KYRGYZ REPUBLIC

MINISTRY OF WATER RESOURCES, AGRICULTURE AND PROCESSING INDUSTRY OF THE KYRGYZ REPUBLIC

WATER RESOURCES SERVICE

CLIMATE RESILIENT WATER SERVICES PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR THE "SHAKHIMARDAN" IRRIGATION AND DRAINAGE SYSTEM

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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Asbestos-containing materials
BMP	Biodiversity Management Plan
BOD	Biological oxygen demand
CDN	Collector-drainage network
CERC	Contingent emergency response component
CRWSP	Climate Resilient Water Services Project
DRB	Daily regulation basin
DWA	Rayon Water Authority
EIA	Environmental Impact Assessment
EPHS	Environmental protection, health and safety of life activity
ESCP	Environmental and Social Commitment Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social-Standard
FBM	Feedback mechanism
FS	Feasibility study
GM	Grievance mechanism
GWL	Groundwater level
HTS	Hydrotechnical structures
HWS	Headworks
ISL	Illegal Sexual Behavior
KR	Kyrgyz Republic
KSAb	Karadarya-Syrdarya-Amudarya basin
LA	Local authorities
LGA	Local Government
LMP	Labor management procedures
LSG	Local Government
M&A	Monitoring and Assessment
MC	Main canal
MES	Ministry of Emergency Situations
MFM	Feedback mechanism
MNRETS	Ministry of Natural Resources, Environment and Technical Supervision
MPACM	Management Plan for Asbestos Containing Materials
MWMD	Main Water Management Directorate/OWC
MWRAPI	Ministry of Water Resources, Agriculture and Processing Industry
PAP	Project Affected Persons
PDO	Project Development Objective
PED	Project Design and Estimate Documentation
PIU	Project Implementation Unit
PRA	Statement of work scope
RP	Resettlement Plan
RP KR	Resolution of the Government of the Kyrgyz Republic
RPF	Resettlement Policy Framework
SE	Social environment
SEP	Stakeholder Engagement Plan
SH	Stakeholder

SLR	State Land Reclamation Cadastre
SPNA	Specially Protected Natural Areas
SPZ	Sanitary Protection Zones
TRB	Ten-day regulation basin
WB	World Bank
WB OP	World Bank Operational Policy
WHO	World Health Organization
WRSMA	Water Resources Service of the Ministry of Water Resources, Agriculture Processing Industry
WUA	Water Users Association

EXECUTIVE SUMMARY

This Environmental and Social Management Plan (ESMP) is prepared for the «Shakhimardan» irrigation and drainage (I&D) system's subprojects modernization under Climate Resilient Water Services Project.

ESMP aims to identify the environmental and social management and mitigation actions required to implement the project in accordance with the World Bank Environmental and Social Standards (ESS) and Kyrgyz Republic's applicable national legislation.

It provides an overview of the environmental and social baseline conditions on the «Shakhimardan» I&D system, summarizes the potential impacts associated with the proposed modernization works and sets out the management measures required to mitigate any potential impacts in the system.

This ESMP is to be utilized by the contractors commissioned by PIU for the project and will form the basis of site-specific management plan that will be prepared by the contractors as part of their construction methodology prior to works commencing.

It's also serves as a management tool to ensure that the preventive and mitigation measures are properly implemented and that the recommended measures are monitored and institutionally reinforced during implementation of the project. The ESMP also establishes the necessary institutional commitments, proposes timelines for the implementation of such activities, and estimates their costs within the proposed project budget.

The potential impacts and associated mitigation measures and management procedures presented in this ESMP are based on the baseline information provided in the Project ESF Documents.

This ESMP will be guided by the Environmental and Social Management Framework (ESMF), which has been prepared and endorsed by the World Bank in 2022. The purpose of the ESMF is to identify the expected environmental and social risks and impacts of the project, and to provide a system for monitoring and managing such impacts during project implementation.

The project according to the World Bank's environmental and social risk qualification system is categorized as a project with Substantial environmental and social risks that may arise as a result of the implementation of the subprojects. No irreversible process with significant risk of environmental impacts is expected. Project impacts will be local in location and limited in time. Therefore, preventive measures will mitigate the impacts of the project on both the environmental and social environment.
The objective of the environmental and social assessment is to identify the significant environmental and social impacts (positive and negative) of the proposed project, identify appropriate preventive and mitigation measures to avoid, minimize or eliminate any anticipated irreversible impacts.

The Project Implementation Unit (PIU) of the Water Resources Service is responsible for the environmental and social risk management (assessment, preparation of documents and assignment of E&S specialists to oversee, monitor and enforce environmental and social measures and ESS).

The PIU has hired E&S Specialists who oversee the overall coordination of the implementation of specific ESMPs, reports to the Executive Agency and the WB on E&S mitigation measures, and on the integration of E&S requirements into procurement and contract documents. The E&S Specialists

are also responsible for liaison with environmental authorities, local implementing agencies to ensure effective implementation of safety measures documents and will conduct environmental and social supervision and monitoring, assess compliance with environmental and social standards in the workplace, provide advice to the public, local government authorities (LGAs) and other stakeholders on environmental and social issues.

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1. Project development objective

The project development objective is to

(i) improve access to climate-resilient water services in selected river basins and
(ii) strengthen institutional capacity for climate-resilient water management at local and national levels.

1.2. Purpose of the Environmental and Social Management Plan

The ESMP serves as a management tool to ensure that the preventive and mitigation measures are properly implemented and that the recommended measures are monitored and institutionally reinforced during implementation of the project. The ESMP also establishes the necessary institutional commitments, proposes timelines for the implementation of such activities, and estimates their costs within the proposed project budget.

1.3. Scope of the Environmental and Social Management Plan

The ESMP covers the complete implementation cycle of the subproject, which can be categorized into the following phases: planning and design, construction, and operation.

Planning and design phase

This is the first phase of the project. At this stage, various aspects of the project will be determined, including geodesy, site selection, technical feasibility, environmental and social screening, preparation of technical drawings and ESMPs. It also includes preparation of design and estimate documents, environmental protection section, and obtaining a positive state opinion on them.

Construction phase

The main activities to be carried out during this phase of the project are site clearance and preparatory works, construction - earthworks and concrete works, other works - additional buildings and materials, ancillary works including access roads, Contractor's work site, workers' quarters, communications during construction.

All work should be performed only after the necessary permits and approvals have been obtained.

Organizational arrangements. Prior to commencement of construction works, local construction supervision and environmental inspectors and the public shall be informed of the forthcoming activities through the media and/or at sites open to public access (including worksites) by disclosing the site-specific ESMP for each subproject. All activities required to implement environmental protection and monitoring environmental and social safeguards shall be planned and budgeted in the work plans of the Borrower, contractors and subcontractors. All works shall be carried out in a safe and disciplined manner that minimizes impacts on the public and the environment.

Operation phase

Upon completion of the construction work, the Rayon Water Management Organization (RVK) will be responsible for carrying out the operational activities. The project will provide training for the operating organization. The repair and maintenance of the systems will be the responsibility of the RVK.

In addition, the ESMP describes the institutional roles and responsibilities for environmental and social risk management within the project, as well as feedback and grievance mechanisms. Through these tools, citizens and other stakeholders can interact with the project implementation agency. The project is expected to have a positive impact as the implementation of the project activities (i) improved access to services, (ii) strengthened institutional capacity to provide climate resilient irrigation services and

water management will generally contribute to improved livelihoods and food security in the project area.

1.4. Environmental and Social Management Plan Methodology

The ESMP has been prepared in accordance with a standard methodology consisting of the steps listed below:

- Reviewing the project's particulars and organizing a meeting/discussion involving the WRS management, the PIU, RVK representatives, and the World Bank team;
- Overview of Policy and Regulatory Requirements;
- Collect and analyze baseline environmental and social data through secondary literature review and field data collection;
- Assessment of potential and likely impacts of project activities;
- Conduct a reconnaissance site visit by a team of experts from the Consultant and the PIU, and initial review and screening to identify key environmental and social parameters and aspects likely to be affected by project activities;
- Consultations with stakeholders, including beneficiary/affected communities;
- Preparation of Environmental and Social Management Plan in accordance with ESS requirements;
- Compilation of selected thematic reports.

1.5. Gaps and Limitations of the Study

Gaps and difficulties were identified in the preparation of the ESMP and the SDDR based on the following factors:

- Compressed timelines for preparation of DEDs affected the quality of document preparation;
- The RVK and local authorities have failed to exercise proper oversight and management of the protected irrigation zone.

CHAPTER TWO: PROJECT DETAILS AND DESCRIPTION

2.1. Project design

The Project aims to improve, in a selected river basin(s), the coverage, quality and efficiency of water supply, sanitation and irrigation services, including strengthening of capacity to improve integrated water resources management, and the capacity of relevant service providers in a selected basin.
The nationwide, the Project will strengthen the institutional capacity for comprehensive water supply and water management services.

The Project will perform an integrated water and landscape management approach to improve water security, and support social and economic development in a selected river basin.
The Specific investments identified based on the draft River Basin Management Plans and the priorities specified in state programs. The Karadarya-Syrdarya-Amudarya (KSAb) and the Issyk-kul-Tarim (ITb) river basins selected based on priority needs in irrigation, water supply and sanitation sectors. KSAb covers Osh, Batken and (partially) Jalal-Abad oblasts.

Due to climatic variability, climate change and faulty condition of on-farm irrigation infrastructure, the irrigation specialists in KSAb have an experience on water shortages, especially between June and August.

Description of irrigation and drainage subprojects:
It is proposed to modernize subprojects/structures of 3 irrigation systems under project, which are:

1. Irrigation infrastructure in Kara-Suu rayon, Osh oblast on «Kurshab-Sai» River: «Kurshab-Sai» headwork with «Otuz-Adyr» off-farm canal with the tunnel, and other off-farm and WUA on-farm canals.
2. Irrigation infrastructure in Bazar-Korgon rayon, Jalal-Abad oblast, on the Kara-Ungur-Sai river. Bazar-Korgon dam with headwork, Levaya Vetka off-farm canal and WUA on-farm canals.
3. Irrigation infrastructure in Kadamjai rayon, Batken oblast, on the r. Shakhimardan: headwork with Nurgaziev canal and WUA on-farm canals.

According to the Irrigation Fund data of Batken, Osh and Jalal-Abad oblasts, the length of irrigation canals - 1857.5 km, of which 82% is lined in Batken oblast, 6% in Osh oblast and 39%[1] in three rayons of Jalal–Abad oblast. Mostly, all the listed facilities were commissioned into operation in the second half of last century and at an earlier date, therefore, there is the need to execute the major repair works and upgrade pumping stations. As of the 1970-80s, the irrigation systems throughput efficiency was estimated to be 0.4-0.5, with the efficiency of off-farm canals in 0.7-0.8. Currently, these indicators have decreased, resulting in sufficient water losses, part of which replenishing groundwater, causing groundwater rise and soil salinization, flooding of residential areas.

2.2. Project location

The project is designed to ensure consistent policy, investment, and institutional approaches to deliver climate resilient water services. The project includes national-level activities, basin-level activities

[1]Plan for development, use and protection of water resources of the Karadarya-Syrdarya-Amudarya basin, National Water Resources Management Project – Additional Financing, 2020.

(Kara-Darya-Syr-Darya-Amu-Darya (KSA) basin and Issyk-Kul-Tarim River basin), and rural level activities. The KSAb covers (partially) the Jalal-Abad, Osh and Batken oblasts.

2.3. Project components and activities

Component 1: Infrastructure Investments and Service Improvements

This component contributes to the implementation of high priority investments aligned with the river basin management plans[2] and with the country's climate change adaptation and mitigation agendas. It finances civil works, goods, equipment, and related services to reduce climate risks in the provision of I&D services, and resource utilization efficiency. These investments will be designed with the intent of minimizing GHG emissions through reductions in energy abstraction by (i) prioritizing gravity-based solutions for irrigation and drinking water supply, (ii) increasing pumping efficiency for service delivery, (iii) promoting water conservation through water metering and on-farm interventions. Hence, this component is climate co-benefit intensive.

- **Sub-component 1.1. Water supply and sanitation infrastructure**

This subcomponent covers investments to increase the climate resilience of drinking water supply and sanitation services, and to enhance wastewater treatment capacity.

- **Sub-component 1.2. Irrigation and Drainage Services Improvement**

This subcomponent covers modernization of three existing I&D schemes (Kara-Unkur in Jalal-Abad, Shakhimardan in Batken and «Kurshab»-Sai in Osh) located in the KSA basin covering 28,000 ha. At the level of infrastructure assets, the project finances rehabilitation and modernization of I&D canals (234 km) and appurtenant structures[3]. The rehabilitation and modernization are based on the World Bank's Resilient Water Infrastructure Design principles[4]. These activities support adaptation to drought risks through improved conveyance efficiency and control of water use with modern structures, and to flood and mud-flow risks through improved bypass and protection structures. Modernized and well-functioning I&D schemes also help avoid maladaptation and land-use change related emissions that arise from (a) utilization of diesel pumps to withdraw groundwater to substitute for unreliable canal water supplies and (b) expansion of cropland – with related emissions associated in land-use change - to recoup losses caused by drought and lack of irrigation water supplies. At the farm level, the project will promote climate-smart irrigation practices and resource utilization through (i) improved on-farm water management practices, (ii) deep ripping, and (iii) laser land levelling. This will address the rising impact of drought, high temperature and extreme heat risks related to climate change on crop yields and agricultural production. This will also help reduce soil erosion while enhancing soil carbon sequestration and fertility. Under this subcomponent, the project also finances technical assistance for preparation of the engineering studies and designs, as well as construction supervision for the above activities.

Sub-component 1.2 directly addresses mitigation and adaptation co-benefits. Mitigation co-benefits are linked with (a) rehabilitation and upgrade of the three gravity-fed I&D schemes to minimize dependence on groundwater abstractions that rely on GHG emitting diesel pumps and (b) promotion of climate-smart agriculture at the farm level to enhance soil carbon sequestration and fertility, reduces soil erosion, and improves water and energy efficiency.

[2] River basin management plans for the Issyk-Kul and KSA river basins were developed under the World Bank executed National Water Resources Management Project (NWRMP) and identified improvements in water service delivery as a key priority area for investment.
[3] Note: structures include water control/distribution; outlets; mudflows, tunnels, small bridges and volumetric measurement structures.
[4] World Bank. 2020. Resilient Water Infrastructure Design Brief. World Bank, Washington, DC.

Component 2. Institutional Strengthening for Climate Resilient Service Delivery, Water Resources Management and Dam Management

This component finances the acquisition and installation of equipment and services to facilitate the uptake of innovations and best-practices for water management based on climate resilience and low-carbon principles. The focus is on improving the institutional knowledge and preparedness with regards to aspects of IWRM and climate resilience, including (a) regulatory and oversight capacity at the national level, (b) operational capacity for service delivery at local level, (c) water and soil quality, and (d) dam management. Activities under this component are grouped into four subcomponents.

- **Sub-component 2.1 Institutional Strengthening for WSS Service Delivery.**
- **Sub-component 2.2 Institutional Strengthening for Irrigation Service Delivery**

This activity builds WRS's tools and capacity for irrigation service delivery, with a focus on digitalization. It finances equipment and services to improve data collection, storage, and processing into the existing Digital Water Information System (DWIS). This digitalization is expected to significantly strengthen WRS's ability to identify and prepare for droughts or floods and their impact on I&D infrastructure. This subcomponent will support (a) integration of surface water abstraction data for the irrigation sector within the DWIS; (b) uptake of remote sensing for irrigation water management and water accounting and their integration into the DWIS; (c) expansion of the data visualization functionalities of the DWIS; and (d) support to WUAs including trainings, asset management, operating budget, and climate smart irrigation. The project will prioritize capacity building of female farmers to improve their technical, leadership, and communication skills to build their confidence and increase their voice and role in WUA decision-making bodies. This subcomponent supports climate adaptation because the integration of surface abstraction data and remote sensing in the DWIS and expansion of DWIS data visualization functionality increase WRS's ability to control and monitor water use during drought. In addition, WUAs training in climate-smart agriculture helps farmers adapt to water stress.

- **Sub-component 2.3 Water and soil quality monitoring system**

This subcomponent finances goods, works and services to strengthen the country's soil and surface water quality monitoring system. It invests to improve water and soil quality data collection, storage, and processing to help WRS and DEM better prepare and respond to the impacts of climate extremes (floods and droughts) on soil and water quality. It includes two main activities. First, the improvement/establishment of biochemical laboratories at the central level in Bishkek and in the three oblasts of the KSA basin (Osh, Jalal-Abad, and Batken) and capacity building of relevant specialists in the State Ecological Laboratory under the DEM. This activity finances repair of existing laboratory buildings, provision of equipment, support in accreditation of laboratories, and the upgrade of IT systems in the DEM. Second, this subcomponent finances institutional strengthening of the DEM to (a) improve staff capacity in chemical surface water and soil quality monitoring techniques, including data collection and analysis, and (b) develop a country-wide water and soil quality monitoring plan. This subcomponent supports climate adaptation because it improves capacity and knowledge to monitor and respond to the impacts of droughts and floods on water quality and of erosion on soil quality.

- **Subcomponent 2.4 Dam Management**

This subcomponent finances services and equipment to: (a) establish a dam management unit within WRS, tasked with providing oversight on dam management across the country; (b) formulate guidelines for the elaboration of dam management plans; (c) develop dam management plans for four dams located in the KSA basin (Papan, Naiman, Tortgul and Bazar-Korgon); and (d) develop a dam information module within the DWIS, including introduction of remote monitoring tools such as drone applications and remote sensing. Activities under this subcomponent will increase the resilience of

dams – and their related services including low-carbon hydropower production – to flood and drought shocks. This subcomponent supports climate adaptation because dam management involves, by definition, management of climatic risks (floods and droughts).

Component 3: Project Management, Monitoring and Evaluation (M&E) and Professional Development

This component will finance the required staff, consultant services, professional development and operating costs that will allow the Project Implementation Units to carry out their responsibilities for implementation. These responsibilities include project management and coordination, procurement, and financial management, monitoring and evaluation, social and environmental standards management and oversight, communications, and outreach. This component will also finance the preparation of a feasibility study for future investments aimed at improving water services. Finally, this component includes professional development and other interventions to promote gender diversity in water sector entities. For example, the project will support, among others, review of human resources policies on recruitment, promotion and retention in water sector entities, development of guidelines for a safe and comfortable work environment including sexual harassment reporting mechanism.

Component 4: Contingent Emergency Response Component (CERC)

Providing immediate response to an Eligible Crisis or Emergency, as needed. This component allows the Government to request the World Bank to recategorize and reallocate uncommitted financing from other project components to cover emergency response and recovery costs.

2.4. Project components and activities for the project construction/modernization phase

Implementation of the Project requires involvement and cooperation with stakeholders: governmental organizations, local self-government bodies, population, public and other parties affected by the Project.

To this end, a Stakeholder Engagement Plan (SEP) was developed and approved in 2022 to fully and openly engage stakeholders in the implementation of this Project, allowing for the identification of different stakeholders and the development of an approach to reach out to each of the sub-groups, establishing a constructive dialog between them.

The PIU in cooperation with local authorities, the RVK and the Consultant's specialists shall carry out environmental and social monitoring of activities during the construction and operation phases.

During implementation of the measures, the PIU will have overall responsibility for providing oversight to ensure that the measures specified in the ESMP are properly implemented.

2.5. Project components/activities for the project demobilization and operation phase

An integral part of the strategy is to inform and take into account the opinions of communities and people affected by the project. Thus, one of the main tools for preventing social and environmental risks/conflicts is the Grievance Redress Mechanism, through which information is exchanged and community opinions are taken into account at all stages of the project. The activities planned under the subproject will have mainly positive social and environmental impacts, but it is worth noting the presence of negative impacts, which will be described in the following parts of this plan. In addition to information provision, the PIU will cooperate with aiyl okmotu and local community-based dispute resolution organizations, such as AO.

2.6. Labor requirements for project activities

All requirements indicated in the project's LMP need to be followed in this ESMP and project activities carried out by the Contractor will be fully monitored by the PIU social and environmental staff. PIU staff is responsible for supervising and monitoring of all environmental (including Occupational Health and Safety (OHS)) and social issues, such as environmental and social assessment, supervising preparation of site-specific Environmental and Social Impact Assessments (ESIAs)/Environmental and Social Management Plan (ESMPs), monitoring, and reporting to be carried out by the Contractor.

Project promotes sound worker-management relationships and provides safe and healthy working conditions. All below requirements need to followed as per the ESS2 and project's LMP:

- Promote safety and health at work;
- Promote the fair treatment, nondiscrimination and equal opportunity of project workers;
- Secure protection of project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate;
- Prevent the use of all forms of forced labor and child labor;
- Support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law; and
- Provide project workers with accessible means to raise workplace concerns.

Monitoring of compliance with these measures on behalf of the Consultant and the Contractor will be carried out by environmental and social specialists. They organize trainings in accordance with the schedule in the ESMP. The Consultant's specialist is a member of the Grievance Redress Group (GRG) and ensures coordination of work on the implementation of the GM and compliance with the Code of Conduct by the Contractor's personnel. The monitoring results are recorded in periodic reports.

CHAPTER THREE: DESCRIPTION OF PROJECT ACTIVITIES

The subprojects under irrigation and drainage system (IDS) of r. "Shakhimardan (Aksuu)" are located in the Kadamjai rayon, Batken oblast, on the southern outskirts of the rayon center v. Pulgon.

R. "Shakhimardan (Aksuu)" (including Archabashi, Aksuu, Margelansai, Shakhimardan-Sai) is a left-bank tributary of the Syr Darya River. The sources of the Shakhimardan (Aksu) River can be traced from elevations of about 4,300 m, the catchment area is confined to the northern slope of the middle part of the Alay Range, in the east it borders on the catchment area of the Isfayram-Sai River, in the west - on the Sokh River. In general, the Shakhimardan (Aksu) River basin is characterized by high-mountain glaciation, which makes up 4% of the total catchment area

The irrigation water is abstracted by the head water intake structure (HWS) to the left, along the river, into the MC "Nurgaziyev. The total length of MC "Nurgaziyev" - 35.2 km, throughput - 7.5 m^3/sec. From MC Nurgaziyev, water is distributed to 20 off-farm canals with total length - 43.5 km. From PK 144+49, the on-farm earthbed Alga canal - 9.92 km long, abstracts water.

Batken oblast was formed in 1999, occupies the southwestern part of the Kyrgyz Republic at area - 17,048 km^2 and borders on the north with the Republics of Tajikistan and Uzbekistan, on the south and west - with Tajikistan, and on the east and partly in the south - with the Osh oblast of the Kyrgyz Republic. The territory of the oblast is located at altitude of 400 to 5,500 meters above sea level. Batken oblast is divided into three rayon s, six cities, 5 urban-type settlements, 32 rural rayon s (aiyl aimaks, AK) and 201 villages. The total population according to the 2009 census was 380,256 people

Kadamjay rayon was formed in 1938 as Khalmion rayon, and in 1940 it was renamed Frunzensky rayon. In 1959, part of the territory of abolished Uch-Korgon rayon was annexed to Kadamjay rayon . In 1992, the rayon received its current name. The area of Kadamjay rayon - 6,146 km^2. In the west, Kadamjay rayon borders on the Sokh rayon of Uzbekistan and Batken rayon of Batken oblast, in the east and south with Osh oblast. In the north, rayon borders on Fergana rayon of Fergana oblast of Uzbekistan. The Kadamjay rayon also surrounds the territory of Uzbekistan - Shakhimardan, which belongs to the Fergana rayon of Uzbekistan oblast.

According to the National Statistical Committee, 187,086 people live in Kadamjay Rayon. Kadamjay Rayon includes 2 cities of rayon significance: Aydarken and Kadamjay, 13 ayil rayon s and 115 ayils. There are 37,668 households in the rayon.

The main transportation is automobile. The following highways pass through the rayon: Kyzyl-Kiya–Vuadil (Republic of Uzbekistan), Fergana–Aydarken–Batken, Kyzyl-Kiya–Kuva-Sai–Fergana, Isfana–Kyzyl-Kiya–Osh. The railway connects Kyzyl-Kiya with Fergana (Republic of Uzbekistan). There is the airport in Kyzyl-Kiya.

Image 1. Map of Batken oblast

3.1. Technical condition of the irrigation and drainage system

Technical condition of MK Nurgaziev

MC "Nurgaziyev" was built in 1978, at total length - 35.1 km. Canal has a settling tank, 2 bridges, 11 hydroposts, 5 overchutes, one tunnel, spillway sections, 20 laterals distributing water to on-farm canals. Water is supplied to the lower-level canals through vertical gates. On-farm canals mainly consist of reinforced concrete parabolic, concrete and earthbed canals.

The general physical condition is assessed as satisfactory. The water flow into MC "Nurgaziyev" during the vegetation period averages 7.5-8.0 m³/sec. The maximum flow is impeded by existing crossing bridges and overcgutes over the canal, which are built on the edge of canal and impede the design flow. At high flow rates (more than 7.5 m³/sec), MC "Nurgaziyev" overflows. In 2012, to increase the throughput, the sides of canal were built up at length - 2285 meters. Despite a number of measures taken, canal still does not provide the flow of irrigation water in sufficient volumes.

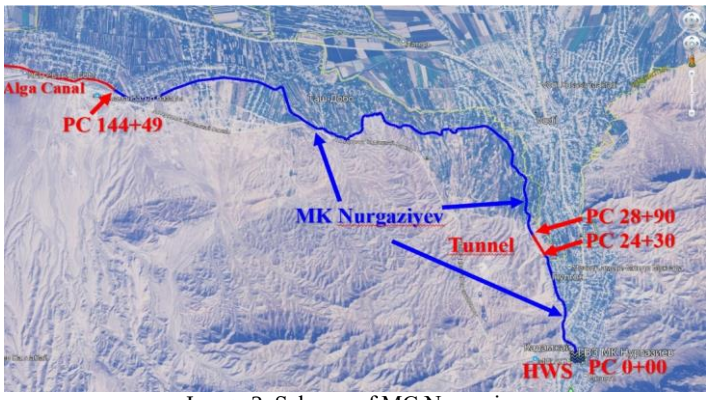


Image 2. Scheme of MC Nurgaziev

Technical condition of canal Alga

During the water shortage period in r. “Shakhimardan (Aksuu)”, it is very difficult to deliver irrigation water to WUA «Alga-jarkoton» water users over distance - 9.92 kilometers, since from PK 144+39 to MC “Nurgaziev” there are many lateral canals that are not regulated, and water goes to the sides without regulation, not reaching the irrigated areas

In search of an alternative way of water transportation, by decision of the General Meeting of WUA "Alga-jarkoton" in 1997, the construction of Alga earthbed canal using the ashar method at length - 9960 m was started.

Currently, MC “Nurgaziev”delivers water to canal Alga from PK144+39 and reaches the territory of WUA “Alga-Zharkoton”. On-farm canal Alga in earthbed at length- 9.92 km, width - 1 m to 4 m, with significant water filtration losses. According to operational data, the water losses due to filtration along 10 km canal length reach up to 50%.

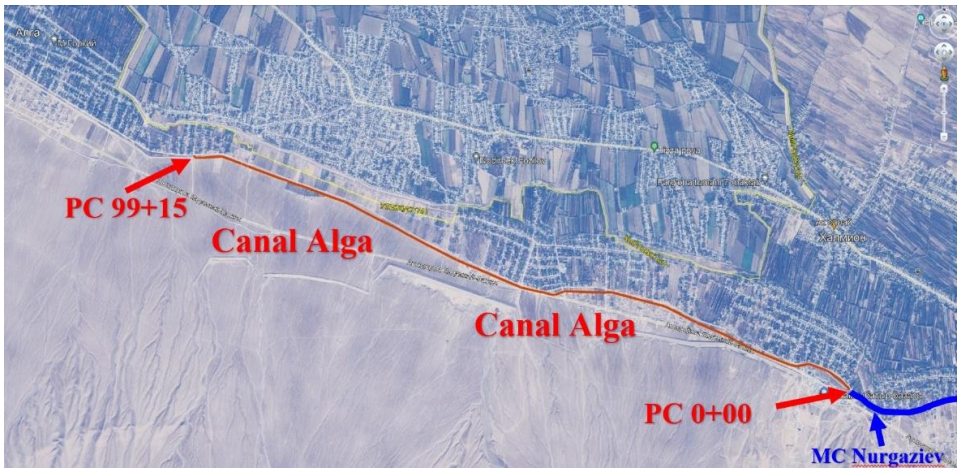


Image 3. Scheme of the project section of canal “Alga”

3.2. Description of subproject activities

The subproject includes several sections:

1) Head water intake structure (HWS) on r. “Shakhimardan (Aksuu)”
2) (re)construction section №1 MC “Nurgaziev”from HWS to tunnel (from PK 0+00 по PK 23+11).
3) (re)construction section №2 MC “Nurgaziev”from PK 52+07 по PK 85+50
4) (re)construction section №3 MC “Nurgaziev”from PK 112+15 по PK 145+55
5) (re)construction section №4 MC “Nurgaziev”from PK 296+50 по PK 350+96
6) HTS on sections under modernization
7) Spillway
8) Aqueducts on MC “Nurgaziev”(PK 112+71 и 298+83)
9) Additional connection to MC “Nurgaziyev”
10) Canal “Alga”

The designed structures will increase water delivery to 1,500 hectares of irrigated land and household plots.

Head water intake structure (HWS)
HWS was built in 1978, on r. “Shakhimardan (Aksuu)”, from which water is delivered to MC “Nurgaziyev”. The HWS capacity allows to increase water delivery to MC “Nurgaziev” up to 8.0 m³/sec without reconstruction.
Partial reconstruction and modernization are required for HWS. These measures will facilitate further operation, improve water distribution and water metering, which will ultimately increase crop yields.
The subproject planned following:

- Makovsky-gate in faulty condition, not working. It needs to be dismantled and replaced with a flat wheel gate 4-2.5.
- On segment gates, the facing sheets are rusted. Need to be replaced. And also, the electric motors (2 pcs.) need to be replaced.
- In section No. 1, dismantling of ПС 150x150 и ПС 100x100 is required. And installation of ГС 150x250 и ГС 100x250 with an electric gearbox.
- In section No. 5, dismantling of ПС 150x150 (3 pcs.) and one ПС150x150 is required. Installation of PS150x150 (pcs.) and one PS 100x100.
- On thresholds №1 and №2, the facing metal sheets are worn out. Complete replacement of metal facing sheets is required.
- Reinforced concrete extension of threshold №3 by 70-80 cm is required.
- Necessary to purchase the power generator - 10 кВт.

Image 4. Head water intake structure (HWS)

Main Canal Nurgaziev
MC “Nurgaziev”originates from HWS PK0+00. The MC “Nurgaziev” total length - 35.2 km. The main part of MC “Nurgaziev” in concrete lining - 32.311 km, L-shaped blocks (Г-20) at length - 2.497 km, in tunnel at length - 392 m. Then canal passes in a trapezoidal section of different sizes depending on the slope of canal.
Due to long-term operation, the concrete lining is partially destroyed, resulting in technical water losses. The existing spillway section is destroyed, individual sections of canal have subsided. The structures are in an unsatisfactory condition. Modernization works are required.
Typical problems are related to the destruction of concrete canal linings, removed and inoperative control gates and canals clogged with sediment. This has led to many systems becoming unable to deliver sufficient water during peak water demand, which leads to a decrease in crop yields.

Irrigation water filtration losses due to unlined irrigation canals can also cause water shortages on the one hand and drainage problems on the other. In addition, high water levels contribute to salinization of lands by groundwater.

Taking into account the above-mentioned shortcomings, the subproject provides the following measures to increase the irrigation water throughput to 9.0 m^3/sec: study the entire length of canal in detail and adopt technical solutions that satisfy the final results.

The subproject provides the following:

1) In the section of the canal, from HWS to tunnel (0+00 to 23+10.7), in order to increase the capacity, the bottom of canal will be dismantled, which will be lined with a rectangular section of monolithic reinforced concrete along the entire length. The slope of canal along the bottom will be changed. That is, there will be no sections of canal with a reverse slope.
2) In the section of the canal, from 52+07 to 85+50, it does not pass the design flow. There are subsided sections. The project provides for this section to be completely dismantled and relined.
3) The section of canal from 294+700 PK350+25 does not allow the designed flow. There are subsided sections. The project is planned this section to be completely dismantled and relined.
4) The project is planned the modernization of all structures on 4 rehabilitated sections of the canal.
5) On MC "Nurgaziyev" there are 3 existing sections of canal with a fast current. In all 3 sections there are problems. The sections do not pass the calculated flow. During operation, the sides of canal were built up several times. The project is planned dismantling all 3 sections and re-arranging the drop structures and spillway sections:
    - Spillway №1 from PK 34+25 to 37+37
    - Spillway №2 from PK 43+95 to 44+30
    - Spillway №3 from PK 50+44 to 52+07
6) Also, a metal fencing will be installed along canal, from the Mosque to the tunnel, at length - 1,400 meters.

Image 5. Main Canal Nurgaziev

Gaging stations and water outlets

The WUA activity assessment reports highlight the problem with water metering. Currently, the canal and laterals are not sufficiently equipped with gauging stations (GS). The Construction of new gauging stations is required in accordance with the defective act from Kadamjai RWMU.

The modernization includes equipping GS with CMD for automated data collection on flow rates on the main canal and secondary canals. The modernization will automate the process control system for water intake, water distribution and water metering.

There are 15 GS in total on MC "Nurgaziyev". To account for irrigation water during modernization, it is necessary to additionally build 2 new GS on PK 144+50 in canal Alga, and on PK 31+20 «Jany-Zher».

All new GSs will be equipped with the ultrasonic level meter with cellular communication channel. The metering is designed for remote contact--free measurement of water levels on irrigation and drainage facilities, and transmission of measured values to a remote user via a cellular communication channel. The metering is used in automated control systems for technological processes of water intake, water distribution and water metering at irrigation and drainage facilities/structures. The selected equipment has proven reliability, and has been successfully used in other irrigation systems in the Kyrgyz Republic. The monitoring equipment is protected inside a concrete well to prevent vandalism.

Also, to improve the accounting and uniformity of water distribution, it is necessary to install 8 control and measuring devices (CMD).

Image 6. GS on PK1+35

Image 7. Water outlet on PK144+39 (Outlet to the Alga Canal)

Pedestrian Bridges

There are pedestrian bridges of different types, different designs and different construction times on canal. There are new bridges that have sufficient clearance to allow water to pass under the bridge and that are built in accordance with the requirements of norms and regulations and safety engineering. The project is planned the construction of bridges made of precast concrete to replace the existing wooden pedestrian bridges.

Image 8. Pedestrian Bridges

Bridge crossing

There are 2 bridge crossings on MC “Nurgaziev” on PK 1+42, PK 18+12. The canal’s bed under the bridge maintains the slope. The bridges do not provide the flow of 8 m³/sec of water, so it is necessary to increase the height of bridges.

There are crossings to households for private cars through MC “Nurgaziyev”. The bridges and pipe-crossings are in satisfactory condition, so no construction work is planned for them, and the designed monolithic canal is connected to existing structures.

Image 9. Road bridge on PC18+12

Overchute

There are 5 overchutes on MC “Nurgaziev”on PK 9+91, PK11+89, PK12+50, PK13+10, PK14+60. Canal bed under the overchute maintains the slope, but does not provide water flow rate of 8 m³/sec, thus it is necessary to increase the height of overchutes.

Image 10. Overchute on PK9+92

Off-farm Canal “Alga”

To reduce filtration losses, the project planned concrete lining of the existing canal with monolithic concrete, as well as reconstructing the Head cross-regulator and end water discharge.

In this design solution, the existing structures remain unchanged, except for the head cross-regulator, pedestrian bridges and discharge structure, which are reconstructed.

The head cross-regulator will be made in the form of a distribution chamber and equipped with four deep gates ГС 80-150, and for normal operation of the gates, service bridges made of reinforced concrete slabs СМ-2,8 are provided.
Water discharge is made in the form of a stilling well made of monolithic reinforced concrete of trapezoidal cross-section.

Allocation of lands for canals modernization

MC “Nurgaziev” was built in 1978 and there is an operating road alongside of it. The modernization of MC “Nurgaziev” does not include the expansion of canal bed. All (re)construction work will be carried out within the boundaries of the existing right-of-way. The detailed project does not include additional temporary or permanent land allocation for modernization of MC “Nurgaziyev”.
For construction of canal Alga, by the Resolution of Khalmionsky rural rayon, dated 26.09.1013 No. 142, a land plot of 9.96 hectares was allocated. WUA "Alga-Zharkoton" has a state Act on the right of perpetual use of the land plot. The width of right-of-way for construction work on Alga canal is 10 m. The parameters of right-of-way correspond to the specs of canal design and structures.

CHAPTER FOUR: POLICY, REGULATORY AND ADMINISTRATIVE FRAMEWORK

4.1.National Policy, Regulatory and Administrative Framework

The fundamental principles of natural resource and environmental management are set forth in the Constitution of the Kyrgyz Republic. As per article 16, the Land, its resources, airspace, waters, forests, flora and fauna, as well as other natural resources shall be the exclusive property of the Kyrgyz Republic.

The land may also be in private, municipal and other forms of ownership, except for pastures that may not be in private property. The Law defines guarantees of protection of the rights of landowners. According to the article 49, everyone shall have the right to environment favorable for life and health. Current legislation regulates the protection and use of all types of resources: land, water, air, biodiversity, mineral resources. The Legislation provides procedures and mechanisms for their management, such as: basic norms and rules for the use of resources, including norms and rules for charging fees for natural resource use and pollution, environmental monitoring, impact assessment, environmental standards, environmental expertise, environmental control, etc.

4.2.Legislative acts in the field of environmental protection

The core laws regulating environmental protection activities in the Kyrgyz Republic:

- Constitution of the KR (2021):
- Law of KR "On Environmental Protection" (1999);
- Water Code of KR (2005);
- Law of KR "On Environmental Expertise" (1999);
- Law of KR "General technical regulations to ensure environmental safety in the Kyrgyz Republic" (2009);
- Law of the KR "On Protection of Atmospheric Air" (1999);
- Land Code of the Kyrgyz Republic (1999);
- Law of the Kyrgyz Republic "On the Procedure for Considering Citizens' Appeals" dated May 4, 2007 No. 67 (as amended on July 27, 2016 No. 151);
- Law of KR "On Production and Abstraction Waste" (2001);
- Law of the Kyrgyz Republic "On the Protection and Use of the Flora" (2001);
- Law of KR "On specially protected natural territories" (2011).

4.3.Legislation of the Kyrgyz Republic in the field of land acquisition and labor management

The national legislation regarding land acquisition, citizen engagement, information disclosure policies in the Kyrgyz Republic consists of the following laws and regulations.

- The Constitution of the Kyrgyz Republic (2021);
- Civil Code of the Kyrgyz Republic, Part I (1996, amended in 2023)
- Civil Code of the Kyrgyz Republic, Part II (199, amended in 2023)
- Land Code of the Kyrgyz Republic (1999, amended in 2022).
- Labor Code of the Kyrgyz Republic Legislation of the Kyrgyz Republic on Stakeholder Engagement and Information Disclosure (2004)
- Law of the Kyrgyz Republic "On the Procedure for Considering Citizens' Appeals" (2007, amended in 2016);
  Law of the Kyrgyz Republic "On state registration of real estate rights and related transactions (1998)
- Law on right to access of information (2023)

4.4.The World Bank Environmental and Social Framework

The World Bank is committed to supporting Borrowers in the development and implementation of

projects that are environmentally and socially sustainable, and to enhancing the capacity of Borrowers' environmental and social frameworks to assess and manage the environmental and social risks and impacts of projects. To this end, the Bank has defined specific Environmental and Social Standards (ESSs), which are designed to avoid, minimize, reduce or mitigate the adverse environmental and social risks and impacts of projects. ESSs define the material standards of protection, procedural requirements, and individual rights of the project-affected communities, which borrowers must comply with and whose fulfilment the World Bank supports and works with borrowers to ensure compliance during implementation. The standards carry over numerous environmental and social requirements.
The Environmental and Social Framework enables the World Bank and Borrowers to better manage environmental and social risks of projects and to improve development outcomes. It was launched on October 1, 2018[5]. The ESF offers broad and systematic coverage of environmental and social risks. It makes important advances in areas such as transparency, non-discrimination, public participation, and accountability—including expanded roles for grievance mechanisms. It brings the World Bank's environmental and social protections into closer harmony with those of other development institutions.

The ten WB Environmental and Social Standards (ESSs) establish the standards that the Borrower and the project will meet through the project life cycle, as follows:

- ESS 1: Assessment and Management of Environmental and Social Risks and Impacts;
- ESS 2: Labor and Working Conditions;
- ESS 3: Resource Efficiency and Pollution Prevention and Management;
- ESS 4: Community Health and Safety;
- ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;
- ESS 8: Cultural Heritage;
- ESS 9: Financial Intermediaries; and
- ESS 10: Stakeholder Engagement and Information Disclosure.

The ESSs relevant to the proposed project activities are: ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8 and ESS 10.
In addition, the OP/BP 7.50 "Projects on international Waterways" is relevant to the project, particularly Component 2 activities that are expected at the transboundary rivers.
The environmental and social risk rating is considered *substantial*. Accordingly, an overall risk of the project is considered substantial. Based on the initial assessment of the environmental and social impacts, the project will apply following ESSs: project activities will launch ESS 1, ESS 2, ESS 3, ESS 4, ESS 5, ESS 6, ESS 8, and ESS 10.

For each subproject, it is recommended to take into account the WB Environmental, Health, and Safety (EHS) Guidelines[6].
The EHS guidelines applicable to the Project include the following:
• General EHS Recommendations (2007);
• EHS Guidelines for Water Supply and Sanitation (2007).

[5] *https://www.worldbank.org/en/projects-operations/environmental-and-social-framework*
[6] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

4.4.1. Occupational Health and Safety (OHS) Requirements

OHS requirements must be adequately included in the sub-project ESMPs and implemented by the contractor. To ensure the labor protection, safety and health of workers at construction sites of subprojects, the requirements of the WB Environmental, Health, and Safety (EHS) Guidelines and the requirements of the Construction Code SN 12-01:2018 "Labor Safety in Construction" will be applied. The OHS requirements need to be followed as per Project LMP.

Basic requirements for labor protection and safety include:
1) The sites will be equipped with appropriate information boards and signs informing workers about the rules and regulations of work;
2) Conducting an introductory briefing for employees on labor protection and safety;
3) Conducting repeated briefing of workers on labor protection and safety;
4) At each construction site, a log will be kept of instructing workers on safety at the workplace;
5) Availability of first aid equipment at the construction site in case of damage;
6) Provision of workers with personal protective equipment (helmets, protective shoes, gloves, goggles);
7) Fencing of construction sites in order to prevent access of unauthorized persons and the population;
8) Availability of equipped fire shields at construction sites in order to ensure fire safety of construction sites and workers.
9) Other OHS risk-management measures that may be applicable to each subproject.

Labor protection, safety, and health measures during the operation of the facilities built under the project are individual for those working in the water supply and sanitation system and the irrigation system. Each enterprise should develop a Regulation on labor protection and an individual safety instruction for each specialist, depending on the type of work performed.

PIU will also need to cover related OHS issues in all supervision and monitoring activities. That means specifically asking whether there have been any incidents, checking logs and the availability and use of protective and preventative equipment. Respectively, the ESF sections of all progress reports include statements indicating that the PIU have checked occupational health and safety issues, and existing procedures in this regard, and asked if there have been any serious incidents or fatalities. Similarly, the PIE will ensure that at the project launch workshop and in the operational manual contain adequate provisions for occupational health and safety.

The relevant text on OHS to be included in the progress reports might be as follows*: The project has reported **X** Occupational Health and Safety (OHS) incidents since its start. Of these, **X** are classified as SEVERE, **X** as SERIOUS, and **X** as INDICATIVE. All incidents are confirmed accounted through the Environment and Social Incident Response Toolkit (ESIRT) (see below). During this mission period, the PIE checked with all contractors and consultants if any OHS incidents occurred, either reported or not yet reported. The PIE found (EITHER) (i) no new incidents occurred during this supervision period, or (ii) **X** incidents occurred (include classification, a brief description of event and follow-up actions, and confirmation event was reported via SIRT)].*

The World Bank Environment and Social Incident Response Toolkit helps to manage incidents consistently by providing clear guidance on how to classify the incident's severity, how to provide a proportional response according to severity and clarifies roles and responsibilities. ESIRT also requires a root cause analysis to be done by the Borrower when there is a severe incident.

“Incident” is defined as an accident, incident, or negative event resulting from failure to comply with identified E&S measures OR conditions that occur because of unexpected or unforeseen E&S risks or impacts during project implementation. Examples of E&S incidents include: fatalities, serious accidents, and injuries; social impacts from labor influx; sexual exploitation and abuse (SEA) and Sexual Harassment (SEA/SH); major environmental contamination; child labor; forced labor; risks and adverse impacts from temporary project induced labor influx; loss of biodiversity or critical habitat; loss of physical cultural resources; and loss of access to community resources. In most cases an incident is an accident or a negative impact arising if the contractor does not comply with the WB security policy or unforeseen events which occurred during the Project implementation.

CHAPTER FIVE: DESCRIPTION OF ENVIRONMENTAL AND SOCIAL SETTING

5.1. Physical conditions for the project site

The objects under reconstruction are located in Kadamjay rayon, Batken oblast, on the southern outskirts of rayon center village Pulgon. The head water intake structure (HWS) was built in 1978. The main canal "Nurgazieva" originates from the HWS at total length -35,1 km. The area of irrigated land - 4.74 thousand hectares.

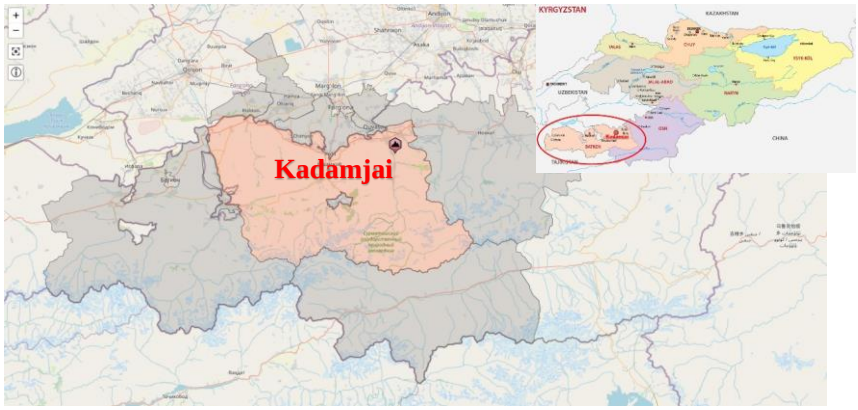


Image 11. Map of Batken oblast and Kadamjay rayon

5.1.1. Climatic conditions

The basin climate is determined by its great distance from the Arctic and Atlantic oceans, which determines the continental nature of the climate, expressed by significant fluctuations in air temperature, moderate precipitation, dry air and low cloud cover.

For the climatic description of the hydroelectric power station construction site, observation data used from the meteorological station (m/s) “Khaidarkan, located 25 km west of the study area at altitude of 2000 m. The average long-term monthly air temperature, according to m/s “Khaidarkan[7]” +6.90, the minimum -5.70 ℃ in January, and the maximum +19.2℃ in July. The annual temperature amplitude - 24.9℃, which corresponds to a moderate continental climate.

The average monthly maximum air temperature: the highest - 25.3 °C, observed during July, the absolute maximum is Tmax = 36.0 °C (1971). The month with lowest temperatures - January, -11.3℃, absolute minimum - Tmin = -28.0 ℃ (1945).

Table 1. Average monthly air temperature, ºC:

Month												T^{0}C
I	II	III	IV	V	VI	VII	VIII	1X	X	XI	XII	
-5.7	-4.2	0.4	7.4	12.1	16.2	19.2	18.3	13.6	7.3	0.8	-3.2	6.9

[7] Scientific and applied reference book on the climate of the USSR Series 3 parts 1-6 Hydrometeoizdat Leningrad 1989.

Table 2. Average maximum air temperature (°C)

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	*Ann.*
-0.5	1.5	5.2	12.3	17.2	21.9	25.3	24.6	19.9	13.3	6.4	2.1	12.4

Table 3. Absolute maximum air temperature (°C)

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	*Ann.*
13	16	19	26	29	33	34	36	29	25	23	15	36 (1971г)

Table 4. Average minimum air temperature (°C)

I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**IX**	**X**	**XI**	**XII**	*Ann.*
-11.3	-9.4	-4.4	2.6	6.8	9.8	12.0	11.1	6.9	2.0	-3.8	-8.2	1.3

Table 5. Absolute minimum air temperature (°C)

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	*Ann.*
-28	-26	-23	-16	-6	-7	3	3	-4	-20	-27	-28	-28 (1945г)

The average annual precipitation - 533 mm, with the greatest volumes of precipitation in March-June, up to 60% of the annual precipitation occurring in April-October.

Table 6. Average monthly precipitation

Month:												Year	XI-III	IV-X
I	II	III	IV	V	VI	VII	VIII	1X	X	XI	XII			
31	42	75	85	91	48	32	12	10	40	39	28	533	215	318

Thus, the climate of the river basin “Khojabakirgan” is characterized by continentality, dryness, moderately warm summers and moderately cold winters.

Table 7. Dates of transition of average daily air temperature through 00

Frost date						Duration of frost-free period, days		
Earliest			First					
Average	Earliest	Latest	Average	Earliest	Latest	Average	Least	Most
23 IV	19 III	6 VI	8 X	13 IX	6 XI	167	107	217

The stable transition of average daily temperatures through 00 in spring (summer) gives an idea of the average dates of intensive snow melting, and in autumn - about the dates of formation of stable snow cover. As can be seen from the table below, the average date of the last frost in spring is the end of April. In autumn, the first frost is the beginning of October, thus, the duration of frost-free period is from 107 to 217 and an average of 167 days per year.

Table 8. Average monthly and annual temperature (°C) of the soil surface

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Year
-10	-8	-1	9	15	22	25	24	18	9	0	-6	8

The soil surface temperature in winter reaches -10.0℃, in summer it warms up to 24-25℃. The average annual wind speed at m/s "Khaidarkan" - 2.4 m/sec, for the intra-annual speed variation, its uniform distribution within the range of -2.2-2.6 m/sec is characteristic throughout the year.
Despite the low average wind speed, quite strong winds are often observed in summer, which contribute to increased evaporation of moisture from the soil surface and contribute to the weathering of the upper soil layer, reaching 24 m/s in gusts.
The wind rose for m/s "Khaidarkan", presented in Image 1, shows that the prevailing wind directions are east - 29% and west - 22% of cases, while the number of calms is 13%. The observed maximum daily precipitation at m/s "Khaidarkan" was H=54.0 mm (16. V.1937г.). The penetration of the zero isotherm into the soil is 163 cm.

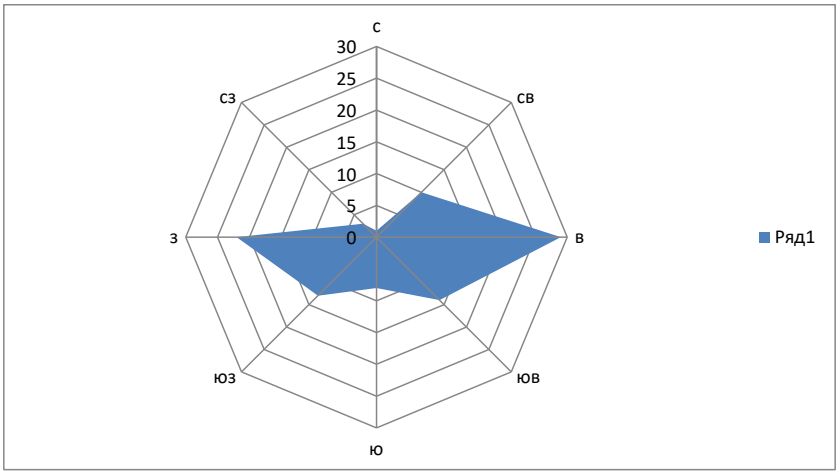


Image 12. Wind rose on m/s "Khaidarkan".

5.1.2. Landscape
The relief of the region is typical for intermountain depressions of areas of relative immersion and belongs to the accumulative group, alluvial-proluvial genesis. According to the type of relief, it is attributed to a gently sloping plain of intermountain depressions formed on sandy-pebble deposits.

5.1.3. Soils
The specifics of the nature of surface, the following geomorphological zones and agro-soil oblasts are distinguished in the territory of the Batken region:
The zone of foothill plains is the lowest elevation mark in the region with a relatively insignificant height of 1000-1300 m. The Fergana Valley is part of this zone and is composed of quaternary deposits,

such as: pebbles, overlapping loess-like loams of varying thickness. In irrigated areas, cotton and tobacco are mainly grown, and in semi-watered rainfed areas, grain crops are grown.

The zone of foothills and adyrs is an intermediate position between the Fergana plains and the zone of medium-high mountains, the most pronounced high adyr ridge is Beli-Synyk. Adyr ridges are mainly composed of young loose sediments with a predominance of pebbles, Paleogene-Neogene and ancient Quaternary conglomerates. In the low-mountain region, dark gray soils are widespread, predominant in the area of low mountains and intermountain valleys, at an altitude of 1200-1500 m. Tobacco, corn, alfalfa and other crops can be cultivated.

The zones inside mountain basins are located between the adyrs, the front ranges, and the marginal part of the main mountain ranges. They form negative relief forms and are located in two latitudinal belts, the northern belt lies at lower hypsometric levels of 900-1000 m of absolute height than the southern belt of 1500-1800 m. Isfana, Charku-Leilek, Batken, Aidarken and others form intramountain basins. The landscape is represented by gently sloping wavy plains, often dissected by dry channels of temporarily active water flows. The basins are filled mainly with young Quaternary deposits of conglomerates and pebbles, covered from above by a mantle of loess-like loams, which are the soil-forming rocks here. Light brown soils are common in the shrub steppes located at an altitude of 1800-2000 m. Grain and forage grasses are cultivated. Most of these soils are used for pastures and hayfields, and can also be used for mountain gardening.

The mid-mountain zone is the high foothills and front ridges of the Turkestan and Alay ranges with absolute marks of 2000-2500 and up to 3000 m. The high foothills of the ranges are represented by separate mountain ranges with an intense and deeply dissected relief. In the mid-mountain region (2100-3000 m), brown, brown and dark-brown forest soils are common. Partially used for dry farming. The high-mountain zone - the Turkestan range with continuation of the Alay range, within the Batken oblast, -reaches 5000 m. There are glaciers, snowfields, eternal snow lies mainly at an altitude of 4000-4500 m. This zone is characterized by very strong dissection, a dense network of deep and narrow valleys with steep slopes, screes and an abundance of rocks with stony placers. In the high-mountain agro-soil region at an altitude of more than 3000 m, the following soils develop: mountain meadow-dry steppe subalpine and mountain meadow-steppe alpine, semi-peaty and soddy. There is~~are~~ high-mountain dry steppe, light and dark. They are used mainly as pastures.

5.1.4. Hydrogeology and hydrography

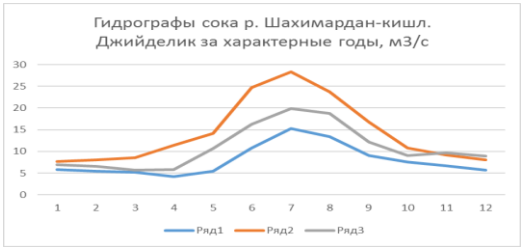


Image 13. Runoff hydrographs for low-water, medium-water and high-water years.

Maximum water runoff

As noted above, the maximum flow of the r. "Shakhimardan (Aksuu)" are observed during the flood, usually in July-August, depending on the climatic conditions of flood period, which determine timing of the onset, duration and uniformity of melting of the seasonal snow reserves. Outstanding maximum runoffs are also formed under the combined effect of liquid precipitation and high melt runoff. image 4 shows the chronological course of the maximum water runoff of r. "Shakhimardan (Aksuu)" - Pulgon/Dzhiidelik village. Showing that the highest water runoff was observed on r. "Shakhimardan (Aksuu)" in 1977, amounting to Qmax = 172 m³/ s, in 1969. – Qmax=138 м^3/с and 1966 - Qmax=131м^3/с.

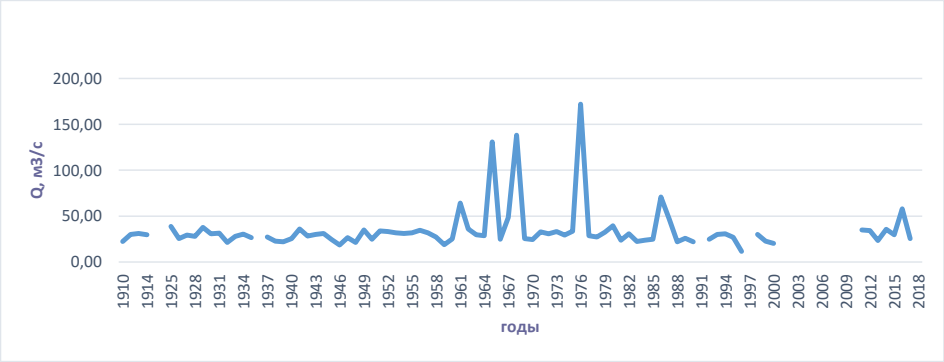


Image 14. Chronological course of urgent maximum runoff the r. Shakhimardan – v. Pulgon/Dzhiidelik, м^3/с

Table 9. Maximum water flow rates of the river R. "Shakhimardan (Aksuu)" – village D Jiydelik.

A, км^2	Q_{max0}, м^3/с	Cv/Cs	Max.runoff, м^3/с with availability, %					
			0,1	1	2	3	5	10
1300	34.2	0.69/4 Cv	207	123	114	105	78.3	61.9

It should be noted that in general the River basin "Shakhimardan" is one of the most mudflow-hazardous in the River basin "Syrdarya". During the observation period of 1911-66, 64 mudflows were recorded, or 0.8 mudflows per year, the usual time of their occurence is April-June, while the type of mudflows is not identified. The main reason for formation of mudflows is the intensive melting of seasonal snow reserves, local liquid precipitation, as well as their combined impact during this period, including their combined impact during this period, as well as the breakthrough of high-mountain lakes (1998).

Norm and vairability of annual rnoff

The Norm of annual runoff of r. "Shakhimardan (Aksuu)" in the studied section was determined from a number of observations.

Table 10. Parameters of the annual runoff of r. "Shakhimardan (Aksuu)" – village. Jiydelik

Catchment area, A км^2	Weighted average height of the catchment area, H, км	Observation period	Q_0, м^3/с	Cv/Cs	Average long-term annual abstraction, м^3/s availability %:		
					50	75	95
1300	2.62	1911-2018 with interruptions	10.8	0,11/4 Cv	10.7	9.96	9.07

Intra-annual runoff distribution

For the r. "Shakhimardan (Aksuu)" at the HWS, the average intra-annual flow distribution was also determined based on a number of observations and is given in the following Table 11.

Table 11. Intra-annual flow distribution of the r. "Shakhimardan (Aksuu)"-v. "Pulgon/Jiydelik", м^3/с

%	Year	Month:												Q_0
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
50%	2001	6.98	6.59	5.69	5.84	10.6	16.3	19.9	18.8	12.1	9.09	9.61	8.89	10.9
75%	2000	7.27	7.2	7.2	5.95	10	13.4	15.7	16.5	11.5	8.8	7.9	7.9	9.94
95%	1982	6.78	6.41	7.16	6.16	8.37	10.3	15.5	17.7	8.77	7.7	7.11	6.48	9.04

Minimum runoff

Minimum average monthly water runoff of the r. "Shakhimardan (Aksuu)" are usually observed at the end of low water period, in March-April, at the same time, minimum daily runoff are usually noted. The values of average monthly minimum runoff are determined, the coefficients of variability, asymmetry of the minimum average monthly runoff are determined based on a number of observations.

Table 10. Parameters of minimum average monthly water abstraction of the r. "Shakhimardan (Aksuu)" - Jiydelik village.

A, км^2	Q_0	Cv/Cs	Minimum average monthly water runoff, м^3/с availability %			
			80	90	95	99
1300	5,40	0,12/0,20	4,87	4,59	4,37	3,99

Minimum average daily expenses can be determined by $M_{min.day} = 0{,}80 * M_{min.ave.month} = 4{,}32$ м^3/с.

Turbidity and suspended sediment discharges

The suspended sediment runoff of r. "Shakhimardan (Aksuu)" is determined based on available observations, R0 = 11.0 kg/s, Wr = 350.0 thousand tons. The characteristic feature of the intra-annual suspended sediment runoff is that the main suspended sediment runoff is observed in the period March-

September. The average long-term turbidity is μ0 = 1100 g/m³, the maximum observed turbidity on r. "Shakhimardan (Aksuu)" – Pulgon village was recorded as μmax = 29,000 g/m³ during the flood that occurred 19 VII.1964r.

Mineralization and chemical composition of waters

The specifics pf chemical composition and mineralization of waters are also given by analogy with the r. "Shakhimardan (Aksuu)" - v. Pulgon, where the corresponding observations were carried out.

Table 13. Chemical composition and mineralization of waters of the r. "Shakhimardan (Aksuu)"- v. Paulgan

Date	pH	Ions , mg/l	Mg/l					
			HCO^{I}_{3}	SO^{II}_{4}	Cl^{I}	$Ca^{··}$	$Mg^{··}$	$Na^{·}+K^{·}$
14.II. 1942r.	-	537.6	180.2	205.7	4.8	140.1	2.6	4.2
16.VII.1938r.	-	299.0	133.0	85.6	6.9	55.7	15.7	2.1

As the data provided show, the mineralization of the water varies within the range of 537.6-299.0 mg/l, while during the low-water period its value is twice as high as during the flood period. Thus, it can be concluded that the river waters are weakly mineralized, hydrocarbonate-sulphate-chloride, during the low-water period an increase in the content of Ca ¨, $HCOI^{3}$ and $SO^{II}_{4.}$

5.1.5. Geoengineering conditions

Orographically, the survey area is located on the northern spurs of the Turkestan-Alai Mountain system, covering a zone of intermountain basins and low foothills. The site itself is located south of the Kumal level and west of r. "Shakhimardan (Aksuu)" alluvial fan. The area is part of a chain of synclinal troughs - "depressions of the fortieth parallel". The trough is filled with alluvial-proluvial sediments of the Upper Quaternary age. The material was carried out by numerous sais during spring snowmelt and torrential rains. The material is coarse-grained, weakly rounded and poorly sorted. The merging of individual alluvial fans led to the formation of a continuous foothill apron. The lithological composition of the soils and their thickness depend on the geomorphological and technical structure of the sites. In this case, these are pebbles with mixed filler. During periods of global cooling, sandy loams and loams were deposited. The thickness of the sediments is tens of meters. There is no groundwater on the territory of object to depth of 5 m.

Physical and mechanical properties of soils

The lithological structure of the section of the canal route is quite simple. It is composed of pebbles, the granulometric composition of the soil contains boulders in the amount of 10-15%. The filler is mixed, typical for soils of proluvial-alluvial genesis. In some areas in the section, lenses of sandy loam and sand of insignificant sizes are noted both in thickness and in extension. The soils that make up the section of canal route differ in certain intervals only in the size of pebbles and number of boulders.

Everywhere the canal route is complicated by technogenic deposits of the existing canal. Thus, the section is composed of pebbles of proluvial-alluvial genesis. The soil group according to the difficulty of manual development is III. According to the operation data, water losses due to filtration, along the canal at length - 10 km in earthbed, reach 50%.

5.1.6. Seismicity

The expected earthquake magnitude is, with high probability of occurrence of residual deformations, more than 8 points. According to SN KR 20-02:2018 "Earthquake-resistant construction. Design standards", approved by the order of the State Agency for Architecture, Construction and Housing and Communal Services under the Government of the Kyrgyz Republic dated December 31, 2018 No. 32-npa and Annex G, "List of settlements of the Kyrgyz Republic indicating seismic hazard indicators", the initial seismicity of the work area is 8 points.
Within 10-meter layer, counting from the earth's surface, on the site of projected construction, soils of category II according to seismic properties predominate. Based on Table No. 6.1, SN KR 20-02:2018 "Earthquake-resistant construction. Design standards", the type of soil conditions according to seismic properties is II. In accordance with Table No. 6.2, SN KR 20-02:2018 "Earthquake-resistant construction. Design standards", it is recommended to take the specified seismicity equal to 8 points.

5.1.7. Air quality and noise

The release of pollutants into the atmosphere depends mainly on economic condition of the industries that have the greatest impact on the environment. The main sources of air pollution in the Kyrgyz Republic are energy, mining and processing industries, construction materials, utilities, the private sector, and motor transport. There are no industrial enterprises near the project site. The main source of impact is motor transport. No regular air quality measurements are carried out directly at the site of the planned work. Due to the absence of industrial enterprises near the irrigation canals, the noise level is caused by motor vehicle traffic and does not exceed the maximum permissible level.

5.2. Specially protected natural territories

Specially protected natural territories (SPNT) are classified by different statuses: reserves, parks, nature reserves, biosphere reserves. The total area of SPNA in the Kyrgyz Republic is 1,476,121.6 hectares. On the territory of the Kadamjai rayon, there is one reserve, Surmatashsky, with an area of 66,194.4 hectares. It was established in 2009.

The Surmatashsky State Reserve was established by the Resolution of the Government of the Kyrgyz Republic dated June 27, 2009, No. 414 [1] for the purposes of: "ensuring the preservation of unique natural complexes and biological diversity, protecting rare and endangered species of flora and fauna, expanding the network of specially protected natural areas.

5.2.1. Flora of the project area [8]

The nature of the vegetation layer varies depending on the altitude, soil cover, slope exposure and the degree of their moisture by precipitation. The main flora of the vertical zones characteristic of a given territory is: 1) desert, 2) steppe, mountain meadow, 3) alpine and subalpine, 4) forests, sparse forests and shrubs, 5) rocky ridges, screes, moraines, snowfields with rare flora and 6) woody and shrubby vegetation, on agricultural and arable lands. Deserts are widespread mainly in the foothill zone and occupy vast areas, which are characterized by ephemerals, wormwoods, steppes are characterized by drought-resistant species of various cereals and some spring-autumn ephemerals. Mountain meadows, subalpine and alpine flora are mainly represented by mesophytes: narrow-leaved bluegrass, small basilisk, northern bedstraw, bluegrass, various species of cobresia, sedges, caraganas, low-growing juniper shrubs. Forests, sparse forests and shrubs are found in separate small areas, groves: spruce, spruce-fir, juniper and nut-bearing. Rocky areas of ridges and slopes, screes and modern moraines in

[8] Plan for the development, use and protection of water resources in the Karadarya-Syrdarya-Amudarya basin, National Water Resources Management Project F2, 2020r.

the area of glaciers have sparse vegetation in the form of individual specimens of alpine grasses, cushion-shaped plants - mountain ash, chorispora, etc. Cultivated lands: arable lands, gardens, vegetable gardens are widespread mainly in the flat, foothill part of the territory, as well as in high-mountain valleys and depressions.

5.2.2. Fauna of projected area [9]

The landscape features of the region have determined a great diversity of the animal world. The region is home to voles, jerboas, gerbils, gophers, marmots, hamsters, tolai hares, badgers and porcupines. Predators include weasels, ermines, stone martens, snow leopards, lynxes, wolves, foxes and bears; ungulates include roe deer, mountain goats, argali and wild boars. Bird species include bearded vultures, mountain finches, alpine choughs, juniper grosbeaks, painted titmice, rock sparrows, Tien Shan woodpeckers, nutcrackers, long-eared owls and redstarts. The previously exterminated pheasants and bearded partridges have been reacclimatized. The subproject area is located in a zone of active anthropogenic activity, which leads to the presence of synanthropic animals. There are no species of plants and animals listed in the Red Book of the Kyrgyz Republic in this area.

5.3. Dangerous natural processes and forecasting of emergency situations in the region [10]

This section was prepared in 2023 based on monitoring conducted by the Ministry of Emergency Situations of the Kyrgyz Republic.

Kadamjay rayon, Batken oblast. Kadamjay rayon occupies mid-mountain Shakhimardan-Isfayram basin (absolute height of the basin bottom is 1100-2700 m), borders on the Fergana Valley in the north, and on the Alay ridge in the south (average height is 4500 m, absolute height is 5539 m). Within rayon, there are the Katyrang-Too, Teskey, Kuruk-Sai, Tekesekirdi-Bel, Kollektorsky and Yaruptus ridges with average height of 3000 - 4400 m above sea level. The valley part is represented by river terraces, a foothill trail. The main rivers are “Isfayram-Sai and Shakhimardan”. The territory of Kadamjay rayon is occupied by mountains up to 92%, and flatlands - 8%. The area distribution of dangerous natural processes and phenomena is shown on the seismic, avalanche, mudflow and flood hazard plans and diagrams. It should be noted that, in general, r. “Shakhimardan (Aksuu)” basin is one of the most mudflow-hazardous in the r/b “Syrdarya”. The main reason for the formation of mudflows is the intensive melting of seasonal snow reserves, local liquid precipitation, as well as their combined impact during this period and the breakthrough of high-mountain lakes

Добавлено примечание ([AA1]): Hope that design of the hydraulic structures will include mudflow resisting solutions to withstand this emergency issues. As well as Emergency management plan will be developed as part Dam Safety component of the project.

5.4. Socio-economic conditions of projected area

5.4.1. Population

The permanent population of the Batken region according to the National Statistical Committee of the Kyrgyz Republic as of January 1, 2024 is 583.4 thousand people. The population of the Kadamjai district is 209.9 thousand people.

5.4.2. General characteristics of Kadamjai rayon, Batken oblast

Kadamjai rayon was formed in 1938. The region covers an area of 6146 km². The permanent population, according to the National Statistical Committee as of January 1, 2023, is 204.8 thousand

[9] Internet resource: http://www.kirghiz.ru/enc/administrativnoe_delenie_786/oshskaya_oblast_804/zhivotnyy_mir_812/index.htm

[10] Monitoring, forecasting of hazardous processes and phenomena on the territory of the Kyrgyz Republic (16th edition with amendments and additions), B.: Ministry of Emergency Situations of the Kyrgyz Republic, 2019. - 819 p.

people (urban - 19.8 thousand people, rural - 185.0 thousand people). Average population density is 34.0 people per 1 km².
On the territory rayon there is c. Kyzyl-Kiya of regional significance with population - 61.1 thousand people (urban population 44.1 thousand people, rural population 17.0 thousand people), 2 cities of rayon significance Kadamjai - 15.2 people. (urban 8.8 thousand people, rural 6.4 thousand people), Aidarken - 11.0 thousand people. and 113 rural settlements belonging to 13 aiyl aimaks: "Ak-Turpak (14 settlements), Sovetsky (1), Chauvaysky (1), Alginsky (8), Birliksky (15), Masalievsky (8), Moldo Niyaz (Kotormosky) Law of the Kyrgyz Republic dated 09.01.2024 No. 1 (10), Maidansky (13), Ayrybazsky (Markazsky) (6), Orozbekovsky (7), Uch-Korgonsky (12), Iskhak-Polotkhansky (Khalmionsky) (13), Kyrgyz -Kyshtaksky (5)". The administrative center of the district is the city of Kadamjai with a permanent population of 15.2 thousand people (urban 8.8 thousand people, rural 6.4 thousand people) according to the National Statistical Committee as of January 1, 2023.
Kadamjay rayon occupies the mid-mountain Shakhimardan-Isfayram depression (the absolute height of depression bottom - 1100-2700 m), bordering the Fergana Valley in the north, and limited by the Alai ridge in the south (average height 4500 m, absolute - 5539 m). Inside the district are the Katyrang-Too, Teskey, Kuruk-Sai, Tekesekirdi-Bel, Kollektorsky and Yaruptus ridges with an average height of 3000 - 4400 m above sea level. The valley part is represented by river terraces, foothill train. The main rivers are "Isfayram-Sai and Shakhimardan". The main transport is automobile. The Kyzyl-Kiya–Vuadil (Republic of Uzbekistan), Fergana–Aidarken–Batken, Kyzyl-Kiya–Kuva-Sai–Fergana, Razzakov–Kyzyl-Kiya–Osh highways pass through the region. The railway connects the city of Kyzyl-Kiya with the city of Fergana (Republic of Uzbekistan). There is the airport in Kyzyl-Kiya city.

5.4.3. Water use

The total volume of water intake is about 2.50 km³, including in the Karadarya River basin - 0.70 km³, in the left-bank tributaries of the Syrdarya River - 1.61 km³, and water intake from the Kyzylsu River - 0.05 km³. The highest level of water use is observed from the left-bank tributaries of the Syrdarya River, which has reached almost 50% of the river flow. Of the total volume of water resources absracted, 94% - used for irrigation, 5% - for household and drinking needs, and 1% for industrial needs.

The area of irrigated lands in KSAb - 260.4 thousand hectares, of which 244.8 thousand hectares are in good condition, 6.88 thousand hectares are in satisfactory condition and 8.78 thousand hectares are in unsatisfactory condition. Thus, 3% of irrigated lands are in unsatisfactory condition. At the same time, the largest areas of unsatisfactory condition of irrigated lands are in the Osh oblast and Suzak rayon, Djalal-Abad oblast.

The arid climate of the territory, and especially in the valley zone, determines the development of agricultural production under artificial irrigation conditions. The KSAb river valleys in the flat zone are ancient centers of irrigation. A network of irrigation canals, hydraulic structures, reservoirs, pumping stations, etc. have been built within the territory. About 65% of the basin's irrigation canals are in satisfactory condition, the rest require major and current repairs.

5.4.4. Water supply and sanitation

The level of sustainable access of the population of the Kyrgyz Republic to safe drinking water has reached 92%, however, in the Osh and Batken oblasts this figure, on average over the past five years, is only 77%. Due to lack of water supply networks in rural areas, open reservoirs and water management structures are used for drinking, which are not disinfected, which leads to a high level of gastrointestinal diseases, hepatitis C. The condition of water treatment facilities is deteriorating, as a

result of which most of the supplied water does not undergo regulatory treatment. The percentage of housing stock equipped with water supply systems in the Batken and Osh oblasts remains one of the lowest in the republic.

The level of samples that do not meet the requirements of the Law of the Kyrgyz Republic "Technical Regulations on the Safety of Drinking Water" is high in Djalal-Abad oblast - up to 28.3%, in Osh - up to 17.6% and in Batken - 6%. The share of the population with stable access to sewage is only 0.5-9.1%, which is 3.5-6.3 times lower than the national indicator. The volume of wastewater passing through the sewer is very low, in recent years it has been decreasing in Djalal-Abad and Batken oblasts. In a number of regional centers there are no treatment facilities and sewage systems at all, and wastewater is discharged into depressions, rivers, drainage canals or storage tanks, septic tanks built without compliance with environmental legislation, which leads to pollution of the air basin, surface and groundwater. Of the 43 existing treatment facilities, only 20 are operating satisfactorily. The problem is the lack of accounting and control over the discharge of wastewater into storage facilities, the removal and use of mine water, agricultural activities, both livestock and irrigation.

5.4.5. Industry

There is extraction of minerals, industrial production processing, mainly food products, are concentrated in KSA basin. Mineral resources of the rayon are gold, silver, copper, iron, mercury, fluorite, tin, wolfram, bismuth, lead, antimony, zinc, arsenic, molybdenum and etc.

5.4.6. Agriculture

More than 60% of the Kyrgyz Republic’s population, living in rural areas, directly depends on the use of natural resources as a source of livelihood and strongly impact on them. The main natural resource is mountain pastures, which is 40% of the country's territory and 85% of agricultural land.

A crop production share in the oblast in the national volume of gross output is 23.0-25.0% and livestock 28.0-29.0%. In recent years, there has been an increase in production volumes of crop production sector in Osh and Jalal-Abad oblasts. There is a steady increase in a number of bovine (8%), horses (9%) and goats and sheep (4%).

Area of agricultural lands is 132095 ha, out of them irrigated area – 25523,74 ha, dry lands – 15375,6 ha, gardens – 2366 ha, perennials lands – 9474 ha, pastures – 69620,8 ha and unused lands – 292 ha.
The cultivated crops in rayon are wheat – 9564 ha, barley – 7650 ha, maize – 11105 ha, rice – 103 ha, sugar beet – 347 ha, potato – 1528 ha, cotton – 5191 ha, orchards – 1257 ha, vegetables – 3629,62 ha, perennials – 8255 ha, fruits and vegetables – 2442 ha and grapes – 500 ha.
About 30% of rural residents are forest users and make their living on forest resources. The expanding population broadens the boundaries of a residential area in the forests’ zones causing deforestation, and a number of livestock.

5.4.7. Education and Literacy

There are 85 schools in Kadamjai district. All schools are state-owned, 11 of which are primary schools. Number of kindergartens - 18.

5.4.8. Health services

There are the following hospitals in the district: Kadamjai territorial hospital, Kadamjai district family medicine center, Kadamjai district dental clinic, Uch-Kurgan territorial hospital, General medical practice center of village Samarkandek, Kadamjai dental clinic.

CHAPTER SIX: IDENTIFICATION AND ASSESSMENT OF ENVIRONMENTAL AND SOCIAL IMPACTS

The project is expected to have positive impacts as the implementation of the project activities (i) improved access to services, (ii) strengthened institutional capacity to provide climate resilient irrigation services and water management, will generally contribute to improved livelihoods and food security in the project area.

6.1. Environmental Risks and Impacts

The works to be undertaken involve the construction and modernization of existing irrigation and drainage systems.

During the construction phase, the following risks will be observed:

a) Clearing of woody and shrub vegetation during the rehabilitation of irrigation infrastructure;
(b) Emission of air pollutants during excavation works, from construction equipment;
(c) Generation of construction waste (hazardous and non-hazardous) and its further disposal;
(d) Noise and vibrations from traffic and machinery;
(e) Possible soil erosion and hence sedimentation in water bodies,
(f) Associated risks due to improper disposal of construction debris and potential asbestos-containing materials that may be discovered during the course of the works,
(g) Operational or accidental spills of fuels and lubricants from construction equipment into the soil, surface and ground water;
(h) Health, safety, and security issues related to the conduct of the works;
(i) Public health and safety;
(j) Poor quality restoration of construction sites after completion of the works;
(k) Generation of sediments from cleaning of the reservoir and its further disposal.

These potential adverse environmental and social impacts are easily identifiable and can be effectively avoided, minimized, or mitigated. The EMP proposes management and mitigation measures and implementation mechanisms relevant to all investment activities to be identified during project implementation.

6.1.1. Climate Impacts

Irrigation systems rehabilitation will improve water management in farming and logistics practices, land tenure to enhance productivity, climate change adaptation of the agriculture and sustainable use of natural resources.

6.1.2. Impacts on biodiversity

Tree Felling/Cutting Down. In the process of canal rehabilitation, it is necessary to remove trees that hinder the works and are located in the right-of-way of water management facilities. According to the requirements of the Water Code of the Kyrgyz Republic, article 80, paragraph 3, during repair and rehabilitation works, cutting of shrub vegetation and forest plantations within the right-of-way of water management facilities and canals, as well as sanitary cutting and cutting of deadwood does not require permission from specially authorized state bodies.

If the works are to be carried out in areas not belonging to the right-of-way of water management facilities, cutting of woody and shrubby vegetation shall be carried out in accordance with a permit issued by a specially authorized environmental protection authority.

In May 2024, an inventory of trees and shrubs growing along the modernized areas was conducted. The inventory report was provided to the Batken Regional Office of the MNRETS for information. The inventory identified 60 trees and shrubs.

The PIU sent a letter to Su-Yapi to determine the cost of cutting down and planting trees in the bill of quantities. In addition, during the work, the contractor will preserve trees as much as possible. Thus, instead of the number of cut down trees, new ones will be planted in places allocated by the local government.

Movement and storage of construction materials, removal of surplus land may affect the natural habitat. To minimize potential risks, mitigation measures are presented in the EMP.
Natural habitat in the vicinity of the proposed activity will not be damaged or utilized, all personnel will be strictly prohibited from hunting on animals and birds, gathering of herbs, logging of timber, or other harmful activities. Adjacent wetlands and streams shall be protected from construction site runoff by appropriate erosion and sediment controls. Adjacent areas, especially in the landscape protection zone, shall be free of unlicensed quarries, pits, and landfills.

6.1.3. Soil and groundwater contamination
As a result of fuel and lubricant leaks from construction machinery and equipment and improper waste storage, petroleum products and chemicals can contaminate soil, seep into groundwater or enter surface waterbodies. Servicing equipment and machinery near natural waterways can lead to water pollution. The use of hazardous materials and pesticides during both construction and operation and maintenance of facilities will affect soil and water quality. If temporary labor camps are established at the construction site, sanitary facilities constructed in these camps, as well as equipment cleaning, material storage, and spills could result in contamination of soil and ground, surface waters. Inadequate management and operation of sanitation facilities may result in contamination of river and groundwater. In the event of an accidental spill, immediate cleanup will be undertaken. All fuels, lubricants and cleaning materials shall be stored on graveled ground and in impermeable pallets on site.

6.1.4. Air Pollution
Air pollution will be associated with dust emissions from (1) excavation activities, (2) transportation of construction materials and waste, and (3) exhaust emissions from vehicle and equipment operations. The risk of dust pollution will increase in dry and windy weather. When construction works are carried out in the vicinity of settlements and residential areas, the population will be affected.
Given the nature of most of the works, these impacts are expected to be short-term, low risk and can be mitigated by measures recommended in the EMP (Table 4). Dust generation at the rehabilitation site in dry seasons can be minimized by watering the ground, while in hot seasons, it is necessary to spray the roads along the excavated trenches at least four times a day.
Particular caution should be exercised in the event of exposure to toxic asbestos dust, which may occur during HWS renovations and other works that may contain asbestos (building slates, drinking water piping at HWS, if present, etc.).

Thus, proper measures to ensure safe removal and disposal of asbestos-containing pipes should be carried out in accordance with the requirements of the Kyrgyz Republic established by SanPiN 2.2.3.013-03 "Work with asbestos and asbestos-containing materials". (e.g. wetting ACMs before their removal and disposal in a licensed landfill). Personnel must wear protective masks. Adverse impacts can be prevented by applying good construction practices and appropriate mitigation measures. in strict

compliance with the CR requirements set out in SanPiN 2.2.3.013-03 "Working with Asbestos and Asbestos Containing Materials".

6.1.5. Noise and vibration pollution

A strong increase in noise and vibration is expected during transportation of materials, operation of construction machinery, especially during excavation, pneumatic drilling and operation of construction cranes during the construction phase, and use of pumps/motors during installation works.

If works are carried out close to residential areas, noise and vibration will cause disturbance to local residents. Noise levels should not exceed the prescribed limits during project activities. Noise pollution can be mitigated using the recommended mitigation measures in the ESMP. Given the specific nature of the project, vibration is not expected to affect human health as there will be no significant vibration generation activities. KR Government Resolution No. 201 dated 11.04.2016. Sanitary rules and norms "Noise at workplaces, in residential buildings, public buildings and residential premises" establish sanitary and epidemiological requirements, standardized parameters and maximum permissible noise levels at workplaces, noise classification, permissible noise levels in the premises of designed, under construction, reconstructed and operated residential and public buildings and in residential areas. The construction works shall only be conducted during daylight hours from 8.00 to 18.00.

6.1.6. Waste management

In the course of works, construction and domestic wastes will be generated. During construction of irrigation canals, all types of waste may be generated, including hazardous waste containing asbestos. Construction waste will be removed in a timely manner and properly disposed of in designated areas at landfills authorized by local authorities. Non-hazardous construction waste will be disposed of in authorized landfills, which are available in all municipalities of Kadamjai rayon.

Secondary waste such as wood, paper, used fuel and lubricants will be recycled (paper and fuel and lubricants, wood will be used by the population for household needs.

Solid waste collection containers will be installed at the construction camp.

Construction debris and municipal solid waste will be temporarily stored at the construction site and properly disposed of at designated sites at local permitted landfills.

Hazardous waste will be removed and disposed of according to safety requirements to avoid further health impacts to workers and surrounding communities. The ESMP presents measures to mitigate the environmental impacts of construction and domestic waste.

For asbestos-containing waste, an Asbestos Waste Management Plan will be developed. Sanitary norms and rules No. 2.2.3.013-03 "Work with asbestos and asbestos-containing materials" shall be observed when handling asbestos-containing waste. Asbestos-containing materials shall be disposed of in specially prepared pits at the local authorized landfills.

6.1.7. Management of asbestos-containing waste

Asbestos cement waste and materials can be in the form of slate covering the roof of a building and possibly asbestos cement pipes or parts thereof.

Risk in handling asbestos

Asbestos is a naturally occurring fibrous material that has been widely used in buildings and other infrastructure in the 20th century because of its strength and resistance to fire and heat. Asbestos is commonly used in corrugated roofing sheets and asbestos cement pipes.
All types of asbestos fibers have risks to human health. Generally, a major risk occurs when working directly with asbestos or when asbestos-containing material fractures occur, such as broken edges of asbestos cement pipes or broken roofing sheets. Therefore, certain precautions are required.

The most likely risk in the project is possible in the removal and transportation of waste roof slate and possibly asbestos cement pipes or parts thereof, which will be handed over by the Contractor for disposal. Personnel who will be involved in the disposal of ACM will be at risk of asbestos exposure.

The World Bank Guidelines for the Management of Asbestos and Asbestos Containing Materials state that the repair or removal and disposal of asbestos-containing materials should only be carried out by specially trained personnel.

- In accordance with Kyrgyz Republic Government Resolution No. 885 "On the Management of Hazardous Waste in the Kyrgyz Republic, dated December 28, 2015," asbestos-containing waste must be disposed of as follows: the process of hazardous waste management (waste life cycle) consists of the following stages: generation, accumulation (collection, temporary storage, stockpiling), transportation, neutralization, recycling, reuse of recycled products and disposal/disposal.
- If asbestos is present on a construction site, it should be clearly labeled as a hazardous material. Asbestos-containing materials should not be cut or demolished as this will generate dust. During renovation, all workers should avoid crushing/demolition of asbestos-containing waste, store such waste in designated locations on the construction site, and properly dispose of it afterward in a designated location or landfill.
- When asbestos-containing waste is to be temporarily stored at a location/construction site, it should be properly placed in sealed containers and appropriately labeled as hazardous material. Precautions should be taken to prevent unauthorized removal of such waste from the location/construction site.

Safety requirements for working with asbestos-containing materials
When asbestos is present on a project site, it must be clearly labeled as a hazardous material. Asbestos-containing materials should not be cut or disturbed as this will result in dust generation. During renovation, all workers should avoid crushing/disturbing waste containing asbestos, store such waste in designated areas within the construction site, and dispose of it properly at a designated location or disposal site.
If asbestos-containing waste is to be temporarily stored on site, it should be properly contained in sealed containers, and appropriately labeled as hazardous material. Precautions shall be taken to prevent any unauthorized removal of such waste from the site.
All asbestos-containing materials should only be disposed of by qualified and experienced personnel. Personnel should wear appropriate personal protective equipment (masks, protective gloves and overalls). When handling asbestos waste, employees must wear special protective clothing, gloves and respirators. Before removing (if necessary) asbestos from an area, it should be treated with a wetting agent to minimize the release of asbestos dust. Removed asbestos should never be reused.
People not directly related to the work are prohibited in the work area.

- All those working in the production and use of asbestos must be informed about the health hazards of asbestos.
- All workers must be provided with personal protective equipment: respirators, helmets, goggles, protective footwear.
- When loading and unloading work with old roofing (slate), do not allow the use of hooks and other sharp devices to avoid destroying roofing sheets.
- Do not allow roofing sheets to be dropped from any height during roof dismantling and handling operations.
- If roofing sheets are destroyed during work, the resulting waste must be moistened to prevent dust generation.
- Small asbestos-cement waste should be collected in a container and stored in a closed form until removal from the construction site.
- Transportation of asbestos-cement materials to the place of their utilization or storage in vehicles should be carried out, excluding their fall and damage;
- In case of falling and destruction of asbestos-containing materials on their way to the place of utilization or storage, it is necessary to clear the territory from parts and remove them to the place of utilization or storage.
- After unloading at the landfill, asbestos-containing waste should be covered from above with a layer of earth not less than 2m pits at the local authorized landfills.

6.1.8 Chance finds. Discoveries of historical value may be discovered during construction activities. To solve this problem, the ESMP presents measures for the "Chance finds".

6.2. Social Risks and Impacts

During the detailed design process, the Consultant, in close cooperation with the PIU, RWMU representatives and other stakeholders, had the opportunity to identify and minimize social risks.
In accordance with the project's Resettlement Policy Framework (RPF), the subproject must minimize land acquisition and resettlement activities to the greatest possible extent. The results of the social screening will be submitted to the PIU and WB office for decision making to determine expected risk level under the subproject, as the ESMF states that subprojects with high risk will not be financed under the Project.

In this regard, in August 2024, the analysis of detailed designs under MC “Nurgaziev” and canal Alga and a re-screening were carried out to check the social risks and impacts of activities under subproject on the households. No changes or additions to the design documentation are required to minimize the impacts of subproject.

All (re)construction work on to modernize MC “Nurgaziev”will be carried out within the boundaries of the existing right-of-way. The detailed design does not provide additional temporary or permanent land allocation for modernization of MC “Nurgaziyev”
All work on (re)construction of canal “Alga” will be carried out within the boundaries of WUA “Alga-Zharkoton” land plot. The detailed project does not include the additional temporary or permanent land allocation.
For the construction of canal “Alga”, a land plot of 9.96 hectares was allocated by the Resolution of the Khalmionsky rural rayon dated 26.09.1013 No. 142. The WUA “Alga-jarkoton” owns the state Act on the right of perpetual use of the land plot. The width of right-of-way for construction work on canal “Alga” is 10 m.

The results of survey showed that implementation of the subproject does not require additional temporary or permanent land allocation and the preparation of a Resettlement Plan is not required.

Possible social risks during Subproject implementation:

- Possible occupational injuries to the local population and workers;
- Involvement of people under the age of 18 in the work;
- Involvement of women in heavy work;
- Unauthorized access of the local population to the production sites;
- Community health and safety;
- Public dissatisfaction due to disruption of existing communications;
- Temporary access disruptions due to the renovation of bridges;
- Public dissatisfaction due to disruption of habitual lifestyles;
- Local dissatisfaction because of actual delays in subproject implementation, if any.

Table 11. Possible impacts on the social environment

Estimated impacts	(Re)construction phase	Operational phase
Public health and safety	Temporary minor impact/risks	No impact
Household assets	No impact	No impact
Access to objects	Temporary minor impact/risks	No impact
Children's safety during construction works	Temporary minor impact/risks	No impact
Traffic safety	Temporary minor impact/risks	No impact

Such potential environmental and social impacts can be effectively avoided, minimized or mitigated by including specific measures in civil contracts for implementation by contractors, with clear oversight and control by the PIU.

In order to minimize social risks at the stage of (re)construction works, it is necessary to comply with measures to mitigate the impacts under the subproject. Measures to mitigate the impacts on the health and safety of the population are prepared in the ESMP. Measures to ensure working conditions and occupational safety are prepared in the Labor Management Plan (LMP). A Stakeholder Engagement Plan (SEP) has been prepared for consultations and complaint management.

The specified social risks are possible only at the stage of (re)construction works. Similar impacts under the subproject at the stage of operation are not expected.

Organizational measures. Prior to the commencement of (re)construction works, the local building inspectorate, environmental inspectorate and the public shall be informed of the forthcoming Project activities through the media and, in areas accessible to the public (including (re)construction sites), through disclosing the ESMP, LRMP, SEP and GRM. All activities required to implement environmental and social safeguards and monitoring measures shall be planned and budgeted in the work plans of the promoter, contractors and subcontractors. All work shall be carried out in a safe and disciplined manner that minimizes impacts on the public and the environment.

Child labor. Child and forced labor shall not be used in the sub-Project. The Contractor shall undertake to refrain from the use of child labor and forced labor and to take measures to prevent gender-based violence. The Consultant's staff responsible for supervision of the Contractor will monitor the Contractor's works and report on the monitoring to the PIU and the WB.

Women's labor in difficult and hazardous working conditions. It is prohibited to employ women in heavy work and work with harmful and/or dangerous working conditions. The list of industries, jobs, professions and positions with harmful and/or hazardous working conditions, in which the use of women's labor is prohibited, as well as the maximum permissible load standards for women when lifting and moving heavy objects, shall be approved in accordance with the procedure established by the Government of the Kyrgyz Republic.

Health and safety of (re)construction workers. The Contractor's personnel shall be provided with personal protective equipment (PPE), including protective clothing and footwear, safety helmets, safety goggles, safety harnesses, etc., as appropriate to the work to be performed. Workers must be trained and instructed in health and safety rules before (re)construction begins. It is necessary to carry out continuous inspections of machinery and equipment in order to identify and eliminate malfunctions, to observe the periodic repair of equipment and to strictly comply with the applicable national regulations for the safe operation of machinery and equipment.

Minimizing community concerns. Local communities should be informed of the timing and extent of planned works. Information boards are placed near (re)construction sites in convenient and visible locations for the community.

Working hours should be strictly limited to daylight hours. (re)construction should be accompanied by special measures to prevent dust generation. Parking of (re)construction equipment should not block or restrict residents' access to their property and public areas or, if unavoidable, alternative locations and temporary access routes should be organized. Access roads and material and waste storage areas should be identified and clearly marked in the design of the works.

Where unanticipated impacts are identified during (re)construction, social due diligence shall include the following activities

(i) Immediate notification to the PIU of identified unanticipated impacts on households during (re)construction;
(ii) A team comprising the PIU, the Consultant and the Contractor will review the situation and relevant Project documents and consider options to stop the development of the identified unintended impacts, taking into account their minimization;
(iii) the consultant's engineers will prepare a plan to address the identified unintended impacts and agree it with the PIU.

Subsequent Subproject implementation measures will be taken based on an assessment of the magnitude of the identified unintended Subproject impacts. If unintended impacts of the Subproject on households cannot be avoided, a Corrective Action Plan (CAP) will be prepared. The CAP will be reviewed and approved by the PIU and the WB and published on their respective websites.

During the mobilization phase, the contractor will recruit labour from outside for more skilled trades. Skilled workers will be recruited on a competitive basis. Local residents will be given priority for employment opportunities if they meet the skill requirements.

Prior to the commencement of works, the PIU and the Consultant's specialists shall provide training to inform scientific and technical staff, workers and all interested parties about compliance with WB standards, including, but not limited to, the use of demonstration and illustrative material where possible.

All staff working on the Subproject must sign the Code of Conduct.

7. CHAPTER SEVEN: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

7.1. Environmental and Social Management Plan

This section describes the potential impacts of proposed activities and their mitigation under subproject phase: design, (re)construction and operation. The impacts are entirely grouped by environmental entities: physical environment, biological environment and social environment. Within these groups, the impacts are discussed by subjects such as: air, water, waste, health, etc. Together with the related mitigation measures.

The potential impacts of the Project can be classified as:

- **Direct impacts** – i.e. impacts directly caused by the Project. The (re)construction location.
- **Indirect impacts** – i.e. impacts arising from activities caused by the Project but not directly related to it.
- **Cumulative impacts** – i.e. impacts in combination with other activities. The Project itself cannot have a significant impact on the environment.

Impacts in all three categories may be as follows:

- **Short-term** – i.e. impacts that occur during (re)construction and affect land use, air quality and other factors. However, many of these impacts will be short-term and will not have long-term consequences. Many potential short-term negative impacts can be avoided or otherwise mitigated through proper engineering design, and requirements for contractors to use environmentally sound (re)construction practices.
- **Long-term** – i.e. impacts that may, for example, affect oblast land use and development patterns and oblast hydrology. Long-term negative impacts may also result from the loss of agricultural land to other types of land use, and air and water pollution.

Both short-term and long-term impacts can be positive or negative. Short-term positive impacts will include, for example, the creation of employment opportunities during the (re)construction period. The project is expected to have a positive impact because the implementation of project activities will lead to: (i) improved access to services, (ii) strengthened institutional capacity to provide climate-resilient irrigation services, and water management, will generally contribute to improved livelihoods and food security in the subproject area.

The impacts expected to arise from the subproject activities are entirely positive, as the expected negative impacts are mostly short-term in nature and all impacts are easily manageable using available, well-tested mitigation measures.

The mitigation approach used for the subproject follows standard mitigation hierarchy practices: if the impact assessment identifies a potentially significant impact, then the subproject planning and design process takes steps in the following order:

(i) **Prevention:** Change the location, design or timing of an activity to avoid a confrontation.
(ii) **Minimization**: Change the location, design or timing of activities to reduce the severity of the impact to an acceptable level.
(iii) **Indemnity**: If follow-up impacts after mitigation are still significant, compensation should be arranged. Socio-economic compensation is often financial; environmental compensation may involve, for example, habitat improvements elsewhere to compensate for habitat damaged under subproject.

7.1.1. Design/pre-(re)construction stage

During the planning and design stage of the subproject, a number of impacts were identified and mitigation measures were taken as outlined below. The following four actions are part of the normal subproject planning and design process, but require special attention due to their importance, both in

identifying and preventing negative impacts, and in ensuring that all mitigation measures are effectively implemented:

(i) **Environmental and Social Impact Assessment**: The environmental assessment process was conducted in line with the assessment of social safeguards, and preparation of relevant social protection documents, in particular the integrated social assessment report. In addition, the subproject requires approval under the normal procedures of the Kyrgyz Republic, which include the State Environmental Expertise (SEE). The comprehensive impact assessment process resulted in the preparation of comprehensive environmental and social management, and monitoring plans, which list the various practical actions to be taken to manage the environmental and social risks under the subproject.

(ii) **Redress Mechanism**: a Subproject preparation involved the development of a grievance redress mechanism (GRM) as described in Section 7, and also in SDDR (Social Due Diligence Report).

(iii) **(Re)construction Related Requirements**: a Subproject preparation involved the identification of various environmental and social safeguards to be taken by a contractor for the (re)construction works, with the focus on development and implementation of the Environmental and Social Management Plan.

(iv) **Supervision and Monitoring Arrangements**: The final key consideration in a subproject planning was the development of environmental supervision, monitoring and reporting arrangements.

Table 12. Exposure Risk Classification System

		Effect			
		Insignificant	*Moderate*	*Significant*	*Critical*
Expectancy	*Unlikely*	Low	Low	Average	Average
	Likely	Low	Average	Average	High
	Highly likely	Low	Average	High	High

The risks at each subproject stage: preliminary design, (re)construction, and operation, are shown in Table below. Note that a risk rated as “high” is not expected to occur during the subproject implementation.

Table 13. Risk Impact Assessment

S/ #	Potential impact	Expectancy (Unlikely, likely, most certainly)	Effect (Insignificant, moderate, significant, critical)	Risk level (Low, average, high)
Pre-(re)construction				
1	Inadequate environmental assessment and planning	Unlikely	Moderate	Low
2	Insufficient provision of protective resources to the PIU or consultant	Unlikely	Moderate	Low
3	Inadequate inclusion of environmental safeguards in (re)construction tender documents	Unlikely	Moderate	Low
(re)construction				
1	Excessive dust from (re)construction activities	Unlikely	Moderate	Low
2	Excessive noise from (re)construction activities	Unlikely	Insignificant	Low
3	Excessive vibration from (re)construction activities	Unlikely	Moderate	Low
4	Groundwater impacts	Unlikely	Moderate	Low
5	Reduction in quality or volume of topsoil	Unlikely	Moderate	Average
6	Erosion and sedimentation	Unlikely	Insignificant	Low
7	Impacts from access roads to the site	Unlikely	Insignificant	Low
8	Impacts on public roads and bridges	Unlikely	Moderate	Average
9	Damage to or disconnection of existing utilities	Unlikely	Moderate	Average
10	Impacts of improper waste management	Unlikely	moderate	Low
11	Impacts on habitat and biodiversity	Unlikely	Moderate	Low
12	Impacts from (re)construction machinery	Most certainly	Insignificant	Average
13	Risks to livestock from (re)construction activities	Unlikely	Insignificant	Low
14	Risks of infectious diseases to the public	Unlikely	Moderate	Low
15	Accidents and injuries to workers	Unlikely	Significant	Average
16	Negative interactions between workers and local residents	Unlikely	Insignificant	Low
17	Temporary loss of land use rights	Unlikely	Moderate	Average
18	Impacts on structures (fences, support structures)	Unlikely	Moderate	Low
19	Employment of young aged people under 18	Unlikely	Moderate	Low
20	Involving women in hard works	Unlikely	Moderate	Low

S/ #	Potential impact	Expectancy (Unlikely, likely, most certainly)	Effect (Insignificant, moderate, significant, critical)	Risk level (Low, average, high)
21	Unauthorized access of local population to construction sites	Unlikely	Moderate	Low
Operation				
1	Impact on surface and ground water	Unlikely	Insignificant	Low
2	Significant attrition of access roads	Unlikely	Insignificant	Low
3	Erosion of replaced topsoil	Unlikely	moderate	Average
4	Low productivity of (re)constructed areas	Unlikely	moderate	Average
5	Inadequate emergency preparedness	Unlikely	significant	Average

The work to perform include the (re)construction and rehabilitation of existing irrigation and drainage systems (IDS). The following risks will be observed during the (re)construction phase:

(a) clearing of trees and shrubs during (re)construction of irrigation infrastructure;
(b) emissions of pollutants into the atmosphere during excavation works, from the operation of (re)construction equipment/machinery;
(c) formation of (re)construction waste (hazardous and non-hazardous);
(d) noise and vibration during transport movement and operation of machinery;
(e) possibility of soil erosion and, consequently, sedimentation in water bodies;
(f) associated risks due to improper disposal of (re)construction waste and potential asbestos-containing materials that may be found during the work;
(g) operational or accidental leaks of fuels and lubricants from (re)construction machinery/equipment into the soil, surface and ground water;
(h) issues of labor protection, health and safety during work;
(i) public health and safety;
(j) poor quality restoration of (re)construction sites after completion of works.

Table 14. Potential environmental and social impacts and mitigation measures

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
(re)construction stage				
Atmospheric air	1) Dust from excavation work during (re)construction of irrigation canals, HWS and other structures; 2) Emissions from machinery and other (re)construction equipment.	1) machinery exhaust systems and (re)construction equipment should be in good condition, to minimize air pollution; 2) Limiting the speed of vehicles and selecting suitable transportation routes to minimize dust emissions; 3) Moisturizing the road surface while machinery driving; 4) Moistening of trenches, canals and pits during excavation work; 5) (re)construction work should be suspended in strong winds if the dust level is high. 6) All vehicles delivering dusty (re)construction materials to the site or removing garbage should be fenced or covered to prevent dusting; 7) Welding of metal structures should be done by electric welding.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment. 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
Soil and groundwater	1) Possible removal of the fertile soil layer; 2) Pollution of the soil with liquid and solid household waste, spillage of fuel and lubricants	1) Storage of excavated fertile soil layer for its further use; 2) If necessary, transfer of fertile layer to local farmers for further use; 3) Installation of containers for solid waste; 4) Installation of temporary toilets of the ecological or bio-toilets type; 5) Temporary storage of (re)construction waste on protected ground; 6) Regular and timely removal of solid household waste (SHW) and (re)construction waste from a (re)construction site to municipal landfills, in accordance with the permission of local governments; 7) If fuels and lubricants get on the soil, clean the area from contamination, dispose of fuels and lubricants in sealed containers at a municipal landfill in agreement with local governments;	1) Contractor is responsible for implementation of measures to reduce the impact on the environment. 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
		8) The storage area for fuels and lubricants/chemicals must be planned, concreted (sealed) and fenced around the perimeter to prevent fuels and lubricants or chemicals from getting into the soil and water bodies.		
Surface water bodies	1) Placement of (re)construction camp; 2) Accumulation and storage of (re)construction and household waste (solid and liquid); 3) Storage and use of fuels and lubricants; 4) Placement and storage of equipment and vehicles in the water protection zone.	1) It is prohibited to locate a (re)construction site within water protection zones of rivers and canals; 2) Install temporary containers for collecting solid waste; 3) Organize an environmentally safe cesspool or bio-toilet at the (re)construction site; 4) Ensure the removal of all waste and (re)construction debris from the sites for their further disposal at a municipal authorized landfill, in accordance with the permission of local government bodies; 5) Store fuel and lubricant materials at the (re)construction site in accordance with environmental safety requirements; 6) In the event of a fuel and lubricant spill, immediately clean the contaminated area, remove contaminated soil in plastic bags to a specially equipped landfill in agreement with the local government; 7) It is prohibited to place equipment in the water protection zone.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
(re)construction waste non-hazardous waste	1) When dismantling reinforced concrete canals, buildings and structures, reinforced concrete, wooden and metal waste may be generated;	1) Prior to starting work, identify the methods of collecting and removing waste, as well as the locations of the main types of waste generated during dismantling and (re)construction work and identify disposal ;sites. 2) Mineral waste from (re-) construction work and waste generated during dismantling of objects must be separated from organic, liquid and chemical waste at the work site, after which they must be stored in a specially designated area in compliance with environmental safety standards; site.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Contractor needs to sign agreement with local municipality for disposal of the construction waste; 23) Supervision by a consulting company;	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
		3) Reuse and recycling of waste: metal, wood, paper, used fuel and lubricants, etc.; 4) Timely removal of (re)construction waste from the (re)construction site at the expense of the contractor to their storage or burial sites under an agreement with the local government.	34) Monitoring of (re)construction sites will be executed by PIU; 45) State control by the authorized state body.	
Asbestos containing waste	Asbestos-cement waste and materials can be presented in the form of slate covering the roof of a building, and also possibly asbestos-cement pipes or their parts.	1) Management Plan has been developed for working with asbestos-containing waste; 2) Asbestos-containing materials/waste are to be stored in specially designated areas within the (re)construction site, with disposal and entombment; 3) Observe safety precautions when working with asbestos-containing materials; 4) Personnel must wear personal protective equipment (masks, protective gloves and special clothing); 5) If necessary, before removing asbestos-containing material from the site, treat it with a wetting agent to minimize the release of asbestos dust; 6) Asbestos-containing materials/waste are transported to be stored in specially designated areas within the local landfill site, with disposal and entombment; 7) Prevent the reuse of asbestos-containing materials.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Contractor needs to sign agreement with local municipality for disposal of the construction waste; 3) Supervision by a consulting company; 4) Monitoring of (re)construction sites will be executed by PIU; 5) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
			1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
Household waste	Pollution and littering of the surrounding area; soil pollution, possible pollution of water resources.	1) Sing-off an agreement for storage of household waste at an authorized landfill for household waste or purchase of a waste removal coupon; 2) Installation of containers for collection of household waste; 3) Removal of household waste for burial at a landfill determined by local government bodies; 4) Equipping an environmentally safe concrete cesspool for collection of liquid household waste.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Contractor needs to sign agreement with local municipality for disposal of the construction waste; 3) Supervision by a consulting company; 4) Monitoring of (re)construction sites will be executed by PIU; 5) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
Landscape	1) Destruction of the landscape during (re)construction of irrigation canals and HWS, other hydro-technical structures (HTS); 2) Inadequate restoration of (re)construction sites after completion of works.	1) The soil from the pipeline and reservoir (re)construction will be used for backfilling; 2) Excess soil from well drilling will be used for reclamation, planning and restoration of the water intake (re)construction site; 3) Reclamation, planning and restoration will be carried out at the work sites; 4) Cleaning the territory from (re)construction and solid household waste upon completion of (re)construction work; 5) Carrying out planning and restoration work after completion of (re)construction.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
Wild animals	Destruction of the natural habitat of the animal world	1) Prohibit on hunting (sub)contractors workers.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Supervision by a consulting company;	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
			3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	
Tree and shrub vegetation growing in populated areas	Cutting down trees and shrubs	1) Preservation of the maximum possible number of trees and shrubs; 2) Cutting down of trees and shrubs must be carried out in agreement with the local environmental protection authority; 3) Inventory of trees and shrubs subject to cutting down; 4) PIU will send a letter to local authorities with a recommendation to plant trees in place of those cut down.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
Noise and vibration	Noise and vibration from operating machinery and process equipment	1) Work only during daylight hours from 8.00 to 18.00; 2) Do not work near populated areas on weekends and holidays; 3) Exhaust systems of cars, trucks and equipment must be in good condition to minimize noise pollution; 4) If work is carried out in populated areas, it is necessary to inform populated areas about the schedule and duration of (re)construction work. 5) Work near populated areas is carried out only on weekdays.	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
Chance findings	Chance findings of objects and artifacts of historical and cultural value during (re)construction work	In case of discovery of objects or artifacts, it is necessary to: 1) suspend work at the place of discovery of chance findings; 2) inform PIU about chance findings; 3) PIU will transfer information to the Institute of History, Archaeology and Ethnology of the National Academy of Sciences of the Kyrgyz Republic (NAS KR).	1) Contractor is responsible for implementation of measures to reduce the impact on the environment; 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
Social environment				

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
Health and safety in the workplace, including measures to prevent the spread of COVID-19.	Risks for workers throughout the (re)construction period	1) Sites equipped with appropriate information boards and signs informing workers of the rules and regulations of work; 2) Introductory and periodic briefings prior to starting work and during the working hours. Recording in the instruction register; 3) Availability of first aid equipment for injuries on site; 4) Provide workers with personal protective equipment (helmets, special footwear, gloves); 5) Social distancing at facilities and during meals in accordance with WHO recommendations; 6) Regular cleaning of living and dining areas using disinfectants; 7) Isolation of a worker, in case of fever and other cold symptoms; 8) Comply with the fire and electrical safety requirements.	1) Ensure working conditions in accordance with the national labor legislation and ESS 2 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
Impact of subproject on the local population	1) Carrying out work on new lands.	1) Avoid land acquisition or relocation of local populations as much as possible; 2) Minimize the scale of the impact of relocation; 3) Inform the population of their rights to compensation in the event of land acquisition; 4) In case of project impact on the population, assist the local government in preparing a Resettlement Action Plan (RAP); 5) Effective interaction with local communities to minimize public discontent; 6) Effective GRM.	1) All work related to the acquisition of land is carried out with participation of local authorities, PIU and a consultant. 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft Budget for implementing RP from local government funds.

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
	Public safety, labor influx and other social measures 2) Temporary restriction of access to homes and suppliers, 3) protection of public health and safety during construction work (protection of children and the elderly from access to work sites). Traffic disruption due to construction work on municipal road sections	1) Conducting the outreach campaigns on (re)construction works and their impact on the environment and social environment; 2) Restricting public access to (re)construction sites; 3) Fencing-off (re)construction sites with warning tapes if (re)construction is carried out within populated areas; 4) Traffic control, installation of warning signs during work on (re)construction sites along highways and roads; 5) Perform (re)construction works in populated areas only during daylight hours; 6) Compliance with (re)construction schedules so as not to interfere with the activities of social facilities if they are affected; 7) Effective interaction with local communities and effective GRMs; 8) Ensuring safe and constant access to all adjacent office premises, shops and residences during (re)construction The Contractor must undertake the following: - install signs and markers warning the public of all potential hazards - ensure safe passage and crossing for pedestrians, where traffic is obstructed. - adjust working hours to local traffic flows, such as avoiding major traffic activities during peak hours or when livestock are moving.	1) PIU conducts consultations. 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body. 5) All measures taken must comply with the legislation of the Kyrgyz Republic and ESS 4 1) Contractor is responsible for implementation of measures to reduce the impact on the environment. 2) Supervision by a consulting company; 3) Monitoring of (re)construction sites will be executed by PIU; 4) State control by the authorized state body.	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
Operation				
Water resources	1) Threats to water quality due to soil salinity from drainage	1) Visual observation of areas where irrigation water may accumulate (prevention of waterlogged areas); 2) Training on improving pest management/pesticide application practices;	Ameliorative Hydro-geological expedition WRS (AHE WRS) Land and Water Supervision Service (MWRAPI)	From the budget of AHE WRS and Land and Water Supervision Service (MWRAPI)

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
	2) Threats to water quality due to contamination with agrochemicals	3) Application of agrochemicals according to recommended standards; 4) Prevention of discharge of wastewater into canals and surface water bodies.		
Soil	Increased soil erosion	1) Outreach campaign among farmers, water users; 2) Rational use of irrigation water and irrigation in accordance with the irrigation regime; 3) Construction of irrigation furrows at the lowest slope (transverse furrows); 4) Shortened furrow length; 5) Introduction of progressive irrigation methods (sprinkling, drip irrigation).	Land and Water Supervision Service (MWRAPI)	From the budget of Land and Water Supervision Service (MWRAPI)
Impact on climate change	Lack of water for irrigation	1) Training on climate change mitigation measures; 2) Compliance with irrigation standards and regime.	WRS MWRAPI	
Potentially possible mudflows	1) Destruction of residential buildings, social facilities and social infrastructure (roads, canals, water supply, etc.) 2) Destruction of agricultural crops.	1) Regular and timely cleaning of mudflow aqueducts and canals; 2) Cleaning of mudflow passages located on canals and crosscut canals, administered by MWMU and RWMU.	1) MES, LSGB 2) MWMU, RWMU	Budget of MES and LSGB, MWMU and RWMU
Population, farmers, water users	Swimming in canals and water storage facilities (NSR, DSR)	Install signs/banners on the canals warning of danger and prohibiting swimming	RWMU, MWMU	Budget of RWMU and MWMU
	1) Failure to comply with the norms and regime of irrigation of agricultural crops; 2) Imperfect, outdated irrigation methods of crops.	1) Execute the uninterrupted monitoring of water intake and supply to the population, farmers and all water users; 2) Conduct training and explanatory work among farmers and the population on compliance with the norms and regime of irrigation of agricultural crops; 3) Conduct work among farmers on the need to introduce cutting-edge irrigation methods/practices.	RWMU, MWMU	Budget of RWMU and MWMU

Environmental and social parameters	Impact	Proposed actions/ mitigation measures	Institutional responsibility for mitigation actions/measures	Cost of actions/ mitigation measures
Population, farmers, water users	During the operation period, the impact will be positive on: 1) improved water management; 2) rational use of water resources; 3) reduction of water losses in irrigation systems and increase in the efficiency of canals; 4) improved sustainable access to irrigation water in the context of climate change for farmers and water users in general; 5) increased productivity of agricultural crops; 6) improved soil fertility.			

7.2. Environmental and Social Monitoring Plan

In order to ensure the implementation of environmental and social measures specified in the specific subproject ESMP, a subproject ESMP will include a site-oriented monitoring plan with defined monitoring indicators/variables, and associated constraints. The Monitoring will be performed as follows:

- **Visual monitoring:** during the (re)construction phase of subprojects, environmental and social specialists should continuously monitor the ESMP implementation. This will be achieved through monthly inspections of (re)construction sites by specialists, throughout the (re)construction period.

The results of environmental and social protection monitoring will be recorded in special checklists, which can be compiled with the addition of photographs from the monitoring site.

For all subprojects, the environmental specialists and social specialists check the timeliness of contractors' reports. Contractors shall periodically submit reports on runoff to water bodies, air emissions and solid waste to the oblast committees on ecology and environmental protection. Instrumental monitoring of air quality will be executed in the event of complaints related to violations or inconveniences from the local population, with use of instrumental measurements of air, or water quality using a certified laboratory. In the event of exceeding national standards, the contractor must undertake additional measures to bring the identified excesses into compliance with the standards.

Table 15. Environmental and Social Monitoring Plan

Subproject implementation stage	What parameter is subject to monitoring?	Where will monitoring take place?	How will monitoring be carried out? Type of monitoring equipment	When? (frequency of measurements)	Cost of monitoring 13 (cost of equipment or amount of contractor expenses required to carry out monitoring?)	Institutional responsibility for monitoring
(Re)construction	Noise/vibration	At a (re)construction site	Portable sound level meters and vibration meters, in the presence of dynamic impacts	Uninterrupted	Not considered as a separate expense item	1) Supervision of SU-YAPI's ESMP compliance. PIU monitoring to ensure compliance with ESMP. Authorized state body implementing environmental supervision of the implementation of design decisions during (re)construction work
	Transport	At a (re)construction site	Visually	Uninterrupted		
	Waste disposal and storage	At a (re)construction site and soil heap	Visually	According to plan, but, at least, weekly		
	Soil pollution	At a (re)construction site	Visually	Uninterrupted		
	Dismantling of a (re)construction site	At a (re)construction site	Visually	According to plan		
	Trees, Shrubs	On and around a (re)construction site	Visually	Uninterrupted		

Subproject implementation stage	What parameter is subject to monitoring?	Where will monitoring take place?	How will monitoring be carried out? Type of monitoring equipment	When? (frequency of measurements)	Cost of monitoring 13 (cost of equipment or amount of contractor expenses required to carry out monitoring?)	Institutional responsibility for monitoring
	Worker Safety	At a (re)construction site	Visually	Uninterrupted		
	Community Health and Safety	Around a (re)construction site	Visually	Uninterrupted		
	Working Conditions and Safety	At a (re)construction site	Visually	Uninterrupted		
	Road Safety	Around a (re)construction site	Visually	Uninterrupted		
	Stakeholder Engagement and Complaint Management	Around a (re)construction site	Meetings/ Discussions	Uninterrupted		
	Access to houses/facilities	Around a (re)construction site	Visually	Uninterrupted		
	Livelihoods	Around a (re)construction site	Visually	Uninterrupted		
	Asbestos Detection	At a (re)construction site	Visually	According to the asbestos		

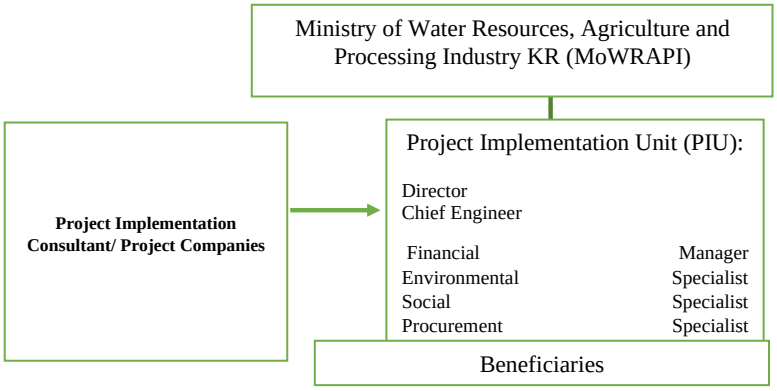
Subproject implementation stage	What parameter is subject to monitoring?	Where will monitoring take place?	How will monitoring be carried out? Type of monitoring equipment	When? (frequency of measurements)	Cost of monitoring 13 (cost of equipment or amount of contractor expenses required to carry out monitoring?)	Institutional responsibility for monitoring
				management plan		
Operation	Water quality	off-farm canals: “Otuz Adyr” and “Kochkor-Ata”	Field equipment for measuring parameters	Vegetation period	State budget funding	1) Oblastal Environmental Protection Department MNRETS KR. 2) WRS MWRAPI KP
	Soil salt content	Places of waterlogging and the landscape depressions	Soil sampling	Vegetation period	State budget funding	AHE WRS MWRAPI KP

7.3. Institutional Arrangements for Implementation of the ESMP

The overall project organizational structure is presented in Image 6-1, together with a list of the PIU staff positions. The PIU consists of a full-time environmental and social specialists. The PIU is supported by a Project Implementation Consultant (PIC). The PIC also employs E&S specialists in long-term.

The PIU, with support of PIC, is responsible for all environmental and social aspects of the subproject development, including obtaining the necessary safeguard approvals from both the World Bank and the national environmental regulator (MNRETS).

Image 15. Organizational structure



The PIU and PIC are responsible to elaborate and implement ESMP.

7.4. Roles and Responsibilities of Contractor Personnel

Project Manager Responsibilities (PMR): Ensures that the environmental and social policies, objectives and activities defined in a subproject ESMP and industry practice are implemented, including the full implementation of all related procedures. He/she also ensures that every effort is made to prevent injuries during (re)construction and to avoid social and environmental impacts, where possible. The project manager continuously monitors the effectiveness of ESMP implementation and effectiveness of personnel under his/her control, who are responsible for social and environmental protection issues. The Project Manager is the main liaison with the PIU. In particular, he/she:

- Assigns a subproject personnel who will coordinate and implement effective project operations that comply with socially and environmentally sound practices;
- Ensures that an effective ESMP is developed and implemented within a subproject;
- Manages the effectiveness of ESMP and ensures that corrective action(s) is taken, where necessary;
- Ensures that all potential incidents involving personal injury, property damage or environmental damage are thoroughly reviewed, and reported to identify causes, trends and propose mitigation measures;
- Ensures that mitigation measures are immaculately followed;
- Ensures that all personnel are competent to perform their duties;
- Ensures that personnel are adequately trained to enable them to perform their tasks safely;
- Promotes a high degree of social and environmental awareness among all project management;

- Informs the employer and head office, in a timely manner, if issues with ESMP non-compliance arise, and communicates appropriate corrective action.

Construction Manager Responsibilities (CMR): The Construction Manager directs and coordinates the work of inspectors and provides technical assistance in operation, when necessary. The CM also ensures that the work on site is performed within the contract scope of work, in accordance with the relevant approved criteria, standards and procedures. In particular, he/she:

- Reviews a subproject proposition for field operations methods;
- Ensures that proposed methods are consistent with standard operating practice;
- Ensures that adequate risk assessments are carried out prior to commencement of activities and operations;
- Ensures that adequate consideration is given to providing safe access and egress to ensure that operations are performed safely;
- Ensures that all equipment is available, fit for purpose and certified where appropriate;
- Ensures that work under his/her supervision is performed with consideration of ESMP issues and industry practice;
- Ensures that all personnel have adequate tools and protective equipment for the job;
- Ensures that work is executed in accordance with the contract standards, statutory obligations and the Contractor's procedures; and
- Evaluates lessons learned and makes changes to the programme, if necessary.

Environmental and Social Manager Responsibilities (ESMR). The Environmental Manager (EM) oversees the implementation and effectiveness of a subproject ESMP at all stages, areas and activities. In particular, he/she:

- Establishes and monitors the environmental and social management systems;
- Coordinates the environmental and social management system at the site;
- Establishes and maintains relationships with Kyrgyz environmental authorities to obtain all relevant permits and ensure compliance with all relevant legal requirements;
- Prepares and maintains a subproject auditing schedule to assess compliance with approved subproject environmental and social plans and procedures;
- Conducts regularly scheduled staff meetings and coordination meetings with the PIU/PIC to discuss relevant issues affecting work. Provide reports and meeting minutes to the PIC;
- Ensures that environmental and social regulations, rules, procedures and work instructions are communicated, understood and implemented by site personnel;
- Ensures that all environmental and social activities associated with field operations are properly monitored;
- Informs a subproject management team of any changes in legislation that may affect a subproject;
- Reviews notifications and related documents, ensuring they are distributed to the relevant personnel for attention;
- Ensures compliance with the environmental and social requirements of a subproject;
- Promotes and encourages the high level of environmental and social awareness among personnel;
- Ensures daily monitoring of a subproject site to ensure that all activities undertaken comply with ESMP;
- Informs all site personnel of the ESMP requirements, procedures, and implementation;
- Coordinates formal induction training on environmental and social aspects applicable to any specific work site activity;

- Regularly informs and briefs the Project Manager and PIC/PIU on the status of implementation and effectiveness of environmental and social mitigation measures;
- Maintains records of all environmental and social monitoring activities.

Responsibilities of Environmental and Social Specialists: ESSs assist ESM in the following:

- Inform workers of social and environmental risks existing on site, preventive and protective measures taken;
- Educate workers on actions to be taken in the event of an environmental disaster and social issues;
- Check the application of environmental and social procedures;
- Responsible for confirming that adequate information has been collected to provide appropriate inputs for individual mitigation and monitoring measures;
- Translate mitigation requirements recorded in the ESMP and its subplans into practical measures on site;
- Ensure that all personnel are fully aware of the social and environmental sensitivity of the site and their responsibilities, as specified in the management plans (e.g. through practical discussions before construction);
- Take field notes and photographs to demonstrate compliance with the management plans;
- Monitor the site and immediately report to the Construction Manager and Environmental Manager if environmental regulations are not being followed carefully.
- Note: If the contract terms only employ an Environmental Specialist, the duties of the Environmental Field Specialist will be assigned to ES.

Project Engineer, Site Engineers, and Site Managers.

- Comply with relevant environmental and social regulations and a subproject requirement, as specified in ESMP;
- Exercise and appropriate level of diligence in ensuring that work practices are followed that minimize adverse impacts on the environment and social;
- Monitor all employees to ensure that they comply with environmental and social regulations required in their work;
- Ensure that environmental and social controls are developed in the workplace;
- Ensure that all employees comply with the environmental and social requirements in the workplace;
- Ensure that all employees report any environmental and social risks;
- Liaise with employees to ensure prompt response when environmental and social issues arise;
- Conduct weekly environmental and social audits of sites; and
- Participate in monthly environmental and social audits, as required.

Health and Safety Manager

- Conduct daily safety audits of the work area;
- Organize campaigns, competitions and other special programs to improve safety in the workplace;
- Highlight safety requirements in the toolkit meeting;
- Investigate all accidents/near misses and recommend appropriate safety measures;
- Convene a safety meeting and prepare a report for distribution and follow-up;
- Consult and coordinate the implementation of the permit to work system;
- Ensure that quality PPE and safety devices are available and inspected before use in accordance with established standards;

- Submit reports to the PIU;
- Facilitate the screening of all workers and safety induction;
- Applicate first aid, if needed;
- Maintain records of all documentation related to health and safety;
- Prepare and implement an on-site emergency response plan;
- Implement the health and safety plan;
- Provide periodic communication with on-site teams and affected parties, among other things;
- Ensuring that environmental and social issues are taken into account and addressed appropriately.

The responsibilities of all employees. All employees (including subcontractors) have assigned to the duty to protect the environment and comply to social requirements on land acquisition, resettlement and etc. by carrying out their work with due care. In particular, they must:

- Comply with the legal and a subproject requirement, as identified during induction, relevant to the type of work in which an employee is involved;
- Know the ESMP requirements, including environmental and social responsibility and measures to minimize impacts;
- Report any incidents that may result in harm to the environment and people or workers arising during working process or in connection with their work; and
- Implement practical ways of controlling environmental and social risks.

7.5. Implementation arrangement and capacity building

The proposed staffing schedule for the PIU and PIC takes into account the need for full-time specialists to ensure effective planning and implementation of all protective measures and activities:

- The PIU's full-time Environmental and Social Specialists will provide support and information for screening, subproject categorization, ESMP preparation, public meetings and disclosure, and ESMP implementation during the pre-construction and construction phases.
- The PIC will include National Environmental and Social Specialists, who will provide support and on-the-job training to the PIU Environmental and Social Specialists, prepare environmental and social documentation, establish environmental and social monitoring systems for a subproject implementation, and conduct related training(s);
- The PIU/PIC staff will conduct public consultations and monitoring visits during (re)construction phase;
- The PIU/PIC Construction Managers will oversee the implementation of ESMP by contractors on site and are the proponent's representatives at the initial GRM level.

Supervision. The supervision of environmental and social management activities of a subproject will be performed at several levels:

- **Supervision during (re)construction**: On site, the contractor's activities will be supervised by supervisory staff headed by the local engineers. The contractor must have a qualified health and safety specialist. In turn, the contractor will be supervised by the PIU (re)construction supervision specialist. He/she and his/her colleague will visit the site frequently throughout the working season to check the technical progress of works. At the same time, the specialist will document any non-conformity with the approved HSE practices and procedures defined in the approved ESMP.
- **During (re)construction** it is likely that the relevant environmental regulator office will visit the site to check compliance with any conditions established during the SEE process.

- **Implementation of the overall ESMP under a subproject**: On behalf of the PIU, the PIC will review the implementation of overall ESMP of a subproject in three stages: design, (re)construction and operation, and will report to the PIU.
- **The World Bank:** The financing agency, the WB, will conduct supervision missions of the entire project with involvement of relevant Environmental and Social Development Specialists, who will visit and check the ongoing subprojects for compliance of works conducted to applied ESS to the project.

Reporting. The Environmental and Social reporting will be carried out at several levels. During (re)construction:

- The contractor will include a specific section on a subproject's environmental and social management, health and safety, community relations, GRM in each monthly progress report submitted to the PIU.
- The data and information in a report will be compiled based on the contractor's day-to-day work on site, as well as regular weekly inspections and monitoring of safety issues.
- PIU will also conduct independent on-site audits of ESMP implementation, with a site inspection report issued for each audit.
- A subproject GRM will be in force throughout the (re)construction period. Information on the number and type of complaints, resolutions, and outstanding cases will be included in the PIU's six-monthly progress reports submitted to the WB.

7.6. The Budget for the Implementation of ESMP

A subproject's environmental and social risk management costs are listed in Table below, with notes on how costs can be allocated.

Table 16. Environmental and social Management Cost Items

№	Details	Comments	Implementation estimates, USD
(re)construction			
1	Health, Safety and Environment Engineer	Full time to prepare documentation, set up procedures and systems, and train managers and workers on site; daily monitoring of construction safety activities	Included in the specialist's remuneration
2	Dust suppression	Standard best practice	The cost of mitigation measures will be determined in BOQ while elaborating on of the Working draft
3	Safe fuel storage	Standard best practice	
4	Waste management	Standard best practice	
5	Precipitations control	Standard best practice	
6	PPE	Standard best practice	
7	First aid equipment	Standard best practice	
8	Workers training	Standard best practice	Included in the occupational health,

№	Details	Comments	Implementation estimates, USD
			safety and environment specialist's remuneration
9	Monitoring by the contractor.	Normal contractor overhead expenses	Included in the occupational health, safety and environment specialist's remuneration
10	Health, safety and environment supervision by PIC	Performed as part of normal construction supervision.	
11	Soil removal	The main component of excavation; laying the final layers requires agricultural rather than civil engineering skills.	Included in the (re)construction cost
12	Site restoration	The main component of excavation; laying the final layers requires agricultural rather than civil engineering skills.	Included in the (re)construction cost
13	Aftercare of restored land	A minimum of one year of qualified agricultural management experience is required.	Included in the (re)construction cost
14	Instrumental monitoring	Standard best practice	
15	Monitoring by PIU/PIC	Part of routine supervision; no additional costs or lab testing expected	
16	Outreach campaign /awareness, consultation	The contractor will maintain communication with the community as part of normal best practice; the PIU and PIC will disseminate information and hold local meetings as necessary.	
17	Grievance redress	The PIU will be the main body that will coordinate all aspects of a grievance handling from the local to the national levels. This activity will be performed in close cooperation at the local level; no additional costs are expected unless	

№	Details	Comments	Implementation estimates, USD
		investigations and meetings are required; costs to be covered by ta subproject contingency	
18	Fencing of the site and ensuring free passage of the public	Usual best practice	Included in the cost of construction BOQ
19	Capacity strengthening	The PIC staff will train and mentor PIU staff on an ongoing basis.	

CHAPTER EIGHT: PUBLIC CONSULTATION AND DISCLOSURE OF INFORMATION

In accordance with KR legislation and WB standards, local communities should be meaningfully consulted and given opportunities to participate in Subproject planning and implementation. In accordance with the same principles, all stakeholders and local communities should be informed in a timely and appropriate manner of the results of the planning process, as well as of Subproject implementation schedules and procedures, including the implementation of the Grievance Redress Mechanism (GRM).

The Constitution of the Kyrgyz Republic guarantees the right of citizens to access information on the activities of state and municipal bodies in accordance with the procedure established by law. The Law of the Kyrgyz Republic on Access to Information of State Bodies and Local Self-Government Bodies of the Kyrgyz Republic requires maximum openness of information, publicity and transparency of activities of state and local self-government bodies.

Disclosure includes providing information about the (sub)Project to the general public and to affected communities and other stakeholders, and is intended to facilitate constructive engagement with affected communities and stakeholders throughout the life of the Subproject.

In the course of the implementation of the Subproject, the PIU and the consultants' specialists carried out meaningful public consultations with the main stakeholders.

Information on this sub-Project will be published by posting the document on the websites of the PIU, the WB and the participating community.

Under the subproject, public consultations held on 27 September 2024, where information was provided on the subproject and its components, as well as potential social and environmental impacts and mitigation measures. The public consultations attended by 33 people, including 30 men and 3 women.

Image 16. Public consultations

The main objectives of the consultations with local authorities and communities were: i) to share information about the Project; ii) to ensure the cooperation of local authorities during Project preparation and implementation; iii) to implement GM.

During the consultation process, community members and officials were able to raise issues of interest to them and receive answers to any questions about the Subproject 's timeline, design and issues.

The following topics were on the agenda:

(i) Introductory information on the Project and subproject of modernization of the Nurgaziyev MC and the Alga canal;
(ii) Measures to minimize environmental and social risks;
(iii) Grievance redress mechanism under the Subproject;
(iv) Gender aspects of the implementation of the sub-Project;
(v) other issues related to the Subproject.

The information from the public consultations was considered and the results were documented in Minutes (Annex 2).

CHAPTER NINE: GRIEVANCE REDRESS PROCEDURES

In accordance with the requirements of the World Bank's Socio-Environmental Standard 10 (ESS-10), the PIU of WRS has developed a Grievance Mechanism (GM) for the Subproject.

The GM is a process for obtaining prompt and objective information, assessing, reviewing, addressing and resolving grievances (applications, suggestions, complaints, requests and positive feedback) related to the implementation of the Project. The GM will streamline the process of receiving, reviewing and resolving complaints that may arise in relation to the implementation of Project activities. The Subproject will also implement a feedback mechanism (FBM) as one of the main tools for the prevention of social risks/conflicts.

The GM is necessary so that direct and indirect beneficiaries of the Subproject have the opportunity, at all stages of the Project implementation, to submit their requests in the form of complaints or suggestions for improving the Project activities, or proposals for eliminating problems without any costs, and with a guarantee of their timely resolution. Appeals directly related to implementation of the Subproject are subject to consideration. Appeals or complaints can be both individual and collective. This mechanism will also allow anonymous complaints to be submitted and considered. In accordance with the Law of the Kyrgyz Republic "On the procedure for citizens' appeals", citizens can send any appeals on issues related to the scope of the Subproject implementation, at all stages of implementation.

9.1. GM objectives

The objectives of GM are to:

- To record, verify, review, consider, follow up and respond to complaints or appeals received related to social, environmental and any other issues related to Subproject activities;
- To arrive at mutually agreed/agreed solutions that are satisfactory to the (sub)Project and those affected by it, and to resolve any grievances and appeals locally in consultation with the concerned party;
- Facilitate the local development process while maintaining transparency, and establish a degree of accountability to applicants;
- Establish feedback;
- Allow vulnerable individuals and/or groups to express their views.

9.2. Grievance Redress Procedure

Detailed information on the stages and timescales, and who is responsible for dealing with complaints and grievances, can be found in the Grievance Matrix.

Table 17. Grievance Matrix

Level	Grievance addressed to	Presentation form	Grievances / Governance / Procedures	Review period (from the moment of registration)
Level 1 / Local	Local commission under the AO to handle grievances.	Verbal or written	- Registration of a complaint in the complaint's registration register, indicating the date and time; - registration of the complaint is carried out by the secretary of the precinct commission; - In case of dissatisfaction with the complaint, the complaint is redirected to the central level.	5 working days
Level 2 / Central	Centralized: at the PIU level - grievance committee (established by orders of the WRS Director from among PIU staff, WRS representatives and other persons as agreed).	In writing	- Registration of the complaint in the complaint's registration register with the date and time; - The registration of the complaint is carried out by the specialist on social issues.	14 working days

The GM, at the local level, was created by the Order of Kadamjai rayon State Administration, dated 30.08.2023 No.01-15/332-b.

GM at the central level is established by the WRS Order dated 01.11.2023 No. 123.

- **First/Local Level**: The first step in the grievance process will be a verbal or written complaint to the local grievance redress Group (GRG). The Applicant/Stakeholder has the right to submit a complaint or appeal on an issue related to the Project area, verbally or in writing, to the LSG. A grievance or an appeal is addressed to the secretary of the LSG. The period for consideration of the complaint by LSG is 5 working days. If complaints at the first level are not resolved, they will be dealt with at the central level.
- **Second/Central level**: If an applicant is not satisfied with the decision of LSG, the secretary of the local commission submits the complaint or appeal in writing to the central GRG with a conclusion and supporting documents prepared at the local level. The received documentation will be recorded in the register of complaints and appeals by the PIU social affairs specialist. At this level, the Subproject Social Specialist will be in direct contact with affected person (AP). The Subproject will determine the validity of claim, and notify the claimant that assistance will be provided. The response will be provided within 14 working days, during which meetings and discussions will be held with AP. The Subproject will help APs at all stages to resolve a problem, and ensure consideration in the best possible way.

- In case of objection to the decision of second-level (central) commission, the AP may apply to the court. The grievance resolution process is described in the Grievance Resolution framework.

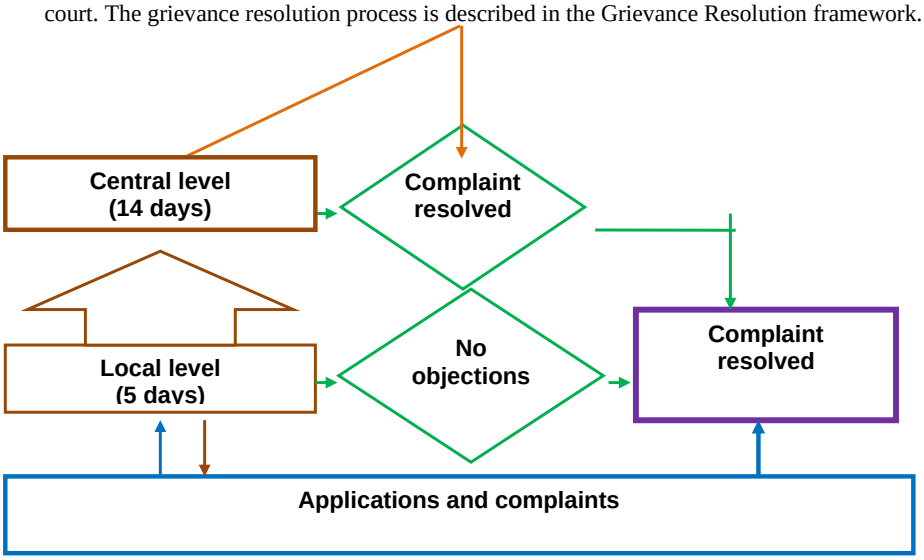


Image 17. Grievance Process Flowchart.

In order to promptly assist in resolving problems, complaints and grievances during the (re)construction period, a Contractor may be involved in the GM procedures. The Contractor's representative ((re)construction foreman, engineer, social or environmental specialist) will receive and record requests and complaints in the GM register, and inform the Supervision Consultant by sending him a copy of the written complaint. The Contractor shall implement appropriate measures to address complaints arising during the execution of (re)construction work. In the event that Applicants are not satisfied with the response, they may submit a complaint to the DSC/КПН, who will monitor the Contractor's response to ensure that all mitigation measures are implemented in a timely and appropriate manner.

The Subproject 's GM is not a hindrance to going to court, in accordance with the legislation of the Kyrgyz Republic. In cases where the resolution of a complaint or appeal requires a special inspection (consideration), the request for additional materials or the adoption of other measures, the resolution period may, as an exception, be extended, but not more than by 30 calendar days, in accordance with the Law of the Kyrgyz Republic, dated May 4, 2007 No. 67: "On the procedure for considering citizens' appeals."

The Subproject will consider anonymous complaints and grievances, and take actions on them.

Appeals and grievances addressed to WRS contacts:

PIU WRS address:	Toktonaliev str. , 4 a street, office 104
Phone:	0312 54-49-72
Email:	CRWSP: crwsp@water.gov.kg
PIU WRS web platform by filling out the online application form:	https://crwsp.kg

The form of the GRM information stand is presented in the Annex 4.

All incoming complaints or grievances are subject to registration in the GRM register (Annex 5), information from which is duplicated in the electronic database. The database must contain, as minimum,

up-to-date information about the date of submission, registration number, essence of the issue, person responsible, timeline for solving a problem, and feedback (positive/negative). Using the registration number, the specialist follows up the progress of the review in database.

9.3. Handling sensitive complaints

In line with the Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) Prevention Standards required by the World Bank to be met in all World Bank-financed (sub)projects, these standards and responsibilities will also be followed, whereby measures will be taken to raise awareness on SEA/SH prevention and mitigation. All subproject staff and contractors will be briefed on understanding the principles of SEA/SH risk management, and prevention at all stages of (sub)project implementation. The GRM will ensure that the complaint mechanism is accessible and confidential, and will allow the complainant to have no fear of possible retaliation. These complaints will be investigated without delay and all perpetrators will be held accountable. The SEA/SH issues will require certain additional measures such as:

- Gender sensitivity will be considered when recruiting social workers who will work in the PIU.
- Social workers will be informed about SEA/SH issues.
- In addition to socio-cultural specifics and non-violent communication methods in training of workers, information about SEA/SH will also be included in the agenda. The training of workers will include the following information about SEA/SH:
  - Definition of violence against women in national and international documents;
  - Types of violence (physical, sexual, economic, emotional);
  - Legal sanctions.
- The complaints mechanism will be accessible and will ensure the confidentiality of personal information.
- The outreach campaigns will be held to inform women about the use of this mechanism. These events will provide the following types of information:
  - Women's rights;
  - Self-defense in cases of violence and sexual violence;
  - Emergency numbers;
  - Hot-line of the institutions and organizations to contact;
  - Complaints mechanism and privacy policy.
- The principle of confidentiality of the complaint's mechanism will be highlighted/repeated in all information materials.

The Subproject will use the additional mitigation measures proportionate to the risk. The Contractor will be responsible for developing the personnel management procedures, occupational health and safety plans, and SEA/SH protocols that will apply to its own employees, and the employees of (sub)contractors mobilized under the Subproject. These procedures and plans will be submitted to the PIU for revision and approval before contractors are allowed to commence (re)(re)construction work. All contractors will be required by contract to commit to no child or forced labor, to take action to address the impacts of SEA/SH, and the PIU staff responsible for supervising contractors will monitor and report the absence of forced labor, and instances of SEA/SH. All personal data and complaints received by the PIU will be treated confidentially unless a complainant consents to the disclosure of their personal information. In particular, sensitive SEA/SH related questions and complaints from the communities will be kept confidential.

9.4. The World Bank's Grievance Redress service

The Communities and individuals, who believe that they are being negatively impacted by the World Bank-supported Subproject may also submit complaints directly to the World Bank through the Bank's Grievance Redress Service (GRS). (https://www.worldbank.org//en/Projects-operations/products-and-

services/grievance-redress-service). A complaint can be submitted in English, Kyrgyz or Russian, although complaints in languages other than English will take additional time to process. A complaint can be submitted to the Bank's Complaint Redress Service through the following canals:

- email: grievances@worldbank.org
- fax: +1.202.614.7313
- mail: World Bank, Grievance Redressal Service, MSN MC10-1018, 1818 H Street Northwest, Washington, DC 20433, USA.
- The World Bank office in the Kyrgyz Republic address: Kyrgyz Republic, Bishkek, Moskovskaya str. 120, bishkek@worldbank.org, phone: +996 312 625262

A complaint must clearly identify the adverse impact that is believed to have been caused or may be caused by the Bank-supported Subproject. It should, as far as possible, be supported by existing documentation and correspondence.

A person affected/complainant may also indicate the desired outcome of a complaint. A complaint must contain the full name of a person/complainant/designated representatives and contact information. The complaints submitted through GRS are addressed as quickly as possible so that problems related to the Subproject can be quickly resolved.

CHAPTER TEN: CONCLUSION AND RECOMMENDATIONS

The results of desk study and field survey confirm the absence of any impact under subproject on households on section under MC "Nurgaziev" and canal "Alga". This is also confirmed by the results of the social screening.

No physical or economic resettlement is expected during subproject implementation. All (re)construction work on section under MC "Nurgaziev" will be carried out within the existing boundaries of right-of-way on municipal land.

(Re)Construction work on section under canal "Alga" will be carried out within the existing boundaries of WUA "Alga-jarkoton" land plots. Due to possible changes in technical solutions in the subprojects for (re)construction and modernization of MC "Nurgaziev" and canal "Alga", no additional land allocation will be required. Assets will not be affected by the activities under subproject.
(re)Construction and modernization work on the canals may lead to temporary difficulties, for example, with access to various facilities. The impact of subproject is expected to be minor and short-term. In this regard, standard mitigation measures are included in the sub-project Environmental and Social Management Plan (ESMP).

The use of existing access roads does not have any impact on households. No permanent and/or temporary impact on household assets is expected.
Modernization work may lead to temporary difficulties, for example, with access to various facilities. The impact of the subproject at the modernization stage is expected to be minor and short-term. In cases where light fences installed on municipal land are found adjacent to the channel within the boundaries of the design work allotment for upgrading, they (the fences) will be moved by the Contractor and restored in agreement with the households. The performance of these works is not grounds for payment of compensation.

If any adverse effects occur, a Corrective Action Plan (CAP) will be developed.
Continuous daily monitoring will be executed by the Consultant and PIU specialists. The monitoring results will be submitted to the WB office for revision and approval
The proposed subproject works are not complex and do not require the use of large quantities of construction materials or any hazardous substances.

The subproject is not located in an environmentally sensitive environment and its potential negative environmental impacts are not considered high. The most important environmental and social impacts may be related to soil and air pollution, as well as noise disturbance to local residents. The identified impacts can be avoided or minimized by simple mitigation measures, most of which are common good practice in large-scale earthworks projects, and continuous monitoring of construction activities carried out by the PIC and PIU Specialists.

The PIC and PIU social, environmental, health and safety specialists shall continuously monitor construction activities and ensure compliance with this ESMP.

ANNEX 1. ASBESTOS-CONTAINING MATERIALS MANAGEMENT PLAN

Applicability

The Asbestos Containing Materials Management Plan (ACMP) applies to all construction or renovation sites and any associated areas. Contractors hired under the Project are legally responsible for their construction sites and associated areas and must follow the provisions of the Project ACMP within those areas. In particular, this procedure shall be used to ensure the safe handling, removal and disposal of any asbestos containing materials (ACM) from these areas.

Immediate Action

Upon discovery of ACM in the Project area, the Contractor shall:

a) Stop all work within a 5 m radius of the ACM and evacuate all personnel from the area;
b) Limit the 5 m radius with secure fencing, warning tape, and easily visible asbestos warning signs of fence posts;
c) If the site is in a populated area, place a guard at the edge of the site with instructions to keep people out;
d) Notify the PIU Safeguards Specialist and arrange for an immediate inspection of the facility.

Equipment

Contractors shall provide the following equipment to remove asbestos from the construction site:

a) Warning tape, sturdy fence posts, and warning signs;
b) Shovels;
c) Water supply and hose equipped with a garden type spray nozzle;
d) A bucket of water and rags;
e) Bags of clear, heavy-duty polyethylene that can be tied;
f) Containers for asbestos-containing waste (empty, clean, sealed metal drums clearly labeled as containing asbestos).

Personal Protective Equipment (PPE)

All personnel involved with ACM shall wear the following equipment provided by the contractor:

a) Disposable coveralls with a hood;
b) Boots without laces;
c) New, durable rubber gloves;
d) A respirator is not normally required if there are only a few pieces of ACM in a small area and if the ACM is wet;
e) Smoking, eating, and drinking are prohibited at the site containing ACM.

Decontamination Procedure 1: Removal of small pieces of ACMs

a) Locate all visible ACM and lightly but thoroughly spray with water;
b) Once the ACM is wet, pick up all visible ACM with shovels and place in a clear plastic bag;
c) If ACM debris is partially buried in the soil, remove it from the soil with a shovel and place it in the plastic bag;
d) Place a large label on each plastic bag clearly stating that its contents contain asbestos, are a hazard to human health, and are not to be handled;
e) Tie the plastic bags securely and place them in designated asbestos waste containers (clean metal drums) and seal each drum;
f) Soil containing ACM debris must not be used for backfilling, but instead hand backfilled into the asbestos waste containers;
g) At the end of the job, clean all shovels and any other equipment with a damp rag and place them in plastic bags for disposal in asbestos waste containers.

Decontamination Procedure 2: Removal of ACM Contaminated Backfill

a) If soil containing ACM debris has been inadvertently used for backfill, it should be lightly sprayed with water and manually excavated to a depth of 300mm and placed directly into asbestos waste containers (i.e. not stored temporarily next to the trench);
b) Any ACM found during shoveling should be placed in a clear plastic bag;
c) Once the trench has been re-excavated to 300mm, if there are no visible traces of ACM, the trench can be filled by excavator using imported clean topsoil.

Disposal

ACM should be safely disposed of at a local hazardous waste landfill, if available, or at a municipal landfill after prior arrangements have been made with the landfill operator for safe storage.

- The contractor should ensure that the landfill operator assembles sealed asbestos waste containers as soon as possible and stores them in the landfill for disposal in an undamaged condition.
- On completion of construction, contractors must arrange for the landfill operator to bury all ACM containers in a separate pit of suitable size, covered with a layer of clay at least 250mm deep.

a) Personal disinfection

At the end of each day, the following decontamination procedure should be followed by all personnel involved in ACM handling:

- At the end of decontamination, thoroughly clean boots with a damp cloth;
- Remove disposable coveralls and plastic gloves so that they are inside out and place them in a plastic cloth bag to clean the boots;
- If a disposable respirator was used, place it in a plastic bag, seal the bag and place it in an asbestos-containing waste container;
- All personnel shall wash thoroughly before leaving the site and then rinse the area with a damp cloth placed in plastic bags as described above.

b) Authorization and exit from customs control

- Decontamination activities shall be conducted under the supervision of site inspectors (engineering or environmental).
- Upon successful completion of decontamination and disposal, the Contractor shall visually inspect the area and complete the operation if the site has been satisfactorily cleaned.
- The Contractor shall send a copy of the completion notice to the ORP with photographs of the operation and the site upon completion.

TRAINING

The PIU Environmental Specialist may hire specialized companies to provide training to contractor personnel as well as the PIU on the implementation of the ACMP. The training will include sessions on ACMPs that covered the following topics:

a) Risks associated with ACM contact;
b) Responsibilities for ACM interactions at project construction sites;
c) Project ACMP and Site Cleanup Protocol;
d) Awareness raising for contractor personnel. Costs incurred by contractors in implementing the ACMP are included in their budget as part of the ESMP budget

EXPENDITURES

Costs incurred by contractors in implementing the ACMP shall be included in the Contractor's PRA.

ANNEX 2. THE MINUTES OF PUBLIC HEARINGS

THE MINUTES OF PUBLIC HEARINGS

The Climate-Resilient Water Services Project, financed by the International Development Association (the World Bank)

Project Environmental and Social Impact

Modernization of IDS "Shakhimardan"

Batken oblast. Kadamjay rayon **27 September 2024.**

Attended by:

Kozibaev A.Yu. – Head of Kadamjai RWMU;
Akmatov M.N. – Chief Engineer of Kadamjai RWMU
Mamyrov A.T. – Chief Engineer of CRWSP PIU WRS MWAPI;
Neronova T.I. – Environmental Specialist of CRWS PIU;
Orozalieva S.M. – Social and Gender Specialist CRWS PIU;
Kichibaev A.M. – Chief Project Engineer, Design Engineer, "SU-Yapi" Company
Zinina O.V. – Environmental Protection Specialist "United Group".

The public hearings were attended by 138 people: representatives of the Osh MWMU, Kara-Suu RWMU, regional and rayon WUA support units, representatives of WUAs who abstract the irrigation water from the MC "Nurgaziev" and canal "Alga"of the River system Shakhimardan, heads of canal sections, heads of reservoir departments, representatives of Kadamjay rayon administration, the public and other interested participants (list attached). The hearings were attended by 3 wome.

Chairman of the Meeting - Kozibaev A.Yu

Mamyrov A.T. - introduced the information about the project, in which he described the project components and the proposed works. The project is aimed at improving water resources management at the basin level and includes four components. Component 1: Investments in infrastructure facilities and improving the quality of services to ensure water security. It consists of two subcomponents: subcomponent 1.1. Drinking water supply and sanitation services and subcomponent 1.2: Irrigation and drainage services. Subcomponent 1.1 will be implemented with the support of the DWWSS in the Issyk-Kul and Batken oblasts, and component 1.2. in the Osh, DJalal-Abad and Batken oblasts on the off-farm systems of the rr. "Kurshab, Kara-Unkur-Sai and Shakhimardan". These public hearings are aimed at informing about impact of the project implementation on environment and social environment during (re)construction work related to modernization of the IDS on the r. "Kurshab": MC "Otuz-Adyr", HWS and other infrastructure facilities of the irrigation system abstracting the irrigation water from the r. "Kurshab".

Kichibaev A.M. - informed about the structures/facilities that are subject to modernization under the project.

Neronova T.I. - informed the participants of the public hearings about requirements of the environmental legislation of the Kyrgyz Republic and the World Bank's environmental protection policy during the project implementation. The objective of environmental assessment is to identify the significant impact of proposed project on the environment (positive and negative), to determine the appropriate preventive measures and mitigation measures aimed at preventing, minimizing or eliminating any expected irreversible impact. The proposed project is an adaptation to climate change. The implementation of the project will have a positive impact on the environment. Namely, this project is aimed at reducing water losses in irrigation systems, improving water management, increasing agricultural productivity and improving soil fertility. At the same time, during (re)construction work, some potentially negative impacts on the environment are possible in the project areas, which must be addressed, preventive actions taken and appropriate mitigation measures taken during the planning, development, construction, operation and maintenance. Potential negative impacts are relatively minor, and the positive economic, social and environmental benefits significantly outweigh them in environmental assessments. These impacts are discussed below. The main impact that may be identified as a result of (re)construction work:

1) Cutting trees and shrubs.
2) Soil pollution at a (re)construction site.
3) Groundwater pollution at a (re)construction site.
4) Landscape degradation, destruction of natural habitats of wildlife.
5) Air pollution and impact on workers/population during traffic and heavy equipment operation.

One of the serious problems is the cutting of trees and shrubs growing within the water protection zone of canals. Despite the fact that the Water Code ensures an exemption from paying compensation for damage associated with the cutting of greenery areas, the World Bank requirements provide the planting of new green spaces instead of cut trees. In this regard, when designing structures/facilities, the BOQ includes the financial costs for cutting trees, purchasing seedlings and planting.

To prevent or mitigate the negative impact of (re)construction, an ESMP is elaborated for each (re)construction of structure/facility. It includes a mitigation and monitoring plan for both, the construction phase and the operation and maintenance (O&M) phase. All risks of a (re)construction phase are easily controlled and eliminated. They can be minimized with proper elaboration on mitigation measures and control over the Contractor during performance of works.

Of the risks of O&M phase, the risk of landscape deterioration and destruction of the natural habitat of animal world during cleaning of earthbed canals and drains is obvious, and easily controlled. The risks of pollution of surface and groundwater with agrochemicals, due to the excessive use of pesticides and mineral fertilizers, soil erosion associated with the current practice of agricultural production, an increase in groundwater levels in the zone of their shallow occurrence due to excessive irrigation and, as a result, soil salinization, require special monitoring. The need for mitigation measures at the O&M stage is determined precisely in the process of environmental monitoring.

Orozalieva S. - informed the participants of the public hearings about results of the comprehensive social audit conducted on structures/facilities under IDS “Shakhimardan”. She spoke in detail about the World Bank's social and environmental standards applicable under the project, in particular, she focused on the ESS5standards: Land Acquisition, Land Use Restrictions, and Involuntary Resettlement, and ESS10: Stakeholder Engagement and Information Disclosure. Thus, ESS 5 is considered appropriate due to potential investments under Component 1, which may require some temporary and/or permanent physical and economic displacement or cause changes in land use, or access to land in areas of certain activities, if any.

In accordance with the World Bank requirements ESS10; the Project will implement and apply the Grievance Mechanism (GM) for subcomponent 1.2. "Irrigation and Drainage Services" for individuals affected under the Project. The GM is a process of obtaining prompt, objective information, evaluation, consideration, and satisfaction of complaints (applications, proposals, complaints, requests, positive feedback) related to implementation of the Project

Complaints or grievances can be individual or collective. The mechanism will also allow anonymous complaints to be filed and addressed. Communities and individuals who believe they are being adversely affected by the World Bank-supported project may also file complaints with the World Bank's Complaint Redress System (CRS). The CRS ensures that complaints received are addressed in a timely manner to resolve project-related issues. Affected communities and individuals may submit their complaint to the World Bank's independent review panel, which defines whether harm has occurred or is likely to occur as a result of the World Bank's failure to comply with its policies and procedures. Complaints may be filed at any time after concerns have been brought directly to the attention of the World Bank and Bank management has been given an opportunity to respond. For information on how to file complaints with the World Bank's corporate Complaint Redress System (CRS), please visit; http://www.worldbank.org/en/projectsoperations/products-and-services/grievance-redress-service. the Information on how to file complaints with the World Bank Inspection Panel can be found on the website www.inspectionpanel.org.

Q/A:

Aliev Zh. - Is it necessary to obtain permission to cut down green spaces if they are located in the canal exclusion zone?
Neronova T.I. – During an inspection of areas under (re)construction, the presence of greenery areas was established. The inventory report was sent to the territorial administration of the Ministry of Natural Resources and WUA for information. No additional permission is required.

Eshatov M. - Where will construction waste and household waste be taken after construction?
Neronova T.I. – Construction and household waste will be taken by the contractor to places agreed upon with local governments. Construction waste can be reused, which are subject to use.

Seyitov M. - Will it be possible to build a mini plant for recycling concrete waste??
Neronova T. –Unfortunately, under our project the construction of concrete recycling plant is not included, but we will inform the relevant authorities of your request.

Saliev I. – We already use drip irrigation, but it is very expensive, what should we do?
Neronova T. – It may be necessary to use alternative irrigation options, such as short furrow irrigation, we will try to hold an additional seminar on alternative irrigation types.

Teshebaev К. – Organic fertilizers are very expensive, will there be financial support for their purchase??
Neronova T. - I understand you perfectly, but our project does not include buying fertilizers for farmers.

Ormonov T. - The state body can monitor the environment during (re)construction?
Neronova T. – Yes, of course. The Department of Environmental Control of the Ministry of Natural Resources, within the scope of its duties, can monitor compliance with environmental protection issues.

Zhusupov G. - Who are vulnerable groups?

Orozalieva S. – Vulnerable groups include the elderly, disabled, female-headed households, poor households and low-income households.

Kadyrov S. - Who can file a complaint?
Orozalieva S. - the residents who have questions and comments during (re)construction work or during implementation of the project activities can file a complaint. Any resident of the area where the project is being implemented can file a complaint. Complaints can be filed at any time verbally or in writing during the preparation and implementation of the project.

Khodjaev I. - What does forced resettlement\relocation mean?
Orozalieva S. – The forced seizure of land plots as a result of which there is a direct or indirect economic or social impact through: a) loss of benefits from the use of such land plots; b) resettlement due to loss of housing; c) loss of assets or access to assets; d) loss of sources of income or means of livelihood, regardless of whether the PAPs will be resettled elsewhere.

Nishanov M.- DED for canal "Nurgaziev", old or new?
Kichibaev A.- As part of our project, all new design documentation was prepared taking into account all the recommendations of RWMU.

Seyitov M. - After the modernization of canal, will the tunnel let water through?
Kichibaev A. - Yes, the tunnel will let water through.

In conclusion, all those present supported the implementation of this project.

Mamatov T.U. - on behalf of all those present thanked for the support and information provided.

Chairman

Head of Kadamjay RWMU	**A. Kozibaev**
PIU Chief Engineer	**A. Mamyrov**
PIU Specialist in Environmental Protection	**T. Neronova**
PIU Social and Gender Specialist	**S. Orozalieva**

ПРОТОКОЛ ОБЩЕСТВЕННЫХ СЛУШАНИЙ
Проект «Улучшение водохозяйственных услуг, устойчивых к изменению климата», финансируемый Международной ассоциацией развития (Всемирный банк).

Воздействие на окружающую и социальную среду

Модернизация ирригационно-дренажной системы на р. Шахимардан

Баткенская область Кадамжайский район **27 сентября 2024 г.**

Присутствовали:

Козибаев А.Ю. – Начальник Кадамжайского РУВХ;
Акматов М.Н. – Главный инженер Кадамжайского РУВХ
Мамыров А.Т. – Главный инженер ОРП УВУУИК СВР МВРСХПП КР;
Неронова Т.И. – Специалист по ООС ОРП УВУУИК;
Орозалиева С.М. – Специалист социальным и гендерным вопросам ОРП УВУУИК;
Кичибаев А.М. – ГИП, инженер-проектировщик, компания SU-Yapi
Зинина О.В. – Специалист по ООС «Юнайтед Групп».

В общественных слушаниях приняли участие 33 человека: представители Баткенского ГУВХ, Кадамжайского РУВХ, областной и районный отделы поддержки АВП, представители АВП, осуществляющие забор воды из магистрального канала Нургазиева и Алга системы реки Шахимардан, начальники участков, руководители управлений водохранилищ, представители районной Кадамжайской администрации, общественность и другие заинтересованные участники (список прилагается). В слушаниях приняли участие 3 женщины.

Председатель – Козибаев А.Ю.

Мамыров А.Т. выступил с информацией о проекте, в которой рассказал о компонентах проекта и предполагаемых работах. Проект направлен на улучшение управления водными ресурсами на уровне бассейнов и состоит из четырех компонентов. Компонент 1: Инвестиции в объекты инфраструктуры и повышение качества услуг в целях обеспечения водной безопасности. Он состоит из 2-х подкомпонентов: подкомпонент 1.1. Услуги питьевого водоснабжения и водоотведения и подкомпонент 1.2: Услуги ирригации и дренажа. Подкомпонент 1.1 будет реализован при поддержке ДРПВВ в Иссык-Кульской и Баткенской областях, а компонент 1.2. в Ошской, Джалал-Абадской и Баткенской областях на межхозяйственных системах рек Куршаб, Кара-Ункур-Сай и Шахимардан. Настоящие общественные слушания направлены на информировании о влиянии реализации проекта на окружающую среду и социальную среду в ходе строительных работ, связанных с модернизацией ирригационно-дренажной сети на реке Куршаб: межхозяйственный канал Отуз-Адыр, ГВС и другие объекты инфраструктуры ирригационной системы, питающейся из р. Куршаб.

Кичибаев А.М. проинформировала об объектах, которые подлежать реабилитации и модернизации в рамках проекта.

Неронова Т.И. - рассказала участникам общественных слушаний о требованиях природоохранного законодательства Кыргызской Республики и политике Всемирного Банка по охране окружающей среды при реализации проекта.

Задача оценки окружающей среды заключается в том, чтобы выявить существенное воздействие предлагаемого проекта на окружающую среду (позитивное и негативное), определить соответствующие превентивные меры и меры по смягчению воздействия, направленные на предупреждение, минимизацию или устранение любого ожидаемого необратимого воздействия.

Предлагаемый проект является адаптацией к изменению климата. Реализация проекта окажет положительное воздействие на окружающую среду. А именно, данный проект направлен на сокращение водопотерь в ирригационных системах, улучшение управления водными ресурсами, повышение сельскохозяйственной производительности и улучшение плодородия почв.

Вместе с тем, при проведении строительных работ, возможны проявления некоторых потенциально негативных воздействий на окружающую среду в проектных площадях, на которые необходимо обратить внимание, принять превентивные действия и соответствующие меры по их смягчению во время планирования, разработки, строительства, эксплуатации и технического обслуживания. Потенциальные негативные воздействия являются относительно незначительными, а позитивные экономические, социальные и экологические выгоды значительно перевешивают их в оценке окружающей среды. Рассмотрение этих воздействий приводится ниже.

Основное воздействие, которое может быть оказано в результате ведения строительных работ:

1) Вырубка древесно-кустарниковой растительности.
2) Загрязнение почв на строительной площадке.
3) Загрязнение подземных вод на строительной площадке.
4) Ухудшение ландшафта, разрушение естественной среды обитания животного мира
5) Загрязнение воздуха и воздействие на рабочих/население при движении транспорта и работе тяжелой техники.

Одной из серьезных проблем является вырубка древесно-кустарниковой растительности, произрастающей в водоохранной зоне каналов. Несмотря на то, что в Водном кодексе предусмотрено освобождение от уплаты компенсации за ущерб, связанный с вырубкой зеленых насаждений, требования Всемирного банка предусматривают посадку новых зеленых насаждений вместо вырубленных. В этой связи, при проектировании объектов, в ВОР предусмотрены финансовые затраты на рубку деревьев, приобретение саженцев и посадку.

Для предотвращения или смягчения негативного воздействия строительства для каждого объекта реабилитации составляется ПУОСС. Он включает в себя план смягчающих мер и мониторинга, как для фазы строительства, так и для фазы эксплуатации и технического обслуживания (ЭиТО).

Все риски фазы строительства легко контролируются и устраняются. Они могут быть сведены к минимуму при должном проектировании смягчающих мер и контроле над Подрядчиком при выполнении работ.

Из рисков фазы ЭиТО риск ухудшения ландшафта и разрушения естественной среды обитания животного мира при чистке земляных каналов и дрен является явным и легко контролируемым. Риски загрязнения поверхностных и подземных вод агрохимикатами вследствие избыточного использования пестицидов и минеральных удобрений, эрозии почв, связанной с существующей практикой ведения сельского производства, повышения уровней грунтовых вод в зоне их не глубокого залегания в связи с избыточным орошением и, как следствие, засоления почв, требуют специального мониторинга. Необходимость в смягчающих мерах на стадии ЭиТО определяется именно в процессе экологического мониторинга.

Орозалиева С. рассказала участникам общественных слушаний о результатах проведенной комплексной социальной проверки по реабилитируемым объектам ирригационно-дренажной системы р. Шахимардан.

Подробно рассказала о применимых к проекту социально-экологических стандартах Всемирного банка, в частности остановилась на стандартах ЭСС5: Приобретение земли, ограничения землепользования и вынужденное переселение, и ЭСС10: Взаимодействие с заинтересованными сторонами и раскрытия информации.

Так, ЭСС 5 считается уместным из-за потенциальных инвестиций по Компоненту 1, которые могут потребовать некоторого временного и/или постоянного физического и экономического перемещения или вызвать изменения в землепользовании или доступе к земле в зонах определенных видов деятельности.

В соответствии с требованиями ЭСС10 Всемирного банка, Проектом будет внедрен и применен Механизм подачи и рассмотрения жалоб (МРЖ) по подкомпоненту 1.2. «Услуги ирригации и дренажа» для лиц, попадающих под воздействие Проекта. МРЖ является процессом получения оперативной, объективной информации, оценки, рассмотрения, удовлетворения жалоб (заявлений, предложений, жалоб, запросов, позитивных отзывов), связанных с реализацией Проекта.

Обращения или жалобы могут быть как индивидуальными, так и коллективными. Этот механизм также позволит подавать и рассматривать анонимные жалобы.

Сообщества и отдельные лица, которые считают, что на них проект, поддерживаемый Всемирным банком (ВБ), оказывает отрицательное воздействие, могут подавать жалобы также в Службу рассмотрения жалоб Всемирного банка (СРЖ). СРЖ обеспечивает своевременное рассмотрение полученных жалоб с целью решения проблем, связанных с проектом. Затронутые проектом сообщества и отдельные лица могут подать свою жалобу в независимую инспекционную комиссию Всемирного банка, которая определяет, был ли вред причинен или может возникнуть в результате несоблюдения Всемирным банком его политики и процедур. Жалобы могут подаваться в любое время после того, как проблемы были доведены непосредственно до сведения Всемирного банка, и руководству Банка была предоставлена возможность ответить. Информацию о том, как подавать жалобы в корпоративную службу рассмотрения жалоб Всемирного банка (СРЖ), см. на веб-сайте http://www.worldbank.org/en/projectsoperations/products-and-services/grievance-redress-service. Информацию о том, как подавать жалобы в Инспекционную группу Всемирного банка, можно найти на сайте www.inspectionpanel.org.

Вопросы:

Алиев Ж. -Надо ли получать разрешение на вырубку зеленых насаждений, если они находятся в зоне отчуждения канала?

Неронова Т.И. – При обследовании реабилитируемых участков было установлено наличие зеленых насаждений. Акт инвентаризации направлен в территориальное управление Минприроды АВП для информации. Дополнительного разрешения не требуется.

Эшатов М. - Куда будут вывозить строительные и бытовые отходы?

Неронова Т.И. – Строительные и бытовые отходы будут вывозится подрядчиком в места, согласованные с органами местного самоуправления. Строительные отходы могут использованы повторно, которые подлежат использованию.

Сейитов М. Можно ли будет построить мини завод для переработки остатков бетона?

Неронова Т. – К сожалению в рамках нашего проекта строительство не предусмотрено, однако мы доведем до сведения в соответствующие органы вашу просьбу.

Салиев И. – Мы уже используем капельное орошение, однако это очень дорого, как быть?

Неронова Т. – Возможно необходимо использовать альтернативные варианты орошения, например полив по укороченным бороздам, мы постараемся провести дополнительный семинар по альтернативным видам полива.

Тешебаев К. – Органические удобрения стоят очень дорого, будет ли оказана материальная поддержка для их покупки?
Неронова Т. -Я вас прекрасно понимаю, но в наш проект не входит покупка удобрений для фермеров.

Ормонов Т. - Государственный орган может контролировать во время строительства экологию?
Неронова Т.И. – Да, конечно. Департамент экологического контроля Минприроды в рамках своих обязанностей может вести контроль за соблюдением вопросов охраны окружающей среды.

Жусупов Г. -Кто относится к уязвимым группам?
Орозалиева С. – К уязвимым группам относятся пожилые люди, инвалиды, домохозяйства, возглавляемые женщинами, бедные домохозяйства и домохозяйства с низким уровнем дохода.

Кадыров С. - Кто может обратиться с жалобой?
Орозалиева С. - Лица, у которых возникают вопросы и замечания в ходе ведения строительных работ или в ходе реализации проектных мероприятий, могут подать жалобу. С жалобой может обратиться любой житель, где реализуется проект. Жалобы можно подать в любой момент в устной или письменной форме в ходе подготовки и реализации проекта.

Ходжаев И. - Что означает вынужденное переселение?
Орозалиева С. – Принудительное изъятие земельных участков в результате, которого оказывается прямое или косвенное экономическое, или социальное воздействие через: a) утрату выгод от использования подобных земельных участков; b) переселение из-за утраты жилья; c) потерю активов или доступа к активам; d) потерю источников доходов или средств к существованию, независимо от решения будут ли ЛПВП переселены в другое место.

Нишанов М.- ПСД для канала Нургазиев старый или новый?
Кечибаев А.- В рамках нашего проекта вся ПСД была подготовлена новая с учетом всех рекомендаций РУВХ.

Сейитов М.- После модернизации канала, будет ли тоннель пропускать воду?
Кечибаев А.- Да тоннель пропустит.

В заключении, все собравшиеся поддержали реализацию данного проекта.

Маматов Т.У. от имени всех присутствующих поблагодарили за поддержку и предоставленную информацию.

Председатель

Начальник Кадамжайского РУВХ **А. Козибаев**

Главный инженер ОРП **А. Мамыров**

Специалист по охране окружающей среды **Т. Неронова**

Специалист по социальным и гендерным вопросам **С. Орозалиева**

Общественные слушания
По проекту Всемирного банка «Улучшение водохозяйственных услуг, устойчивых к изменению климата на окружающую и социальную среду

27 сентября 2024г.
Баткенская область Кадамжайский район

СПИСОК УЧАСТНИКОВ

№№ пп	Участники Фамилия, имя, отчество	Телефон	Подпись
1	Кошоев Т А		
2.	Абдыраимов. Д		
3	Эсдаиаев И		
4	Алиев Ж		
5	Орионов. Т		
6	Атабеков Б.		
7	Мурзабоев Г		
8	Сейитов А. С		
9.	Исаков А. М		
10	Ахматов М. Н.		
11	Ташебаев Ж.		
12.	Кадыров С		
19.	Мадаминов С		
20	Жусупов Т.		
21	Рахматуллаев А		
22	Сулайманов Р		
23	Камиев И		
24	Исраилов М.		
26	Нураимов М.		
21	Жолдошов Ж. Т.		
21	Юзбаев А. Ю		
22	Коргонбаев Б. К		
23	Бойке Ч. В		
24	Жаилаков Д. Г.		
25.	Акматов А. И		
26	Шишонов И. Б		
27	Эргешов Э		
28	Юсупова С. М		
29	Качибаев А. М		
30	M. Deniz İTİBAR		
31	Зиниева Э		
32.	Нуралиева Т. М		

Общественные слушания
По проекту Всемирного банка «Улучшение водохозяйственны
изменению климата на окружающую и социальн
27 сентября 2024г.
Баткенская область Кадамжайский райо
СПИСОК УЧАСТНИКОВ
№№ пп | Участники Фамилия, имя, отчество | Телефон

ANNEX 3. POSITIVE CONCLUSION OF THE STATE ENVIRONMENTAL EXPERTISE

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН
ЖАРАТЫЛЫШ РЕСУРСТАРЫ,
ЭКОЛОГИЯ ЖАНА ТЕХНИКАЛЫК
КӨЗӨМӨЛ МИНИСТРЛИГИ

БАТКЕН РЕГИОНАЛДЫК
БАШКАРМАЛЫГЫ
720100, Кыргыз Республикасы Баткен области
Баткен шаары Алма Алы көчөсү № 2а
Тел./факс +996 (03622) 5-07-94,
электрондук дарек: batken_ekog@mail.ru.
Баткен райондук МСК 024, ИНН 01411201310072
э/э:4409021101049313, БИК:440902
Банк: КР КМ алдындагы борбордук казына
ИУРК:28409995

МИНИСТЕРСТВО ПРИРОДНЫХ
РЕСУРСОВ, ЭКОЛОГИИ И
ТЕХНИЧЕСКОГО НАДЗОРА
КЫРГЫЗСКОЙ РЕСПУБЛИКИ

БАТКЕНСКОЕ РЕГИОНАЛЬНОЕ
УПРАВЛЕНИЕ
720100, Кыргызская Республика Баткенская область
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электронный адрес: batken_ekog@mail.ru
Баткенский районный ГНС 024 ИНН 01411201310072
р/с: 4409021101049313 БИК440902
Банк: Центральное казначейство при МФ КР
ОКПО: 28409995

23.09 2024 г. №01-08/1623
№ _____

Утверждаю
Начальник Баткенского
регионального
управления МПРЭТН
_____ А. Маматалиев
«23» 09 2024 г.

ЗАКЛЮЧЕНИЕ
ГОСУДАРСТВЕННОЙ ЭКОЛОГИЧЕСКОЙ ЭКСПЕРТИЗЫ
на Раздел "Охрана окружающей среды" Рабочего проекта «Модернизация ирригационной и дренажной системы Шахимардан»

1. Общие сведения

На рассмотрение в Баткенское региональное управление Министерства природных ресурсов, экологии и технического надзора Кыргызской Республики (далее - Баткенское РУ МПРЭТН), представлены:

Проектная документация:

1. Пояснительная записка Раздела "Охрана окружающей среды" Рабочего проекта «Модернизация ирригационной и дренажной системы Шахимардан» (далее - Проект) – 32 стр.;

2. Заявление об экологических последствиях объекта «Модернизация ирригационной и дренажной системы Шахимардан»;

3. Условия природопользования и возможное влияние намечаемой деятельности на окружающую среду.

Заказчик проекта: Служба водных ресурсов МСВХиРР КР.

Разработчик рабочего проекта: ОсОО «ГИДРОКОНСАЛТ».

Исполнитель раздела «ООС»: Зинина О.В. Сертификат ПР – 10.1 № 001542.

Государственная экологическая экспертиза проведена экспертной комиссией, образованной приказом Баткенского РУ МПРЭТН от 17.09.2024 г. № 02-04/212.

2.Общая часть

Реконструируемые объекты расположены в Кадамжайском районе Баткенской области, на южной окраине с. Пульгон. Головное водозаборное сооружение (ГВС) построено в 1978 году. Магистральный канал "Нургазиева" берет начало от ГВС, общая протяженность составляет – 35,1 км. Площадь орошаемых земель сотавляет 4,74 тыс. га. Общая продолжительность ремонтно-восстановительных работ составляет 24 месяцев.

Согласно проекту, предусматривается ремонтно-восстановительные работы на предмет обеспечения работоспособности сооружения по следующим участкам:

- головное водозаборное сооружение (ГВС), на реке Шахимардан;
- участок магистрального канала "Нургазиева" от ГВС до туннеля;
- быстротечная часть;
- дополнительное подключение к каналу "Нургазиева";
- канал "Алга" (земли, принадлежащие к АВП "Алга-Жаркотон").

Проект включает подробное описание предлагаемого объекта и описывает нынешнее состояние окружающей среды в районе проектной территории. Определены, оценены и описаны характер, значимость возможного воздействия намечаемой деятельности на окружающую среду на этапе строительства, эксплуатации и технического обслуживания. Представлены меры по смягчению негативного воздействия на этапе строительства. Оценены риски меры по смягчению негативного воздействия на этапе эксплуатации и технического обслуживания. На всех этапах проводится мониторинг окружающей среды.

Согласно проекту, в период строительства основным источником воздействия на окружающую среду оказывают строительно-монтажные работы:

- Автотранспорт работающий в процессе строительства. При строительстве будут использоваться: бульдозер-1 шт, экскаватор-1шт, автокран-1 шт, грузовая машина-1 шт;
- Земляные работы. Земляные работы представляет собой рытье канала (расширение, углубление). По возможности для сокращения пылеобразования будет использоваться ручной труд и применяться обеспыливание;
- Лакокрасочные работы. При лакокрасочных работах проводимых при установке гидропропусков используются грунтовка ГФ 021, эмаль ПФ 115;
- Жизнедеятельность персонала. Жизнедеятельность персонала выражается в водопотреблении и водоотведении, а также при приготовлении пищи и др. нужды;
- Гидроизоляционные работы. В качестве гидроизоляции используется битумная обмазка и геомембрана.

Особым пунктом в проекте указаны мероприятия по охране окружающей среды, в котором учитываются все мероприятия по охране окружающей среды.

Произведены расчеты выбросов загрязняющих веществ в атмосферу: выбросы при выемочных работах; обратной засыпке; выброс при автотранспортных работах; выброс углеводородов при гидроизоляции; выброс при лакокрасочных работах; выброс ВВ при работе строительной техники.

Общий выброс ЗВ в атмосферный воздух от стационарных источников (пыль неорганическая, сварочный аэрозоль, оксиды марганца, оксиды железа, фтористый водород, уайт спирит) составит 4,2146 т/год.

С отработанными газами двигателей строительного и автотранспортного оборудования будут выделяться: оксид углерода, оксид азота, твердые частицы (сажа), диоксид серы, углеводороды массой 4,5386 т/год.

Выбросы вредных веществ в атмосферу во время строительства согласно расчетов соответствует предельно-допустимым нормам.

Категория опасности для всех видов работ при реконструкции системы ирригации по выбросам, сбросам и отходам – II категория опасности.

Определены и описаны возможные изменения окружающей среды и отдельных связанных с ними социально-экономические и иные изменения в результате реализации намечаемой деятельности. Исходя из экологических и связанных с ними социально-экономических и иных последствий ее реализации, а также прогнозов изменений

окружающей среды и социально-экономических условий, можно говорить о возможности и целесообразности реализации намечаемой деятельности.

Подрядчик должен обеспечивать сохранность и защиту существующей растительности. Растительность должна быть защищена от повреждения в результате строительной деятельности подрядчика, персонала или оборудования посредством использования защитных ограждений или других методов.

Подрядчик должен бороться с выбросами загрязняющих веществ и контролировать эрозию почв, контролировать сброс сточных вод с учетом государственных и местных требований к контролю. Контроль твердых отходов должен включать в себя контроль хранения строительных материалов.

Подрядчик осуществляет строительную деятельность методами, предотвращающими попадания или случайное рассыпание твердых веществ, примесей мусора и других загрязнителей в водотоки, каналов или подземных водных источников. Такие загрязняющие вещества и отходы включает в себя брак технологического производства, макулатуру, санитарные и промышленные отходы, опасные материалы, радиоактивные вещества, масла и нефтепродукты, отходы переработки и т.п.

Для утилизации отходов жизнедеятельности предусмотреть установку биотуалета и мусорных контейнеров не ближе 150 м от водных объектов. Отходы из биотуалетов и контейнеров по мере наполнения должны вывозиться по договору в места, согласованные с органами СЭС и МСУ.

Подрядчик должен подчиняться санитарным нормам и стандартам Кыргызской Республики.

Подрядчик несет ответственность за очистку и удаление строительных отходов и мусора с территории строительства.

Подрядчик должен содержать рабочие площадки свободными от скопления отходов и мусора, а перед завершением работы произвести демонтаж всего строительного оборудования.

После вывоза строительного оборудования и очистки, рабочие площадки должны быть восстановлены (засеяны) с восстановлением растительного слоя в соответствии с окружающим ландшафтом.

3. Вывод

Экспертная комиссия Баткенского РУ МПРЭТН выносит положительное заключение государственной экологической экспертизы на Раздел “Охрана окружающей среды” Рабочего проекта «Модернизация ирригационной и дренажной системы Шахимардан».

При невыполнении заключения государственной экологической экспертизы и проведения работ не по проектным решениям, настоящее заключение автоматически теряет силу.

Председатель экспертной комиссии А. Боркошов

Члены экспертной комиссии: И. Султанмуратов

С. Гулжигитова

А. Нурматов

тел.(03622) 5-07-94

ANNEX 4. CHECKLIST FOR ENVIRONMENTAL AND SOCIAL SAFETY MEASURES INTRODUCED IN ESMP

Project title _____
Subproject _____

Construction period _____

Construction section (canal, etc.) _____

Works during construction time _____

№	Activities introduced in ESMP	Completed YES/NO	Comments in work register (date)	Completed YES/NO	Comments
1.	The presence of a banner on a construction compound and information posters at a construction site indicating the project, layout of canals modernized, the contractor and the management phone numbers				
2.	The presence of information boards on a construction camp, informing workers about safety and labor protection requirements				
3.	Equipped fire shield on a construction camp				
4.	First aid supplies are available on construction compound location in case of accidents				
5.	Ensuring the supply and replenishment of personal protective equipment (PPE - helmets, safety shoes, gloves, vests) and the use of PPE by workers during (re)construction				
6.	Maintaining an induction register of workers on safety and labor protection measures (initial and periodic)				
7.	Availability of a container in the construction compound for collecting household waste				
8.	Agreement with local governments to remove solid household waste				
9.	Availability of a cesspool or bio-toilet on a construction compound premises				

10.	Watering (re)construction sites and road surfaces within the residential areas during periods of increased dust formation				
11.	Fencing-off (re)construction sites with warning tapes, while executing works within the residential areas				
12.	Install warning signs and regulating a detour roads, when crossing roads				
13.	Pollution of the territory of a construction compound and sites with fuels and lubricants				
14.	Perform the planning and restoration works, as the canals completed				
15.	Complaints from local residents or workers				

Technical supervision/ environmental protection specialist _____NAME

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