ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

RURAL WATER SUPPLY AND SANITATION PROJECT

THE PREPARATION OF FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND TENDER DOCUMENTS, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA), AND FINANCIAL MANAGEMENT TECHNICAL ASSISTANCE

Part 3 – Environmental and Social Assessment Studies

STAGE:	DATE:
ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK	12/2018

STATE UNITARY ENTERPRISE “KHOJAGII MANZILIYU KOMMUNALI” (KMK)

SWECO

Sweco Hydroprojekt a.s.
Headquarters Prague
Táborská 31, Praha 4, CZ
www.sweco.cz

K.S. Solutions
Consulting in Central Asia and CIS

K.S. Solutions LLC.
Kyrgyz Republic | Bishkek 720040 | 154,
Chokmorov Str I room 29.
www.ks-solutions.kg

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PROJECT:	DATE:
Rural Water Supply and Sanitation Project – The Preparation of Feasibility Study, Detailed Engineering Design and Tender Documents, Environmental and Social Impact Assessment (ESIA), and Financial Management Technical Assistance	12/2018

PART:	STAGE:
Part 3 – Environmental and Social Assessment Studies	Environmental and Social Management Framework

CLIENT:	ADDRESS:
State Unitary Enterprise “Khojagii manziliyu Kommunali (KMK)	Tajikistan, Dushanbe, N.Karaboev 56 Street

AUTHOR:	ADDRESS:	CEO:
Sweco Hydroprojekt a.s.	Táborská 31, 140 16 Praha 4	Ing. Milan Moravec, Ph.D.
PROJECT MANAGER:	MANAGER:	
Doc. Ing. Vladimír Havlík, CSc.	Jaroslav Fiala, DiS	

Report prepared by:

Bernadette Noake, Environmental Expert
Marie Körner, Social Expert
Jiří Pištora, Environmental Expert
Mikko Punkari, Environmental Expert
Muazama Burkhanova, Environmental Expert
Gulshan Ashurbekova, Legal Expert
Zulfiya Bakhtibekova, Local Social Expert
Rashid Ochilov, Local Project Coordinator

1 EXECUTIVE SUMMARY

The Rural Water Supply and Sanitation Project (RWSSP) aims to improve the current situation in the water supply and sanitation sector, with the focus on three rural areas in Khatlon region. In 2018, the State Unitary Enterprise "Khojagii Manziliy Kommunali" (KMK) received grant funding from the ECAPDEV Trust Fund to strengthen KMK's capacity and to assist with preparation of the Rural Water Supply and Sanitation Project proposed for World Bank (WB) funding.

As part of the project preparation phase, a feasibility study will identify potential sites for project investments proposed for World Bank funding. Project construction and operation activities will cause some environmental and social impacts, and as such appropriate environmental and social assessments are required, according to World Bank policies and Tajikistan legislation. However, as project investment details and locations are not yet known the impacts cannot be defined. Therefore, in line with World Bank Operational Policy 4.01, this Environmental and Social Management Framework (ESMF) has been prepared.

The purpose of the ESMF is to establish the principles, guidelines and procedures to assess the environmental and social impacts of future subprojects for World Bank investment, to provide recommendations on how to reduce, mitigate for and/or offset potential adverse impacts and how to strengthen institutional capacity [14]. It also examines the institutional, legal and regulatory framework that the project is to be delivered in.

Once details of the project sites and investments to be financed under the World Bank funding are available at later stages of the project, the need for and type of Environmental and Social Impact Assessments (ESIA) and/or Environmental and Social Management Plans (ESMPs) as the case may be, will be reviewed, according to World Bank policies and Tajikistan legislation.

A separate Resettlement Policy Framework (RPF) report has been prepared to ensure that if involuntary land acquisition (either temporary or permanent) is required for the project, then appropriate procedures are followed. Once project sites and investments are known, the need for Resettlement Action Plans (RAP) or abbreviated RAPs (ARAPs) will be assessed and developed if required, in line with the RPF.

Project Areas

The RWSSP covers three proposed areas in the Khatlon region of Tajikistan:

1. **The Vakhsh inter-district water supply system** - The Vakhsh inter-district water supply system (Vakhsh WSS) was constructed in 1977 to serve six districts (Kushoniyon [Bokhtar], Vakhsh, Balkhi, Levakant [Sarband], Dusti, Jaihun). Due to a lack of investments and O&M, the system has almost fully deteriorated. Only about half of the current population can be supplied through the connection to the Vakhsh inter-district water supply system. [1] There are eight Jamoats in Kushoniyon (Bokhtar) district, seven in Vakhsh district, eight in Balkhi district, three in Levakant (Sarband) district, six in Dusti district and six in Jaihun district.

2. **Vosse district -** The majority of the population does not have access to water supply services, relying on the water from open irrigation canals or low quality water from boreholes. There are eight Jamoats in this district.

3. **Danghara-Temurmalik (Kangurt) area –** The existing Danghara-Temurmalik water supply system covers a relatively insignificant territory. The majority of the population relies on traditional sources or water brought by trucks. There are nine Jamoats in Danghara district, and seven in Temurmalik district. The proposed WB-financed project will not cover Danghara-Temurmalik area.

In the locations listed, water supply infrastructure has suffered from decades of chronic under-investment. There are also no improved sanitation facilities in the project area. The high cost to operate and maintain water supply infrastructure poses a significant fiscal burden, as revenues cover only a

small share of the system's operational and maintenance costs, resulting in low service quality, low willingness to pay, underfunded operating budgets and lack of investment funding. [1]

Policy, Legal and Institutional Framework

The Project Executive Bodies are the State Unitary Enterprise for Housing and Communal Services (Khojagii Manziliyu Kommunali) (KMK) and the Ministry of Energy and Water Resources (MEWR) of the Republic of Tajikistan. A Project Management Unit (PMU) has been founded and will co-ordinate all Project activities, including future tendering procedures and contract management issues and will be in charge of the day-to-day management of the Project. The PMU will include an appropriately qualified Environmental Engineer and Social Safeguard Specialist responsible for environmental and social tasks. The PMU is responsible for implementation of the ESMF and development of required reports, with the support of Consultants (to be hired by the PMU) and in cooperation with various stakeholders.

There are a number of institutions and other organizations who form part of the water resources institutional framework in Tajikistan. Key stakeholders will be consulted in the project.

Environmental Impact Assessment (EIA) and review and approval of EIA is regulated by a number of laws in Tajikistan. The laws outline specific requirements for the content of the EIA Report or Statement of environmental impact assessment, which will need to be presented to the State Ecological Expertise, including specific information on project activities, location and potential impacts. According to Tajik law, an EIA will be required for the RWSSP project. The type and level EIA required by the laws of the Republic of Tajikistan for the subprojects under the RWSSP will depend on the type of technical activity, location and the level and nature of the potential impacts.

A number of other Tajik laws, World Bank Operational Policies and Environmental, Health, and Safety (EHS) Guidelines will also be applicable to the project.

Environmental background

The main river courses of the Khatlon region are located in the valleys and numerous short tributaries provide water down from the surrounding mountains. These tributaries have good quality water but many of them will dry up during the summer months. In the project area, there are extensive irrigated lands in the Vakhsh and Kyzyl-Yakhsu valleys of the Khatlon region. The zone covered by the project refers to the lower part of the basins of the Pyanj, Vakhsh, Kyzylsu, and Yakhsu rivers. Surface irrigation is mostly used for cotton and rice cultivation which require extensive amounts of water. A problem in the irrigation in this area is that the collector water will usually be returned back to the main river. This water flows across the fields and contains agrochemicals, salts and sediments washed from the fields.

There are two officially protected national/ international nature reserves in the project districts, the Tigrovaya Balka nature reserve, and the Lower part of Pyandj River Ramsar. In addition, there are also other important areas for biodiversity including a new reserve "Hutalon" which is to be established near Danghara, Danghara Massif Important Bird Area, and a historic nature reserve Dastimaidon (however national experts advise that this area has lost its significance). Impacts on such environmentally sensitive areas should be fully assessed during the ESIA/ ESMP, when specific project locations and activities are known. In addition, other environmentally sensitive areas at the local level, should also be identified at this stage.

Despite the fact that Tajikistan is home to a large variety of animals and birds, the biodiversity of the fauna in the project districts is generally less diverse with the exception of the Tigrovaya Balka nature reserve and some other reserves. However, there are a number of species present in the project districts, which the project should consider impacts upon.

The project districts include a variety of historical monuments and sites of cultural values, which are subject to preservation. Some historical monuments and sacred sites may be buried and not yet known, or may be known only by the local residents and are not on official lists. The rehabilitation of existing water supply pipelines is assumed to be along the routes of the existing pipelines, and as such impacts on cultural heritage are less likely than for new sites, however despite this, the impacts of the

rehabilitation of existing infrastructure will need to be assessed. There is also potential for impacts on cultural resources where project infrastructure is designed for new locations as part of the project; facilities should be designed to avoid impacts. A more in depth review of cultural resources is therefore required during the preparation of the detailed design and ESIA/ ESMP, once more precise project locations are known.

As part of the preparation of the ESIA/ ESMP, a more in-depth review of habitats, species and physical cultural resources of the specific project locations should be undertaken in order to avoid, minimize and mitigate impacts.

Socio-economic background

The Khatlon Region is located in the southwest of Tajikistan and is the largest region in Tajikistan. It has a population of some 3,198,600 people (2018) and is the most populous region in the country. Most (over 80%) of the population lives in rural areas. The share of men and women living in the rural areas is almost equal. Almost 60% of the Khatlon population is of working age, with equal distribution among the genders. [2] The population in Khatlon is predominantly engaged in agriculture. Approximately 45 percent of the country's irrigated land is located in this Region. Cotton is the major crop grown in the area and accounts for 60 percent of the cotton harvest in the country [1].

The total number of extreme poor registered by Jamoats in Tajikistan in 2015 was 163,617, as according to UNDP [3]. Poverty levels in Khatlon was the highest of the four regions in Tajikistan, with the total of 65,354 individuals living in its territory [3]. Khatlon has the highest rate of population growth of Tajikistan regions. The average size of the household in Khatlon region is 8.5 people [2] (2018 data).

Environmental and Social Management Framework

The following main tasks or procedures are an important part of the ESMF and shall be followed to ensure environmental and social issues are addressed in the project.

- Identification of subproject (project locations and technical solutions)
- Development of the Environmental Assessment (EA) instrument (ESIA, ESMP, RAP etc., as needed).
- Implementation of ESMP
- Institutional capacity building
- Stakeholder consultation
- Grievance management
- Monitoring and reporting

Potential environmental and social impacts and recommended actions

Before the ESIA/ ESMP has been conducted it is only possible to predict the most likely impacts of the future projects. An outline of some of the most likely impacts in the construction phase and operation phase are provided below. However, full assessment of impacts, and mitigation for those impacts, can only be carried out during the preparation of the ESIA/ ESMP as necessary.

- Construction period:
    - Air pollution – emissions, odor, dust, noise and vibrations from construction machinery and blasting
    - Vegetation and gardens may be locally affected due to clearance for construction of infrastructure
    - Damage to natural habitats
    - Negative impacts on Physical Cultural Resources
    - Soil disturbance and erosion during trenching and gravel extraction
    - Hazardous waste generation and ACM (Asbestos Containing Material) generation
    - Construction waste and left-over gravel heaps
    - Domestic waste from workers' camps
    - Soil, water/groundwater pollution

  - Temporary disruption in water supplies and wastewater discharge
  - Drinking water quality deterioration in existing water supply systems during works
  - Traffic disturbance and accidents
  - Street and home inaccessibility during construction
  - Land use and/or acquisition of land (temporary and permanent)
  - Dissatisfaction in local community on project sites

- Operational period:
  - Increased exploitation of groundwater sources/surface water leading to permanent damage of groundwater sources or ecosystems
  - Increased wastewater discharge due to construction/rehabilitation of water supply system, leading to increased pressure on wastewater facilities
  - Wasting water caused by leakages from the network/excessive use of water by customers
  - Air pollution – emissions, odor from water treatment facilities and wastewater facilities
  - Soil, water/groundwater pollution
  - Land use and/or acquisition of land (temporary and permanent)
  - Impacts on assets and livelihoods
  - Conflicts with local community due to the use of land and water resources

The ESMF also describes various aspects that will be important for management of environmental and social impacts, including topics such as water source management, design and construction, traffic safety and construction sites, good construction practices, site protection and restoration, emergency management.

A separate Resettlement Policy Framework (RPF) report has been prepared to ensure that if involuntary land acquisition (either temporary or permanent) is required, then appropriate procedures are followed.

Stakeholder Engagement

Consultation with and participation of stakeholders at all stages of the project helps to assess, successfully manage and monitor the projects' environmental and social risks and can improve the environmental and social sustainability of projects, enhance project acceptance, and contribute to successful project design and implementation. Stakeholder engagement is an integral part of the projects' environmental and social assessment and project design and implementation.

Potential project stakeholders are identified in a stakeholder matrix table in the ESMF. The stakeholder matrix will be reviewed and updated after the selection of project sites to ensure that project affected persons (PAPs) and other interested parties are included for each locality. Further review is recommended after the commencement of implementation activities.

Information disclosure and consultation will use a range of methods, suitable for the type of stakeholder, to promote effective and inclusive engagement on issues that could potentially affect them, and to ensure that project information on environmental and social risks and impacts is disclosed in a timely and understandable manner and format. The ESMF presents a framework approach Stakeholder Engagement Plan (SEP), outlining general principles and a plan for an engagement process to be further developed and implemented by the PMU once the project details are known. The Stakeholder engagement process encompasses:

1. Disclosure of information
2. Consultations to obtain feedback
3. Engagement during implementation

Initial stakeholder consultation meetings were carried out on the following dates:

Table 1: Summary of Consultation Meetings

Consultation Meetings	Districts attended
10th August, Danghara	Danghara
11th August, Vosse	Temurmalik, Vosse
11th August, Vakhsh	Vakhsh
28th August, Kurgan-Tube	Balkhi, Levakant (Sarband), Dusti, Jaihun, Vose, Vakhsh

All districts involved in the project were invited and attended except Kushoniyon (Bokhtar), which did not have representatives at any of the consultation meetings. However, separate meetings were held with representatives in each district prior to the consultation meetings (see the table below). During the meetings, a presentation introducing project was given, including the technical, environmental and social parts of the project. Participants learnt about the aims of the project and the potential environmental and social impacts, particularly relating to resettlement. From the feedback received, the participants were interested in the water supply to the rural areas, and in general thought it would positively affect their areas and saw the positive change of more importance than any other consequences the project could bring. However, some questionnaire respondents to the question on whether there are sites/ areas which should be protected (natural, cultural, historic, etc.) during the project, did respond that there are such areas and more information on the project was needed. During the meetings, it was explained that should resettlement be necessary a further Resettlement Action Plan would be developed for the locations. Participants seemed comfortable with the idea of resettlement or loss of some asset if the project was to positively change life of many people in the area. Some participants enquired further about how the site selection and prioritization procedures and wanted to stress the difficulties they have with water supply in their areas.

In addition to the Consultation Meetings listed above, a number of additional meetings were held with individuals in different districts. A summary of the meetings is given in the table below.

Table 2: Summary of additional meetings

Additional Meetings	Participants
10th August, Temurmalik	Head of Temurmalik Hukumat, First Deputy Head
24th August, Various locations	Head of Dusti Hukumat; Deputy heads of Kushoniyon (Bokhtar), Vakhsh, Balkhi, Levakant (Sarband), and Jaihun Hukumats
28th August, Dusti	Head of Dusti Hukumat
4th September, Vakhsh	Vakhsh district Jamoats

Grievance Redress Mechanism

A grievance redress mechanism will be established to enable project affected persons to make complaints and for those complaints to be addressed during the project. The mechanism will be clearly explained to affected persons in the initial stages of the project. The detailed procedures for redress of grievances and the appeals process will be widely publicized among the affected people. It will have three steps:

1. First Step – Local (District) Grievance Redress Management Committee (Commission)
2. Second Step – National Grievance Management Committee (Commission)
3. Third step - Court of Law

Monitoring and Reporting

Monitoring is an important aspect of the project. Specific monitoring procedures should be identified clearly in the ESIA (if required), RAP (if required), ESMP and contracts for construction contractors. These documents should set indicators to be monitored, based on project activities, impacts and mitigation measures required, including for example project construction activities and impacts, pollution releases etc.

General environmental and social monitoring requirements, and responsibilities of different parties, are summarized in a table in the ESMF, however, as stated above the precise details of monitoring must be identified in the ESMP/ ESIA as relevant. The PMU should monitor implementation of the ESMF and all associated documents, on a regular basis. Responsibilities for monitoring specific indicators will be identified in specific EA Instrument documents, and will include relevant responsible authorities.

The PMU should review and analyze all collected monitoring data to ensure implementation of requirements of EA instruments, including effectiveness of mitigation. The PMU will maintain databases of monitoring records including comprehensive records of the monitored activities and ESMF and RPF implementation procedures as outlined in the table below and subsequent project documents. Reports outlining the implementation of the ESMF, and databases of records and results of monitoring, should be provided quarterly in a format agreed with the World Bank and other relevant authorities.

Implementation of the ESMF

The Project Management Unit (PMU) will co-ordinate all project activities. The PMU will ensure close co-ordination and co-operation with the local authorities for technical, contractual, and other issues under their administration. The PMU is responsible for implementation of the Environmental and Social Management Framework and development of required reports, with the support of Consultants (to be hired by the PMU) and in cooperation with various stakeholders.

The Social Safeguards Team (Social Safeguards Specialist, Consultancy firm/ NGO responsible for social mobilization in the field) will be responsible for coordination of communication with PAPs and social tasks such as screening for the need for RAPs. A qualified and experienced environmental expert will be employed by the PMU and will be responsible for environmental tasks, in cooperation with other PMU staff members.

The ESMF includes a table identifying responsibilities for implementing the ESMF.

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LIST OF ACRONYMS AND ABBREVIATIONS

AMS	Antimonopoly Services
ARAP	Abbreviated Resettlement Action Plan
BAT	Best Available Technology
CBO	Community Based Organization
CSO	Civil Society Organization
CU	Consumers Union of Tajikistan
DALY	Disability Adjusted Life Years
DUC	Dam under construction
DWO	Drinking Water Organization
ECAPDEV	The Europe and Central Asia region Capacity Development Trust Fund
EA	Environmental Assessment
EHS	Environmental, Health, and Safety
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FGD	Focus Group Discussion
GBAO	Gorno-Badakhshan Autonomous Region
GDP	Gross Domestic Product
GIIP	Good International Industry Practice
GRMC	Grievance Redress Management Committee
GRS	Grievance Redress System
HH	Household
KMK	The State Unitary Enterprise “Khojagii Manziliyu Kommunali”
MEWR	Ministry of Energy and Water Resources
MOES	Ministry of Education and Science
MOF	Ministry of Finance
MOHSP	Ministry of Health and Social Protection
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
O&M	Operation and Maintenance
OHS	Occupational Health & Safety
OHSAS	Occupational Health and Safety Assessment Series
OP	Operational Policy
OSCE	Organization for Security and Co-operation in Europe
PAP	Project Affected Person
PMU	Project Management Unit
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
PRV	Pressure reducing valve
RT	Republic of Tajikistan
RWSS	Rural Water Supply and Sanitation
RWSSP	Rural Water Supply and Sanitation Project
SASPP	State Agency for Social Protection of Population
SCAC	The State Committee for Architecture and Construction
SCEP	The State Committee on Environmental Protection
SEP	Stakeholder Engagement Plan
SES	Sanitary Epidemiological Control Services
SESA	Strategic environmental and social assessment
SUE KMK	The State Unitary Enterprise “Khojagii Manziliyu Kommunali”
ToR	Terms of Reference
WB	World Bank
WSS	Water Supply System
WHO	World Health Organization
WTP	Water Treatment Plant
WUA	Water User Association

2 INTRODUCTION

The Rural Water Supply and Sanitation Project (RWSSP) aims to improve the current situation in the water supply and sanitation sector, with the focus on three rural areas in Khatlon region. In 2018, the State Unitary Enterprise “Khojagii Manziliy Kommunali” (KMK) received grant funding from the ECAPDEV Trust Fund to strengthen KMK’s capacity and to assist with preparation of the Rural Water Supply and Sanitation Project proposed for World Bank (WB) funding.

As part of the project preparation phase, a feasibility study will identify potential sites for project investments proposed for World Bank funding. Project construction and operation activities will cause some environmental and social impacts, and as such appropriate environmental and social assessments are required, according to World Bank policies and Tajikistan legislation. However, as project investment details and locations are not yet known the impacts cannot be defined. Therefore, in line with World Bank Operational Policy 4.01, this Environmental and Social Management Framework (ESMF) has been prepared.

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3 PROJECT DESCRIPTION

3.1 PROJECT BACKGROUND

The Rural Water Supply and Sanitation Project (RWSSP) aims to improve the current situation in the water supply and sanitation sector, with the focus on three rural areas in Khatlon region. In 2018, the State Unitary Enterprise “Khojagii Manziliy Kommunali” (KMK) received grant funding from the ECAPDEV Trust Fund to strengthen KMK’s capacity and to assist with preparation of the Rural Water Supply and Sanitation Project proposed for World Bank funding.

The State Unitary Enterprise KMK and the Ministry of Energy and Water Resources are the Executive Bodies of the project. A Project Management Unit (PMU) will co-ordinate all project activities, including future tendering procedures and contract management issues.

The Government of Tajikistan is committed to improving access to water and sanitation and to achieving Sustainable Development Goal 6 (Ensure access to water and sanitation for all) targets by 2030. Despite considerable effort and investment however, lack of access to clean drinking water continues to be a major issue, particularly for people in rural Tajikistan. Many residents rely on rivers and open ditches for drinking water. Access to safe drinking water and sanitation is also a challenge for many social buildings/facilities in the rural areas. Schools often do not possess a regular water supply and lack sanitation facilities or the existing facilities are old and in need of substantial repair. The World Bank WASH Poverty Diagnostic (2017) found that the population with the poorest drinking water conditions is largely concentrated in the districts with high poverty rates, particularly in Khatlon in the south-west and the Sughd region in the north of the country. [1] [10]

According to the World Bank *Poverty Diagnostic of Water Supply, Sanitation and Hygiene Conditions in Tajikistan* [10], in 2016 about 30% of residents in Khatlon rely on “surface water”. The share of households with access to improved water on premises is around 40%. Given the unreliability of drinking water supply, households rely on multiple sources throughout the year; households in Khatlon region used more sources than the national average. Reliance on unimproved water sources as a secondary source (such as irrigation canals and drainage canals, or the water delivered by private trucks and carts) increases particularly in the summer from 22 to 27% of households, contributing most likely to WASH related DALYs, particularly for the poor strata of population who cannot afford for water delivery by trucks or construct water storage tanks. Public services such as schools experience the same difficulties with effect on the health of children. Khatlon (along with GBAO) has also by far the highest proportion of households without access to improved sanitation, with most using pit latrines with slab. Lack of access to safe water and sanitation within the premises creates particular problems for people with disabilities. [10]

3.2 PROJECT AREAS

The **Rural Water Supply and Sanitation Project** (RWSSP) covers three proposed areas in the Khatlon region of Tajikistan. The map below shows the location of Khatlon region within Tajikistan.

Figure 1: Location of Khatlon region within Tajikistan. Source: Central Intelligence Agency [56]

The three proposed areas for the project are:

1. **The Vakhsh inter-district water supply system** - The Vakhsh inter-district water supply system was constructed in 1977 to serve six districts (Kushoniyon [Bokhtar], Vakhsh, Balkhi, Levakant [Sarband], Dusti, Jaihun). Due to a lack of investments and O&M, the system has almost fully deteriorated. Only about half of the current population can be supplied through the connection to the Vakhsh inter-district water supply system. [1] The source of the water supply is surface water. The water intake site includes a complex of facilities. There are a number of pumping stations on the WSS system. Site visits found that water treatment is based on a simple mechanical settlement procedure without the use of coagulants, and chlorination is rarely used. Disinfection systems and pumping stations are badly worn and in emergency condition. Most pipes are operated in excess of their service life. Further information can be found in the Feasibility Study. [45] There are eight Jamoats in Kushoniyon (Bokhtar) district, seven in Vakhsh district, eight in Balkhi district, three in Levakant district, six in Dusti district and six in Jaihun district.

2. **Vosse district -** The majority of the population does not have access to water supply services, relying on the water from open irrigation canals or low quality water from the boreholes. There are eight Jamoats in this district.

3. **Danghara-Temurmalik (Kangurt) area -** The existing Danghara-Temurmalik water supply system covers a relatively insignificant territory. The majority of the population relies on traditional sources or water brought by trucks. There are nine Jamoats in Danghara district, and seven in Temurmalik district. The proposed WB-financed project will not cover Danghara-Temurmalik area.

In the locations listed, water supply infrastructure has suffered from decades of chronic under-investment. There are also no improved sanitation facilities in the project area. The high cost to operate

and maintain water supply infrastructure poses a significant fiscal burden, as revenues cover only a small share of the system's operational and maintenance costs, resulting in low service quality, low willingness to pay, underfunded operating budgets and lack of investment funding. [1]

3.3 PROJECT OBJECTIVES AND OUTCOMES

The aim of the project is to develop solutions for rural water supply systems, and to some extent sewerage connections, in order to meet the needs for drinking water in the rural locations of the project districts listed above, to improve public health and environmental conditions. One of the main issues to be resolved is that water supply systems are absent in many of the rural project areas and improving access to safe sanitation in selected school and health care facilities.

The specific objectives outlined for the project are [1]:

- *To provide the quantity of drinking water supply and corresponding sanitation facilities;*
- *To provide different alternatives for efficient use of available water resources and for collection and disposal of sewerage as required.*
- *To enhance financial sustainability of the proposed water supply schemes and self-financing capacity for future capacity expansion.*

The following project outcomes have been identified [1]:

- *Drinking water supply systems, household connections including metering systems;*
- *Improved sanitation systems in selected social buildings;*
- *Availability of proven metering, tariff, billing and revenue collection systems;*
- *Efficient operation and maintenance services for water supply;*
- *Consumption behavior changed in favor of rational water use;*
- *Implementation of a Financial Management Improvement Plan*

The Consultant's scope of work under the project can be divided into the following main components:

- Part 1 – Preparation of a feasibility study and technical and engineering designs
  - Phase 1 - Feasibility Study & Preliminary Engineering Designs
  - Phase 2 - Detailed Engineering Design, Construction Drawings and Tender Documents for distribution system subprojects;
- Part 2 - Financial Management Technical Assistance Engagement
- Part 3 - Environmental and Social Assessment - To prepare required environmental and social safeguards documents, such as Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework, as well as the ESIA for the first year of the project interventions.
- Training and workshops

The Consultant will work to fulfil the specific objectives outlined in the ToR:

- *To provide the quantity of drinking water supply and corresponding sanitation facilities;*
- *To provide different alternatives for efficient use of available water resources and for collection and disposal of sewerage as required.*
- *To enhance financial sustainability of the proposed water supply schemes and self-financing capacity for future capacity expansion.*

The precise nature of the project activities and locations are not yet defined, however, activities could involve for example:

- **Construction of new/reconstruction of existing water supply facilities** – for example: pipelines, chambers for air valves, pressure reducing valves (PRVs), wash-outs, service reservoirs (storage tanks) and pumping stations, connections to EVWSS regional water supply, boreholes, wells.

- **Improving access to safe sanitation for selected schools and healthcare facilities** – for example sewers, manholes, treatment facilities.

3.4 ANALYSIS OF ALTERNATIVES

An analysis of alternatives is presented below for the following scenario: with/ without project alternative.

At present, the water and sanitation services in the project areas are in poor condition and access to clean water and sewage services and sanitation is limited. This leads to high incidence of intestinal helminths, diarrhea and other water and sanitation related diseases. In areas without water supply systems, people use water from a variety of sources such as rivers, irrigation canals, and transported water by trucks. Especially in summer when the river water sources can dry up, people use irrigation canals which can have contaminated water. The concept of safe sanitation is missing - rural residents construct pit latrines and manage sanitation issues on their own. In comparison to this situation, it can be expected that the project would improve the health conditions of the local population in the target area and also decrease drudgery (particularly for women and youth) caused by transporting water, sometimes over long distances. The importance of improved water supply was also highlighted by the local authorities and other stakeholders participating in the first project stakeholder engagement events.

However, there may also be negative impacts of the project (see section 6.2) such as increased wastewater discharge (due to the increase in water supply). In cases where wastewater treatment or proper disposal is not properly organized this may lead to the contamination of soils in settlements and decreased hygiene. Again the pollution of river water may be a problem if wastewater is discharged directly to the watercourses. Another impact to consider is the increased exploitation of groundwater sources/surface water which if not properly controlled, could lead to damage of groundwater sources or ecosystems.

In conclusion, it is clear that the project implementation would improve access to safe water to the population of the selected sites. In cases that potential environmental and social problems have been reduced to an acceptable level, in accordance with the mitigation to be defined in later stages of the project (ESIA/ESMP), the project would improve the water supply and sanitation sector.

4 POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 PROJECT ORGANIZATIONAL FRAMEWORK

The Project Executive Bodies are the State Unitary Enterprise for Housing and Communal Services (Khojagii Manziliyu Komunali) (KMK) and the Ministry of Energy and Water Resources (MEWR) of the Republic of Tajikistan.

The project will be implemented through a Project Management Unit (PMU). The PMU was founded by the Government of the Republic of Tajikistan represented by the State Committee on Investment and State Property Management, Executive Office of the President of the Republic of Tajikistan and Ministry of Finance of the Republic of Tajikistan. The subordination of the PMU is shown in the Figure below. The PMU has established an office within the central KMK building in Dushanbe.

The PMU was established for the Development of Municipal Infrastructure Project in 2004. According to the Chief Executive Officer of the President of the Republic of Tajikistan Resolution No. 22 / 10-239 dated August 16, 2018, the implementation of the Rural Water Supply and Sanitation Project is entrusted to the PMU of the Development of Municipal Infrastructure Project.

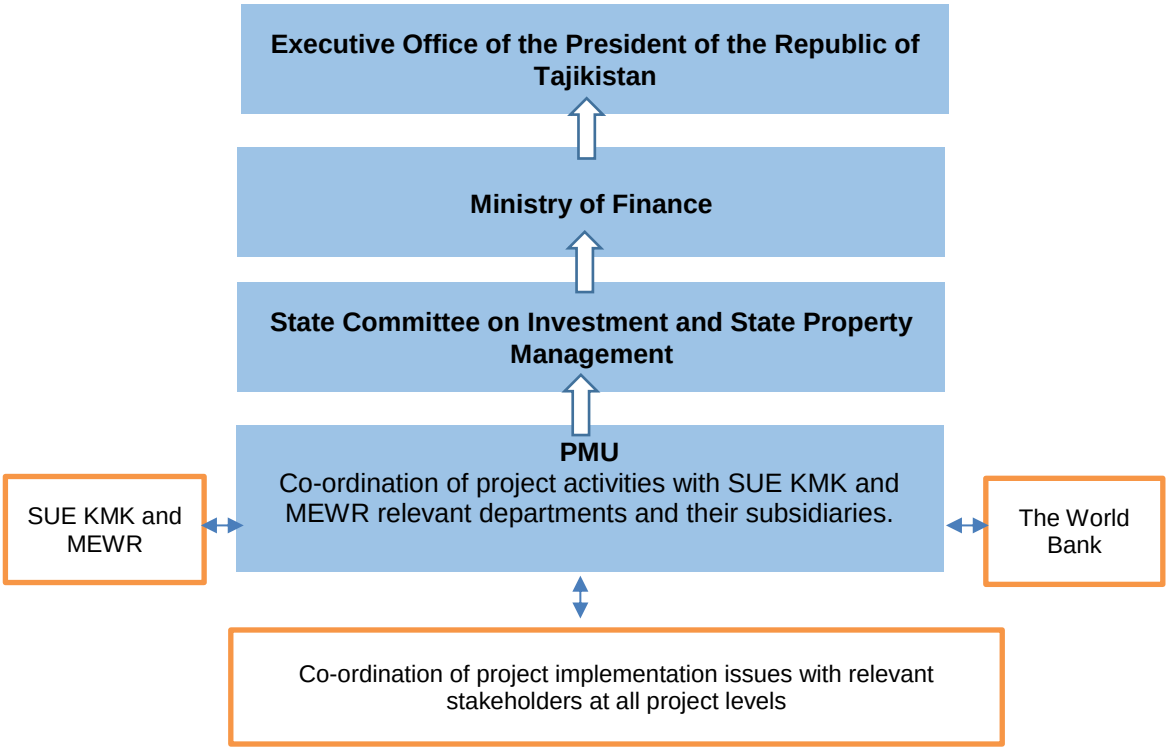


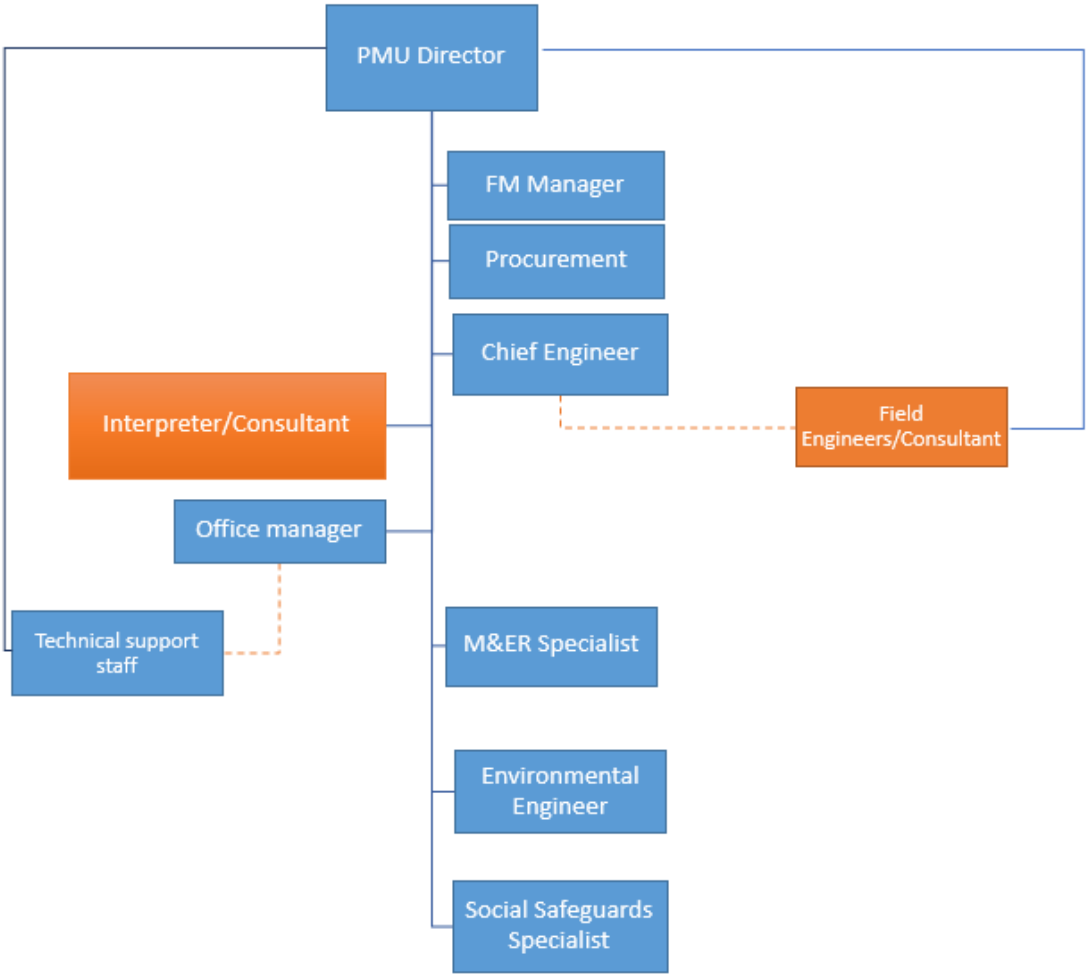
Figure 2: PMU subordination and co-ordination with other parties (shown in orange boxes)

The PMU will co-ordinate all Project activities, including future tendering procedures and contract management issues and will be in charge of the day-to-day management of the Project. The PMU will also be responsible for: the co-ordination of activities at all project levels with implementing agencies, municipal authorities, the World Bank and other parties involved in project implementation issues; compilation of quarterly and annual reports to the World Bank, Executive Bodies and other relevant authorities; supervision of development of the project implementation plan and budget in co-ordination with SUE KMK and MEWR, and obtaining its approval by SUE KMK/MEWR and other relevant bodies. The PMU is responsible for liaison with KMK, MEWR, the Government of the Republic of Tajikistan, the World Bank, and other parties involved in the project implementation.

The PMU will engage a number of staff/consultants, including: PMU Director, Financial Manager, Procurement Specialist, Chief Engineer, Officer Manager, Field Engineers/Consultant, Monitoring and Evaluation Specialist, Environmental Engineer, Social Safeguards Specialist, Technical support staff, Interpreter/Consultant. The field staff and consultants will be based in the project areas in a rented office(s), and will work closely with local authorities, KMK and Tojikobdehot. The social (community) mobilization tasks in the field will be provided by a consultancy firm/ NGO appointed by the PMU.

The PMU will ensure close co-ordination and co-operation with the local authorities for technical and general contractual and coordination matters. The PMU is responsible for implementation of the Environmental and Social Management Framework and development of required reports, with the support of Consultants (to be hired by the PMU) and in cooperation with various stakeholders. The PMU will be responsible for planning and coordinating resettlement. A committee will be established for the management of grievances and resettlement.

Figure 3: Organization chart of the PMU. Source: Adapted from chart provided by the PMU



4.2 INSTITUTIONAL FRAMEWORK IN THE WATER RESOURCES SECTOR

There are a number of institutions and other organizations who form part of the water resources institutional framework in Tajikistan. Some of the main institutions and organizations are summarized below. They are also identified in the stakeholder matrix in Table 17 and more detailed descriptions are provided in section 6.14.1.

The State Unitary Enterprise for Housing and Communal Services (SUE KMK)

- ***The State Unitary Enterprise for Housing and Communal Services (KMK)*:** State unitary enterprise at the central level reporting directly to the Cabinet of Ministers. It is responsible for provision of drinking water and waste water services for cities, Jamoats, towns, villages. KMK has several specific responsibilities, such as: preparation and development of projects; develops the rules of technical operation, the regulatory and legal framework; establishment of profit margins for Vodokanals; improvement of water and sewerage infrastructure; developing tariffs and price lists for services provided for water supply, heat supply, sanitation, housing maintenance, gardening, irrigation and other services in the housing and communal services sector. KMK has a sub-ordinated regional branch in Khatlon and Water Supply and Sanitation Utilities (Vodokanal) in urban areas.
- **State institution Tojikobdehot (Tajikobdehot)** is subordinated to KMK. Founded in 1983 and since May 2012 under SUE KMK, Tojikobdehot is responsible for the design, construction, operation and maintenance of rural WSS. Tojikobdehot has a sub-ordinated regional branch in Khatlon and Water Supply Utilities in rural areas.

Government Administration and local self-government

Local authorities implement policies and legislation and provide support to the implementation of agreements with donors. According to the National Plan for Water 2007-2020, each District should allocate about 10% from the local budget for development of rural water supplies. Some Jamoats and villages have separate Drinking Water Organizations (DWO). These organizations are self-supporting organizations, which collect revenues for the water supply systems that they provide. They are responsible for compliance of water quality with the national standards.

Government institutions

- ***Antimonopoly Services (AMS) -*** Sets norms and standards, verifies implementation and settles disputes. Considers prices, expenses and their justification, government subsidies. AMS supervises requests for changes in tariffs for water and wastewater (channeled through KMK).

- ***Sanitary Epidemiological Control Services (SES) -*** SES is responsible for monitoring the water quality standards and is involved in the permitting process for the use of water or the discharge of wastewater.

- ***The State Committee on Environmental Protection (SCEP) -*** Responsible for carrying out the government policy on environmental management and control on environment protection, and use of natural resources. The committee is responsible for water permits and licensing.

- ***Ministry of Energy and Water Resources of the Republic of Tajikistan*** – responsible for policy, regulation and water sector coordination.

- ***Agency for Land Reclamation and Irrigation, under the Government of the Republic of Tajikistan –*** Responsible for implementing state policy, regulatory and legal regulation in the field of land reclamation and irrigation, and for the use and protection of water resources. The Agency also works in regulation and support of Water User Associations and integrated water resources management in the basin and subdivisions of small and medium-sized rivers. [28]

- ***Main Department of Geology –*** The department works in close cooperation with the State Committee on Environmental Protection (SCEP) on groundwater resources and maintenance. The department is responsible for monitoring abstraction and quality control. [11]

- ***Agency for Standardization, Metrology, Certification, and Trade Inspection*** - The agency is responsible for control and supervision of observance of the technical regulation, certification, and metrological requirements for drinking water***.*** [10]

- ***Main Department on the State Supervision of the Safe Practices in the Industry and Mines Inspection -*** The department is responsible for the technical requirements for location, design, construction, and operation of groundwater wells [10].

- ***Open Joint Stock Holding Company Barqi Tojik -*** The company is responsible for the operation and maintenance of hydropower facilities in Tajikistan, previously the responsibility of the Ministry of Energy and Water Resources. [11]

Other

- ***Water Users Associations –*** Non-commercial organizations focused on irrigation, regulated by the Agency for Land Reclamation and Irrigation. The organizations work to agree and distribute water for irrigation between members and other users, collect fees and settle disputes. [29]

4.3 LAWS OF THE REPUBLIC OF TAJIKISTAN

4.3.1 ENVIRONMENTAL IMPACT ASSESSMENT AND STATE ECOLOGICAL EXPERTISE

Environmental Impact Assessment and review and approval of EIA is regulated by the legal documents outlined in the table below:

Table 3: EIA and State Ecological Expertise Legal Documents

Legal document	Key issues
Law On Environmental Impact Assessment from 18 July 2017, № 1448	• Regulates the requirement and procedures for EIA including: determining EIA categories based on the project activity impacts; EIA required for each category; stages of EIA; requirements of the EIA report
Procedures for organization and conducting of environmental impacts assessment, adopted by Government Regulation from August 1, 2014, №509	• Determines the objectives and basic principles of impact assessment • Regulates the procedures for carrying out an environmental impact assessment • Establishes the procedures for conducting public discussions
Government Resolution from 3 June 2013, No. 253 "On the List of Facilities and Activities for which the Development of Environmental Impact Assessment is Mandatory"	• Establishes the list of Facilities and Activities for which the Development of Environmental Impact Assessment is Mandatory
Law "On ecological expertize" from 16 April 2012, No. 818	• Determines goals and objectives of ecological expertise • Determines the list of design or other documents of planned economic and other activities that are subject to state environmental assessment

Legal document	Key issues
	• Regulates the procedure for conducting state ecological expertise and requirement to the conclusion of the state ecological expertise • Establishes rules for Public environmental expertise
Government Resolution from December 3, 2012, No. 697 On the Procedure for Conducting State Ecological Expertise	• Establishes the procedures for organization and conduct of the state ecological expertise

Certain requirements of the above laws and resolutions are summarized in the following sections.

4.3.1.1 PROJECTS REQUIRING EIA

Environmental Impact Assessment in Tajikistan is regulated by the ***Law On Environmental Impact Assessment*** **from 18 July 2017, № 1448**. The law requires categorization of economic and other planned activities according to the level and types of potential environmental impacts, into the following categories "А", "Б", "В" and "Г".

Category "А" and "Б" projects require an Environmental Impact Assessment report. Activities not included as Category А or "Б", require the submission of a Statement on environmental impact assessment and the declaration of obligations for the implementation of established and proposed environmental protection measures from the customer of this activity.

Other regulations
The following regulations were adopted before the *Law On Environmental Impact Assessment* from 18 July 2017, № 1448 (see above). They are still in place, and differently regulate procedures provided by Law, and have not been updated.

The **Government Resolution from 3 June 2013, No. 253 "*On the List of Facilities and Activities for which the Development of Environmental Impact Assessment is Mandatory***" outlines the facilities and activities requiring mandatory EIA. They are categorized into the following categories:

- Environmental Impact Category I (high risk)
- Environmental Impact Category II (medium risk)
- Environmental Impact Category III (low risk)
- Environmental Impact Category IV impact category (local impact)

The lists include a number of water and wastewater facilities.

"Procedures for organization and conducting of environmental impacts assessment" **by Government Regulation from August 1, 2014, №509.** According to this regulation EIA Impact Assessment for Medium and Low Impact categories (II and III) will be developed in the form of a section on "Environmental Protection", and for category IV in the form of the "Statement on the Impact Assessment to Environment ".

Category II and III require development of a "Environmental Protection" section, whereas category IV require development of the "Statement on the Impact Assessment to Environment ". For the category I should be presented EIA Report.

However according to the 2017 Law, a EIA Report should be presented for the projects related to category А and Б, and a Statement on Environmental Impact Assessment and the declaration of obligations for the implementation of established and proposed environmental protection measures for the projects of category В and Г.

"Procedures for organization and conducting of environmental impacts assessment" **by Government Regulation from August 1, 2014, №509.** According to this regulation EIA Impact Assessment for Medium and Low Impact categories (II and III) will be developed in the form of a section on "Environmental Protection", and for category IV in the form of the "Statement on the Impact Assessment to Environment ".

4.3.1.2 EIA STAGES

According to the ***Law On Environmental Impact Assessment*** **from 18 July 2017, № 1448**, Environmental impact assessment includes the following stages:

- **Stage 1** - review and assessment of environment of the territory, carried out with the view to justifying the optimal choice of the appropriate land piece for location of the facility;
- **Stage 2** - preliminary environmental impact assessment simultaneously accompanied by a feasibility study of the project and formalized in the form of a Statement on environmental impact assessment;
- **Stage 3** - impact assessment carried out for the purpose of a full and comprehensive analysis of the possible consequences of project implementation, justification of alternative options and development of an environmental management plan (program). The report on environmental impact assessment should contain a description of the technical solution for preventing negative environmental impacts. At this stage, standards are developed for emissions into the air and discharges into water bodies, formation, storage and placement of solid and liquid wastes;
- **Stage 4** - post-project analysis, conducted once a year after commissioning of the facility (start of economic or other activities) in order to confirm environmental protection and to adjust the environmental management plan (program).

Review and approval of the EIA – Review and approval of the EIA is carried out by the State Ecological Expertise. Consideration of documents on environmental impact assessment by the state environmental review in accordance with the category of objects of evaluation is conducted up to 60 days. The decision on determining the appropriate procedure for the state environmental review of environmental impact assessment documents shall be taken by the authorized state body within a period of not more than 10 calendar days after the registration of acceptance of the submitted materials. The conclusion of the state ecological expertise related to the documents on environmental impact assessment is mandatory for the execution by the customer of the planned economic and other activities.

4.3.1.3 REQUIREMENTS OF THE EIA REPORT

The 2017 law outline a detailed list of requirements for the EIA report, for example: justification of the need for the project; outline of project activities and processes; impacts on biotic and biotic environmental components, population health and socio-economic conditions; mitigation and monitoring; design standards for emissions (discharges) of pollutants and waste disposal; summary of the information for citizens.

4.3.1.4 INFORMATION DISCLOSURE TO CITIZENS IN THE EIA PROCESS

The 2017 EIA law outlines that the authorized state body shall develop a procedure for informing citizens at the relevant stages of environmental impact assessment of projects belonging to categories "А" and " Б". At the same time, it provides for the possibility for conducting consultations and taking into account the opinions of citizens.

The procedure for informing citizens includes:

- Indication of places for obtaining information and conducting consultations;

- Indication of the method of informing the public (including through websites, mail, media, organization of hearings, use of drawings, tables, diagrams, etc.);
- Definition of consultation methods with citizens (including in the form of discussion of written representations, results of interviews with the population);
- Setting the time limits for the relevant stages of environmental impact assessment.

All information, including reports, expert opinions, feasibility studies of projects, changes in projects, research results relating to the objects of environmental impact assessment are posted on the website of the authorized state body.

After making a decision to grant or refuse to grant the permission for project, the authorized state body shall make available to the public the following information:

- Content of the decision
- The main facts and considerations that are fundamental to the adoption of this decision;
- Description of the main measures to prevent, reduce and, if possible, eliminate the negative impact on the environment during the implementation of the project.

4.3.1.5 STATE ECOLOGICAL EXPERTISE

- Law "*On ecological expertize*" from 16 April 2012, No. 818
- Government Resolution from December 3, 2012, No. 697 *On the Procedure for Conducting State Ecological Expertise*

The law and resolution establish the types of projects, concepts, programs, town planning projects, regulations, and other activities that require review and examination by the State Ecological Expertise.

State ecological expertise is carried out on the basis of the customer's application of project or other documentation subject to state environmental review, materials on Environmental Impact assessment in cases stipulated by the legislation of the Republic of Tajikistan and other necessary documents, the composition and content of which is established by the legislation. The Resolution stipulates what should be considered and reviewed during the state ecological review.

Term of carrying out of the state ecological expertize
The period for carrying out the state ecological expertise is up to 30 days. For complex projects under the decision of the authorized state body, the period for carrying out the state ecological expertise is extended to sixty days. The period for carrying out state ecological expertise for project or other documentation for planned economic and other activities that may have a transboundary impact is established by the RT Government.

Conclusion of the State Ecological Expertise

The conclusion of the state ecological expertize may be positive or negative.

The positive conclusion of the state ecological expertise contains conclusions on the compliance of project with the requirements of the legislation on environmental protection and rational use of natural resources, including technical regulations, as well as other information in accordance with the legislation of the Republic of Tajikistan.

Financing and implementation of the planned economic and other activities subject to mandatory state environmental expertize are allowed only if there is a positive conclusion of the state environmental expertize.

In case of negative conclusion of the state ecological expertise, the customer or the developer of the project or other documentation is obliged to take into account the conclusion when finalizing the project or other documentation and submit it for a second state ecological expertize or refuse to implement the planned economic and other activities.

The Law also provides ***public environmental expertise.*** Local government bodies and self-government bodies of settlements and villages are obliged to inform the population in a timely manner of the planned economic and other activities in the territory under their jurisdiction through the mass media and other accessible means. Public environmental expertise shall be carried out before or simultaneously with the state environmental review. Public environmental expertise is carried out if the application on organizing the public environmental expertise is registered by local government bodies and self-government bodies of settlements and villages. The results of the public environmental review should be formed up in the form of a public environmental expert conclusion, which hah recommendatory character. The conclusion of a public environmental review should be considered when conducting the state environmental review.

4.3.1.6 EIA REQUIRED FOR THE PROJECT UNDER TAJIKISTAN LEGISLATION

The type and level EIA required by the laws of the Republic of Tajikistan for the subprojects under the RWSSP will depend on the type of technical activity, location and the level and nature of the potential impacts. As described in section 4.3.1.1, regulations are still in force which were adopted before the new EIA law from 2017 and there are differences in the categorization of the projects and types of EIA required between the 2017 law and these regulations. It is not clear in the legislation whether the previous category I, II, III and IV projects are comparable to the new "А", "Б", "В" and "Г" projects. In view of legislative uncertainties, the final categorization should be made in consultation with the competent state authority once precise project details are available.

Under the 2017 law, either a full EIA will be required (Category "А" and "Б" projects) and all four stages identified in the section 4.3.1.2, or a Statement on environmental impact assessment and the declaration of obligations for the implementation of established and proposed environmental protection measures from the customer of this activity should be developed (for Category “В” and “Г”) in the first two EIA stages shown in the section 4.3.1.2.

Category А - It is unlikely that the project would be categorized as Category А, as it should not have large-scale negative impacts on the environment and (or) sanitary and hygienic welfare of the population. It is also unlikely that the project would directly impact designated nature areas as designated by the Republic of Tajikistan, however this should be confirmed when project details are confirmed. In addition, the project should be designed in order to avoid or minimize direct impacts on objects of historical and cultural heritage; this would need to be assessed during identification of subprojects. If Regulation #253 categories were used, it is also not expected that the project activities would classify as a Category I project.

Category Б – If a project has a predictable impact on the environment, and this is confirmed by the results of previous examinations the project could be classified as category Б. Various other factors such as location of the site, and presence of reserves and other protected areas are taken into account. An EIA Report should be developed for category Б projects.

Category В and Г - If the project is not classified as a Category "А" and "Б" project, the project needs to submit a Statement for environmental impact assessment and the declaration of obligations for the implementation of established and proposed environmental protection measures.

It is probable that the project will be categorized as Category Б, В or Г. In view of legislative uncertainty, the final categorization should be made in consultation with the competent state authority once precise project details are available.

The Law outlines the specific requirements for the content of the EIA Report and Statement of environmental impact assessment to be presented to the State Ecological Expertise, including specific information on project activities, location and potential impacts. This ESMF document could however be presented to the State Ecological Expertise as a supporting project document.

4.3.2 OTHER TOPICS

A select list of legal documents of potential relevance for the project has been compiled. Legislation is grouped into the following topics:

- Water Resources, Water Supply, Water Quality, Water Supply Services, Sanitation
- Air emissions
- Solid waste management, Pesticides, Soil protection
- Environmental management
- Land ownership, Resettlement, Land Use Planning
- Water tariffs
- Labor, Health and Safety Management
- Grievances

The list of legislation is provided in Annex 3. The Resettlement Policy Framework examines the legal framework of resettlement issues in more detail. A list of legislation relating to Water Resources, Water Supply, Water Quality, Water Supply Services, Sanitation legislation is provided in the following table.

Table 4: List of relevant Water Resources, Water Supply, Water Quality, Water Supply Services, Sanitation legislation

Legal document
Constitution of the Republic of Tajikistan adopted on 6 November 1994 and amended by referendum on 26 September 1999 and 22 June 2003
Civil Code of the Republic of Tajikistan Part I: Enacted: June 1999. Last amendment in 2006.
Water Code, 2000. Amendments in 2006, 2008, 2009 and 2011, 2012
Law "On drinking water and drinking water supply", 29 December 2010 № 670
CODE OF HEALTH OF THE REPUBLIC OF TAJIKISTAN
Law of RT "On Procedural Systems for Permissions"
Law of RT "On Water Users Association" (2006)
Rules for the Use of communal water supply and sewerage systems in the RT, 30 April 2011, № 234
Rules for state control and supervision of drinking water supply from December 31, 2011, No. 679
Rules for conducting record keeping in the sphere of drinking water supply from December 31, 2011, No. 680
Resolution of the GovRT from July 31, 2001, №357 On *SUE ""Housing and communal services*
SANITARY RULES AND NORMS for Zones of sanitary protection of water supply sources (СанПиН 2.1.5.006-07) from 28.02. 2007 г. №75
SANITARY RULES AND NORMS Drinking water. Hygienic requirements for water quality of centralized drinking water supply systems. Quality control.

4.4 WORLD BANK POLICIES

4.4.1 OPERATIONAL POLICIES

The World Bank requires that projects supported by the bank address environmental and social issues during project design, implementation and operation. These requirements are outlined in a number of The Environmental and Social Safeguard Policies, which consist of Operational Policies [12]. These policies are summarized below, alongside an assessment of whether the project triggers these policies. OP 4.02 – Environmental Action Plans and OP 4.03 – Performance Standards for Private Sector Activities are not applicable to this project.

Table 5: World Bank operational policies and applicability to the project

Policy	Reasons OP triggered and Safeguard Instrument
OP 4.01 - Environmental Assessment [13], [14] Environmental assessment (EA) of projects is required to help ensure they are environmentally sound and sustainable, in order to improve decision making. Potential project risks and impacts on the environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, cultural resources) need to be analyzed and mitigation designed to prevent, minimized and compensate for adverse impacts. The EA takes into account country conditions, environmental studies, national environmental action plans, national policies and legislation, institutional capabilities, and obligations regarding relevant international environmental treaties and agreements. A range of EA instruments are available, depending on the nature of the project: environmental impact assessment (EIA), regional or sectoral EA, strategic environmental and social assessment (SESA), environmental audit, hazard or risk assessment, environmental management plan (EMP) and environmental and social management framework (ESMF). The bank screens projects and categorizes them as A, B or C, according to the nature of the project. Category A and B projects require EA, whereas Category C projects, (projects likely to have minimal or no adverse environmental impacts), require no further EA action beyond the screening stage. Projects involving subprojects or annual investments plans, require additional EA for subprojects according to national law and OP 4.01. Public consultation is required during the EA process for category A and B projects, the degree of consultation depends on the categorization. Information should be disclosed in an accessible format. Consultations should be carried out as early as possible. For Category A projects, project affected groups and local NGOs should be consulted at least twice (shortly after environmental screening, before the EA terms of reference are finalized; and after the draft EA report is prepared). They should also be consulted during project implementation as necessary to address EA-related issues.	The project details (locations, detailed activities) are not yet known and so impacts are not known. However, from the general nature of project in the construction of water supply and sanitation facilities) it is expected that project activities (primarily relating to the construction period) are expected to have some negative environmental and social impacts. The severity of potential negative impacts is expected to be moderate. This ESMF is being prepared as the precise project details are not yet known. The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social impacts of future subprojects and provides measures and plans to reduce, mitigate and/or offset adverse impacts. [14] Once subproject details are known, Environmental and Social Impact Assessments and Environmental Management Plans should be produced as required according to national law and OP 4.01.

Policy	Reasons OP triggered and Safeguard Instrument
Annex B of the policy outlines the content of Environmental Assessment Report for category A projects. Annex C provides more in-depth information about Environmental Management Plans.	
OP 4.04 - Natural Habitats [15] This policy requires the conservation of natural habitats ("*land and water areas where (i) the ecosystems' bio-logical communities are formed largely by native plant and animal species, and (ii) human activity has not essentially modified the area's primary ecological functions."*) such as natural arid and semi-arid lands; wetlands; estuaries; freshwater lakes and rivers. It also requires the protection of "critical natural habitats" – such as existing protected areas by governments or traditional local communities, sites that are critical for rare, vulnerable, migratory, or endangered species [16]. A precautionary approach to natural resource management is required to ensure environmentally sustainable development. The significant conversion or degradation of "critical natural habitats" is not permitted. Significant conversion of "natural habitats" is not permitted unless there are no feasible alternatives, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs. Suitable mitigation measures are required in such instances, including minimizing habitat loss, and establishing and maintaining an ecologically similar protected area. Mitigation measures will only be approved if the implementing authorities are able to carry out such measures.	There are important natural habitats in some parts of the project districts. According to available information it is not expected that the project activities will result in significant degradation of natural habitats, however, this must be examined in detail once project details are known, during the ESIA/ ESMP processes. The ESMF outlines methodologies for avoidance and management of impacts on natural habitats. Natural habitats will be considered during site selection, design and planning of environmental management. ESIA / ESMPs (as required) should be developed for the project.
OP 4.09 - Pest Management [17] Where management of pests that affect agriculture or public health is required, biological or environmental control methods should be used, and reliance on synthetic chemical pesticides reduced. Pest management should be addressed during Environmental Assessment. For projects involving pest management, the Bank will assess country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management. Agricultural pests controlled should normally be through Integrated Pest Management approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. In public health projects, the Bank supports controlling pests primarily through environmental methods. Where the above methods alone are not effective, the Bank may finance the use of pesticides for control of disease vectors. The policy sets criteria for selection of pesticides, and certain requirements in the use, storage manufacture of pesticides.	The project will not finance the purchase of pesticides. It is unlikely that pest management will be required under the project, and therefore this OP is not triggered. However, pesticides used in the areas of irrigated agriculture have polluted several canals which also have been used as drinking water sources. This problem should be studied in the ESIA/ ESMP.

Policy	Reasons OP triggered and Safeguard Instrument
OP 4.10 - Indigenous Peoples [18] The dignity, human rights, economies, and cultures of Indigenous Peoples should be protected. For projects that affect Indigenous Peoples, they must be engaged in a process of free, prior, and informed consultation. There must be broad support for the project by the affected Indigenous Peoples. Such projects should include measures to avoid impacts on the Indigenous Peoples', and where this is not possible, minimize, mitigate, or compensate for such effects. Indigenous Peoples should receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive. The term "Indigenous Peoples", is used in a generic sense to refer to a distinct, vulnerable, social and cultural group with certain characteristics, which the policy outlines. Projects affected Indigenous Peoples require: screening; social assessment; free, prior and informed consultation; preparation of an Indigenous Peoples Plan or Indigenous Peoples Planning Framework; and disclosure of such Plans/Frameworks.	According to available information, there are no indigenous peoples in the project areas.
OP 4.11 - Physical Cultural Resources [19] Physical cultural resources (cultural heritage, cultural property, cultural assets, cultural patrimony) are defined by the policy as: *"movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance."* The interest may be at the local, provincial or national level, or international level. Impacts on physical cultural resources should be avoided or mitigated. The impacts and mitigation cannot contravene national legislation, or its obligations under relevant international treaties and agreements. Impacts are identified and addressed through the EA process. The policy outlines additional guidelines for categorization of projects into Category A or B under the EA process (see OP 4.01), in relation to cultural resources and significant excavations etc. As part of the EA process, a physical cultural resources management plan should be produced – this is part of the EMP if an EMP is produced – outlining mitigation, chance find procedures etc. The plan should be consistent with the national legislation and policies, and take into account institutional capabilities.	There are a number of physical cultural resources in the project districts. In addition, some historical monuments and sacred sites are only known by the local residents and are not on official lists. The rehabilitation of existing water supply pipelines is assumed to be along the route of the existing pipelines, and as such impacts on cultural heritage are less likely than for new sites, however, despite this, the impacts of the rehabilitation of existing infrastructure will need to be assessed. There is also potential for impacts on cultural resources from infrastructure in new locations; facilities should be designed to avoid impacts. Therefore, impacts on physical cultural resources need to be assessed during the detailed design and ESIA/ ESMP processes, including checking the possibility of local sites with relevant local stakeholders. The ESMF outlines methodologies for avoidance and management of impacts on cultural resources. Cultural resources will be addressed in subsequent ESIA/ ESMPs as required.

Policy	Reasons OP triggered and Safeguard Instrument
OP 4.12 - Involuntary Resettlement [5], [6] The policy covers direct economic and social impacts caused by a) the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets; or (iii) loss of income sources or means of livelihood or (b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons. Resettlement should be avoided where feasible, or minimized. Displaced persons should be meaningfully consulted and should be assisted to improve their livelihoods and standards of living or at least to restore them. The policy set outs various required measures and eligibility for benefits. It requires the development of various instruments, depending on the nature of the project.	OP 4.12 is triggered in case of involuntary resettlement as a result of project activities. A Resettlement Policy Framework (RPF) Report has been prepared to ensure that if involuntary land acquisition (either temporary or permanent) is required, then appropriate procedures are followed. When details of the project sites and investments are available, the need for further site-specific Resettlement Action Plans (RAP) or abbreviated RAPs (ARAPs) will need to be assessed, in accordance with the RPF.
OP 4.36 – Forests [20] The policy aims to assist borrowers use the potential of forests (forests are defined in Annex A of the Policy, in summary: area of land more than 1.0 hectare with tree crown cover of more than 10 percent that have trees with the potential to reach a minimum height of 2 meters at maturity [21]) to reduce poverty in a sustainable manner, ensure sustainable economic development in relation to forests, and protect the vital services and values of forests. Forest restoration activities should maintain or enhance biodiversity and ecosystem functionality. In relation to plantations, the policy requires that they are sustainably managed, environmentally appropriate, socially beneficial, and economically viable. The policy applies to projects that have impacts on forests, on projects that affect people who depend on forests, projects that aim to change management, protection or use of natural forest or plantations. Significant conversion or degradation of “critical forest areas” or related “critical natural habitats” is not permitted. The significant conversion or degradation of natural forests or related natural habitats, where there are no feasible alternatives and comprehensive analysis shows the overall benefits from the project substantially outweigh the environmental costs, might be allowed provided appropriate mitigation measures. The assessment of impacts on forests should be undertaken during the EA assessment.	According to available information it is not expected that the project activities will result in significant degradation of natural forests, however, there are areas of natural forest within the project districts, and impacts on natural forests must therefore be examined once project details are known. Some water sources are located in the mountain rivers uphill and it is important that their environment including forests should be protected to ensure the good quality of water. The ESMF outlines methodologies for avoidance and management of impacts on natural forests and habitats. Natural forests will also be considered during site selection, design and planning of environmental management. ESIA/ ESMPs should be developed.
OP 4.37 - Safety of Dams [22] The owner of a dam is responsible for ensuring that appropriate measures are taken and sufficient resources provided for the safety of the dam. Dam should be designed and its construction supervised by experienced and competent professionals. Dam safety measures are required.	Dams are not considered as a source of water for the area to be financed under the planned WB project (Vosse and Vakhsh

Policy	Reasons OP triggered and Safeguard Instrument
Small dams - normally less than 15 meters in height, e.g. farm ponds, local silt retention dams, and low embankment tanks. Generic dam safety measures by qualified engineers are usually adequate for small dams. Large dams - 15 meters or more in height; dams between 10 and 15 meters in height if special design complexities, e.g. unusually large flood-handling requirement, location in a zone of high seismicity, foundations that are complex and difficult to prepare; dams under 10 meters that are expected to become large dams during the operation. For large dams, the Bank requires certain procedures such as reviews by an independent panel of experts, preparation of detailed plans covering a range of aspects, periodic safety inspections. The bank may finance a project that relies on the performance of an existing dam or a dam under construction (DUC), e.g. water supply systems that draw directly from a reservoir controlled by an existing dam or a DUC; where failure of the upstream dam could cause extensive damage/ failure of the new Bank-funded structures; In such cases that involve an existing dam or DUC in the borrower's territory, the Bank requires that one or more independent dam specialists (a) inspect and evaluate the safety status, its appurtenances, and performance history; (b) review and evaluate the owner's operation and maintenance procedures; and (c) provide a written report of findings and recommendations for any remedial work or safety-related measures necessary to upgrade the existing dam or DUC to an acceptable standard of safety. Previous assessments of dam safety or recommendations of improvements needed may be accepted if there is evidence that (a) an effective dam safety program is already in operation, and (b) full-level inspections and dam safety assessments of the existing dam or DUC, which are satisfactory to the Bank, have already been conducted and documented. The policy describes requirements if additional dam safety measures or remedial work are required.	districts). The dam Safety Policy is not triggered.
OP 7.50 - Projects on International Waterways [23] The policy covers the following international waterways: (a) any river, canal, lake, or similar body of water that forms a boundary between, or any river or body of surface water that flows through, two or more states; (b) any tributary or other body of surface water that is a component of any waterway; and (c) any bay, gulf, strait, or channel bounded by two or more states or, if within one state, recognized as a necessary channel of communication between the open sea and other states-- and any river flowing into such waters.	The Policy is triggered. Some of the proposed water systems in the project are supplied with water originating from tributaries to Amudarya, an international waterway as defined by paragraph 1 (b) of OP 7.50. The project involves rehabilitation of ongoing schemes and their extension where

Policy	Reasons OP triggered and Safeguard Instrument
The policy applies to various types of projects including water and sewerage. The policy requires notification of the other riparians of the proposed project, with the exception of certain circumstances such as: minor additions or changes to ongoing schemes that will not adversely change the quality or quantity of water flows to the other riparians or be adversely affected by the other riparians' possible water use; water resource surveys and feasibility studies on or involving international waterways; projects relating to a tributary of an international waterway where the tributary runs exclusively in one state and the state is the lowest downstream riparian.	possible. Investigations into the impacts on international waterways should take place in further stages of the project.
OP 7.60 - Projects in Disputed Areas [24] Projects in disputed areas may be supported by the bank if the governments concerned agree that, pending the settlement of the dispute, the project proposed for country A should go forward without prejudice to the claims of country B.	This policy is not triggered since the project is within the border of Tajikistan, not within an area in dispute with neighboring states.

4.4.2 WORLD BANK GROUP ENVIRONMENTAL, HEALTH, AND SAFETY GUIDELINES

The World Bank Group Environmental, Health, and Safety (EHS) Guidelines are technical reference documents that provide information on environmental, health and safety issues, including acceptable pollution prevention and abatement measures and emission levels for World Bank projects. They contain both general guidelines and industry-specific guidelines in relation to Good International Industry Practice (GIIP). The guidelines are referred to in OP 4.01. [25]

The measures included are generally considered achievable for new facilities at reasonable costs. The application of the guidelines to existing facilities may involve the establishment of site-specific targets, and timetable for delivery. The applicability of the guidelines for specific projects is assessed for each project during EA, and tailored for the context and factors of each project. Specific technical recommendations should be based on the based on the professional opinion of qualified and experienced persons. [25]

The General EHS guidelines [25]

The general guidelines include the following topics:

- **Environmental** (Air Emissions and Ambient Air Quality; Energy Conservation; Wastewater and Ambient Water Quality; Water Conservation; Hazardous Materials Management; Waste Management; Noise; Contaminated Land)
- **Occupational Health and Safety (**General Facility Design and Operation; Communication and Training; Physical Hazards; Chemical Hazards; Biological Hazards; Radiological Hazards; Personal Protective Equipment (PPE); Special Hazard Environments; Monitoring)
- **Community Health and Safety** (Water Quality and Availability; Structural Safety of Project Infrastructure; Life and Fire Safety; Traffic Safety; Transport of Hazardous Materials; Disease Prevention; Emergency Preparedness and Response)
- **Construction and Decommissioning** (Environment, Occupational Health & Safety; Community Health & Safety)

EHS issues should be incorporated into facility-level business processes, which should include:

- Identification of EHS risks early in the project, including the site selection process, design and engineering aspects. Experienced EHS professionals should assess and manage EHS impacts and risks, and produce environmental management plans and procedures.
- The likelihood and magnitude of EHS risks should be based on nature of the project activities. There should be an objective of overall reduction of risk to human health and the environment, focusing on the prevention of irreversible and / or significant impacts and elimination of cause of hazard at the source. Where impacts cannot be avoided, engineering and management controls should reduce or minimize magnitude of impacts.
- Procedures for accidents should be prepared, including preparation of workers and communities.
- EHS performance improvements, and ongoing monitoring performance and accountability.

The industry specific Environmental, Health, and Safety Guidelines for Water and Sanitation [26]

The guidelines are applicable for the operation and maintenance of

(i) potable water treatment and distribution systems, and

(ii) collection of sewage in centralized systems (such as piped sewer collection networks) or decentralized systems (such as septic tanks subsequently serviced by pump trucks) and treatment of collected sewage at centralized facilities.

The guidelines cover management of specific impacts (environmental, Occupational Health and Safety, Community Health and Safety) from activities related to sectors listed above, e.g. Water withdrawal, water treatment, water distribution. Performance Indicators, Industry Benchmarks and Monitoring are also covered by the guidelines.

5 ENVIRONMENTAL AND SOCIO-ECONOMIC BACKGROUND

5.1 ENVIRONMENTAL BACKGROUND

The geology of the Khatlon area includes folded Cenozoic and mostly Miocene sedimentary rocks composed of thick units of proximal braided river deposits reflecting large fluvial plains. The subsequent folding has created the NE-SW oriented mountain and valley topography (Vakhsh fold-thrust belt). The valleys have later been filled with erosion sequences and proximal coarse fluvial sediments. Cenozoic strata include layers of evaporites (result of evaporated water body) and such salt deposits deteriorate water quality in many places.

The Pyanj - Amu-Darya River Basin is a trans-boundary water course and Tajikistan together with Afghanistan, Uzbekistan and Turkmenistan has a common interest to develop the management of the hydrology and water quality of the river. The river provides water for drinking, irrigation, aquaculture, leisure and many other uses. Therefore, a purpose of all the projects upstream must be to reduce pollution discharges e.g. from municipal sewerage systems.

The main river courses are located in the valleys and numerous short tributaries provide water down from the surrounding mountains. These tributaries have good quality water but many of them will dry up during the summer months. This problem has worsened as a result of climate change as snow-melt takes place now earlier in the spring time. Water is needed during the growing season but now less and less water is available.

In the project area, there are extensive irrigated lands in the Vakhsh and Kyzyl-Yakhsu valleys of the Khatlon region. The zone covered by the project refers to the lower part of the basins of the Pyanj, Vakhsh, Kyzylsu, and Yakhsu rivers. The main rivers of the project area include [31]:

- The Vakhsh River - in the lower reaches to the confluence of the Pyanj River. The Vakhsh River has a glacial-snow supply, the total length of the river is 524 km, and the area of the basin is 391100 sq.km.
- The river Pyanj - in the lower reaches to the confluence with the river Vakhsh. The total length of the Pyanj River is 921 km, and the area of the basin is 114,000 sq.km. The Pyanj River is called Amu Darya after the Tajik-Uzbek border.
- The river Kyzylsu (southern) has snow-rain flows into the river Pyanj. The length of the Kyzylsu river is 230 km, and the basin area is 8630 sq.km.
- The river Yakhsu of snow-and-rain feeding flows into Kyzylsu (southern). The length of the river is 160 km, and the area of the basin is 2710 sq.km.
- The river Obimazor of snow-and-rain feeding flows into Kyzylsu (southern). The length of the river is 62 km, and the area of the basin is 411 sq.km.

The lower part of the project area mostly refers to the area with no mudflow phenomena, the muds can only be observed during floods. The foothill zone in the altitude of 400-1400 m (Dangarinsky, Temurmalik districts) belongs to the mudflow zone accompanied by heavy rains. [31]

In the valleys there are extensive irrigated fields receiving water from the main river courses. Surface irrigation is mostly used for cotton and rice cultivation which require extensive amounts of water. A problem in the irrigation in this area is that the collector water will usually be returned back to the main river. This water flows across the fields and contains agrochemicals, salts and sediments washed from the fields. The deterioration of the water management structures has led to uncontrolled excessive irrigation, rise of groundwater surface, water logging and soil salinization.

The biggest irrigated lands are the Qurganteppa region receiving water from the Vakhsh River and the Kulyab-Vosse-Gulistan region using water from the Kyzulsu River. The main rivers have several reservoirs that provide electricity and water for irrigation. Reservoirs are major sedimentation basins and water released from them is clean from suspensions. Tajikistan is considering developing its hydroelectric capacity and the reservoirs would also help to deliver irrigation water during the growing season. Small mountain reservoirs could also help the provision of drinking and irrigation water during the dry season.

Between the two main irrigated plains there are extensive areas of rain-fed cultivation. The rainfall is e.g. in the Nurek region c. 1000 mm/yr and crops can be cultivated. In the southern Khatlon the precipitation is c. 500 mm/yr and irrigation is necessary for cultivation [32]. Arid mountain areas are used as pastures.

Climate conditions can be very harsh as the temperature could be from -20 to -30 C degrees in winter and from +28 to +45 C degrees in summer. There is a heavy winter season with extreme snow-falls and avalanches that make access to roads and project sites difficult. Depth of frost penetration in soil is c. 30 cm. [32]

Climate change has increased the frequency and intensity of extreme events particularly, intense rainfall events causing landslides, mudflows and severe floods. Precipitation will increase in the mountain regions but decrease in the lower parts and plains where also summers will be hotter [27].

The district is most prone to natural disaster risks such as earthquakes which also can trigger landslides, mudflows, floods and avalanches. These events should carefully be taken into account when planning and constructing infrastructure. The Government of Tajikistan has published guidelines on the construction standards in different conditions and for areas susceptible to natural hazards.

Air quality in towns suffers from heating and cooking by using coal, oil, fuelwood, straw, etc. Especially during windless winter days the smoke can be disturbing. Smoke also comes from the old engines of lorries, pumps, generators and industrial plants. In sandy streets dust may be a major problem which becomes worse when mud brought by run-off during heavy rains from the slopes dries up. There are also occasional "Afghan weather" events - major dust storms coming from the deserts of Afghanistan.

The National Biodiversity and Biosafety Center of the Republic of Tajikistan identifies 28 types of ecosystems in Tajikistan (Figure 4). According to the studies of the Center, most of the project area belongs to a medium-vulnerable ecological region and ecosystem with irrigated arable lands, gardens, forest plantations, and Tugai forests in the south (zone 25) and a highly vulnerable ecoregion and an ecosystem with large-scale shrub and pistachio vegetation, foothill semi-desert ecosystems (zone 13). The territory is characterized by cultivated lands (irrigated with remnants of desert, halophytic and semi-desert-semi-vegetated vegetation). [33] [31]

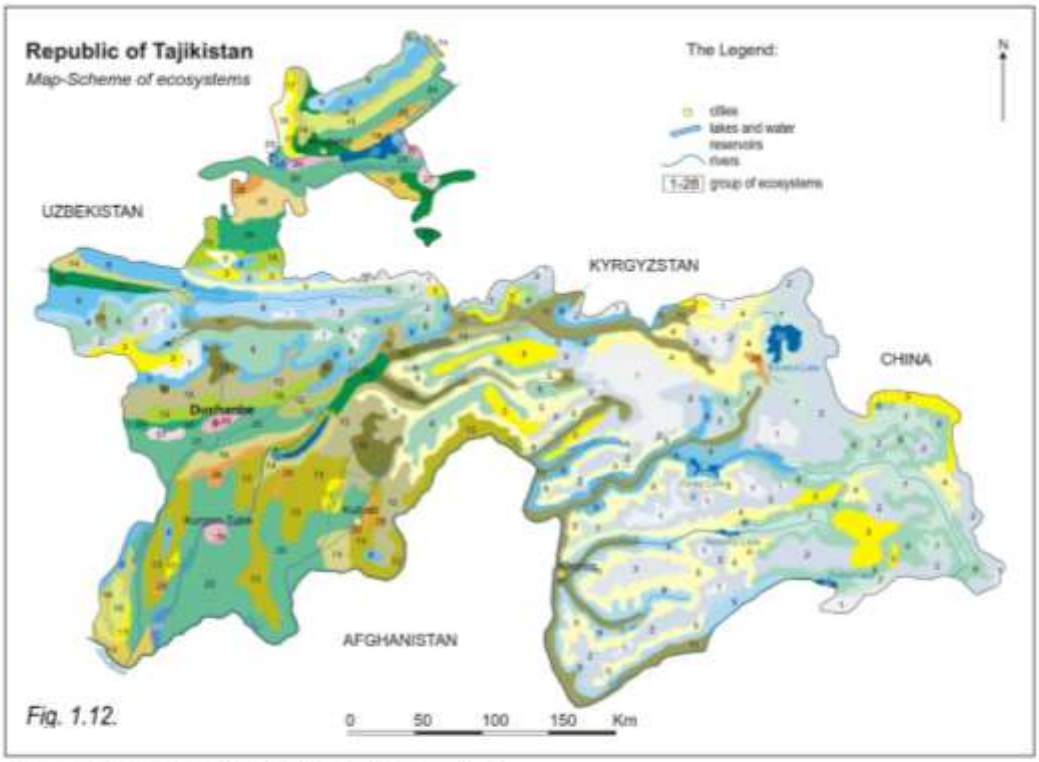


Fig. 1.12 **Legend to Map-Scheme of ecosystems**

Nival Glacier Ecosystems
- Glaciers and snowfields
- Rocks and taluses with rare vegetation

High Mountain Desert Ecosystems
- Rare vegetation
- Wormwood-teresken, steppe
- Dwarf-shrub-steppe

High Mountain Meadow and Steppe Ecosystems
- Forbs meadow steppe, thymes
- Low-grass meadow, swamp

Mid-Mountain Conifer Forest Ecosystems
- Various-shrub steppe and light forest
- Forbs meadow-forest

Mid-Mountain Mesophyllic Forest Ecosystems
- Broad-leaf forest
- Flood-plain small-leaf forest
- Light forest, foliage tree, mesophyllic shrub

Mid-Mountain Xerophytic Light Forest Ecosystems
- High-grass, shrub, pistachio
- Forbs wormwood, almond

Mid-Low-mountain Semisavanna (savannoide) Ecosystems
- High-grass
- Forbs and shrub
- Low-grass semisavanna

Foothill Semidesert and Desert Ecosystems
- Low-grass, saltwort-wormwood
- Sand, semi-woody, shrub

Wetland Ecosystems
- Tugai
- Meadow, swamp
- Wetland

Agroecosystems
- Gardens, forest-plantations, personal plots
- Rain-fed pastures
- Irrigable pastures

Urban Ecosystems
- Municipal
- Industrial

Ruderal-degraded Ecosystems
- Weed, ruderal

Figure 4: Ecosystems of Tajikistan. Source: National Biodiversity and Biosafety Center of the Republic of Tajikistan [33]

There are Tugai forests in the lower reaches of the Vakhsh River within the boundaries of the Tigrovaya Balka Nature Reserve. Tugai forests are characterized by a high level of groundwater, which are periodically flooded in the spring season, and a humid microclimate with high surface annual temperatures. These forests perform important functions to protect water resources and the shoreline, and serve as a habitat for many species of animals and plants. However, the original Tugai forests are significantly damaged as a result of intensive use of water for irrigation. [33] [31]

The deforestation of Tajikistan has been dramatic since the independence of the country. The distribution of coal and oil was interrupted and people had to cut the forests for firewood [46]. Deforestation has increased landslides and mudflows.

In terms of environmental protection, the mountain ecosystems are the most valuable elements. Even in the uppermost rivers there are trout, which is also an important catch for the mountain community. For example, Turkestan catfish, Tibetan stone loach and Sattar snowtrout are found in all the major rivers. Rivers have economically important fish but, in general, the consideration of fish in water management and aquaculture are now poorly developed. The main river courses have extensive flood plains and estuaries which are important for migratory and nesting wetland birds.

Figure 5 shows the location of officially designated nature reserves in Tajikistan.

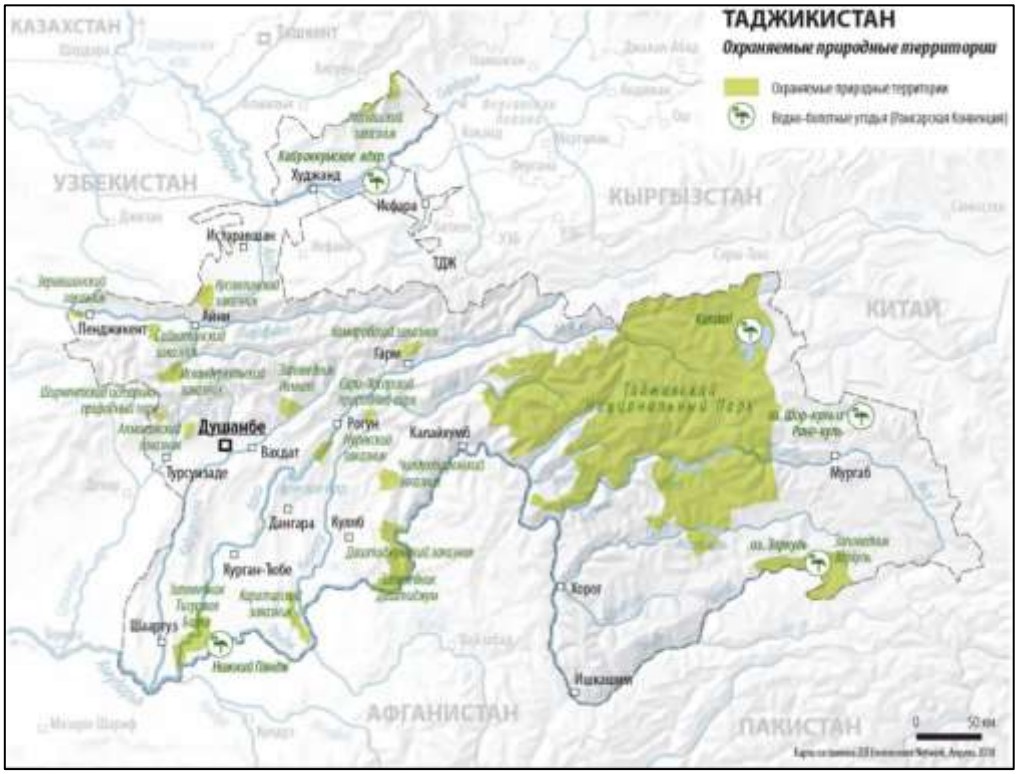


Figure 5: Location of officially protected nature reserves and Ramsar sites in Tajikistan. Source: Tajikistan Environment Report 2018, Committee for Environmental protection under the Government of Tajikistan [34]

Map Legend: Green areas: Protected nature reserves. **Bird symbols:** Wetlands (Ramsar Convention) – protected bird area.

In the project districts, the following officially national/international protected nature reserves exist:

- **The Tigrovaya Balka nature reserve**, with an area of 49,786 ha is located in the south western part of the Khatlon region in the districts of Dusti, Jaihun, and Kabodiyon (not one of the project districts). The reserve stretches along the Vakhsh River for 40 km to the border with Afghanistan and the confluence of the Pyanj and Vakhsh rivers. Approximately 4000 hectares of the reserve are water reservoirs and lakes; there are more than 20 lakes, many of which are connected by collectors. The reserve was established 1938. The main goal of the reserve is to preserve the unique Tugai plant complex, floodplain forests of the dry subtropical zone. Tugai

forests occupy an area of 24.1 thousand hectares. The reserve has been subject to negative anthropogenic impacts such as unregulated hunting and fishing, illegal logging, poaching, settlement, agricultural land use. All this led to a decrease in the number of many species of animals. [8]

- **Lower part of Pyandj River Ramsar -** in close proximity to the Tigrovaya Balka nature reserve. [35]

In addition, there are also other important areas for biodiversity, including:

- **The Danghara Massif** – The area is identified by Birdlife International as an "Important Bird Area". It is located between the Vakhsh range and Kizilsu river valley at an altitude of 550-570 m. It covers 40,000 hectares of gentle hills, richly vegetated in spring. [36].
- According to information provided by a national expert, a new reserve **"Hutalon"** is to be established near Danghara, of approximate size 2000 ha. Red book animals (but not birds) will be brought to this area.[1]
- **Dastimaidon nature reserve** – there is also a historic nature reserve on the border of Temurmalik district, however national experts advise that this area has lost its significance [2], and it wasn't approved by the Government of Tajikistan for the list of protected nature reserves shown on the map in Figure 5.

Despite the fact that Tajikistan is home to a large variety of animals and birds, the biodiversity of the fauna in the project districts is generally less diverse with the exception of the Tigrovaya Balka nature reserve and some other reserves. However, there are a number of species present in the project districts, which the project should consider impacts upon.

In order to prevent the decline reduction in the number of rare endangered species of fauna and flora in Tajikistan, on August 2, 2010 the Resolution of the Government of the Republic of Tajikistan on approving the Regulations on the Red Data Book of Tajikistan was issued. The second edition of the Red Data Book of Tajikistan was published 2017 (first edition - 1979). The Red Book identifies the main fauna and flora of Tajikistan, which require protection from the threat of extinction because of deforestation, fires, land development in the project area, regulation of river flow and other factors.

The above information provides a general overview of the ecological conditions in the area, however, the ESIA/ ESMPs to be carried out for the project should undertake a more in-depth review of the habitats and species of the specific project locations in order to avoid, minimize and mitigate impacts.

The project may have a positive impact to the trans-boundary river environment as well as to the different water utilities along the river basins. Therefore, it is necessary to make sure that the pollution discharges to the river courses will be diminished. Also the protection of the drinking water sources will be important. The amelioration of the water quality will also have a positive social and socio-economic impact in many ways.

5.1.1 HISTORICAL AND CULTURAL RESOURCES

The project districts include a variety of historical monuments and sites of cultural values, which are subject to preservation. The main cultural resources that were identified in available literature [39] [40] are described below, however, more in depth investigation and review is required during the detailed design and ESIA/ ESMP preparation. In addition, some historical monuments and sacred sites are buried and not yet know, or may be known only by the local residents and are not on official lists. Therefore, a more complete inventory of physical cultural resources in the project areas is needed at the detailed design and ESIA/ ESMP stages as relevant, including checking the possibility of local sites with relevant local stakeholders.

- **Vakhsh district**
  - Ajina Teppa Buddhist monastery, Ishmurodov village, 12 km from Kurgan-Tube.

[1] Personal comment Rustam Muratov, PhD
[2] Personal comment Rustam Muratov, PhD

- **Vosse district (Khulbuk)**
  - Two tombstones (Sagans), in Kurbanshaid village, 11-12th century AD.
  - Khulbuk hillfort, Kurbanshaid village, 7 km from the town of Vose. The original area of the ancient settlement is 70 hectares, 16 hectares are preserved.
  - Crypts of Khatlon rulers, Kurbanshaid village, 400 m from the fortress of Khulbuk, Khulbuk bathhouse, in the centre of the Kurbanshaid village, 150m from the Khulbuk fortress.
  - Burial ground and settlement Gelot, Kishlak Gelot, 10 km from Vose, on the right bank of the river Yaksu. 6 burials of the Late Bronze Age. Burial ground: 6-4th century BC; Settlement: 2nd century BC.

- **Danghara District**
  - Mausoleum Mavlono Obiddin, representative of Naqshbandiya (Sufism), Korez village, 6 km from Danghara.
  - Mausoleum Mavlono Tojiddin, a famous representative of Sufism, Korez village, 6 km from Danghara.
  - Darai Osiyeb cave crypts, on both sides of a left tributary of the Vakhsh river, near the village of Sangtuda.
  - Mausoleum Shahid - the mausoleum was erected in the 10th century AD.
  - The tomb of Sheikh Shakiki Balkhi. Crypt and an underground passage. In 2003 A mausoleum was built over the tomb.
  - Sang Tepa Mound, 15 km from Danghara, 1.5 km - from the village of Jar Tepa, at the foot of the Gilantau ridge.

- **Temurmalik district**
  - Settlement and burial place from the Bronze Age. Stone Age site Kangurtut (Jamoat Kangurt, Kangurtut village).

- **Balkhi district**
  - Jujbar Canal. A small part of the channel is currently operating - the Lothicalal branch in the Uzun area. The period of the channel functioning: 2 - 13 century AD.
  - Kafirkala hillfort on the western outskirts of Balkh.
  - Lyagman hillfort: in the territory of Uzun village, 23 km from Kurgan-Tube on the left bank of the river Vakhsh.
  - Fortress Urtaboz, 1: 10 km from the city of Rumi (Kolkhozobod).
  - Fortress Urtaboz, 2: 400 m from Urtaboz 1.

- **Dusti district**
  - Vakhdat hillfort, 6 km from Djilikul on the land of the Vahdat household, the Tojikobod site.
  - Mausoleum Imam Zaynalobiddin - on the territory of the Vahdat household, the Namun site 6 km from Djilikul.
  - Tower Yakading, near the left bank of the river. Vakhsh, 9 km from the district center, on the territory of the village council of I. Somoni.

- **The city of Bokhtar (Kurgan-Tube)** - the administrative center of Khatlon region. Although this is not one of the project areas, some information is included here due to proximity to the project districts.
  - Ruins of the settlement Lagman near Kurgan-Tube. This city was a large settlement of ancient Bactria.
  - In 1952, archaeologists began to explore Hisht-Tepa near Kurgan-Tube. The researchers discovered pieces of pottery and glass, ceramic and metal slag, fragments of burnt bricks.
  - Mausoleum of Khodzha-Mashad. The mausoleum is located in the village of Saed (the vicinity of Kurgan-Tube). This is the only carved wooden mausoleum in Central Asia.

[39], [40]

5.1.2 SUMMARY

The project districts include a variety of historical monuments and sites of cultural values, which are subject to preservation. Some historical monuments and sacred sites may be only known by the local residents and are not on official lists. The rehabilitation of existing water supply pipelines is assumed to be along the route of the existing pipelines, and as such impacts on cultural heritage are less likely than for new sites, however, despite this, the impacts of the rehabilitation of existing infrastructure will need to be assessed. There is also potential for impacts on cultural resources from infrastructure designed for new locations as part of the project; facilities should be designed to avoid such impacts. A more in depth review of cultural resources is therefore required during the preparation of the detailed design and ESIA/ ESMP, once more precise project locations are known.

The National Biodiversity and Biosafety Center of the Republic of Tajikistan identifies 28 types of ecosystems in Tajikistan (Figure 4). According to the studies of the Center, most of the project area belongs to a medium-vulnerable ecological region and ecosystem with irrigated arable lands, gardens, forest plantations, and Tugai forests in the south (zone 25) and a highly vulnerable ecoregion and an ecosystem with large-scale shrub and pistachio vegetation, foothill semi-desert ecosystems (zone 13). Project activities in these areas have potential to affect such vegetation depending on the precise location of the project activities.

Despite the fact that Tajikistan is home to a large variety of animals and birds, the biodiversity of the fauna in the project districts is generally less diverse with the exception of the Tigrovaya Balka nature reserve and some other reserves. However, there are a number of species present in the project districts, which the project should consider impacts upon.

There are two officially protected national/ international nature reserves in the project districts, the Tigrovaya Balka nature reserve, and the Lower part of Pyandj River Ramsar. Project activities are not expected to take place directly within these reserves. In addition, there are also other important areas for biodiversity. Further investigations are needed to assess whether a new reserve “Hutalon” which is to be established near Danghara would be affected by the project. There are some settlements within the Danghara Massif, and as such it is possible that some of the project activities could take place within this area. It is also possible that some project activities could take place in Dastimaidon, depending on the technical solutions selected. Impacts on such environmentally sensitive areas should be fully assessed during the preparation of the ESIA/ ESMP, when specific project locations and activities are known. In addition, other environmentally sensitive areas at the local level, should also be identified at this stage. The ESIA/ ESMP should undertake a more in-depth review of the habitats and species of the specific project locations in order to avoid, minimize and mitigate impacts.

5.2 SOCIO-ECONOMIC BACKGROUND OF THE REGION

The Khatlon Region is located in the southwest of Tajikistan and is the largest region in Tajikistan. It has a population of some 3,198,600 people (2018) and is the most populous region in the country. Most (over 80%) of the population lives in rural areas. The share of men and women living in the rural areas is almost equal. Almost 60% of the Khatlon population is of working age, with equal distribution among the genders. [2]

Table 6: Population of Khatlon Region (2018 data), divided by gender, working age and rural or urban

Gender	Total Population		Urban Population		Rural Population		Population of working age	
	No.	%	No.	%	No.	%	No.	%
Men	1,612,100	50.40	284,100	49.95	1,328,000	50.50	943,700	58.54
Women	1,586,500	49.60	284,700	50.05	1,301,800	49.50	920,600	58.03
Total	**3,198,600**	**100.00**	**568,800**	**17.78**	**2,629,800**	**82.22**	**1,864,300**	**58.28**

Source: State Statistical Agency [2]

The population in Khatlon is predominantly engaged in agriculture. Approximately 45 percent of the country's irrigated land is located in this Region. Cotton is the major crop grown in the area and accounts for 60 percent of the cotton harvest in the country [1].

The total number of extreme poor registered by Jamoats in Tajikistan in 2015 was 163,617, as according to UNDP [3]. Poverty levels in Khatlon was the highest of the four regions in Tajikistan, with the total of 65,354 individuals living in its territory [3]. Khatlon has the highest rate of population growth of Tajikistan regions. The average size of the household in Khatlon region is 8.5 people [2] (2018 data). Most of the population is below the age of 14, the unofficial unemployment rate (2013) is almost 35 percent [4] resulting in large migration abroad from the region. Migration percentage (share of households with migrants) has been reported to be higher in Khatlon (38.9) then in the whole country (35.7) [4]. Remittance flow at the same time is low, which has been associated with the low skill level of migrants from the region [4].

Although the primary education enrolment is 100 percent, men in Khatlon are reported to be less educated when compared to the rest of the country, hence labor force participation is also low among males [4]. In contrast, girls' enrolment in secondary education is higher, while women participate in labor force less overall [4].

Table 7: Selected data for Khatlon (2010 data). Source: State Statistical Agency [7]

Economy	Data from the year 2010
Number of enterprises	334
Industrial production	1.934 billion Somoni
Employment	365,300 people
Electricity generated	15.195 billion Kw/h
Cotton-fiber production	59,200 tons
Raw cotton	197,800 tons
Cattle (number of heads) o/w	756,400
Key Social Indicators	
Number of schools	1,303
Number of professional schools	11
Number of universities	5
Number of health facilities	144
Net migration (incoming-outgoing)	–6,064

A report published in 2017 about Khatlon region identified that the majority of the population (81%) is Tajik, with 13% Uzbeks, 0.2% Russians and 5.1% of other national minorities [30].

Half of Khatlon's population are women 1,586,500 as per Table 6. Labor force participation among women in 2009 in the region was significantly lower (49%) in comparison to men (69.7%) [4]. In the years following independence, the number of women working in agriculture increased in Khatlon, particularly with high level of migration of men from rural areas to other countries or to other areas in Tajikistan [41]. Women's role in agriculture depends on several factors, such as availability of male family members, age, physical knowledge and ability [41].

The rise of migration in the years following independence created both difficulties and opportunities for women. A study in Khatlon (2016) showed that wives of migrant workers took on the role of heads of households with the men leaving them to make most of the decisions [42]. Anecdotal evidence suggests that migration has also resulted in an increased number of abandoned or divorced women in Tajikistan.

Women perform most of the domestic and agricultural work in rural areas, particularly with the migration outflow among men. They are also engaged in taking care of family members. Women are typically the primary users, providers and managers of water in their households and the guardians of household hygiene; when access and level of services improve, they benefit most. Thus, women in Khatlon are more burdened with lack of water as they use/need water more within the household than other family members for tasks such as cooking, washing and bathing children [43]. Moreover, studies have observed that hygiene standards at home, such as washing hands with soap before handling food is highly dependent on women's behavior [44]. It is the women who often have to travel long distances to fetch water.

5.2.1 POPULATION IN AREAS TO BE CONSIDERED UNDER THE PROJECT

In the following tables data on population and numbers of households in the wider project area districts are presented (source: relevant departments of the Statistical Agency under President of the Republic of Tajikistan, with the exception of Temurmalik district – see reference no. [55]). The average household size has been calculated by the consultant.

Table 8: Population in the Vakhsh inter-district area

District	Population	No. of Households	Average household size
Kushoniyon (previously Bokhtar)	225,279	27,173	8.29
Vakhsh	188,160	23,988	7.84
Balkhi	186,700	29,630	6.30
Levakant (previously Sarband)	46,225	7,127	6.49
Dusti	106,241	22,806	4.66
Jaihun	127,978	20,371	6.28
Total	**880,583**	**131,095**	**6.72**

Table 9: Population in the Vosse district

District	Population	Households	Average household size
Vosse	201,960	23,902	8.45
Total	**201,960**	**23,902**	**8.45**

Table 10: Population in the Danghara-Temurmalik area

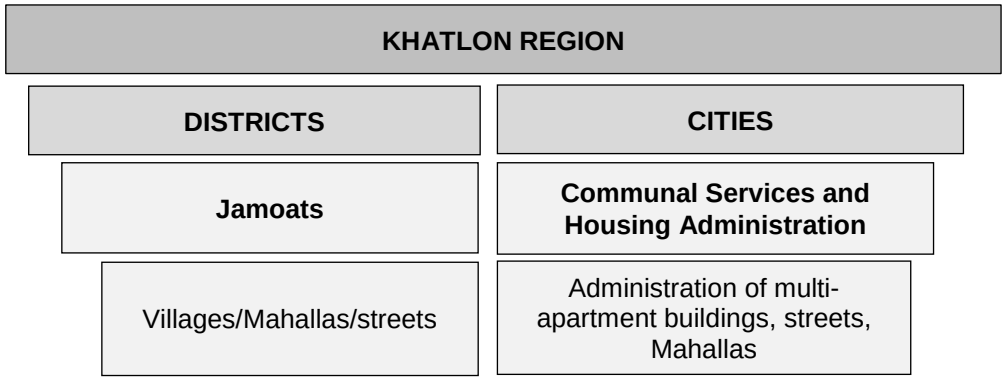
District	Population	Households	Average household size
Danghara	168,578	24,691	6.83
Temurmalik	66,551	8,293	8.02
Total	**235,129**	**32,984**	**7.13**

5.2.2 ADMINISTRATIVE STRUCTURE

The administrative-territorial division of the Khatlon region consists of four tiers:

- Central Government
- Khatlon Region (*область*)
- Districts (*район*) and cities (город)
- Jamoats (Jamoat Shahrak for urban and Jamoat Dekhot for Rural)
- Villages, neighborhood committees (*кишлак, Махалла*)

Figure 6: Administrative structure



The administrative structure for the proposed project area to the Jamoat level is depicted in the table on the following page. “U” has been use to indicate urban, “R” to indicate rural Jamoats. The numbering of Jamoats is consistent with their numbering throughout the Feasibility Study.

Table 11: Districts and Jamoats in the proposed project areas

KHATLON REGION								
Vakhsh inter-district area - encompasses 6 Districts (38 Jamoats)			***Vosse District -*** Vosse District (8 Jamoats)			***Danghara- Temurmalik area -*** encompasses 2 Districts (16 Jamoats)		
KUSHONIYON District (previously Bokhtar)			**VOSSE District**			**DANGHARA District**		
Jamoats			**Jamoats**			**Jamoats**		
#	*Name*	*U/R*	*#*	*Name*	*U/R*	*#*	*Name*	*U/R*
1.1.1	Bokhtarion	U	2.1.1	Khulbuk	U	3.1.1	Danghara	U
1.1.2	Bustonkala	U	2.1.2	Abdi Avazov	R	3.1.2	Sharipov	R
1.1.3	Mehnatobod	R	2.1.3	Mirali Mahmadaliev	R	3.1.3	Lolazor	R
1.1.4	Sarvati Istiklol	R	2.1.4	Rudaki	R	3.1.4	Korez	R
1.1.5	Orion	R	2.1.5	M. Vaisov	R	3.1.5	Lohur	R
1.1.6	Navbakhor	R	2.1.6	Guliston	R	3.1.6	Oksu	R
1.1.7	Zargar	R	2.1.7	Tugarak	R	3.1.7	Pushing	R
1.1.8	Ismoili Somoni	U	2.1.8	Kh. Radjabov	R	3.1.8	Sanktuda	R
VAKHSH District						3.1.9	Sebiston	R
Jamoats						**TEMURMALIK District**		
1.2.1	Vakhsh	U				**Jamoats**		
1.2.2	20 solagii istikloliyati	R				3.2.1	Soviet	U
1.2.3	Kirov	U				3.2.2	Bobounus	R
1.2.4	Vahdad	R				3.2.3	Karakashim	R
1.2.5	Rudaki	R				3.2.4	Karmishev	R
1.2.6	Tojikobod	R				3.2.5	Kangurt	R
1.2.7	Mashal	R				3.2.6	Rahimov	R
BALKHI District						3.2.7	Tanobchi	R
1.3.1	Guliston (Orzu)	U						
1.3.2	Balkh	U						
1.3.3	Kalinin	R						
1.3.4	Khalevard	R						
1.3.5	Madyanat	R						
1.3.6	Uzun	R						
1.3.7	Navobod	R						
1.3.8	Frunze	R						
LEVAKANT District (previously Sarband)								
1.4.1	Levakant	U						
1.4.2	Vahdad	R						
1.4.3	Guliston	R						
DUSTI District								
1.5.1	Dakhonobod	R						
1.5.2	Gulmurodov	R						
1.5.3	Navzamin	R						
1.5.4	Nuri Vakhsh	R						
1.5.5	Jikilul	U						
1.5.6	20 solagii Jumhurii	R						
JAIHUN District								
1.6.1	Dusti	U						
1.6.2	Yakkadil	R						
1.6.3	Vahdati Mili	R						
1.6.4	Panj	R						
1.6.5	Istiklol	R						
1.6.6	Kumsangir	R						

(Source: Relevant district departments of the Agency on Statistics under President of the Republic of Tajikistan; for Temurmalik district: [55])

Urban and rural areas

- The *Vakhsh inter-district area* – this is the largest project area: six districts that include 38 Jamoats. Of these, ten of the Jamoats are urban, mainly settlements of urban character (*посёлок городского типа - ПГТ*).

- *Vosse District area* - eight Jamoats of which one is of urban character.

- The *Danghara- Temurmalik area* encompasses two districts with 16 Jamoats of which only two are of urban character.

5.2.3 WATER AND SANITATION RELATED DISEASES

The environment is a major determinant of health, estimated to account for almost 20% of all deaths in the World Health Organization (WHO) European Region [49]. According to WHO, estimated environmental burden of diseases for risk factor water, sanitation and hygiene (diarrhea only) in Tajikistan 2004 was 27 DALYs/1,000 capita per year - much higher than other listed risk factors [50].

The consultant investigated the incidence of common diseases transmitted by water or by oral-fecal route attributable to a lack of safe drinking water supply, sanitation and hygiene (summarized as WASH): Intestinal helminths, diarrhea, dysentery, hepatitis A, cholera and typhoid. A simple questionnaire was provided to the State Sanitary and Epidemiological Surveillance Service (SES) of the Ministry of Health and Social Protection (MOHSP), asking them to include, for each Jamoat in relevant districts, the incidence of these diseases per 100,000 of population based on the 2017 statistics and the overall trend in the district.

From the information provided, the most frequent of the above listed diseases are intestinal helminths and diarrhea. Terciles were established based on the unique number of incidence for each disease. The information is summarized in the table below.

Table 12: Diseases by Terciles with corresponding number of Jamoats

Disease	3rd Tercile	No. Jamoats in 3rd Tercile	2nd Tercile	No. Jamoats in 2nd Tercile	1st Tercile	No. Jamoats in 1st Tercile
Intestinal helminths	148 – 890	17	70 – 147	22	11 – 69	23
Diarrhea	27 – 90	16	10 – 26	11	0 – 9	35

Intestinal helminths

Soil-transmitted helminth infections are among the most common infections worldwide and affect the poorest and most deprived communities. The most common in humans is ascaris. Intestinal helminths spread through soil, contaminated by human feces which in turn contaminate soil in areas where sanitation is poor or water is contaminated by raw sewage. Intestinal helminths impair the nutritional status and worsen school performance. They can cause complications that require surgical intervention and may even result in death. They are diagnosed with microscopic analysis. An epidemiological survey implemented in Tajikistan before a deworming campaign in 2012 identified that over half of the general population of Tajikistan was infected with intestinal parasites [51]. Prevention includes hand washing practices.

In the wider project area, their reported incidence ranges from 11 to 890 cases per 100,000 of population, with an average of 145 per Jamoat. The median for all 62 Jamoats in the wider project area is 82. This means that most (about two thirds) of Jamoats have relatively lower incidence: 45 Jamoats lie in the range of 11 – 147. The 17 Jamoats in the 3rd Tercile with highest incidence of intestinal helminths are shown in the following Figure.

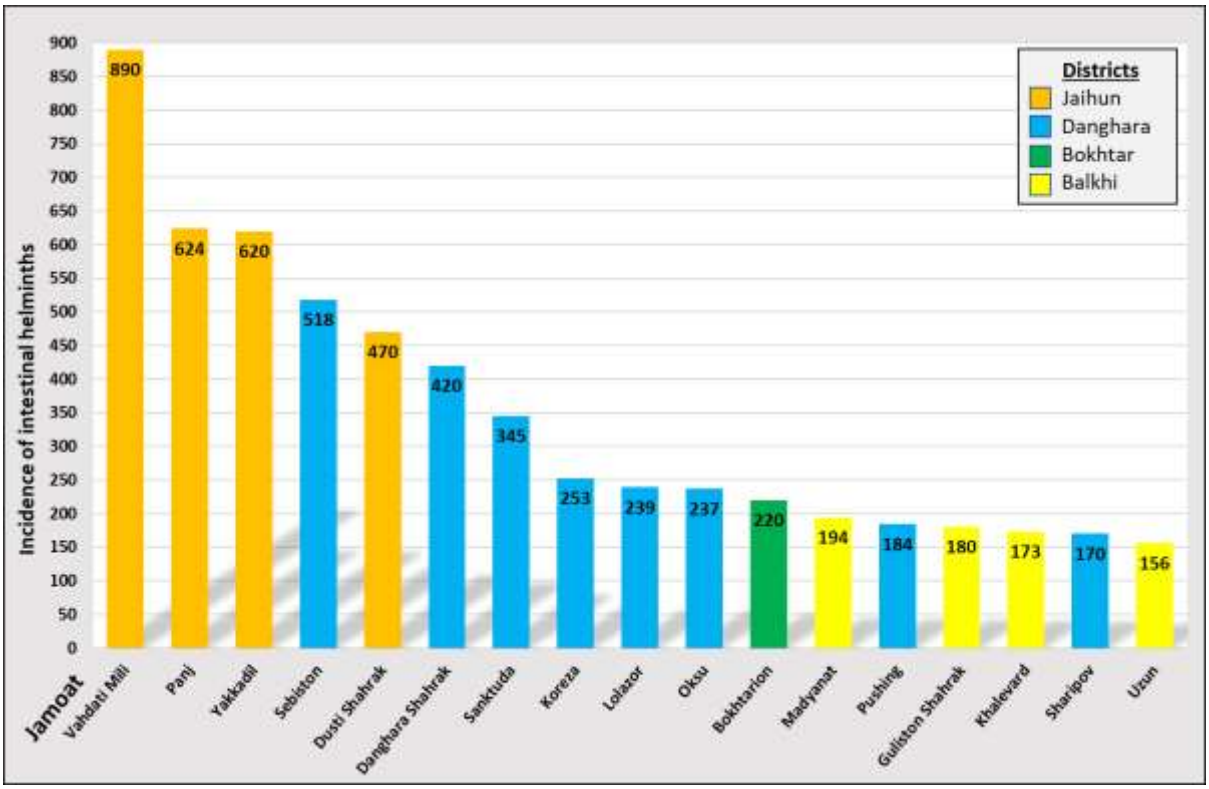


Figure 7: Jamoats with highest incidence of intestinal helminths (per 100,000 of population in 2017)

Diarrhea

In the WHO European Region, 14 deaths due to diarrhea a day can be attributed to inadequate WASH [52]. Infants and children under 5 years of age are particularly vulnerable to diarrhea as a leading cause of malnutrition and death. According to WHO, diarrheal diseases are, with 3.7%, among the top ten causes of death in Tajikistan; in 2013, diarrhea caused 9% of deaths in children under-5 [53]. Water, sanitation and hygiene interventions can reduce diarrheal diseases by 25–35%, and significantly reduce other water-related diseases [54].

Incidence of diarrhea reported for the same year in the wider project area ranges from 0 to 90 cases per 100,000 of population, with an average of 19 cases per Jamoat. The median for all 62 Jamoats in the wider project area is 7. The distribution is relatively even, with 46 Jamoats falling in the first and second Tercile, range 0 – 26 cases per 100,000 of population. The 16 Jamoats in the 3rd Tercile with highest incidence of diarrhea are shown in the following Figure.

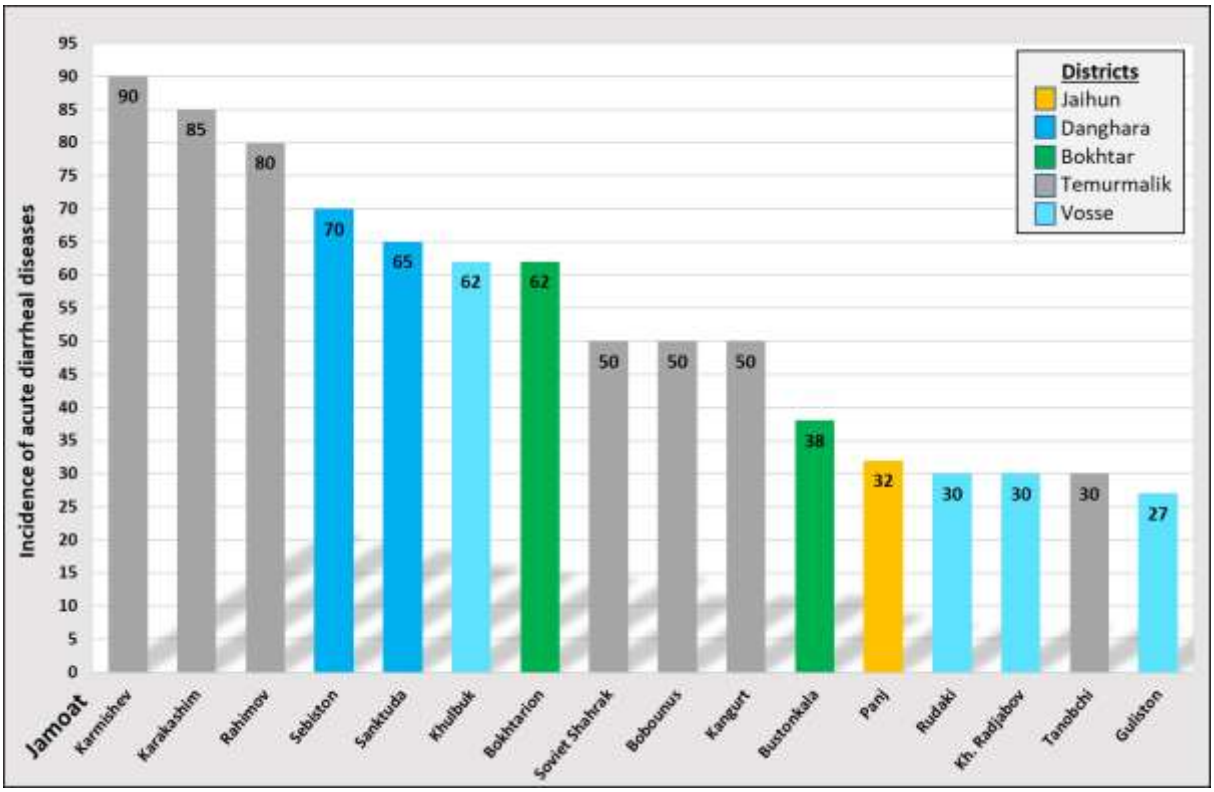


Figure 8: Jamoats with highest incidence of diarrhea (per 100,000 of population in 2017)

Other analysis

Cases of **hepatitis A** for 2017 have been reported from Jamoats of the following districts: Vakhsh (five Jamoats), Balkhi (eight Jamoats), Dusti (two Jamoats), Jaihun (five Jamoats), Vosse (seven Jamoats) and Temurmalik (six Jamoats). Incidence of **dysentery** was reported from three Jamoats of Vosse district, two Jamoats of Kushoniyon (Bokhtar) district, and one Jamoat of Danghara district.

SES informed the Consultant that in the project districts, the tendency of waterborne diseases, such as dysentery, hepatitis A, and intestinal infection have been decreasing over the past five years, while cholera and typhus have not been registered at all. SES pointed out that in the last 5 years there have been no cases of mass waterborne diseases in the Republic of Tajikistan, including the wider project area.

Responses on the main causes of infection

SES representatives also provided answers to a question on the major causes of diseases caused by water, sanitation and hygiene in the respective districts. This multiple-choice question applied to the entire district. More than one reply was allowed. The frequency of answers is shown in the following table. All representatives selected the options “People do not wash hands with soap and water” and “People do not wash fruit and vegetables”, whereas Kushoniyon (Bokhtar) district also selected the other available options.

Table 13: Responses on the major causes of water, sanitation and hygiene related diseases in the rural areas

Major Causes	Response by district									Total
	Kushoniyon (Bokhtar)	Vakhsh	Balkhi	Levakant (Sarband)	Dusti	Jaihun	Vosse	Danghara	Temurmalik	
Polluted water	✓									1
Limited quantity of water for washing/ cleaning	✓									1
Dirty toilets and latrines	✓									1
Latrines without cover	✓									1
People do not wash hands with soap and water	✓	✓	✓	✓	✓	✓	✓	✓	✓	9
People do not wash fruits or vegetables	✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Wastewater and children faeces are not hygienically disposed	✓									1

The replies indicate the importance of awareness raising on the link between hygiene behavior and disease prevention.

6 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

6.1 ESMF PROCEDURES

The following main tasks or procedures are an important part of the ESMF and shall be followed to ensure environmental and social issues are addressed in the project.

- Identification of subproject (project locations and technical solutions)
- Development of EA instrument (ESIA, ESMP, RAP etc., as needed).
- Implementation of ESMP
- Institutional capacity building
- Stakeholder consultation
- Grievance management
- Monitoring and reporting

The following sections provide additional information on environmental and social considerations for various stages of the project, e.g. design of subprojects, construction practices.

6.2 POTENTIAL ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS

Prior to the preparation of ESIA/ ESMPs, it is only possible to predict the most likely impacts of the future projects. The severity of potential negative impacts is expected to be moderate and mostly limited to the construction period, as for example shown in the table below. Potential impacts will be identified and appropriate mitigation designed should be fully assessed during the ESIA/ ESMP, once more project details are known.

Table 14: Initial identification of possible project impacts during Construction and recommended actions (to be fully investigated during the ESIA/ ESMP)

Project activities	Potential impacts	Recommended Actions
Construction/Rehabilitation of water supply system/improved sanitation system	Air pollution – emissions, odor, dust, noise and vibrations from construction machinery and blasting	• Include preventive measures in the construction plans. Such measures could include for example: o Planning transport of construction materials – optimal routes, washing of vehicles before leaving site, sprinkling water on dust prone areas and roads, covering trucks during transport to prevent loss of materials o Good construction site management to prevent waste being blown away o Construction only during agreed daytime hours o Use of low emission vehicles and their regular maintenance • Implement preventive measures during construction in accordance with plans • Using protective equipment • Staff training, also in emergency preparedness and procedures

Project activities	Potential impacts	Recommended Actions

	Vegetation and gardens may be locally affected due to clearance for construction of infrastructure	• Include preventive measures in the construction plans, for example:
		  ○ Appropriate timetable for construction work respecting vegetation period
		  ○ Temporary tree/shrub protection against damage caused by vehicles and machinery
		• Implement preventive measures during construction in accordance with plans

	Damage to natural habitats	• Mapping of valuable natural areas, ecosystems and species should be carried out in order to eliminate potential environmental impacts of the constructions • Expert statements and opinions of local stakeholders should be obtained • After the tentative design, experts and inhabitants should have opportunities to express their opinion on the plans
	Negative impacts on Physical Cultural Resources	• Mapping of historical and cultural objects should be done together with national and local authorities in order to eliminate potential environmental impacts of the constructions. • Inhabitants of the area should have opportunities to express their opinion on the plans considering the cultural values
	Soil disturbance and erosion during trenching and gravel extraction	• Using results of geological research and soil testing in geotechnical laboratory in the construction plans • Following working procedures recommended for earthworks by geologist/geotechnics • Appropriate timetable for construction work (during climate friendly conditions only)
	Hazardous waste generation and ACM (Asbestos Containing Material) generation	• Waste management plan including records and monitoring for construction phase (storage, segregation, legal disposal, hazardous and toxic substances) • Development and implementation of hazardous materials handling/storing procedure • Use of protective equipment (sorbent, absorbent mat, safety bin) • Specialized contractors with appropriate training, experience and protective equipment to be hired when operating with asbestos materials • Awareness raising and training of staff/workers
	Construction waste and left-over gravel heaps	• Sorting hazardous waste/waste • Recycling of used construction materials • Using waste containers • Appropriate disposal of waste on local landfills/treatment facilities

Project activities	Potential impacts	Recommended Actions
		• Awareness raising and training of staff/workers
	Domestic waste from workers' camps	• Sorting hazardous waste/waste • Using waste containers • Avoid burning waste • Awareness raising and training of staff/workers
	Soil, water/groundwater pollution	• Storing materials and chemicals in suitable conditions • Correct transport of materials/products • Sorting waste • Appropriate disposal of waste - local landfills/treatment facilities • Regular maintenance and control of all equipment with oil content (vehicles, equipment) • Correct labelling and storage of chemicals • Regular maintenance of sewage network • Disposal of sludge from wastewater systems according to analytical results/in suitable treatment facility • Emergency action plan • Awareness raising and training of staff/workers
	Temporary disruption in water supplies and wastewater discharge	• Include supporting measures during construction phase, for example: o Regular water supply through car tankers o Providing water supplies for the handicapped o Planning of works to avoid disruption • Planning total interruptions in off-peak hours (preferably during nighttime hours) • Information campaign
	Drinking water quality deterioration in existing water supply systems during works	• Include supporting measures during construction phase, for example: o Protection of water sources o Works on treatment facilities: ▪ Bypassing locations where works are taking place ▪ Temporary treatment (chlorination) facilities o Planning of works to avoid disruption of water supply and damage of existing pipelines. o Temporary bypass of sections of pipelines where construction works are taking place o Provide alternative water supply if necessary during construction works (e.g. regular water supply through car tankers where necessary) o Appropriate distance between existing and new pipelines according to technical standards

Project activities	Potential impacts	Recommended Actions
	Traffic disturbance and accidents	• Include preventive measures in the construction plans. Such measures could include for example: o Planning transport of construction materials – optimal routes and daytime hours o Reduction of driven kilometers/fuel consumption • Implement preventive measures during construction in accordance with plans • Regular training of drivers including emergency preparedness training • Regular vehicle maintenance and control • Emergency action plan
	Street and home inaccessibility during construction	• Include preventive measures in the construction plans. Such measures could include for example: o Construction of temporary crossing bridges o Planning construction strategy o Alternative connection with selected objects (schools, hospitals.) • Implement preventive measures during construction in accordance with plans • Information campaign
	Land use and/or acquisition of land (temporary and permanent)	• Include information from land use plan in the construction plans • Minimize land acquisition as a consequence of construction
	Dissatisfaction in local community on project sites	• Stakeholder consultation throughout the project. • Grievance redress mechanism will offer opportunities to raise and address complaints.

During operation, the severity of potential negative impacts is also expected to be from minor to moderate, with the exception of unsafe disposal of wastewater. This should be considered in the technical solutions. Examples of possible impacts are shown in the table below. Impacts should be fully identified and appropriate mitigation designed during the preparation of the ESIA/ ESMP, once more project details are known.

Table 15: Initial identification of possible project impacts during Operation and recommended actions (to be fully investigated during the ESIA/ ESMP)

Project activities	Potential impacts	Recommended Actions
Operation of water supply system/improved sanitation system	Increased exploitation of groundwater sources/surface water leading to permanent damage of groundwater sources or ecosystems	• Detailed hydrogeological or hydrological study • Respect operation procedures recommended in studies, especially to prevent hydrogeological structure overloading • Regular monitoring of water flow (source of surface water) • Update od hydrogeological/hydrological study based on regular monitoring

Project activities	Potential impacts	Recommended Actions
	Increased wastewater discharge due to construction/rehabilitation of water supply system, leading to increased pressure on wastewater facilities	• Review of existing wastewater facilities • Construction/renovation of sewage network and wastewater treatment facilities • Regular maintenance of sewage network and wastewater treatment facilities • Installation of water meters to reduce water consumption and effluent volume • Information campaign
	Wasting water caused by leakages from the network/excessive use of water by customers	• Regular maintenance and operation of the WSS • Clear ownership and management responsibilities of public water points (kolonkas), water taps • Installation of water meters to reduce water consumption • Information campaign
	Air pollution – emissions, odour from WTP and wastewater facilities	• Proper storage of chemicals used for water treatment (chlorine) • Define chlorine handling procedures • Safety measures and practices while using chemicals • Laboratory staff training • Regular maintenance and operation of used technologies.
	Soil, water/groundwater pollution	• Protection of sanitation zones (exploitation wells, springs) • Regular maintenance of the improved wastewater systems • Define procedures/rules for the improved wastewater systems • Regular outflow monitoring from wastewater systems • Waste management plan • Regular maintenance and control of all equipment with oil content • Regular maintenance of vehicles • Regular staff training in emergency preparedness and procedures • Flood protection measures • Emergency action plan • Regular inspection of firefighting equipment
	Land use and/or acquisition of land (temporary and permanent)	• Using land in accordance with land use plan • Through regular maintenance of WSS/sewage network minimize water/waste water leakages and local floods • Development and implementation of RAP/ ARAP
	Impacts on assets and livelihoods	• Development and implementation of RAP/ ARAP
	Conflicts with local community due to the use of land and water resources	• Information campaign, complaints and conflict resolution mechanism, stakeholder consultation

6.3 WATER SOURCE MANAGEMENT

Before a new water source is developed it is important to ensure that its water capacity will be sustainable as for volume and quality, and that there are no potential pollution sources and emerging conflicts between other water uses. In most cases, there is competition between domestic consumption, irrigation and industrial needs. The authorities of the Ministry of Energy and Water Resources should approve the allocation of water resources, and Water User Associations can provide information on the related other plans. There is also the Water Information System at the basin and national level, which enables water resources management and information sharing.

A geological and hydrological study may be required in the watershed. The water source should be adequate for increasing water use in the future. Groundwater wells may contain salts from sediments but also be polluted by human activity. Nitrite nitrogen pollution is caused by livestock, agrochemicals, and landfills. Industrial pollution is not common in the region. There are several mines (e.g. gold in the Darvaz region) and few oil wells upstream of the rivers posing a risk of accidental pollution discharges. Groundwater quality should be analyzed before use as water sources and potential pollution sources controlled. A protection zone should be in place surrounding all water sources.

Mountain rivers are usually clean. However, in cases when cattle have free access to the river, water may be contaminated. It is recommended that the mountain rivers and possible related water supply reservoirs should be protected by fencing and river banks covered with vegetation, trees and special anti-erosion structures, where necessary. Occasional run-off of torrential rains and snow-melt from steep slopes should be diverted away from the basins used for potable water storage. These wider catchment issues should be considered by the relevant authorities.

Climate change will result in diminishing water volumes in mountain rivers and completely dry summer periods will last longer. The modeling of climate change impacts show that rivers fed by glaciers (e.g. the eastern tributaries of Yakhsu) used to have discharges also during the summer months but because of diminishing ice volume in the mountains, the small rivers will now dry up in summer months. In addition, the snow-melt will take place a month earlier than before and rivers which do not have glaciers upstream will be dry 1-2 months longer than a decade ago. [27]

Major mountain reservoirs (e.g. Nurek among others) and their downstream rivers usually have good quality water with very low sediment and pollutant contents. Irrigation canals and lowland rivers flow through widespread agricultural land and settlements and contain much humus and suspended sediments especially during snow melt and rainy season in autumn. They may also contain harmful agrochemicals such as pesticides, nitrogen as well as oil and other pollutants. Water may have been polluted because of discharges of community wastewater upstream. Rivers are vulnerable to environmental accidents and pollution releases from the communities, roads and industries upstream.

In this part of Tajikistan, also natural geological salts and soluble minerals from sedimentary deposits are common. Usually mineralization is a typical for groundwater wells but may pollute also surface water in places. Water quality analyses are therefore necessary.

6.4 DESIGN AND CONSTRUCTION

Most of the environmental and social issues during project implementation can be solved using high-quality design of the permanent water infrastructure. Similarly, proper planning of constructing can help to avoid conflicts and damages at the project implementation stage. Excavation and maintenance of networks will cause noise, vibrations, aerosol emission, dust, temporary severance to traffic as well as water cuts. However, harm can be minimized if proper planning and good construction practices are applied. Before any construction works, conflicts over access to land and ownership of land should have been solved.

In general, placing stationary noisy, smelly and smoky equipment as far from private houses and sensitive land uses as practical is recommended. Vulnerable groups (handicapped, women, children,

etc.) should be taken into account when road blocks, bridges, fences, etc. are planned. These issues should be discussed in public hearings which should be organized by the project.

The excavation of pipeline ditches without causing disturbances may be difficult in settlements. Design of project facilities should consider environmental and social conditions, including locations of settlements and sensitive and protected areas. The Contractor shall properly safeguard all buildings, structures, works, services or installations from harm, disturbance or deterioration during the contract period.

Ground disturbance shall be reduced to a minimum. The Contractor must take all practicable measures to avoid degradation and erosion of soil, streets, roads, gardens and fields. The use of heavy machinery must be limited to the extent possible for avoiding land disturbance and compaction. Only licensed quarrying operations are to be used for material sources and any unplanned gravel pits cannot be opened.

Some of the project areas contain hill slopes, and as such, constructing pipelines on hill slopes may generate gully erosion which will expand and water run-off may transport land masses along the pipeline ditches to inhabited areas. Such soil erosion and slope instability should be addressed through sufficient trench filling, hillside terracing, tree planting and construction of sediment trapping dams.

Run-off water shall be diverted around the construction sites or disturbed areas, using temporary ditches. Muddy and cement inclusive waters from construction sites must be led to a safe place from the public streets.

No-go areas for workers and machinery shall be clearly identified and marked. These shall include areas with large trees, cultivated lands or fruit trees, wetlands, physical cultural resource (e.g. grave sites, monuments), and sensitive environment or social sites identified by the project.

Safety of population during earth works must be ensured. The worksite shall be clearly identified, and hazardous areas clearly marked (red tape or barricading of risk areas). Any machinery, equipment or construction materials which may be dangerous e.g. for children, shall not be left unguarded.

The construction site and workers' camp must be kept clean and tidy at all times. Contractor shall ensure the provision of sufficient waste containers at sites to store the solid waste produced on a daily basis.

6.5 TRAFFIC AND SAFETY OF CONSTRUCTION SITES

The Contractor should plan how to avoid safety problems related to the traffic and excavator operation at the working sites and in material transportation. Traffic planning is required to minimize the negative impacts due to project-related traffic on all communities affected by construction. This includes actions to minimize disruption to the existing road infrastructure, communities adjacent to the road network and to natural resources, as well as measures to avoid damage to household and community assets.

Planning the roads as well as safe working, parking and maintenance areas for trucks and excavators should be done before the start of the works. The planning includes access route and entry points to the worksite avoiding damage to households and associated structures, cultivated lands, fruit trees or any other potential source of income. Access to commercial and residential properties should be maintained.

The Contractor shall provide, erect and maintain such traffic signs, road markings, lamps, barriers and traffic control signals and such other measures as may be necessary for ensuring traffic safety around the Project construction sites. In order to carry out the rehabilitation works, it may be necessary to close or divert certain existing public or private roads, or footpaths, either permanently or temporarily during the construction period. It is recommended to provide communities affected by traffic with sufficient information on the effects of the project-specific traffic. Where roads used by children to reach schools are used by construction traffic, road safety education shall be provided at schools.

During the construction phase of the Project, air pollution in a form of dust may originate from truck traffic. This can be solved by setting speed limit of 30 km/h on unmade roads under dry conditions.

Injuries or fatalities resulting from vehicle accidents shall be prevented by site planning, warning signs, fencing and driver training. Driver environmental and safety awareness training should also include emergency response issues.

6.6 GOOD CONSTRUCTION PRACTICES

The objective of these environmental management guidelines, based on international practice, is to define minimum standards of construction practice that Contractors are required to follow in the project implementation. It is intended that the guidelines will be incorporated into the tender and contract documents so that they be contractually binding. A summary of the guidelines is shown in Table 16.

Contractors shall enter into written contracts with all workers defining the tasks, responsibilities, duration of contract, hours of work, wage, and other relevant aspects included in the labor laws. Good Construction Practices give general rules for technical project work. A Code of Conduct is to ensure compliance with its Environmental, Social, Health and Safety (ESHS) obligations under the contract and it is targeted for individual workers to follow.

Table 16: Good Construction Practices - Summary

GOOD CONSTRUCTION PRACTICES - SUMMARY		
Aspect	**Objectives**	**Scope**
Traffic Management	Properly manage traffic and its potential impacts, including safety and accidents	• Traffic management • Access route selection • Driver training • Road and vehicle maintenance • Community safety and liaison
Pollution Prevention & Site Protection	Ensure that polluting emissions and disturbance are prevented or mitigated	• Protection of surface and groundwater • Erosion control • Dust/air emissions control • Noise and vibration control
Infrastructure and Services	Minimize disruption and negative impact associated with infrastructure, natural resources, households and community assets e.g. land, roads, water, etc.	• Protection of services • Reinstatement of infrastructure • Compensation for affected private properties • Community liaison
Waste Management	Ensure implementation of best practice in waste management and resource efficiency	• Waste handling procedures • Waste reuse/recycling/treatment • Waste disposal • Waste documentation
Reinstatement	Ensure that areas affected by works are properly reinstated on completion	• Soil management • Ecological restoration/landscape • Revegetation and tree planting • Site clean-up
Emergency Response	Ensure that incidents (e.g. fire, spillage of fuel, landslides) are properly managed during both construction and operation	• Emergency response plan • Accident prevention measures • Fire control • Spill control and clean-up • List of contacts
Community Impact and Liaison	Foster positive community relations including safety of communities during the phased interventions	• Project information • Community health & safety • Complaints procedure

GOOD CONSTRUCTION PRACTICES - SUMMARY		
Aspect	**Objectives**	**Scope**
		• Public relations measures
OHS	Identification of potential hazards and develop responses to eliminate sources of risk or minimize workers' exposure to hazards	• Exposure to dust/noise/vibrations/construction material/hazardous material • Handling of rotating/moving/heavy machinery • Safety procedures • Personal protective equipment
Labor	Ensuring contractors and subcontractors comply with labor laws and standards and implement fair work practices	• Compliance with and enforcement of labor laws • Gender discrimination • Fair wages • Child or forced labor • Grievance mechanism

6.7 TECHNICAL INSTALLATIONS

Environmentally sound and economical technologies affordable for poor rural communities should be used in the project. In the selection and design of machinery and other solutions for the water management, local conditions as well as available resources and services should play a leading role. It is possible to organize water supply systems by using highest quality engineering technology or cheaper and simple solutions. Project engineers should ensure that water and wastewater systems are constructed so that environmental and social problems can be minimized.

Modern "best available technology" (BAT) can be very effective, energy efficient, environment friendly, long lasting and require low maintenance. BAT means the latest stage of scientific and technological development in the production. This technology will be considered, during the detailed design stage, whenever technically viable and economically feasible. Where this is not viable, other options such as alternative "appropriate technology" will be considered.

An alternative option is the use of "appropriate technology", which is simple enough that people can manage it directly and on a local level. This technology makes use of skills and technology that are available in a local community. The concept involves small-scale, labor-intensive, energy efficient, environmentally sound, people-centered, and locally controlled projects. Appropriate technology can be described as the simplest level of technology that can effectively achieve the intended purpose in a given location. Appropriate technology emphasizes the use of renewable resources, like the energy from the sun, wind, water or biogas. Unlike burning coal and oil, these local energy sources do not contribute to air and water pollution and they do not need to be transported over long distances. Required financial investments could be rather modest at the beginning of the project.

6.8 SITE PROTECTION AND RESTORATION

The experts of the project and contractors must agree how to plan the site protection from, for example, noise, odor, pollution, nuisance, loss of nature and culture values, etc. and how to restore construction sites after completion of works. In carrying out the intervention works, the Contractor shall take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of the adjacent properties, and to the public generally.

Management of pollution is required in the project-related construction works. The principal areas of concern are environmentally sound fuel and chemical storage areas and wastewater discharge. Chemical and fuel storage facilities shall be constructed in accordance with the standard requirements

ensuring that the leakages can be controlled and soil pollution prevented. The Contractor shall not locate fuel storage tanks, refueling and maintenance points within 50 m of any watercourse, well or private house. Soil contaminated with diesel due to leakage of equipment or spillage during refueling activities shall be removed and stored in a suitable manner. All the chemical and fuel containers should be stored in safe locked buildings.

The Contractor shall take all practicable measures to minimize nuisance from dust and other emissions to air from the construction sites. Air quality may be negatively affected by dust generated from the various construction and project operations as by pollutant, emissions from vehicles, machinery (including diesel generators), etc. Dust-generating items should be transported under tarpaulin.

Noise and vibration could be an issue during project interventions, which could involve excavations, blasting, heavy transportation, piling work, pumping as well as production of concrete and asphalt. Noise may disturb nearby residential populations. Vibration caused by excavators or blasting may damage traditional lightly constructed houses usually made from clay mixed with straw.

The Contractor shall avoid loss of trees and damage to natural habitats and vegetation cover wherever possible. Adverse effects on green cover shall be minimized by adequate selection of access routes, piling and storage locations for construction materials and parking lots for heavy machinery. The Contractor shall ensure that all negotiations and compensation for land, crops, trees, houses and other relevant items have been satisfactorily completed before the work site is cleared.

There are several significant historical monuments and cultural heritage sites in the region and even smaller sites can be sacred for the population. They should be identified together with relevant experts and highly respected in the construction. The use of areas of land with physical cultural resources ("*archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance"* [19]) should not be permitted for this project in order to avoid conflicts between individuals and communities. The Contractor shall protect any valuable landscapes and objects including archaeological and palaeontological remains. If such remains are discovered during the work, the Chance Finds procedure developed under the ESMP will be followed. An announcement should be made to the relevant authorities and a permission to continue obtained after the inventory or examination of the remains. Construction works cannot be implemented within 100 m of any archaeological remains without prior permission.

Identification of an appropriate site for depositing waste generated during the construction contract (e.g. local borrow pit already in use for waste deposition). Waste or construction material shall not be dumped in wetlands, water bodies or other natural habitats, and also not on socially important sites. The removal and disposal of old asbestos pipes and other asbestos materials shall be done by specialized contractors with appropriate training, experience and protective equipment The Contractor shall clear up all working areas both within and outside the construction sites as work proceeds and when no longer required on completion of construction works. All surplus soil and materials, temporary roads, camps and temporary fencing shall be removed, post holes filled and the surface of the ground restored as near as practicable to its original condition.

6.8.1 CHANCE FINDS

If physical cultural resources such as archaeological and palaeontological remains are discovered during works, the Construction Contractor will follow the Chance Finds procedure which will be developed under the ESMP and included in the Contractor's contract. The chance finds procedure must be in line with legal requirements in Tajikistan and World Bank policies. The procedure should include the following steps (a full chance finds procedure must be developed and included in the ESMP and Contractor's contract):

- Immediately stop work and report the finds to supervisor
- Contractor will take necessary measures to protect findings, and will secure the site and control access. A no-go area will be defined and marked with warning tape/fencing.
- Inform PMU

- Inform the Academy of Science of the Republic of Tajikistan, the Ministry of Culture of the Republic of Tajikistan and relevant local authorities.
- The site will be inspected by a qualified institution/experts to be appointed by the Academy of Science.
- Permission to continue works should be obtained from the relevant authorities after the inventory or examination of the remains.
- No cultural heritage features will be to be removed without permission from the relevant authorities.
- All chance finds and subsequent results of investigations will be documented (photos, location, notes, results etc.).

It is recommended that basic training in the chance finds procedures is given to the PMU, construction contractor and other relevant parties.

6.9 DRINKING WATER SERVICES

Presently the water supply systems in the proposed project areas are largely worn-out and functioning unsatisfactorily. There is a common lack of drinking water and it has to be transported by vehicle in some of the areas. Renovation of existing water networks would improve the hygienic situation as injection of contaminated water into the pipes can be prevented. Reduced leaks would also lead to energy saving in the whole process. Energy saving can also be enhanced through replacing some old equipment as pumps and transportation vehicles.

Agricultural farms are sources of nitrogen contamination from manure and fertilizers. Pollution by agrochemicals and industrial discharges of hazardous chemicals as well as possible accidental pollution releases from mining areas may lead to environmental health risks. The inadequate treatment of wastewater and dumping sites for solid waste are sources of surface and groundwater pollution. Such pollution may endanger the quality of valuable water sources and lead to expensive consequences.

Poor water quality is a major source of waterborne diseases. Due to poor chemical treatment and disinfection efficiency within Tajikistan, there is a high risk of hygienic infection e.g. by protozoa parasites (Giardia, Cryptosporidium). There are also risks of viruses (e.g. norovirus).

It should be noted that at present chlorination is out of operation in most of the water treatment plants in the project area. In modern water treatment plants chlorination is not the only disinfection method. Instead of the present gas chlorine dosage, chlorine dioxide and/or sodium hypochlorite can be also used. Radiation produced by an ultraviolet lamp kills microorganisms by destroying nucleic acids and disrupting their DNA, leaving them unable to perform vital cellular functions. The method does not add any chemicals to water and is effective if the water is clear from sediments. The process of exposing water to UV radiation should take place in an enclosed container as the UV light is harmful to humans. However, for the project area chlorination is considered to be the best available and the most effective technology that does not require high electric consumption and operation expenses are small.

Existing pipeline networks in the region are usually in poor condition and leaks are substantial. Another problem is that during network maintenance works, contaminated water can be injected to the leaking pipes as a result of lowered internal pipe pressure. There is the possibility that networks might be infected with pathogens and they could be difficult to sterilize without treating the whole network at the same time. This problem should be taken into account if the replacement of pipelines is planned.

The Contractor must ensure that the local water supply is not affected by the works or otherwise to the detriment of the local population. If water interruption is necessary, the Contractor must ensure that the local affected community is provided with an alternative source if necessary (e.g. water tanks).

The fragile water supply system in Tajikistan was badly damaged by the extreme cold wave that affected the country in winter 2007-2008. The daily average temperature dropped to minus 25–27°C, and resulted in the freezing of water pipelines. About 50% of hospitals in Tajikistan were without water

supply and electricity for more than two months. Such climatic conditions should be taken into consideration in planning the technology of the project.

6.10 SANITARY SERVICES

A general water supply system which serves a population of for example 10 000 inhabitants would deliver one million liters of water every day to the population. A substantial part of this water then turns into polluted wastewater, which should be led away from the settlement. Water management projects should consider impacts from the whole process from water source to users and the disposal of treated wastewater.

As part of the current project investments, only water supply and certain sanitation improvements are part of scope of the project. However, as described above, wastewater impacts also need to be considered, and as such are described below. Means of financing studies into wastewater systems and additional investments into wastewater treatment need to be sourced.

At present, sewers collect wastewater from certain buildings in some locations in the districts, e.g. government financed organizations (schools, hospitals, offices) and from some households in the center of some settlements. Wastewater should not be allowed to pollute water courses and possible drinking water sources downstream. Protection zones should be in place around water sources. Removal of bacteria, and treatment of phosphorus and nitrogen loads need to be improved.

Pollution of wells from waste and wastewater spills is also a risk. Poorly organized wastewater and solid waste systems make living inconvenient and create substantial heath risk for the population.

In most of the project areas, particularly in small rural towns it would not be feasible to construct wastewater treatment plants. The use of “appropriate technology” may provide alternative options; wastewater treatment in biological ponds and/or "constructed wetlands" is based on the facts that certain plants are capable of effectively fixing nutrients. Certain bacteria and micro-organisms will eliminate pollution and harmful bacteria. Constructed wetlands can significantly reduce biochemical oxygen demand (BOD5), suspended solids, nitrogen, phosphorus as well as metals, trace organics, and pathogens. The lower construction and operating costs of this technology make it attractive for settlements with limited financial resources.

Any wastewater treatment system used will generate sludge from settling tanks or biological ponds. This sludge is either composted or stored in lagoons. It is necessary to manage sludge lagoons so that pollution to the environment can be prevented. Most of the comprehensive remediation methods are too expensive considering the environmental benefits. The sediment is usually mud rich in organic matter, nitrogen, ammoniac, and phosphorous and may contain some agricultural or industrial chemicals. The lagoon is not a significant threat to the environment, as long as they are properly constructed and prevented from leakage. Renovation of some sludge lagoons may require major earth works.

According to the principle of sustainable development the nutrients of the sludge should be returned to agricultural production after the storage period. In Tajikistan the traditions may oppose its use for food production in vegetable and crop fields but in fruit tree gardens composted sludge can be used as fertilizer.

Biogas can be produced from sludge by anaerobic digestion or fermentation of biodegradable materials. It is likely that the volumes of biogas production would be too small for commercial energy production, however, there have been some international projects developing farm-scale biogas production in the project area. This promising appropriate technology could be taken into account during waste management planning.

It should be noted that there are no wastewater treatment plants in operation in the project area. The design stage in Phase 2 of the Rural Water Supply and Sanitation Project will recommend suitable

wastewater disposal and sanitary engineering approaches for connection of selected buildings (e.g. schools, hospitals) to the sewerage.

6.11 COMMUNITY HEALTH AND SAFETY

In general, the principles of maintaining community health and safety in water supply and sanitation are set by the Ministry of Health and Social Protection in Tajikistan. The parameters of drinking water quality have been defined by the World Health Organization [8] and the national guidelines by the State Sanitary and Epidemiological Service of Tajikistan. At present, water supply and sanitation facilities in Tajikistan are neither safe nor adequate and water is of lower quality than globally accepted standards. However, there are abundant water resources in Tajikistan and a dense network of clean mountain rivers.

The responsibility of schemes to deliver reliable and high-quality water services is outlined in legislation. According to current governing laws, water quality control mechanisms are to be developed by the scheme operator, agreed upon with the district level Sanitary Epidemiologic Service (SES), and approved by relevant local authorities. This is designed to facilitate the constant monitoring of water quality throughout the water supply network, including that of the intake and distribution points. Laboratory tests should be conducted at least four times a year by the service provider, SES or by an accredited laboratory based on prior agreements. [10]

In Tajikistan, 57% of the water consumption point tests and 55% of the water source tests show presence of total coliforms in drinking water. Coliforms are also more commonly detected in water sources used by rural households (58 %) than in urban households (49%). Open and unprotected water sources are more common in rural areas. [10]

At the water source, Khatlon has the second highest share of coliforms 62% in Tajikistan. Despite high presence of bacteria, only a few incidences of *E. coli* are detected in drinking water, suggesting that fecal contamination is not a major concern in Tajikistan. In Khatlon region 3.7% of water sources in rural areas have samples with *E. coli*. [10]

In Khatlon, 80% of people do not have access to piped water, and 80% of people have no access to a sewage system [10]. In Tajikistan, 61% of the intestinal infections in villages are waterborne, attributable to limited access to clean drinking water and operational sewerage systems [48]. Nearly all households have access to pit latrines, but most of these are of poor construction and pose a risk to public health.

The composition of households' primary drinking water sources changes throughout the year, depending on the availability of water from each source. In rural areas of Tajikistan, the pattern of water source diversification by season is especially strong. In summertime, rural households rely on unimproved water sources because water is scarcer. They use unsafe water from irrigation and drainage canals and surface water delivered by water trucks. When there is no water in irrigation canals in autumn and winter, they switch back to using water from rivers as well as rain water. In urban areas, most households rely on piped water connections as their primary water source. Households in Tajikistan experience long periods of service interruptions because of water supply infrastructure breakdowns. These make it necessary for the people to use any water available of unknown quality. Another problem is that whenever pressure drops from the pipelines, contaminated water from surrounding soil may intrude to the network.

Most water supply systems were constructed 1960-1980 and they are now in a terminal state. Low budgetary allocations and difficulties in collecting user fees have severely limited domestic financing, which has been insufficient to meet the substantial requirements for capital investment. Therefore, these projects as well as other similar projects in Tajikistan are very important regarding the community health and safety.

Selected other aspects of community health and safety, such as traffic safety, emergency management, construction practices, hazardous materials, safety of project infrastructure, are covered in other sections of this chapter.

6.12 OCCUPATIONAL HEALTH AND SAFETY

Tajik legislation on labor requires certain standards to be followed in the work place. The requirements are similar to certain international standards. According to the principles of the International Labor Organization Constitution workers should be protected from sickness, disease and injury arising from their employment. Occupational health and safety (OHS) management systems help identify and manage workplace risks, cut costs and reduce downtime, improve working conditions and motivate staff. An appropriate OHS management system should be in place and be actively complied with.

The World Bank Group have guidelines on OHS as part of the *Environmental, Health, and Safety (EHS) Guidelines,* which are technical reference documents that provide information on environmental, health and safety issues, including acceptable pollution prevention and abatement measures and emission levels for World Bank projects. They contain both general guidelines and industry-specific guidelines in relation to Good International Industry Practice (GIIP). [25]

The Occupational Health and Safety guidelines cover: General Facility Design and Operation; Communication and Training; Physical Hazards; Chemical Hazards; Biological Hazards; Radiological Hazards; Personal Protective Equipment (PPE); Special Hazard Environments; and Monitoring.

For the RWSSP project, where World Bank OHS guidelines are stronger than Tajik law, these will need to be followed for the project. The ESIA/ ESMPs to be developed for the project should address the topic of OHS procedures for the project.

6.13 EMERGENCY MANAGEMENT

Emergency management policy and related risk assessment procedures describe potential emergency situations and accidents causing also environmental and social problems. They will promote preparedness to prevent and manage the situations by providing standard procedures for each type of emergency. Risk assessments describe potential dangerous or hazardous incidents that may happen during the operations of the organization.

Emergency response documentation shall contain emergency contact information for each working site, which shall be displayed prominently and accessible for all personnel. Emergency contact information shall contain phone numbers and the method of notifying local authorities and services for action in case of fire, road accident, health emergencies, accidental release of hazardous materials, etc.

The purpose of the emergency management documentation is to eliminate, reduce and/or mitigate environmental impacts in the event of hazardous substance releases. For example, the accident may take place in a water company, or at a construction site, treatment plant, water aquifer, pipeline network, street stormwater wells, or in industrial premise close to the water source. The objective is to ensure preparedness to react in the event of accidental spills of hazardous materials in accordance with pollution prevention rules and obligations (incl. national laws and permissions).

A major threat to the water provision could be accidental pollution events in the river upstream of the water source. This could include oil spill, traffic accident involving transportation of chemicals, fire in industrial areas etc., releasing dangerous substances into water source. Such discharge could make it necessary to stop the intake of water from the river. Therefore, the preparedness to manage accidental pollution releases should be pre-planned.

Operation of water and sanitation systems, and related pipeline networks, do not have the potential for major hazardous pollution events from accidental spills of chemicals. The volumes and toxicity of chemicals used are low and possible accidents are rather insignificant. Potential accidents harmful to the river ecosystem include failures of sludge lagoons and breakage of major wastewater pipelines especially on river banks.

The Contractor shall take all reasonable and precautionary steps to ensure that fires are not started as a consequence of project activities on site. Open fires within the construction sites are prohibited. The Contractor shall ensure that there is basic fire-fighting equipment available on site.

Tajikistan is prone to a wide spectrum of disasters, including earthquakes, floods, mudflows, landslides, avalanches and other environmental emergencies. The incidence of natural disasters is very high, because of the country's geographical structure and climate. Every year, natural disasters cause civilian casualties, the destruction of property and immense economic damage. The Ministry of Emergency Situations and Civil Defense is the national body that has been given the responsibility for the management and coordination of all disaster related activities. In the design and construction of any infrastructure, natural disasters should be taken into account.

6.14 STAKEHOLDER ENGAGEMENT

6.14.1 KEY STAKEHOLDERS AND THEIR ROLES

Identified potential[3] key stakeholders are outlined in the Stakeholder Matrix in Table 17 below. They are divided into categories based on:

- *Whom they represent:* The Government administration and related community structures; the executing agency; government institutions; the private sector; donors and related projects; local media; beneficiaries.
- *At what administrative level(s) are the stakeholders represented*: National, Oblast, District (Raion), Jamoat, community.

Table 17: Stakeholder Matrix

Stakeholder Category	National level	Oblast (region)	Rayon (district)	Jamoat	Village/Kishlak/ Mahalla
Project execution and implementation	The State Unitary Enterprise for Housing and Communal Services **(SUE KMK)** ***(executing agency)*** Head Office of the State Institution Tojikobdehot under the KMK	SUE KMK regional branch Tojikobdehot regional branch	Water supply and sewerage utilities of Tojikobdehot Housing and Communal Enterprise Vodokanal (water supply and sewerage utilities) of the KMK	Water supply and sewerage utilities of Tojikobdehot	
	Ministry of Energy and Water Resources of the Republic of Tajikistan **(MEWR)** ***(executing agency)***				
	Development of Municipal Infrastructure Project		PMU Field engineers and Social Mobilization		

[3] The word *potential* is used to emphasize that this analysis will serve as a point of departure for identification of stakeholders for the different activities during the project preparation and implementation.

Stakeholder Category	National level	Oblast (region)	Rayon (district)	Jamoat	Village/Kishlak/ Mahalla
	Management Unit (PMU) (***implementer)***		Consultancy Firm/ NGO		
Government Administration and local self-government	Cabinet of Ministers	Regional administration	Rayon and town administration, including: Department of Architecture and Urban Development Housing and Communal Enterprises	Jamoat administration Drinking Water Organizations	Mahalla Committees Drinking Water Organizations
Government institutions	Ministry of Finance	Department of Finance	Department of Finance		
	State Committee on Investment and State Property Management (under the Ministry of Finance)				
	Antimonopoly Services (AMS)				
	Ministry of Health and Social Protection (MOHSP)	Department of Health	Department of Health *(*Rayon Clinic)	Clinics, rural health posts	
	State Agency for Social Protection of Population (SASPP) under the MOHSP	Office of the SASPP	SASSP Department	SASSP Department	
	Sanitary Epidemiological Control Services (SES) under MOHSP	Regional SES Department	District SES Department		
	Ministry of Education and Science (MOES)	Department of Education	Department of Education	Elementary & secondary schools, kindergartens	
	The State Committee for Architecture and Construction (SCAC)	Chief Oblast Architect	Chief District Architect		
	The State Committee on Environmental Protection (SCEP)	Regional Committee for Nature Protection	District Committee for Nature Protection		
	Agency for Land Reclamation and Irrigation under the Government of the Republic of Tajikistan	Regional water management	District water management	Water Users' Associations	Water Users' Associations

Stakeholder Category	National level	Oblast (region)	Rayon (district)	Jamoat	Village/Kishlak/ Mahalla
	Agency for Standardization, Metrology, Certification, and Trade Inspection				
	Main Department of Geology				
	Main Department on the State Supervision of the Safe Practices in the Industry and Mines Inspection				
	Committee of Women and Family Affairs (Gender Working Group)	Regional unit of women and family affairs	District office of women and family affairs		
	Open Joint Stock Holding Company Barqi Tojik	Representative and hydroelectric power stations	Companies and hydroelectric power stations		
Private sector	Contractors	Contractors	Contractors	Local technicians	Local technicians
	NGOs	NGOs	NGOs	NGOs, CBOs, CSOs	NGOs, CBOs, CSOs
	Farmers' Association	Association of Dekhans and Farmers	Association of Dekhans and Farmers	Branches of the Association	Dekhans and Farmers
	Consumers Union of Tajikistan	Oblast Federation of the Societies for the Protection of Consumers' Rights	Society for the Protection of Consumers' Rights		
				Water Users' Associations (Regulated and supported by the Agency for Land Reclamation and Irrigation)	Water Users' Associations (Regulated and supported by the Agency for Land Reclamation and Irrigation)
Related projects and programs		"Rukhafzo" Aarhus Environmental Information Centre under OSCE support, Kurgan Tube city	Rukhafzo" Aarhus Environmental Information Centers in Vakhsh, Kushoniyon (Bokhtar), Levakant Districts		
			Municipal Infrastructure Development Project, Danghara, Vosse		

Stakeholder Category	National level	Oblast (region)	Rayon (district)	Jamoat	Village/Kishlak/ Mahalla
			Communal Services Development Fund Project Danghara, Vosse, Levakant /Sarband		
			FinWaterWEI II/Tajikistan Danghara		
			Building climate resilience in Pyanj river basin, Asian Development Bank, Vosse		
			Danghara Valley Irrigation Project, Islamic Development Bank		
Formal and informal networks and working groups on WASH	Thematic Working Group on improvement and implementation of tariff policy in the sphere of drinking water supply in the Republic of Tajikistan (within the framework of the Tajikistan Water Supply and Sanitation Network, conducted technical inventory of WSS, especially in rural areas) (Additional may be identified)				
Other stakeholders involved in the rural water supply and sanitation sector	• International Water Secretariat's "Rural Water Supply and Sanitation" • Oxfam GB • Consumer Union of Tajikistan • World Bank Group • WHO • Swiss Agency for Development and Cooperation • Save the Children • Japan International Cooperation Agency • UNDP • Aga Khan Foundation • Caritas Switzerland • CESVI Tajikistan • Finland • Municipalities, local government • (Additional may be identified)				
Stakeholders involved in building, operating and maintaining the services	• To be identified during discussions with funders and implementers of relevant innovative schemes, as well as during field visits to selected schemes				
Local media		TV, newspapers, radio	TV, newspapers, radio	TV, newspapers, radio, public speakers	
Main Beneficiaries			Water supply and wastewater utilities (SUE KMK)	Water supply and wastewater utilities (SUE KMK)	
			Local self-governments		

Stakeholder Category	National level	Oblast (region)	Rayon (district)	Jamoat	Village/Kishlak/ Mahalla
Beneficiaries – potential clients			Residents - households benefitting from improved access including HHs who depend on water vendors (belong typically to poorer segments)		
			Budget organizations (including educational and health institutions)		
			Commercial enterprises		

6.14.1.1 PROJECT EXECUTION AND IMPLEMENTATION

The project is executed by the State Unitary Enterprise for Housing and Communal Services (KMK) and the Ministry of Energy and Water Resources (MEWR) of the Republic of Tajikistan through the Project Management Unit (PMU).

- ***The State Unitary Enterprise for Housing and Communal Services (KMK)***

State unitary enterprise at the central level reporting directly to the Cabinet of Ministers. SUE KMK was established by Resolution of the GOT # 357 dated 31 July 2001 as the authorized enterprise for policy making and normative basis on communal services. In accordance with Resolution # 247 dated 18 May 2012, its responsibilities also include provision of drinking water and waste water services for cities, Jamoats, towns, villages. KMK has several specific responsibilities, such as:

- Participates in the preparation and development of projects on main directions of economic and social development for the long and short term, within its competence
- Develops the rules of technical operation, the regulatory and legal framework;
- Establishment of profit margins for Vodokanals;
- Improvement of water and sewerage infrastructure;
- When requested by the Vodokanals, formulate and submit requests for tariff adjustments to Antimonopoly Services.
- Develops tariffs and price lists for services provided for water supply, heat supply, sanitation, housing maintenance, gardening, irrigation and other services in the housing and communal services sector.
- Has the right to set the profitability level differentially for each region (oblast, city, district) to 10% for all types of utilities.

- **The Head Office of the State institution Tojikobdehot (Tajikobdehot)** is subordinated to KMK. Founded in 1983 and since May 2012 under SUE KMK, Tojikobdehot is responsible for the design, construction, operation and maintenance of rural WSS. Tojikobdehot has a sub-ordinated regional branch in Khatlon and Water Supply Utilities in rural areas.

SUE KMK is one of the Executive Agencies of the Project. SUE KMK will be the ultimate owner of assets rehabilitated or newly created under the project.

KMK has representation at the regional level through a KMK Khatlon regional branch and a Tojikobdehot regional branch.

At the local level, KMK provides municipal services through its sub-ordinated entities:

- **State-owned affiliated water supply and sewerage utilities (Vodokanals) subordinated to SUE KMK**: Vodokanals are owned by/subordinated to SUE KMK with a few exceptions where they are owned by/subordinated to the Municipalities including Nurek, Dushanbe or, Khudjand. Vodokanals are responsible for water and sewerage services in urban areas (cities, towns). Some extend their services to rural Jamoats.

  Vodokanals are responsible for the billing and collection of tariffs. Those Vodokanals which are subordinated to local administration calculate tariffs for approval by the City and by the Antimonopoly Services Agency. For Vodokanals under their jurisdiction, the KMK calculates and submits tariffs for approval to the Antimonopoly Services .

- **Water supply utilities under Tojikobdehot** are subordinated to the KMK through the Tojikobdehot Main Directorate. The utilities operate in rural areas. However, in some rural District capitals – settlements of urban character (*посёлок городского типа*), services are provided by Vodokanals under the KMK. The local utilities under Tojikobdehot are the beneficiaries of the project and will be responsible for the operation, maintenance (including repair and replacement) and management of the newly created or rehabilitated assets in rural areas.

  Vodokanals under the KMK as well as utilities under Tojikobdehot cooperate and coordinate closely with the Hukumats, the local self-government and relevant departments of central institutions on a variety of issues such as the verification of the number of persons in households if there are no water meters, communication of information and resolving disputes related to water supply and sanitation, agreeing on water supply schedule, ensuring compliance with environmental regulations and permits, exempting eligible categories of citizens and households (льготники) from payments for water and wastewater services and processing claims for reimbursement through KMK.

- **Housing and communal service enterprises under the KMK:** Housing and communal service enterprises sub-ordinated to KMK are responsible for the utilization and maintenance of residential, communal and public facilities including management of municipal waste. They issue and follow on the enforcement of relevant regulations, control the development and implementation of investment projects and coordinate with relevant departments and offices at the different levels. In some locations where there is no KMK Vodokanal, there is sometimes a joint enterprise providing both housing and communal services and water supply and sanitation services.

A summary of KMK water supply and sewerage enterprises in the project districts is provided below (it should be noted that the services do not cover all areas of the districts):

District	**Vodokanal under the KMK** (Vodokanals primarily supply district centers)	**Housing and communal services enterprise also providing and water supply and sanitation services**	**Water supply utilities under Tojikobdehot** (The utilities primarily supply rural areas)
Danghara	KMK Vodokanal		Tojikobdehot water supply utility
Vosse	KMK Vodokanal		Tojikobdehot water supply utility
Temurmalik	No subordinated KMK Vodokanal		Tojikobdehot water supply utility (also provides water to district center)
Kushoniyon (Bokhtar)	KMK Vodokanal		Tojikobdehot water supply utility
Levakant (Sarband)	No subordinated KMK Vodokanal	Joint KMK enterprise serving the district center only	No subordinated Tojikobdehot water supply utility
Vakhsh	KMK Vodokanal		Tojikobdehot water supply utility (also supplying one urban Jamoat – Kirov)
Dusti (Jilikul)	No KMK Vodokanal. There is a Vodokanal under the local government administration of the Dusti District		No subordinated Tojikobdehot water supply utility
Jaihun (Kumsangir)	KMK Vodokanal		Tojikobdehot water supply utility
Balkhi	KMK Vodokanal		Tojikobdehot water supply utility

- ***Ministry of Energy and Water Resources (MEWR) of the Republic of Tajikistan***

The Ministry of Energy and Water Resources is responsible for the development and implementation of water policy and regulation. It is also responsible for guidance on rational water use and conservation of water resources. It is responsible for water allocation limits and for River Basin Management Organizations. The ministry was established in 2013, based on The Decree of the President of the Republic of Tajikistan of 19 November 2013, #12 "On improvement of the management structure of executive authorities of the Republic of Tajikistan". [10], [11]

MEWR is one of the Executive Agencies of the Project.

- ***Project Management Unit (PMU)***

The Project Management Unit (PMU) was founded by the Government of the Republic of Tajikistan represented by the State Committee on Investment and State Property Management, Executive Office of the President of the Republic of Tajikistan and Ministry of Finance of the Republic of Tajikistan. The Project Manager is under the supervision of these authorities. The PMU was established for the Development of Municipal Infrastructure Project in 2004. According to the Chief Executive Officer of the President of the Republic of Tajikistan Resolution No. 22 / 10-239 dated August 16, 2018, the implementation of the Rural Water Supply and Sanitation Project is entrusted to the PMU of the Development of Municipal Infrastructure Project. The PMU has established an office within the central KMK building in Dushanbe.

The PMU will co-ordinate all Project activities, including future tendering procedures and contract management issues and will be in charge of the day-to-day management of the Project. The PMU will also be responsible for: the co-ordination of activities at all project levels with implementing agencies, municipal authorities, the World Bank and other parties involved in project implementation issues; compilation of quarterly and annual reports to the World Bank, Executive Bodies and other relevant authorities; supervision of development of the project implementation plan and budget in co-ordination with SUE KMK and MEWR, and obtaining its approval by SUE KMK/MEWR and other relevant bodies.

The PMU will engage a number of staff/consultants, including: PMU Director, Financial Manager, Procurement Specialist, Chief Engineer, Officer Manager, Field Engineers/Consultant, Monitoring and Evaluation Specialist, Environmental Engineer, Social Safeguards Specialist, Technical support staff, Interpreter/Consultant. The field staff and consultants will be based in the project areas in a rented office(s), and whom will work closely with local authorities, KMK and Tojikobdehot. The social (community) mobilization tasks in the field will be provided by a consultancy firm/ NGO appointed by the PMU.

The PMU will ensure close co-ordination and co-operation with the local authorities for technical and general contractual and coordination matters.

6.14.1.2 GOVERNMENT ADMINISTRATION AND LOCAL SELF-GOVERNMENT

Local authorities implement policies and legislation and provide support to the implementation of agreements with donors. According to the National Plan for Water 2007-2020, each District should allocate about 10% from the local budget for development of rural water supplies. However, in practice this often does not take place. Some Jamoats and villages have separate Drinking Water Organizations (DWO). These organizations are self-supporting organizations, which collect revenues for the water supply systems that they provide. They do not generally receive funds from the central or local authorities. In accordance with legislation in force, they should provide a statistical report to SUE KMK or to Tojikobdehot. However, this communication is not always in place. They should also be under supervision of district SES for quality control of drinking water.

Regional, District and Jamoat administrations are key partners supporting the Project activities at the local level. The Jamoat administration and Mahalla committees are the essential link

between the Project and the population who will benefit from/be affected by the project activities and outcomes.

6.14.1.3 GOVERNMENT INSTITUTIONS

- ***Ministry of Finance (MOF)***

The MOF is responsible among others for the financial management and control of funds including funds for social protection (Government Decree On the procedures for appointment, financing and payment of targeted social benefits to low-income families and citizens from July 3 2014, №437) and of allowances (*льготы*) paid to (Government Decree from June 29, 1993 № 312). **Local Departments are important partners for defining mitigation measures for possible negative economic impacts on the population.**

- ***Antimonopoly Services (AMS)***

Sets norms and standards, verifies implementation and settles disputes. Considers prices, expenses and their justification, government subsidies. The AMS does not have legal authority to set technical norms, regulations and standards (level of services etc.). AMS designs tariff policy in accordance with the current legislation:

- Develops and approves the instruction on the procedure for determining, approving and introducing tariffs and tariff estimates
- Drafts and approves model contracts which subjects of natural monopolies conclude with consumers
- Approves (tariffs) or their maximum level for regulated goods (works, services) of subjects of natural monopoly, taking into account the requirements for quality, societies of state bodies within their competence
- In the event of a change in costs, stimulates a change in tariffs for goods (work, services) of natural monopoly entities
- Approves, in agreement with the authorized body in the field of valuation activities, the procedure and conditions for reassessment of fixed assets of a natural monopoly entity
- Coordinates the rules, standard contracts for water management services, sewerage, housing and communal services, which regulate the rights and obligations of the parties during the provision of services to the consumer
- Coordinates the annual tariff estimate of expenses related and directed to the main and current repair of natural monopoly subjects
- Approves the norms of technical losses of natural monopoly entities

AMS supervises requests for changes in tariffs for water and wastewater (channeled through KMK) and is an important partner for tariff strategy and methodology.

- ***Ministry of Health and Social Protection (MOHSP)***

Health institutions – (potential) clients receive budget allocation for payments of municipal services from the MOHSP and includes two important Project partners: SES and SASPP. At the local level, **some health institutions will directly benefit from the Project interventions.**

- ***State Agency for Social Protection of Population (SASPP) under the MOHSP***

According to the Law On addressed social assistance Government from February 24 2017, № 1396, Government Decree On the procedures for appointment, financing and payment of targeted social benefits to low-income families and citizens from July 3, 2014, №437 and Regulation of the State Agency for Social Protection of Population from 4 March 2014, № 168 the SASPP:

- Organizes, in accordance with established norms, the implementation of works on the implementation of existing state social benefits.
- Implements the state policy aimed at providing targeted social assistance.
- Establishes the form and types of necessary documents for the provision of targeted social assistance.
- Takes appropriate decisions to provide targeted social assistance.
- Maintains a register of targeted social assistance.

- Coordinates the activities of the social protection bodies of local executive authorities in the process of implementing the targeted social assistance program to low-income families and citizens, financial management and monitoring of compliance with the procedures of appointment, payment and targeted expenditure of budget funds.
- Provides to the Ministry of Finance the application for the financing of targeted social benefits according to payment orders.
- Monthly, with a cover letter, submits to Amonatbonk a list of targeted social benefits recipients in electronic form.

The SASPP is an important partner for the Social Assessment and the management and mitigation of possible adverse social impacts.

- ***Sanitary Epidemiological Control Services (SES)***

SES is a section of the Ministry of Health responsible for monitoring the water quality standards through its network of laboratories; it inspects the quality of drinking water, runs central laboratories and is involved in the permitting process for the use of water or the discharge of wastewater. **SES is monitoring the quality of drinking water supplied by the utilities. SES is also an important source of information on health problems caused by water and sanitation.**

- ***Ministry of Education and Science (MOES)***

Educational institutions – (potential) clients receive budget allocation for payments of municipal services from the MOE. At the local level, **some educational institutions will directly benefit from the Project interventions.**

- ***The State Committee for Architecture and Construction (SCAC)***

The main objectives of the State Committee for Architecture and Construction (SCAC) include the implementation of state policy in the sphere of urban planning and development; controlling quality of design, building and construction works; enforcing the law, norms, guidelines and standards on urban planning/development in the planning and building/development of towns and rural settlements; assisting in formation of competitive environment on the market of design and contractor works, construction materials, development of market infrastructure in capital construction; monitoring the execution of contractual obligations assumed in competitive tendering; overseeing the quality and deadlines of site construction. **The SCAC will be a partner for design planning and works.**

- ***The State Committee on Environmental Protection (SCEP)***

The State Committee on Environmental Protection is responsible for carrying out the government policy on environmental management and control on environment protection, use of natural resources. SCEP performs environmental assessment and it is responsible for compliance of subprojects with national environmental standards. SCEP is also responsible for monitoring and evaluation of the execution of international environmental conventions as well as impact on nature caused during project implementation. The committee is responsible for water permits and licensing. **SCEP is an important partner particularly for the EIA and ESMP activities.**

- ***Agency for Land Reclamation and Irrigation, under the Government of the Republic of Tajikistan***

The Agency acts on the basis of the Decree of the President of the Republic of Tajikistan from November 19, 2013, №12. The Agency is the central state executive body responsible for implementing state policy, regulatory and legal regulation in the field of land reclamation and irrigation, and for the use and protection of water resources. The Agency also works in the areas of hydropower facilities, river bank protection, agricultural land transfer, regulation and support of Water User Associations and integrated water resources management in the basin and subdivisions of small and medium-sized rivers. [28] **The Agency will be an important stakeholder in water competition planning, and in resettlement in respects to agricultural land, if required.**

- ***Main Department of Geology* under Government of the Republic of Tajikistan**

The Main Department of Geology works in close cooperation with the State Committee on Environmental Protection (SCEP) on groundwater resources and maintenance. The department is responsible for monitoring abstraction and quality control. It also develops strategies for protecting quality and quantity of groundwater. [11] **The department will be an important contact regrading groundwater abstraction.**

- ***Main Department on the State Supervision of the Safe Practices in the Industry and Mines Inspection***

The department is responsible for the technical requirements for location, design, construction, and operation of groundwater wells [10]. It agrees and issues permits for natural mineral and thermal waters and controls emission of waste water into underground spaces and is responsible for observation of safety and monitoring of industrial waste water processes. [11] **The department will be an important stakeholder for groundwater wells.**

- ***Agency for Standardization, Metrology, Certification, and Trade Inspection***

The agency is responsible for control and supervision of observance of the technical regulation, certification, and metrological requirements for drinking water. [10]

- ***Open Joint Stock Holding Company Barqi Tojik***

The company is responsible for the operation and maintenance of hydropower facilities in Tajikistan, previously the responsibility of the Ministry of Energy and Water Resources [11].

- ***Women and Family Affairs Committee under the Government of the Republic of Tajikistan***

The committee was established in 1991 by a Decision of the Government of Tajikistan. The Committee develops state policy on gender equality, prevention of violence and provides assistance to the victims of violence. It also promotes gender equality and women's participation in economic, cultural and political matters.

6.14.1.4 PRIVATE SECTOR

- ***Contractors***

The works and supplies contractors will be selected in accordance with the relevant rules and procedures. In view of the limited capacities of local service providers and their outreach to remoter areas as well as in view of financial considerations, **local persons already trained or who could be trained as plumbers/contractors for repairs of the local systems may be selected from the Jamoat to work as private "contractors"** and be paid for maintenance and repair of the water supply system at the household/local level. Priority should be given to persons who are interested and who already have some relevant experience (such as electrician, mechanic etc.).

- ***NGOs***

Local NGOs working in the water and sanitation sector in the area will be important partners and sources of information for both, the hard and soft components of the Project. They will be identified and working relationships established during the first months of implementation.

- ***Consumers Union of Tajikistan (CU)***

The Consumers' Union of Tajikistan was formed in the year 2002. It is a not-for-profit, non-government organization created by experts in the areas of consumer rights, the economy and the justice system. Its main purposes are to protect consumers' rights and act in the interest of consumers and to build a fair and competitive market of goods and services in Tajikistan. Main areas of activity include: Creation of effective legislative base in the field of consumer protection in Tajikistan. Provision of legal services, Electricity Governance Program, residential services (protection of consumer rights in field of public utilities including water), consumer awareness raising. **The CU is a potential partner for changing**

consumption behavior in favor of rational use of water, as well as for regulating the relationship between clients and service providers.

- ***Farmers' Association***

Farmers' Association could represent the interest of farmers and rural population. Their local branches could also take an important part in information dissemination and the consultation process.

- ***Water Users Associations***

The Agency for Land Reclamation and Irrigation is responsible for regulating state support for Water Users Associations. Water User Associations are focused on irrigation water rather than drinking water. They are non-commercial organizations established by entrepreneurs or legal entities that have a right to use land for agricultural production [10]. The aim of WUAs are "*preserving, using intra-farm irrigation systems that are in joint and individual use for the fair, efficient, timely distribution of water between its members and other water users, collecting fees for water supply, settling disputes between members and other water users related to the distribution and use of water*." [29] **WUAs will be stakeholders in water use competition discussions.**

6.14.1.5 RELATED PROJECTS AND PROGRAMS

To avoid overlaps and duplications and to facilitate complementarity, relevant interventions in the sector in the project area should be identified and suitable modalities for possible cooperation or drawing on lessons learned sought.

6.14.1.6 LOCAL MEDIA

The project will explore the availability of and the possibility of cooperation with local media mainly for the purpose of information sharing.

6.14.1.7 OTHER STAKEHOLDERS INVOLVED IN THE RURAL WATER SUPPLY AND SANITATION SECTOR

A number of donors and NGOs support the local self-government with providing improved access to water and sanitation facilities and with setting up or strengthening structures for their operation, management and maintenance. These service providers also calculate tariffs and submit them for approval. In some places, water is provided by private entrepreneurs/water vendors or by individuals who sell water from private boreholes.

6.14.1.8 BENEFICIARIES

The beneficiaries of the project will be:

- The State Unitary Enterprise "Khojagii Manziliyu Kommunali" of the Government of the Republic of Tajikistan is a Beneficiary and Contracting authority for the current Consultancy services.
- Water supply and sanitation utilities in the selected project area that will receive support for improved operational capacity, financial sustainability, as well as physical investments aimed at improving the efficiency, reliability and quality of their operations.
- ***Residents - The households*** in the project area will have better access to water supply and sanitation. The sustainability of the projects' results largely depends on their participation and support.
- ***Budget organizations*** (hospitals, schools, public institutions) benefit from improved access and can contribute to sustainability of the projects' results by adopting and facilitating changes in attitudes and practices related to rational use of water and other aspects, tariffs or information about the project.
- ***Commercial enterprises*** in the project area depending on water supply and sewage services can contribute to sustainability of project results by adopting and facilitating changes in attitudes and practices related to hygiene and sanitation, economic use of water, importance of water meter installation, tariffs and dissemination of information about the Projects.

6.14.2 CONSULTATION MECHANISM AND INFORMATION DISCLOSURE

The PMU will develop a Stakeholder Engagement Plan (SEP) proportional to the potential risks and impacts of the project in a later stage of the project. Until the project locations have been agreed, the SEP will take the format of framework approach, outlining general principles and plan for an engagement process to be implemented once the location is known. The stakeholder engagement strategy should be further developed after more precise project details are known and the need for and type of ESIA/ ESMP, according to Tajik legislation and World Bank policies, has been defined. The type of ESIA required affects the information disclosure and consultation procedure.

The key principles, strategy to involving women and vulnerable groups and a proposed outline of the SEP are addressed below.

6.14.2.1 KEY PRINCIPLES

Consultation with and participation of stakeholders at all stages of the project helps to assess, successfully manage and monitor the projects' environmental and social risks and can improve the environmental and social sustainability of projects, enhance project acceptance, and contribute to successful project design and implementation. Stakeholder engagement is an integral part of the projects' environmental and social assessment and project design and implementation.

"Stakeholder" refers to individuals or groups who:

- Are affected or likely to be affected by the project (project affected persons – PAPs); and
- May have an interest in the project (other interested parties).

Potential project stakeholders are identified in a stakeholder matrix table (see Table 17). The stakeholder matrix will be reviewed and updated after the selection of project sites to ensure that PAPs and other interested parties are included for each locality. Further review is recommended after the commencement of implementation activities.

Assessment of stakeholder interests and support for the project is presented in section 6.14.1 *Key Stakeholders and their Roles.* After the selection of project sites, this section will be reviewed and possibly updated to ensure relevance in relation to location specific views and priorities.

Information disclosure and consultation will use a range of methods, suitable for the type of stakeholder, to promote effective and inclusive engagement on issues that could potentially affect them, and to ensure that project information on environmental and social risks and impacts is disclosed in timely and understandable manner and format. For example:

- **PAPs**: information materials, community consultation meetings, focus group discussions (FGD) (group blueprint to ensure conceptual representation), key stakeholder meetings, individual meetings.
- **Authorities, decision makers and key stakeholders** (the Client, authorities etc.): meetings, key informant interviews, key stakeholder meetings. written communication.
- **Other stakeholders** (e.g. NGOs): meetings, written communication, project publicity materials, as required.

The PMU will coordinate information disclosure and stakeholder consultation activities for subprojects and keep records of all consultation undertaken. The consultation mechanism will be compliant with Tajik law and World Bank policies, and shall require that::

- Plans for stakeholder engagement are disclosed at an early stage
- Information is made available in an understandable and accessible format
- Vulnerable groups are suitably included in consultations
- The voices of stakeholders are heard and taken in to account
- Grievances are addressed

Given the geographical scope and nature of the project, stakeholder engagement with local individuals and communities will largely depend on community representatives such as Mahalla committees,

Jamoat representatives, teachers. It is important to verify to what extent these community representatives represent all segments of their community.

The Social Mobilization Consultancy Firm/ NGO in the field to be engaged by the PMU will play an important role in stakeholder identification and analysis as well as in facilitating inclusive participation and consultation of PAPs at the local level.

The organization of stakeholder meetings and consultations is supported by the Project Executing Agencies through their local representations and subordinate utilities. The local (self-) government supports the facilitation and invitation of local stakeholders.

6.14.2.2 INVOLVING WOMEN AND VULNERABLE GROUPS

Women are typically the primary users, providers and managers of water in their households and the guardians of household hygiene; when access and level of services improve, they benefit most. The heads of households and main decision makers in public matters are typically men. Men are also holders of managerial positions in most of the project affected or interested parties – organizations and institutions. This leads to potential marginalization of women's views and priorities as well as to their underrepresentation in the consultation process. The importance of increased women participation in the water and sanitation sector is however widely recognized and accepted in Tajikistan. It is promoted at high level events[4] as well as at the local level by various projects supporting improved access to water and sanitation in rural areas. The Community Driven Water Supply and Sanitation project [47] for example bridged the empowerment of women in water related decision making from the local level to the policy level; a Gender Working Group was established in December 2015 and led by the Committee of Women and Family Affairs. Still, the situation for women varies from community to community. In some communities, women are able to raise issues and complaints, but may struggle when it comes to persuading service providers and leaders to listen to their requests and take action. In other conservative rural communities, women do not voice complaints to service providers or leader directly. (Approaches to mainstreaming gender are addressed in *Gender in Water and Sanitation* [44])

To improve active participation and engagement of women, several approaches will be explored and applied as appropriate for the specific project locations:

- Ideally, 50% of experts engaged by the PMU should be women. *Women should be given priority by filling the positions of social experts* including the Social Safeguards Specialist, and experts in the Social Mobilization Consultancy Firm/ NGO engaged by the PMU.

- *Stakeholder identification and analysis*: when the project locations have been agreed, the stakeholder matrix will be reviewed and updated. Local formal or informal women organizations and groups will be included as appropriate. Where no suitable groups or organizations exist, women from the community (teachers, health staff) could be involved in specific groups such as the Sanitation Zone Management Committees set up in the WB Municipal Infrastructure Development Project), working in direct partnership with the utility.

- *Planning how engagement with stakeholder will take place*: The form, time, venue(s), means of communication and duration will be chosen to facilitate women participation

- *Disclosure of information* (men and women should be equally equipped to make informed decisions): Selection of suitable media. This can include publication in places frequented by women, separate meetings with men and women.

- *Consultation with stakeholders:* Depending on the topic*,* meetings, Focus Group discussions, on site consultations can be held separately with men, women and mixed groups. Men and

[4] On the occasion of the High-Level International Conference on the International Decade for Action "Water for Sustainable Development", 2018-2028, held in Dushanbe in June 2018, UN Women office in Tajikistan organized a number of pre-conference events within the Women Water Forum aiming to emphasize how addressing gender aspects of water issues can have a positive and lasting impact on community development as a whole. More information available at: http://eca.unwomen.org/en/news/events/2018/06/women-water-forum-in-dushanbe-tajikistan. Accessed on 28.10.2018.

women can have different perspectives and complementary roles in the planning, decision making and implementation of an optimal water supply and sanitation services.

- *Addressing and responding to grievances*: The key is accessibility of the complaints mechanism to women and responsiveness to women's complaints.

Similar strategies can be employed to ensure that the voice of those who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits are heard.

6.14.2.3 OUTLINE OF THE STAKEHOLDER ENGAGEMENT PLAN

As aforementioned, the Stakeholder Engagement Plan (SEP) presented here takes the format of a framework approach, outlining general principles and a plan for an engagement process to be further developed and implemented by the PMU once the project details are known.

Stakeholder engagement encompasses:
1. Disclosure of information
2. Consultations to obtain feedback
3. Engagement during implementation

6.14.2.3.1 Disclosure of information

After the selection of project localities, the PMU will launch a campaign to inform the key stakeholders and citizens about the project. Information about the project should reach citizens and other relevant stakeholders.

Issues can include for example:
- *General information about the project*: Project owner, executing agencies (KMK, MEWR) implementing agent (PMU), funding agencies (WB - ECAPDEV Trust Fund)
- *Rationale and project objectives*
- *Time frame* (Preparation; long-term plans)
- *Information on the proposed technical* solutions (rehabilitation, replacement, construction, installation of sanitation facilities)
- *Areas to be covered*
- *Project components* (Construction, environment, monitoring, operation-management-maintenance)
- *Clients* (residential, non-residential)
- *Key stakeholders* (PAPs, other interested parties).
- *Rights and obligations* (The rights and obligations will be defined in an agreement between the client and Utility. The Utility will ensure continued water supply according to Government standards, clients pay tariffs (for actual consumption measure by water meters in pilot areas)
- *Stakeholder engagement during project implementation*
- *Environmental and Social Impact Assessment/ other reports as relevant:* the report/ summary of results should be made available in line with the requirements of the legislation of the Republic of Tajikistan and World Bank policies. The precise requirements for disclosure and consultation will depend on the category of the project in relation to EIA.
- *Disclosure of the RAP will follow the World Bank procedures and requirements and laws of the Republic of Tajikistan.*
- *Impacts of location and design*
- *Impacts of construction* (temporary noise and traffic disruptions, possible interruption of services)
- *Information on safe sanitation, tariffs, rational water use and other related matters.*
- *Impacts due to operation*
- *Project grievance procedures*

Table 18: Disclosure of information- generic outline

Stakeholders	Means of communication
At the National level: Government institutions, other relevant stakeholders involved in the rural water supply and sanitation sector.	Presentation and discussions in a meeting(s) organized by the PMU; handouts on specific issues. Summary in official minutes on project records and available upon request.
Media	Press release; relevant website (s) etc.
In project areas: District Administration, Jamoats, Mahalla committees, local NGOs/CBOs	Presentation and discussion organized by local self-government and the PMU supported by the local KMK Vodokanal/Tojikobdehot Utility and other relevant stakeholders; information through the media Summary of meetings recorded in official minutes on project records and available upon request.
In project areas: Citizens/community representatives, representatives from budget organizations, businesses and commercial enterprises; civil society organizations.	Presentation and discussion organized by the local authorities and the PMU, supported by the local KMK Vodokanal/Tojikobdehot Utility and other relevant stakeholders; information through the media Summary of meetings recorded in official minutes on project records and available upon request.

6.14.2.3.2 Consultations to obtain feedback

Feedback from stakeholders at the central level will be obtained during discussions following the information disclosure. Additional meetings can be arranged if required to address outstanding issues.

Public meetings will be held in all areas benefitting from/affected by the project after the information disclosure to provide an opportunity for the citizens to give feedback. Issues arising will be discussed, including sites of environmental and cultural importance. People give feedback to the project owner through their representation: District Administration, deputies, Jamoat administration, Mahalla committees, civil society organizations (CSOs). Depending on the circumstances, it may be appropriate to hold the feedback consultation immediately following the information disclosure meetings.

Proceedings, outcomes and issues arising from the meetings including issues arising will be recorded and the records attached to the project documentation. All raised issues raised during the public hearings will need to be addressed and clarified before the implementation starts.

Table 19: Consultation to obtain feedback – generic outline

Stakeholders and types of information	Means of communication
National level Government institutions, other relevant stakeholders involved in the rural water supply and sanitation sector	Discussions organized by the PMU (to immediately follow the meetings organized for the information disclosure stage).
In the project areas Citizens/community representatives will discuss the project and give feedback through their representatives. Such feedback can include concurrence with the project and its proposed activities, queries about socio-economic and environmental impacts, concerns about specific issues, proposals for possible modifications of the proposed design and activities or the proposed grievance mechanism.	Meetings, handouts, announcements in the media. Depending on the circumstances, it may be appropriate to hold the feedback consultation immediately following the information disclosure meetings. Records from the meetings including issues raised by the citizens will be recorded and follow up on issues that could not be clarified/resolved during the public hearings noted.

6.14.2.3.3 Engagement during implementation

During implementation, the PMU will be responsible for communication with project affected parties and relevant stakeholder consultation. Information should be disclosed on the progress of the project as identified below. A Grievance Redress Mechanism for management of grievances during implementation is described in section 6.15.

Table 20: Engagement during project implementation – generic outline

Stakeholders	Means of communication
At the National level: Government institutions, other relevant stakeholders involved in the rural water supply and sanitation sector	PMU provides written information to relevant stakeholders. Meetings with selected relevant stakeholders organized by the PMU as required; handouts on specific issues. Summary in official minutes on project records and available upon request.
Media	Press release; relevant website (s) on progress of project
In project areas: District Administration, Jamoats, Mahalla committees, local NGOs/CBOs	PMU provides written information to relevant stakeholders. Meetings organized with local self-government supported by the local KMK Vodokanal/Tojikobdehot Utility and other relevant stakeholders. Summary of meetings recorded in official minutes on project records and available upon request.
In project areas: Citizens/community representatives, representatives from budget organizations, businesses and commercial enterprises; civil society organizations.	Information provided through media, local authorities, and other relevant channels on progress of project as necessary. If necessary to discuss particular issues, meetings organized by the local authorities and PMU, supported by the local KMK Vodokanal/Tojikobdehot Utility and other relevant stakeholders. Summary of meetings recorded in official minutes on project records and available upon request.

6.14.2.3.4 Consultation relating to resettlement

If during the environmental and social assessment process, resettlement impacts are identified, then additional consultation planning will be required. For resettlement issues, the Resettlement Policy Framework identifies various means of stakeholder engagement, and the following main stages when engagement should take place:

- Participation and consultation during the preparatory phase
  - Screening for need for RAPs/ARAPs
  - Preliminary dissemination of Information, consultation
  - Census, socio-economic survey, inventory of assets
  - Information from surveys: dissemination and consultation
- Pre-Appraisal
  - Preparation of the RAPS/ARAP
- Appraisal
  - Finalization of RAPS/ARAPs, Disclosure
- Implementation
  - Participation in committee and monitoring
  - Participation in delivery of assistance
- Completion
  - Participation in evaluation

6.14.3 SUMMARY OF CONSULTATIONS UNDERTAKEN

Initial stakeholder consultation meetings were carried out as described in the table below. A full list of participants is included in Annex 1.

Table 21: Summary of Consultation Meetings

Consultation Meeting	Districts attended	Participants	No. Participants and gender
10th August, Danghara	Danghara	Representatives of eight Jamoats in Danghara out of nine (Danghara Shahrak, Oksu, Guliston, Sangtuta, Lolazor, Pushing, Korez, Sebiston); five Hukumat representatives, KMK Danghara, SES Danghara, Tojikobdehot, Environmental Protection Committee, 'Danghara electricity' and Danghara City Electric Networks, Women and Family Affairs and other organizations (See Annex 1 for the list of participants).	26 participants 25 men 1 woman
11th August, Vosse	Temurmalik, Vosse	19 participants from Temurmalik district, including all seven Jamoats local Hukumat Heads (Soviet Shahrak, Bobounus, Karakashim, Karmishev, Kangurt, Rahimov, Tanobchi), SES, two KMK representatives, Construction department, Architecture department, Electric Networks and other organizations (See Annex 1). 13 participants from Vosse, such as Hukumat representatives, SES, KMK, Land management unit, Architecture and Urban development, Rural development and other organizations (See Annex 1).	32 participants 29 men 3 women
11th August, Vakhsh	Vakhsh	Hukumat representatives, KMK, SES, Water and Land management unit, Environment Protection committee; also seven representatives of local households	22 participants 12 men 10 women
28th August, Kurgan-Tube	Balkhi, Levakant (Sarband), Dusti, Jaihun, Vose, Vakhsh	16 Hukumat representatives, SES, KMK, Vodokanal, Environment Protection committee, Land management, Committee of Architecture, Rural development and other organizations (for the full list of participants see Annex 1).	32 participants 28 men 4 women

The Consultation meetings were organized with the support of Central KMK. KMK Dushanbe sent an official letter to the local Governments of the districts with information about the meeting and list of suggested organizations to invite. The final group of attendees was decided by the local Hukumats. All districts involved in the project were invited and attended except Kushoniyon (Bokhtar), which did not have representatives at any of the consultation meetings. However, separate meetings were arranged in each of the districts prior to the consultation meetings (details of the meetings are described in Table 22.

During the meetings, a presentation introducing project was given, including the technical, environmental and social parts of the project. Participants learnt about the aims of the project and the potential environmental and social impacts, particularly relating to resettlement.

Following the presentation, presenters responded to individual questions and there was opportunity for feedback. Feedback questionnaires were handed out and filled in as part of the session and participants had an opportunity to think and reflect on the project in general.

From the feedback received, the participants were interested in the water supply to the rural areas, and in general thought it would positively affect their areas and saw the positive change of more importance than any other consequences the project could bring. However, some questionnaire respondents to the question on whether there are sites/ areas which should be protected (natural, cultural, historic, etc.)

during the project, did respond that there are such areas and more information on the project was needed.

During the meetings, it was explained that should resettlement be necessary a further Resettlement Action Plan would be developed for the locations. The question of resettlement did not cause any particular concerns among participants. Participants seemed comfortable with the idea of resettlement or loss of some asset if the project was to positively change life of many people in the area.

Some participants enquired further about how the site selection and prioritization procedures and wanted to stress the difficulties they have with water supply in their areas.

In addition to the Consultation Meetings listed above, a number of additional meetings were held with individuals in different districts. A summary of the meetings is given in the table below.

Table 22: Summary of additional meetings

Meeting	Districts attended	Participants	No. Participants
10th August, Temurmalik	Temurmalik	Head of Temurmalik Hukumat, First Deputy Head	2 participants
24th August, Various locations	Kushoniyon (Bokhtar), Balkhi, Levakant (Sarband), Dusti, Jaihun	Head of Dusti Hukumat; Deputy heads of Kushoniyon (Bokhtar), Vakhsh, Balkhi, Levakant (Sarband), and Jaihun Hukumats	5 participants
28th August, Dusti	Dusti	Head of Dusti Hukumat	1 participant
4th September, Vakhsh	Vakhsh	Vakhsh district Jamoats	7 participants

6.15 GRIEVANCE REDRESS MECHANISM

A grievance redress mechanism will be established to enable project affected persons to make complaints and for those complaints to be addressed during the project. The mechanism will be clearly explained to affected persons in the initial stages of the project. The detailed procedures for redress of grievances and the appeals process will be widely publicized among the affected people.

The mechanism will establish responsibilities of the construction contractor for complaint management during construction. The grievance mechanism should be accessible to local project affected persons.

In general, the mechanism is expected to include the following main steps:

1. **First Step – Local (District) Grievance Redress Management Committee (Commission)**

   Any PAP with a compliant can submit an oral, written or electronic complaint to the District Level Grievance Management Committee (Commission). Comments received verbally, in writing, or electronically should be recorded on a register/ log and an identification number given to the grievance so it can be tracked to ensure actions are carried out. The urgency of the complaint will be assessed at this stage. Complaints are considered within 30 days, complaints that do not require additional study and research are considered within 15 days from the date of registration. However, Tajik legislation also provides the PAP the right to complain to a higher organization or court of law at any stage.

   If the person making the complaint is not satisfied with the resolution proposed by the local committee, or he/she receives no resolution within 15 days (if no additional research is required) or 30 days (if additional study is required) of registering the grievance, according to Tajik law, the person making the grievance has the right to take the grievance to the N**ational Grievance Redress Management Committee (GRMC), other relevant higher authorities, or the court of law**.

   If the local committee is unable to make a decision on the complaint, the PAP will be informed that the grievance will be passed to the National GRMC. In this case, the PAP should wait for the decision of the National GRMC.

2. **Second Step – National Grievance Redress Management Committee** (Commission)

   If the complaint is not resolved by the Local GRMC, the complaint will be taken to the National grievance management committee. Complaints should be considered within 30 days of the original date of registration of the complaint, or 15 days where no additional study and research are necessary.

3. **Third step - Court of Law**

   In case the decision of the National GRMC is not found satisfactory, the person making the compliant can appeal to the relevant Court of Law (as aforementioned, they can also take the complaint to a court of law at an earlier stage).

Grievance register
All grievances will be recorded on a register/ log and an identification number given to the grievance so it can be tracked to ensure actions are carried out. The register will include details of the date of complaint, method of complaint, date grievance entered into register, stages of and outcomes of complaint and summary of responses. The register will highlight if the PAP is classed as vulnerable in order that additional assistance can be provided.

The system for grievances must be appropriately managed to ensure an appropriate level of confidentiality.

Monitoring
The PMU Social Safeguards Specialist and the Monitoring and Evaluation Specialist will be responsible for monitoring grievances and providing regular reports during the project, including the number and types of complaints, and measures to address complaints. For resettlement issues, these reports should be weekly. The construction contractor and relevant authorities should also provide support for relevant tasks.

Grievance redress management committees
Committees will be established at the district level and the national level. The committees should include representatives from the PMU, KMK, local self-government, representatives of PAPs, and other relevant stakeholders and authorities (such as the State Committee on Land Management and Geodesy, architecture and town planning bodies, sanitary bodies, fire control authorities, energy and water supply authorities), and should be in line with procedures for resettlement and grievances under Tajik law and World Bank policies.

The PMU will be responsible for coordinating establishment of all GRMCs. The national committee will be established at the central level, and its work will be facilitated by the PMU (Social Safeguards Specialist and other relevant staff). The local committee will be established at the district level, and its work will be facilitated by the district administration with support from the PMU.

The committees will also be responsible for overseeing resettlement.

6.15.1 WORLD BANK GRIEVANCE REDRESS SERVICE

Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to the project-level grievance redress mechanisms (see previous section) or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. Information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS) can be found at *http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service*. Information on how to submit complaints to the World Bank Inspection Panel, visit *www.inspectionpanel.org*. Procurement related complaints are forwarded to the relevant bank staff.

Complaints can be made regarding concerns of potential harm from WB supported projects, however, they cannot accept complaints regarding [37]:

- *Awarding of damages or provision of direct compensation*
- *Issues not related to World Bank-supported projects*
- *Matters already considered by the GRS unless the complainants have new evidence previously not available to them*
- *Issues pertaining to a Bank-supported project that is closed*
- *Complaints related to the adequacy or suitability of a Bank policy or procedure*
- *Issues related to Bank personnel matters*
- *Allegations of fraud or corruption in Bank-supported projects* [such complaints should be directed to the World Bank Office of Institutional Integrity]

The complaint should be submitted in writing and addressed to the World Bank Grievance Redress Service. The complaints can be sent by email, fax, letter or hand delivered to the GRS at the World Bank Headquarters in Washington or the World Bank Office in Tajikistan. The complaints can be provided in the original language of the complainant, the official language of the WB borrower or English. There is a Grievance Redress Service form on the World Bank website if the complainant wishes to use a form. [38]

Complaints sent to the **World Bank Headquarters** should be sent to:
Email: grievances@worldbank.org
Fax: +1-202-614-7313
By letter: The World Bank, Grievance Redress Service (GRS), MSN MC 10-1018, 1818 H St NW, Washington, DC 20433, USA

Complaints to the **World Bank office in Tajikistan** should be sent to:
The World Bank, 48 Ayni Street, Business Center "Sozidanie", 3rd floor, Dushanbe, Tajikistan

6.16 INSTITUTIONAL CAPACITY BUILDING AND TRAINING

Projects activities include developing environmental and social management skills and promoting good practices among the Client staffs. It is necessary for KMK, its subordinates and local district and Jamoat experts to understand the systems of environmental and social management as stated by the national laws and regulations as well as World Bank policies. It is also important to learn the responsibilities of certain experts to lead and monitor the required tasks mentioned in the Environmental Permit and the project documents (ESIA, ESMP, ESMF, etc.). Training courses for the KMK staff and other experts should include subproject management and guidance of contractor works.

Capacity building will help the Client to compile lists of the key positions involved in the project management, execution and supervision especially related to the environmental and social issues and to define the responsibilities for each position. It should also include institutional arrangements for monitoring and implementation of the safeguard issues and services quality management.

During implementation phase large numbers of workers are likely to influx in the project areas. The project should provide social premises with necessary services to the workers. Regulations on Occupational Health and Safety will provide the specific requirements for enterprises, employees, industrial processes and equipment. The management should keep records on occupational injuries, illnesses and exposures. Record keeping is important for individual worker case histories of exposures and effects e.g. in cases of potential later inquiries. Records of incidents can also be analyzed to provide early warning of more serious safety and health problems. Accident and health records are used to identify hazards, measure safety performance and improvement, and help identify patterns.

The training shall explain the following duties and skills, for example:

- General environmental and social awareness among the KMK staff and sub-project contractors;
- The outlines of the environmental and social management tools (ESIA, ESMP, ESMF, RPF, RAP etc.);
- Environmental and social issues which are important in terms of compliance with legislation and the project documents, and the potential penalties that could be imposed on the contractor and the individual in the event of a breach;
- Environmental and social issues likely to cause concern relevant to the individual's work;
- Specific practical measures to be employed to avoid adverse impacts as outlined in the ESMF and ESMP;
- Specific environmental sensitivity in the vicinity of work areas and any additional precautions to be taken;
- Emergency response plan and reporting procedures if issues arise;
- Health and safety procedures, with particular reference to controlling exposure to harmful or hazardous materials;
- Communication and dialog (e.g. to suggest improvements to procedures).

6.17 MONITORING AND REPORTING

Specific monitoring procedures should be identified clearly in the ESIA (if required), RAP (if required), ESMP and contracts for construction contractors. These documents should set indicators to be monitored, based on project activities, impacts and mitigation measures required, including for example project construction activities and impacts, pollution releases etc.

General environmental and social monitoring requirements are summarized in the generic monitoring table below, however, as stated above the precise details of monitoring must be identified in the ESIA/ ESMP.

An administrative monitoring and reporting system should be agreed and established for the monitoring of the ESMF. The PMU should monitor implementation of the ESMF and all associated documents, on a regular basis. Responsibilities for monitoring specific indicators will be identified in specific EA Instrument documents, and will include relevant responsible authorities.

In addition, in order to avoid conflict of interest, an independent external monitor (to be identified) should also carry out monitoring on a regular basis for certain aspects, such as resettlement, the regularity of which will depend on the scope the impacts. This will be in line with the more detailed RPF and will be agreed in any RAP.

The PMU should review and analyze all collected monitoring data to ensure implementation of requirements of EA instruments, including effectiveness of mitigation. The PMU will maintain databases of monitoring records including comprehensive records of the monitored activities and ESMF and RPF implementation procedures as outlined in the table below and subsequent project documents. Reports outlining the implementation of the ESMF, and databases of records and results of monitoring, should be provided quarterly in a format agreed with the World Bank and other relevant authorities.

Table 23: Generic environmental and social monitoring table

Monitored Activity/ Impact	Description / Monitoring indicators	When	Monitoring Responsibility
Project implementation - **ESMF and RPF implementation**	Preparation of relevant EA instrument for subprojects (ESIA, ESMP etc.)	Pre-construction	Consultant preparing document / PMU / relevant authorities
	Consultation activities undertaken	Pre-construction Construction as necessary	PMU Social Safeguard Team (Social Safeguards Specialist, Social Mobilization Consultancy Firm/NGO) / Contractor
	Institutional capacity building training	Pre-construction and subsequent stages	PMU
	Overall overview of ESMF implementation	All stages	PMU
	Grievance management: 1. No. of grievances 2. Resolution of grievances 3. Actions taken etc. 4. Unresolved grievances	Pre-construction and subsequent stages	• Construction contractor for certain aspects during construction • PMU (Social Safeguards Specialist) • Project grievance committees • Relevant authorities • KMK (operation stage)

Monitored Activity/ Impact	Description / Monitoring indicators	When	Monitoring Responsibility
	ESMP implementation: Overall overview of ESMP implementation	All stages	• PMU • KMK (operation stage)
Resettlement Action Plan Implementation (if resettlement impacts are identified)	1. Overall Overview of RAP implementation 2. Development of RAP (if needed) 3. Details of all land, structures and other affected assets included in resettlement 4. Number of PAPs displaced; 5. Financial and other entitlements provided to whom and when 6. Effectiveness of entitlements, and ability to maintain pre-project standards of living. 7. Consultation activities 8. Grievances	1: All stages 2 – 5: Pre-construction 6 – 8: Pre-construction and subsequent phases. Follow up visits for at least 1 year after resettlement for vulnerable households)	• PMU (Social Safeguards Team, M&E Specialist) • An independent external monitor (to be identified) • Project grievance committees • Relevant authorities
Construction related impacts and activities	Implementation of mitigation measures	Construction	• Construction Contractor • Relevant authorities
	Contractors performance (construction supervision including review of contractors implementation of mitigation)	Construction	• PMU (engineering team) • Relevant authorities
	Other aspects identified in ESIA/ ESMP covering aspects such as: 1. Groundwater exploitation • Detailed hydrogeological survey. • Sanitary zone of catchment area and protection of individual source. 2. Spring/surface water exploitation • Verification of hydrogeological data. • Construction of protected sanitation zones around catchment area. • Reconstruction of spring development and protection structure. • Air pollution: emissions, odor, dust, noise and vibrations 3. Soil disturbance and erosion during trenching and gravel extraction 4. Waste management • Hazardous waste generation and management, including ACM (Asbestos Containing Material) • Construction waste and left-over gravel heaps • Domestic waste from workers' camps 5. Soil, water/groundwater pollution 6. Temporary disruption in water supplies and wastewater discharge 7. Traffic disturbance and accidents	Construction	• Construction Contractor • Relevant authorities

Monitored Activity/ Impact	Description / Monitoring indicators	When	Monitoring Responsibility
	8. Street and home inaccessibility during construction 9. Land use 10. Occupational safety		
Operation related impacts and activities	Implementation of mitigation during operation	Operation	• PMU • KMK • Relevant authorities
	Other indicators identified in ESIA/ ESMP such as for example: 1. Groundwater exploitation • Groundwater quality monitoring. • Permits for special water use requirements. 2. Spring/surface water exploitation • Water quality monitoring. • Permits for special water use requirements. 3. Water quality monitoring, as required in environmental and hygienic permit submitted by authorities. 4. Technical standards. 5. Operational procedures. 6. Waste/Hazardous waste management. 7. Occupational safety 8. Use of dangerous chemicals 9. Pollution releases 10. Air pollution– emissions, odor from WTP and wastewater facilities 11. Land use 12. Water use conflicts 13. Use of water by consumers • Water quality monitoring. • Water metering. • Proper usage of private networks (networks on customer's property – after the service valve) including illegal connections 14. Other permit and other compliance monitoring as required by the authorities	Operation	• PMU • KMK • Relevant authorities

6.18 IMPLEMENTATION OF THE ESMF

The Project Management Unit (PMU) will co-ordinate all project activities. The PMU will ensure close co-ordination and co-operation with the local authorities for technical, contractual, and other issues under their administration. The PMU is responsible for implementation of the Environmental and Social Management Framework and development of required reports, with the support of Consultants (to be hired by the PMU) and in cooperation with various stakeholders.

The PMU will engage a number of staff/consultants, including: PMU Director, Financial Manager, Procurement Specialist, Chief Engineer, Officer Manager, Field Engineers/Consultant, Monitoring and Evaluation Specialist, Environmental Engineer, Social Safeguards Specialist, Technical support staff, Interpreter/Consultant. The social (community) mobilization tasks in the field will be provided by a consultancy firm/ NGO appointed by the PMU.

The Social Safeguards Team (Social Safeguards Specialist, Consultancy firm/ NGO responsible for social mobilization in the field) will be responsible for coordination of communication with PAPs and social tasks such as screening for the need for RAPs. A qualified and experienced environmental expert will be employed by the PMU and will be responsible for environmental tasks, in cooperation with other PMU staff members.

The main responsibilities for various aspects of the ESMF are summarized below:

Table 24: ESMF implementation responsibilities

Action	Responsibility
Identification of subprojects and assessment of the need for and type of EA instrument (screening)	PMU, supported by a Consultant (to be hired by the PMU) in cooperation with relevant stakeholders, authorities and the World Bank. Support from a Consultant (to be hired by the PMU). Final approval of screening results by the World Bank and the relevant authorities.
Development of EA instruments (ESIA/ Simplified ESIA, ESMP, RAP as required)	Consultant (to be hired by the PMU), support from PMU and relevant parties. Approval by PMU, KMK, MEWR, the World Bank and relevant Tajik Authorities.
Development of final ESMF monitoring and reporting administration system	PMU, in agreement with the relevant authorities and the World Bank.
Institutional capacity building	Consultant to be hired by the PMU, in cooperation with relevant stakeholders and authorities.
Implementation of the ESMP	PMU, construction contractor and other relevant parties (to be identified in the ESMP). Implementation of much of the ESMP will be the responsibility of the construction contractor, and will be included in the relevant works contract.
Stakeholder consultation	PMU, with support from relevant authorities and consultants working on ESIA/ ESMP development. The Social Safeguards team will be responsible for coordination of communication with PAPs.
Grievance management	PMU, with support from the grievance committees, relevant authorities and construction contractor.
ESMF Monitoring	PMU Monitoring and Evaluation Specialist, in cooperation with other PMU staff members
ESMP Implementation Monitoring	Construction contractor, PMU, relevant authorities, independent external monitor where necessary, KMK (during operation). Responsibilities will be defined in the ESMP.
RPF and RAP Monitoring	PMU Social Safeguards team, relevant authorities, grievance redress management committees. Independent external monitor to carry out additional monitoring of entitlements.

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For a list of Republic of Tajikistan Legislation see Annex 3.

8 LIST OF ANNEXES

1. ANNEX 1 – LIST OF INITIAL MEETING ATTENDEES

Date and location of meeting: 10th August 2018, Danghara
Total participants – 26 people from Danghara district

	Attendee
1.	Doctor of regional hospital
2.	Deputy head of Oksu Jamoat
3.	Deputy head of Guliston Jamoat
4.	Head of social protection and pension committee
5.	Deputy head of social protection and pension
6.	Head of environmental protection committee
7.	Accountant of Sangtuta Hukumat
8.	Head of KMK Danghara
9.	Head of labor and employment unit
10.	Mechanic of road maintenance department
11.	Deputy head of Lolazor Jamoat
12.	Deputy head of Pushing Jamoat
13.	Head of statistics agency
14.	Head of state tax department
15.	Deputy head of Korez Jamoat
16.	Deputy head of youth and sport department
17.	Head of architecture and urban development
18.	Head of land management
19.	Deputy head of Sebiston Jamoat
20.	Head of economics department of Danghara district
21.	Head Tojikobdehot
22.	Director of 'Danghara electricity'
23.	Head of Danghara City Electric Networks
24.	Head of Women and Family Affairs
25.	Head of SES
26.	Employer of pumping irrigation

Date and location of meeting: 11th August, Vosse
Total participants – 19 people from Temurmalik district

	Attendee
1.	Head of water supply system
2.	Head of district Shahrak (city)
3.	Director of SES
4.	Head of construction department
5.	Head of Tanobchi Jamoat
6.	Head of Rakhmonov Jamoat
7.	Financial analysist of statics department
8.	Chief analyst of architecture department
9.	Head of electric networks
10.	Head of financial department
11.	Head of Kungurt Jamoat
12.	Head of Karakamchi Jamoat
13.	Head of KMK Kangurt
14.	Analyst of KMK Temurmalik
15.	Head of Karmishev Jamoat
16.	Head of land management unit

17.	Head of Bobounus Jamoat
18.	M&E coordinator, Oxfam
19.	First deputy head of Hukumat

Date and location of meeting: 11th August, Vosse
Total participants: 13 people from Vosse district

	Attendee
1.	Analyst SES
2.	Land management unit employer
3.	Land management unit deputy head
4.	Head of labor and employment agency of Vose district
5.	Employer social protection and pension committee
6.	Head of social protection and pension committee
7.	Specialist of architecture and urban development unit
8.	Specialist of general unit
9.	Head of women and family affairs
10.	Head of SES
11.	Head of Avazov Jamoat
12.	Head of rural development
13.	Head of economics and trade

Date and location of meeting: 11th August, Vakhsh
Total participants - 22 people from Vakhsh district

	Attendee
1.	Finance department head
2.	Analyst of state statistics
3.	Head of employment and population agency
4.	Teacher of secondary school
5.	Housewife
6.	Housewife
7.	Housewife
8.	Pensioner
9.	Cleaner
10.	Pensioner
11.	Pensioner
12.	Assistant of water and land management unit
13.	Head Doctor or regional hospital
14.	First deputy head of Vakhsh Hukumat
15.	Head of land management unit
16.	Director of environment protection
17.	Head of SES
18.	Architect of architecture and urban development unit
19.	Security of Vakhsh environmental protection unit
20.	Specialist of statistics agency
21.	Head of women and family affairs
22.	Head of youth and sport unit

Date and location of meeting: 28th August, Kurgan-Tube
Total participants - 32 people from 6 districts of Balkhi, Levakant (Sarband), Dusti, Jaihun, Vose, Vakhsh

	Attendee
1.	Head of Vahdat Jamoat Hukumat
2.	Head of Guliston Jamoat Hukumat
3.	Head of Vaisov Jamoat Hukumat
4.	Committee of Ecology specialist
5.	Statistics department deputy director
6.	Deputy head of Hukumat of 20 sollagi Tojikiston
7.	Nur Jamoat Agrononist
8.	Deputy Head of Dekhkonobod Jamoat Hukumat
9.	SES Director
10.	Regional hospital Head doctor
11.	Committee of economy Director
12.	Tojikobdehot Deputy Director
13.	Deputy head of Frunze Hukumat
14.	Head of Madaniyat Hukumat Jamoat
15.	Deputy head of Hamvard Jamoat
16.	Head of Tugarak Jamoat Hukumat
17.	Head of Avazov Jamoat Hukumat
18.	Deputy Head of Guliston Jamoat Hukumat
19.	Head of Mahmadali Jamoat Hukumat
20.	First Deputy Head of Mahmadali Jamoat Hukumat
21.	Deputy Head of Mahmadali Jamoat Hukumat
22.	Deputy Head of Jilikul Jamoat Hukumat
23.	Committee of architecture Specialist
24.	Center of control of sanitation and epidemiology Deputy director
25.	Committee of land management Director
26.	Vodokanal Director
27.	Committee of architecture specialist
28.	Tax inspection director of Jaihun district
29.	Tax inspection specialist of Balkhi district
30.	Tax inspection Director of Vakhsh district
31.	Specialist of statistics agency Vakhdat
32.	Head of economics and trade

2. ANNEX 2 – SELECTION OF PHOTOGRAPHS FROM STAKEHOLDER ENGAGEMENT

Stakeholder engagement, 10th August 2018, Danghara

Stakeholder engagement, 11th August 2018, Vakhsh

3. ANNEX 3 – LIST OF TAJIKISTAN LEGISLATION

A select list of some of the potentially applicable Tajikistan legislation is provided below.

Water resources, water supply, water quality, water supply services, sanitation

Legal document
Constitution of the Republic of Tajikistan adopted on 6 November 1994 and amended by referendum on 26 September 1999 and 22 June 2003
Civil Code of the Republic of Tajikistan Part I: Enacted: June 1999. Last amendment in 2006.
Water Code, 2000. Amendments in 2006, 2008, 2009 and 2011, 2012
Law “On drinking water and drinking water supply”, 29 December 2010 № 670
Code Of Health Of The Republic Of Tajikistan
Law of RT “On Procedural Systems for Permissions”
Law of RT “On Water Users Association” (2006)
Rules for the Use of communal water supply and sewerage systems in the RT, 30 April 2011, № 234
Rules for state control and supervision of drinking water supply from December 31, 2011, No. 679
Rules for conducting record keeping in the sphere of drinking water supply from December 31, 2011, No. 680
Resolution of the GovRT from July 31, 2001, №357 On SUE ""Housing and communal services
SANITARY RULES AND NORMS for Zones of sanitary protection of water supply sources (СанПиН 2.1.5.006-07) from 28.02. 2007 г. №75
SANITARY RULES AND NORMS Drinking water. Hygienic requirements for water quality of centralized drinking water supply systems. Quality control.

Air emissions

Legal document
Law "On Protection of the Atmospheric Air" No 915 dated 28.12.2012
Law "On ensuring environmental safety of road transport", 08, 2015, № 1214.

Solid waste management, Pesticides, Soil protection

Legal document
Law “On production and consumption wastes”, 25.07.2005, #109;
Government Regulation from June 2, 2011 №279 “The procedure, conditions and methods of collection, use, disinfection, transportation, storage and disposal of industrial and domestic waste in the Republic of Tajikistan
Law “On the production and safe handling of pesticides and agrochemicals” dated 22 April 2003
Law “On Plant protection” dated April16, 2012, № 817
Law On soil protection from October 16, 2009 № 555
Procedures for storage, use and disinfection of pesticides, adopted by the order of the RT Ministry of Agriculture of from February 10 2016 , № 16

Environmental management

Legal document
Law "On environmental protection", No760, dated 2.08.2011
Law “On ecological expertize” from 16 April 2012, No. 818

Law On Environmental Impact Assessment from 18 July 2017, № 1448
Law "On Environmental Audit", No. 785, December 26, 2011;
Law “On environmental monitoring” of March 25, 2011 No. 707
Law "On Environmental Information", No. 279, 12.01.2011.
Law “On the ecological education of the population” from December 29, 2010 №673
Procedures for organization and conducting of environmental impacts assessment, adopted by Government Regulation from August 1, 2014 , №509
The procedure for assigning mandatory environmental audits, adopted by Government resolution from December 31 2014, № 789
Procedures for organization of the unified state system of environmental monitoring of the Republic of Tajikistan from December 31, 2014, No. 791
Government Resolution from 3 June 2013, No. 253 “On the List of Facilities and Activities for which the Development of Environmental Impact Assessment is Mandatory”
Government Resolution from December 3, 2012, No. 697 On the Procedure for Conducting State Ecological Expertise

Land ownership, Resettlement, Land use planning

Legal document
Civil Code
Land Code
Government Decree from December 30, 2011, № 641 Procedures for compensation of losses to land users or users of other registered rights related to land and losses associated with land withdrawal from circulation
RT Law On valuation activity from July 28 2006 № 196

Water tariffs

Legal document
Law “On Natural Monopolies” 13 December 1997 № 525, amendment of 12 May 2001 № 5
Regulation “On Anti-monopoly Service”. 3 May 2010, №227
Regulation “On calculation of the production cost (of works, services) at the enterprises and organizations of the Republic of Tajikistan. Approved 12 May 1999, № 210, revised on December 12, 2002 #487
Instructions on Calculation, Approval and Introduction of Tariffs and Tariff Estimates on Products (Works, Services) of the Entities of Natural Monopolies. 28 May 2007, № 10
Law "On military servicemen status" dated March 1, 2005, No. 90, art.14
Law "On the system of execution of criminal punishment" from July 15, 2004, No. 51
Constitutional Law "On RT prosecutors bodies” from July 25, 2005, No. 107
Law “On civil defense" from February 28, 2004, No. 6, Law "On military servicemen status" dated March 1, 2005, No. 90, art.14
Law on veterans from 7 April 1995, No. 60
Law On Police from May 17, 2004, No. 41
Law "On internal force” of the RT Ministry of Interior from December 28 1993, № 916
Law "On social protection of citizens affected by disaster at Chernobyl atom power plant” from March 5, 2007, No. 242
Law on the Social Protection of Persons with Disabilities from 29 December, 2010, № 675 Government Resolution "On measures to strengthen social protection of disabled people in the condition of market economy” from October 2, 1992 № 368

Government Resolution 'On social protection of persons taking part in armed actions (conflicts) to protect the constitutional order of the Republic of Tajikistan and suffered as a result of these conflicts, and family members of the said persons losing their bread-winners' dated June 29,1993. № 312
Government Resolution from 'On issues of awarding pensions for special merits to the Republic of Tajikistan' dated June 30, 2007, №353
Law 'On the legal status of the member of the Majlisi Milli and the deputy of the Majlisi Namoyandagon of the RT Majlisi Oli' dated August 6, 2001, № 43
Law 'On the courts of the RT' dated July 26 2014, № 1084
Law On national security bodies of the Republic of Tajikistan
Law 'On education' from 22 July, 2013, № 1004, Government Resolution 'On measures to improve the housing and communal conditions of workers in education' dated November 8, 1995, № 671

Labor, Health and Safety management

Legal document
Labor Code from July 23 2016, № 1329
Health Code

Grievances

Legal document
Law "On the appeals of the physical and legal persons" from June 23 2016, № 1339
The Civil Procedure Code of the Republic of Tajikistan from January 5, 2008