stay open more than 5 days; ✓ Contractors will be required to develop a Traffic Management Plan (TMP) as part of the SSEMPs with clear indication routes of vehicles' movements,	Contractors implement measures PIU and PMC monitor implementation

		• Increasing traffic due to truck and other vehicle movements to construction sites, and the temporary closing of roads during pipe laying inside settlements may also cause inconveniences for the local population. • Temporary blockages of household vehicular access due to pipe-laying. • The untimely and inefficient disposal of solid waste and improper sanitary conditions generated by construction workers at construction sites may cause pollution of the surrounding environment and affect the health of local people. • Some social problems may occur due to the irresponsible behavior of the outside work force such as gambling, alcoholism and disrespect to local people and their culture. • Cultural interference workers with local communities may cause HIV and sexually communicable diseases spreading in case of law awareness about these diseases among workers and community. • Movement of heavy tracks may destroy or deteriorate conditions of roads inside settlements.	placement special signs, and speeding allowance inside of the settlements and schedule transportation activities by avoiding peak traffic periods. Agreement on the TMP will be obtained from Traffic Police. The TMP will be disclosed to local community prior to commencement of construction works on respective sites; ✓ Clear signs will be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc. and raising awareness on safety issues; ✓ Install temporary bridges and effectively organize works, which will allow avoid unreasonable delaying of construction works; ✓ All construction sites (especially inside settlements) must be properly lightened and fenced; ✓ After completion of construction works, all roads will be rehabilitated at least up to condition of pre-construction stage; ✓ Carry out regular awareness campaigns among work staff, including specific hazards associated with the spread of HIV/AIDS. ✓ Contractor will develop a CCMP in reference to Workers' Accommodation: Processes and Standards[57] as part of SSEMP and implement; ✓ After completion of the main construction, Contractor will provide full reinstatement of the construction and camp sites by bringing them to its primary condition; ✓ Remove all rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; ✓ All hardened surfaces within the construction camp area will be ripped, all imported materials removed; and ✓ PMC will conduct post-construction audit during defect liability period to make sure that construction sites and camps are properly cleaned and restored to pre-project conditions before acceptance of works; *Occupation Health and Safety*	

[57] A guidance note by IFC and the EBRD Workers' Accommodation: Processes and Standards (August 2009)

		(a) Occupational Health and Safety • Violations of OHS regulations can result in personal injury or accidents. • The lack of PPE and overall OHS implementation in the Contractors budgets may lead to increasing risks of improper implementation of waste collection and disposal procedures, poor construction camp operations, and reduced living facilities for workers.	✓ Contractor will comply with requirements of Labor Code of Uzbekistan (2023) and standards on work and health safety;58 ✓ Contractors will develop OHSP. PMC will review and endorse and the PIU will approve the plans; ✓ Contractors will ensure proper implementation of the above plans;	
		Cultural heritage • The vegetation clearing and earthmoving activities during construction works may affect the archaeological heritage in the project areas	✓ In case of finding an object that can be identified as an artifact it is necessary to implement the following actions: ✓ Excavation and other works will be suspended immediately; ✓ Area with possible heritage will be fenced with fencing tape; ✓ A designated focal point from a local administration (khokimiyat) will be informed and invited to assess potential heritage and undertaken necessary actions; ✓ Civil works at the finding place will be recommenced after obtaining permission from the focal point.	
3.	**Operation stage**			
	Maintenance of the main pipeline, water supply and inlet water networks, WDUs/WISs/GWISs	**Air Quality** • Impacts on air quality and noise levels could be caused by rehabilitation works which could be required during the maintenance of damaged or leaking pipes. • Most areas of a wastewater treatment facility contain some	✓ Periodically water down temporary roads on site; ✓ Ensure proper functioning of WWTP in accordance with established requirements (Construction Norms and Rules (KMK) 2.04.03-2019 – External Network and Facilities); ✓ In case of complaints on odors from population, to implement additional measures such as additional greening of the territory;	Karakalpak Suvtaminot LLC

58 Construction Norms and Rules # 3.01.01-03. Organization of Construction works. 2003

		level of odor. These processes can produce various odors, the most common of which found include hydrogen sulfide, ammonia, sulfur dioxide, skatoles, mercaptans, amines and indoles which will negatively impact on people health.	✓ Immediately replacing defective equipment and removing it from the work site; ✓ Workers working close to aeration tanks will use PPE - respiratory protection including respirators with clean filtered air supply, personal protective equipment (clothes, gloves and goggles); ✓ No truck movements in inhabited areas between 22:00 and 6:00.	
	Maintenance of the main pipeline, water supply and inlet water networks, WDUs/WISs/GWISs	**Surface Water Resources Quality** • Potential impact on water resources could be caused by increased consumption of water due to continuous water supply with population currently using water on intermittent base. Increasing of water consumption will lead to increasing generation of sewage which will require proper collection and disposal. • In general, increasing the use of surface water for drinking purposes may lead to conflict with other water users - irrigation, industry and energy. • A decrease in the efficiency of wastewater treatment at WWTPs can lead to pollution of water bodies where the discharge will be made. • Operation of chemical laboratories for monitoring drinking water quality, WWTPs and without proper treatment of chemical's reagents residual may pollute surface and ground water.	✓ Prepare water balance for each zone and to receive non-objection from relevant agencies: MEEPCC, Ministry of Water Resources, Ministry of Energy and etc.; ✓ At the stage of detail design, conduct water modeling to ensure compliance of treated water in the monitoring point with standards; ✓ Ensure proper functioning of WWTP in accordance with established requirements (Construction Norms and Rules (KMK) 2.04.03-2019 – External Network and Facilities); ✓ Continuously work on monitoring the quality of sewage receiving from industry and undertake immediate measures to avoid negative impacts of sewage which is not comply with national standards.	Karakalpak Suvtaminot LLC

		• In the areas with insufficient coverage of sewerage services, project activities related to improvement of water supply, may lead to the risk of diseases spread among the population due to increasing of amount of generating wastewater. • Emergency discharge of untreated wastewater or permanent discharge of insufficiently treated wastewater can lead to deterioration of ecosystems in water ways (receivers of wastewater), contamination of fish and increasing risks to the health of people. • Deterioration of water quality in water bodies creates great risks for the population using these water bodies for recreational purposes.		
	Maintenance of the main pipeline, water supply and inlet water networks, WDUs/WISs/GWISs	**Ground Water Quality** • Overuse of available ground water deposits may lead to depletion of water resources. • Improved and extended water supply service will lead to increasing waste water discharge. It may create problem of ground water pollution due to low level of connection to sewage network houses, usage of non-concrete pit latrine in the project districts. • Operation of chemical laboratories for monitoring drinking water quality without proper treatment of chemical's	✓ Develop Statement on Environmental Consequences (SEC) and receive no objection from MEEPCC; ✓ Ensure that withdrawing amount of water follows established limits (as indicated in Conclusion from the MEEPCC; ✓ In case of necessity to increase water withdraw, receive permission in accordance with Resolution of Cabinet Ministries of RUz # 242 dated from 22 March 2019; ✓ Conduction of awareness program on proper and timely waste water disposal for population in the project area; ✓ Discharging chemical's reagents residual into water stream without treatment will be prohibited. Special procedure of utilization of such reagents, indicated in Standards for Drinking Water, 2011 has to be implemented	Karakalpak Suvtaminot LLC

		reagents residual may pollute surface and ground water.		
	Operation of main pipeline, water supply networks, WDUs and WWTPs *Operation of surface and ground water intakes and WDUs, maintenance equipment at WWTP, pumping stations*	**Waste Management** *(a) Non-hazardous waste* • Maintenance will not lead to generation of the wastes. During operation of installed SCADA system, wastes will not be generated as well. • Some amount of domestic wastes will be generated in WDU and WWTPs. Without proper handling and disposal may cause harm to personal of facilities and surrounded areas. *(b) Hazardous waste* • Depending on types of selected technology various hazardous wastes could be generated from disinfection - bactericidal lamps, used packages from chemicals, and others. • Improper handling and disposal of such lamps may lead to poisoning of operating personnel, other persons who will be in contact, and pollution of environment. • Used oil could be generated during rehabilitation or regular maintenance equipment at WWTP, pumping stations, WDU. • Improper disposal of hazardous and non-hazardous wastes may impact on personal health but also lead to pollution of water in	✓ Provide training on handling and disposal bactericidal lamps for Karakalpak Suvtaminot LLC staff involved in the maintenance of the ground water wells; ✓ ✓ Ensure proper implementation of guidance on handling of bactericidal lamps by Karakalpak Suvtaminot LLC staff; ✓ ✓ Conclude agreement on disposal used lamps with relevant agencies working on disposal of lamps.	Karakalpak Suvtaminot LLC

		ground water wells located on the territory of water intakes.		
	Operation of main pipeline, water supply networks, WDUs and WWTPs	**Occupational and Community Health and Safety Issues** *(a) Community Health and Safety* • Improper treatment of water, infiltration through damaged pipes and ground water wells will lead to increasing diseases among population. • Improper waste management on water supply and waste water treatment facilities, odor from WWTPs may negatively impact on community health and safety. *(b) Operational Health and Safety* • Electricity equipment will be used at the WDUs, WISs and GWISs, which may cause of fire and electric shocks for workers. • Possibility of SHC leakage may have consequently negative impact on facilities personnel, population from vicinity and environment. *(c) Influx of Workers and labor issues* • The influx of workers from other parts of the country can potentially cause conflict between the project personnel and the local community. • The construction activities can potentially affect the women activities and movement.	✓ Providing required facilities: storage of SHC in well ventilated rooms; ✓ Applying special marking for containers with this agent; ✓ Using vehicles with increased safety measures for transportation; ✓ Special procedure needs to be developed and applied for utilization leakages.	Karakalpak Suvtaminot LLC

		Climate Change • Increase in the length of drought periods may lead to shortage of drinking water. • Moderate increases in precipitation intensity and maximum 1-day precipitation events which may exceed urban water cycle capacity. • Increasing of temperature extremums: during the winter very low temperature may cause the situation when water pipes may be threatened by damage from freezing. Maximum temperature during the summer may impact on operation of techniques and lead to breakdown or stoppage.	✓ Sewage network design is able to cope with the moderate increases in precipitation intensity and maximum 1-day precipitation events; ✓ Materials selection and further design are able to cope with low winter temperatures; ✓ Equipment purchased under the contract comply with Euro-4 standards and requirements on energy efficient.	Karakalpak Suvtaminot LLC

7.4 Monitoring Framework

7.4.1 Environmental Monitoring

550. In order to ensure the implementation of the environmental measures specified in the ESMP, the monitoring will be carried out as follows:

- ***Visual monitoring*** - *during the construction stage of the sub-projects* the environmental specialists (SS) of the PCU together with PMC national environmental specialist will continually monitor the performance of ESMP by Contractors. This will be achieved through monthly inspections of construction / reconstruction projects by specialists throughout the whole construction period. The Environmental Specialists of the PCU has the right to suspend work or payments if the Contractors breach any obligation on ESMP implementation. For monitoring, it is recommended to use special checklists, that can be compiled on the basis of ESMP with the attachment of photos from the monitoring site.
- ***Instrumental monitoring of environmental quality***, such as air and water quality. Taking into consideration the types of activities that will be implemented within the framework of this Project, instrumental monitoring may not be carried out. However, in the case of complaints of violations or inconveniences from the local population, instrumental measurements of air or water quality will be carried out by the PMC through the hiring of a certified laboratory. In case of national standards exceeding, the sub-borrower will be obliged to take additional measures to reduce the detected exceedances to meet the standards.

551. Separately, the AIIB experts will also annually visit certain sites to monitor the compliance. As has been mentioned above, in the case of non-compliance, the PCU will investigate the nature and cause(s) of the non-compliance and, if necessary, decide what is necessary to ensure the compliance with the sub-project or financing will be suspended.

Table 39. Environmental Monitoring Plan

Mitigation measures	Parameter to be monitored	Location	Frequency	Responsibility	Standards
Construction Stage					
1. Air quality	NO_x, SO_2, CO	At several points close to sensitive sites (schools, kindergartens, clinics..) during the ESIA preparation stage	Weekly and in case of grievance from population	PMSC will hire certified laboratory to conduct analysis	Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the RUz included Annex 1. SanR&N RUz No.0179-04
	Dust	At several points close to sensitive sites (schools, kindergartens, clinics..) during the ESIA preparation stage	Weekly and additional in case of grievance from population	PMSC	Hygienic norms. List of Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the RUz including Annex 1. SanR&N RUz No.0179-04
2. Noise level	Noise level	At several points close to sensitive sites (schools, kindergartens, clinics..) during the ESIA preparation stage	Daily (by contractor) and weekly (by PMSC) in case of grievance from population	Contractor – on daily base PMSC – on weekly base	1. "Sanitarian Norms of allowed level of noise *at the construction sites*" SanR&N №0120-01 2. SanR&N No.026709 Sanitarian Rules and Norms on providing allowed noise level *in the living building, public building and territory* of living areas
3. Water quality	Oil products, dry residual, BOD, COD, pH, ammonia, SO_4	In waterways close to the project sites several samples in several points (before and after construction site). Measurements should be done during the ESIA preparation stage	1. Baseline – before construction works 2. During construction works– twice per week	PMSC will hire certified laboratory to conduct analysis	"Sanitarian requirements for development and approval of maximum allowed discharges (MAD) of pollutants discharged into the water bodies with waste waters". SanR&N No 0088-99
4. Vegetation	Cutting down or replanting vegetation	Along the project canals	Once	PMC, local MEEPC representatives	Received permits on cutting down or replanting vegetation
Operation Stage					
5. Water quality	Water quality in wells	In the operating wells (wells extracting water)	In accordance with national Standards	Karakalpakstan Suvtaminot, water quality laboratory	State standard O′zDSt 950:2011 Drinking water

7.4.2 Monitoring of social aspects

552. The Project will establish systems for internal and external monitoring and evaluation. The main purpose of the monitoring and evaluation programme is to ensure that resettlement and acquisition of land and properties have been implemented in accordance with the provision of AIIB's ESP 2019 (2022), the laws of Uzbekistan and with this RPF.

553. The objectives of the monitoring and evaluation programme are:

a. To ensure that the standard of living of AHs is restored or improved;

b. To monitor whether or not the timelines are being met;

c. To identify problems or potential problems;

d. To identify immediate/rapid response methods to mitigate problems or potential problems, and

e. To ensure that the GRM is functioning and grievances, if any, are being addressed timely and effectively.

554. **Internal Monitoring.** The PCU will conduct regular monitoring and assessment of project implementation process through following the procedures established and by the company.

555. To achieve the main purpose and objectives of internal monitoring the UJSC will ensure to provide significant attention to the following aspects of project implementation process:

a. Frequency and quality of information campaign and consultations hold for project affected people

b. Status of land acquisition and payments of compensations for project affected assets

c. Status of provision of additional rehabilitation and mitigation measures

d. Close monitoring of complaints and grievance management.

556. **Independent External Monitoring.** The PCU will deploy independent consultant to undertake External Monitoring and preparation of Final Compliance Report for Category A projects.

557. The tasks and responsibilities of the External Monitoring Consultant will be to minimum assess the following aspects:

a. Identify the extent of compliance of the activities undertaken under the LARP/LAP/RP implementation process with the AIIB ESP Procedures and Guidelines as set out in ESS 2. Involuntary Resettlement;

b. Review the process of land legalization, transactions registration, assessment of the effectiveness and thoroughness of their implementation;

c. Public meetings and information disclosure on proposed project, the level of accessibility for interested parties; efforts encouraging participatory involvement of APs/AHs in planning and implementation of resettlement plan;

d. Project related institutional arrangements and the level of efforts of local governance in LARP/LAP/RP implementation process; actions and efforts undertaken by the PIU to compensate APs according to the terms and conditions identified under the site-specific LARP/LAP/RP stipulations;

e. Conducting appropriate surveys to assess the satisfaction level of AP's;

f. Review the accuracy of inventory of project affected assets and assess the fairness of calculation of compensation package per AH;

g. Review 100% of complaints and assess the efficiency of GRM;

h. Obtainment of the confirmation that 100% of APs received the assigned compensation;

i. Assess the effectiveness of rehabilitation measures undertaken/to be undertaken to ensure income and livelihoods restoration of AHs;

j. Provision of useful recommendations based on "lessons learned" which may be applied to future projects;

k. A general assessment of the LARP/LAP/RP implementation and recommendations to AIIB concerning the provision of the No Objection Letter to start the civil works.

558. **Reporting Requirements.** The results of internal monitoring during LARP/LAP/RP implementation as well as project related construction activities will be communicated with PCU, and AIIB through the quarterly project implementation reports as well as semi-annual social monitoring reports (SSMR), to assess whether actual project impacts are adequately addresses, compensation payments disbursed, if due and grievance redress procedures are applied during the reporting period.

559. The information on possible social/economic impact incurred during earth works and project construction activities will be collected directly from the field by the PMC and will be reported through the project Coordinator at the UJSC HQ on a monthly basis. These monthly reports will then be quarterly consolidated by UJSC and submitted to AIIB.

7.5 Capacity building

7.5.1 Capacity building on environmental aspects

560. It is proposed the Project's capacity building on environmental social aspects will cover three main directions:

(i) PCU's capacity on ESMP implementation during construction stage - to enhance PCU's capacity on the ESMP implementation PMC Environmental Specialist will provide respective training for PCU's and PIU's Environmental and Social Specialists and further assistance in monitoring SESMP implementation and guidelines for Contractor's Environmental and Social Specialists as required.

(ii) Karakalpakstan capacity on overall environmental performance during the project operation – PMC jointly with Environmental and Social Specialists will develop and conduct training program for proper disposal wastes from chemical laboratories, on general compliance with national environmental requirements such as timely receiving necessary permission, conduction monitoring of environmental performance and submission reports to respective national agencies and etc.

(iii) awareness program for population in the project area – for the project sustainability it is important along with physical interventions, institutional improvements and financial enhancing, to increase people awareness about rational water resources use, hygiene practice due to the increased wastewater without sanitation system in place.

561. In case of determining a presence of PCBs in oil from old transformers and asbestos materials in demolishing buildings, separate training for handling and disposal of hazardous materials to be conducted by PMC for PCU and Contractors.

7.5.2 Capacity building on RPF implementation

562. To allow an effective execution of RPF, LARP/LAP/RP related tasks some expansion of the capacity on resettlement aspects currently available at UJSC may be needed. As soon as the Investment Program becomes effective, before the LARP/LAP/RP preparation, once the IA's safeguards staff is on board, the UJSC will carry out with AIIB and the Construction Supervision Consultant assistance a capacity needs assessment and will define the capacity building activities and if needed the additional experts required. Financing for capacity building initiatives will be included under the capacity building component of the Investment Program.

563. All concerned staff at PIU and GRC will undergo a two days orientation and training in AIIB Involuntary Resettlement policy and management to be provided either by a consultant hired by UJSC

or by the Supervision Consultant's Social Safeguards and Resettlement expert. Training will cover the following topics:

a. Principles and procedures of land acquisition;
b. Public consultation and participation;
c. Entitlements, compensation and assistance disbursement mechanisms;
d. Grievance redress, and
e. Monitoring of resettlement operations.

Table 40. Tentative training program for environmental and social aspects

Name of Training	Training Recipients	Duration of training	Organizer/ Responsible	Tentative Cost
ESMP				
Pre-construction Phase				
Overview on AIIB (2019, 2022) on safeguards and their implementation during the project cycle. National Environmental requirements for project preparation and implementation	PCU/PIUs' managers and Social and environmental specialists	1 day	PMC	2,000.0 USD
Construction Phase				
Implementation of ESF, ESMP 1. Roles and responsibilities of PIU/contractors/consultants towards protection of environment; 2. Potential specific Environmental/Biodiversity issues during construction; 3. Development of SEMP, TTSEMP and OHS Plan; 4. Monitoring of SESMP and OHSP implementation; 5. Reporting requirements; 6. GRM requirements 7. Code of conduct	PCU safeguards specialist, PIU environmental and social specialists Contractors' Environmental/ and Social Specialists	1.5 days	PMC	2,500.0 USD
Implementation of SESMP during construction phase Monitoring and reporting requirements Reporting requirements	Contractors' Environmental/ Health and Safety Specialists and Contractors' workers	1,5 days	CSC conducts training PMC monitors implementation	2,500.0 USD
Training on SEMP and OHSP implementation	Contractors' workers	0.5 day	Contractors implement, PMC and CSC monitors implementation	500.0 USD
Topic specific training: Safe work with PCB materials	PIU, Contractors' workers	0,5 day	PMC	500.0 USD

Name of Training	Training Recipients	Duration of training	Organizer/ Responsible	Tentative Cost
Topic specific training: Training on management of asbestos wastes	PIU, Contractors' workers	0,5 day	PMC	500.0 USD
Operation phase				
Safety aspects in chemical laboratories (WTP and WWTPs)	WWT and WWTP laboratory staff	1 day	Laboratory equipment suppliers, national agencies (MEEPCC, Ministry of Health)	3,000.0 USD
Gender aspects[59]				
Training provided on gender, hygiene promotion, water saving and usage sewage facilities	Teachers in schools located in the project area	3 days	PCU with involvement of NGOs with relevant experience	5,000.0 USD
Training on business planning, marketing and financial management.	Women from the villages where project will be implemented	5 days	PCU with involvement of NGOs with relevant experience	10,000.0 USD
Skills trainings to unemployed women interested to gain new job opportunities	Unemployed women in the project area	3 days	PCU with involvement of Local employment centers (monocenters)	5,000.0 USD
RPF, LARP/LAP/RP				
Implementation of RPF and LARP/LAP/RP • development and implementation Principles and procedures of land acquisition; • Public consultation and participation; • Entitlements, compensation and assistance disbursement mechanisms; • Grievance redress, and • Monitoring of resettlement operations.	PCU, PIU and Contractors	2 days	PMC	3,500.0 USD
Total				**35,000 USD**

[59] In accordance with GAP

8. RESETTLEMENT PLANNING

533 The RPF is applicable exclusively to the **Karakalpakstan and Khorezm Water Supply and Sanitation Project** and is prepared in compliance with the relevant legislation of Uzbekistan and requirements of the AIIB[60]. The full version of the RPF subject to review and clearance by the GOU and AIIB is provided in the Annex of the hereby ESMPF.

534 The Project is proposed to be supported by the AIIB. It has been tentatively assigned to Category A under the AIIB's Environmental and Social Policy (ESP 2019). This RPF builds on the lessons learned from the preparation and implementation of LAIR instruments associated to numerous projects funded by various IFIs including AIIB and the best examples of practical experience obtained during implementation site-specific LARP/LAP/RPs in infrastructure and energy sectors.

535. Therefore, the RPF will serve as the main guiding document for the development of LARP/LAP/RPs for each sub-project proposed within the framework of the given project supported to AIIB.

536. The RPF should be read in conjunction with the AIIB ESS 2 (ESP 2019) on Involuntary Resettlement and effective legislation of Uzbekistan. The RPF provides the guidance on how to prepare and implement LARP/LAP/RPs, how to set out project goals and project implementation schedule, census and socio-economic survey, inventory of project affected asset, identification of severely affected and vulnerable AHs, cut-off date and eligibility criteria for project affected persons (APs), legal framework and institutional involvement, determines concepts of valuation methodology and approaches to be exercised during determination of unit rates per each type impact and loss to be compensated to APs, establishes compensation entitlements, which will be employed to compensate, and restore the livelihoods and living standards of APs. In addition, the document provides participation and public consultation procedures, GRM to timely address any inquiry or claim of any aggrieved persons during the entire project cycle.

537. The document outlines the resettlement principles and procedures ensuring that resettlement needs are identified, and the UzWJSC the Executing Agency (EA) and Karakalpak Suvtaminot the Implementation Agency (IA) of the project adopts and implements the procedures for land acquisition, involuntary resettlement, and potential loss of access to physical and economic livelihoods in compliance with the Government's applicable laws and regulations, requirements of AIIB ESP 2019 and the best international practice.

538. The final RPF will be uploaded to the web sites of Karakalpak Suvtaminot and AIIB, and will be made available in electronic and printed format to project stakeholders.

539. The main objective of the RPF is to assist PCU IA at the phase of LARP/LAP/RPs preparation aimed at identifying the types, nature, and magnitude of potential economic and/or physical displacement impacts and providing adequate measures to address these impacts to ensure that potential APs are:

a. Informed about their rights and options pertaining to resettlement;

b. Involved in meaningful consultation process and given the opportunity to participate in project planning and selection of technically and economically feasible alternatives; and

c. Provided with prompt and effective compensation at full replacement cost for losses of land, assets, or access to assets and if not improved maintain livelihood standards at least to pre-project levels..

540. The RPF is composed of ten Chapters. Each chapter contains description of the importance and designation of each task to be carried out during LARP/LAP/RPs preparation, implementations, monitoring and reporting.

Project Impact and Outcome

[60] https://www.aiib.org/en/policies-strategies/_download/environment-framework/Final-ESF-Mar-14-2019-Final-P.pdf

541. The project is aligned with the following impacts: climate resilience, health, and living conditions in Uzbekistan improved. The project will have the following outcome: access to climate resilient, reliable, sustainable, and affordable water supply services improved and expanded in the selected towns of Uzbekistan.

Project Scope of Works

542. The proposed project is included in the 2020 program in the Country Operations and Business Plan 2019–2021 for Uzbekistan. The consultants for the AIIB transaction technical assistance (TRTA) will prepare the WSS service improvement project. The deliverables include, among others, the preparation of necessary documentation to meet all project preparation and safeguard policy requirements of AIIB and secure all Uzbekistan clearances.

543. AIIB procedures must be followed and reports produced in the formats of the AIIB report and recommendation of the President (RRP) and the linked documents.

544. On completion of detailed design and prior to award of any construction contract, either RAP (where there is physical or economic displacement) or a due diligence report (DDR, where there is no physical or economic displacement) must be submitted to AIIB for approval.

Gender and Vulnerability Aspects

545. During the entire project cycle all vulnerable groups will be identified at the early phase and engaged in the process of project planning and implementation. The project will pay particular attention to ensure that women who are de-facto household heads are clearly listed as beneficiaries of compensation and rehabilitation proceedings.

546. Regular consultations will be exercised during RAP related field surveys, planning, disclosure and implementation process.

547. The needs of vulnerable groups will be identified, analyzed and relevant rehabilitation measures be described in the site-specific RAPs to be monitored and assessed during RAP implementation period.

Measures to minimize project adverse impacts

548. During RAP preparation several alternatives of project design alignment will be prepared, overlaid on to the official cadastre data to determine potential scope of impact on private property followed with onsite surveys. 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 to minimize adverse impacts will be described in every site-specific RAP prepared for specific sub-projects and publicly disclosed.

Conditions for Project Implementation

549. No private assets will be affected by civil works prior to preparation, disclosure, approval and implementation of site-specific RAPs, as needed.

550. Based on the AIIB policy/practice, the approval of project implementation is based on the following LAR-related conditions:

a. **Signing of Contract Award:** Conditional to the approval of the project specific RAP by AIIB and Government. Site-specific RAP reflects final impacts, final AP lists and compensation rates at replacement cost approved by UzWJSC.

b. **Notice to Proceed to Contractors:** Conditional to the full implementation of Site-specific RAP (full delivery of compensation and rehabilitation allowances) and certified by RAP implementation Compliance Report prepared by UzWJSC and approved by AIIB.

Country Legislation, AIIB Policy and Measures to Mitigate Legal Gaps

551. The RPF provides the review of applicable country legislation and requirements of the AIIB ESS 2 Involuntary Resettlement to indicate the key elements of the AIIB ESF (2019,2022). The legal gap

analyses are enclosed in the RPF to reconcile the gaps between Country laws/regulations and AIIB ESF (2019) through proposed mitigation measures.

552. The RPF defines the below listed core LAR Policy Principles adopted for the Given Project to address possible impact and aspects of involuntary resettlement:

- Land acquisition, and other involuntary resettlement impacts will be avoided or minimized through all viable alternative design for individual sub-projects;
- Construction schedule shall be matched with off-the agricultural season so that loss of crops can be avoided;
- Land for land compensation will be opted for permanent land acquisition;
- Consultation with APs on compensation, disclosure of resettlement information to APs, and participation of APs in planning and implementing sub-projects will be ensured;
- Vulnerable and severely affected APs will be provided special assistance;
- Non-titled APs (e.g., informal dwellers or squatters, or APs without registration details) will receive applicable rehabilitation allowances defined by Entitlement matrix in lieu of land compensation and will be fully compensated for losses other than land;
- Relevant information from the LARP/LAP/RPs will be disclosed to the APs in the local language;
- Payment of compensation, resettlement assistance and rehabilitation measures will be fully provided prior to the contractor taking physical acquisition of the land and prior to the commencement of any construction activities on a particular package;
- All compensation will be paid and other resettlement entitlements will be provided before physical or economic displacement;
- Appropriate grievance redresses mechanisms will be established to resolve APs' grievances, if they occur.
- The temporarily affected land needs (if any) to be restored to previous use and the farmers shall be allowed to continue their cultivation after the completion of civil works;
- People moving in the project area after the cut-off date will not be entitled to any assistance;
- All common property resources (CPR) lost due to the project will be replaced or compensated by the project. The EA will ensure that replacement of all utilities and CPRs are also undertaken consistent with Donor's requirements.

Cut-off date, eligibility to compensation and Entitlement Matrix

553. As stipulated in AIIB ESF (2019, 2022) and as described in the RPF all project related impacts should be identified through the relevant studies undertaken during LARP/LAP/RPs preparation and addressed accordingly, meaning that all project affected persons will be provided with relevant compensation and other assistance required for relocation, prior to displacement, and preparation and provision of resettlement sites with adequate facilities, where required.

554. Project Affected Persons eligible to cash compensation will be identified by the **cut-off date** - the completion date of **final census of APs and inventory of project affected assets carried out for the preparation of site-specific LARP/LAP/RPs. APs who settle in the affected areas, or erect any fixed assets,** such as structures, crops, fruit trees, and woodlots and other assets, **after the cut-off date will not be eligible for any compensation**. However, they will be given sufficient advance notice, requested to vacate premises and dismantle affected structures prior to project implementation. Their dismantled structures will not be confiscated and they will not pay any fine or sanction. Forced eviction will only be considered following exhaustion of all other efforts.

555. Each site-specific LARP/LAP/RPs prepared for specific sub-project will determine the cut-off date and this is the completion date of the final census of APs and inventory of project affected assets. The information on the cut-off date will be clearly communicated to project affected persons and communities through public consultations and other relevant measures described in the RPF, and site-specific LARP/LAP/RPs.

556. The detailed description of compensation principles and additional rehabilitation measures, including onetime allowances for severely affected and vulnerable groups are summarized in the Entitlement Matrix of the RPF, prepared as a stand-alone document, provided in the Annex to the hereby document. The Entitlement Matrix (EM) defines compensation entitlements for permanent and temporary loss of agricultural, commercial, residential, pasture land being under private possession of land title holder and those who occupy and use project affected land without any valid title. In addition, EM defines compensation for all affected main and supplementary structures and improvement at full replacement value calculated according to current market prices, without deducting cast for salvage materials and depreciation, compensation for fruit bearing and timber trees and annual crops; additional allowances foreseen for vulnerable and severely affected persons and households; compensation to mitigate the loss of income as a result of permanent and temporary stoppage of business and loss of wages of hired labor, relocation allowance and compensation to cover costs of transportation personal belongings is also to be considered if such need is identified during LARP/LAP/RPs preparation surveys.

557. The detailed measurement surveys (DMS) will conducted based on design drawings for selected alternative alignments. Enumeration of project affected land parcels the census of possessors, and users of these land and assets will be followed with inventory of all project affected assets subject to cash and/or in-kind compensation. The socio-economic survey of project affected households will be conducted to assess the livelihood patters of affected households and define whether livelihood restoration is also required.

The methodology exercised during primary and secondary data collection for base line data will be elaborated at the starting phase of LARP/LAP/RPs preparation and used for monitoring purposes to assess project implementation progress and timely adoption of corrective actions as needed to attain planned targets and project outcomes. The detailed Entitlement Matrix with broad coverage of any possible loss incurred within the framework of the given project, proposed compensation entitlements including and additional rehabilitation measures and onetime allowances will be defined per each specific LARP/LAP/RPs.

558. Amount of cash compensation will be deposited on the special account under authorization of the PCU, if during LARP/LAP/RPs implementation process, any AP is missing, absent, or deceased, issuance of compensation is postponed due to legal procedures or is not received by the AP due to any other legitimate reason.

559. In none of these cases the APs will be liable for any taxes, registration or transaction fees incurred as a result of acceptance of cash compensation issued under the approved LARP/LAP/RPs. All such costs and fees will be covered by EA.

560. The RPF contains separate Chapter 6. Institutional Arrangements dedicated to the description of roles and responsibilities of number of State Agencies and Institutions on National and local levels being engaged in project planning and implementation procedures in line with the EA, PIU and Consultants. Below in **Table 41** is provided the specific activities and responsible agencies in charge of preparation, implementation and completion stages of the proposed project.

Table 41. Project related roles and responsibilities of relevant agencies

Activity	Responsible Agency
A. Detailed Design and RAP preparation	
Conducting discussions/meetings/consultation with APs and other stakeholders	PCU and PIU, National and International Resettlement Consultants hired by AIIB, district Khokimyat, Farmer's and Dehkan Councils and Mahalla authorities
Disclosure of final entitlements and rehabilitation packages	PCU and PIU, District Khokimyats
Approval of Final site-specific RAP	PCU and PIU, AIIB
B. RAP Implementation Stage	
Disbursement of compensation and assistance	District Khokimyats, PCU and PIU
Taking possession of land	UzWJSC through the assistance of district Khokimyat
Implementation of proposed rehabilitation measures	PCU and PIU
Grievances redress	PCU and PIU through the Safeguards Specialist, CSC, District Khokimyats
Monitoring and Reporting	PCU and PIU through the Safeguards Specialist, CSC
C. Completion Stage	
Restoration of land by the contractor along the Right of way and other construction sites	PCU and PIU will ensure that contractor follows the norms as mentioned
Restoration of approach roads and access if disturbed during construction	PCU and PIU will ensure that contractor follows the norms as mentioned
Consultation with local people regarding any further grievance	PCU and PIU with support of PMC

Participatory Involvement, Public Consultations and Documents' Disclosure

561. Ongoing public consultations will be exercised to ensure engagement of project affected communities and APs in the process of project planning, LARP/LAP/RPs preparation and disclosure to obtain the feedback on proposed compensation entitlements, raise awareness of affected communities on their rights and responsibilities and the roles and responsibilities of state agencies and institutions engaged in the project implementation activities.

562. Regular public consultations will be carried out by the Consultant engaged in desk review and field surveys required for LARP/LAP/RPs preparation. Public consultations will allow affected communities to voice their opinion, ask questions and receive information of proposed project objectives, expected impact and benefits.

563. Vulnerable groups and women will be encouraged and supported to have access to relevant information and will be provided opportunities to provide their feedback, suggestions and comments.

564. Participation and obtainment of feedback of local NGOs will also be encouraged during the entire project cycle.

565. The draft RPF, in Russian and English will be disclosed on the Karakalpak Suvtaminot and AIIB websites. Russian version of RPF will be provided to relevant National and local authorities and State Agencies. English RPF will be disclosed on the AIIB website after approval by AIIB and GoU. Similarly, each site-specific RAP once prepared and approved by Karakalpak Suvtaminot and AIIB will also be disclosed at project levels.

566. The consultation process will be continued throughout the project cycle. To ensure that APs, their representatives, and local government agencies in sub-project areas fully understand the details of the RAP process, and are also informed about the compensation and rehabilitation packages applicable to the Project, a Public Information Brochure (PIB) will be prepared by the consultant. The PIB translated into Uzbek language will be distributed to all APs and communities in the sub-project area.

Application of GRM

567. The PIU has set up a project-level GRM following the policy requirements of AIIB[61] and laws of the RUz[62]. 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.

568. 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.

569. 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 RUz and relevant policies of the AIIB.

570. 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 RUz at any time of the grievance redress process provided hereby[63].

The IA PCU will disclose the GRM on its website for the attention of public. The information given to the public should include the contact details of the GRC at the local level and the GRC at the Second level at the PCU and channels, through which the complainant can lodge their grievances, and the list of members of the GRC.

Monitoring and Reporting Requirements

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

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

[63] Complaints resolution process in sequential order is detailed in RPF attached as Annex to this document.

573 The Project will establish systems for internal and external monitoring and evaluation. The main purpose of the monitoring and evaluation programme is to ensure that resettlement and acquisition of land and properties have been implemented in accordance with the provision of AIIB's ESP 2019, the laws of Uzbekistan and with this RAP.

574. The objectives of the monitoring and evaluation programme are to

a. ensure that the standard of living of AHs is restored or improved;

b. monitor whether or not the timelines are being met;

c. identify emerged or potential problems;

d. define immediate/rapid response methods to mitigate problems or potential problems, and

e. ensure that the GRM is functioning and grievances, if any, are being addressed timely and effectively.

575. The results of internal monitoring during LARP/LAP/RPs implementation as well as project related construction activities will be communicated with Karakalpak Suvtaminot, and AIIB through the quarterly project implementation reports as well as semi-annual social monitoring reports (SSMR), to assess whether actual project impacts are adequately addresses, compensation payments disbursed, if due and grievance redress procedures are applied during the reporting period.

576. The information on possible social/economic impact incurred during earth works and project construction activities will be collected directly from the field by the Supervision Consultant and will be reported through the project Coordinator at the Karakalpak Suvtaminot on a monthly basis.

577. Monthly Progress Reports will then be quarterly consolidated by PCU and submitted to AIIB.

Source of Financing

578. Site-specific RAP preparation and implementation costs, including cost of compensation and LARP/LAP/RPs administration, will be considered an integral part of the project cost and will be contributed as a counterpart fund by the Government of Uzbekistan. The funds allocated by MoF will be delivered to APs by UzWJSC.

579. Each site-specific LARP/LAP/RPs will include a budget section indicating (i) unit compensation rates for all affected items and allowances; (ii) methodology followed for the computation of unit compensation rates; and (iii) a cost table for all compensation expenses including administrative costs and contingencies. Costs for external monitoring tasks and for the preparation of surveys may be allocated under the MFF.

580. PIU is responsible for ensuring timely allocation of funds by MoF needed for LARP/LAP/RPs implementation. Allocations will be reviewed twice a year based on the budget requirements indicated by the EA and AIIB. As per the LARP/LAP/RPs finances flow the budget for compensation and rehabilitation will be directly disbursed by PIU to the AP.

9. GENDER ACTION PLAN FRAMEWORK

581. 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.

582. 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.

583. The proposed GAP is designed to address the current community issues and empower local women to improve their circumstances. A GAP is presented in **Table 42**. It will be finalized during the project implementation.

Table 42. GAP for Karakalpakstan and Khorezm Water Supply and Sanitation Project

Category	Action	Indicator	Budget (est.)	Responsible party
1. **Institutional Capacity Development on Gender Mainstreaming**	1.1 Hire regional Social and Gender Specialist for ensuring that social and gender considerations are integrated into all project activities and decision-making processes.	Regional Social and Gender Specialist hired during the project implementation.	TBC	PCU
	1.2 Integrate gender-specific data collection into project monitoring and reporting for a more inclusive evaluation.	Project M&E includes collection and analysis of gender-disaggregated indicators, including the following: 1. PCU staff by gender and by positions. 2. Water Operator Staff by gender and by positions, 3. Project impacted water and sewerage users by gender (women headed separately). 4. Project beneficiaries by gender. 5. Local Community workers hired by contractors by gender. 6. Project resettled people by gender. 7. Grievance (related to project) owners by gender.	TBC	PCU
	1.3 Promote the involvement of women in project management activities.	At least 20 % of project management personnel are women.		
	1.4 Conduct Gender Equality and Sensitivity Training for PCU staff, regional UzWJSC staff and Contractor Managers.		TBC	
	1.5 Promote the involvement of women in Karakalpaksuvtaminot office and district branches of water management organization.	At least 20% of Karakalpaksuvtaminot personnel are women.	TBC	

Category	Action	Indicator	Budget (est.)	Responsible party
	1.6 In association with relevant High Education Facilities provide internship to graduate female students at technical and engineering positions.	At least 5 female graduate students provided internship at Karkalpaksuvtaminot for technical and engineering positions annually.	TBC	
2. Promotion of hygiene and water saving technologies among population in the project area.	2.1 Training provided on gender, hygiene promotion, water sewerage uses and water saving to teachers and medical staff (so they replicate the same among local community schools).	At least 80 teachers and nurses from rural health centers are trained on gender, hygiene, and water saving at schools in project area.	TBC	
	2.2 Hygiene promotion campaign at project rural schools (5 May – World Hand Hygiene Day, 15 October – Global Handwashing Day).	Hygiene day conducted at each project schools in the project area.	TBC	
3. **Supporting women entrepreneurship in rural area.**	3.1 Training for rural women on business planning, marketing and financial management using new water saving technologies.	At least 20 women are trained on business planning, marketing and financial management using new water saving technologies.	TBC	
	3.2 In partnership with local employment centers (monocenters) provide skills trainings to unemployed women interested to gain new job opportunities.	At least 20 women are provided courses on new skills.	TBC	

10. GRIEVANCE REDRESS MECHANISM

10.1 Objective and scope of the GRM

584. The PCU has set up a project-level GRM following the policy requirements of AIIB64 and laws of the RUz65. 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.

585. 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.

586. 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 RUz and relevant policies of the AIIB.

587. 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 RUz at any time of the grievance redress process provided hereby.

10.2 Forms of lodging grievances / appeals

588. The following include the forms of lodging grievances / appeals:

- Grievances and appeals can be submitted orally or in written, or in electronic forms;
- Grievances and appeals, received by contact numbers, as well as by telephone "hotline" are taken into account, registered and considered as oral messages;
- Grievances and appeals, received from the Telegram messenger, through the official website or to the official e-mail address are registered in the form of electronic appeals and are considered in the prescribed manner;
- Grievances and appeals can be in the form of statements, suggestions, and complaints.
- Individuals and legal entities can apply individually or collectively.
- Grievances and appeals can be submitted in the state official language and other languages.

589. In the grievance or appeal of an individual and / or legal entity, should indicate the surname, name (patronymic, if available) of the individual, information of his / her place of residence and the essence of the appeal, contact person and his/her contact information must be indicated.

590. If the complainant wishes to remain anonymous, and grievance or appeal received anonymously, such cases shall be registered and verified. The Grievance Redress Committee (GRC) at Tier 1 evaluates, if it is legitimate according to situation presented in the anonymous grievance or appeal, and act on behalf of the complainant, evaluate and resolve the issue. If the arguments stated in the grievance are not confirmed, a conclusion is drawn up about this, where the reasons of terminating the redress of

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

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

the current grievance are stated. A conclusion of terminating the grievance redress is confirmed by GRC members, after that the complaint is removed from control.

591. It is possible, that anonymous grievances or appeals may become more difficult to consider, resolve the issue and protect the interest of the complainant. Therefore, the complainants, raising anonymous grievances or appeals shall provide sufficient facts and data to enable the GRC to investigate the case. The feedback and decision made, the actions planned and implemented regarding the anonymous grievances and appeals, shall be (i) printed and posted on the information boards of the regional "Suvtaminot" and relevant Khokimiyat, and (ii) send back to the same source, where the anonymous grievance or appeal has been received from (e.g. unknown media account), if applicable.

592. The GRC members, involved in implementing the GRM, make sure, that confidentiality / anonymity is respected.

593. Outcomes of all grievances and appeals, and their resolution process will also be documented in the grievance database and reflected in the project periodic progress reports.

10.3 Institutional Structure of the GRM

594. The UzWJSC, 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 LLC "Karakalpak Suvtaminot", contractor(s), supervision and PMCs shall take an active part in resolving grievances and appeals.

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

10.4 Grievance Focal Persons

596. The Grievance Focal Persons (GFP) at the district level: Each of the project district level of "Suvtaminot" will assign one of its staff as a coordinator (GFP) for the subject district. The district level coordinator (GFP) shall ensure that all received grievances are registered and shall facilitate their resolution at the district level (GRM Tier 1). They will provide information about each received grievance and their resolution process and status to the coordinator (GFP) at the PCU level.

597. The coordinator (GFP) at the PCU level: the Social and Environmental Specialist of the PCU will act also as a GFP at the central level at PCU. The GFP at the PCU level will have the general database of all received and redressed grievances both at Tier 1 and Tier 2 of the GRM. The GFP at the PCU level will coordinate the redress of grievances at Tier 2, monitor and report on grievance redress both in Tier 1 and Tier 2.

598. Contact details of the coordinators (GFPs) at the district level, as well as contact information of the GRCs at the district level and central level at PCU will be indicated in the websites of UzWJSC and LLC "Karakalpak Suvtaminot", as well as in the project information dissemination materials for public consultation during all stages of the project implementation.

599. The coordinators (GFPs) of the district level, contractor and PCU staff if relevant shall respond directly to the appeals, inquiries, and grievances promptly with use of informal approaches and within business ethics to resolve the issues promptly. This includes, as possible, discuss with complainant their inquiries, concerns and / or grievances and to provide them responses or find solution informally at the source of the problem. As required, they can transfer the complainant and the case to the district level GFP.

600. If required, the district level GFP shall coordinate with the project team including the contractor(s), construction supervision consultant and the PCU, to respond to the inquiries, appeals or grievance regress of the citizens promptly. If the matter cannot be responded by district level GFPs, it will be handled through the two-tier project-level GRM as follows.

10.5 Grievance Redress Mechanism Description

601. A two-tier project-level GRM will be established during the project preparation phase.

602. **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".
- Representative of district "Suvtaminot" as a GFP for the subject district.

603. If necessary, appropriate specialists may be involved to consider applications for appeals, or the GRC will send an appeal to the relevant party to resolve the issue raised in the prescribed manner. Depending on the nature of the appeal, it can be submitted for consideration to state authorities and local authorities (khokimiyat, meeting of citizens of the mahalla), contracting and water supply organizations (LLC "Karakalpak suvtaminoti"), as well as specially authorized state bodies.

604. The aggrieved persons (complainant) can contact any GRC representative, and they will be responsible for receiving, hearing and resolving the grievances at this level.

605. GRG will consider and decide on the grievance within fifteen (15) days from the date of receipt and when additional study is required, a request for additional documents - within a period of up to one month.

606. The grievance is considered within 15 days from the date of receipt, except for those proposals that require additional study, about which communicated in written form to the individual or legal person who made the proposal. In some cases, UzWJSC or PCU may shorten the period for considering the appeal.

607. If the complaint cannot be considered and / or decision cannot be made at this level, or if the complainant is not satisfied with the proposed resolution, the GRC should forward the case to the PCU at central UzWJSC level.

608. **Tier-2: Second Level Grievance Redress Committee**. The Tier-2 includes the GRC at the PCU central level at UzWJSC 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 LLC "Karakalpak suvtaminoti", member.

609. In necessary cases, appropriate experts shall be involved to consider appeals following the procedures envisaged in national laws and regulations.

610. The GRC at this level considers the appeals and complaints within fifteen (15) days upon receipt. If the appeal / complaint cannot be resolved at this level, or if the complainant is not satisfied with the proposed solution, the case may be brought to the court as defined by jurisdiction of the RUz. The court is outside of the project-level GRM's jurisdiction. The **Figure 42** presents the complaints resolution process in sequential order.

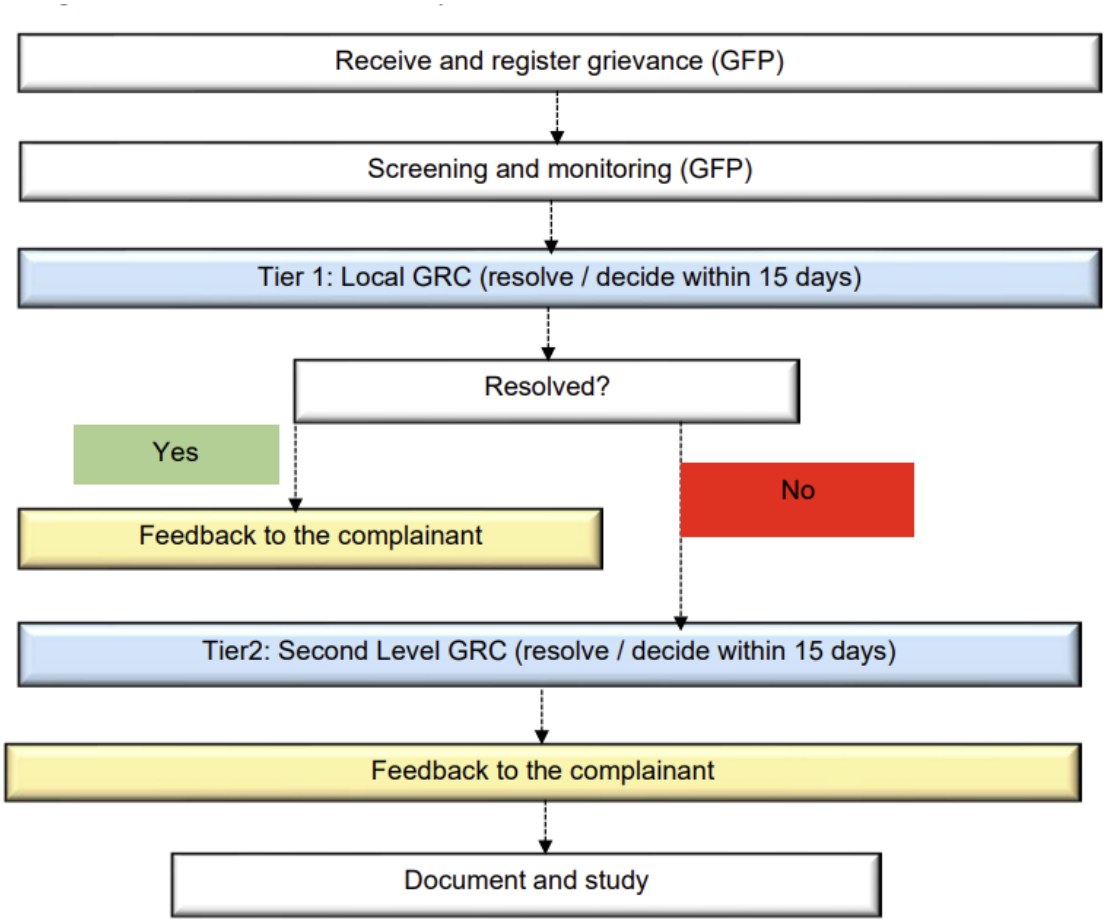

Figure 42: Grievance Redress Mechanism Structure

611. The grievance redress process, depending on the complexity of the issue, includes the following actions:

612. **Receiving grievances.** The GFP at the district level shall receive appeals and complaints directly from the complainant or made through any staff of the project, members of the GRC at the local level or second level GRC at PCU. In case a complaint is lodged through the project staff members, members of the GRC at the local level or GRC at PCU central level, or other respective agencies, they shall forward it to the subject district GFP to register, coordinate, and document the complaint resolution process. Attachment 1 has a sample of a complaints lodging template. (i) Registration of grievances. The district level GFPs should register a grievance in appeals / complaint registry logbooks for their respective districts. The GFP at PCU level should maintain an electronic database of all the received grievances and appeals. A simple excel sheet can be used for this purpose, which also allows sorting, filtering, and conditional formatting (Annex 9.3. provides a sample of a grievance logbook).

613. **Screening and confirmation.** The district level GFPs should assess the received appeals / grievances if it is related to the project's operations and eligible for the redressal through the Project's GRM.

614. If the appeal / grievance is eligible for this GRM scope, the district level GFP shall inform the complainant accordingly. Within five (5) days of receipt of the appeals / grievances, the district level GFP shall:

- Send acknowledgment of receiving a complaint to the complainant, informing about accepting it for consideration, the next steps, and expected date of response to the complainant; and / or
- Request the complainant to provide clarifications / information, if required.

615. If the appeal /grievance is ineligible for this GRM scope, the district level GFP shall inform the complainant accordingly that the subject grievance cannot be considered through the project GRM, and within a period not later than five days from the date of receipt by letter, it shall be sent to the relevant authorities with a message about this to the applicant, in writing or in electronic form.

616. Grievance / problem statement formulation. Clarify the claims of the complainant(s) and formulate a clear, precise and comprehensive problem / grievance statement including information such as:

- Who, how many are affected;
- What happened, when, and where;
- What is a claim / resolution is expected by the complainant.

610. Data collection and analysis. Collect and analyze information, document the appeals / grievances through relevant approaches such as:

- Collection and review of documents, background information (e.g. documents, photos, video materials, meeting notes);
- Meetings with the complainant, any other relevant stakeholders, and conduct joint site visits; if the appeals / grievances contain circumstances that require study on the spot, as well as in other necessary cases, considering the appeals/grievance, must ensure that the appeals / grievance is considered on-site;
- Subject to the nature of the case, engage the relevant government and independent experts, hold meeting with the experts and complainant, seek further clarifications, and prepare records of meetings;
- At this stage, when more information is collected and analyzed, check if the grievance/problem formulation is the same or need to make changes, if necessary.

611. Document process. The GFPs both at the district level and the PCU level should document the appeals / grievances and information collected for each case and submit to the GRCs at the local / regional level and second level at PCU, if relevant.

612. Hearing the grievance and identifying resolution options. Based on collected and analyzed information, conduct the grievance hearing with participation of the complainants and / or their representative(s) to consider grievance resolution options.

613. Develop and select resolution options. Develop options and select the one, that is feasible to implement and accessible / acceptable for all in consensus manner. To assess feasibility these questions can be used:

- Can it be implemented in a reasonable time?
- Can it be done within cost limits?
- Will it work reliably?
- Will it use staff and equipment efficiently?
- Is it flexible enough to adapt to changing conditions?

614. To assess accessibility / acceptability, these questions can be used:

- Do the implementers support the solution, perceiving it as worth their time and energy?
- Are the risks manageable?
- Will the solution benefit the people affected by the problem?

615. **Get confirmation from the complainant.** Receive written consent or disagreement of the complainant with the proposed solution. Have a meeting, discuss the option and its outcome with the complainant.

616. **Develop and implement a timebound action plan.** If the complainant agreed to the proposed

solution, prepare timebound action plan, indicate required resources, and responsible parties to implement the decision made for the grievance resolution. An action plan shall indicate the necessary actions and consider the following questions:

- What actions or changes will occur?
- Who will carry out these changes?
- By when will they take place, and for how long?
- What resources (e.g., money, staff) are needed to carry out these changes?
- Communication (who should know what?)

617. **Complaint Closing and Reporting.** Upon execution of the timebound action plan:

- Send a written confirmation to the complainant about the undertaken actions and outcomes;
- Have a meeting with the complainant to ensure that complainant's claims have been addressed in full and no further action is required, confirmed through a meeting protocol with the complainant.

618. **Prepare the grievance closing report with all documents filed for the case.** The essential components of a problem report include the following:

- Executive summary;
- Background;
- Review and assessment;
- Course of action,
- Recommendation, and schedule;
- Conclusion.

10.6 AIIB's Project-affected People's Mechanism

617. AIIB has project-affected people's mechanism[66]. Two or more project affected people, who believe, they have been or are likely to be adversely affected by AIIB's project activities, and their concerns cannot be addressed satisfactorily through project-level GRM or AIIB management processes, may file a complaint for an independent and impartial review by AIIB's Project-affected People's Mechanism (PPM).

618. Refer for details about the process, time limits of filing complaint and types of complaints eligible for the PPM to the "Rules of procedure of the project-affected people's mechanism issued by the managing director, complaints-resolution, evaluation and integrity unit (CEIU) June 13, 2019"[67].

619. Below is summary: The complaint may be sent to the PPM by mail, email, fax or hand delivered to PPM. The PPM can be contacted through a dedicated PPM website, via the AIIB homepage https://www.aiib.org or by contact information below:

Managing director, complaints-resolution, evaluation, and integrity unit,

Asian Infrastructure Investment Bank (AIIB)

Tower A, Asia Financial Center, No.1 Tianchen East Road, Chaoyang District, Beijing 100101
Tel: +86-10-8358-0187

Fax: +86-108358-0000

Email: ppm@aiib.org

620. Time limits for filing complaints in general are 24 months from the project closing date or last

[66] PPM-policy.pdf (aiib.org)
[67] https://www.aiib.org/en/policies-strategies/_download/project-affected/PPM-RofP.pdf

disbursement date depending on financial modality.

621. Complaints/appeals cannot be considered by the PPM, if (i) it does not relate to a project, that has been approved for AIIB funding or for which PSI has been disclosed;(ii) it is anonymous; (iii) it makes accusations of fraud, corruption or other prohibited methods or is related to procurement; and other situations.

10.7 Disclosure and Public Awareness

622. PCU will disclose the GRM on its website for the attention of public. The information given to the public should include the contact details of the GRC at the local level and the GRC at the Second level at the PCU and channels, through which the customers can lodge their grievances, and the list of members of the GRC.

623. Information, regarding the GRM, should be communicated to the affected community at the earliest stage of the project by IA, during public consultations for social / resettlement and environmental impacts assessments, and the project engineering design and safeguard documents preparation. During these activities, information brochures, as well as verbal communication and other relevant media can be used.

11. BUDGET

624. This chapter provides cost estimates for ESMPF implementation (**Table 43**).

Table 43. Cost estimates for ESMPF implementation

Item	Unit	Per Unit	Number of Units	Total amount
Instrumental monitoring				
Instrumental monitoring (air, water, soil, noise)	lumpsum	5,000.0 USD	10	50,000 USD
Personnel				
PCU(Tashkent) – safeguard specialist (12 months during 4,5 years)	month	1,200.0 USD	54	64,800 USD
PIU (Nukus) Environmental Specialist Social safeguards specialist (12 months during 4,5 years for each)	month	1,200.0 USD	54 54	64,800 USD 64,800 USD
PMC Environmental Specialist (8 months during 4,5 years for each) Social safeguards specialist (8 months during 4,5 years for each)	month	1,200.0 USD 1,200.0 USD	36 36	43,200.0 USD 43,200.0 USD
Subtotal				**280,800.0**
Training				
Training (Table 38)				35,000.0 USD
TOTAL				**365,800.0**

Cost for PCU, PIU and PMC safeguards, environmental and socials specialists will be included in relevant packages for PCU/PIU performance and PMC budget. Cost for instrumental monitoring will be included in PMC budget as well.

12. APPENDICES

12.1 Asbestos management plan
12.2 AIIB Environmental and Social Exclusion List
12.3 Template of screening reports
12.4 Content of ESIA